thoracic surgery, that department would have to assume responsibility for the final diagnosis.

On the other hand, if a team of investigators performs all these tests on every patient with heart disease, is the clinician as we know him really necessary? Reliance upon tests engenders a certain habit of mind in which more confidence is felt in a figure than upon an opinion based on clinical judgment. Indeed, it has been rumoured that in certain more advanced stations the clinician has already been found to be redundant, and his place has been taken by an integrator who, by assessing the results of the investigations statistically, has been able to come to a diagnosis and decide on treatment without seeing the patient at all.

Valuation of Tests

All the masters of medicine have insisted on the importance of an accurate history. Unless the patient is carefully questioned regarding his symptoms diagnosis will suffer. We may therefore dismiss at once the notion that the clinical examination can be superseded. Should we then go to the other extreme and discard all tests, or at least all tests which cannot be performed by the clinician at the time of his examination, as being without value? The answer surely is "No"; but we should discriminate, and by using each test in its proper place avoid making them our masters.

No one should practise cardiology who has not had a thorough grounding in electrocardiography. The electrocardiograph is an instrument of precision. It has great uses but also limitations. In inexpert hands it can be quite dangerous. Hospital cardiographic departments should be entrusted only to those who have been trained in a recognized cardiac department. The same applies to the x-ray examination of the heart. The art of cardioscopy is not to be learnt in a day. Yet a correct appreciation of the size of the different chambers of the heart is almost, if not quite, as important an adjunct of the examination of cardiac patients as is electrocardiography. To these two tests I would add another—namely, the vital capacity—because so much can be gleaned from it and it takes so little time. These three should form part of the routine examination of patients with heart disease, as much as the recording of the blood pressure and the auscultation of the heart sounds.

Mackenzie had nothing but scorn for those who would "use an assistant to take an *x*-ray photograph of the heart and an electrocardiogram, and even blood pressure readings, and then sit down to study the report." Not much, in fact, is gained by taking an electrocardiogram, or the blood pressure oneself, but the remainder should not be left to subordinates. If one would not accept the findings of another on auscultation, it is difficult to see why his findings on cardioscopy should not usually require verification.

Tests of the speed of the circulation require no apparatus and take little time. They are available to anyone who desires to use them. But the information they give is often disappointing, and it is doubtful if they are worth including in a routine examination.

Accurate measurements of the venous pressure are helpful in many ways both in the progress of cardiac failure and in assessing the results of treatment. When the apparatus with a fine needle is generally available, venous pressure measurements will probably be included in the examination of patients with heart failure.

The exploratory work on angiography has so far been done mainly by cardiologists, but the problems concerned are almost entirely radiological. A series of rapid exposures have to be made with sufficient penetration to visualize the course of diodone as it passes through the heart. Probably as time goes on, the technique will fall more and more to the field of the radiologist, and cardiologists will call for the additional information in appropriate cases. Angiocardiography will then have to be made available in all hospitals where a cardiac clinic is established.

It is a remarkable fact that when surgeons invade a province hitherto considered to be purely medical, diagnosis almost always becomes more exact. Not so long ago the diagnosis of congenital morbus cordis was considered quite adequate by paediatricians. It is true that the development of cardiac radiology directed the attention of cardiologists to the congenital lesions years before any operative intervention was considered feasible, and many types, such as the tetralogy of Fallot, valvula pulmonary stenosis, atrial septal defect, coarctation, and the patent ductus, were recognized clinically. But the advent of thoracic surgery, and especially of the Blalock-Taussig operation, has opened a new field, and now pulmonary atresia, tricuspid atresia, and major and minor degrees of transposition are distinguished. For this angiocardiography and cardiac catheterization are often required.

Cardiac catheterization is difficult and laborious. To obtain a thorough mixing of the venous blood the catheter may need to be pushed as far as the pulmonary artery. This takes time, and there are many pitfalls, as the tip of the catheter may double back and appear in unexpected places. If the catheter passes from the right auricle to the left or from the right to the left ventricle the pressures will alter and the samples will change from venous to arterial blood. Hence the importance of the procedure in establishing the presence of septal or congenital heart disease. Otherwise it is useful only, owing to the possibility of observing directly the changes in pressure of the different chambers of the heart, and changes in the cardiac output, caused by heart failure or induced by drugs. It would seem probable that cardiac catheterization will be performed only in hospitals large enough to have a thoracic surgical unit or at research centres.

Most of these tests were devised for purposes of research. They were developed at single centres, and were later adopted generally because they were found to be useful in diagnosis. Other methods are still in the stage of development. They may or may not come to have a general application. Such are the ballistocardiogram, the radiocardiogram, and the measurement of the volume of the heart.

The ballistocardiogram enables the cardiac output to be obtained without the unpleasantness of a cardiac catheter and an arterial puncture. But estimations of the output do not help much in the diagnosis and treatment of patients with heart disease. Those with "high-output failure" have also fast circulation rates, and the circulation time is an easy test to do. In ordinary congestive heart failure the output falls only a little, and estimations of the cardiac output are unlikely ever to form part of the routine investigation of such patients.

The radiocardiogram and the estimation of the volume of the heart have opened up a new approach to the problems of heart failure. They have shown that the dilated heart empties itself slowly. With the radiocardiogram the emptying time of each ventricle can be measured separately. The test is very recent, but it is certainly important, and we may expect to hear more of it in the future.

by the physician, extending up to ... pex and medially to the hilum, is extremely difficult fo... when it is infected and has stiff walls ... surgeon to close

In spite of this difficulty the prog... of the local or partial empyema group is worse than t... al one, because the case of partial empyema when it ... s the surgeon usually shows a mixed infection—as in 1... of the spontaneous cases compared with 20 (37%) ... pse following pneumothorax treatment. This high perc... e of secondary infection in the local group is often ... ciated with active and sometimes with pneumonic form... tuberculosis in the underlying lung. The aetiology of ... wo groups is shown in Tables I and II

TABLE I.—*Aetiology of Spontaneous Ca...*

	No. of Cases	...idence of ...condary ...fection
Post-primary pleurisy	7 (T.B. negative, 2; T.B. positive on gastric lavage, 5)	6
Gradual onset in active pulmonary tuberculosis	4	
Following acute febrile pneumonic type of disease	7 (T.B. negative, 1 (exudate +); T.B. positive, 6)	
After spontaneous pneumothorax	2	
Total	20	1...

TABLE II.—*Aetiology of Cases following Pneumothorax Treat. (54 Cases)*

12 cases followed acute reaction immediately after closed intrapleural pneumolysis
8 cases followed cavity rupture
2 cases followed spontaneous pneumothorax (suspected cavity rupture)
2 cases followed open intrapleural pneumolysis
4 cases related stenosis main bronchus, proved by bronchoscopy
3 cases related atelectasis without proved stenosis
23 cases in or following uncomplicated pneumothorax
Secondary infection occurred in 20 cases (37%).

It is to be noted that the empyema can occur not only during the course of the A.P. treatment but also after the A.P. has been abandoned as contraselective or because of persistent effusion. The case histories in this group show the onset at periods from shortly after the induction till many years after the A.P. is abandoned. An example will illustrate this.

A.P. induced in 1934, right side, for destructive disease. Effusion after six months. A.P. maintained till 1937. Then phrenic avulsion. Under medical control, well and working but with known persistent fluid. The time when the effusion became purulent is not known, but an empyema was diagnosed in 1942, eight years after the A.P. was induced, when the patient was admitted to Vardasen Sanatorium following a febrile "cold."

If a pneumothorax is abandoned because of a persistent clear effusion it is necessary to follow the progress of the effusion till it is absorbed, or, if there is no evidence that this will occur in the course of two or three months, then a surgical colleague should be consulted about future treatment.

A mixed infection alters the prognostic picture adversely. Its frequency is very high in any large series, and in the present one it is 38 out of 74 (Table III). The threat therefore hangs over every case of tuberculous empyema and the danger of secondary infection does not diminish with time in an untreated pure empyema. The following case illustrates this.

TABLE III.—*Aetiology of Secondary Infection (38 Cases)*

Known bronchial fistula	17
Acute pneumonic infection of lung with T.B. plus	7
External fistulae	5
Febrile "cold"	1
Unknown (? bronchial fistulae)	8

Case 11.—A woman had an A.P. induced in 1923 and a positive diagnosis of empyema was made in 1924. There is no information about the condition in the years that followed except that in 1939 a radiograph showed evidence of persistent pleural opacity. She was clinically well till she had an attack of bronchopneumonia in 1941, and in 1942 she developed an empyema necessitatis with stinking pus and died after drainage. This was 18 years after the known onset of a pure empyema, which was not treated.

One of the main causes of secondary infection appears to be bronchial fistula. However, not all the cases with clinically evident fistulae by any means develop clinical or bacteriological evidence of secondary infection, but the incidence of known fistulae is somewhat higher (47%) in the secondarily infected group than in the pure tuberculosis group (39%). Details of the proved fistulae are given in Table IV.

TABLE IV.—*Definite Pleurobronchial Fistulae (31 Cases)*

Diagnosis by the following means:	
Coughed-up empyema pus	9
Definite cavity rupture (radiological evidence)	8
Spontaneous pneumothorax	5
Pressure measurements	3
Contrast radiographs	3
Demonstrated at thoracoscopy	1
" open operation	1
Taste in mouth of substance injected into empyema	1

There were 14 cases of fistula among the 36 cases with no secondary infection; of these, seven followed cavity rupture and three spontaneous pneumothorax, when the fistulae were probably short-lived. Among the cases with secondary infection there were 17 fistulae.

Diagnosis of Secondary Infection.—This was made clini...ally and bacteriologically. In 33 of the 38 cases the secondary organisms were demonstrated by aerobic or anaerobic ...lture. In one the clinical condition of stinking pus ...termined the diagnosis in the absence of a positive bac...ological report, and in four it was assumed because of ...-standing open drainage of the empyema cavity at ...r operations.

Pathology

...blom's (1932) classification of tuberculous empyema, bas...n the fundamental pathology, is used in this series. He ...des the disease into four distinct pathological types: —pu...empyema without pulmonary disease (Group I); pure ...yema with pulmonary disease (Group III); mixed empye... without (Group II) and with (Group IV) pulmon... disease.

Grou... and II are less common. They comprise cases in which, fo...xample, localized empyema follows a pleurisy, or in which ...lapse treatment has been carried on for many years and ... pleural cavity has become infected but there is at the ti... of operation no tubercle bacilli in the sputum. A minimu... period of three years T.B.-negative has been arbitrarily c...en as indicating no active tuberculosis of the lungs. Colla... treatment is not needed in these groups.

Results of Operation

Table V sho... the number of cases in each group and the results obtai...d. It will be noted that the prognosis gets progressively w...e from Groups I to IV, as is to be expected from t... underlying pathology.

The picture giv... is perhaps unduly gloomy, because this series included 19 ...perated cases referred to later in more detail. Further, t... is a high proportion of cases classified as "improved" which are clinically satisfactory, and a ...rity of these ...y proceed to full cure in time. But

TABLE V.—*Clinical Results in 74 Cases of Tuberculous Empyema*

Group	No.	Cured	Improved	Unimproved	Died
I a	1	1			
II a	4	2		1	1
II b	4	3			1
III a	30	13	9	2	6
III b	5	2	1	1	1
IV a	16	6	1	1	8
IV b	14	3	1	2	8
Total	74	30 (40·5%)	12 (16%)	7 (9·5%)	25 (34%)
Other series: Jones and Alexander	70	43 (61·4%)	1 (1·4%)	3 (4·3%)	23 (32·9%)
Söderhjelm	112	33 (29·5%)	15 (13·4%)	3 (2·7%)	61 (54·4%)

a = Total empyema. b = Partial empyema.

Table V gives the overall results of all patients presented to a surgical department. Comparison with other published series is instructive. Jones and Alexander maintained that thoracoplasty was the standard treatment for a tuberculous empyema unless there were contraindications, while Söderhjelm (1945) is prejudiced against surgical measures because of initial unfavourable experiences, and his cases were therefore treated medically in the main.

The "cured" and "improved" cases are taken together in Table VI and the percentage of satisfactory results compared in the four groups. It will be seen that Jones and

TABLE VI.—*Cured and Improved*

Group	Jones and Alexander	Ulleval	Söderhjelm
I	(15) 71%	(1) 100%	(22) 67%
II		(8) 62·5%	
III	(25) 68%	(35) 71%	(52) 46%
IV	(30) 40%	(30) 56%	(38) 16%
Total	(70) 62·8%	(74) 56·5%	(112) 42·9

No. of cases in brackets.

Alexander's series is closely comparable with the ... series.

Söderhjelm's series is comparable in Groups I ... where there is no active lung disease, but in Gro... and IV the results fall below the other two se... and especially so in Group IV). Söderhjelm conc... by stating that better results could have been ach... by surgical measures in Groups III and IV (C... II and III in his article). Table VI gives strong ...rt to the view, now fairly generally accepted, that th...tment of a tuberculous empyema is surgical if medic...easures do not cure it in the short time after its inc...n when it is amenable to these measures. How long ... interval should be will be considered later.

The main interest centres in the results o...se of our cases which were submitted to thoracoplas...able VII).

TABLE VII.—*Results of Thoracoplasty for Tube...is Empyema*

Group	No.	Cured	Improved	Uni...ed	Died
I a	1	1			
I b	—	—			
II a	3	2			1
II b	4	3			1
III a	28	13*	10		4
III b	4	1	1		1
IV a	11	6	1		4
IV b	4	2	1		1
Total	55	28 (51%)	13 (23·5%)	(3 5·...)	12 (22%)
		74·5% satisfactory			
Jones and Alexander	45	36 (80%)	1 (2·2%)	1 (2·2%)	7 (15·5%)
		82·2% satisfactory			

a = Total empyema. b = P...empyema.

* Includes one patient cured of empyema who ...wo years later of tuberculosis of the opposite lung.

It will be s... about 75% of all patients admitted to the depar... re treated surgically, and of these 51% were cured a... improved, giving a satisfactory result in 74.5% ... ed cases. In those cases in Group IV (with ...fection) which reached the hospital in a conditio... permitted operation the result was surprisingly ... This can be correlated with the good results ... in a similar group by Harbitz (1946) by repeated ...perations—11 (70% ...red and improved out of 1...

Unoperated Cases

The ... of the 19 unoperated cases are shown in Table VIII. ... cases do not of ...urse in any way give ...udging non-surgic... methods. The judgment ... that can be obtaine... non-surgical measures of ... from a series trea... from the incipient stage mi...

TABLE VIII.—*Results ... Unoperated Cases*

p...nicillin)	..	1 ...empyema)
ed (p...nicillin)	..	...ure, tuberculous spondylitis)
...ovec	..	2 discharging sinuses; 1 active tuberculosis and local disease)
	..	

...sanatorium or clin... where A.P. treatment is carried These cases came ... the surgeon too late with either ...atrophied pulmonar... disease or acute secondary infec... with great toxicit... occasionally amyloid disease in ...ciation with a chro... discharging fistula. Nine of these ...es were drained, b... the general condition did not allow ...rther treatment in ...te of the administration of penicillin ...nd sulphonamides. Two were treated by puncture and ...enicillin instillatio... and the local disease was cured, but on... of these had ... tuberculous spondylitis, so only one ...out of the whole ...ries was finally cured.

The Time Factor

A period of six months from the estimated time of the onset of the empyema was chosen as an arbitrary dividing line, and the cases were divided into groups according to

TABLE IX.—*Time Relationship*

	No.	Cured	Improved	Died
Early cases (within 6 months)	24	16	4*	4
Late cases (after 6 months	31	12	9†	10

* 1 superficial wall fistula; 1 recent op. fistula; 1 connected bronchus.
† 3 fistulae; 1 cold abscess in wall (late)

whether or not they came to the surgeon within this time. The results are shown in Table IX; they appear to be significant, and indicate that cases should be operated upon within six months of the onset.

In the early group there are three fistulae cases among the improved cases. One was investigated by contrast radiography, and shown to have a superficial "collar-stud" abscess of the chest not related to the empyema cavity; another fistula was very small and related to a bronchial fistula, in a case operated on one year previously. The third was operated upon about eight months before.

In the late group there are three definite fistulae from the empyema cavity,* and in one patient a subcutaneous cold abscess was presumed to be related to the empyema cavity. There is therefore a somewhat higher proportion of long-standing fistulae after late operations. The number of fistulae is small compared with some other series, and a possible explanation of this lies in the use of apico...

*These three cases are among the six in which a ... not completed, but a fistula was present when last ob...

Out of 35 cases of total empyem[illegible]erated upon, an apicolysis to a larger or smaller ex[illegible] was done in 25, as this is the only mechanical mea[illegible]f collapsing the pleural space at the apex. If this is no[illegible]e there is often a very long sinus extending over the [illegible]nd medially to the mediastinal surface. The proceedu[illegible] apicolysis is, however, attended with risk, especially if [illegible]e is secondary infection.

It is clear that the longer an empyem[illegible]vity remains untreated the thicker the [illegible]ural walls beco[illegible] until at last they may be calcified and absolutely rigid. Collapse of the chest wall by a standard thoracoplasty[illegible]n fails to close the rigid cavity completely, and it is only in such late cases that the more deforming and al[illegible]angerous operations involving the opening of the chest pleural cavity are necessary, with removal of all or a[illegible]t of the stiffened tissues. In this series 10 operations of Schede and Roberts type have been performed, with th[illegible] deaths and two residual fistulae. Most of these cases[illegible]d had empyemas for several years before operation.

In this series there were four proved cases of[illegible]nosis with atelectasis and three cases of atelectasis with[illegible] any bronchoscopic evidence of stenosis. The effect on a[illegible]ogy is clear, as the lung cannot expand after pneumo[illegible]ax, and the large pleural cavity is practically certain to b[illegible]ne infected if allowed to remain: but it is also of inter[illegible]to note the effect on the extent of the operation. Of the s[illegible] cases, six had total or subtotal thoracoplasty in sev[illegible] stages and one patient died after the first stage. A br[illegible] chial stenosis is therefore an absolute contraindicati[illegible] to a pneumothorax, being attended with a high risk [illegible] subsequent empyema.

In general, also, the older the empyema the more rib[illegible] have to be removed in the standard extrapleural thoraco[illegible] plasty to close the cavity.

It is not the case, as is sometimes thought, that all operations for empyemas need to be total or subtotal thoracoplasties. Of the 55 operated cases (after excluding the four limited operations for partial empyemas) there were 17 in which seven or fewer than seven ribs had been removed at the completion of the different stages. In nine of these, only four or five ribs were removed, an operation with a negligible deforming effect. These 17 cases were again considered in relation to whether they were operated upon within six months of the onset or after this period. The results are seen in Table X.

TABLE X.—*Limited Thoracoplasties and Results as regards Empyema (17 Cases)*

	No.	Cured	Improved
Operation under 6 months	9	8	1 (early residual fluid)
Operation after 6 months	8	3	5 { 3 residual fluid; 6 years, 1 year, recent operation. 2 fistulae

In the cured cases the late result showed the lung expanded out to the chest wall below the level of the rib resections with no pleural thickening or fluid. The difference in the results in relation to time suggests that a limited operation is fully justified in early cases, but is not invariably successful in cases operated upon after six months, where a larger thoracoplasty is indicated.

If the problem is regarded from a physiological-pathological point of view it is clear that the pleura in the early stage, although infected, is still a functional membrane able to absorb the effusion if there is no reinfection and if the cavity can be obliterated as absorption proceeds.

The second of these objects can be achieved in some [illegible]ses by the physician stopping the A.P. and aiding the expansion of the lung by aspiration (if this is not prevented by a fistula, stenosis, or pleural thickening. In these cases that are dealt with early, and where the lung can be allowed to expand, the early or incipient empyema can be averted. This explains the fairly good results obtained by medical measures in Groups I and II, and also in early Group III cases.

The moderately satisfactory results obtained by conservative measures are often at the expense of the temporary collapse of the lung, usually before its re-expansion would otherwise be indicated. In some cases a cavity will still be present in the lung, and in others it may reappear when temporary collapse treatment is given up. In such cases, when the "cold abscess" of the pleura has been obliterated, it will then be necessary for the physician to refer the patient for a thoracoplasty to control the disease. Provided this is recognized, there is good ground for medical treatment of an early empyema in the first two to three months, for it is preferable to do a thoracoplasty with a closed pleural space; but there are no grounds for regarding the conservative methods of treatment as an alternative to surgery, except in those cases in which the lung does not require further collapse therapy. Delay after three months is unlikely to result in closure of the empyema cavity by conservative measures, and is disadvantageous to the patient who loses the advantage of probable cure by a limited thoracoplasty, and is exposed to the serious risk of secondary infection.

The problem of progressive exudates has had considerable light thrown upon it by the experience of Rogstad (1948) at Vardasen Sanatorium. During the years 1941–7, 1,044 A.P.s were induced in 918 patients. Of these, 169 (16%) had tuberculous effusions which were tapped for various reasons, such as long-continued fever, increasing exudate with dyspnoea, anorexia, or deterioration of general condition. The great majority of cases with A.P. at some [illegible]e or another had some degree of exudate which did not [illegible]uire tapping, and are excluded from the figures.

[illegible]f the 169 progressive exudates 59 developed definite [illegible]purulent empyemas in spite of treatment. About one-[illegible]quarter of the exudate cases continued with a satisfactory A.P. while in three-quarters (including the empyemas) the A.P. had to be abandoned because of pleural thickening and diminution of lung function. The view taken, therefore, at the [illegible] of the period was that in every case of progressive tuberculous exudate which did not respond favourably to two or three tappings the A.P. was abandoned and an attempt made to get the lung out to the chest wall by aspiration of fluid and exsufflation of air. If this did not succeed in the course of two to three months the case was regarded as an "incipient empyema" and the surgeon consulted as regards thoracoplasty.

Five such cases in which the effusion was not purulent are included in the present series, with cure following a 5–6-rib thoracoplasty. Probably this deals primarily with the underlying lung focus, preventing reinfection, and the effusion is then completely absorbed after the size of the cavity has been reduced by operation.

Table XI shows the causes of death in the operated series as a whole. The post-operative mortality rate of 18% is high, but it reflects the danger of an extensive operation outside an infected cavity. All the deaths occurred in patients in whom the empyema was over six months old or was secondarily infected, except for the one patient who died of tuberculosis of the opposite lung two years later, the empyema and underlying lung being healed. The implications of this need not repetition.

TABLE XI.—*Unimproved Cases and Causes of Death in Operated Series (55 Cases)*

Group	No.	Unimproved	Died	
			Post-operative Due to Empyema	Due to Lung, etc.
II	2		2 (shock; mitral stenosis)	
III	8 (all except 1 over 6 months)	2 (lung disease)	2 (infection; 1 shock; 1 amyloid—late)	2
IV	5		4 (3 infection (2 perforated pleura); 1 shock)	1
	15	2	10	3

Operative mortality = 18%.

Conclusion

Finally, I would like to stress the aetiological relationship between A.P. treatment and empyema mortality. The recorded incidence of empyema in A.P. treatment is very variable, and depends partly on the differences in treatment and partly on different definitions of an "empyema." Alexander (1937) quotes figures ranging from *nil* (Ulrici, 600 cases) to 21% (Hays, 151 cases). Frostad, in Norway, has estimated it at 10%, as an average figure, and in Söderhjelm's series it was given as "only 7.5%."

A consistent large series from one centre is available at Vardasen (Rogstad, 1948). Great care is taken in the selection of cases and in the technique of closed internal pneumolysis, the director undertaking them all himself. The empyema incidence there is only 6.4% (59 out of 91[illegible] patients). An attempt has been made to distinguish in th[illegible] series between mortality due primarily to the empye[illegible] and that due to the spread of the tuberculous disease. [illegible] far as could be judged, death was due primarily to empyema in 16 cases, or 1.7% of all those in whom A.P. was induced. This not inconsiderable mortal[illegible] therefore due to the A.P. as a method of treatment should be borne in mind when the induction of a p[illegible] thorax is being considered and weighed against th[illegible] methods of collapse of the lung. In certain ca[illegible] e destruction and fibrosis of the lung indicate the n[illegible] Ju of a primary permanent method of collapse, such [illegible] of thoracoplasty. It is certainly incorrect to induce [illegible] the first in practically every case, as is sometimes d[illegible] on the grounds that it is an easy and safe method of [illegible] and therefore should be given a trial.

The misleading factor about the risk of an A.P [illegible]yema being only one, although perhaps the worst, [illegible] com- plications) is that the risk is spread over such a [illegible] period of time that it sometimes fails to impress itself sufficiently on the mind.

Summary

The results in a series of 74 cases of tuberc[illegible]s empyema are discussed and analysed.

A staged thoracoplasty is the standard met[illegible] of treatment used in all cases when the general condition [illegible]mits, supplemented by a Schede and Roberts type of o[illegible]ion in a few, mostly chronic, cases. It should be carr[illegible]out within six months of the onset of the empyema.

In cases without secondary infection and [illegible]rated upon within six months, a limited thoracoplasty (to seven ribs) is often satisfactory.

The treatment of progressive tuberc[illegible]s pleurisy is discussed; if it does not respond to medi[illegible]measures in about three months it is regarded as an "in[illegible]nt empyema," best treated by a limited thoracoplasty.

The risk of the development of a tu[illegible]ulous empyema with resulting mortality following A.P. tre[illegible]nt is discussed.

I would like t[illegible] my sincere thanks to Dr. Carl Semb for his personal [illegible]ring a period of eight months spent in his department, [illegible]gesting the investigation. I would also like to thank the [illegible]bers of the medical staff of Ullevål Hospital and Dr. T[illegible]ers at Vardasen Sanatorium for their unfailing courtesy and [illegible]ess; and, lastly, Sisters Halldis and Krohg without w[illegible]g aid the investigation [illegible] not have been possible.

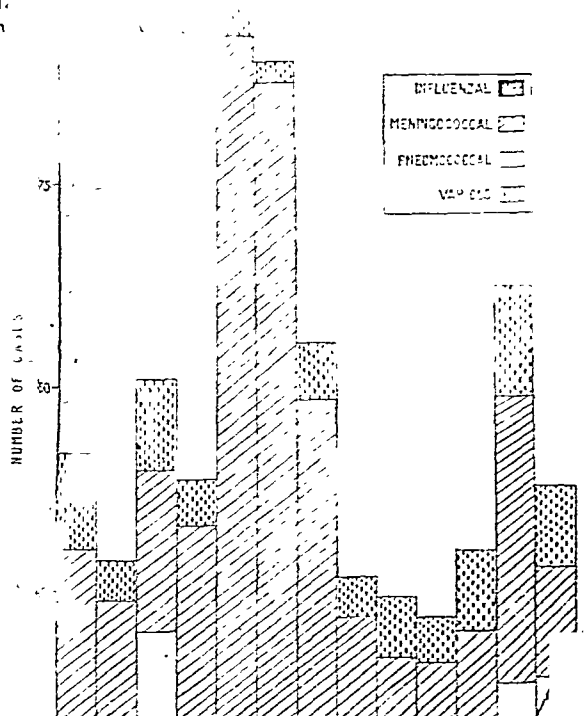
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Söderh[illegible]

P[illegible]LLIN IN THE TREATMENT OF INFLUENZAL MENINGITIS

F[illegible]
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[illegible]ce of influe[illegible]l meningitis has increased recently th[illegible] accompanying [illegible]part) and the mortality from the [illegible]s has fallen very [illegible]siderably with the use of sulphon-



Yearly incidence of cases of suppurative men[illegible] Children's Hospital, Birmingham

amides, Pittman type b specific rabbit antise[illegible] and streptomycin. There is, however, at pr[illegible] answer to what is the best line of treatme[illegible]

Previous to the introduction of the sulphonamides, influenzal meningitis was usually fatal. With the use of sulphonamides alone the position was improved a little, but in America a big advance was made by Alexander's (1944) combined treatment with sulphadiazine and Pittman type b specific rabbit antiserum. Using this method she had 68 recoveries in a series of 87 cases. In this country, however, specific antiserum has not been freely available, and the main advance has been made with the use of sulphonamides and with penicillin. Gordon, Woodcock, and Zinnemann (1944) review reports of cases treated with sulphonamides and discuss the response to treatment in relation to the type of organism involved. They record two cases, due to strains not belonging to Pittman type b, who responded to sulphapyridine, and three cases, due to type b, of which only one responded to sulphapyridine. They conclude that prognosis and treatment depend primarily on the strain of the infecting organism. Gordon and Zinnemann (1945) tested the sensitivity of various strains of *H. influenzae* to penicillin and found that 31 of 48 respiratory strains were inhibited by concentrations of 2·5 units per ml. of medium, and 16 out of 18 strains isolated from cerebrospinal fluid were similarly inhibited. They conclude that *H. influenzae* strains are not insensitive to penicillin though the sensitivity is much lower than that of staphylococcal and streptococcal strains. Zinnemann (1946) surveys 20 cases of influenzal meningitis in relation to bacterial types. Of these, 19 were caused by type b. Of five treated with sulphonamides alone two recovered, while of 15 treated with sulphonamides and penicillin eight recovered. McIntosh and Drysdale (1946) report the case of a child aged 2½ years who developed *H. influenzae* meningitis (organism, Pittman type b) during convalescence from meningococcal meningitis and who recovered on treatment with penicillin and sulphamezathine. Drysdale, McIntosh, and Brodie (1946) report recovery in a second case, that of a child of 20 months, treated with penicillin. In this case the organism (Pittman type b) was sensitive to penicillin but insensitive to sulphonamides. Forgacs, Hutchinson, and Rewell (1945) recommend that influenzal meningitis should be treated with a combination of penicillin and a sulphonamide, and report two cases, of which one recovered. Thomson, Bruce, and Green (1947) put on record four cases, of which three recovered; they advocate the use of intramuscular penicillin and an oral sulphonamide along with the intrathecal administration of 50,000 units of penicillin daily until the temperature has been normal for seven days. Gottlieb and Forsyth (1947) report four cases in infants, three of whom recovered on treatment with sulphadiazine by mouth and penicillin given intramuscularly and intrathecally. The strain of *H. influenzae* recovered from the cerebrospinal fluid was found to be insensitive to 10 units of penicillin per ml. of medium but sensitive to 100 units per ml. This justified their use of very large doses of penicillin, and they consider that high systemic dosage is essential in order to prevent relapses due to reinfection of the meninges. They recommend that 20,000–30,000 units should be given intrathecally daily and 120,000 units intramuscularly at three-hourly intervals.

More recently, reports have been made on the value of streptomycin. In the American literature Hoyne and Brown (1948) record 28 cases with only two deaths. All were given sulphadiazine, and in addition some received serum, some had serum and streptomycin, and some (17) had streptomycin. Twenty of the 26 who recovered had no intrathecal therapy, among them being 10 who received oral sulphadiazine and intramuscular streptomycin. These authors consider that not only is intrathecal therapy unnecessary but that it prolongs the time required for recovery.

Case	Age in Years	Sex	No. of Days Ill Before Admission	Cerebrospinal Fluid—First Examination					Penicillin Units (Thousands) Daily × No. of Days		Sulphadiazine Daily Dose × No. of Days	Result
				Cells per c.mm	Sugar (mg./100 ml.)	Protein (mg./100 ml.)	Organism Seen	Organism Cultured	I.M.	I.T.		
1	1 3/12	F	2	2,610	0	50	+	+	80 × 2 240 × 29 80 × 37	20 × 6 40 × 7 40 × 12	83·5 g. × 29 50 g. × 21	Cured Died after 36 days
2	1	F	9	215	0	90		+			69 g. × 27	Alive M.D.
3	7/12	F	14–21	1,000	0	340		0	64 × 4 240 × 28 320 × 17	10 × 11 20 × 2 40 × 8	105 g. × 36	Cured
4	1 3/12	F	3	577	0	120		+	Clinical evidence of recurrence of meningitis			
5	2	F	5	80,000	—	—	+	+	800 × 14 1,200 × 5 400 × 2	60 × 6 40 × 2	4 g. × 1	Died within 48 hours
6	4½	M	1	5,600 7	6 83	200 15	+ (6 months later)	+	960 × 21	40 × 5	32 g. × 10 67 g. × 16	Cured "
7	1 5/12	M	1	2,100	0	160	+	+	960 × 20	40 × 10 Omit 4 days 40 × 4 (Probably unnec.)		
8	5	M	1	12,800 150 50	0 44 22	350 35 25	+ (43rd day) (3 months later)	+	960 × 23	40 × 16	112 g. × 20 60 g. × 15	" "
9	2	F	2	14,000	11	100	+		480 × 1 960 × 10 480 × 9	40 × 8 Convulsion after 5th dose		
10	1 9/12	M	14	1,400	33	30	+ (On 19th day hospital)	+	320 × 5 Omit for 2 wks 960 × 12	40 × 4	52 g. × 14 2 g.	" Died in 4 hours
11	2½	M	1	7,500	0	240	+	0	100—1 dose	40 × 1	79 g. × 18	Cured
12	10/12	M	10	380 80 white 590 red	0	55 35	+ (On 4th day of treatment)	0	120 × 2 320 × 14	40 × 3 Convulsion after 3rd dose		
13	2½	M	6	2,540 70	21 30·5	90 35	+ (On 5th day of treatment)	0	Streptomycin given also from 9th day 480 × 4	40 × 4 Then given streptomycin	96 g. × 24 8 g. × 7	" "
14	6	M	3	6,000	41	200	+	+	20 × 1	40 × 1	40 g. × 9	"
15	1 5/12	F	7	5,000	82	186	+	+	Then streptomycin Streptomycin			

Organism typed in 3 cases only—Type b.

In a report in the *American Journal of Diseases of Children* (1948) of a discussion (in the Transactions of the American Pediatric Society) on the value of streptomycin Alexander states that the use of streptomycin alone in the treatment of influenzal meningitis led to complete recovery when the infection was mild or of average severity; when the infection was severe the result was disappointing, the chief cause of failure being the development of resistance by the organism. In the same discussion Weech reported that he had found Pittman type b to be just as susceptible to penicillin as to streptomycin, while Hodes found that each of 12 strains isolated from patients suffering from influenzal meningitis was more susceptible to penicillin than to streptomycin.

In this country Wilson (1948), in a summary of a report to the Medical Research Council on the use of streptomycin in influenzal meningitis, states that the principal cause of failure was the development of resistance by the organism; this occurred in seven out of nine failures, the sensitivity changing from 0.5 unit to as high as 5,000 units in one to four days. This development of resistance is a serious drawback, and Wilson remarks that "it has been decided in future trials to use a combination of streptomycin, penicillin, and sulphonamides from the start." Smythe (1948) reports 12 cases treated with streptomycin, 10 of which had received previous treatment with penicillin and sulphadiazine. In all of these cases the preliminary dosage of penicillin was not high. He concluded that "streptomycin gave good results in mild and moderately severe cases but was unsatisfactory in three severe cases." Roscoe and Gleeson-White (1948) report four cases treated with streptomycin. In their one fatal case the organism was resistant to streptomycin, and in one of their successful cases the infection was first controlled with intramuscular penicillin, 100,000 units followed by 50,000 units three-hourly for two days and then 25,000 units four-hourly. Relapse occurred on the 15th day, and this was controlled by streptomycin. In the light of the experience of Gottlieb and Forsyth and of our own experience we do not consider that this case indicates a failure of penicillin to cure the disease but that it emphasizes the need for continued high dosage. It is to this point that we particularly wish to draw attention.

Report of 15 Cases

Fifteen cases of influenzal meningitis were treated in the Birmingham Children's Hospital. Two were admitted at the end of 1946, two in March, 1947, and 11 between November, 1947, and July, 1948. Six in the last group were under our care, and for permission to include the other cases in this report we are indebted to our colleagues. Case 1 has already been reported (Gerard, 1947). Twelve of the 15 children are alive, and all are quite well with one exception (Case 3), who is spastic and mentally defective. Details of the cases are summarized in the Table and reports are given below. The incidence of influenzal meningitis among admissions to the hospital is shown in the Chart.

Types of Cases

An evaluation of any line of therapy must take into account the age of the patient, the initial severity of the infection, and the duration of the illness before treatment is begun. It is well established that the mortality is highest in infants. The initial severity can be estimated roughly by the rate of progress to a comatose state, but, apart from that, clinical signs are of uncertain value; chief among laboratory tests is the amount of reducing substance in the cerebrospinal fluid.

Age.—Of the patients whose cases are here recorded two were under 1 year, eight were between 1 and 2 years, four were between 2 and 5 years, and one was over 5 years.

Initial Severity and Duration of Illness

Severe Type.—Cases 6, 7, 8, and 11 were admitted within 24 hours of the onset of illness, and all were comatose or semi-comatose. In the cerebrospinal fluid the cell count was high—2,000–12,000 per c.mm.—and no sugar was present. Three of these patients recovered, and one (Case 11) died within four hours of admission. Cases 1, 4, 9, and 14 were admitted on the second or third day of the illness and were comatose or semicomatose; the cell count in the cerebrospinal fluid was 577–4,000, and sugar was present in two; all recovered. Case 2, aged 1 year, was admitted to hospital on the eighth day of her illness, during the first four days of which "she could not be roused"; she died five weeks after admission. A second (Case 3), aged 7 months, had been ill for two to three weeks and had "seemed far away" for two weeks; she survived, but with permanent cerebral damage. A third (Case 5), aged 2 years, was admitted on the fifth day of illness and died two days later. These three cases draw attention to the difficulty in diagnosing meningitis in very young children and emphasize the disaster consequent on delay in starting adequate treatment.

Less Severe Type.—Case 12, aged 10 months, was admitted on the 10th day of illness; he appeared to have pain in the head, and resisted flexion of the neck, but he was "lively and active." In the cerebrospinal fluid the cell count was 380, sugar was absent, and the protein was 55 mg. per 100 ml. Case 10, aged 1 year 9 months, had been ill for two weeks before admission and was actually under observation in hospital for nearly three weeks before meningeal signs appeared; after some improvement on treatment with relatively small doses of penicillin for pyrexia of unknown origin, a sudden rise in temperature on the 17th day induced us to have a second blood culture, the first, on his admission to hospital, having proved to be sterile. A pure growth of *H. influenzae* was obtained. Lumbar puncture was carried out on the 19th day, neck rigidity having appeared; the fluid contained 1,400 cells, 33 mg. sugar, and 30 mg. protein per 100 ml.; *H. influenzae* was cultured. These two cases demonstrate the long bacteriaemic phase which may precede the meningeal phase: in neither case was the meningitis severe, and both patients recovered

Treatment and Results

The line of treatment adopted has varied somewhat according to the physician responsible for the case and according to experience gained. That and the results obtained will be discussed under three headings.

1. *Sulphadiazine and Penicillin (11 cases)*

(*a*) Three of these patients died. One (Case 11), aged 2½ years, admitted in coma after 24 hours' illness, died before more than one dose of penicillin had been given. Another (Case 2), aged 1 year, had a severe infection and had been ill for eight days: she was comatose on admission. She was given intrathecal penicillin, 40,000 units daily for 12 days, and intramuscular penicillin, 10,000 units three-hourly for 36 days. Irreparable damage may have been done during the eight days before admission, but in any event the intramuscular dose was inadequate. She died on the 36th day of treatment. The third (Case 5) was semicomatose on admission, after having been ill for five days; she was given one dose of 40,000 units of penicillin intrathecally and 50,000 units three-hourly intramuscularly. This dosage we regard as inadequate. She died within 48 hours of admission.

(*b*) One (Case 3) recovered, but had received permanent cerebral damage. She was 7 months old, and had been ill for two to three weeks before admission. Again irreparable damage may have already been done, but doses of only 10,000 units were given intrathecally and 8,000 units, later increased to 30,000 units three-hourly, intramuscularly.

(*c*) Seven cases recovered completely. Six of them were the severe type, comatose or semicomatose on admission; were admitted within 24 hours of the onset of illness and within two to three days; the seventh case had a bacteriaemic phase and the meningitis was not severe (Gerard, 1947), the first in the series, had a prolonged intramuscular dosage over a period of four weeks

intrathecal as well as intraventricular penicillin. Case 4 had 80,000 units of penicillin intrathecally for eight days and intraventricular penicillin, 320,000 units daily, for 17 days. After an immediate good response there was a recurrence of meningitis at the end of the third week, and this was controlled completely by much larger dosage. Cases 6, 7, 8, and 9 were given 5,000 units intrathecally daily and 960,000 units intramuscularly in three-hourly doses. In no case was there any evidence of permanent confusion after the illness was *more under control*, and in no case was intrathecal or intraventricular therapy required. In one case a severe convulsion occurred after the fifth intrathecal injection, but with no ultimate ill effect.

In this last group the cerebrospinal fluid became sterile on the third to fifth day, clinical improvement was apparent in two to three days, and the meningitis seemed to be well under control by the end of a week, though the temperature did not settle completely so long as intramuscular penicillin was given. Also the cell count in the cerebrospinal fluid did not return to normal while the patient was under treatment. This was presumably due to reaction to the penicillin, but in those patients whose C.S.F. has been examined several months after cessation of treatment an ultimate return to normal is indicated. The persistence of pyrexia and cellular reaction, however, made it difficult to decide when to stop treatment: we may have given an unnecessary amount of intrathecal penicillin. There seems to be no need to continue this for more than a week after the fluid is sterile, provided adequate intramuscular penicillin, 960,000 units daily, is continued for about three weeks.

2. *Sulphadiazine, Penicillin, and Streptomycin (3 cases).*—In Cases 12 and 13 a change was made from penicillin to streptomycin on the fourth and fifth day respectively, but in each case improvement in the C.S.F.—a fall in cells from 380 to 80 and a rise in sugar from 0 to 35 mg. per 100 ml. in one, and a fall in cells from 2,540 to 70 and a rise in sugar from 21 mg. to 30.5 mg. per 100 ml. in the other—had already taken place. The second patient had a convulsion after one of the intrathecal injections of penicillin. In the third (Case 14), a change to streptomycin was made on the second day of treatment. In none of these cases can it be said that penicillin had failed: it had not been given time to succeed. All recovered.

3. *Sulphadiazine and Streptomycin.*—One patient (Case 15) was treated with this combination with complete success.

Conclusion

We submit that these cases show that penicillin, combined with oral sulphadiazine, given in adequate dosage—960,000 units daily for three weeks in three-hourly doses intramuscularly, and 40,000 units daily intrathecally for about seven days after the cerebrospinal fluid is sterile—provides an effective remedy in the treatment of severe as well as of moderately severe cases of influenzal meningitis. The facts that streptomycin is not freely available at present and that the organism is known to develop resistance render streptomycin less generally useful.

We wish to express thanks to our colleagues for permission to include their cases in this survey, to the resident medical staff for their help in carrying out the treatment, and to the nursing staff for their great care of the patients. We are also indebted to Dr. Rogers for the pathological reports and to Miss E. Hickmans for the biochemical reports.

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A STUDY OF THE POST-WAR INCIDENCE OF BREAST-FEEDING

BY

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This investigation was carried out in order (1) to study the real incidence of breast-feeding in the town of Hitchin, North Hertfordshire (population 20,710); (2) to analyse the reasons for early weaning; and (3) to consider any existing correlation of age and parity, place of confinement, effect of vitamin supplements, mixed feeding, and housing.

Opinions of previous investigators have varied considerably on the trend in breast-feeding. Spence (1938) reported a definite decline; Robinson (1939) stressed the tendency towards a shortening of the duration; Hughes (1942), reviewing the incidence of breast-feeding in a small mining community, found that 31% of babies were weaned by the second week. It has recently been stated that not more than half the babies in Britain are breast-fed for longer than three months (Waller, 1947).

Material and Method

The survey was restricted to mothers living in Hitchin who were confined locally between Jan. 1, 1946, and Dec. 31, 1947, and who spent at least six antenatal months in the district. By such selection it was hoped that variations in antenatal and post-natal care, modes of management in infant-feeding, and fluctuations in the availability of extra rationed goods would be equalized.

In order to obtain a comprehensive survey it was obvious that the records of antenatal and infant welfare clinics alone would be inadequate. A detailed questionary was therefore prepared and mothers in the above category were interviewed individually. The questions were worded so that a "social history" of each infant could be built up. A complete picture of environmental conditions possibly affecting its intrauterine and extrauterine life until the age of 6–9 months was obtained. Out of all the visits paid, in only one instance was the required information refused.

The results of the questionary, taken in conjunction with the relevant records in the clinics and the reports of the health visitors, provide the basis of this study.

Results

Omitting infant deaths, removals from the district, and mothers who were confined elsewhere, the total available for investigation was 546. The number successfully interviewed was 545. Of these, 58.7% were in regular attendance at the infant welfare centre. This figure is regarded as satisfactory, since over 30% of mothers with children born in 1946–7 are living in an area of the town almost two miles from the centre, and their regular attendance would be a matter of great inconvenience to them.

Deliveries.—These were carried out in the County Council Maternity Home (161), two private nursing-homes (230), the

maternity unit of a local hospital (50), and "on district" (104). Midwives delivered 383 cases, while 162 were doctors' cases. The overall average period "confined to bed" was 11.1 days.

Age and Parity.—Almost one-quarter of the primiparae were aged 30 or over (Table I). Although the number of primiparae is high—44%—the tendency towards postponement of the first birth is seen. The average time which elapsed between marriage and the birth of the first child to *the primiparous group* was 3.4 years. Less than 27% have more than two children.

TABLE I.—*Age and Parity*

Age	Para									Total
	1	2	3	4	5	6	7	8	8+	
18—	26	2	1							29
22—	87	25	6	1		1				120
26—	72	38	12	7	2	1				132
30—	35	48	18	11	6	3	1			125
34—	14	31	15	8	5	3	4	1		81
38—	5	11	14	8	6	4	2	2	1	53
42+		2			1		1		1	5
Total	242	157	66	35	20	12	8	3	2	545

Duration of Breast-feeding.—In Table II "weaned" is defined as "having reached the stage at which the infant receives wholly, for the first time, feeds other than breast milk." These results are compared with those of previous investigations

TABLE II.—*Duration of Breast-feeding (545 Cases)*

Time	Complete Breast-feeding	Partial Breast-feeding	Weaned
At birth	84·8%	5·5%	9·7%
Up to 2 weeks	78·3%	2·4%	19·3%
1 month	69·5%	4·5%	26·0%
2 months	57·5%	6·5%	36·0%
3 ,,	50·3%	2·7%	47·0%
4 ,,	40·7%	5·3%	54·0%
5 ,,	30·25%	9·0%	60·75%
6 ,,	13·2%	18·4%	68·4%

TABLE III.—*Duration of Breast-feeding. Comparison with Previous Investigations*

Time	Spence (from Findlay, Edinburgh), 1938 (3,000 Cases)	Spence (from Brewis, Newcastle) 1938 (1,326 Cases)	Robinson, Liverpool, 1937 (439 Cases)	Hughes, Newbiggin, 1942 (112 Cases)	Present Survey 1948 (545 Cases)
10–14 days	87%	—	—	—	—
2 weeks	—	—	86%	67%	78·3%
1 month	—	—	—	55%	69·5%
3 months	—	55%	48%	32%	50·3%
3–6 ,,	55%	—	—	—	—
6 ,,	—	34·7%	29%	19%	13·2%

(Table III). Since the factor of "duration" is of greater consequence than "initial incidence" the results were further broken down to ascertain the trend of primiparous women (Table IV).

TABLE IV.—*Duration of Breast-feeding: Primiparae (242 Cases)*

Time	Complete Breast-feeding	Partial Breast-feeding	Weaned
Up to 2 weeks	75%	9%	16%
1 month	66%	11·5%	22·5%
3 months	50%	4·2%	45·8%
6 ,,	12·8%	18·2%	69%

Complementary Feeding.—Table V shows the average period for which mothers have been able to extend breast-feeding by the use of complementary feeds. Cases in which full breast-feeding was later resumed have been excluded.

TABLE V.—*Showing the Duration of Breast-feeding along with Complementary Feeds*

Complemented at	Average Extension of Breast-feeding	Complemented at	Average Extension of Breast-feeding
1 week	3·5 weeks	8 weeks	6·9 weeks
2 weeks	5·3 ,,	12 ,,	10·0 ,,
3 ,,	7·3 ,,	16 ,,	9·1 ,,
4 ,,	6·0 ,,	18 ,,	9·8 ,,
5 ,,	7·3 ,,	20 ,,	11·9 ,,
6 ,,	6·6 ,,	22 ,,	10 ,,

Place of Confinement Related to Weaning.—The results are shown in Table VI.

TABLE VI.—*Percentages Weaned at 14 Days and 3 Months Referred to Place of Confinement*

Place of Delivery	Weaned by 14 Days	Weaned by 3 Months
County Council Maternity Home	16·2%	53·4%
Private nursing-homes	18·2%	45·4%
District	23·1%	50%

Housing.—Details of housing accommodation for the first six post-natal months were carefully noted, and cases were allocated to one of the six categories shown in Table VIII. The special position of primiparae was ascertained.

TABLE VII.—*Showing (i) Housing Distribution; (ii) Percentage Weaned by 8 Weeks; (iii) Percentage of Primiparae Weaned by 8 Weeks*

Group	Sharing	Detached	Semi-det	Flat	Rooms	Indoors
(i) Overall	8·1%	7·2%	48·8%	9·1%	11·7%	15·4%
(ii) Weaned by 8 weeks	25·0%	25·6%	33·4%	31·2%	32·6%	40·0%
(iii) Weaned by 8 weeks (primiparae)	63%	20·0%	29·0%	27·0%	50%	65%

Vitamin Supplements.—It might be of some interest to note the percentages using the Ministry of Food vitamin supplements A and D and the concentrate of orange juice available for expectant mothers: (1) 27.3% did not use the supplements at any time; (2) 11.8% took the supplements in both antenatal and post-natal periods; and (3) 60.9% took them in the antenatal period only. For either period the minimum time allowed in the calculations was one month and the maximum six months. In group 1, 25.1% breast-fed for three months or more; in group 2 the figure was 12.3%; and in group 3 42.6%. No real relationship is suggested in these findings.

Reasons for Weaning.—The reasons for weaning by the end of the third month were: maternal illness general, 9%; maternal illness, local, 15%; illness of infant 5%, economic, 4%; psychological, 10%; physiological 5%; miscellaneous, 6%. Among the above causes breast troubles accounted for 4%, *mastitis or engorgement with or without abscess formation* or malformation of nipples or breasts 5%, and infant malformations such as cleft-palate and hare-lip 1%.

Occupational Groups.—Apart from illegitimate confinements, in all but two cases the occupation of the husband was accurately elicited. Table VIII covers the occupational groups of 97% of the husbands of the women interviewed.

TABLE VIII.—*Showing Occupational Distribution of Weaning Times*

Occupation	Percentage Weaning Occurring at			
	0–4 Wks	5–12 Wks	13–24 Wks	After 24 Wks
Professional	13	15	22	30
Civil servants	14	22	26	28
Skilled workers	12	21	16	39
Services	15	25	15	25
Semi-skilled workers	31	27	19	23
Storekeepers	25	17	30	28
Vehicle drivers	22	22	32	24
Factory workers	31	15	15	39
Labourers	30	22	23	25

Discussion

From a study of previous investigations it is clear that there is a distinct trend towards early weaning (Spence, 1938; Robinson, 1939; Hughes, 1942). The likelihood this mode will become permanent is given weight by fact that the gross initial incidence of breast-feed not fallen to any appreciable extent. Of the 242 p in this series 16% had weaned by the end of the and of these nearly one-half had either not feed the infant or had failed to establish succ

in the first week. In the analysis of the reasons for weaning at or before 3 months 6% were classified as being unwilling to breast-feed.

Genuine physical incapacity of mother or infant amounted to only 6.1%. Spence (1938) considers that not less than 5% of failures in lactation are due to this cause.

The term "physiological insufficiency" covers a multitude of unsatisfactory causes. In this group the commonest explanation was "My milk just dried up." Where there was any reason to suspect undue worry, shock, or housing conditions which were too bad for a nursing mother to cope with there has been a follow-up, and the reason re-allocated. But a large percentage of failures remain unexplained. In a study of failing lactation Robinson (1943) found that in 40% of women who ceased breast-feeding before the end of the seventh month no adequate reason could either be given or be found on examination. There would seem to be no specific fault, and in the majority of cases the mother insisted that she wished to persist in breast-feeding. In many instances it is not unlikely that the reason was an unadmitted revolt against the conditions in which she was placed—tiredness, small accumulating worries, living under poor or even bad conditions, restriction of freedom, and, possibly, marital anxieties. In such cases home help, the health visitor's continuing interest, and, perhaps most important of all, the attitude of the husband would give the nursing mother that peace of mind and bodily rest so essential throughout lactation. It is not unknown for the husband to forbid breast-feeding. One such individual gave as his reason, "Breast-feeding is a disgusting example to our 12-year-old daughter."

The "danger period" in breast-feeding is primarily at the fourth or fifth week, with a second relapse about the tenth or twelfth week. The value, or otherwise, of complementary feeds at such times has been strongly voiced (Lishman, 1944; Hughes, 1942). We have found that even in the early stages many mothers are enabled to resume full breast-feeding after the use of small complementary feeds for only a week or ten days. It is true that a large number of mothers give up, and no aspect of infant feeding is fraught with greater disappointment.

The use of a single 2-p.m. test feed can be very misleading. It is here that the clinic medical officer—and, no less, the practitioner—faces a substantial obstacle. It helps considerably to have mothers for test feeds encouraged to attend the clinic slightly earlier than the normal session so that one may examine the breasts before the feed and again during the feeding. In really co-operative cases—and the fullest co-operation is an essential in early complementary feeding—the health visitor can usually arrange to carry out three consecutive test feeds, or at least a minimum of two, including the one at the clinic. Complementary feeds at the later stages—from the eighth week onwards—can be resorted to more confidently.

In a pre-war study Robinson (1939) found that of the 67 primiparae living in rooms in 100 consecutive cases approximately 70% had weaned by eight weeks. In the present survey the highest percentage of weanings occurs in those occupying rooms or in the even more indefinite menage with "in-laws." Naturally, the greatest number of primiparae are also found in those circumstances. The effect of "friends and relations" can be thoroughly disheartening to the inexperienced, and I am of the opinion that housing difficulties as they exist at present, and the close proximity of relations, together constitute a major menace to successful breast-feeding. This position may have some bearing on the unsatisfactory district figures compared with those of nursing-homes on the question of weaning by the end of the second week.

In the Ministry of Health Report (1944) the statement is made that the Advisory Committee estimated that 95% of babies born on the district are wholly breast-fed when the midwife leaves, while only 80% of babies leave hospital fully breast-fed. For these results the "over-mechanized methods" of hospitals are blamed. In this series 83.8% of babies born in the County Council Maternity Home were wholly breast-fed at 14 days, while the corresponding district figure was 76.9%. Locally, at least, "over-mechanized methods" do not appear as an outstanding cause of failure.

This investigation shows that each of the occupational groups chosen has its own specific weaning rate. In her Liverpool series on the weaning rates in ten classes of the population in the years 1930–40, Robinson (1941) found a difference of only 8% at the end of the first month and only 3% between the classes at the fourth to seventh months. The smallest range—12%—in the present survey occurs between the fifth and twelfth weeks. In a series of this size we are not justified in drawing general conclusions from these findings.

From the collected material available it is unfortunately not possible to give accurate morbidity rates relative to breast-feeding; it was established, however, that no case of gastro-enteritis requiring treatment in hospital had occurred in babies who had been wholly breast-fed for three months or longer.

Summary

The results of an investigation into the incidence of breast-feeding in an area of North Hertfordshire in 1946–7 are analysed.

The number of babies completely breast-fed at 6 months was estimated at the low figure of 13.2%.

Although the primary incidence of breast-feeding has not appreciably altered there is evidence of a shortening of the duration. The "mode" in breast-feeding is set by the primiparae, who favour the shortened duration.

An evaluation is made of complementary feeding.

The effects of housing accommodation are tabulated and discussed.

A comparison is drawn between the early weaning rates of babies born in maternity homes and those on the district.

I have to thank Dr. J. L. Dunlop, county medical officer of Hertfordshire, for permission to undertake this investigation, and the staff of the County Health Department for their interest and assistance. Most of the interviews were carried out by the health visitors of Hitchin, and I am most deeply indebted to them for their sustained interest and the willingness with which they agreed to perform these additional tasks. The permission of the Librarian of Cambridge University Library to peruse the medical literature is also gratefully acknowledged.

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The Ministry of Health states that the universities should pay the expenses of printing, local advertisement, and distribution of the syllabuses of hospital courses for the postgraduate education of general practitioners. The costs should not fall on hospital funds.

ASCHHEIM-ZONDEK AND HOGBEN PREGNANCY TESTS MODIFIED AND COMPARED

BY

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AND

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During 1948 the new laboratory of the Pregnancy Diagnosis Station of the University of Edinburgh was equipped to carry out the Hogben test. Most of the tests now carried out here are Hogben tests, though a large proportion of Aschheim-Zondek tests are still performed, partly because many practitioners do not send us enough urine.

Modifications

During this period modifications to both methods have been introduced which have resulted in a more efficient routine and in greater accuracy. There are now enough data available to show that the Hogben test is suitable for routine diagnosis, and that it is more reliable than the Aschheim-Zondek test. The following modifications are those now in use.

1. Aschheim-Zondek Test

The method used is that described by Robson (1947), with the following modifications. Four mice (obtained from dealers as 3-weeks-old females) are used instead of five. The pretreatment of urine (testing with universal indicator, addition of acid, or shaking with ether when toxic) and the addition of 1 g. of sulphosalicylic acid to 30 ml. of urine have been discarded in favour of the following: four drops of 20% thymol in alcohol are added to 30 ml. of urine immediately on arrival of the specimen. This simple modification has reduced the percentage of urines which prove toxic to the test mice. This is in conformity with the findings of Zondek and Black (1946), who decided that toxicity was not a property of normal urine, but was formed, on standing, by bacteria in the urine. It should be added that the mice tolerate thymol extremely well, and the effect on the ovaries of the test animals seems more clear-cut.

2. Hogben Test

The method used is that published by Landgrebe and Samson (1944), with the following modifications. Well-fed toads weighing 60–100 g. are used, and must respond by ovulating to 70 i.u. of chorionic gonadotropin instead of 100 i.u. We find that stock animals can be divided into two quite distinct groups with regard to sensitivity, and this test dose enables the less sensitive animals (about 20% of a fresh stock) to be discarded. Toads are used every ten days, as they have been shown to be more sensitive than if used at 21-day intervals (Landgrebe, 1948). They are not, however, used continuously, because they lose weight. It may be that with different conditions of husbandry this would not occur. So in our laboratory they are used three times in one month and the next month not at all—e.g., animals used on Jan. 3, 13, and 25 will be rested during February and used again on March 1, 11, and 23, resting the following month, and so on. This means that a single *Xenopus* toad is used 18 times in a year.

By means of the Scott (1940) technique 60 ml. of urine are concentrated into 5 ml. of extract. One toad only is used for each test, and it receives 2.5 ml. of extract in the dorsal lymph sac (see Landgrebe, 1948). If the toad ovulates within 24 hours the result is recorded as positive. If, however, no ovulation results in 24 hours a second toad is injected with the remainder (2.5 ml.) of the same extract. If both toads are still negative 48 hours after the beginning of the test the result is recorded as negative. This enables 25% more tests to be done with the same number of test animals without loss in accuracy. We find that toads which have previously ovulated can be made to deposit eggs if they are injected, 24 hours after their last ovulation, with "negative urine" or distilled water. It is therefore of the utmost importance that toads be taken from the correct tanks, otherwise many false positive results will be obtained.

Comparison of Results

Slips for confirmation or otherwise are sent out with the results of the tests, but unfortunately owing to lack of co-operation of the medical practitioners only 14% were returned during 1948. It has been assumed in the following table that our errors are duly reported. In the words of one of our local practitioners, "I don't bother to tell you when you are right, but I soon let you know if you are not." Even if this assumption is incorrect the comparison between the two methods is still valid, as a similar proportion of confirmations were received for each test. The first items in the accompanying Table are a summation of data gleaned from the literature.

Test	Source	No. of Tests	Definitely Correct	Doubtful	False Negative	False Positive
A.-Z.	42 authors	26,163	97·9%			
	13 "	5,455	97·2%	0·05%	1·6%	1·2%
	Edinburgh P.D.L.	12,567	99%	0·18%	0·72%	0·09%
Hogben	14 authors	7,707	98·9%	0	1·1%	0
	Edinburgh P.D.L.	5,666	99·65%	0	0·32%	0·03%

It will be seen that the Hogben test has produced more reliable results than the A.-Z. test both at Edinburgh and elsewhere—this in spite of the fact that our modification of the A.-Z. has increased the accuracy from an average of 98.4% over many years to 99% in 1948.

The number of false positives (two) given by the Hogben test compares favourably with that given by the A.-Z. test. One of these Hogben false positives was found with urine from a patient with a history of persistent abortion over several years. According to the clinical report received later, she had a discharge for a few days following the dispatch of the specimen. The second false positive did not, however, support the clinical findings, although two toads ovulated to the specimen of urine sent. Thus any attempt to sensitize the test further should be avoided.

Some false negative results are probably due to specimens being collected too soon after the first missed period: ten days should elapse before urine is sent for test. We cannot decide how many of our false negative results are due to this, since in many cases little or no information is sent with specimens of urine.

Conclusion

It is shown that the Hogben is a more reliable test than the A.-Z. Its many other advantages over the A.-Z. have been outlined by several different authors (Elkan, 1946; Herring, 1944; Landgrebe and Samson, 1944; Milton, 1946; Weisman and Coates, 1944; Zwarenstein and Duncan, 1944). With our modifications the advantage of economy is even more obvious. Some of our animals have been used for test over 40 times and are giving consistent and reliable results. We have estimated that, including running costs of the laboratory, a Hogben test can be carried out at less than half the cost of an A.-Z. test

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A SIMPLE WEIGHT-REDUCING DIET

BY

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Fifteen years ago I devised a reducing diet, and have since used it for a large number of patients. The essential instructions are as follows:

1. Eat or drink as much as you like (or can get) of :

Lean meat, poultry, game, rabbit, hare, liver, kidney, heart, sweetbread—cooked in any way, but without addition of flour, breadcrumbs, or thick sauces.

Fish (not tinned), boiled or steamed only ; no thick sauce.

Eggs, boiled or poached only.

Potatoes, boiled, steamed, or baked in skins, but not fried, roast, sauté, or "chips"; not potato powder.

Other vegetables of all kinds (fresh, tinned, or dried) *cooked in any way not involving the use of fat.*

Salad and tomatoes without oil or mayonnaise.

Beetroot, radishes, watercress, parsley.

Fresh fruit of any kind, including bananas. Also bottled fruit if bottled without sugar. Not tinned or dried fruits (including dates, figs, and raisins).

Sour pickles, not sweet pickles or chutneys.

Clear soup, broth, "bovril," "oxo," "marmite."

Salt, pepper, mustard, vinegar, Worcester sauce (no other sauces).

Saccharin for sweetening.

Water, soda-water, and non-sweetened mineral waters.

Tea and coffee (milk only as allowed below).

2. You may have milk (not condensed) up to half a pint (284 ml.) daily. No cream.

3. You may have three very small pieces of bread per day and take them either one at each main meal or all three at one meal as desired ("very small" means not exceeding 1 oz.—*28 g.*).

4. You may have *nothing else whatever*; particularly note that this means :

No butter, margarine, fat, or oil (except for cooking meat, *not* fish).

No sugar, jam, marmalade, honey, sweets, chocolate, cocoa.

No puddings, ices, dried or tinned fruits, nuts.

No bread (except as above), cake, biscuits, toast, patent reducing breads, cereals, oatmeal, "all-bran," "ryvita," "vitawheat."

No barley, rice, macaroni, spaghetti, semolina, sausages, cheese.

No cocktail savouries, alcohol (beer, cider, wines, and spirits).

Weigh before you begin, and thereafter weekly, on the *same scales*, in the *same clothes*, and at the *same time* of day.

The general principle of the diet is simply to allow unrestricted consumption of specified low- and moderate-calorie foods, with measurement of only two foods, milk and bread. It is therefore very simple, and patients generally report it as easy to carry out, even in these days, whether eating at home or in restaurants or as guests.

The opening words "eat or drink as much as you like" seem to predispose to willing co-operation. Encouragement to eat unlimited potatoes generally occasions pleasant surprise. The lay public has deeply rooted the notion that potatoes are more fattening than anything else and, consequently, the obese have usually been denying themselves potatoes, which, in fact, are not of high calorie value unless covered and impregnated with fat in cooking. Obese subjects can eat liberal helpings of boiled, steamed, or baked (without fat) potatoes three times a day and still continue to lose weight.

Weight lost by patients who adhere faithfully to the diet, without any lapses, varies from 15 to 35 lb. (6.8 to 15.9 kg.) in 12 weeks. More can be lost (up to 60 lb. (27.2 kg.) in the very fat) by going on. Prolonged experience enables one to say that a patient with simple obesity who does not lose weight is eating or drinking outside the permitted articles.

After weight reduction has been achieved the patient is left knowing the foods which are most fattening. He or she should be advised to return to ordinary diet but to maintain weekly weighing and check any observed tendency to regain weight by moderate restriction of consumption of the articles listed in Instruction 4.

Hitherto I have not had the diet printed, except for hospital use, but in response to requests from practitioners I have arranged with Messrs. H. K. Lewis & Co., Ltd., 136, Gower Street, W.C.1, to produce it as a printed diet card with the instructions on the front and the weight record on the back. (Price 7d. post free.) The instructions are prefaced by a warning that the diet should not be undertaken except on the advice and under the supervision of a doctor. A footnote states that the card is intended for sale only to registered medical practitioners.

Medical Memoranda

Pylorospasm in the Adult, Complicated by Uraemia

In the *B.M.J.* of Jan. 17, 1948 (p. 99), Mr. A. Hobson mentions the connexion of hypertrophic pyloric stenosis with uraemia. I have recently treated a case similar to his, although mine was undoubtedly pylorospasm instead of true hypertrophic stenosis.

In Price's *Practice of Medicine (1938) it is remarked* that "spasm is often stated to give rise to pyloric obstruction, but the evidence that it can do so is inconclusive, except in the hypertrophic pyloric stenosis of infants." In contrast to this, Beckman (U.S.A.) in his *Treatment in General Practice* under the headings of "nervous dyspepsia" and "pylorospasm" describes cases very similar to that of my patient.

CASE REPORT

In January, 1916, while in the Army, a professional man now aged 60 had jaundice with acute pain and was in hospital for four months. In September, 1916, he underwent appendicectomy for alleged chronic appendicitis, and has suffered from flatulent dyspepsia ever since. He was first seen by me in December, 1919, when he had a temperature of 102° F. (38.9° C.) and a much-enlarged and tender gall-bladder.

In January, 1927, he still had flatulent dyspepsia, and cholecystography on two occasions failed to show the gall-bladder. The report on a barium meal was that the first, second, and half the third part of the duodenum were enormously dilated, possibly by obstruction by the superior mesenteric artery. On my advice an exploratory laparotomy was done. The gall-bladder was removed, but was found to contain no calculus and did not seem to be unhealthy. From this time flatulent dyspepsia had persisted more or less continuously with bouts of vomiting. Barium meals on several occasions showed no abnormality of stomach or duodenum. In March, 1946, he had jaundice with relapse, presumably due to infective hepatitis, which was epidemic at the time. During the summer of 1947, while on holiday in England, he was very ill, vomiting frequently and losing a great deal of weight. He was admitted to hospital, and after barium and fractional test meals was told he was suffering from "cramp of the stomach," which in the light of recent events presumably meant pylorospasm.

I saw him in October, 1947. He was then extremely thin, but stool culture revealed nothing abnormal. By the middle of January, 1948, he had been free of symptoms for three months, had been eating less carefully than for a long time, and had gained some 18 lb. (8.2 kg.). This ruled out any possibility of carcinoma. It was quite evident that his symptoms were closely related to worry, of which he had been free during these three months. On Jan. 20 he relapsed. He now restricted his food, but had vomited several times daily for a week. His subsequent history is as follows:

Jan. 22.—Still vomiting; mental confusion and delusions. Admitted to hospital. Urine: a few granular and hyaline casts; traces of albumin; sp. gr. 1014. Blood urea 172 mg., plasma chlorides 415 mg. per 100 ml.

Jan. 23.—No more vomiting. Urine 14 oz. (400 ml.). Rational at times. B.P. normal. Glucose-saline, 500 ml. b.d. subcutaneously; orange juice, etc.

Jan. 24.—No vomiting. Great mental confusion.

Jan. 25.—No vomiting. Urine, 70 oz. (2 litres). Blood urea, 200 mg. per 100 ml. No noteworthy change occurred for five days.

Jan. 30.—Urine, 70 oz. Blood urea, 72 mg. per 100 ml.

Feb. 1.—Urine, 30 oz. (850 ml.). Vomited copious green fluid several times.

Feb. 2.—Urine, 34 oz. (965 ml.). Copious vomiting.

Feb. 3.—Copious vomiting of green liquid. On inspection very strong peristaltic waves visible in epigastrium, with a swelling as large as a tangerine orange progressing towards the pylorus, as seen in congenital pyloric stenosis of infants. Barium meal: on screening, very strong peristalsis of stomach with antiperistaltic wave after it had reached the pylorus. Two-and-three-quarter hours later no barium had passed the pylorus. Atropine 1/100 gr. (0.65 mg.) subcutaneously; "bellafoline" 10 minims (0.6 ml.) t.d.s.; phenobarbitone ¼ gr. (50 mg.) t.d.s.; glucose-saline 500 ml. b.d.

Feb. 4.—No vomiting. Urine, 20 oz. (570 ml.).

Feb. 5.—No vomiting. Atropine, 1/200 gr. (0.32 mg.) b.d.

Feb. 6.—Copious vomiting. Atropine and bellafoline discontinued. "Antal" 10 ml. I.V. daily for 18 days. (Antal is a French preparation containing 1 mg. of atropine and some sodium bromide.) It was noticed that the very violent peristalsis of the stomach which occurred after the ingestion of any food ceased in a few minutes after the injection of antal; the patient then announced that the spasm had relaxed, and food was passing the pylorus.

On Feb. 20 he was eating cold chicken and ham without inconvenience and had returned to work in his office.

Nov. 10.—For four months past he has been free of all symptoms, eating normally, and feels better than he has done for 25 years.

I believe the "cure" to be due to his realization that the gastric trouble was due to psychological causes.

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Sternal Swelling as a Presenting Sign of Hodgkin's Disease

The association between sternal swellings and Hodgkin's disease has been noted by Goldman and Victor (1945) and by Sicher (1948). The latter describes an unusual case in which Hodgkin's disease manifested itself by a sternal swelling of two weeks' duration. The following case is of interest in that a swelling had been present on the sternum for five years before the diagnosis of lymphadenoma was made, and because the patient had been successfully treated for pulmonary tuberculosis.

CASE HISTORY

The patient, a woman aged 36, with a considerable medical history, was notified to this department in July, 1947, as a case of tuberculosis, and was admitted on Aug. 11 to sanatorium for further investigation.

She had had measles and scarlet fever, injuries due to a fall of 30 ft. (9.14 m.) at the age of 13, and pulmonary tuberculosis at 22. She was in sanatorium from July, 1933, to January, 1934, and was treated by left A.P., which was continued privately thereafter; last refill January, 1946. Menstrual disorders for years; had D. and C. in 1943 and again in January, 1947. Chronic dermatitis of both hands.

A small swelling on the upper sternum first noticed about 1942 had remained static. After the uterine operation in January, 1947, the swelling had enlarged noticeably and progressively. In June, 1947, the condition was diagnosed as tuberculosis, and the case was notified to the public health department.

When I first saw her in July, 1947, her general condition was fair. She was febrile, toxic, and anaemic, but, apart from the swelling and some weakness, had no complaint. The lungs showed signs of fibrosis but none of any active disease. The cardiovascular, digestive, and nervous systems were clinically normal. The dermatitis of both hands was in a quiescent phase, but there was slight dry eczema of the webs of the fingers.

The swelling was a rounded painless protuberance on the upper sternum about the level of the second costal cartilages. It was exactly in the midline and occupied almost the breadth of the sternum. There was no tenderness or sign of pointing, but the overlying skin was reddened and fluctuation was present. No parasternal lymph nodes were detected. Aspiration was completely unsuccessful. Radiography of lungs and thorax revealed very slight old fibrosis in the right mid-zone, denser fibrosis in the left mid-zone with pleural thickening, but no sign of active disease or of hilar enlargement. The radiologist also reported a large round swelling of the soft tissues of the sternum both anteriorly and posteriorly about the second rib level; no erosion of the sternum was observed, but the anterior end of the second left rib was ill-defined. Other clinical findings were enlarged glands in both axillae but no adenopathy elsewhere; red cells, 3,730,000; Hb, 53%; white cells, 15,400; B.S.R., 51 mm./hour.

When she was admitted for sanatorium observation on Aug. 11 no definite diagnosis had been made. While various possibilities were recognized, tuberculosis was considered the most probable cause, especially in view of her previous history. On Sept. 4, however, biopsy of glands from the right axilla revealed changes typical of lymphadenoma. The patient was thereafter transferred to a general hospital where she received deep *x*-ray therapy, and was discharged on Nov. 21. Since then she has gone to live in the country and has not been examined, but is known to be fairly well (November, 1948).

I have to thank Dr. S. I. A. Laidlaw, Medical Officer of Health, Glasgow, for permission to publish this case.

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Reviews

THE NOSE AND THROAT

Diseases of the Nose and Throat. By Sir StClair Thomson, M.D., F.R.C.P., F.R.C.S., and V. E. Negus, M.S., F.R.C.S. Fifth edition. (Pp. 1,004; with 13 colour, 20 radiographic, and 11 other plates, and 369 figures. £3 10s.) *London: Cassell and Co.* 1948.

This admirable textbook, originally the work of Sir StClair Thomson, has held its leading position since the first edition in 1912. Mr. Negus has kept alive the spirit of the work while adding all advances in knowledge of the subject since the previous edition of 1937.

In the preface Mr. Negus writes: "I commend this book as a monument to its founder and sincerely hope that his spirit will illuminate the work by which the world may recognize and remember him, even though he did not survive to celebrate its completion." Readers will agree that this is certainly so. A book of this calibre gives the reviewer little scope for criticism, only the pleasure of praise; it is most comprehensive. The student will find all he needs and more, and the laryngologist will gain much from the well-balanced views on diagnosis and treatment, which are given in great detail. The writing is scholarly, and at the most there are only two misprints: a few sentences, evidently taken from previous editions, give a feeling of unreality to-day.

The era of antibiotics and chemotherapy has so changed the clinical picture of many diseases which, regarded as dangerous or even fatal in the past, are now susceptible of cure in a matter of days or even hours, and this aspect of medicine is perhaps not sufficiently emphasized.

The subject-matter is divided into thirteen parts: the first concerns embryology and physiology, methods of examination, treatment, and prevention of operative dangers. Under the heading of treatment wise advice is given on what not to use in nasal sprays, and on the use and abuse of cocaine. There is also a clear description of the methods of administration of the sulphonamides and penicillin, though doses at present are larger than those suggested. It is scarcely necessary to-day to give advice about anaesthesia, since this is now in the hands of experts. Conditions affecting the nose are described in part two. Stress is laid on the importance of proper respect for the ciliary mechanism and all this respect implies. The descriptions of nasal accidents and diseases are good and well illustrated, though exception may be taken by the plastic surgeon to the mention of the hinged cartilage graft for the correction of nasal deformity. There is an excellent chapter on allergy.

The paranasal sinuses are discussed justly, and the various operations and their dangers fully explained. For rhino-dacryocystostomy West's operation is preferred to that of Dupuy-Dutemps, a view which is not held by all. Crook's method of washing out the antra in children, under cocaine analgesia, is adequately described and illustrated.

Part four—on growths of the nose and sinuses—is admirable. For growths of the antrum and ethmoid a combination of deep *x* rays and surgery (using diathermy) is advocated, with removal of the hard palate to allow of thorough inspection of the cavity. This treatment is supported by statistics. It is suggested that growth may originate in or involve the frontal sinus, but the great rarity of this might well have been mentioned.

Parts five and six, which are concerned with the naso-pharynx, pharynx, and tonsils, occupy 190 pages and clearly express the present-day views on the "tonsil and adenoids" question. The La Force instrument for removal of adenoids is preferred, as doing least damage to the mucous membrane. Good pictures illustrate the different operations. Differential diagnoses of tonsil infections are given fully. Pharyngeal pouch is stated to arise in the middle line, though anatomically it would seem that the origin should be at one side of the posterior median raphe.

Diseases of the larynx are described in part seven. If one part of this work should be praised more than others it is this. It embodies all Mr. Negus's knowledge, gained from his researches into the comparative anatomy of the larynx and his wide clinical experience and exact observation. These words are particularly applicable to the chapter on the laryngeal paralyses, which make a complicated subject appear very easy. The excellent diagrams will prove a great help to the reader. For the treatment of double abductor paralysis a permanent tracheotomy with a tube incorporating a one-way flap valve is preferred to any other operation. In the description of the treatment of nodules on the cords not enough emphasis is laid on the excellent results of treatment by skilled teachers of voice production, which cures nodes far more quickly than weeks of silence, as advised.

For the treatment of epithelioma of the vocal cord laryngo-fissure is given preference over radium or radon needles inserted through a window in the thyroid cartilage. The descriptions of laryngo-fissure and of laryngectomy are clear and fully illustrated, some of the pictures being those by the late L. Colledge.

An account of diseases of the trachea and bronchi naturally follows in part eight, and exhibits the wide experience of the author. Special points are illustrated by *x* rays, some after lipiodol injection. The author proves, if proof be needed, that bronchoscopy in the hands of the laryngologist has its place.

Part nine deals with the oesophagus. It begins by describing congenital deformities, strictures, and growths and their treatment. An account is given of the author's ingenious method of inserting radon seeds, coupled by links of catgut, round malignant growths through an oesophagoscope. There follows a well-illustrated chapter on the neurological disorders, including achalasia. Dilatation with Hurst's mercury tube or a dilating bag is recommended, and operation is stated seldom to be necessary. Foreign bodies in the air and food passages are fully discussed and their complications explained with *x*-ray reproductions. A separate chapter is devoted to the technique of endoscopy.

The volume concludes with detailed descriptions of chronic infections, tuberculosis, syphilis, and rarer conditions—e.g., glanders, actinomycosis, and scleroma. There is also an account of the acute specific fevers. Lastly, a list of prescriptions is given, with the amounts of the ingredients expressed in English and metric measures.

This book must be in every laryngologist's library. It is so comprehensive that few will not learn something from it, and if the reader desires more detailed information on any particular subject there are full lists of references at the end of every chapter. It is profusely illustrated and contains thirteen excellent colour plates.

W. M. MOLLISON.

LABORATORY ANIMALS

The U.F.A.W. Handbook on the Care and Management of Laboratory Animals. With an Appendix on Statistical Analysis. Edited by Alastair N. Worden, M.A., B.Sc., M.R.C.V.S., A.R.I.C. With foreword by [illegible] ing, M.A., M.R.C.V.S., F.R.S.Ed. (Pp. [illegible] 31s. 6d.) *London: Baillière, Tindall and Cox.* 1947.

What etymological quirk has decreed that a humanitarian is a person with kindly feelings for men and other animals, whereas a philanthropist confines his abounding affection to his own species? No answer to this question being known to me, I suggested many years ago that some new word such as philozoist, zoophilist, or even animalitarian was needed to attach to those concerning themselves specifically with the welfare of the animals that we group together as *dumb*—though many of them are far from that. However, this proposal having been rejected with enthusiasm, I must run the risk of misunderstanding if I declare that this book is a very practical blend of economics and humanitarianism.

Professor Worden and his colleagues are preaching to a simple text—namely, that in the long run it pays to be kind to animals, and to none more than to the dozen or so species used in scientific laboratories in those types of research and control work for which living animals are indispensable. Common sense, not sentimentality, provides the authors with their keynote. "You can," they say, in effect, "get with healthy contented animals more information from the same number, or the same amount of information from a smaller number, than you can from sick and miserable animals." No investigator who has tried—or been compelled to try—both will have any doubts about the truth of this statement, especially if his

comparisons have been submitted to analysis by valid statistical methods.

The number of animals used each year in the laboratories of Great Britain is probably now well over a million, mice being *facile princeps* with more than half that number, guinea-pigs second, and rats third, the figures for those species being of the order of 200,000 and 100,000 respectively. From the point of view of importance, however, both because of the work for which they are essential and because of the esteem in which they are held by the British peoples, the absolutely insignificant number of cats and dogs used annually (about 2,500 to 5.000 of each) is no measure of their relative value in teaching and research. One would therefore have supposed that special treatment would be meted out to them in this book. And so it has—but exactly in the opposite way from what might have been expected at first blush, for the authors say in essence, "Cats and dogs are so difficult that you must consult the experts (some names are given) and keep in touch with the vet. Nothing we could write here would be of any practical help to you." However, one can see behind this the shrewd tactics of the book's level-headed planners, who are willing to run with the laboratory hares in the most friendly association provided they are not also expected to hunt with the anti-vivisectionist hounds. They help to avoid this by their special deference to our domestic pets.

All the same, the book contains useful information on the maintenance—including housing and feeding—and the breeding of several important species besides the most used ones. The value of rabbits, ferrets, pigeons, and hamsters is well known, but it is not so generally appreciated that voles of several species, hedgehogs, canaries, deer mice, and cotton rats are sufficiently often required for scientific work fully to justify assigning to them severally a number of chapters in this book.

In his task of collecting, with some degree of collating, data from various experts the editor has included many excellent illustrations—of buildings, cages, equipment, normal animals—and has supplemented the chapters on individual species by some more general ones on the animal laboratory and on pest control. It would have been helpful to have included also, possibly as an additional short chapter, some discussion on "pure lines," the case for their use in research and assay work, and the best systems for producing and maintaining them. A list of available pure lines, or even of available highly inbred stocks, of mice, rats, guinea-pigs, and rabbits in this country—even if foundation breeding stock is all that can be got "off the shelf"—has never yet been compiled; it could have been, without very much additional work, by the organizers of this book and would have made it still more useful. As things are, we must wait for publication of some authoritative list by the Laboratory Animals Bureau of the Medical Research Council.

In subsequent editions—and these are pretty sure to be needed—I would suggest that some notice be taken of the fact that rats—albinos and hooded strains at any rate—can be bred in wooden cages of suitable design and that some of the healthiest and most uniform colonies here and in the U.S.A. are so raised. A reference to the use of the "dough-mixer" type of blender for preparing homogeneous diets, whether stock or experimental, might call some readers' attention to one of the most potent of all time-saving arrangements in animal diet kitchens, even for relatively small colonies. It might have been a good idea to include *Passer domesticus* in the list of pests that can bring disease to animal houses and to call attention to the corollary need for "sparrow-proof" windows and ventilators.

Two outstanding features of this book, both by the Federation's energetic chairman, Major C. W. Hume, are a chapter on "Law and Practice: the Rights of Laboratory Animals"—a brilliant and highly instructive survey of the present law governing experiments on animals—and an appendix with the modest title "A Conspectus of the Elements of Statistical Analysis." This occupies 20 pages and is a masterpiece of expository condensation. It alone is worth almost the whole of the apparently high price charged for this book. The book is indeed a bargain, and indispensable to all concerned in any way with the production and use of animals in laboratories.

A. L. BACHARACH.

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BOOKS RECEIVED

[*Review is not precluded by notice here of books recently rec*]d to

Die Elemente der Nervösen Tätigkeit. By A. E. Kommüller. (Pp. 120. M. 13.50.) Stuttgart: Georg Thieme. 1947.

Pathologische Physiologie. By R. Wanke. (Pp. 196. M. 24.) Stuttgart: Georg Thieme. 1948.

Conditioned Reflexes and Neuron Organization. By J. Konorski. (Pp. 267. 18s.) Cambridge: The University Press. 1948.

Neurovegetativo. By E. L. Uranga. (Pp. 595. No price.) Buenos Aires: Lopez and Etchegoyen, S.R.L. 1948.

Mental Readjustment. By S. Reiss. (Pp. 167. 10s. 6d.) London: George Allen and Unwin. 1949.

Das Altersulkus an Magen and Zwölffingerdarm. By K. Spang. (Pp. 103. M. 10.50.) Stuttgart: Georg Thieme. 1948.

Arzneitherapie des Praktischen Arztes. By G. Banzer. 3rd ed. (Pp. 320. Unbound M. 10; bound M. 12.) Berlin: Urban and Schwarzenberg. 1949.

Medikamentenlehre für Schwestern. By G. Banzer. (Pp. 129. No price.) Berlin: Urban and Schwarzenberg. 1949.

Diagnostik durch Sehen und Tasten. By H. Kahler. (Pp. 253. 13s. 6d.) Vienna: Springer-Verlag. 1949.

Die Beurteilung der Zurechnungsfähigkeit. By K. Schneider. (Pp. 24. No price.) Stuttgart: Georg Thieme. 1948.

Neoplasms of Bone and Related Conditions. By B. L. Coley, M.D. (Pp. 736. $17.50.) New York: Paul B. Hoeber Inc. 1949.

Dictionnaire des Termes Techniques de Médecine. By M. Garnier and V. Delamare. 15th ed. (Pp. 1,038. No price.) Paris: Librairie Maloine. 1949.

Pathologie Exotique. By H. Harant and N. Duc. (Pp. 272. No price.) Paris: Librairie Maloine. 1948.

Gymnastique Thérapeutique. By A. L. Pécunia. (Pp. 341. No price.) Paris: Librairie Maloine. 1948.

Die Synkopalen Anfälle. By W. Schulte. 2nd ed. (Pp. 92. M. 9.60.) Stuttgart: Georg Thieme. 1949.

Surgeon's Saga. By R. McDouall. (Pp. 330. 15s.) London: Heinemann. 1949.

Handbook of Diseases of the Skin. By R. L. Sutton, M.D., and R. L. Sutton, jun., M.D. (Pp. 749. 63s.) London: Henry Kimpton. 1949.

Groves and Brickdale's Text-Book for Nurses. Revised by J. A. Nixon, C.M.G., F.R.C.P., and Sir C. Wakeley, K.B.E., C.B., F.R.C.S. 7th ed. (Pp. 698. 30s.) London: Geoffrey Cumberlege. 1948.

Social Biology and Welfare. By S. Neville-Rolfe, O.B.E. (Pp. 416. 21s.) London: George Allen and Unwin. 1949.

Blood Transfusion. By E. L. DeGowin, M.D., and others. (Pp. 587. 45s.) London: W. B. Saunders. 1949.

Pathology and Surgery of Thyroid Disease. By J. L. DeCourcy, M.D., and C. B. DeCourcy, M.D. (Pp. 476. 50s.) Oxford: Blackwell Scientific Publications. 1949.

Synopsis of Psychosomatic Diagnosis and Treatment. By F. Dunbar, M.D., and others. (Pp. 501. 32s. 6d.) London: Henry Kimpton. 1948.

The Practice of Refraction. By Sir S. Duke-Elder, K.C.V.O., D.Sc., M.D., F.R.C.S. 5th ed. (Pp. 317. 18s.) London: J. and A. Churchill. 1949.

The Hospital in Contemporary Life. Edited by N. W. Faxon, M.D. (Pp 288. 27s. 6d.) London: Geoffrey Cumberlege. 1949.

The Annual Charities Register and Digest, 1949. 56th (Pp. 398. 10s. 6d.) London: Longmans, Green. 1949.

Renewal pages for the *Nelson Loose-Leaf Surgery.*

MEDICAL JOURNAL

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THE GENERAL AND THE SPECIAL

The title of the Presidential Address at this year's Annual Meeting reflected, in a different context, the theme of Professor Jefferson's Lister Oration. Professor Jefferson was concerned with the implications of the modern computing machines and their effect upon our ways of thinking about thinking. Dr. C. W. Curtis Bain, whose thoughtful and highly informative address appears in the opening pages of this *Journal*, discusses by detailed reference to the specialty he practises the impact of the machine on the practice of medicine. Dr. Bain develops his theme by recounting the historical steps that have led to the position of cardiology to-day. The views held at any one time on the circulation of the blood and the function of any part of the cardiovascular system are determined to a large extent by the techniques of investigation available. William Harvey, for example, was unable to fill in the gap between artery and vein because he had no microscope with which to see the capillaries. Old theories that seem to us, with modern knowledge, to have been foolish were not necessarily foolish in the setting in which they appeared, such as those of Galen on the circulation. Medicine has flagged in its pursuit of knowledge when it has clung to theories through an inert acceptance of authority, when it has allowed the theory to become a dogma, to challenge which led to professional ostracism. Vesalius and Harvey were key figures in the scientific renaissance in which medicine played a notable part. Part of their genius was the courage to follow the thought where it led them, to observe objectively, and to challenge authority without fear or favour. In their life and work they illustrated the modern theme, the independence of medicine. To-day this theme has a new variation. The new authority is not Galen; it is the State. For Medicine the State is the Minister of Health, his lay and medical Civil Servants, and the elongated shadow of the Treasury. Modern medicine is in danger of conflict with these three parts of the State mechanism.

Whatever may be the nature of this conflict, now and in the future, the strength of Medicine lies in the free advancement of knowledge, and how this, at an unequal pace, has taken place in cardiology is recounted with telling point by Dr. Curtis Bain. It might be argued that knowledge cannot advance unimpeded unless the intellectual environment is such as to liberate the spirit of inquiry. Yet the history of the forerunners of the Royal Society suggests that in the times when Milton sighed that the new presbyter was the old priest writ large the stout mind could stand out successfully against the tyranny of the ambitious politician. They excluded from their deliberations all mention of politics. But this cannot be an exact analogy. The twentieth century is not the seventeenth. The phenomenal advances of medicine are counterpoised by the growth of a spirit of political intolerance and arrogance. As an intellectual minority in the community the medical profession is subject to the pressure of the modern environment, created by demagogues who exploit the heedless impulses of the majority. Against this it can oppose the force of tradition and the advancement of medical learning. In the long run these will prevail against the febrilities of the modern political scene and the vagaries of ambitious politicians. These things cannot but obsess a hard-pressed profession, and to-day doctors are by the wish of Parliament and people caught up in the net of the politician.

Dr. Bain, like his fellow Oxonians in the seventeenth century, ignores the ephemeral, and traces the progress in cardiology that owes so much to the introduction of new instruments of measurement, from Sir John Floyer's watch in the early part of the eighteenth century to the catheter which Forssman in 1929 passed through his median basilic vein into the right auricle—and then walked to the *x*-ray department to have its shadow recorded on a film. In the interval between these two events there were the discovery of *x* rays by Roentgen in 1895; the work of James Mackenzie while in general practice; the construction of the electrocardiograph by Einthoven in 1903 and the pioneer researches of Sir Thomas Lewis; and the introduction of the sphygmomanometer. At a combined meeting of the Sections of Cardiology and Radiology this week there was much discussion on angiocardiography, another method of investigation mentioned by Dr. Bain.

The resources at the disposal of the cardiologist are now considerable, and all will agree with Dr. Bain that "the complete investigation of a patient with heart disease may therefore be a complicated affair." And he finds himself compelled to ask what will be the position of the clinician in the face of so many tests—the clinician, it is clear from the text, being in this case the cardiologist. When the specialist himself begins to feel cluttered up by the techniques of his specialty, then how much more must the general physician and the general practitioner feel at a loss in the presence of the intense specialization characteristic of modern medicine. Dr. Bain in his own specialty points the way out of the maze. As many thoughtful doctors have done before, he

emphasizes, after examining his theme, the importance of clinical examination, backed up by a selection of tests that are trustworthy. It is the clinical examination that enables the physician to synthesize his findings and knowledge, to include in this synthesis what he knows of the whole person who is his patient. Both in this country and in the U.S.A. more and more stress is laid upon this aspect of the art of medicine. And if this is true for the specialist, how much more true is it for the general physician and general practitioner. If the challenge that lies behind the title of Dr. Bain's Presidential Address is to be met, the specialist should take heed of his conclusion, and the profession at large must see to it that, however necessary specialism is, the general physician and the general practitioner hold their fundamental position in relation to the public—that of the doctor who sees the patient as a whole person in a particular setting. So long as this position is maintained the machine will not dominate medicine.

TUBERCULOUS EMPYEMA

The development of a purulent pleural effusion during the course of tuberculosis is a serious complication: unfortunately its seriousness is still not widely enough appreciated. In many cases the tuberculous infection of the pleura is one of the natural modes of termination of the disease; this is especially so in the chronic, advanced bilateral case, less often in the acute pneumonic form in which early pleural perforation occurs. Apart from these groups, in which the illness proceeds swiftly or inexorably to its fatal termination, there is a larger number of cases in which the pleural infection is less fulminant but in which the ultimate prognosis remains bad. Many of these infections occur during the course of artificial pneumothorax treatment. Apart from the serious prognosis, these cases are of great importance to-day, for the patients must remain long in hospital beds that can be ill afforded, and they also require much more individual attention than can often be easily provided. For many reasons, therefore, the efficient treatment of these patients is important: even more important is the prevention of their disability.

Though a tuberculous empyema following artificial pneumothorax treatment may occur in even the most carefully chosen and well-conducted case, the highest incidence of pleural effusion and empyema occurs in those cases in which the collapse is imperfect or contraselective: often the pneumothorax treatment should never have been started, or if started should have been abandoned at an early date. Elsewhere in this issue Dr. D. A. Andersen reports a follow-up of 74 cases of tuberculous empyema treated in Norwegian hospitals; he rightly states, "It is certainly incorrect to induce an A.P. first in practically every case, as is sometimes done on the grounds that it is an easy and safe method of treatment and therefore should be given a trial." The seriousness of the condition is demonstrated in Andersen's series: 25 of the 74 patients have died, a mortality of nearly 34%. This agrees with the findings of Woodruff,[1] who reported a series of 154 cases with a mortality of 42%, and of Brock,[2] who recorded a mortality of 44% in 90 cases.

The part that artificial pneumothorax treatment plays in tuberculous infection of the pleura has been described in a large number of papers. Morrison[3] has recently reviewed the subject, but his observation that "tuberculous empyema, although a serious complication of pneumothorax treatment, can be controlled in most patients by aspiration of the pus and re-expansion of the lung" would not be generally accepted, though he does qualify the statement by adding, "Thereafter, thoracoplasty is usually necessary." In a number of cases the state of the underlying lung, when the disease is uncontrolled, is such that it should never be allowed to expand, and primary thoracoplasty is desirable. In some it is reasonable to attempt to control the pleural infection by repeated aspiration of air and fluid and by encouraging the lung to expand. Recently, promising results have been obtained in some cases by the use of para-aminosalicylic acid, but this is unlikely to be effective when a bronchial fistula persists or the pleura is too thick and rigid to allow the lung to expand.

How long conservative treatment should be persevered with varies with personal experience and the individual case. Andersen suggests that six months is the absolute limit. Other authorities may feel that this would be far too long in many cases: the pleura has by then usually become very thick, and often sinuses have appeared at aspiration sites. If the empyema does not respond to medical measures it should be treated by thoracoplasty. When secondary infection is present a preliminary drainage is, of course, necessary. In Andersen's series 56.5% of the patients were cured or greatly improved by surgery, and he quotes the figures of Jones and Alexander,[4] who reported cure or improvement in 62.8% of 70 cases. Brock found that in his series of 90 cases of tuberculous empyema 77% of those who were treated conservatively (42 patients) died, whereas out of 48 submitted to thoracoplasty seven died (14%), the total mortality being 44%. Brock also noted that in 21 patients whose empyemata were not secondarily infected only one (5%) died after thoracoplasty. But out of 84 cases of secondarily infected tuberculous empyema 91% of the patients treated without op-

[1] Woodruff, W., *J. thorac. Surg.*, 1938, **7**, 420.
[2] Brock, R. C., *Brit. J. Tuberc.*, 1943, **37**, 18.
[3] Morrison, J. B., *Amer. Rev. Tuberc.*, 1948, **57**, 598.
[4] Alexander, J., *Collapse Therapy of Pulmonary Tuberculosis*, 1937, Springfield, Ill.
[5] Lam, C. R., *Arch. Surg.*, 1948, **56**, 1.

did not recover, while of the 49 treated by drainage and thoracoplasty 79% survived. In Andersen's series 14 out of 19 patients treated without operation died. There can be no question of the seriousness of the condition when treated medically, and Andersen makes a good point when he recommends thoracoplasty in those cases of persistent pleural effusion (not yet frankly purulent) which have not resolved in three months. Five cases of this type of "incipient empyema" were operated upon, with cure in all.

Thoracoplasty controls the disease in the underlying lung and is followed by the obliteration of the infected pleural space in a large proportion of cases. In secondarily infected empyemata it saves life by checking the constant purulent discharge, which sooner or later will cause amyloid disease or other toxic complications. To be effective thoracoplasty must be performed early, before the pleura has become too rigid for rapid and complete collapse to occur. Often drainage is allowed to continue for many months before thoracoplasty is begun, in the hope that the lung will expand and thoracoplasty may prove unnecessary or that a smaller space will have to be closed. Delay for these reasons is never justified, for the patient's condition always deteriorates and a poorer collapse is obtained. Thoracoplasty should be begun within 10–14 days of drainage.

Thoracoplasty can save life in many of these otherwise hopeless cases, but it often happens that a chronic discharging empyema cavity, though small, persists. Unless something is done to close it the patient is doomed to wear a tube for the rest of his life, with the constant necessity for daily dressings. The cavity may shrink down in 2–3 years and either heals or is little trouble; but usually some other form of plastic operation is needed. Andersen advises an operation of the Schede or Robert's type. Few surgeons would be eager to recommend perpetuation of the Schede type of operation to-day; there is a much greater place for plastic operations in which pleural or muscle flaps are used to produce obliteration of the residual cavity. Lam[5] writes of another method—namely, decortication of the lung—which is now being applied for the final closure of tuberculous empyema cavities. He records three cases in which healing was obtained, though in one it is doubtful if the disease was tuberculosis. His cases are few, but the method has been used sufficiently often by surgeons in this country as well as in the U.S.A. to prove that most gratifying results can be obtained. It would seem to be a dangerous or unsatisfactory procedure in tuberculous patients if used without preliminary thoracoplasty, for in many cases the lung (especially the upper part) should never be allowed to [illegible] owing to its diseased state, even if it could do so. Decortication is useful in securing obliteration of the residual infected pleural space after thoracoplasty has controlled the lung lesion and reduced the size of the empyema. When the lung fails to expand to fill the dead space it is usually because it was compressed in the early stages of the pleural effusion and held in its compressed condition by the thickened cortex. If this cortex is removed, the lung (especially the basal parts) will readily expand and fill the empyema space much more easily than would be possible by inserting large muscle grafts; often in thin patients it is difficult or impossible to obtain enough muscle tissue to fill the space completely. After decortication the skin wound can be closed, and if suction drainage is maintained for a few days healing will occur by first intention. Few things are more gratifying to a patient who has faced the dangers of a secondarily infected tuberculous empyema than to find that he has at last been rid of the tube and daily dressings that have been his lot for possibly several years.

CORTISONE IN THE TREATMENT OF RHEUMATISM

The Seventh International Congress on Rheumatic Diseases just ended in New York is likely to prove a landmark in the history of the treatment of those intractable and crippling conditions grouped under the indefinite term "rheumatism." The discovery of the adrenal hormone compound E, by Dr. Edward C. Kendall, now named by him "cortisone," and its application in the treatment of rheumatoid arthritis by Dr. Philip S. Hench and his colleagues, were recently discussed in a leading article[1] in this *Journal*. Their account of the development of this work has now appeared in the June issue[2] of the *Annals of the Rheumatic Diseases*, published by the B.M.A. The history of the treatment of any disease justifies caution in assessing the claims for a new remedy. But the world of medicine is now a ferment of ideas, experiment, and discovery, eagerly using in clinical research the new knowledge and techniques of the pure sciences. The essence of research, as Sir Edward Mellanby pointed out in his recent address[3] on Jenner, is discovery, and in the opinion of the specialists on rheumatism lately assembled in New York an epoch-making discovery has now been made in the treatment of a disease crippling in its effects and the cause of great suffering and waste of human life and effort.

The publicity which is naturally and rightly given to the almost unbelievable improvement obtained when cortisone is used to treat rheumatoid arthritis has raised

[1] *British Medical Journal*, 1949, 1, 812.
[2] *Ann. rheum. Dis.*, 1949, 8, 97.
[3] *British Medical Journal*, 1949, 1, 921.
[4] *J. Amer. med. Ass.*, 1949, 139, 1294.
[5] *New York Times*, June 1, 1949.

the hopes of countless patients, who will no doubt want to know from their doctors whether they can gain similar benefit. Unfortunately cortisone will not be available for very many months, except in small quantities to be used for further clinical trials under, it is hoped, conditions allowing for strict scientific control. Dr. Hench observed at New York that "at this stage we are not justified even to refer to our method as a treatment, except in the investigative sense." The scarcity of cortisone can be judged from the fact stated by Mr. William L. Laurence, the science correspondent of the *New York Times*, that the cost of a three-weeks course of treatment amounts to $18,000. The expense of production is certainly immense at present, and Dr. Kendall states that he and his colleagues at the Mayo Clinic are receiving only a week's supply at a time of cortisone for treating sixteen patients and of the adreno-corticotropic hormone (ACTH) of the pituitary body for treating five patients. This small supply is being carried by aeroplane each week from the Merck laboratories to the Mayo Clinic. The manufacturers are striving to speed up production,[4] but it will not be possible to increase the present small yield until 1950; even then supply is expected to fall far short of demand.[5]

Cortisone is a convenient short word for the adrenal cortical hormone, 17-hydroxy-11-dehydrocorticosterone. It was first isolated by Dr. Kendall from the adrenal cortex in 1935, and he was largely responsible for its partial synthesis, the final stages being completed by Dr. Lewis H. Sarett in the Merck laboratories. At the New York Congress Dr. Hench said that in addition to the remarkable effect in rheumatoid arthritis cortisone alleviated the arthritis associated with psoriasis and also that accompanying lupus erythematosus. Encouraging results had also been obtained in three cases of rheumatic fever. Professor Richard H. Freyberg, of Cornell University, reported good results in the treatment of Strümpell-Marie spondylitis. According to Dr. Edward W. Boland, a patient who was bedridden walked and fed herself within forty-four hours of starting treatment—"After nine days of treatment she literally danced a jig." Professor Walter Bauer, of the Harvard Medical School, from his own experience confirmed the findings of other observers. A report of the Congress will appear in a subsequent issue of this *Journal*. An account of the proceedings at the Congress was also given to the Section of Rheumatology, meeting at Harrogate this week, by Dr. G. D. Kersley. Another important point is that, because of the euphoria and increased mental capacity of those receiving cortisone, workers at the Mayo Clinic are investigating its effects on sufferers from mental disorder.

It must be stressed that in the treatment of rheumatic conditions cortisone is not a cure any more than insulin is for diabetes. Withdrawal of the hormone from a patient with rheumatoid arthritis leads to a relapse into cripple-dom. For those who want to treat this disease and for those who want to be treated it is therefore not just a question of injecting a few hundred milligrams of an extremely scarce drug in order to be cured; it is a question, so far as is known now, of being able to maintain treatment indefinitely. Both doctors and the public will therefore have to exercise great patience, relying on the skill and experience of the pharmaceutical industry to overcome the immediate problems of manufacture. If the new work now in progress is a great step forward in the treatment of rheumatic conditions, it is no less important an event in the science of endocrinology: in this field the full implications have yet to be explored.

DRUG-RESISTANT TRYPANOSOMES

One of the great difficulties in controlling trypanosomiasis of man or animals in Africa by means of chemotherapy has been the tendency for trypanosomes to develop drug-resistant strains. In commenting[1] on the new drug "antrycide," developed by Curd and Davey for the treatment of trypanosome infections in animals, we mentioned the danger that here also resistant strains might develop. Some information about this has now been published by Wilson.[2] Working at Entebbe in Uganda, he has found that, though the soluble sulphate of antrycide cured *Trypanosoma simiae* in pigs in doses of 3 to 5 mg. per kg. of body weight, yet one pig infected with *T. simiae* and treated with 2 mg. per kg. of the relatively insoluble chloride relapsed, and attempts to cure the infection with 5 mg. per kg. were unsuccessful. In cattle also strains of *T. congolense* and *T. vivax* appear to have become resistant to antrycide, and after treatment they can resist considerably higher doses. One such strain of *T. congolense* passaged in mice was not completely eradicated by 10 mg. per kg. of antrycide sulphate, whereas a field strain obtained from an untreated cow in the same area was cured by 0.5 mg. per kg. of antrycide sulphate. The resistance had therefore increased at least twenty times.

In some cases cattle reinfected a few months after treatment with antrycide and re-treated with curative doses have developed cryptic but nevertheless fatal infections. Should such cryptic infections or prolonged latent infections occur frequently after antrycide treatment an accurate assessment of the true duration of the prophylactic effect will be difficult if not impossible. There is also some evidence to show that *T. vivax*, the other important cattle trypanosome, quickly develops a degree of drug resistance after treatment with antrycide. In animals which have relapsed or become reinfected after treatment with the drug a dose of 5 mg. per kg. will not ensure sterilization of the infection in every case and may favour the development drug resistance; a dose in excess of 10 mg. per kg. be toxic.

[1] *British Medical Journal*, 1949, 1, 63 and 315.
[2] *Nature*, Lond., 1949, 163, 873.

Toxic symptoms may develop quickly; the animal loses consciousness, and death takes place two to six hours after treatment. In other cases a severe gastro-enteritis has occurred forty-eight hours after treatment, causing death of the animal in from 6 to 12 days. Another complication reported by Wilson is that treatment with 1 mg. per kg. of dimidium bromide (phenathridinium 1553) of relapse or reinfection with strains of *T. congolense* following antrycide treatment has been unsuccessful: it appears, in fact, that strains resistant to antrycide are resistant also to curative doses of dimidium bromide. As dimidium bromide is the only other drug which has given promising results in infections due to *T. congolense*, this is a serious drawback. Whatever the actual mechanism of drug resistance, it seems likely that early treatment of relapse or reinfected cases is essential if drug-resistant cattle trypanosomes are not to be widely distributed in tropical Africa. Repeated treatments in the field three to four times a year will obviously require most careful planning and may be expensive. It will be some time before the true value of such a procedure in tsetse areas can be assessed.

LABORATORY ANIMALS

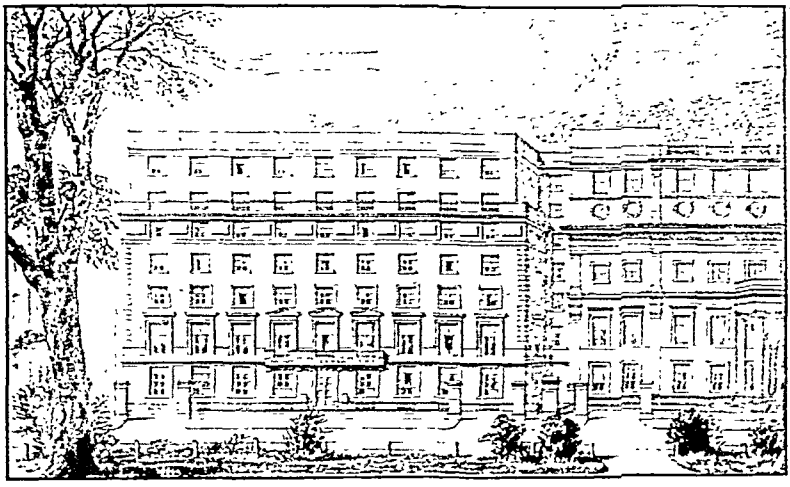
A recent attack by the *Saturday Evening Post* on anti-vivisectionists in the United States has called forth well-deserved praises from the American medical press. The dependence on animal experiments of discoveries like penicillin and tubocurarine, and of inventions like sulphathiazole and stilboestrol—to say nothing of the isolation of vitamins and hormones, such as ascorbic acid or corticosterone—is obvious to medical readers. There are, however, complex and often overlooked problems lying behind the results obtained by laboratory workers who use the whole or surviving organs of living animals as part of their laboratory equipment. Some indications of the importance of this subject is given by, amongst other things, the recent setting up of the Medical Research Council's Laboratory Animals Bureau and by the publication by the Universities Federation for Animal Welfare of a handbook on the care and management of laboratory animals; this book is reviewed on p. 20 in this issue of the *Journal*.

The Laboratory Animals Bureau is a purely co-ordinating body. It is not concerned directly with the production of laboratory animals, though in carrying out its terms of reference, which we understand to be simply that of matching "supply and demand" by directing the would-be user to the appropriate producer and *vice versa*, it may exert a very powerful influence on the numbers and kinds of animals produced, as well as on their genetic and nutritional status and their freedom from infection and infestation. In the course of this work the Bureau will have opportunities for important educational activities, and in this connexion it has already had formal dealings with senior technicians in most of the larger industrial and non-industrial laboratories producing animals, as well as unofficial contact with some of the more important breeders.

U.F.A.W. *Handbook* itself raises a number of interesting problems—one of them a question of semantics. Major Hume's invaluable introductory chapter on the miscalled "Vivisection Act"—miscalled because not one operation in ten thousand under the Act involves "live cutting"—reminds us that "the Act relates to experiments on living animals which are calculated to give pain." The use of that highly ambiguous word "calculated" may well have played into the hands of anti-vivisectionists, who are likely to use it in the sense of "intended," whereas it clearly should be read in the sense of "likely." It is much to be hoped that this troublesome word will be removed if ever the Act is amended.

The vast majority of laboratory workers using living animals under licence and appropriate certificate regard the Act as an invaluable protection, a point which was stressed by Professor Lovatt Evans in the Stephen Paget Memorial Lecture reported elsewhere in this issue. They would no more support complete absence of Governmental control in these matters, which would leave their flanks completely exposed to the not always too scrupulous attacks of anti-vivisectionists, than they would tolerate or work under conditions that apply in some parts of the United States. It is, we understand, impossible there for some pharmaceutical manufacturers to use laboratory animals whether for research or control, and subterfuges, such as the setting up of a biological institute, become necessary if any biological tests at all are to be applied to products that cannot be assayed otherwise. In this matter it would seem that our own law also might benefit from scrutiny and possible amendment. It was, after all, drawn up long before the possibility of, or indeed the need for, biological assay existed. That is no doubt why, as Major Hume points out, "The Home Secretary could not legally license painful experiments having a commercial objective." Whether the rabbit feels pain after injections of insulin is a moot point: certainly the rabbit assay of insulin has a commercial objective, though it may well have more disinterested ones besides. Surely it would not defy the wit of parliamentary draughtsmen so to reword the Act or its schedules and regulations as to free both the Home Secretary and the bio-assayist from possible embarrassment in this matter.

There are other reasons why a revision of existing legislation seems overdue. The extreme difficulties beset-ting any worker who wishes to carry out biological research or assays on curare derivatives, the restrictions on any kind of "demonstration" with living animals at meetings of learned societies, and the classifying as "operations" of many hundreds of thousands of painless injections and feeding experiments and tests are all hindrances to the rapid advance of medical science, yet in no way do the assist in giving effective protection to animals. On the other hand, there are good reasons for thinking that man rats, mice, guinea-pigs, and rabbits would be happier i Home Office supervision were extended in a suitabl manner to cover commercial and other breeding estab lishments as well as research laboratories. We believe tha most members of the Universities Federation for Anima Welfare and all members of the Research Defence Society would find common ground for constructive improvement at almost every point where the present law is a survival of vestigial precautions rather than a true and "humane" expression of modern requirements.



View of proposed new residential college.

SURGEONS HONOUR LORD NUFFIELD

RESIDENTIAL COLLEGE

The Honorary Fellowship of the Royal College of Surgeons was conferred on Viscount Nuffield on June 23.

Lord Webb-Johnson, P.R.C.S., said that it was nearly seven years since they had invited Lord Nuffield to the College in order to show their appreciation of his tremendous services to British medicine. They had then conferred on him the Honorary Medal of the College—their most exclusive emblem of merit. On that occasion their desire was to do honour to Lord Nuffield because of his remarkable gifts to British medicine. To-day the case was different. Lord Nuffield had made a gift to the College which would provide facilities and amenities unique in the world. They were therefore inviting Lord Nuffield to become one of themselves.

The room was filled, he said, with keen graduate students from all parts of the world. Lord Nuffield knew that London could provide for postgraduate medical students a wealth of opportunity that could not be surpassed; but he saw that there was one thing lacking for aspirants to high places in surgery—a residential college in the precincts of their academic headquarters. Lord Nuffield's gift would provide such a college, and students living there would make contacts with leaders of their profession which would be a stimulus to them and their pupils throughout their lives however many thousands of miles away from London they might be.

Mr. L. E. C. Norbury, Senior Vice-President of the College, introduced Lord Nuffield, saying that his name stood for generosity and progress. They were deeply grateful for all that he had done for the cause of science.

Lord Nuffield was then admitted a Fellow of the Royal College *honoris causa*.

Lord Nuffield thanked the President of the College for the honour that had been bestowed upon him, saying that in his youth he had wanted to be a surgeon, but he had had to wait until that day.

Temporary College Opened

Lord Nuffield then visited the temporary residential college and formally opened it. An account of the college appeared in the *Journal* of May 21 (p. 903). The proposed new building, which will stand next to the Royal College on the east side, is depicted above.

At the luncheon that followed, Dr. Temple Brown, one of the first residents of the college, proposed the health of Lord Nuffield, thanking him for the gift that had made the enterprise possible. This gift of £250,000 was first announced in the *Journal* of Dec. 18, 1948 (p. 1072).

Dr. S. R. Taitz, of Johannesburg, followed, and spoke of the many evidences in South Africa of Lord Nuffield's generosity. Most surgical traditions in the Commonwealth came from Britain, and it was thrilling to come to the fountainhead.

In reply Lord Nuffield said that two specialties had always particularly interested him—orthopaedics and anaesthetics. When some time ago he had suggested establishing chairs in these subjects he had been told that they were unnecessary, that every doctor was an anaesthetist and every surgeon an orthopaedic surgeon. However, all that was in the past, and these specialties were now recognized. He commented on the jealousy he had found in the medical profession, saying that it had in the past hampered him. He was pleased to see so many men there from the Dominions. The residential college would cement friendships between them to the advantage of the whole world.

CENTRE FOR INTERNATIONAL CO-OPERATION IN LONDON

THE CIBA FOUNDATION

The Ciba Foundation for "the promotion of international co-operation in medical and chemical research" was opened on June 22 at 41, Portland Place, London, W.1, by Sir Henry Dale, O.M., F.R.S. The foundation has been endowed by the firm of Ciba, manufacturing chemists of Basle. The centre will be used as a meeting-place for medical research workers and clinicians, and there is accommodation for 15 visitors. If the dignity and elegance of the foundation's headquarters are anything to go by, the work that will be done there should be of a high standard.

Speaking at the opening ceremony for the founders, Dr. Max Hartmann said that the centre had been established in London because of the pre-eminence of British research work, and because the scientific publications in the English language take first place in the world. He believed that the field of research in medicine was limitless, but team-work was essential if practical results were to be achieved. He hoped that the foundation would make practicable the interchange of views among medical scientists on as wide a scale as possible.

Lord Horder, the chairman of the trustees—the others being Lord Beveridge, Professor E. D. Adrian, and Mr. Raymond Needham—referred to the ready acceptance by the founders of a carefully worded trust deed, defining the objects of the foundation. He hoped that clinicians would play an important part in the discussions at the centre and that it would become a forum for international co-operation.

New Responsibilities

In declaring the centre open Sir Henry Dale said that it had many well-conceived and attractive features. The executive council was to be advised by a panel of distinguished scientists. He congratulated the foundation on obtaining a site so close to the centre of London's medical "quarter." He believed that there was nothing more remarkable in this scientific era than the change in the last half-century from traditional therapeutics to the ever-widening range of remedies which deal radically with the causes of disease. The production of these remedies and their proper use laid new responsibilities on doctors and chemists.

The relations between those employed in the pharmaceutical industry and those in hospital, university, and Government needed to be strengthened. An atmosphere of genuine confidence and co-operation was wanted for the develop-

therapeutic advances. Secrecy was a crippling disease of all healthy scientific activity, and he hoped that the foundation would help to maintain the tradition of international collaboration in medical science. Sir Henry thanked the founders for establishing the centre in London, and said it was appropriate that the idea should originate from Switzerland, the chosen home of the international spirit in medical activity. In conclusion, Lord Beveridge expressed gratitude to Sir Henry Dale for his encouraging remarks.

PHYSIOLOGICAL RESEARCH AND VIVISECTION

STEPHEN PAGET MEMORIAL LECTURE

The eighteenth Stephen Paget Memorial Lecture, given under the auspices of the Research Defence Society, was delivered on June 9 by Professor C. LOVATT EVANS, with Lord HAILEY in the chair.

Professor Evans, whose subject was "Physiological Research and the Vivisection Act," recalled the history of the Act of 1876. It followed upon the Royal Commission appointed during the previous year, the Commission itself being the result of the controversy ensuing upon the establishment in 1874 at University College, London, of the first chair of physiology. From the beginning it was against physiology that anti-vivisectionists directed their abuse. Physiologists had now no complaint to make about the administration of the Act in this country. Rather they welcomed it as a means of protection. It was far otherwise in the United States, where apparently any crank could demand admittance to a laboratory and create a disturbance. Another consequence of the early anti-vivisectionist agitation was the establishment, also in 1876, of the Physiological Society. Physiologists feared that since members of the Government, then as now, were mostly ignorant of science, representations made to them by prejudiced persons might lead to disastrous results in the framing or administration of the Act. The society had had a great influence on the development of physiology throughout the world, but its early work was largely concerned with the Act and with the impediments placed in the way of experiment. Five years after the Act was passed it was stated that there had been many interferences with the work on the part of the Home Office, and three particular instances were given—Fraser's work on the action of "Borneo poison," Brunton's on the treatment of snake bite, and Lister's on the arrest of arterial haemorrhage. The first prosecution was in 1882. It was that of Ferrier for work in conjunction with Yeo, only the latter having a licence. It was proved, however, that only Yeo performed the operation, and the case against Ferrier was dismissed. As in all subsequent legal actions of the kind, said Professor Evans, valuable help was given by the British Medical Association.

The lecturer went on to mention several libel and other actions, including the "brown dog" libel case, in which the late Sir William Bayliss sued the writers of a book and was awarded £2,000 damages. As a rejoinder an anti-vivisectionist later on took up two libel actions, one of which was withdrawn and the other lost. "In short, no court verdict concerning experiments on animals has ever gone against us."

The Royal Commission of 1875 was set up largely because of representations made by the medical profession, and not, as was often supposed, by the anti-vivisection societies. Another Commission was largely the result of anti-vivisectionist propaganda and did not report for six years. The conclusions of that Commission were, on the whole, in favour of the experimentalists. One paragraph in the report stated:

"... the harrowing descriptions and illustrations of operations inflicted on animals, which are frequently circulated by post, advertisement, or otherwise, are in many cases calculated to mislead the public, so far as they suggest that the animals in question were not under an anaesthetic. To represent that animals subjected to ...ments in this country are wantonly tortured would, in our ...n, be absolutely false."

...essor Evans said that it was early recognized that the ...se of physiological experiments would usually be ...ated if pain was experienced by the animal, and for that reason, if for no better one, the experimenters were careful to avoid the infliction of pain. The clamour and obstruction of the enemies of science had in no way altered the course of physiological experiment or changed its procedure, but it had made physiologists more alive to the possibility that cruelty might be perpetrated thoughtlessly.

Nowadays the control of anaesthesia had been brought to a fine art, and the latest developments in aseptic surgical technique and in chemotherapy enabled survival experiments, where these were essential, to be carried out under the conditions most favourable for the animal. Prominent among the rapidly growing branches of experimental physiology was that which dealt with human physiology. New techniques and apparatus had allowed some remarkable observations to be made on normal or diseased human subjects. None of these would have been possible without the starting-point of a large body of reliable physiological knowledge, all of which rested on the results of earlier work on animals. It was surprising to what extent this recent work had vindicated the findings of past generations of physiologists. Comparisons showed that, contrary to the assertions of anti-vivisectionist propaganda, the results of experiments on the higher animals did enable conclusions—often far-reaching ones—to be drawn regarding the physiology of man.

A vote of thanks was accorded on the motion of Major Hume, seconded by Dr. N. G. Horner. The society proceeded to reappoint its officers, and Professors J. H. Burn, H. P. Gilding, and A. A. Miles, and Dr. J. W. Trevan were added to the committee. A presentation was made to the retiring secretary, Miss Burgiss-Brown, who has served the society for thirty-eight years.

HOMES FOR AGED SICK

KING EDWARD'S HOSPITAL FUND

The Duke of Gloucester presided at the annual meeting of the general council of King Edward's Hospital Fund for L don at St. James's Palace on June 21. Referring to the Nati Health Service, the president said that there were three problems.

First, there was the steeply rising cost of the hospital se The view of the King's Fund had been set out again i annual report. The old system of accounts was ob and until departmental costing was adopted there was no means of knowing whether or not money was being used to the best advantage.

Secondly, there was everywhere a disproportion between the number of nurses needed and the numbers likely to be available—even where, as in this country, there had been a steady increase in numbers. The Fund had emphasized the need to build up a larger body of trained nurses in the hospitals. It had recently opened a residential staff college for ward sisters, and the first 24 staff nurses had just gone back to their hospitals to take up their duties as sisters. (See p. 29.)

The third problem, which was common to all countries, was the need to overhaul the administrative machinery. Progress in hospital affairs had been so rapid in recent years that everywhere, sometimes in the most unexpected places, there were to be found departments or even whole units or branches of the service which were content with methods which became obsolete thirty or forty years ago. The reception given to the Fund's memorandum on admissions and records, published last September, shows how widespread was the need for help of this kind. Out of this had come a new school for medical records officers at the Middlesex Hospital, a most welcome development into which the King's Fund had put some £7,500. The Fund was also developing a training centre for hospital caterers at St. Pancras Hospital.

A New Proposal

The Duke of Gloucester went on to describe a development of a different kind, the setting up of homes to which hospitals might send sick persons, normally over 60 years of age, for whom there was no other suitable provision. Other voluntary bodies, notably the Nuffield Corporation for the Aged, were

at work in this field, and the official services were doing what they could. But, largely as the result of first-hand experience of the Emergency Bed Service last winter, it was felt that a vigorous effort was needed to get some hundreds of beds open in homes of this kind before next winter. The Fund was therefore inviting hospitals, through their friends and supporters or through other voluntary bodies prepared to accept the responsibility, to come forward and help. The Fund was prepared within the limits of the scheme to provide the bulk of the capital needed.

The council then approved a resolution setting aside a sum of £250.000 to assist in the establishment of homes for the aged sick no longer in need of active treatment. These homes would be managed by voluntary organizations, but would be linked with the hospital service. The Fund, while providing for the capital expenditure, would rely on the Metropolitan regional hospital boards to enter into contractual arrangements with the homes for the maintenance and care of patients sent into them. Sir Ernest Pooley, chairman of the Management Committee, read the following message from the Minister of Health :

"The Minister welcomes the generous offer of the Fund to allocate £250.000 for capital expenditure for this purpose. In his view the proposal constitutes a social experiment of great value as well as being of real assistance in solving the difficult problem of the accommodation of the chronic sick in the London area."

The accounts for 1948, presented by Sir Edward Peacock, the treasurer, showed an increase in income from investments at £238,827, in part due to the addition to capital in 1948 of £425.000 from the Nuffield Trust for the special areas. Apart from legacies and other special receipts, ordinary income had exceeded expenditure by £67,710. The fact that the Fund did not spend the whole of its income in 1948 was not owing to lack of claimants but rather to the fact that in the new conditions of the hospital world it must proceed with caution. The claims made upon it were innumerable and compelling, but the Fund was anxious to concentrate on those things that were most needed and that it was best fitted to help in providing.

THE FAMILY PLANNING ASSOCIATION

NEED FOR VOLUNTARY EFFORT

The future work and position of the Family Planning Association in the light of the recommendation in the Report on the Royal Commission on Population that advice on contraception should be part of the National Health Service have been described in London by Lady Denman, D.B.E., chairman of the executive committee, and other officials of the association.

Many of the proposals in the Report are what this body has been seeking during the 19 years of its existence—it was formed in 1930 as the National Birth Control Association. It was emphasized, however, that the work of the voluntary organization will be necessary for some time to come if parents are to be advised about the planning of families, and that there was a need for a grant from the Ministry of Health for an expansion of the work of the headquarters, including the setting up of new clinics. Even when the giving of advice on contraception was undertaken by the National Health Service, said Lady Denman, there might still remain work for the association to do. Mrs. S. C. S. Robinson, the general secretary, pointed out that it would take time for a sufficient number of doctors to be trained to give advice on contraceptive methods.

Advisory Clinics

The association, the president of which is Lord Horder, has 78 branch clinics at which medical advice is given on family spacing, infertility, and minor gynaecological disorders. These clinics are situated in England, Wales, and Scotland; more are in the process of formation, and more are needed. Last year 35.000 new patients attended the clinics, in addition to persons attending for second or additional visits. A number of gynaecological disorders were discovered among the patients; these were treated at the clinic or referred to hospital. Lady Denman stated that many people did not like going to a big central hospital unless they were seriously ill, but found the association's clinics small and friendly. The association co-operates in the running of clinics in conjunction with local authorities, uring them to use their permissive powers to provide contraceptive advice to women who need it on medical grounds. Of the 145 health authorities in England and Wales, less than 60 provide clinics or special sessions at which advice on contraception is given. About 75 pay grants or fees to local Family Planning Association clinics, and several let or lend premises for use as clinics by Family Planning Association branches. The association is concerned also with providing advice and treatment for infertility, and its centre in London for the investigation and treatment of male sub-fertility is the first of its kind in this country. A centre maintained by the association in London provides the results of diagnostic tests in 24 hours.

It has been found that women prefer to receive advice from women doctors. The association arranges training sessions at clinics for doctors and also lectures for medical students and practitioners. Conferences are arranged from time to time for members of the medical profession and others. The association has standardized tests for manufacturers' goods and set up an approved list of those which have passed these tests. Further information may be obtained from its headquarters, 69, Eccleston Square, S.W.1.

B.C.G. VACCINATION

MINISTRY OF HEALTH PROPOSALS

Arrangements for introducing B.C.G. vaccination against tuberculosis in this country have been made by the Minister of Health and the Secretary of State for Scotland, and the following information has been provided by the Ministry of Health.

It has been thought advisable, since B.C.G. has yet to be tested in the conditions met with in this country, to keep the scheme within defined and suitably controlled limits. One part of the scheme will be to offer B.C.G. vaccination to all hospital nurses and to medical students as a form of inoculation, among others, to which their professional prudence may dispose them; the other part will be to make the vaccine available to chest physicians or other specialists—e.g., paediatricians—who may wish to use the vaccine on their individual responsibility in suitable cases, such as family contacts of tuberculous persons. The medical advisers of the Ministers consider it necessary, at this stage at least, that this form of vaccination should be the responsibility of physicians with specialized knowledge and experience of tuberculosis. It will consequently not be possible for anyone to obtain it by going to his own doctor, though a doctor who may consider it advisable for a particular person will, of course, be able to refer that person to a chest physician. In addition to the two schemes mentioned above, a long-term investigation to assess the value of B.C.G. in this country is contemplated.

The arrangements for giving B.C.G. to hospital nurses and medical students who wish to be vaccinated will be made through the hospitals or the authorities of medical schools, with whom the Departments will communicate about this part of the scheme. It will be a considerable task to plan and carry out these arrangements throughout the country, and it may take a long time to cover all areas.

The chest physicians who will be able to use B.C.G. within their own discretion will for the most part be among those engaged in joint service to regional hospital boards and local health authorities. Where a chest physician in this category undertakes B.C.G. vaccination he will need to do so in the capacity of his local health authority service and in association with the authority's medical officer of health, since it will come within the scope of the authority's responsibility for the prevention of tuberculosis under Part III (Section 28) of the National Health Service Act or Section 27 of the National Health Service (Scotland) Act. A circular will refer her local health authorities about the procedure to be

Supplies of B.C.G. are to be obtained from the Serum Institute, Copenhagen, from which they will be ordered by the Ministry of Health (or Department of Health for Scotland) and consigned by air weekly. The arrangements for ordering, receiving, and distributing the vaccine will be centralized in this way, because it must be used with the least possible delay after it leaves the laboratory. Instructions will be issued later about the method of ordering the vaccine. Standard forms of record have been prepared.

An exposition about principles and technique of B.C.G. vaccination has been prepared by experts for the assistance of physicians undertaking it. Two points are that it is advisable to vaccinate only persons who do not react to tuberculin, and that the vaccine to be obtained from Copenhagen is suitable only for intradermal use.

STAFF COLLEGE FOR WARD SISTERS

RESIDENTIAL TRAINING CENTRE

King Edward's Hospital Fund for London has opened in South Kensington a staff college for ward sisters. This is a residential training centre accommodating up to 26 students. The students generally have had at least a year's experience in hospital, and are seconded or nominated by a hospital which is a training school, to which they will return on completion of the course. They continue to receive their salary during the course, though not their emoluments, and no fees are charged for either tuition or residence, the whole cost being defrayed by the King's Fund.

The course lasts sixteen weeks and concentrates on three problems which face the ward sister. The first is that of imparting instruction to student nurses in the little time available for this purpose in actual hospital work. The second is that of the achievement of happy staff relations under conditions often of some stress. The third is that of administering the ward with maximum efficiency.

The emphasis is on teaching and administrative methods. The students learn different ward schedules, which they will take back with them and perhaps modify in the actual conditions of their wards. Much of the instruction is given by way of informal group discussion under the principal, Miss A. M. Downer, and the tutor, Miss C. H. S. Dobie. In addition, in the later part of the course, visits are paid to hospitals, where the students work as supernumeraries under experienced ward sisters, study the work of the almoner, the rehabilitation department, and the district nurse, and see something of personnel management. No certificate or diploma is given at the end of the course.

The college itself is in a large adapted house (formerly two houses), 147, Cromwell Road, S.W.7. The average age of the 24 ward sisters at present undertaking the course is 27. The idea behind this pioneer effort is to heighten the prestige of ward sisters' work in general, and to encourage the young trained nurse to remain in her hospital post rather than to seek some less exacting form of nursing employment. It is realized that it is in the hospital ward that the nursing shortage is chiefly felt. It seems that the idea was suggested to the King's Fund by the Ministry of Health, which, with the Ministry of Education, the Royal College of Nursing, and the Royal College of Midwives, is represented on the committee of the staff college. In time, it is hoped, many centres of this sort will be established, and this will become the normal method of training for ward sisters' posts.

The Ophthalmological Society of Egypt is offering a prize to the value of £E20 for "the most valuable contribution brought before the Annual Congress of the society." Papers should be submitted before the beginning of December. The competition open to members of the society of less than 20 years' practice. ...ge of physio may be obtained from the society, Dar ...strated if pain was ex... El Ainy Street, Cairo.

Correspondence

Medicine in the United States

SIR,—Two years ago I wrote a letter in the *Journal* (June 28, 1947, p. 949) giving some impressions of a visit to endocrine and metabolic centres in the U.S.A. Having had the privilege of a similar visit to the U.S.A. and Canada this year, I venture to express some sequential thoughts.

Of the therapeutic application of radioactive iodine I wrote, "The results are conclusively successful in exophthalmic goitre and in toxic adenoma, although the large nodular goitres with pressure symptoms are still thought more suitable for surgery." Two years' experience would permit this statement to stand, although the difficulty of exact calculation of dosage leads to a percentage of myxoedemas of the same incidence as met with after thyroidectomy; and thyrotoxic relapses follow inadequate dosage. In some centres the treatment is used on a large scale as the one of choice, and is especially favoured in recurrence of symptoms after thyroidectomy. The fear of damage to kidneys or germinal epithelium or of a carcinogenic stimulus appears to be regarded as unwarranted with radioactive iodine as distinct from other isotopes, although it is still not generally used for children or young adolescents. Clinical results are certainly impressive.

The recent treatment of rheumatoid arthritis by Kendall's compound E ("cortisone") or by the pituitary adrenocorticotropic hormone, which stimulates the adrenal cortex to produce compound E and/or compounds of similar structure, has caused a stir, and there appears to be no doubt of the dramatic clinical amelioration and of the equally dramatic fall of the sedimentation rate to normal. However, there is relapse in most cases following cessation of therapy, and the effect is regarded as a favourable influence on the normal adaptation or "alarm" mechanism of Selye in a variety of conditions rather than as necessarily specific. Apart from cost, the supply of compound E is not likely to be more than infinitesimal for some time, if ever, but the prospects of supplies of adrenocorticotrophic hormone are less depressing, even if remote.

Two years ago mineral metabolism studies still centred around sodium, but this year several years' study of potassium at the Johns Hopkins metabolic centre are coming to fruition under the able guidance of John E. Howard. It has been observed by those in contact with cases of adrenal insufficiency that excess of desoxycortone, especially with added salt, leads to excessive excretion of potassium and low serum potassium which may prove fatal. Similar potassium findings have been noted in the treatment of diabetic coma and in infantile diarrhoea. The studies at Harvard have shown similar potassium depletion after some surgical operations, particularly those associated with vomiting, diarrhoea, or gastro-intestinal drainage, and may be fatal.

Low serum potassium is rapidly detected by typical electrocardiographic changes, as well as by flame photometer. The giving of intravenous saline after operations accentuates the tendency to low serum-potassium concentration in such cases and it has been routine for some time at Johns Hopkins to add 40 to 110 milli-equivalents of potassium per day to all intravenous feeding mixtures. Since many of us were impressed by our physiological teaching that potassium in excess is a protoplasmic poison, it is perhaps easy not to be aware of the potentially fatal effects of too little potassium. A lighter side of the subject is that old-fashioned meat extracts, recommended by the Victorian doctor after operations, are found to have very high potassium content.

In my letter of two years ago I spoke of the exceptional adequate laboratory and research accommodation that I had seen, both for animal experiment and human metabolic studies. This year I saw the foundation of a 500-bed hospital where the additional planned space for investigation and research is twice that for bed accommodation. Many of us hope that in spite of initial financial stringency the National Health Service will give us such facilities in our major hospitals and that plans for the future will be courageous and made with vision. Space alone

however, does not necessarily determine good research, and there is no lack of appreciation in America of the fundamental character and high quality of research in this country, and of the clinico-pathological background on which our methods of medical education produce sound results.—I am, etc.,

London, W.1 S. L. SIMPSON.

Tuberculosis in Industry

SIR,—Dr. Stephen Hall's letter (June 11, p. 1049) on this subject raises a number of interesting points. I have heard a good deal about the inquiry into tuberculosis in the boot and shoe industry and from time to time discussed it with Dr. Alice Stewart and her colleagues (May 28, p. 926), and I think the following comments can be made.

1. The phrase "recently infected persons" was a misstatement, due to an attempt to put into different words a clumsy mode of expression which kept on recurring in the text of the MS. But, although it may well reveal some wishful thinking, in the case of this investigation we think it is perhaps not far from the truth. The observations made do *suggest*, indeed, that "transference of bacilli from one worker to another" has taken place. Final proof of this is still lacking, but more evidence in this direction will, I believe, be published later.

2. Dust conditions in boot and shoe factories are now being studied, and figures relating to air-borne bacteria will also be contained in a later report. About dust production in general, there are only two occupations in the industry where this is regarded as excessive. One is associated with a relatively high tuberculosis morbidity rate, and the operations are carried out under cover of dust-extraction plants. The other has no dust extractor and has the lowest rate of all. There may be other reasons for this difference, but the important one which strikes Dr. Stewart and her colleagues is that the former is a light job and the latter a strenuous one. Actually, the highest tuberculosis rates of all in the industry have been encountered in a strictly non-dusty light occupation, which has been found to attract an exceptionally large number of ex-tuberculous persons.

3. We should all agree that it is important for epidemiologists, as it is for clinicians, to know why some persons develop overt disease and others do not, but is it not a step in the right direction, meanwhile, to try to discover where the people are who do break down, and what they are doing?

May I say in conclusion that the findings of Drs. Stewart and Hughes indicate that exogenous reinfection and superinfection—using these terms in the strict sense in which Terplan[1] has used them—may play a considerable part in determining the incidence of the disease in the later age groups, especially in males.—I am, etc.,

Oxford. S. ROODHOUSE GLOYNE.

REFERENCE

1 *Amer. Rev. Tuberc. Supplt.*, 1940, pp. 1-176.

Resectable Carcinoma of the Stomach

SIR,—Dr. A. R. Parsons (June 18, p. 1096) quotes from a paper by me (*Brit. J. Surg.*, 1947, 34, 379), in which I stated that "of 1,405 patients with cancer of the stomach treated in the London hospitals in 1938–9, only 56 (4.03%) survived for five years." He then proceeds to compare this figure with those published by the Mayo Clinic. As this gives a wrong impression of the results of treatment in the London hospitals, would you permit me to explain that in the paper from which this quotation was taken I gave a table showing that 691 (49.2%) of the 1,405 patients were subjected to laparotomy, and in only 243 (17.3%) was resection possible? The five-year survival rate of these 243 patients was 23.1%, whereas that of the 2,772 patients who underwent resection in the Mayo Clinic was 28.9%.

Apart from an examination of the possible causes for this difference, one of the main objects of my paper was to draw attention to the fact that the figures collected by the British Empire Cancer Campaign prove that 82.7% of patients with cancer of the stomach were beyond hope of cure by the time the surgeon saw them. In the Mayo Clinic the figure was 74.5%.—I am, etc.,

London, S.W.1. W. L. HARNETT.

Abortions and Psychoneurosis

SIR,—The inquest held on the patient who died following the induction of premature labour at the 28th week by Dr. Norman Haire for mental instability and suicidal tendency (reported in the *Journal* of May 7, p. 825) raises the question of how far termination of pregnancy is justified as a treatment or prophylactic for this or almost any other variety of insanity.

Where pregnancy is the apparent cause of the anxiety state in a woman who was previously in normal mental health it seems logical, at first sight, to induce abortion. It is presumed that the removal of the cause of anxiety will be followed by a rapid disappearance of mental symptoms. But the problem is not so easy as this. However simple may be the method of induction, the operation is potentially dangerous where there is fear and deep anxiety. It is difficult to realize that nothing more than the passage of a sound to rupture the membranes or the injection of a few millilitres of a mildly irritant paste can cause fatal shock by vagal inhibition.

In the ordinary routine of hospital work where induction of premature labour is performed for, say, toxaemia, it is a commonplace to rupture the membranes or separate them by the finger above the internal os without the slightest fear or risk of causing shock. But it is a very different operation for those women who are the victims of deep depression by reason of their pregnancy, especially if it is illegitimate and has been concealed. Dr. Keith Simpson (*Lancet*, Jan. 8, 1949, p. 47) has drawn attention to the risks of interference with pregnancy. He states that of 100 fatal cases on which he made post-mortem examinations no fewer than 34 had died "immediately" after the operation—11 from vagal inhibition, 21 from air embolism, and 2 from haemorrhage.

I remember a case of early pregnancy complicated by prolonged bleeding for whom it was agreed that abortion was the correct treatment. An hour after the simple manœuvre of inserting a laminaria tent into the cervix I was alarmed, on being recalled to the house urgently, to find the woman in a state of shock, with cold sweating, pallor, feeble pulse, and clonic movements. The tent was removed immediately, and slow improvement followed. No haemorrhage or injury to the uterus had been caused by the insertion of the tent.

After the necropsy on Dr. Haire's case Dr. Keith Simpson stated at the inquest that he had found no organic disease whatever and no local injury as a result of dilatation of the cervix and injection of the paste. Here, evidently, was a case of death due to vagal inhibition in a single woman deeply depressed by reason of the pregnancy.

The indication for this operation was suicidal tendency as shown by one alleged attempt at self-destruction. And yet death was actually caused by the very measures undertaken to prevent it. Under suitable restraint in a mental home this woman could have been prevented from the risk of suicide. Modern methods of treatment of depressive states have entirely altered the prognosis for these patients and should influence our attitude to the view that if the pregnant woman attempts or even threatens suicide abortion should be induced forthwith.

It falls to obstetricians to perform the actual operation, and it behoves them to be aware of the dangers and very sure of their ground when they receive the recommendation from the psychiatrist. It should be remembered also that a number of depressed women who have had pregnancy terminated suffer from self-guilt and remorse for years afterwards. This is a factor which impedes spontaneous recovery from depression.

There are, of course, occasional cases of mental disturbance where termination of pregnancy may be indicated, but they are uncommon.—I am, etc.,

London, W.1. ALECK BOURNE.

SIR,—Can the bewildered G.P. have some guidance on the psychiatric indications for the termination of pregnancy? In my own practice I am occasionally consulted by some poor unmarried girl who is pregnant. She is invariably in the depths of despair and suffering from an acute anxiety neurosis. When I tell her that it is illegal to interfere with a pregnancy, she very often threatens suicide. In spite of my genuine feeling of pity for her the best I can offer her is to refer her to an antenatal clinic.

Am I failing in my duty in adopting this attitude? Should I refer all these cases to a psychiatrist, who might then recommend abortion? Can they then be referred to hospitals and thus avoid paying impossible fees? Or is it that psychoneurosis of a degree sufficient to justify therapeutic abortion does not occur in working-class girls, but only in those who are more affluent and on a higher intellectual level?

I pose these questions because in my ignorance I cannot distinguish the fundamental difference between my own cases and the ones about whom one reads in the Press. Perhaps some psychiatric authority would give us guidance. By this means we might even put the old lady with a hatpin out of business, relieve the hospital emergency bed service from the strain of dealing with septic abortions (by planning therapeutic abortions some time ahead), and thus save the G.P.s' time in having later to deal with the numerous gynaecological conditions resulting from unskilled interference.

In any case I think I'll send my next case to see the psychiatrist at a general hospital, particularly if she threatens suicide. I am cynical enough to doubt a conclusion agreeable to the patient.—I am, etc.,

P. R. SAVILLE.

Homerton, E.9.

Treatment of Hepatic Cirrhosis

SIR,—May I correct an error in your leading article (June 11, p. 1042) on the treatment of hepatic cirrhosis? You report the observation of Ralli, Robson, Clarke, and Hoagland[1] as recording "that parenchymatous hepatitis is associated with a fall in the antidiuretic agent normally present in the urine. . . ." In point of fact these workers reported a considerable increase in the antidiuretic potency of dialysates of urine from patients suffering from cirrhosis of the liver with ascites and peripheral oedema, when tested biologically according to the method of Burn.[2]

This increase has been confirmed by Drill and Frame[3] and more recently by Kunkel, Labby, Ahrens, Shank, and Hoagland.[4] Cases of cirrhosis in which fluid retention was not a marked feature did not excrete the antidiuretic factor greatly in excess of normal.—I am, etc.,

JAMES S. ROBSON.

Edinburgh.

REFERENCES

1 *J. clin. Invest.*, 1945, **24**, 316.
2 *Quart. J. Pharm.*, 1931, **4**, 517.
3 *Fed. Proc.*, 1948, Part 1, **7**, 215.
4 *Stud. Rockefeller Inst. med. Res.*, 1949, **137**.

*** Dr. Robson, and also Dr. F. G. W. Marson, of Birmingham, who wrote to the same effect, are correct in pointing out that Ralli and his co-workers found a rise in the excretion of the diuretic factor in cirrhosis of the liver, especially in cases with ascites. The important point, however, is that owing to disturbed liver function there is an excess of this factor, presumably due to impaired inactivation by the liver, and in consequence water is retained in the body through a process which is independent of changes in the serum protein.—ED., *B.M.J.*

Infective Hepatitis and Portal Cirrhosis

SIR,—With reference to the letter of Professor N. F. Maclagan (June 18, p. 1095), I wish to state that it was not my intention to dismiss liver function tests as useless, but to indicate that the tests specifically mentioned in my paper (June 11, p. 1032) "are occasionally unreliable in assessing the damage done to the liver." Since the point has been raised I give here the full laboratory findings in the case concerned. The readings given are the results of the tests performed two days before death.

Serum colloidal gold	000000
Thymol turbidity	2 units
Takata-Ara	Negative
Alkaline phosphatase	6 units
Serum bilirubin	32 mg./100 ml.
Serum proteins	2.5 g./100 ml.
Serum albumin	1.7 g./100 ml.
Serum globulin	0.8 g./100 ml.
Icterus index	100
E.S.R.	1 mm./hr.

Urine: Dark brown; albumin, slight cloud; urobilinogen, no excess; bile salts and pigments present. Deposits: leucine and tryosine crystals present.

There is a significant fall in serum proteins, as stressed in my previous paper (*British Medical Journal*, 1948, 1, 1079), but this fall does not occur in every fatal case. A perusal of records of fatal cases shows that the serum proteins were within normal levels with a normal albumin-globulin ratio in a few cases, while in one case the serum proteins amounted to 9.8 g. per 100 ml. four days before death.

Serum bilirubin figures provide little help in assessing prognosis. Patients with high serum bilirubin levels have recovered, while cases of chronic hepatitis with low serum bilirubin values have ended fatally. One case of chronic hepatitis had a serum bilirubin content of only 0.4 mg. per 100 ml. a few days before death. Urobilinogen estimation is of value only in early cases developing jaundice. A "battery of tests," as suggested, may reveal some abnormal values; but the mere examination of urine may give more reliable information about the impending calamity by revealing leucine and tyrosine crystals. Presence of these in urine, appearance of albuminuria for the first time during the course of illness, and the onset of delirium or coma when taken together give a reliable indication of a fatal termination.—I am, etc.,

K. DAMODARAN.

London, S.W.7.

Dried Plasma for Domiciliary Midwifery

SIR,—Dr. C. T. H. Whiteside (June 4, p. 1005) has drawn attention to the value of dried plasma in midwifery. With most of what he says I am in complete agreement. One of the most valuable lessons of the 1939–45 war was the attention it directed to the importance of early and adequate transfusion. It also served to make many of us "transfusion minded," and ever since returning to anaesthetic practice I have carried a supply of dried plasma with me in the car, and on three occasions it has proved, I am certain, a life-saving measure.

The risk of post-transfusion jaundice must be admitted. For that reason I think he goes too far when he suggests that midwives should carry the plasma and be trained to give it. The technique of transfusion is simple, but the decision when to transfuse is difficult, and is a responsibility which I feel can be undertaken only by a doctor.—I am, etc.,

REX BINNING.

Hove, Sussex.

SIR,—Mr. W. G. Mills (June 18, p. 1098) does a poor service to domiciliary midwifery in pouring cold water on the idea of intravenous therapy by the general practitioner in obstetric emergencies. While I agree with him that, preferably before shock has occurred or as soon as it has been controlled, a retained placenta should be immediately removed, nevertheless when working 30 miles from hospital, and 80 minutes from the "flying squad," the possession of plasma ready for administration and its actual administration if necessary before, during, or after the removal of the placenta are in my opinion most valuable safeguards which would hardly be neglected in hospital and therefore should certainly not be neglected on the district. By analogy, a general practitioner may give anaesthetics, but he should not give them without the same precautions (oxygen and nikethamide available) as would be taken in hospital.

In the last three years my partner and I, in the course of over two hundred confinements, have removed some eight retained placentae, and in three of these we have been very glad that we carried plasma and were able to give it in good time, and in two cases to save the "flying squad" being called at all. In another case of post-partum haemorrhage not associated with retained placenta we were also grateful for it.

It is agreed that dried plasma, because of its potential danger is not an ideal intravenous substance, but it still remains true that every practitioner who is prepared to be called to obstetric emergencies should take with him intravenous equipment. It is possible that dextran or some such substance will eventually take the place of plasma.

I could wish that Mr. Mills would join me in my plea in your correspondence columns some time ago (Dec. 13, 1947, p. 976) for the regional transfusion centres to arrange to keep general practitioners supplied with giving sets. Incidentally, a

general practitioner I have been led to understand that thiopentone can be a most dangerous anaesthetic in cases of shock.—I am, etc.,

Morpeth, Northumberland. R. P. ROBERTSON.

An Unfortunate Precedent

SIR,—Dr. B. H. Shaw says (June 4, p. 1003) that the Royal College of Physicians should not presume to meddle with professional administration. The professional administration of most of the municipal general hospitals in the country ensured, as far as such a thing is possible, that their standard of medicine could not rise above mediocrity. Was it not desirable that the Colleges and universities should use their influence to alter that state of affairs? It is a misfortune that the difficult financial position of this country is hindering the metamorphosis of these hospitals.—I am, etc.,

Tooting, S.W 17. M. WALKER.

Transfusion Compatibility Tests

SIR,—The conclusion of Dr. R. H. Malone (June 4, p. 1003) that anti-D typing of all patients prior to transfusion is essential is quite irrefutable It is also probable, however, that a tube compatibility test, using 30% bovine albumin as diluent, will prove most suitable for the busy hospital laboratory. This test is a second line of defence, which will detect incomplete anti-D antibodies, as well as the saline-agglutinating antibodies. Danger from such antibodies, as Dr. Malone points out, should be rare with accurate anti-D typing. Mistakes do occur, however, in the best regulated laboratories, as evidenced by Dr. Kidd's case (June 4, p. 1002), either due to technical or clerical errors.

A cross-matching test in tubes at room temperature and 37° C., using 30% bovine albumin as red-cell diluent, has been in use in this laboratory for some months. The tests are read after four hours as a routine measure: in the case of emergency the tubes are centrifuged after a half-hour. The test is no more time-consuming than the usual one, using saline as diluent, either to set up or to read. Technicians can quickly be taught to differentiate between rouleaux formation, which is rather marked in albumin, and true agglutination.

While agreeing that routine anti-D typing is the first essential in preparation for transfusion to avoid Rh incompatibility, I feel that this modified compatibility test is a valuable additional safeguard.—I am, etc.,

London, E.15. M. S. ROSS.

SIR,—We are in agreement with Dr. R. H. Malone (June 4, p. 1003) on the necessity of Rh grouping before transfusion, and it was not our intention to suggest that this important safeguard should be neglected. It is undertaken as a routine here, in conjunction with the slide compatibility test, in all transfusions matched by the laboratory staff. Until, however, resident blood-bank officers become sufficiently numerous, there must remain a number of transfusions where the selection of blood has to be urgently undertaken by people without laboratory experience, and it is for these occasions that we feel the albumin slide test has special value.

The justification for the routine use of the albumin slide test is that it is simple to perform and detects incompatibilities that the saline test does not. It is true that Rh antibodies in D-positive patients are rare, but in our experience their frequency has not been negligible. In each of these cases the presence of antibodies was anticipated from the history, but it is hazardous to rely on an intelligently taken history being transmitted to the laboratory. It is therefore safest to insist on the routine use of a test that can detect Rh antibodies. Where, from the history, antibodies are expected in a D-positive patient, then the more elaborate tests would, of course, be used in selecting a suitable blood.

We have never, as far as we know, been supplied with an incorrectly labelled bottle of blood, but the test could detect the bottle of Rh-positive blood incorrectly labelled Rh-negative in the case where it mattered most—i.e., when the recipient had strong Rh antibodies.—We are, etc.,

B. GODWIN.
Stoke-on-Trent. A. J. MCCALL.

Prognosis in Hysteria

SIR,—Dr. A. Barham Carter is to be congratulated on the lucid and interesting article on this subject (June 18, p. 1076) in which he describes incidentally the successful results of treating hysterical symptoms. His reference to "physicians who like to do their own psychiatric work so far as is possible" is particularly welcome; and on the strength of this one is emboldened mildly to question the assertion he makes at the outset of his conclusion that "the word 'recovery' will never mean the same to a psychiatrist as to a physician, and one can only try to correlate physical and psychological terms." Given an approach which has regard to the whole organism, is it necessary even to draw distinction between physical and psychological? Dr. Carter obviously combines in his own person the qualities of a physician with the training and experience of a psychiatrist. Should not a psychiatrist, too, be first and foremost a physician?

Explanations why an hysterical symptom disappears are certainly various. Perhaps it has served its (never fully conscious) turn. Or the hastily selected symptom may have become irksome, as instance that of blindness in the case of a young and active man, or aphonia in a naturally talkative woman. The patient may have found that his complaint does not find ready acceptance socially, or even that it results in certain sanctions, such as that of isolation, being applied. The symptom may disappear because it has been substituted by one which seems to serve the (unconscious) purpose better, and, as Dr. Barham Carter well exemplifies, there is always the possibility that the patient may, by understanding on the part of his physician, be moved to behave differently, with corresponding advantages for social adjustment.

Dr. Carter's experience that ". . . more good seemed to come from listening than from talking, as patients often found a more satisfactory solution to their problems without further prompting" helps to illustrate that perhaps there is, after all, not so much divergence of aim as between physician and psychiatrist. Widely accepted, and applied with due circumspection, the principles and practice advocated in this article might go far to meet the recognized need for treatment of psychoneurosis in its milder and less chronic forms.—I am, etc.,

Liverpool. S. BARTON HALL.

POINTS FROM LETTERS

Salicylates in Rheumatic Fever

Dr. A. D. MCDWYER (Dublin) writes: Because of its practical importance one must accept with reserve the view of Rantz and colleagues—discussed in a leading article in the *Journal* (Jan. 22, p. 144)—that massive salicylate prophylaxis does not prevent the manifestations of continuing non-suppurative streptococcal disease—really mild to florid rheumatic fever. Without prophylaxis the manifestations are: elevated E.S.R., late fever, carditis, arthritis, purpura, adenitis, pneumonitis. With salicylate prophylaxis they are late fever and carditis. Of the latter, their criteria in general are flat or inverted T waves and prolonged PR interval Massive salicylates may cause (1) fever (98.6°–100° F. = 37°–37.8° C. rectal) and tachycardia; (2) experimentally, significant alterations of RST and T in standard limb and precordial leads, and abnormal prolongation of QT for given rate (because of this, further observations may well confirm its effect on the PR interval); (3) a non-specific rise or fall in the E.S.R. during therapy and a subsequent rise for 1–4 weeks after therapy ends; (4) experimentally, prevention or suppression of a rise in the leucocyte response to infection. Further, the plasma salicylate in the second week of therapy becomes unstable in the rheumatic subject, rising or falling by 50% on constant dosage, needing an alteration in latter. Does this explain the appearance of subcutaneous nodules when the patient is "saturated" with salicylates? . . . One interesting point emerging from the incidence of the above manifestations is that their incidence of 19.6% is approximate to the estimated incidence of rheumatic fever, etc., in the community at large. The post-mortem statistics of the incidence of mitral stenosis in the general population understates the occurrence of valvulitis, a better test of which would be vascularized but otherwise normal valves—the normal human heart valve is avascular, a point completely ignored in the pathogenesis of septic endocarditis—if allowance is made that other viral diseases such as infectious mononucleosis, can cause valvulitis.

Obituary

SIR THOMAS HOUSTON, O.B.E., M.D.

Sir Thomas Houston, the doyen of the medical profession in Northern Ireland, died on June 21 in his eighty-first year. Until a few days before his death his mind remained receptive of new ideas, his interest in medical science and in current events continued unabated, and his affection and friendship for junior members of the profession maintained his youthful outlook.

Tom Houston was a son of the manse; his father and both of his grandfathers were ministers of the Reformed Presbyterian Church. Born in the Route, close to the rocky coast of North Antrim, he was one of a family of eleven, and received his early education at Coleraine Academical Institution. He entered Queen's College, Belfast, and took his B.A. in 1890, and five years later graduated M.B., Ch.B., B.A.O., with honours, proceeding M.D. in 1899. He won the coveted studentship in pathology of the Royal University of Ireland, and was a research scholar of the British Medical Association in 1902. He was a past president and an honorary fellow of the Ulster Medical Society, and a member of the Pathological Society of Great Britain. In 1937 he was president of the Section of Pathology, Bacteriology, and Immunology at the annual meeting of the B.M.A. He had twice been vice-president of the same Section in earlier years.

After filling the usual junior posts in a teaching hospital Houston was appointed assistant gynaecologist to the Royal Victoria Hospital, Belfast. Even in those early days, however, his main interest was in laboratory and research work. The appointment of Professor Lorrain Smith to the chair of pathology in Belfast, and the close friendship which had developed with Sir Almroth Wright and his colleagues at St. Mary's Hospital, turned Houston's footsteps into the path of clinical pathology. He was the pioneer worker on haematology and applied bacteriology in Northern Ireland, and year after year he stimulated in younger men a love of pathology. Early in his work he recognized the hereditary and familial tendencies of Addison's anaemia and the importance of the chronic carrier of typhoid bacilli in the urine. During the severe outbreak of cerebrospinal fever in Belfast in 1908 he and J. C. Rankin grouped the different types of meningococci. He applied a modification of Wright's opsonic technique in the serological diagnosis of the disease.

Houston was appointed physician in charge of the department of haematology and vaccine therapy in the Royal Victoria Hospital. He was for many years lecturer in toxicology in Queen's College, Belfast. He was also interested in tuberculosis and was physician to the Forster Green Hospital. During the first world war he acted as physician in charge of the medical wards and of the laboratory in the St. John Ambulance Brigade Hospital at Etaples. While studying an epidemic of trench fever he became interested in the enterococcus, an interest he maintained to the end of his life. It is unfortunate that this work of his has never been published, for he had accumulated a vast store of information about this organism, its reaction to its environment, and its possible pathogenic properties. Houston, however, was always hypercritical of his own work. For his services in the war he was mentioned in dispatches, awarded the O.B.E., and made an Esquire of the Venerable Order of St. John of Jerusalem, of which Order he was later appointed a Commander. He was knighted in 1927 for his services to medical science in Northern Ireland. In 1941 the Senate of the Queen's University elected him Pro-Chancellor.

Long after his official connexion with the Royal Victoria Hospital had ended Sir Thomas continued to occupy his usual seat in the laboratory; he was there only a few weeks ago. The memory of the familiar figure at his bench will be preserved by his portrait in oils painted by Mr. Frank McKelvey, which was presented to Sir Thomas last year by his colleagues of the hospital staff. It will hang near the laboratories he loved so well and served so faithfully for over fifty years. Sir Thomas Houston was the most modest of men. He shunned publicity in every form, he was without guile, and he was continually implicated in conspiracies of kindness. While in active practice he was first choice when illness entered a doctor's house. Many medical homes in Ulster have cause to remember him with affectionate gratitude. A quotation frequently on his lips was from the precepts of Hippocrates: "Where the love of man is, there also is love of the Art." No happier epitaph could be found for Sir Thomas Houston.

J. F. O'MALLEY, F.R.C.S.

Mr. J. F. O'Malley, who died at Bexhill-on-Sea on June 22 at the age of 80, came of a family of doctors. One of his brothers is professor of surgery and another professor of ophthalmology at University College, Galway, while yet another was in practice in London.

John Francis O'Malley qualified at Dublin in 1895, when he was first scholar, and went into general practice in London. He was early attracted to oto-laryngology, however, and after studying in Vienna he took the F.R.C.S. in 1910. He was appointed aural surgeon to the Evelina Hospital and later to the Hospital of St. John and St. Elizabeth and to the Royal Ear Hospital. On the amalgamation of the Royal Ear Hospital with University College Hospital in 1919 O'Malley became surgeon, and subsequently consulting surgeon, to the ear, nose, and throat department of University College Hospital. In the war of 1914–18 he was ear, nose, and throat specialist, with the rank of Major R.A.M.C., at the Royal Herbert Military Hospital, Woolwich, and was mentioned in dispatches.

At annual meetings of the B.M.A. in 1926 at Nottingham and in 1933 at Dublin O'Malley was vice-president of the Section of Oto-Rhino-Laryngology and in 1932–3 he was president of the Section of Otology of the Royal Society of Medicine. In 1933 he was made an honorary M.Ch. of the National University of Ireland.

O'Malley was interested in all branches of his specialty. He wrote on otosclerosis and arthritis deformans, deprecated the excessive employment of the radical mastoid operation in middle-ear suppuration, and carried out extensive researches on the ventilation of the nasal sinuses, emphasizing the importance of re-establishing air currents. He was a keen golfer, a past president of the Irish Medical Golfing Society, and a hospitable member of the old Sports Club, but his chief interest and hobby was his work, and he was in consulting practice for many years in Upper Wimpole Street. A great favourite with the Irish community in London, O'Malley was always genial, tolerant, and kind-hearted, and he will be remembered as a sound and skilful oto-laryngologist.

DR. WILLIAM ALAN BLOMFIELD, the leading oto-laryngologist of Auckland, New Zealand, died of heart disease on May 16 in hospital at Sydney at the age of 51. Born at Takapuna, the son of a well-known New Zealand journalist, Dr. Blomfield was educated at Auckland University College and at Otago University, where he graduated M.B., Ch.B. in 1923. He then

spent four years in the postgraduate study of diseases of the ear, nose, and throat at Vienna, Birmingham, and London, where he was clinical assistant at the Metropolitan Ear, Nose, and Throat Hospital. He continued his postgraduate studies in Edinburgh, taking the F.R.C.S.Ed. in 1927. On his return to New Zealand he was appointed to the ear, nose, and throat department of Waikato Hospital, Hamilton, and subsequently to the Auckland Hospital. Keenly interested in his specialty, he visited clinics in the United States and England in 1937–8. He also took his full share in the life of his community, was a prominent member of the Rotary and other clubs, and honorary surgeon to the local Jockey Club and the Boxing Association. A charming personality, always ready to extend a helping hand to his juniors, Dr. Blomfield's untimely death is a great loss to oto-laryngology in New Zealand. He is survived by his wife, a daughter, and two sons, to whom the sincere sympathy of his colleagues and friends will be extended.

R. S. S.

Medical Notes in Parliament

NURSES BILL

When the Nurses Bill was considered on Report in the House of Lords on July 21, Lord SHEPHERD said he believed that the measure was now an agreed one. He moved to leave out Clause 4 as it stood, and to substitute the original clause.

In committee, Lord Luke had carried an amendment to delete the clause and to substitute one which took away the authority of the General Nursing Council and the Standing Nurse-Training Committees over expenditure, and transferred that authority to a new independent body. Ministers had attempted to reach an accommodation on the matter so that the Bill could be sent to the House of Commons as an agreed measure. As a consequence of the discussions a series of amendments were to come before the House that day. He recommended the House to delete the present Clause 4 and put back the original clause, and then to meet the views of Lord Luke by creating in the General Nursing Council a Statutory Committee for administering the funds for training nurses. The Bill also provided that when disputes on matters of finance arose in the Standing Nurse-Training Committees there should be an appeal to the General Nursing Council, with whom the final word would rest. The Government believed that it now possessed means by which the 600 schools which existed to-day for training nurses could, through the Standing Nurse-Training Committees, be brought into intimate contact with the General Nursing Council.

Lord LLEWELLIN thought this was a better method than the amendment which his friends had previously inserted in the Bill. He hoped that when the General Nursing Council set up the Finance Committee they would take advantage of the proposal under the first schedule whereby the Minister was to appoint three persons with knowledge of hospital administration and finance. He advised the House to accept this compromise.

Lord WEBB-JOHNSON said the amendment carried on the committee stage had been carried because of anxiety about the position of the teaching hospitals. He felt that anxiety would be removed by the amendments standing in the name of Lord Shepherd.

The House agreed to Lord Shepherd's amendments and to the deletion of Clause 7 (Expenses of Hospital Grants Committee) and the insertion of the following new clause:

(" .—(1) The Council shall appoint a finance committee consisting of members of the Council.

(2) The number of members of the finance committee and their term of office shall be such as may be prescribed by rules made by the Council under subsection (1) of section three of the Act of 1919.

(3) Any matter relating to the discharge by the Council of their functions with respect to the defraying of expenses incurred by standing nurse-training committees shall stand referred to the finance committee and any other matter may be referred by the Council to that committee; and the committee shall consider the matter and report upon it to the Council, and the Council, before taking any action on the matter, shall, unless in the opinion of the Council the matter is urgent, receive and consider the report of the committee.

(4) The power of the Council under paragraph (*f*) of subsection (1) of section three of the Act of 1919 to make rules for authorizing the delegation to committees of the powers of the Council and for regulating the proceedings (including quorum) of committees shall be exercisable in relation to the finance committee.")

On Clause 9 Lord SHEPHERD moved amendments at the request of the General Nursing Council to make it perfectly clear that no nurse trained abroad who had failed to pass an examination forming part of her training should have any title to be admitted to the register. He added that his amendments would not preclude the admission of nurses who had completed training which did not involve the taking of an examination but which the General Nursing Council could regard as satisfactory.

Lord SHEPHERD moved to insert in Clause 10 an additional provision:

"(3) No request under the last foregoing subsection shall be made by the Council with respect to the supplementary part of the register containing the names of nurses trained in the nursing and care of persons suffering from mental diseases unless the Council are satisfied that means exist whereby members of the public can readily ascertain whether a registered nurse has been so trained and no such request shall be so made with respect to the supplementary part of the register containing the names of nurses trained in the nursing of sick children unless the Council are satisfied that means exist whereby members of the public can readily ascertain whether a registered nurse has been so trained."

He said that during the committee stage Lord Webb-Johnson had expressed fears about the position of specialized training. The Government had gone closely into the matter and had produced a new subsection which it hoped would meet the difficulty. They desired in particular to make it clear that the training of sick children's nurses was not to be discontinued. Nothing in the Bill would prevent the General Nursing Council in keeping its register from attaching to the names of registered nurses the special qualifications which they had earned. The Council would have among its members representatives of specialized nurses who would watch these matters.

Lord WEBB-JOHNSON thought the new subsection would safeguard the position of the General Nursing Council. The House agreed.

On the First Schedule Lord SHEPHERD said the Minister had agreed to submit amendments one of which added to the General Nursing Council three persons who would appear to the Minister "to have had experience in the control and management of hospitals." A further amendment was also approved providing for regional elections if in the opinion of the General Nursing Council they appeared desirable. Further drafting amendments were made and the Report Stage concluded.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

J. A. R. Miles, M.B., B.Chir., has been reappointed Huddersfield Lecturer in Special Pathology, and G. W. Harris, M.D., University Lecturer in Physiology, from Jan. 1, 1950, with tenure to the retiring age, and D. B. Cater, F.R.C.S., University Demonstrator in Pathology for five years from Jan. 1, 1950.

The following medical degrees were conferred on June 11:

M.D.—D. H. Davies, M. W. W. Wood, A. G. Marshall, Marjorie Lawton.

M.B., B.Chir.—Joan C Owen.

M.B.—Phyllis L. Broomhead (by proxy).

In the *Journal* of June 4 (p. 1014) we incorrectly announced that certain honorary degrees were conferred on May 2. On that date *proposals* for the conferment of the degrees were approved. It is expected that they will be *conferred* at a special Congregation to be held on Aug. 20, when the First International Congress of Biochemistry will be held at Cambridge.

The following candidates have been approved at the examination indicated:

FINAL M.B.—*Part I (Surgery, Midwifery, and Gynaecology)*: A. G. Ackerley, L. J. H. Arthur, M. J. Ball, J. L. R. Barlow, R. G. Beard, D. A. A. Beardsmore, I. F. Bishop, P. E. Bodkin, G. H. Bond, E. C. A. Bott, S. D. Bradley, H. H. Broadhead, E. A. Cooper, M. B. S. Cooper, H. M. C. Corfield, G. A. Court, E. M. D. Craig,

S. J. Crews, Gwenllwyfar Davies, G. H. J. Dickinson, M. V. Doherty, R. E. Elvan, L.-D. Edelcamp, J. W. H. Elder, P. Elliott, G. R. C. Fisher, E. H. R. Ford, D. C. H. Garrod, T. M. D. Gimlette, J. R. Glover, A. Gol, M. P. Goodson, J. D. J. Havard, J. F. Hort, M. J. Hunter, M. M. Ives, E. W. P. Jones, A. K. Knowles, A. S. Law, J. Lynfield, D. H. Mackenzie, I. R. McWhinney, J. L. Milligan, A. O'Brien, D. J. D. Perrins, J. H. Rack, K. F. Robinson, W. Rodger, H. Schlossmann, J. B. Self, R. C. Shepherd, J. T. B. Stewart, R. Thomas, P. D. S. Thomas, P. R. Thompson, J. D. W. Tomlinson, J. F. Trunchion, E. Veldhuyzen, M. P. Ward, R. G. Watkinson, R. H. R. White, B. F. Whitehead, H. B. L. Williams, N. W. H. Young.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Professor D. W. Gordon Murray, F.R.C.S., will deliver the Moynihan Lecture at the College (Lincoln's Inn Fields, London, W.C.) on Tuesday, July 5, at 5 p.m. His subject is "The Surgery of Congenital Heart Disease."

EPIDEMIOLOGICAL NOTES

Poliomyelitis

Notifications (uncorrected) of poliomyelitis and polio-encephalitis together increased from 19 in the week ended June 11 to 38 in the week ended June 18. Counties with more than one case were London (6), Devon (4), Lancaster (2), Middlesex (3), Southampton (2), Surrey (2), Sussex East (5), Yorks W. Riding (5). In the week ended June 25 groups of cases were reported from Newhaven, Lewisham, Plymouth, and Cornwall. Thus it appears that the small increases so far reported are widely scattered.

Discussion of Table

In *England and Wales* infectious diseases were less prevalent during the week and there were decreases in the notifications of measles 524, whooping-cough 372, scarlet fever 152, acute pneumonia 77, dysentery 46, and diphtheria 12. Exceptions to the general decline were increases in the incidence of para-typhoid fever 17 and typhoid fever 5.

The largest falls in the notifications of measles were London 282, Middlesex 131, Lancashire 114, and Essex 101; the largest rises were Kent 182, Derbyshire 98. The largest decreases in the notifications of whooping-cough were Lancashire 111 and Middlesex 54.

A small decrease in the incidence of scarlet fever was reported in most areas; the largest fall was Cheshire 32. Notifications of diphtheria again reached a new low record, being 6 below the previous lowest figure. The chief feature of the returns for diphtheria was an increase of 7 in Birmingham C.B.

Of the 24 cases of paratyphoid fever 15 were notified in the county of Durham (Hebburn U.D. 5 and Jarrow M.B. 5). The decrease in dysentery was due to the experience of Lancashire, where the notifications fell from 67 to 17 (Oldham C.B. 6 and Liverpool C.B. 8). There were 94 cases of food poisoning notified from Southampton, Fareham, U.D.

In *Scotland* an increase of 119 was reported in the notifications of measles and there were decreases in the incidence of acute primary pneumonia 21 and diphtheria 14. The chief centres of dysentery were in the cities of Glasgow 34 and Dundee 5. Of the 26 cases of diphtheria 17 were notified in Glasgow.

In *Eire* there were decreases in the notifications of whooping-cough 88, measles 19, diarrhoea and enteritis 13, and scarlet fever 9. In contrast to the remainder of the country an increase of 30 in the notifications of measles was recorded in Dublin C.B.

In *Northern Ireland* decreases were recorded in the notifications of measles 13 and whooping-cough 10. The largest outbreak of ringworm in recent years in the British Isles has been reported from County Down. Since last September 395 children in the Newtownards area have been affected.

Week Ending June 18

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 930, whooping-cough 2,253, diphtheria 82, measles 9,152, acute pneumonia 426, cerebrospinal fever 22, acute poliomyelitis 35, dysentery 57, paratyphoid 38, typhoid fever 8.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 11. [No. 23

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each Infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	28	4	14	3	1	45	6	24	1	—
Deaths		—	—				—	—		
Diphtheria	81	4	26	3	3	160	19	47	5	4
Deaths	1	—	—	—	—		—	1	—	—
Dysentery	53	2	51	1	1	95	11	44	—	1
Deaths				—	—				—	—
Encephalitis lethargica, acute	3	1	2	—	—	—	—	1	—	—
Deaths		—					—			
Erysipelas		—	30	3	6		—	35	5	1
Deaths										
Infective enteritis or diarrhoea under 2 years	26	4	—	21 2	1	38	2	8	25 4	2
Deaths										
Measles*	9,249	801	576 1	217 —	159 —	12,225	1083	251 1	125 1	66 —
Deaths†						48	1	21	—	—
Ophthalmia neonatorum	45	4	5	2	—					
Deaths						6	1	—	—	—
Paratyphoid fever	24	1	3(B)	—	—			—	—	—
Deaths	1	—	—	—	—	—	—			
Pneumonia, influenzal	416	30	10	6	9	460	15	2	8	—
Deaths (from influenza)‡	8	1	—	—	—	3	—	1	—	1
Pneumonia, primary	147	26	159	16 6	5	163	30	150	24 1	11
Deaths						1	—			
Polio-encephalitis, acute	2	—								
Deaths										
Poliomyelitis, acute	17	2	—	—	—	13	3	8	—	—
Deaths§	4	1				2	1			
Puerperal fever		—	13				1	10		—
Deaths										
Puerperal pyrexia‖	96	11	14	1	—	112	9	13	4	—
Deaths		—					—			
Relapsing fever	—	—				—	—			—
Deaths										
Scarlet fever	1,090	82	180	63 1	44 —	1,562	125	293 —	53 1	37 —
Deaths†	—	—	—	—	—	—	—	—	—	—
Smallpox				—	—				—	—
Deaths				—	—				—	—
Typhoid fever	—	9	2	—	1	—	3	—	1	1	1
Deaths		—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,806	102	128	76	63	3,298	248	48	80	14
Deaths	8	—	1	2	—	12	2	—	2	—
Deaths (0–1 year)	246	32	26	16	6	289	39	43	11	14
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,276	653	573	164	100	4,314	696	531	180	119
Annual death rate (per 1,000 persons living)			11·5	10·2				10·7	11·3	
Live births	7,326	1218	982	420	269	8,349	1307	1082	431	303
Annual rate per 1,000 persons living			19·7	26·0				21·8	27·0	
Stillbirths	192	36	26			212	21	33		
Rate per 1,000 total births (including stillborn)			26					30		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales, Eire, and Northern Ireland.

Medical News

Friends of Canterbury Cathedral

A service dedicated to the science and art of healing was held at the annual festival of the Friends of Canterbury Cathedral on June 25, the arrangements for which were described in the *Journal* of April 9 (p. 630). Representatives of the B.M.A., the Royal Colleges, and medical and nursing services were present. Lord Webb-Johnson, P.R.C.S., read the lesson, and Lord Moran, P.R.C.P., gave the address. After speaking of the achievements of medicine in its conflict with diseases of the body, Lord Moran said he could tell no such tale of triumph when physicians had tried to follow the working of the mind and its many aberrations. People had not acquired the art of living together. That was the crucial problem which confronted society. They were all fumbling for a solution. Why was the worker so often without interest in his job? Was it because he was doing the wrong job? The gulf between the worker and the rest of the nation was more dangerous than any gap in our economy. The forgotten art of living together had to be relearnt over the world, and there was great need of tolerance.

Special Diets for Invalids

On the recommendations of the Food Rationing (Special Diets) Advisory Committee the Ministry of Food has made the following rationing arrangements for invalids. *Hepatitis, acute infective hepatitis (catarrhal jaundice), toxic jaundice.*—Meat: a maximum allowance of four rations a week (instead of three). *Hepatitis, chronic (cirrhosis of the liver).*—Meat: a maximum allowance of four rations a week (instead of three). *Hypoproteinaemia.*—Meat: a maximum allowance of five rations a week (instead of four). *Nephritis, with gross oedema and gross albuminuria (nephrosis).*—Meat: a maximum allowance of five rations a week (instead of four).—*Steatorrhoea (including coeliac disease and tropical sprue).*—Meat: a maximum allowance of six rations a week (instead of five). The butter ration will now be retained and only the margarine and cooking fats coupons will be cancelled. Formerly, all the fats coupons were cancelled. *Steatorrhoea, convalescent.*—Meat: *a maximum allowance of three rations a week instead of two.* Liquid Milk: a priority allowance of seven pints a week. Half-cream National Dried Milk: no change in the present allowance of one tin a week. Butter, Margarine, Cooking Fat: as at present, the coupons will *not* be cancelled. *Diabetes mellitus; hypoglycaemia, spontaneous.*—No change in the present allowances.

The Secretary Honoured

The University of Saskatoon, Saskatchewan, conferred the honorary degree of LL.D. on Dr. Charles Hill, Secretary of the British Medical Association, during his recent visit to Canada.

New Zealand Surgeons to Attend Paris Conference

Sir James Elliott and Mr. Rolland O'Regan, of Wellington, will represent New Zealand at two international medical conferences to be held at Paris in July. Mr. O'Regan will represent the Government at a meeting of the International Cancer Research Commission on July 17–22. Sir James will attend this conference and will also take part in an international conference on tuberculosis towards the end of July. He will represent the Tuberculosis Society of New Zealand.

Honorary Fellowship

Sir Maurice Cassidy has been elected to an Honorary Fellowship of Clare College, Cambridge.

American Honours for British Doctors

Lord Horder and Mr. Lawrence Abel were elected Honorary Fellows of the American Medical Association at its recent annual meeting. Mr. Abel has also been elected Honorary Fellow, and Dr. Cuthbert Dukes Honorary Associate Fellow, of the American Proctological Society.

Inspection of Children's Feet

A useful pamphlet on "Foot Inspection in Childhood and Adolescence" has been prepared for the Foot Health Educational Bureau by a committee under the chairmanship of Brigadier G. S. Parkinson. It is intended to assist school medical officers in examining children's feet, and emphasizes that much disability in later life is the result of uncorrected foot disorders in childhood. It includes suggestions on the examination of feet, a list of references, and a model form for recording the results of the examination. The pamphlet is obtainable from the Bureau at 121, Ebury Street, London, S.W.1.

New Medical School Gazette

The first number of a new periodical called the *Oxford Medical School Gazette* has been published. One issue will appear each term. Information may be obtained from the editor at Osler House, 43, Woodstock Road, Oxford.

British Orthopaedic Association

The following, nominated by the executive committee, were elected at the annual meeting:—*Corresponding Member:* Dr. P. G. K. Bentzon (Denmark). *Fellows:* Mr. F. C. Durbin (Exeter), Mr. J. H. Mayer (Tunbridge Wells), Mr. K. Stanger (Newcastle-upon-Tyne). *Associate Members:* Dr. J. K. Cunninghame (Wellington, N.Z.), Mr. Johnstone Dickie (Leicester), Mr. P. G. Essex-Lopresti (Birmingham), Mr. James Garden (Carluke), Mr. R. N. Grant (Truro), Mr. H. H. Kennedy (Chesterfield), Mr. A. W. L. Kessel (London), Mr. H. Keith Lucas (Liverpool), Mr. T. N. Norton (Grimsby), Dr. W. A. J. Pike (Auckland, N.Z.), Mr. C. G. Rob (Thirsk), Mr. F. H. Stevenson (Stanmore), Mr. T. E. Stoker (Cheam), Mr. G. S. Storrs (Bedford), Mr. G. I. Walley (Windsor), Mr R. I. Wilson (Exeter).

COMING EVENTS

Exhibition of Medical Photography

The Medical Group of the Royal Photographic Society is holding an exhibition of medical photography at the society's house, 16, Prince's Gate, London, S.W. from Monday, July 4, to Saturday, July 16. The exhibition will be formally opened on July 4, at 6.30 p.m., by Sir Cecil Wakeley.

Health and Tuberculosis Conference

The Second Commonwealth and Empire Health and Tuberculosis Conference will be held by the National Association for the Prevention of Tuberculosis on July 5–8 at the Central Hall, Westminster, London, S.W.1. The following discussions will be held. *July 5, 10 a.m.*: Tuberculosis as a World Problem; chairman, Sir Robert Young. 2.15 p.m.: Trends in the Modern Treatment of Tuberculosis, Including Streptomycin and P.A.S.; chairman, Sir Robert Young. *July 6, 10 a.m.*: Regional, County, and County-Borough Tuberculosis Schemes: chairman, Mr. Anthony Greenwood, M.P. 2.15 p.m.: Organization of Comprehensive Tuberculosis Schemes in British Colonies; chairman, Mr. Fred Messer, M.P. *July 7, 10 a.m.*: Psychological and Sociological Readaptation of Chronic Disease in Industry; chairman, Dr. N. Lloyd Rusby. *July 8, 10 a.m.*: Protection from Bovine Tuberculous Infection; chairman, Professor W. H. Tytler. Visits to hospitals and other institutions have been arranged to take place on July 8–11. Tickets for them may be obtained on July 5.

Middlesex County Medical Society

The Society's annual visitor's oration will be delivered by Professor Grey Turner on Friday, July 8, at 4.15 p.m. The subject will be "Encouragements in Surgery."

Royal College of Obstetricians and Gynaecologists

A lecture on "Caudal Anaesthesia" will be delivered by Professor R. A. Hingson, Associate Professor of Obstetrics, Johns Hopkins Hospital, Baltimore, U.S.A., at the Royal Society of Medicine (Barnes Hall), 1, Wimpole Street, London, W., on Thursday, July 14, at 5 p.m. The lecture is being given under the auspices of the Royal College of Obstetricians and Gynaeco-

logists, and an invitation is extended to Fellows and Members of the College and other doctors interested in the subject. Admission is by ticket only, obtainable from the secretary of the College at 58, Queen Anne Street, London, W. Tickets will be allotted in order of application.

Summer School in Health Education

The Central Council for Health Education will hold a residential summer school in health education at the School of Domestic Economy, Eastbourne, on July 28–Aug. 11 under the direction of Dr. Robert Sutherland. The school is intended for medical practitioners as well as nurses, social workers, and others interested in health education. The cost of the course, which includes board and tuition, is 15 guineas or 16 guineas, according to room. Particulars may be obtained from the Medical Adviser and Secretary, Central Council for Health Education, Tavistock House, Tavistock Square, London, W.C.1.

SOCIETIES AND LECTURES

Monday

INSTITUTE OF NEUROLOGY, National Hospital, Queen Square, London, W.C.—July 4, 5 p.m., "*Some New Facts on the Painful Stump*," by Professor René Leriche (Paris).

Tuesday

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., July 5, (1) 11 a.m., "*Bacterial Non-gonococcal Urethritis (Post-gonococcal)*," by Dr. A. H. Harkness; (2) 5 p.m., "*Retropubic Operations on the Prostate*," by Mr. A. W. Badenoch.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—July 5, 5 p.m., "*The Surgery of Congenital Heart Disease*," Moynihan Lecture by Professor D. W. Gordon Murray, F.R.C.S.

Wednesday

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., July 6, (1) 11 a.m., "*Bacterial Non-gonococcal Urethritis*," by Dr. A. H. Harkness; (2) 5 p.m., "*Endoscopic Resection of the Prostate*," by Mr. R. Ogier Ward.

ST. JOHN'S HOSPITAL DERMATOLOGICAL SOCIETY.—At Royal Society of Medicine, 1, Wimpole Street, London, W., July 6, 4.30 p.m., "*Allergy: A Dermatologist's Reminiscences and Speculations*," Prosser White Annual Oration by Professor Marion B. Sulzberger (New York).

Thursday

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., July 7, (1) 11 a.m., "*Abacterial Urethritis*," by Dr. A. H. Harkness; (2) 5 p.m., "*Malignant Disease of the Prostate*," by Mr. H. G. Hanley.

LONDON UNIVERSITY.—At Institute of Neurology, National Hospital, Queen Square, London, W.C., July 7, 5 p.m., "*Surgical Treatment of Myasthenia Gravis*," by Mr. Geoffrey Keynes.

ROYAL SOCIETY, Burlington House, Piccadilly, London, W.—July 7, 2.30 p.m., "*Muscular Contraction and ... hysical and Chemical Basis*," discussion to be ... A. V. Hill, F.R.S.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—July 7, 4.30 p.m., "*Psychiatry*," lecture-demonstration by Dr. D. Curran.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Hollings.—On June 19, 1949, at Warrington General Hospital, to Joan (née Eddy), wife of Dr. A. H. Hollings, a son.

DEATHS

Addis.—On June 4, 1949, at Los Angeles, U.S.A., Thomas Addis, M.D., late of Stanford Leland University.

Beveridge.—On June 13, 1949, at 44, Inverleith Place, Edinburgh, William John Morton Beveridge, M.B., B.Chir.

Braid.—On June 17, 1949, at Dunalistair, Milngarie, Elizabeth Grace Braid, M.B., Ch.B.

Cass.—On June 19, 1949, at Edinburgh, Frederick James Duncan Cass, L.R.C.P.&S.Ed., of 2, Eildon Street, Edinburgh, and late of Links Lodge, Montrose.

Connellan.—On June 16, 1949, at 65, Western Avenue, London, W., Edmund Victor Connellan, M.R.C.S., L.R.C.P.

Devers.—On June 9, 1949, Michael Devers, M.B., Ch.B.

Fischer.—On June 15, 1949, at Westwood, Crowborough, Sussex, Ernest Cotton Fischer, M.D., F.R.C.S., aged 83.

Francis.—On June 16, 1949, at 8, Langdale Road, Hove, James Bernard Chalmers Francis, M.R.C.S., L.R.C.P.

Greaves.—On June 14, 1949, Alice Mary Ley Greaves, L.M.S.S.A., of 5, Grosvenor Road, Seaford, Sussex.

John.—On June 9, 1949, at Sandon House, Stoke-on-Trent, Ambrose Hilton John, M.B., B.S., aged 73.

Jones.—On June 15, 1949, at Highfields, Hertford, Evan Jones, M.R.C.S., L.R.C.P.

Keir.—On June 12, 1949, William Wallace Keir, C.M.G., M.B., B.Ch., Surgeon Rear-Admiral R.N., retired, aged 72.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Dicoumarol and Prothrombin Level

Q.—*The required dosage of dicoumarol for patients undergoing anticoagulant therapy has to be judged by the level of prothrombin in the blood. I would like to know the range which is considered to be safe, and the correlation between prothrombin time, prothrombin index, and percentage prothrombin.*

A.—The normal prothrombin time, as measured by means of fresh Russell viper venom, ranges between 15 and 25 seconds with undiluted plasma when the usual technique is employed. Solutions of Russell viper venom are so unstable that it is always wise to measure the prothrombin time in a normal control at the same time as it is measured in the patient. When the normal time is around 20 seconds, the ideal level to be maintained in the patient is between 30 and 40 seconds. The prothrombin index is

$$\frac{\text{the normal time as measured in a control}}{\text{the prothrombin time as measured in the patient}} \times 100$$

and should be maintained between 50 and 66%. The prothrombin activity or percentage prothrombin level is worked out from a graph, which is constructed for the particular patient under consideration, by measuring the prothrombin time with varying dilutions of plasma, usually 100%, 50%, 25%, and 12.5%. The curve that results from plotting the prothrombin times against the plasma dilutions is a rectangular hyperbola, the prothrombin time being inversely proportional to the plasma dilutions; the curve can therefore be converted into a straight line by plotting the time against the reciprocals of the plasma dilutions. From this graph the patient's prothrombin time from day to day may be expressed in terms of percentage activity. Thus, if a time of 40 seconds is seen from the graph to represent the time resulting from 20% plasma dilution, it may be expressed as 20% prothrombin activity. It is usual to aim at 15 to 25% activity when administering dicoumarol.

Hypoglycaemia and Cerebral Lesions

Q.—*Are frequent attacks of mild hypoglycaemia after globin insulin likely to cause temporary or permanent cerebral damage? If so, what are the symptoms and signs, and is there any treatment?*

A.—Provided that the attacks do not cause coma, and are readily relieved when sugar is eaten, cerebral complications will not occur. Periods of coma of short duration are also unlikely to do any damage, but if lasting longer—say, six hours or more—they may cause serious damage to the brain. The less severe symptoms are: (1) loss of memory for recent events, which may gradually return; (2) mental degeneration, which may be permanent or, in the case of children, may gradually improve; (3) complete unconsciousness, which may persist for several weeks before death ensues from pneumonia or other disease. These serious complications only occur if a big mistake has been made in the dose of insulin or if the hypoglycaemia starts soon after the insulin has been injected and before any food is eaten. The hypoglycaemia which follows injection of the ordinary or quick-acting insulin is likely to be of shorter duration than that which occurs after the slow-acting globin and protamine-zinc insulins, and is much less likely to do harm.

If the patient is in coma, subcutaneous injection of 1 ml. of adrenaline, 1 in 1,000, is often efficacious in a mild case, but it is usually necessary to give glucose intravenously as soon as possible. Ampoules which contain 25 ml. of 25% glucose are convenient for this purpose, and the injection of 10 or 20 ml. will usually restore the patient to consciousness at once, but

25 g. (1 oz.) of sugar should be given by mouth as soon as the patient can swallow. If glucose in ampoules is not available, glucose or cane sugar 50 g. (2 oz.) in water can be given through a stomach tube If these methods are not effective, a drip infusion with 5% glucose in normal saline should be started, and if the patient remains unconscious 2,000 ml. a day may be needed for many days. If the patient has sustained serious damage to the cerebral cells he will need careful re-education, and considerable improvement may be brought about slowly.

Bacteriology of the Throat

Q.—*What is the normal bacteriology of the throat?*

A.—The bacteria to be found in the normal healthy throat may be divided into two groups—the resident and the transient flora. In the first group are included non-haemolytic streptococci of the *viridans* and *salivarius* types, Gram-negative diplococci of the *catarrhalis* group, slender Gram-negative bacilli of the *Haemophilus influenzae* family, and Gram-positive diphtheroids. These bacteria are present in varying numbers in the throats of most people, and, although they are ordinarily not associated with any disease process, some of them are potentially pathogenic, particularly if they have an opportunity to multiply in a *locus minoris resistentiae*. For example, if *Streptococcus viridans* gets into the blood stream after a dental extraction in a patient with damaged heart valves, it may initiate subacute bacterial endocarditis, or *H. influenzae* may act as a secondary infecting organism on the damaged respiratory mucosa after an attack of virus influenza.

In the second group are organisms which are recognized pathogens: *Staphylococcus aureus*, haemolytic streptococci, pneumococci, meningococci, and occasionally diphtheria bacilli. Most people with healthy throats do not carry these organisms continuously, but if the throats of a 100 normal people were swabbed 5 to 10 might be harbouring haemolytic streptococci, 20 to 40 pneumococci, and 2 to 10 meningococci. A month later there might be the same proportion of carriers of these organisms, but not necessarily the same carriers, as on the first swabbing. In other words, most of us are temporary carriers of these pathogens and as a rule suffer no ill effects from the transient invasion. Here again, if local or general resistance is lowered, infection with one or other of these organisms may follow. For instance, bronchial pneumonia and otitis media in infancy are often associated with pneumococcal types—for example, 6 and 19—which are found in the normal child's throat. Such infections might be called endogenous, and are due to bacteria of relatively low virulence. Lobar pneumonia in the healthy adult, on the other hand, is usually due to pneumococcal types of greater virulence and invasiveness—for example, types 1, 2, 5, and 7, which are not ordinarily found in the normal throat. Outbreaks of streptococcal tonsillitis are usually due to one particular strain of streptococcus which spreads from case to case. These are examples of exogenous infections, and it is generally accepted that the great bulk of infection occurs in this way.

Anaphylaxis to A.T.S.

Q.—*A boy of 14, presumably of allergic diathesis, suffers from typical seasonal hay-fever, for which he is undergoing a course of desensitization. About five years ago he had an injection of A.T.S. for a penetrating injury of the foot without ill effect. What is the likelihood of severe anaphylactic reaction following any further injection of A.T.S. or other serum? In the event of his sustaining injury in a road accident, how would the casualty officer in a hospital know of any potential risk in the routine administration of A.T.S., and, in view of this potential danger, what steps ought to be taken?*

A.—The likelihood of a severe anaphylactic reaction after a further injection of A.T.S. in this boy's case is very small. However, before any serum is given in future he should have an intradermal test with 0.02 ml. of the animal serum about to be used, in a dilution of 1 in 100. If this is positive, an ophthalmic test with a 1 in 10 dilution of the serum should be carried out. The tests are read in 10 to 15 minutes. It is important to test with dilutions of the animal serum and not with the therapeutic serum. If the skin reaction is negative, serum can be given by any route, but adrenaline should be easily available. If the skin reaction is positive and the ophthalmic reaction negative, intravenous therapy should be avoided until subcutaneous injections have been given safely; then, if intravenous therapy is necessary, the therapeutic serum should be diluted with saline and given slowly. Administration of an antihistamine drug—such as "anthisan" 300 mg.—should precede any injection of serum, and adrenaline should be immediately available. If reactions to both the skin and the ophthalmic tests are positive, an immediate reaction is probable by any route, and treatment with the serum of this particular animal is contraindicated. The patient should therefore be re-tested with the serum of a different animal. The boy could carry a card with such advice. Alternatively, and preferably, he could be immunized with tetanus toxoid and then carry a card similar to the one used by Unger (*Bronchial Asthma*, p. 611; Charles C. Thomas, Illinois, 1945):

> "*To whom it may concern:* This is to certify that..... is highly allergic and has received two 0.5-ml. doses of *tetanus* toxoid to prevent tetanus. In the event that he sustains an injury for which prophylactic doses of tetanus antitoxin would ordinarily be given, please inject instead 0.5 ml. tetanus toxoid. DO NOT GIVE TETANUS ANTITOXIN."

Distribution of Pain in Coronary Occlusion

Q.—*In a man of 65 severe pain developed over the occipital region and down the back of the neck to both shoulders shortly after he retired and lasted several hours. The next day the pain returned when he went to bed and persisted for several days. It now centred mainly in the back of the neck, in the right infraclavicular region, and down the right arm to the elbow; there was some paraesthesia in the left hand. Radiography revealed extensive disk degeneration between C5, C6, and C7, with marked spondylitis. Two weeks later the patient complained of dyspnoea on exertion, and an electrocardiogram revealed myocardial infarction of recent origin. Has such a distribution of pain been described for coronary occlusion?*

A.—It is possible for the pain of coronary thrombosis to occur in the distribution described, especially so in this case, in which there was cervical spondylitis. It is a very uncommon distribution for referred cardiac pain. Accessory sympathetic afferent fibres occasionally enter the cord at C5, C6, and C7. Heinbecker (*J. thorac. Surg.*, 1932-3, 2, 517) found a few such fibres at this level. The presence of advanced cervical spondylitis would more easily give rise to referred pain along the cervical nerves caused by summation of stimuli. There is the possibility in this case that the original pain was in fact due to the spondylitis or a prolapsed intervertebral disk, the coronary thrombosis occurring at the time of the dyspnoea.

Chronic Diarrhoea

Q.—*What are the likely causes of persistent loose stools in a man of 24? The condition has persisted for four years and does not respond to sulphonamide therapy or prolonged sedation with phenobarbitone. The patient is a well-nourished, apparently healthy individual with a good appetite, but of the anxious, over-conscientious, sensitive, sympatheticotonic type. There is no evidence of thyrotoxicosis, or any other abnormality apart from a mild pruritus ani and first-degree internal haemorrhoids.*

A.—The possible causes of chronic diarrhoea are innumerable, but in this patient many have been excluded by the long history; for instance, carcinoma of the colon or tuberculous enteritis would have declared itself in unequivocal terms within the period of four years. Undoubtedly the two commonest causes for such symptoms are ulcerative (non-specific) colitis and "nervous diarrhoea." Examination of the stools is essential to exclude infections with *Entamoeba histolytica* or flagellates; chemical analysis may be necessary if their appearance suggests steatorrhoea; the presence of blood and mucus will, of course, indicate colonic ulceration, but affords no clue to its nature. Radiological examination of the colon and sigmoidoscopy will be necessary before ulcerative colitis or other organic disease of the bowel can be discounted. The wording of the question suggests that this has been done, and the description of the

patient makes a diagnosis of nervous diarrhoea probable. A recent discussion at the Royal Society of Medicine (*Proc. R. Soc. Med.*, 1949, 42, 235) has been devoted to this problem, and particular stress was laid on the patient's personality in these cases.

Anaerobic Streptococci from Uterus

Q.—*Anaerobic streptococci have been isolated from a uterine swab from a patient who had a prolonged labour with post-partum haemorrhage four weeks previously. Three weeks later she still had a "slight loss." On curettage the uterus was found to contain a small amount of serous pus; retained products of conception were present, but there was only a mild degree of polymorphonuclear infiltration of the endometrium. She had a slight fever for three days after the curettage. What is the significance of the finding of anaerobic streptococci?*

A.—Organisms of all kinds, including anaerobic streptococci, can be cultured from the uterine cavity during the early days of the puerperium, and so frequently that their presence is to be regarded as normal. Some workers go so far as to suggest that they play a part in assisting the normal dissolution of fragments of decidua and blood-clot. Bacteria, and often anaerobic streptococci, have also been cultured from histologically normal uteri late in the puerperium in afebrile patients and even apart from pregnancy. The finding of anaerobic streptococci in the uterus is not necessarily serious or even indicative of pathological changes, though these organisms can be the source of major puerperal infections. In this case their continued presence late in the puerperium was no doubt favoured by the retention of necrotic placental tissue. Any infection, however, seems to have been limited almost entirely to this tissue, so that it subsided quickly when the latter was removed. A large literature exists on the subject, but two of the more recent references are: Holmstrom, E. G., and Murata, A., *Amer. J. Obstet. Gynec.*, 1948, 56, 531; Hesseltine, H. C., and Hite, K. Eileen, *ibid.*, 1949, 57, 143.

Ergotamine and Pregnancy

Q.—*Is the administration of ergotamine tartrate liable to cause abortion? A patient who has suffered from migraine for several years has been treated with ergotamine tartrate. She has now missed two periods and is presumed to be pregnant. What alternative treatment can be recommended, or is it safe to continue with ergotamine?*

A.—Unless the patient's previous history suggests a special susceptibility to abortion or premature labour, ergotamine is unlikely to have any significant effect on the uterus, and its continued administration is therefore not contraindicated. It may be found, however, that during pregnancy the attacks of migraine will become less frequent or even cease, and consequently the treatment will be unnecessary.

Sydenham's Chorea

Q.—*A girl aged 11 years suffers from mild afebrile chorea. She has no symptoms other than typical clumsy purposeless movements, and no signs of infection. In view of the mild course and the absence of any sign of cardiac involvement, is there any justification for insisting on rest in bed? Should salicylates or other drug be prescribed?*

A.—Patients with Sydenham's chorea fall into one of two clinical groups; in the first, chorea is accompanied by fever and tachycardia, evidence of active heart disease, perhaps arthritis, and certainly an elevated erythrocyte sedimentation rate; in the second group chorea is the only symptom, there are no signs of heart disease or evidence of active infection, and, in particular, the erythrocyte sedimentation rate is normal. In this second type, to which the questioner's patient seems to belong, there is no need for drugs other than sedatives. Rest in bed for three or four weeks is advisable in most patients, particularly when movements are vigorous. There is, however, no evidence that supervised activity prolongs the disease, and in the absence of other clinical or laboratory evidence of active rheumatic infection no harm comes of allowing the mildly choreic patient to be out of bed.

NOTES AND COMMENTS

Temperature at Ovulation.—Mrs. S. C. R. ROBINSON, Secretary of the Family Planning Association, 69, Eccleston Square, London, S.W.1, writes: Increasing numbers of practitioners are using monthly temperature readings in order to locate ovulation dates in gynaecological cases. It is laborious to explain the technique to patients, and the Medical Subcommittee of this Association has drawn up a printed temperature chart and instructions, which is used in some hospital out-patient departments and in private work. Possibly other practitioners might be glad to order copies from this office.

Post-gastrectomy Diet.—Dr. JOHN R. GILLESPIE (Belfast) writes: Under "Any Questions?" (May 28, p. 967) there is a serious omission in the answer given to the question about diet after partial gastrectomy. The concluding sentence says, "There is no general indication for medicines, but in some instances a vitamin concentrate and iron may be advisable." Now, before the operation the patient probably had excess of hydrochloric acid secretion. But after the operation he probably has a serious deficiency, or even total absence, of this secretion; and this deficiency should be met by prescribing a suitable dose of dilute hydrochloric acid, to be taken in a glass of water after at least one meal a day. Otherwise the patient is likely to develop severe anaemia.

Vaccine Lymph.—Dr. B. J. PECK (Plymouth) writes: With reference to the recent correspondence in the *Journal* on the expulsion of vaccine lymph from tubes, perhaps the following method will satisfy both those who feel that an attempt at asepsis should be made and those who are more lax. The apparatus consists of the rubber bulb of an ordinary eye-dropper, with the outlet narrowed down by the insertion of a small rubber bung which has had a longitudinal hole of about 1 mm. diameter bored through it and which is kept in place with a little rubber solution. (I understand that this is not an original idea, and one or two firms market a "vaccine-expeller" of much the same design.) The vaccine tube is inserted into the hole in the bung, and when required the lymph can be deposited on the skin by breaking off the exposed end of the tube and squeezing the bulb.

Pediculosis Pubis.—Dr. G. F. MAGURRAN (Exeter) writes: Your answer to the question of the most effective treatment of pediculosis pubis ("Any Questions?" May 21, p. 920) is to my mind very incomplete. I would beg to make the following observations: (1) The pediculi cling like limpets to the skin, and I do not believe that mere shaving and washing can be effective. (2) The nits and pediculi frequently spread not only over the pubic region but over the lower abdomen, all around the upper third of the thighs and the buttocks, and consequently are missed by treatment. (3) Surely clothing should be fumigated? (4) In a case of reinfestation in spite of adequate treatment there are probably other cases in the house. (5) I found during the war that two applications of benzyl benzoate emulsion, without shaving, were simple, clean, and adequate.

Pruritus.—Miss G. THOMPSON (Richmond, Surrey) writes: The article on the mind and the skin by Dr. I. B. Sneddon (March 19, p. 472) contains no reference to the work of O. H. Horrall (*Bile—Its Toxicity and Relation to Disease*, Chicago), who came to the following conclusions: (1) That pruritus is associated with a disturbed liver function; (2) that even a slight pressure on the biliary duct causes obstruction; (3) that in certain cases of persistent itching without jaundice there is a decreased ability of the liver to excrete phenoltetrachlorphthalein; (4) that a chronic case of pruritus cleared completely when bile salts were injected; (5) that drainage of the gall-bladder often gives complete relief; (6) that the most efficient treatment is to get rid of the icterus. Unless these points are borne in mind considerable injustice to some sufferers from pruritus will occur.

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British Medical Association

ANNUAL REPRESENTATIVE MEETING, HARROGATE, 1949

The Annual Representative Meeting was held in the Royal Hall, Harrogate, on Friday, June 24, and subsequent days. Dr. E. A. Gregg (London) presided, supported by Dr. H. Guy Dain (Chairman of Council) and the other officers of the Association. The main and supplementary agenda contained 250 motions and amendments, almost the whole of which related to matters contained in the Annual and Supplementary Reports of Council, published in the *Supplement* of April 2 and of May 28, respectively.

FRIDAY, JUNE 24

PRELIMINARY

The British Commonwealth Medical Conference

The Chairman of Council, in dealing with preliminary matters set out in the Annual Report, said that during this year the first meeting of the Commonwealth Conference had taken place at Saskatoon. It was remarkable that though such an enormous distance had to be covered a representative of every member of the Commonwealth was present. Dr. Hill and he had represented the Association in the home country. A very successful conference was held. The Canadian hosts arranged a three-day programme in which practically all the important problems of medical administration as they affected Canada were put forward in the form of a number of papers, which were then discussed by other members of the Conference from the point of view of the situation in their own countries. The Conference was held in connexion with the Annual Meeting of the Canadian Medical Association which followed it, and most of the visitors stayed for the whole time of that meeting. It was a very informative experience. An enthusiastic welcome was given by the Canadians. It was proposed next year that a similar conference be held in connexion with the Australian Branches of the Association at their annual meeting in Brisbane. These international meetings were naturally expensive occasions, but the experiment had begun very well and he hoped it would be continued. The World Medical Association was meeting this year in London and had elected their own Secretary, Dr. Charles Hill, as president. The meeting would take place in October.

President, 1950–1

The Chairman of Council then proposed that Professor T. P. McMurray, C.B.E., M.Ch., F.R.C.S.Ed., be elected as President of the Association, 1950–1. He said that Liverpool in conjunction with Southport had invited the Association to hold its Annual Meeting there next year and had nominated Professor McMurray as President

The motion was carried unanimously and with applause.

National Formulary

On the question of the *National Formulary*, which was the subject of a statement in the preliminary part of the Report, Hendon asked that early steps should be taken to improve the contents and scope of the existing *National Formulary* so that it would prove of real value to those engaged in the science and art of medicine and to the public at large.

Dr. R. W. Cockshut said he was not criticizing the Committee, which had done a very good job within the limits set for it. But those limits were too narrow. The old idea of the *Formulary* in the days of National Health Insurance was rather being continued, and the idea behind the present compilation, it seemed to him, had been primarily one of cheapness. In the National Health Service they must get away from that idea as being a main consideration, though they would all agree that unnecessary extravagance must not be allowed. He felt that if the *Formulary* was allowed to continue in its present form the ultimate result on prescribing would be serious. Excellent preparations would be replaced by others less acceptable on the ground that they were cheap. When they compared this *National Formulary* with, say, Martindale, he felt rather ashamed of the former. He did not decry the good old drugs nor would he suggest the most expensive products, but he thought the idea of cheapness should be brushed aside. He made some amusing criticism of the "Notes for Prescribers," and said that if theirs was the sort of profession which needed that sort of advice about prescribing he did not think they deserved any increase in the capitation fee.

Dr. J. A. Ireland (Council) took exception to the implication in the Hendon resolution that the *National Formulary* had no real value. He considered that there was an enormous amount of good in the *Formulary*, though it was capable of improvement, and a certain number of deletions and additions might be made.

Dr. Frank Gray (Council) said that Dr. Cockshut had completely misconstrued the purpose of the *Formulary* and of the Committee which drew it up. There was no dictation here. The *Formulary* was intended to be only a help to those who cared to use it. It had been indicated in various ways that practitioners liked to have a *Formulary* for convenience, and accordingly a good deal of work had been put in in connexion with this. If they did not like it after it had been tried out for a reasonable time they had only got to say so. But to suggest that it was something from on high which limited their discretion in any way whatever was ridiculous. He also read into Dr. Cockshut's remarks a suggestion that the authority of the *National Formulary* had been used to favour commercial interests. This was an extraordinary implication. As for the simplicity of the preparations, this might help those doctors who were about to graduate from certain medical schools where simplicity was not recognized at its full value and might remind them that drugs after all were not the largest part in the treatment of the patient and that there were other things which were of more importance.

The Chairman of Council said that under National Health Insurance they had been used to a *Formulary* for a long time. Dr. Cockshut knew perfectly well that he might prescribe whatever was necessary for his patients, however expensive, and he might use or not use the *Formulary* as he wished. This *Formulary* was put forward for the use of the profession as it wished. It was sent out with no instructions whatever. He hoped the meeting would show its disapproval of the view Dr. Cockshut had taken and of the motion which Hendon had brought forward.

Dr. Cockshut said he had merely come there to say what he had thought. If a doctor's prescription rate was over the average for his area the matter would be investigated, and such investigations would lead doctors to say, "I am going to stick to the *National Formulary* in future." He therefore felt that they wanted a very much better *Formulary* than the one which had been placed before them.

The Hendon motion was adopted by a majority.

CIVIC WELCOME

At this point the business was suspended while a civic welcome was given to the Association by the Mayor of Harrogate (Councillor Mrs. M. Fisher, J.P.).

The Mayor said this was probably the proudest moment of her year of office. It had already fallen to her lot to welcome several conferences to Harrogate during her first month as Mayor and she hoped to welcome many more, but the present conference was not merely the biggest she was likely to have the pleasure of seeing in that hall, but also one of the most important that Harrogate could wish to welcome. The links between Harrogate and the medical profession were manifold. The town received its Charter of Incorporation in 1884, and in the official inquiry which led up to the granting of the charter much was made about the inability of the British Medical Association to come to Harrogate at that time because the town had no mayor. Well, they had had to wait 65 years before achieving the purpose for which they were apparently incorporated as a borough, but the occasion had been well worth waiting for. She hoped that the Association would have a useful and happy stay in Harrogate and that the meeting would be of great benefit not only to themselves but to the country as a whole. Finally, she presented to the Association a handsome banner bearing the Harrogate coat-of-arms, which she trusted would always be a reminder of a most successful conference.

Dr. Gregg, on behalf of the Association, thanked the Mayor for her very kind words of welcome. He had been asked how it was they had not come to Harrogate before and he had never been able to get an answer until the Mayor had given an explanation that morning. He did not think that Harrogate needed much in the way of advertisement. In the 65 years since its incorporation it had proved of value to many people in this country and from all parts of the world, and the Association was extremely pleased to have had an opportunity of holding this meeting in such beautiful surroundings. One of the things they would carry away most warmly in their hearts was the civic welcome. He thanked the Mayor also for the beautiful banner, which would be treasured in the Great Hall at B.M.A. House in London in company with a number of other banners from cities in which they had held their meetings.

The Mayor then retired.

NATIONAL HEALTH SERVICE

Dr. Dain's Statement

The Chairman of Council introduced the sections of the Annual and Supplementary Reports under "National Health Service."

Dr. Dain spoke as follows: This is an opportunity to review what has taken place since last July. We have now had nearly a year of experience of the Service, and that experience has been very informing and in many respects disappointing. We have found a public willing to accept the Service, ready to take advantage of the public provision to a very complete extent, and we have found, as we expected, that the provision of services is not likely to be sufficient to meet the demand. We in general practice have experienced an enormous demand for our services. We have had the disappointment of continued delay in the setting up of the final arrangement for all kinds of practice. We protested as vigorously as we could against the tarting of a service until more complete arrangements had been e, and at the end of a year we find that the Government t even yet prepared to agree the terms of service of consnts and specialists in our hospitals, and the final remuneraof general practitioners is not yet determined. That has a cause of great dissatisfaction. There is much yet to be decided, and it is not surprising that many of our members, willing and anxious to give a good service, have found themselves very handicapped in their work. We are confronted with a dangerous situation such as we had never anticipated. We assumed on the statements given to us before we accepted the Service that our entrance into the Service was conditional on the establishment of a Whitley machinery by which our terms could always be discussed and which would be backed by arbitration in the event of disagreement. Under no other conditions could we have accepted service. We could not and would not as representatives of a great profession in this country have accepted a position in which we should be placed completely in the hands of the Government or of a Government Department. If we cannot attain a complete freedom to take our case, whatever we may consider it to be, to arbitration we shall be compelled to come out of the Service. (Prolonged cheers.)

It is a great comfort to me to see the extent to which you react to this particular situation, because in my view there is no possibility of going back from this. We have gone into the Service and have hoped to make it a good one, but we can do that only if we are free to express our opinions as we are able and free to take our difficulties to arbitration, and are not subject to the ultimate decision of a Minister as to whether we may or may not make that resort.

The position, of course, is altering in the field of negotiation very materially. In the past, in the matter of Whitley Councils the Government have stood outside and watched the proceedings in a benevolent way as between employer and employed, and have approved of Whitley Councils as representing both sides of an industry. But if the Government of the country are to continue to become increasingly the employers of one section of the community after another, and are to be in our case the employers of the medical profession, they must be prepared to accept the position of employers with regard to Whitley Council machinery, and not stand behind any previous idea that the State must be outside such a situation. They cannot be employers and judges at the same time.

It is natural for the Government to say, as I understand has been said, that it cannot be in a position in which any profession or calling can dictate to the Chancellor of the Exchequer what his Budget shall be. But we cannot stand for that attitude. We must have the right to go to arbitration even though it is the Government which is the employer. It is essential to us if we are to continue in the Service that freedom to go to arbitration should never be in question. (Loud applause.)

The Amending Bill

Dr. A. W. Gardner (Brighton) called upon the meeting to register its profound dissatisfaction at the Minister's breach of faith in not honouring his undertaking to consult the medical profession before presenting the Amending Bill to Parliament. He said that they had been told that the Minister promised to consult the profession before submitting the Amending Bill to Parliament, and he had failed to do so. Members of the profession had done their best to work the Act, but they could not go on working the Act if the Minister said one thing one day and changed his mind the next.

Dr. D. F. Hutchinson (West Middlesex) said that the Minister had repeatedly made suggestions and promises, none of which had been carried out. It was only a day or so before the Amending Bill was tabled that their representatives were assured that the Association would be consulted. This had gone on for too long. They had the opportunity at the present meeting of making it perfectly clear to the Minister that these political tricks should be exposed for what they were.

Dr. W. R. E. Harrison (Brighton) appealed for a unanimous expression of dissatisfaction with the behaviour of the Ministry of Health. But words expressing dissatisfaction taken alone would cut no ice with Mr. Bevan. The time must come when such words were translated into action.

Dr. A. G. Manley (Richmond) asked that the meeting might be told when the Minister actually gave an undertaking to consult the profession as stated in the Brighton motion.

The Chairman of Council replied that the position with regard to the Amending Bill was that they had a distinct under-

standing with the secretary of the Ministry that immediately the Service started they should discuss with him the contents of the Amending Bill and learn from them what subjects it was proposed to include. That had not been implemented. There had been no consultation as to the contents of the Bill, and when they protested, the Bill having been printed and laid before Parliament, that they had not had the promised consultation, the Ministry took refuge in the position that they could not be shown the Bill before it had been presented to Parliament. But they had never asked that the Bill should be shown to them, only that its contents should be discussed. The secretary of the Ministry had said that the Ministry, having heard their arguments, regarded this as consultation on the contents of the Bill.

The Brighton motion registering profound dissatisfaction at the Minister's breach of faith in not honouring his undertaking to consult the profession before presenting the Amending Bill was carried unanimously.

Medicines for Private Patients

Dr. J. W. McCarthy (Hendon) moved that "disappointment and resentment" be expressed by the Representative Body at the failure of the Minister to include in the Amending Bill provision for the free supply of medicines and scheduled appliances for private patients. He said that it was very important to the survival of private practice that patients who elected to have a private doctor should not be penalized when they required expensive appliances and preparations. The Minister had said that he could not subsidize private practice. But, after all, everybody in this country was paying in some way or other for this Service. Admittedly the administrative difficulties would be great but they would not be insurmountable. Dr. R. Kelson Ford (Chelsea and Fulham) pointed out that it was the patient who was being penalized, not the doctor. To make a patient pay twice was almost savouring of malice, possibly of vindictiveness. Dr. A. M. Easton (Kingston-on-Thames) and Dr. A. V. Russell (South Staffordshire) supported the motion.

Dr. Dain said that they had been pressing all the time for the right of the private patient to receive medicines as part of the service. An amendment to that effect to the Amending Bill would be moved, and he hoped that representatives would do what they could with their Members of Parliament to impress upon them the public interest in this matter.

Dr. E. C. Warner (Marylebone) said that the Minister was acting quite arbitrarily in this respect, even by Parliamentary standards. Private practice in this country must be supported if they were going to survive as a free profession. Visitors to this country were told that they could have all the health benefits under the Act, and yet benefits were being denied to our own people. Mr. Bevan had said on March 15 last that there was no limitation to what the Health Service could do.

Dr. J. Lipetz (City of Edinburgh) considered that the Hendon motion was scarcely in keeping with the serious purpose of that meeting. If any private patients felt that perhaps they were getting better service by seeing doctors privately and by being willing to pay privately for their services, he thought such patients should pay also for their medicines. The administrative difficulties of providing free medicines for private patients would be considerable, but much more important was it that the principle involved would be quite contrary to the spirit of the Act. This was not a constructive proposal. He begged the meeting not to make an issue of so flimsy a point.

The Hendon motion was carried by a considerable majority.

Position of Aliens

Dr. J. C. Arthur (Gateshead) asked the meeting to express strong disapproval of the position whereby any alien has free access to all medical services paid for by the British taxpayer while the taxpayer is denied free medicine if he elects to make a private contract with his general practitioner. He said that the position was an intolerable one.

Mr. Eric Steeler (Marylebone) said that the Gateshead motion was not strictly accurate. Six months ago a patient was flown over to this country to have a specific operation performed on him by the present speaker. The patient wanted to have it done under the British Health Service. The speaker accordingly wrote to the Ministry and asked whether it could be done under that Service, and the reply was that it could not, that an alien arriving in this country for a specific operation or treatment was not entitled to the benefits of the National Health Service. He asked further what was the position of a Commonwealth citizen coming over here for a specific operation or treatment, and was told again that the answer was "No." Of course, the visitor might quite easily come over here for another purpose and while here develop an illness which required treatment. But the fact remained that any alien was not entitled to a free National Health Service.

Dr. Hill (Secretary to the Association) said that Mr. Steeler was quite correct. When they raised the original point as to whether aliens were entitled to the benefits of the Service they were advised by lawyers that they were so entitled because they came within the description of persons who were for the time being within the area of an Executive Council. Mr. Steeler's experience showed that the Ministry of Health, having achieved the legal position that all aliens in the country were entitled to the Service, had, by a process of administrative law, divided the aliens into two groups—those who came as tourists and fell ill while here, and those who came deliberately with the purpose of seeking the benefits of the Service. This was an added complication to the position.

The Gateshead motion was carried with one dissentient.

The Right to Arbitration

Dr. S. J. Firth (Brighton) moved: "That this meeting is of opinion that arbitration provided for in the Amending Bill should be under Whitley Council arrangements, and not as set out in sect. 12 of the Bill."

He said that without the consent of one or other party a trade dispute could be referred to the Minister of Labour, who would set up an independent tribunal, but the decision of that tribunal could be accepted only as advice. The argument might well be that it would be unconstitutional for a Minister to be ruled by the decision of an independent body. In terms of general policy it would be difficult to imagine that an independent body could overrule the State, but we had to-day a somewhat changed view of democracy. It was suggested that it must be considered essential to the working of the National Health Service that any dispute, certainly in regard to remuneration and conditions of service, should go to an arbitration tribunal, whose decision should be binding on both parties.

Dr. G. O. Barber (Mid-Essex Division) considered that the Minister's refusal to grant the right of appeal in disciplinary cases, or arbitration if the Whitley machinery broke down, showed an autocratic attitude which the medical profession would not tolerate.

They felt that they had been completely let down over this failure to go to arbitration. They should put it strongly that they would not tolerate his autocratic attitude. The time had come when they had to show that on this fundamental principle they were not going to tolerate the autocratic attitude of the Minister.

Dr. A. G. Manley (Richmond) held that the right of arbitration must be an integral part of the Whitley Council machinery set up for the medical profession, and must be incorporated in the Amending Bill. If the constitution of the Whitley Council machinery was made so that they could arbitrate on all matters within such machinery, then they would achieve the end which they were seeking. He submitted that Clause 12 of the Bill covered the admission of trade disputes and was not directly allocated to Whitley Council machinery, except that the disagreement might at a later date be dealt with by such machinery when set up. Their job was to ensure that the constitution of such machinery was to their liking.

Dr. R. Forbes (Hendon) said there would be some difficulty if the meeting passed the Brighton resolution in its present form—namely, that arbitration provided for in the Amending Bill should be under Whitley Council machinery and not as set out in Clause 12 of the Bill. The operation of the Whitley machinery was primarily to enable employers and employees

to come together to discuss matters of common interest and to arrive at agreement if practicable. On occasion agreement was not reached, and what they wanted to ensure was not the situation foreshadowed under Clause 12 of the Amending Bill —namely, that there might be arbitration ensuing on disagreement—but that there should be arbitration if they or the Minister so desired. Brighton was suggesting that arbitration should be incorporated in some way in the Whitley machinery. What they wanted was that the Whitley machinery should stand, but it should be backed by compulsory resort to arbitration.

Whitley Machinery

Dr. Hill (Secretary) said that Whitley machinery was a voluntary arrangement. What they were promised in terms which had been set out in the *Journal* was that voluntary arrangements would be buttressed by an arbitration system. Therefore it was necessary for something to be said in the Amending Bill as to the form of that arbitration machinery. The Ministry had always made plain to them that there would be an arbitration agreement defining the field of subjects upon which arbitration could properly be sought, but it had always been understood that whatever else came within the realm of arbitration as a result of that agreement remuneration certainly would do so. Therefore the question arose, Did Clause 12 of the Amending Bill provide what was necessary and what was promised? The effect of Clause 12 was to provide settlement by arbitration only if the Minister approved, and the Court of Inquiry if the Minister did not agree that there should be settlement by arbitration. Since seeing the Amending Bill they had been exploring the problem of whether any other method of securing arbitration existed. There was a system of arbitration under the National Arbitration Tribunal (Defence Regulations, 1940). This was a system under which one or other party could claim arbitration. With the lawyers they had been asking whether in fact, despite the unsatisfactory character of Clause 12, there was not in existence a system of which they could take advantage. Under neither system —the Industrial Court Act system nor the National Arbitration system—could there be compulsory arbitration on matters which were dealt with by regulations. Nothing could be done to interfere with the regulation-making powers of the Minister, and that brought them right up against the fundamental issue raised by the new arrangement. Remuneration would in due course be the subject of regulation; therefore a constitutional issue existed here. They had to secure a form of arbitration which provided for arbitration at the request of one or other party even though the subject were one which was dealt with under the regulation-making powers of the Minister. It was desirable to separate Whitley from the arbitration system, and in examining the arbitration system they should face the fact that there was no existing arbitration machinery which was satisfactory for their purpose. There would need to be new legislation if they were to establish a system of arbitration which could back Whitley and deal with remuneration.

Dr. C. P. Wallace (Guildford) said that the whole profession was indebted to the President of the Association, Sir Lionel Whitby, for his statement in a letter to *The Times* on the previous Monday. He had pointed out that the implications for the professional classes were grave and far-reaching. If they were to go to war with the totalitarian system they must have leadership not only from the Chairman of Council—from whom they had already received it—but from the Council as a whole.

It was agreed at this stage to pass from the Brighton resolution to a later resolution by Kingston-on-Thames which was thought to deal with the matter more fully.

Dr. T. W. Morgan (Kingston-on-Thames) accordingly moved

at as the Minister had withdrawn the official assurances and
rtakings, repeatedly given to the profession, on the ques-
f arbitration in the event of a dispute, the Representative
demanded that effective action be taken forthwith to
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bitration by the profession should not be subject to the
ter's veto.

had been said that morning that the Minister of Health bound by precedent. To a certain extent that was true, but it had also been said that in that event he could not be a party to arbitration. He submitted this was not right. They all knew that there were many cases in the Law Courts in which although the title of the case was *Rex* v. *XYZ*, the decision of the judges was against *Rex*. If this request to the Ministry for the right of arbitration which should not be subject to the Minister's veto was turned down then the only course open to them was to resign forthwith from the Service. (Applause.) They were at the parting of the ways. Either this Service was going on and they were going to become just stooges or tools of the Ministry, or else they were going to retain a certain amount of the independence of the profession.

Dr. J. A. Gorsky (Westminster and Holborn) moved a further amendment: "That this Representative Body therefore calls upon the Minister of Health to redeem his Government's pledges by the necessary alteration in the Amending Bill." He moved this amendment in the full consciousness of a constitutional crisis. When the General Medical Services Committee met the Ministry of Health to discuss the case for higher remuneration for general practitioners it learned to its dismay of the change of front regarding the provision of adequate machinery for arbitration. Dismay had now turned into disgust, and disgust into growing anger at what the profession considered a piece of political chicanery, particularly as it was quite obvious that the Ministry was fully aware of the wording of Clause 12 of the Amending Bill when it was discussing the matter with Dr. Wand and other representatives. Clause 12 applied only the existing machinery for industrial arbitration and took no cognizance of the new constitutional position created by the introduction of the N.H.S. and the national employment of the professional classes.

Within the framework of the new Service and with the increasing extension of nationalization into new fields of economic life, more and more professional workers were becoming employed directly or indirectly by the State. Medical men and women could now give the lead to all professional classes in making a firm stand for the freedom, as a right, to negotiate the terms and conditions of their service with the State as their employers, to strive, within the framework of conciliation agreement and full arbitration, for a higher standard of living and more tolerable working conditions in return for the truly efficient service rendered by them since the inception of the Act.

The profession, Dr. Gorsky continued, had made a sacrifice of freedom, giving up various rights by the virtual extinction of private practice, and in return they asked for a clear ratification of political pledges. By nationalization the Government had made itself the owner and the boss. This crystallization of political ideology had completely altered the whole aspect of the system of government and therefore changed the old idea of the prerogatives of the Crown. The Government protected itself at the expense of the citizen by using the traditional prerogative of protection of the Crown. The Government was in effect setting itself above the law. It was not now one law for the rich and another for the poor; it was one law for the Cabinet and its satellite executive and another for the citizen. After a close examination of the constitutional position Dr. Gorsky said that the prerogative was a matter of law and not of fact and so must be determined by reference to some separate enactment. Therefore he demanded as of right, and not by compulsion, that the Amending Bill should clearly enact the right to arbitration, only subject to the negotiations governing the machinery of arbitration and that of the Whitley Councils. The fact that they were paid by fees and not by fixed salary clearly wiped out the question of prerogative, and although the fees were not as yet fixed by regulation there was nothing now to prevent the Minister of Health using his regulation-making powers to alter them at will. The Lord Advocate (Mr. John Wheatley) had stated that it was the intention of the Government to set up a tribunal on the lines of the Civil Service Arbitration Tribunal. They all knew that that tribunal was limited to Civil Servants with an upper ceiling limit of £1,200 per annum. "We are not salaried Civil Servants and we hope we shall never be."

Dr. Morgan on behalf of Kingston-on-Thames accepted the addition by Dr. Gorsky.

Dr. S. Wand moved a further amendment to the Kingston-on-Thames motion—namely, to insert the words "including arbitration for resolution of disputes involving finance." He said that they were discussing here a motion making reference to arbitration, but they were apt to forget that arbitration could be arranged for a whole host of matters other than finance. When they discussed the Whitley Council machinery recently it was made quite clear to them that there could be defined a field in which arbitration would be applicable, but that that field need not necessarily involve remuneration at all. That being so, it was obviously necessary for this body to make it quite clear that they wished finance to be included in that arbitration field. They as a profession would regard compulsory arbitration as something which was fair and to which they could attach themselves.

Dr. Morgan on behalf of Kingston-on-Thames accepted this addition also.

The Kingston-on-Thames resolution with these additions was then put to the meeting and carried unanimously in the following form:

"That as the Minister of Health has withdrawn the official assurances and undertakings repeatedly given to the profession on the question of arbitration in the event of a dispute, this Representative Body demands that effective action be taken forthwith to insist that arbitration machinery (including arbitration for resolution of disputes involving finance) be set up, and that demands for arbitration by the profession shall not be subject to the Minister's veto. This Representative Body therefore calls upon the Minister of Health to redeem his Government's pledges by the necessary alteration in the Amending Bill."

Threat of Resignation

Dr. S. F. L. Dahne (Reading) called upon the meeting to advise the profession to resign from the N.H.S. unless the Minister guaranteed that in the event of disagreement between representatives of the profession and himself all matters should be submitted to arbitration, and that in the event of disagreement on the betterment factor this be submitted immediately to arbitration. He said that his motion carried the Kingston motion one step further. It put forward the constitutional issue. It would afford them the right to take direct and decisive action.

Dr. Wand asked how they were to decide at the present moment, while the Amending Bill was still before Parliament, what was the right moment to act. There had been a tendency of late to bandy about the word "resign" too lightly. When they came to the point of putting forward their resignation they wanted to be sure that at the periphery it was known just where they stood. He asked the meeting to await the final shape of the Amending Act and in the meanwhile to be satisfied with the resolution of Kingston-on-Thames.

Dr. Manley (Richmond) agreed with Dr. Wand. The Minister had not said he would not arbitrate, but he had said he would not arbitrate on certain matters without further discussion. He considered it too early to pass such a motion as the one Reading had put forward.

Dr. A. W. Gardner (Brighton) said that they had a procrastinating politician as Minister of Health; they did not want to have a procrastinating chairman of any of their committees. He felt that they must have resignation in their minds and the Council must know that they were going to demand it.

Dr. J. A. Ireland (Council) said that he was rather perturbed about this resolution. He thought that the Kingston resolution covered all that was necessary at the moment, and he did not like to use the word "resignation." He moved therefore that the meeting proceed to the next business.

It was agreed to proceed to the next business.

The First Year of the Service

Dr. R. Hale-White (Marylebone) moved:

That this meeting of representatives from all parts of the country regretfully records the fact that during the first year of the National Health Service the Minister and the Ministry of Health have shown little or no desire for co-operation with the medical profession in its efforts to serve the public, that they have met the profession's suggestions with indifference and procrastination, that they have been guilty of breach of faith, and that these are added reasons why the Service is falling far below the standard the public were led to expect.

He said that they had talked already about various breaches of faith. They had heard from the Chairman of Council a strong expression of resentment at the procrastination of the Minister. It was hard for doctors to give of their best when they received this sort of treatment and were constantly anxious about their incomes. So far as private practice was concerned, the Minister had made no attempt to carry out promises given when the Act was brought in. The Minister and the Ministry were both mentioned in this motion for the reason that it was very difficult sometimes to know which was blameworthy. But it was the Minister who was bubbling over with talk about co-operation in the letter of July 3, published in the *British Medical Journal* last year. The profession had loyally done its bit, but what real evidence was there of co-operation on the part of the Minister?

Mr. A. Lawrence Abel (Marylebone), in supporting the motion, said that in the terms for the specialist service the word "specialist" was now omitted. The public who were promised specialists by the Spens Report were now to have consultants and senior hospital medical officers. There had been procrastination and breach of faith. This motion could be carried with a clear conscience and it would strengthen the hands of the Council.

The Chairman of Council said that he must adopt the unusual role of taking the Minister's part. At no time that he remembered had the Minister ever undertaken to support private practice. He had never had the slightest interest in private practice except to destroy it.

Dr. Hale-White explained that he had realized all the way that the Minister was out to destroy private practice. But before the Act came in he did say that anyone was entirely to do as much or as little private practice as he wished.

The Marylebone motion was carried with two dissentients.

Lay Control of Medicine

Dr. F. Lishman (Bishop Auckland) moved: "That this meeting views with great alarm the threatened lay control of medicine and recommends that appropriate action be taken. He complained of a circular sent by the Ministry which had been taken by many hospital secretaries as meaning that they were in control of the medical administration of the hospitals. He also complained of the remuneration of medical superintendents. Where the superintendents had administrative duties only it was proposed they should be paid on the same basis as the lay administrators; when they performed specialist duties as well they should be paid in proportion to the time they spent on such duties. Further in a recent issue of the *Municipal Journal* it was suggested that the medical officer of health of the future, like the medical superintendent, would not be a doctor but a lay administrator with a social science degree.

Dr. R. Kelson Ford (Chelsea and Fulham) said that practical work for the sick was in the process of being dragooned into subservience to bureaucratic domination. In one hospital the patients occupying paying beds had been told by the lay authority they need not pay a fee to the specialists. In another hospital a notice was put up that the operating theatre might be used only at certain hours. In another, a certain specialist turned up to take his usual out-patient clinic and found the room occupied by clerks and was told he was dispossessed. There was no other provision made for him until he was about to "pack up." In another hospital group the lay secretary of the management committee ignored advice from the medical advisory committee and proceeded to write letters to the Regional Committee in a contrary vein without informing the medical advisory committee that he had done so. As for general practitioners, certain of them had been told that they must hold more surgeries, and indeed must hold two at the same time in different places. This was an indication of the way things were going under the direction of bureaucratic control.

Dr. S. J. Firth (Brighton) supported the motion. This type of control, he said, was typical Civil Service, and all the regulations which were framed by the lay administrative people could lead only to frustration. Doctors in the Service in hospitals were already feeling the effect of this new machine.

Dr. James Fenton (Council) supported the motion. He had seen examples of junior clerks in public health departments who prior to last July were engaged in environmental work and who had now been sent to the hospital service, taking charge over medical superintendents.

Dr. Doris Odlum (Bournemouth) said there was no doubt that both doctors and patients were being sacrificed to political expediency and to the Civil Service mentality, and it was a great tragedy that it appeared that the Minister was hardening on this point of lay experience in medical administration. In the original draft from the Ministry on terms and conditions for consultants and specialists it was said that half the time of the administrator should be paid at the administrative rate, and that he should get his clinical pay only for the period he was actually giving to clinical work. Some slight qualification was made in the case of long-stay hospitals, but was afterwards withdrawn. The work of medical superintendents in mental hospitals and other institutions, which was what might be called medical administration, was greatly in the interests of patients, who would suffer severely if medical men and women were discouraged from entering for these posts. It would be most unfortunate if the work should fall into the hands of lay administrators.

Dr. A. Beauchamp (Birmingham) said that he was in full agreement with the case made out, but he did not think the meeting should support the resolution as it stood. He was not himself aware of any threatened lay control in general medical services, and it should be made plain that it was hospital services which were in view.

Dr. P. Phillips (Bristol) spoke of the unfortunate position in which deputy superintendents, men who had done perhaps ten years' service and were aspiring to superintendent posts, were placed. Those of them who were consultants or "consultoids" might not have a great deal to complain of, but he was glad to support this motion.

Dr. W. N. Leak (Mid-Cheshire) said that if this went on it would mean, not a medical service, but a service controlled by non-medical people. Dr. A. Smith (Lanarkshire) said that the medical administrator was essential in every hospital. And what was going to happen to the general practitioner, if this kind of thing went on, when they set up health centres? Miss Gladys M. Sandes (Marylebone) said that some social workers were apparently to be given the discretion as to whether an aged person should really be admitted to hospital or not. Mr. C. F. Mayne (Plymouth) said that lay administration in committees was essential, but political lay administration, which was often to be found, was not essential.

The motion viewing with great alarm the threatened lay control of medicine, and recommending appropriate action, was carried unanimously.

GENERAL MEDICAL SERVICES

Dr. S. Wand (Chairman of the General Medical Services Committee), in bringing forward the Report of Council under that heading, gave an account of the work of the committee. The case on which the Special Representative Meeting agreed had not yet been discussed with the Ministry. Both the officials of the Ministry and the Minister himself had made it quite clear that they did not propose to give an answer on the case until the results of the inquiry had been analysed. But at the first interview two important issues arose. They were told that any modification of the pool would not necessarily be retrospective to July 5. The other matter related to the attitude on arbitration which had been discussed that morning. It was made clear they had no right to automatic arbitration, though arbitration was not ruled out. The results of the inquiry were expected to be published next month. It was quite clear that in computing the size of the pool, and the amount of money that went into it, the Ministry would put in every single penny that was earned by general practitioners in the Service. The application that the profession had made for a greater sum of money had been spoken of in some quarters as if it was an increase; it was not an increase, it was merely a proper assessment of the remuneration due to general practitioners since the appointed day. In the meantime this delay in settlement was causing considerable dissatisfaction among general practitioners. They were anxious to see this Service develop in the best possible way, and they hoped that by automatic arbitration all these unpleasant and unnecessary bickerings over money would cease. The public had a right to demand that the general practitioner should be free from these anxieties. The view was quite rightly held that the general practitioner had had a raw deal. He thought that statement was borne out by the report of the Select Committee. Having regard to the burden he carried, the general practitioner, relative to other professional groups in the Service, had been down-graded, not merely financially but clinically as well. ("Hear, hear.")

Dr. Wand then proceeded to give a brief review of the work of the General Medical Services Committee since it was created last November. He read a long list of its achievements and of the matters which had come under its consideration. These included the evidence to the Legal Committee on the partnership problem; the work which resulted in the enlargement of the mileage fund; the remuneration of general practitioners for services rendered in convalescent homes; the question of fees for locumtenents while practitioners were taking refresher courses; matters relating to the Pensions Scheme, devised to fill in the gaps in the Superannuation Scheme; the training of assistants; the position of the general-practitioner specialist; the statistical inquiry into the work of doctors; the temporary resident problem; the inflation of doctors' lists; rural practitioners' problems, and very many other aspects of the Service. With regard to inflation of doctors' lists, it had been impressed upon the Ministry that it would be advisable to reconstitute a Central Register such as existed in the old days; they had secured a promise that all possible steps would be taken to reduce inflation, and if those steps were not adequate the possibility of a Central Register when the census was taken in 1951 would be considered. Another matter which had engaged the attention of the committee concerned the reintroduction of rules of conduct for patients, including the setting up of some disciplinary machinery. A subcommittee had been set up to consider the problems affecting general practitioners who would go into health centres. In regard to some of these questions the committee had got what it wanted; in regard to others it was making progress.

Dr. Wand concluded with a tribute to the late Dr. John Bone and his great work for the old Insurance Acts Committee and the Defence Trust. His would be a name they would always remember with great affection. He also referred to the magnificent work done by the present chairman of the Representative Body, Dr. Gregg, as chairman of the Insurance Acts Committee.

Constitution of Committee

Dr. Wand went on to move approval of the paragraph in the Annual Report (25) setting out the proposals for the constitution of the General Medical Services Committee.

Dr. D. L. S. Johnston (Halifax) had down an amendment to the effect that the committee should be reconstituted to form the executive body for all general practitioners grouped within the framework of the Association in areas conforming to the present Divisions; that representatives on this executive body should be elected directly by vote of practitioners, each constituency conforming to a Branch Council area, the Central Conference also electing representatives; that the executive body should be subject to no other body by veto in matters which had been decided by a central conference composed of representatives of the practitioner group; and that the executive body should have direct access to the Minister of Health. He said that this was put forward in no spirit of criticism, but only to ensure that the periphery would be well informed as to the action of the centre in any eventuality, and that the periphery would get rid of its apathy. Since he had tabled this motion, however, a good deal of water had run under the bridges, and in particular there had been set up the British Medical Guild. Therefore he proposed, with the leave of the meeting, to withdraw the motion.

Call for Withdrawal from the Service

Dr. H. J. Cronhelm (Belfast) moved:

That owing to the unsatisfactory situation which has arisen due o the indefinite postponement of discussion by the Ministry of Health of the reasonable and documented case put forward by the General Medical Services Committee for increasing the Central Pool by £16,500,000, this meeting demands that further delay shall not be tolerated, and that the Association take immediate steps to organize a mass withdrawal from the Service.

He said that the Minister had shown no desire to treat their claim as the urgent matter which it certainly was. He had adopted a technique of delay and obstruction. There was one course open to them, to have nothing further to do with the Health Service. The latest promise from the Minister was that his inquiry would be completed by July, but it might well go on to August and September. The machinery which was an essential preliminary to any concerted action by the profession should now be set in motion.

Mr. Eric Steeler (Marylebone) said that the motion reminded him of the definition of a love-letter—the writer should start by not knowing what he was going to say and end by not caring what he had said. If they withdrew *en masse* it was the British Medical Guild to which they must pin their faith, and he had already sufficiently criticized that organization.

Dr. R. V. Goodliffe (Croydon) complained that all the resolutions at the present meeting which called for action had been whittled down or put out of the way. Dr. Dain had said that if they did not get satisfaction they might at some time in the future have to consider withdrawal from the Service.

Dr. Dain: I spoke more definitely than that.

Dr. Goodliffe asked what had happened since that speech was made earlier in the morning. The meeting, which was alert and keenly receptive to that suggestion, had gone on to permit the withdrawal or whittling down of any resolution which called for action. This was the last opportunity they would have of putting into actual effect the enthusiasm they showed when Dr. Dain addressed them.

Dr. H. Alexander (Wandsworth) said that the National Health Service was about to celebrate its first birthday. It was born prematurely; in fact there was difference of opinion as to whether it was a viable child. It owed its survival to the devotion of the doctors. One might have expected that its political father, so proud of his child, imperfectly developed as it was, would have shown some kind of appreciation of the doctors, but in fact he had rewarded them with scant respect. He had gone forward without consulting the profession and he still refused to pay the "confinement fees." (Laughter.) It would always be true that doctors were loath to take legal action, but the time had come when at least a strongly worded "solicitor's letter" should be written pointing out the inevitable consequences of refusal on the part of the Minister to meet his obligations.

Dr. F. A. Roper (Cornwall) said if this was passed it would be a mandate to the Council to organize mass withdrawal forthwith. He noticed, however, that the proposer had taken another line, for he had interpreted the word "organize" as meaning "asking the Council to explore the possibilities." He suggested this resolution required amendment to make it clearer in the light of the mover's speech.

Dr. D. S. Saklatvala (West Bromwich and Smethwick) moved as an amendment that the termination of the Belfast motion should read: " . . . take immediate steps to enable a mass withdrawal to be effected at any time."

Dr. C. R. Barrington (Bromley) agreed with the amendment. If the machinery was in being it would make any action they took very much more effective. Dr. A. G. Holman (East Norfolk) said the word "resignation" was often used, but could they be sure that they had the Divisions behind them? Divisional meetings were often poorly attended. He had been told that in certain industrial areas doctors feared physical violence if they refused to treat their patients under the National Health Service. Dr. H. Barbara Woodhouse (Harrow) said that it was for representatives to organize in their localities and educate their fellow practitioners on this vital issue. The last speaker had suggested that if doctors resigned they might suffer. If they were not prepared to face sacrifices she did not think they were worthy to be called supporters of the cause of freedom. (Applause.) Dr. W. R. E. Harrison (Brighton) said that if the rank and file got the idea that the B.M.A. stood for peace at any price, then they had "had it."

The amendment proposed by Dr. Saklatvala was agreed to. In further discussion on the substantive motion Dr. G. O. Barber (Mid-Essex) said that the motion was a weakening of their previous motion insisting on arbitration. This subject should be left to arbitration, and if arbitration were not granted they should proceed with withdrawal. Dr. J. C. Wishart (Bromley) said that if they went back to their constituencies and said that preparations were being made to organize this withdrawal it would be the best means of combating Divisional apathy.

Dr. T. W. Morgan (Kingston-on-Thames) reminded the meeting that that morning it had passed unanimously a motion on arbitration which meant that they did not allow the Minister a veto against the profession. But the Belfast motion meant that they were holding a veto against the Minister.

Dr. Wand hoped that the amended motion would be passed. He thought it met what the Representative Body would wish done at this moment.

The motion in the following form was carried with one or two dissentients.

That, owing to the unsatisfactory situation which has arisen, due to the indefinite postponement of discussion by the Ministry of Health of the reasonable and documented case put forward by the General Medical Services Committee for increasing the pool by £16,500,000, this meeting demands that further delay shall not be tolerated, and that the Association take immediate steps to enable a mass withdrawal to be effected at any time.

A motion by Dr. T. W. Morgan (Kingston-on-Thames) demanding that the contemplated improvements in remuneration should have effect retrospective to the commencement of the Service, seeing that the present capitation fee had never been agreed by the profession, was carried.

Dr. G. R. Mitchell (Blackpool and Fylde) called for full support for the Conference of Local Medical Committees in seeking adjustment of general practitioner remuneration on the basis of the report prepared by the General Medical Service Committee, and stressed the urgency of the matter in view of financial hardship. Until last July in his area private practice largely predominated over insurance practice. Among many practitioners who formerly had good private practices financial hardship was acute.

A motion to this effect was agreed to.

Mr. J. Shirley Callcutt (Wembley) moved: That this meeting considers that the amount of the capitation fee is not equitable throughout the country and should be made uniform irrespective of area and of other payments such as mileage and dispensing. The figures for mileage, dispensing, etc., should be separated from the global sum, and division made among general practitioners according to the number on each list.

Dr. Wand reminded the meeting that the pool method was the only way in which the capitation fee for 95% of the population could be got into the pockets of the doctors.

The motion was lost.

Temporary Residents

Dr. C. J. B. Fox (Consett and Hexham) said that the fee of 15s. for attending temporary residents was totally inadequate. As it specially affected seaside and holiday resorts, where the patients called in medical aid only in the event of severe disability, his Division considered that the fee should be not less than one guinea.

Dr. E. G. Smallbone (South Essex) said that this was a matter which should be decided by actuarial investigation, not by a show of hands at that meeting. Dr. S. Noy Scott (Plymouth) said that thousands of cases were sent for convalescence and required no other aid whatsoever, beyond a monthly certificate. They must not lose their sense of proportion. Dr. E. W. Vincent (Scarborough) pointed out that a town might have a population of 5,000 in winter and 20,000 in summer, and by any computation a large number of these additional people must require medical attention. A large

number of the people who fell ill at seaside resorts were children, who required a great deal of attention.

After further debate, during which more than one representative produced figures comparing holiday resorts with industrial areas in respect of the number of temporary residents, Dr. Wand said that when this matter was discussed the representatives from holiday areas were invited to attend, and the figure of 15s. was agreed by them to represent a fair remuneration. The moment they started to go above a fair remuneration they were taking money unnecessarily out of the pockets of other practitioners. In a year's time let this matter be looked into again. It might be that this 15s. would prove inadequate and then it would have to be revised.

On this understanding Hexham withdrew its motion.

Mileage Payments

Dr. H. B. Muir (Fife) asked the meeting to express the opinion that payment for mileage under the maternity scheme should not be deducted from the central mileage fund. In a long speech fortified with many figures from his own practice he said that there were many reasons why the two types of payment should be divorced. He complained that Dr. Wand did not understand the mileage question in connexion with rural practice, and especially the question of maternity mileage.

Dr. D. M. Hughes (South-West Wales) said that since the last Representative Meeting he had come to see that the position in rural areas in respect of mileage was much better than he had thought. He was afraid they might have trouble if they flogged this mileage question in the future.

After Dr. J. O. McDonagh (Perth) and others had spoken, Dr. Wand said that he thought they had done rather well for rural practitioners interested in mileage, having attached to them a sum of half a million new money. He reminded the meeting that they had agreed to a pool method of payment. All moneys paid to doctors came out of the pool. If extra money were taken for a particular section of the work it came out of the pool, and thereby other items in that pool were lessened in a financial respect. As they had attached themselves to the pool system, his committee had referred to the Rural Practitioners Subcommittee—to whom else could they go?—and received its endorsement. He hoped that until they got the global sum question settled there would be no more talk of little bits here and there being taken out of the pool. "Do not let us make major political issues out of what are isolated cases of maladjustment."

The Fife motion was lost.

The session concluded at 6.15 p.m.

SATURDAY, JUNE 25

The meeting began at 9.30 a.m., with Dr. Gregg in the chair, and further motions arising out of the section of the Annual Report dealing with General Medical Services were taken, starting again with some discussion of the payments for mileage.

Dr. A. H. Forman (Fife) asked the meeting to express the opinion that payment for mileage under the maternity scheme should be on a similar basis to that prevailing under the Maternity Services (Scotland) Act, 1937—namely, a compromise payment for each case booked or a payment for each mile travelled over two miles from the patient's residence for each visit to the patient's home, special visits being paid at the full rate and visits in the course of a round at one-third of the full rate, the choice of method being left to the doctor. He did not see why practitioners should not receive mileage in respect of this service as they had for the past few years. The fact that it was not received in England was beside the point. His Division was not asking for something to which they were not entitled; they were entitled to ask for every penny of mileage they could get. Patients in towns would attend clinics, but in the country they would not; bus services were not always convenient, and in any case it was unfair to ask an expectant mother in the last six weeks of pregnancy to travel in some of the rural buses. He asked for support of the motion to help rural practitioners to obtain this extra money.

Dr. W. Jope (Council) said that the meeting should not be asked to waste its time discussing details of payment, and this matter should be referred to the Remuneration Subcommittee of the General Medical Services Committee.

Dr. S. Wand said that there still seemed to be an idea that this money was coming from some separate fund which bore no relation to the pool. This was not the case: the mileage money was a first charge on the Mileage Fund. The Rural Practitioners Committee in their wisdom had made an allocation from that fund for maternity mileage. The rural mother had to be examined antenatally quite frequently at her home, and allowance had been made for this; allowance had further been made for the fact that in many cases the mother was on the list of the doctor, and mileage was given for that purpose also. Allowance had been made for the fact that in some cases the mother would move further away from her home for the confinement; in others she would go nearer to the place in which the doctor was practising. Thus it would be seen that the problem had been discussed in all its aspects, and he would ask the meeting to accept this motion as a reference to the Committee, bearing in mind that the arrangement had only recently been made and should be allowed to run for some time to see whether it needed revision.

Dr. Forman, in reply, agreed that the matter should be passed to the Council for consideration, but he took exception to Dr. Jope's remark. Representatives were sent by Branches to express their points of view, and if they were not allowed to do so it was a waste of time to attend.

The motion was withdrawn on the understanding that the matter should be referred to Council.

Treatment of Miscarriages

Dr. J. M. Gill (Aberdeen and Kincardine Counties, Orkney, and Shetland) asked that the treatment of miscarriages should be regarded as outside the ordinary terms of service of a general practitioner, and paid for on the same basis as a confinement, irrespective of whether the woman had signed E.C.24 or not. He said that though part of the resolution had been conceded (on which he congratulated the B.M.A.) it did not go far enough. His Division felt that a miscarriage should qualify for a Part I payment. An emergency confinement qualified for 4½ guineas, and the only justification for the difference would be if a miscarriage did not require the same knowledge, judgment, and skill as an ordinary confinement. This was nonsense. The conduct of a miscarriage at any stage might call for as much skill and judgment as a confinement, and might occupy the doctor for as long. His Division also felt that it was as necessary for a post-natal examination to be carried out six weeks after a miscarriage as after a confinement. The payment for miscarriages should be the same as for an emergency confinement, and if the miscarriage had taken place between the 25th and 27th week and any antenatal visit had been made that also should be paid for.

Dr. S. Wand said this was what was called "wanting jam." As general practitioners they knew that in the nature of things it was most unusual for a miscarriage to require anything like the same amount of attention. He would not go into details, but he hoped it would be agreed that the arrangements made with the Ministry were satisfactory.

Dr. Gill felt that Dr. Wand must have been luckier in some of his miscarriage cases than practitioners in the country, where they had to deal sometimes with very serious emergencies. If they were entitled to a post-natal fee for a confinement (and a post-natal examination was necessary after a miscarriage) his Division felt that they should be paid the fee for that also.

The motion was lost.

Basic Salaries

Dr. J. W. McCarthy (Hendon) moved to instruct the Council to represent to the Ministry that all basic salaries granted by Executive Councils should be a primary charge on the central pool. He said that since the poster sent out by the Association had been displayed in consulting-rooms patients had realized the small part of the contribution which went to the doctor.

Even the more enlightened had thought the doctor received the whole 18s. capitation fee, but this was not the case. Last year in Middlesex practitioners received 15s. 7d. capitation fee for the whole year. Different reasons for this disparity were given : (1) inflation of lists, (2) inaccuracy of the registration figures, and (3) the number of basic salaries. These last were controlled by the Local Medical Committee ; if a man was refused a basic salary he appealed and it was taken out of the hands of the local committee ; there was a case, he submitted, for basic salaries to be paid out of a central pool.

Dr. H. F. Moffit (North Glamorgan and Brecknock), speaking as an industrial area representative, asked the meeting to reject the motion. He agreed that there should be special payments to "truly rural practitioners," but if Dr. Wand's campaign for an extra £16m. to be put into the central pool and an increased capitation fee for the first thousand patients was successful discrepancies would disappear in respect of scattered rural areas. If this motion was accepted they would be one step nearer a full-time salaried service ; it would lead to a greater number of practitioners seeking and getting the basic salary, which would mean a large drainage on the central pool and consequent reduced capitation fees all round. There must still remain the rate for the job, and doctors with small lists in residential suburbs should not expect basic salaries to be paid out of the central pool and thus reduce the capitation fee in all other areas. Practitioners in industrial areas did the work in the past ; they were doing the work to-day, and were strongly opposed to this proposal.

Dr. R. W. Cockshut (Hendon) said that in Middlesex there were very densely populated industrial areas. His Division was asking for a simple act of justice. Basic salaries existed and he did not see why they should not come out of a central pool. Middlesex was a distressed area in that it had a higher proportion of doctors to the population than anywhere else in the country ; they had been hard hit, which meant that an abnormal number of basic salaries had to be paid. If the housing situation was easier many would have moved into areas where the proportion of doctors to the population was not so high, and if that had happened such areas would have felt the difference. The strictest supervision should be exercised on the payment of basic salaries, and to make them a first charge on the pool was an act of justice which could not be refused.

Dr. H. B. Muir (Fife) supported the motion because anomalies did exist. In one area in Scotland 18 out of 20 doctors were entitled to basic salaries—a quite impossible situation.

Dr. S. Wand said he would ask the Representative Meeting to bear in mind not only the immediate problem but the major issue involved. The greatest fear with regard to the Service was the possibility of a universal basic salary which might be steadily increased until it became the major part of a practitioner's income, with a resulting drift into a full-time salaried service. In the area quoted by the last speaker a case could be made out for a larger number of payments from the Special Inducement Fund, and more of these applications should be made. In the case of Middlesex he agreed that there had been some anxiety, but the matter had been taken up and an endeavour was being made to put it right. Because there was this immediate difficulty in Middlesex, however, they must not do something which would create a major issue at some future date.

Dr. McCarthy, in reply, said that Hendon had worked as hard as any area in the fight. He thanked Dr. Wand for his interest in Middlesex, but his constituents were looking for results. The payment for the last quarter was lower than ever. Basic salaries paid from the central pool would be better controlled, and every doctor would get a fairly equal return for the work he put in.

Dr. Wand, in reply to a question whether if the increase on the first thousand patients were obtained the Committee would explore the possibility of abolishing the basic salary, said that the Representative Meeting was told that it was hoped that the extra payment would result in the abolition of the basic salary. The Committee would have that in the forefront of its mind.

The motion was lost.

Dr. G. MacFeat (Council) called upon the meeting to take grave exception to the action of the Secretary of State for Scotland in granting, on appeal, certain fixed annual payments previously refused by both local medical committees and executive councils. He said that his Division was seriously disturbed at the action of the Secretary of State in granting appeals of practitioners who were refused basic salaries by the local medical committees and the Executive Council. It concerned practitioners with sufficient lists to produce an income of £900, practitioners refused for unethical conduct, and two glaring cases of practitioners who had been practising for some years and had in no sense developed practices. He desired to protest in the strongest terms against this action. The assessment of need for basic salary was one of the most unpleasant duties imposed upon medical committees and executive councils, and to have their work overturned without rhyme or reason was most unjust.

Dr. D. F. Hutchinson (West Middlesex) moved, as an amendment, that "the Minister of Health" be inserted in the motion before "the Secretary of State for Scotland." The meeting would do well to support this motion. In one case where the basic salary was refused it went to the Minister on appeal ; the appeal was refused, but the practitioner's solicitor wrote what he described as a grossly improper letter to the Minister, as a result of which the Minister decided to reconsider his decision. The result was not yet known, but the Executive Council had taken strong exception to it. He agreed that the appeal should not lie with the Minister but with some other body, and he felt it should be the Medical Practice Committee.

Dr. A. V. Russell (South Staffordshire) seconded the amendment and supported the motion. Dr. F. M. Rose (Preston) said, in supporting the amendment and the motion, that Lancashire had had to deal with many applications and had been strict in its consideration of these claims, but the Minister had granted appeals which no medically constituted committee would have granted.

Dr. F. Gray (Council) said that the Minister had managed to do a quite extraordinary thing ; he had managed to convince the lay members of the London Executive Council of the dishonesty of his department. In London every case had received serious and careful consideration, and appeals had been allowed where they should not have been allowed. When the Minister deliberately perverted the course of justice it was time that these appeals were taken right out of his hands and placed in the hands of those who could be trusted to see that justice was done.

Dr. MacFeat accepted the amendment. He said that this was a very serious matter ; the local medical committees and executive councils had a sense of frustration when their decisions were turned down without proper inquiry, and this was not helpful in the development of a satisfactory medical service.

The motion as amended was carried unanimously.

Vaccination and Immunization

Dr. Wand moved approval of the paragraph in the Annual Report dealing with vaccination and immunization. There had been during the last week or two a change in the position which made them feel that they could once again go into conference with the local authorities and the Ministry, and they were awaiting a date for that meeting. The general approach was now established and bade fair to be rather more satisfactory.

Dr. E. C. Dawson (Derby) moved as an amendment that the fee for vaccination should be one guinea and for immunization 5s. for each injection. In vaccination, he said, there were normally three attendances. If each of these was to be counted for an attendance fee, £1 2s. 6d. could be claimed. But difficulties sometimes arose and examination might have to be made every day, which would bring about a heavy bill on the basis of daily attendance. It was thought by his Division that the best way out of the difficulty would be one inclusive fee of a guinea.

Dr. James Fenton (Council) asked that the reference to immunization might be omitted. Immunization was in his view not treatment but prevention, and a separate fee should be paid by the local health authority. He was satisfied that it

would embarrass Dr. Wand if they fixed a 5s. fee for immunization for each injection.

Dr. S. Noy Scott (Plymouth) reminded the meeting that there was such a thing as "killing the goose." To ask for a fee of one guinea for a vaccination was suggestive of that. It was a very simple operation which took up a very short time, and what was asked for in the Derby amendment seemed out of all proportion.

Dr. Wand protested against motions which tied the hands of the committee in this way. Dr. Dawson, in reply, said that if they accepted the recommendation as laid down in the Council's report of 7s. 6d. for attendance, and there were at least three attendances at each vaccination. (Voices: No, two.) He understood they should look for an accelerated reaction on the second or third day and for a normal reaction on the seventh day, and in that case the payment would be £1 2s. 6d.

The Derby amendment was lost.

Dr. W. Smith (Greenwich and Deptford) moved to ask the meeting to regard the Minister's continued refusal to agree to payments of fees for vaccination and immunization as indefensible. It seemed that now the clinics would be able to do all these services; that was supposed to be progress. Did they wish that immunization and vaccination should be carried out to the greatest possible extent? If so, the Minister was not helping the public to obtain what they should.

Dr. Wand considered that this was a matter for local authorities. The trouble was more local authority than ministerial.

It was agreed to pass to the next business.

Dr. J. C. Arthur (Gateshead) moved:

That until it be established that local authorities are responsible for the payment to practitioners of fees for the performance of vaccinations and immunizations, it is recommended that no reports of the performance of such services be rendered.

He said that the service could not be refused, but there were other directions in which the profession could take effective action, and the withholding of reports was one of them.

Dr. A. G. Holman (East Norfolk) said that the Ministry and the local authorities were indulging in a game of "passing the buck." In his area they had adopted the plan of performing the service but holding on to the record until the question of responsibility for payment of fees had been determined.

Dr. Wand said that it would be indefensible, while negotiations were in progress, for an important body to pass such a motion as its official policy.

Here also the meeting decided to proceed to the next business.

Dr. J. W. McCarthy (Hendon) asked the meeting to express the definite opinion that immunization and vaccination should fall outside the scope of the contract for public practitioners, and be made the subject of separate remuneration, both for the services and for the reports involved.

Dr. Wand again deprecated such a resolution at the present moment while negotiations were pending.

The meeting again resolved to pass to the next business.

Special Facilities in Hospitals

Dr. J. S. Ross (East Herts) moved that the maintenance of pathological and radiological facilities for general practitioners without the intervention of a consultant in a hospital out-patient department was essential. He said it seemed as if there was a further attempt here to exclude general practitioners from the hospital service. They were apparently considered incapable of deciding when *x*-ray examination was needed.

The general practitioner was prepared to co-operate in reducing the demand on *x*-ray departments and in discouraging patients from making unreasonable demands, but he hoped that this matter of facilities would be taken up very actively with the Ministry so that general practitioners might have these facilities for diagnosis maintained.

Dr. T. F. Tierney (Marylebone) said that he was a radiologist both to a teaching and to a country hospital. In the country hospital any practitioner could send a patient without interference, merely because they had facilities and the time to carry out the amount of work which was needed. In the teaching hospital there was so much work going through the department that it was a physical impossibility for the department to cope with more than that sent to it by the hospital, and this filtration through the out-patient department was the method they had adopted for their own protection.

Dr. Ff. Roberts (Cambridge and Huntingdon) said he was entirely in sympathy with the general practitioner and could not see why any difficulty should be put in his way. What could be more calculated to down-grade general practitioner work than artificial barriers to such facilities in hospitals? When *x* rays were introduced 50 years ago it was the general practitioners who took up the method, and they had difficulty in persuading many consultants as to the value of this new "toy." The *x*-ray pioneers were general practitioners. If the patient went through the hospital departments the amount of work attaching to him was likely to be increased. A general practitioner would be satisfied to know whether the patient had had a gastric ulcer or not, but in the out-patient department the patient would possibly come into the hands of one of the junior registrars and time would not be saved, because he was likely to be referred for many investigations.

Dr. D. E. Yarrow (Tunbridge Wells) said this was a question of the general practitioner retaining some clinical interest.

Mr. H. H. Langston (Winchester) said some members appeared to think that consultants wished to prevent the general practitioner from having access to these special services. On the contrary, consultants felt that the general practitioner should be able to investigate his cases as fully as he thought necessary. But in his own hospital there was a three-weeks waiting-list for *x*-ray investigation of cases of gastric ulcer, and he could assure them that to open the departments to general practitioners at the moment, in view of the great amount of investigation work required, was impossible. Consultants were not out of sympathy with general practitioners in this matter.

Dr. J. M. Alston (City) proposed the addition of the following words to the motion: "and should be extended as facilities become available." As a pathologist he found that most of them were unable to carry out their good wishes towards the general practitioners because of shortage of space, staff, and materials.

Dr. W. Smith (Greenwich and Deptford) seconded the amendment. The motion without the amendment was impracticable. Much work in the pathological departments was now done by technicians without medical supervision, so that if the patients were sent to departments of that kind it would result merely in reports being obtained which were not necessarily completely informative.

Mr. R. L. Newell (Council) said he heartily agreed with the principle underlying the motion and the amendment. If they were to maintain the high standard of general practice it was essential that they should provide general practitioners with these facilities. It was perfectly true that the departments in the large hospitals had been overloaded. The overloading was due to many causes, one of them the fact that they appeared to be teaching their younger people that no diagnosis was possible without submitting the patient to innumerable pathological and *x*-ray investigations. Nevertheless, the absence of facilities should not deter the meeting from passing the amendment, which improved the motion.

Dr. T. W. Morgan (Kingston-on-Thames), as one who was intimately connected with two small but busy hospitals, had considerable sympathy with some of the remarks made by the consultants. On the other hand, there was a demand throughout the country to exclude general practitioners from staffs of cottage hospitals. Consequently, as a general practitioner he asked the meeting, in order to assist the departments while further arrangements were being made for this service, to be particularly discreet in their demands on the Service. But, for heaven's sake, let them keep the Service in their hands.

The motion was carried in the following form:

That the maintenance of pathological and radiological facilities for general practitioners without the intervention of a consultant in a hospital out-patient department is essential and should be extended as facilities become available.

Legal Advocacy in Medical Service Cases

Dr. R. Forbes (Hendon) moved that the Council be urged to make early representations to the Minister to amend the

regulations governing the procedure of medical services committees to bring them into line with those applicable to Northern Ireland, whereby a defendant doctor appearing before a medical services committee may have, if he desires, the services of a paid advocate or solicitor.

The practitioner should not be left alone without skilled assistance in the presentation of his defence. There was a growing volume of evidence that at the present time there was an increase in the number of cases finding their way to the medical services committees. This was perhaps due in some measure to the introduction of a new section of the community —a better-paid, perhaps a better-educated, section—at all events a section more conscious of its rights. These people were now making more frequently a complaint against doctors on the grounds of negligence or impropriety of conduct of one sort or another. Not uncommonly they used such action as a forcing point to see what success might follow a complaint of that kind. If they gained a favourable decision at the medical services committee they might possibly go on to the Courts of Law or to the General Medical Council as complainants against the doctor. Many doctors were quite unable effectively to present a good defence on their own behalf, even though a good defence was possible. Many did themselves more harm than good by attempting to present the case on their own behalf. In this changed set of circumstances the defence societies in their experience thought that the time had now arrived when the profession should ask for the right to have representation of a medical practitioner by a paid solicitor or advocate if the practitioner so desired.

It was recognized if that right was given to the doctor it must also be given to the other side. But it was believed that the exercise of that right on behalf of the doctors would protect them in a way in which they could not be protected at present. He hoped he could enlist their sympathy in providing for the defendant doctors who had to appear before these committees on a serious charge the right to be legally represented and to have put forward on their behalf as good a defence as was possible in the circumstances of the case.

Dr. Frank Gray (Council) said there was a good deal of substance in what Dr. Forbes had put forward, but he asked the meeting to look carefully on the other side of the question. If the doctor had paid skilled assistance the other side would have it also, and, whilst undoubtedly skilled assistance would be a great help to the doctor, to have a skilled lawyer on the other side cross-examining him might possibly produce results which in the long run would be of no benefit to the doctor. He added that every secretary of a local medical committee had a statutory right to be present at such hearings.

Dr. E. C. Dawson (Derby) thought they must be very careful on this question of paid defence, which might well prove to be a double-edged weapon.

Dr. D. S. Saklatvala (West Bromwich and Smethwick) spoke in support of the motion. He said sometimes political bias operated among members of the committee. If they were faced with such bias the frequency of appeals would increase, and it was clearly to the advantage of the doctor to have properly trained advocacy at the earliest possible stage.

Mr. G. Whyte Watson (Bradford) said that strict justice was better than rough justice. They could not get strict justice in its entirety, but when there were legal arguments they approached nearer to strict justice. He begged that the doctor might have this help if he so desired.

Dr. E. J. Warburton (Reading) opposed the motion. To have the doctor himself present with a colleague was by far the best possible arrangement. All the doctor needed to do was to be honest, fair, and straight, and he had medical colleagues on the committee.

Dr. E. J. Allan (Buxton and Glossop) described the method adopted in Derbyshire whereby the doctor got all the advice he needed without the necessity for paid legal advocacy. He thought the meeting should be careful before passing a motion of this kind.

Dr. F. M. Rose (Preston) said that from his experience the present set-up did not work to the disadvantage of the general practitioner. Recently in a medical service case a doctor did bring a solicitor friend with him. He was admitted as a friend and he put a number of questions to the complainant, but this did not help the doctor in this particular case and the finding went against him.

Dr. Wand said that his committee had considered this matter very carefully indeed, and the experience of those who had served on the old medical services committees under N.H.I. was such that they felt it would not be an advantage to allow lawyers to enter into the matter at this stage. In some respects they were not altogether happy about the whole of this disciplinary machinery and they were proposing to have a look at it again next year in the light of experience.

Dr. Forbes, in reply, said that he was still unrepentant. Before this resolution was formulated discussions had taken place in the councils of the defence bodies themselves and agreement had been reached upon the desirability of having the regulations changed. The defence bodies saw this problem with all its difficulties. They found they had to consider cases of negligence which would never have come to light at all if it had not been that the complainants learnt the facts owing to the irregular procedure of these committees.

The motion by Hendon calling for the right to a defendant doctor to have the services of a paid advocate or solicitor was put to the meeting and carried by a very small majority. The voting was:

In favour	125
Against	123

A recount was demanded, with the following result:

In favour	127
Against	126

Demands were made for a further recount, for a roll call, and for a card vote, but on a motion from the meeting the Chairman decided to proceed to the next business.

At this point it was agreed that in view of the state of the agenda the time limit on speeches should be reduced from 10 minutes to 5 minutes for proposers of motions and to 5 minutes for other speakers.

Treatment of Dental Haemorrhages

Dr. D. S. Robertson (City of Edinburgh) took strong exception to paragraph 49 of the Annual Report of Council, which stated that the Minister had been informed that, in view of the position with regard to the ruling of the Minister concerning the treatment of cases of dental haemorrhage, unless the decision was modified general practitioners would be advised to refuse to accept service in cases of haemorrhage arising from dental operations. Dr. Robertson said that this paragraph advocated withholding of service from people who might be in dire need, and therefore it abrogated the principle the Association had always supported. He submitted that this was a denial of their sacred duty as doctors, and he refused to follow this advice of Council. He had known one case of death following dental haemorrhage. Suppose that happened, how could they ever justify themselves before any tribunal, least of all the tribunal of their own consciences? This was a form of strike, as blameworthy as that of strikes which impeded the food supply of the nation. Edinburgh proposed that treatment should not be refused in cases of dental haemorrhage, but that pressure should be continued to obtain a fee for such emergency service. He would be very disillusioned and saddened if one voice was raised against the Edinburgh amendment.

Dr. G. de Swiet (Paddington) agreed that they should not refuse treatment in these haemorrhages but should press for a better payment such as they got for dental anaesthetics.

Dr. H. W. Pooler (Chesterfield), who described himself as the oldest practitioner present, not only in years but in period of service, said that he had been much worried by these cases of dental haemorrhage. He had never refused to do his best for the patient and he would never contemplate any such refusal.

Dr. Wand said that his committee had quite recently reopened discussions with the Ministry on this point and was not unhopeful of obtaining a reasonable settlement.

He suggested the meeting should pass to the next business.

The meeting, however, demanded to vote on the Edinburgh amendment, which was carried by an overwhelming majority.

Dr. J. C. Arthur (Gateshead) moved:

That in the event of his being called upon to deal with a dental haemorrhage a medical practitioner should be able, as a dentist is able, to claim suitable payment from the Dental Estimates Board.

He said that this matter had for a very long time been a continuing source of anxiety in the minds of practitioners. The primary responsibility for dealing with a dental haemorrhage was with the dentist.

The Gateshead motion was carried.

Frivolous or Unjustified Calls

Dr. A. Maiden (Lincoln) asked that steps be taken to persuade the Minister to set up a series of rules for patients comparable to those used under the National Health Insurance Act.

He said that what was put forward in the Lincoln motion was now more or less Council's policy. Prior to July 5, under the old N.H.I., there were several ways in which the patient could be penalized. For flagrant violation of the doctor's time and patience the patient could be fined up to a statutory maximum amount, increased for a second offence, and he could have his medical benefit withdrawn for a definite period, though this was seldom done. In his experience in Lincolnshire 98% of patients were courteous and considerate and in no way could be accused of being awkward, but the other 2% were apt to be beyond endurance. The doctor was disciplined by a multitude of regulations, and his Division asked that the patient should be subject also to a certain measure of discipline.

Dr. E. O. Lakey (Denbigh and West Flint) said he did not think anyone who had been in general practice would doubt that ensuring that messages were received before 10 a.m. was the most important help their patients could give them. He agreed that the vast majority of their patients were most helpful when they understood the situation. They asked only that patients should be given an opportunity of understanding the doctor's difficulties in order that they might co-operate.

Dr. W. Smith (Greenwich and Deptford) said that he had inquired as to what was the commonest cause of frivolous emergency calls, and the general consensus was that such calls came through clinics, where patients or parents of child patients were advised to go and see the doctor forthwith when there was no emergency at all. In his area the Divisional Medical Officer of the L.C.C. had circularized all his clinics to make it perfectly clear that when it was recommended that the doctor should be seen it must not be interpreted as necessarily an emergency, and that patients should go at the proper time. This might in many areas save a number of these emergency calls.

Dr. Wand said that action had been taken to incorporate an amendment on this matter in the Amending Bill now before Parliament.

The motion was carried.

Outstanding Questions

Dr. G. O. Barber (Mid-Essex) moved that steps be taken for a speedy settlement of a number of outstanding problems, such as the provision of health centres, payment for mileage in maternity cases, payment for urban mileage and for mileage in connexion with examination and certification of persons of unsound mind, payment for vaccination and immunization, and increase in payment for temporary residents.

He said that this was a hotch-potch of questions which the members of his Division considered should be brought forward, but he thought the purpose would be served if he asked that they might be referred to Council with a view to going to the various committees.

Dr. Wand accepted this instruction.

Dr. P. A. McCallum (Torquay) moved:

That this meeting congratulates the Council on the vast volume of work contained in its Annual Report, but regrets that so little improvement in the terms of service under the National Health Service Act has accrued from it. All Divisions are therefore urged to give Council such active support as will encourage it to stand firm in its determination to carry its negotiations with the Minister to a successful conclusion.

He said that he began to wonder occasionally when he followed the proceedings of Council whether it was emulating the individual who "lived a life of going-to-do and died with nothing done." But Dr. Dain in his speech at the opening of the present Representative Meeting had shown the mailed fist and the Representative Body was quick to put the necessary weapon in his grasp. His Division was not unappreciative of the vast amount of time the Council had expended, but it did believe there was need for more clear-cut and determined policy in dealing with the Minister. He also called for a closer liaison between Council and Divisions. Members of Council should take their constituents into their confidence.

Dr. J. A. Pridham (Council) said that there was an undercurrent of feeling in the Representative Meeting that something more should have been done. Dr. McCallum had done well to call for the enthusiastic action from the Divisions, and when that was obtained the Council could do something about it. It was no use telling the leaders to take action and to deny them troops. On Monday morning the meeting would have an opportunity of discussing the reorganization of the Council.

The Torquay motion was carried, and the remainder of the Report under "General Medical Services" was approved.

The Position of School Medical Officers

Dr. A. G. Heron (Bristol) moved that a school medical officer should send any child he considered to need hospital treatment to the family doctor, and should not, except in case of urgency, send the child to any particular hospital or particular consultant, this choice being the proper province of the family doctor in conjunction with the parents. Some representatives, he said, might think that this motion was not of very great importance, but in Bristol and other places general practitioners were being faced with a strong move to undermine the responsibility of the general practitioner for his patients. The local health departments had lost a great deal of power by this Act, and some of them were unwilling to accept this and seemed determined to establish themselves by all possible means. In Bristol, and also in the county of Gloucester, the health officers, instead of leaving the responsibility of the children to the family doctor, were trying to strengthen their hold by what were considered to be unethical measures. They had written to the south-west regional hospital board asking for medical reports on children admitted to hospital regardless of whether the children had been referred by the school medical officers or not. Gloucestershire had issued a form which had to be completed in respect of children attending schools, including secondary schools, and children under 5; Bristol asked for a report on all school-children whether treated as in- or out-patients. In neither case was there any recognition of the rights of the parents or the family doctor. A doctor desirous of a second opinion might send a child to a consultant at a hospital only to find that the child was admitted to another hospital under another consultant, or he would only learn that one of his patients had been admitted to hospital and operated on when he was asked to attend the patient after discharge. If this was allowed to continue and increase it would be all the more obnoxious, exasperating, and humiliating. Every child was now on a doctor's list, and that doctor should be the one to arrange for any necessary treatment or investigation; he had the child's records and there was no need for them to be duplicated by any authority. Infectious diseases would continue to be notified, but if the medical officer required any further information he should write to the family doctor. Three years ago the Representative Meeting passed a resolution upholding the principle that the health of the child should be the care of the family doctor, and he was confident that this meeting would pass this stronger resolution to enable the Council to help Divisions faced with these difficulties.

Dr. E. Anthony (South Essex) spoke against the motion as a general practitioner and part-time medical officer. The family doctor had the right to treat the children on his list, but there was a lot to be said for the service which the school medical service was operating. The family doctor saw whatever disease was brought to him by the intelligent parent, but the school medical officer had to see that no disease was present in the school. The two services should be integrated, but the school medical service must not be destroyed, which would happen if this resolution was accepted. ("No.") The school medical

service must be looked at as a whole, not by the odd cases referred by the school medical officer to hospital. An intelligent divisional school medical officer's arrangements were such that they were integrated with the general practitioner service; in his area no child was sent to hospital without prior intimation to the family doctor, who also received a copy of any reports; if treatment was advised it was referred to him. The school medical service kept an eye on the children, which it was not possible for the family doctor to do; teachers could refer problems which they thought were medical to the school medical officer, the service sorted out all the cases referred by the school nurse. The proper measure, in his view, was to integrate the two services more closely and not to destroy one of them.

Liaison with General Practitioners

Dr. A. Barker (East Kent) said that the liaison between the school medical service and the general practitioner was far from perfect. The circumstances outlined by Dr. Heron were similar to the experience in his area, and the Division had decided to approach the county medical officer. He asked the meeting to support the motion.

Dr. J. G. Thwaites (Council) said that he could not agree that if this motion was passed it would nullify the work of the school medical service; one must have sympathy with the school medical officer; the Education Act laid down that he was not only responsible for the inspection of school-children but for their treatment. The motion tried to make it clear that "responsibility for treatment" should be a reference of the child needing treatment to his own family doctor, and that, of course, was the right way to do it. The mover of the motion mentioned the ethical side of the problem. That had not been forgotten by the Council, and the matter was under discussion at the present time with the Society of Medical Officers of Health, the results of which he thought would be satisfactory in the right direction. To pass this motion would be helpful.

Dr. A. W. Gardner (Brighton) said that the East Sussex county authorities had taken a strong line that patients might not be sent to hospital except through their family doctor, and if a school medical officer offended in this respect he was reprimanded.

Dr. J. M. Gibson, speaking as a member of the Public Health Service, said that the motion was a strong criticism of the school medical service as a whole. Whilst at one time there was a lot said about the school medical service being an encroachment upon medical practice, that could not be said now; in fact, it was working with the general practitioner and doing a great deal of work on his behalf. If there was no school medical service the general practitioner would have a great deal more work to do. He agreed that it was much better that the family doctor should be consulted and his advice taken, but many practitioners did not want to take the responsibility for many children and were content that the school medical officer should deal with them. He felt that the resolution was going a little too far and he asked that it should be rejected.

Dr. E. C. Dawson (Derby) said that the school medical officer was one of the ever-growing number of people examining other people's children; a parallel case was that of the industrial medical officer who examined patients in an institution—that is, a factory—all patients belonging to other doctors. He hoped the motion would be supported on ethical grounds.

Dr. F. Booth (Mid Cheshire), also in support, said that most of the faults described were found in Cheshire, but they were faults not so much in the school medical officers as in the system and in the instructions to them.

Dr. A. G. Heron, in reply, said that he had inferred that there were many benevolent school medical officers and that there was no trouble in many Divisions. In others there was a danger of unlimited interference with the general practitioner with regard to their child patients, and if allowed to continue it would spread to other spheres of practice. These requirements struck at the very roots of medical ethics, but at the same time it was a question of the system.

The motion was carried.

General Practitioners and Hospital Work

Dr. W. N. Leak (Mid Cheshire) moved that the meeting should strongly protest against the steady exclusion of general practitioners from work in hospitals. The method which had been adopted, he said, was one of gradualness. First of all they were asked to meet the consultant of the regional hospital board and one of his officers, who stated that only three out of the general practitioners on the staffs of the hospitals could be recognized, and these three were given temporary contracts for two sessions a week; when the contracts were received they were for only one session a week. Doctors did not see why they should send their patients to be operated on by another doctor; the patients did not see it either; and the result was that patients were sent further afield and the whole system of cottage hospitals was being undermined. This had a profound effect on the doctors themselves. Practising in a hospital gave a doctor an added sense of responsibility; he worked in collaboration with and to some extent in competition with other doctors, and he worked under the skilled eye of other people; he lost all this when he was excluded from the hospital. The existence of a hospital in a district attracted keen men and tended to raise the standard of professional work; if the hospitals were closed to them the enthusiastic doctors would tend to congregate round the big hospitals, where they might become clinical assistants. The effect of this on country practice would be deplorable in the extreme. Lastly, there was the effect on patients, many of whom preferred to suffer rather than go to a strange doctor. Patients' feelings should be respected.

East Herts Division had tabled a similar motion, and Dr. J. S. Ross (East Herts) therefore spoke in support of the Cheshire resolution. He said that the same type of thing was happening. The general practitioners were required to work under the supervision of specialists; they were no longer able to decide which cases they were competent to deal with themselves; general practitioners experienced in midwifery were prevented from looking after their own cases in the maternity departments because they had not some specific qualification. There was a grudging proposal to allow general practitioners to serve as clinical assistants, but this practice would not be continued as the posts became vacant.

Mr. A. Staveley Gough (Council) said that this was not merely a question of instructing the Council of the B.M.A. If general-practitioner staff was to be maintained they must concentrate on hospital management committees and regional hospital boards. There was already no uncertain feeling in the Ministry, on the boards, and in hospital management committees that the quality of general practice was being upset by the total removal of general practitioners from hospitals, and certain boards were beginning to take steps to see how they could integrate the general practitioner. The hospital which had grown out of a cottage hospital could not be left entirely with a general practitioner staff unless (1) the quality of that staff was agreed by the assessing committee to be such that the practitioners not on the staff would be satisfied with the treatment given; (2) it be remembered that the boards had a responsibility to the patient, and that (3) the general practitioner should not take final clinical responsibility; he should have a specialist in control of the bed who would give him the contact with modern medicine which was necessary for his future good in medicine. The boards were now prepared to give increasing numbers of clinical assistantships of so-called senior registrarship status to general practitioners, and a large number of these posts would be available on some form of rota basis so that a wider number of general practitioners would be able to get some training in hospitals all over the country and thereby upgrade their general standing. While the Council could be asked to press this matter there must also be pressure at the periphery, and general practitioners must help.

Dr. A. Weston (West Middlesex) said that in North-west Middlesex three cottage hospitals were to be closed, and the general practitioners on their staffs would no longer be employed. A liaison committee had been formed from the six local medical committees, and it was hoped that action would be taken to resist this proposal.

Dr. G. MacFeat (Council) asked, How could the standard of general practice be improved, how could it be secured that general practitioners would carry out the work they were paid for, and would be prevented from sending patients to hospital for treatment which they were paid to give? (Cries of "Withdraw.") He would not withdraw this; he knew it was true. How could a diagnostic service be developed, or students be instructed in the commoner type of disease, except through general-practitioner hospitals? He reminded the meeting of the Association's report on General Practitioner Hospitals issued in 1946 in which it was stated that unless the general practitioner was provided with a local hospital where he could attend to his own patients the quality of the whole medical service would suffer. . . . The services of a consultant should be available, but he should not have charge of wards, and he should see both in- and out-patients only on the invitation of the practitioner.

Dr. Leak, in reply, said what he was asking was that they should be allowed to continue in hospital practice to the benefit of medicine in general.

The motion was carried.

Decisions of Medical Practices Committee

Dr. P. J. Gibbons (Liverpool) moved that, wherever the decision of the Medical Practices Committee differs from that of the Local Executive Council, the former should furnish in writing to the Executive Committee the reasons for its decision. He said that the Liverpool resolution was clear enough. It asked merely that where the Medical Practices Committee differed from the Local Executive Council it should give its reasons in writing. That was a good democratic practice on which their own Association was based, and the local committee was in the long run the best qualified to judge the local conditions. The resolution also gave him the opportunity of ventilating some opinion about the Medical Practices Committee in general. He thought that most of them, after the Act had been accepted, considered that the Committee had a part to play in helping in the distribution of doctors, and some of them felt also that it could be extremely helpful in an advisory capacity in local conditions. However, it had been found in his area that it had varied in its behaviour in many ways. For example, in its early and inexperienced days it permitted a doctor in Liverpool to go on the List—in fact, it insisted that he should go on the List—who had not any form of surgery premises in Liverpool, and who lived a considerable distance away. Its latest variation was to attempt to override the decision of the Executive Council in the choice of a practitioner to fill a vacancy in the area. On any standard that was an extraordinary claim, for Executive Councils were statutory bodies on which general practitioner opinion was fully represented, and he might say that in Liverpool in any matter affecting the general practitioners the Executive Council acted only after full and free consultation with the local medical committee. This, of course, obtained in every area, and it was one of the means which they had for protecting the freedom of the profession. It was surely a big claim to make that a central body, remote in London, should supersede the decisions of a body well informed of local conditions. He would say at once as both a member of the Association and a member of the Liverpool Executive Council that any such attempt would be resisted with all the powers they possessed.

By all means let the Medical Practices Committee concern itself with distribution. This was an appropriate and, to his way of thinking, a largely untilled field for its activities. Let it use its power in an advisory capacity and co-operation would then be assured. He believed that the community as a whole was suffering from too much centralization. Let the medical profession at least preserve as organs of freedom the Executive Councils and the Local Medical Committees which had been set up under the Act.

The Chairman of Council said that the Medical Practices Committee consisted mainly of general practitioners on whom they could rely for sound judgment. This was not an autocratic machine set up centrally and expected to be in opposition to local opinion, but it was a very valuable committee. The Ministry accepted the profession's nominations for it, and experienced general practitioners had been chosen. It was most unfortunate that the representative of any area should come forward and decry, in the way Dr. Gibbons had done, a body that was doing a good job of work. A number of complaints were at first received of the way in which the Committee's action was being directed, and two interviews with the Committee were sought and obtained and all their problems were carefully considered. It was suggested that they were not acting properly, but in the end it was found that this suggestion was baseless; in every case their action had been in the best interests of the practitioner as well as of the Service. It was unfortunate that a body should be attacked in this way on an individual grievance. He hoped the Representative Meeting would be satisfied not to act in the way Liverpool had suggested, but would believe that in the Medical Practices Committee they had a body acting in the interests of all concerned.

Dr. E. J. Warburton (Reading) moved an amendment to the Liverpool motion, making it end:

> . . . the Medical Practices Committee should give the Executive Council an opportunity of supporting their views by discussions if they so desire.

Dr. H. F. Hiscocks (South-East Essex) said that in his area they felt that the Committee had rather failed to understand local conditions. He came from an area which had a central district containing a very large proportion of medical practitioners relative to the population. Before July 5 these practitioners all made a reasonable living; since then, with a considerable fall in private practice, it had been increasingly difficult for some of them to do so. One at least became part-time assistant and finally abandoned the struggle to seek a living in industrial practice. That sort of readjustment was no doubt what Mr. Bevan intended to take place. Soon after this incident another practitioner in the same over-doctored area decided to leave. His list was one of 1,000. The Local Executive Council, with the backing of the Local Medical Committee, agreed unanimously to recommend to the Medical Practices Committee that this vacancy be not filled. Within a radius of half a mile were 14 doctors, each with an average list of something under 2,000, but the Medical Practices Committee could not see its way clear to let this vacancy go unfilled. It stated that a list of just over a thousand could not be described as a small practice. This was but another instance of the dangers of central control without full local knowledge.

Dr. Wand said that the mover of the motion and the last speaker were proposing to make things very difficult indeed. It would be recalled that a year ago they insisted very strongly on the right of practitioners to practise where they liked. At this moment the Medical Practices Committee was being faced with an increasing number of requests for closure of areas, and it was resisting this. They had to think of the younger men who were trying to get into practice. There was no very grave exception to the motion by Liverpool as amended, but he did want the meeting to bear in mind that they had a body of men in the Medical Practices Committee who were anxious to be kept informed of the position as it was at the periphery. They were, in his opinion, doing as good and as honest a job as it was possible to do. He hoped they would be assisted in trying to carry out what were really the wishes of the profession as expressed on other occasions.

Dr. Gibbons said that he accepted the amendment by Dr. Warburton. They in Liverpool felt that the Medical Practices Committee was acting in an autocratic way, and this they would resist.

The motion as amended was carried, namely:

> That wherever the decision of the Medical Practices Committee differs from that of the Local Executive Council, the Medical Practices Committee should give the Executive Council an opportunity of supporting its views by discussion if it so desires.

A series of motions concerning health centres were on the agenda, but Dr. Wand asked that all these might be referred to the Council. A subcommittee had been set up which was investigating the problems formulated in these motions, and the issues were so involved and so important that they would need proper deliberation in the subcommittee.

It was agreed to refer these motions to Council.

Consultants and Specialists

Owing to the fact that some of the representatives concerned in that part of the agenda under "Consultants and Specialists" would be absent on Monday, a section of the report under this heading was taken at this point, and the continuation of the agenda under "General Medical Services" was postponed.

Mr. R. L. Newell (chairman of the Central Consultants and Specialists Committee) said that the committee was constituted in 1948 and its formation was discussed at Cambridge last year. It was agreed that it should be a body democratically elected irrespective of membership of the Association in order that it should be truly representative of consultants and specialists throughout the country and competent to speak on all matters affecting their interests. In addition regional committees had been formed. The Central Committee was very jealous of its autonomy and began to be somewhat suspicious of the Association, and therefore he esteemed it a great honour that it should have elected him as its chairman.

The committee had spent a strenuous year. They had to form an executive committee, which had been meeting almost every fortnight. It became evident that the old Negotiating Committee could not continue its role as the mouthpiece of the consultants and that the Central Committee should undertake this function. It was also apparent that the views of consultants should be presented to the Minister through one channel and one only, and it was clear on grounds of prestige and status that the Royal Colleges and the Scottish Corporations also had a claim to participate in any discussions with the Minister. In consequence a Joint Committee had been formed. This committee had worked extremely well, and was very fortunate in obtaining the services of the President of the Association, Sir Lionel Whitby, as its chairman. There had been no disagreement between the constituent bodies. Even if there had been, there was in fact an "escape clause" which allowed any constituent body to present its case to the Minister.

Since the Report of Council the new terms for consultants and specialists had been published. He wanted to draw attention to certain items which he considered to be of vital importance. It was represented to the Ministry that the betterment factor was quite insufficient. The Minister had refused to alter this factor, and what was more ominous was his statement concerning Whitley Council machinery. The present meeting had already given a very strong expression of opinion on the question of arbitration. He regarded this as of fundamental importance and a battle which they must win.

The question of the senior hospital medical officer had caused the gravest misgivings in his committee. They realized, of course, that in this interim period a position such as this might be necessary in certain branches, but they were afraid this short-term policy would develop into a long-term policy. They were afraid that people who were fully qualified consultants would be relegated to this grade for the rest of their lives. They got an assurance from the Minister that no new appointment of this character would be made, except within a defined field, but the Minister had vacillated on this question. The Ministry had in effect issued orders that these officers should be graded as a second type of consultant. It had gone back on that, and in the new report these officers appeared under the heading of "other hospital officers." His committee had formed a subcommittee to go into the duties of these particular officers. Unofficial communications had been made to the grading committees that they should grade all people occupying posts at hospitals into three grades of consultants. He had always thought that the object of this service was to see that people giving consultant service were of a consultant grade. Hundreds of appeals against the grading had gone to the regional boards, and an Appeal Committee was set up. Fortunately he himself was not a member of the grading committee, but was later appointed by the Royal College of Surgeons as an outsider to hear these appeals; it had been possible to upgrade a very large number of people because at the appeal they had had a full statement from the man himself which was read out. The original grading committee had had no knowledge of the man's work or of its quality.

He came next to the pay-bed question. Instructions had gone round to regional boards that amenity beds should be formed in the relation of one to two of private beds, and in the future in the relation of one to each private bed. In many instances these amenity beds were taken at the expense of the fully private beds.

There were many other points he would have to put before his Central Committee at the meeting shortly to be held, and it was difficult to know which points one could discard without danger, because in the mass they produced a summation of effect. He would reiterate the advice they had already given to consultants that they should not sign their contracts until they had received some indication from the Consultants and Specialists Committee. (Applause.)

Autonomy of Central Committee

Mr. Newell then went on to move a recommendation designed to clarify the position of the Committee. Apparently, he said, the resolution passed at the previous Annual Representative Meeting had left some doubt as to whether the autonomy of the Committee was limited strictly to the sphere of consultant practice, and whether within that sphere it had complete autonomy. To make this abundantly clear he now moved that the resolution of last year be amended to read as follows:

The Central Consultants and Specialists Committee shall be an autonomous body with full powers to determine policy and action on consulting and specialist and hospital matters through the administrative machinery of the Association. The decisions of the Committee within that sphere shall not be subject to the approval of the Council or the Representative Body.

Dr. J. Ewart Purves (Bromley) moved as an amendment:

That so long as the General Medical Services Committee and the Central Consultants and Specialists Committee are autonomous, the Representative Body can no longer be considered to be the body that formulates the policy of the B.M.A.; that this situation strikes at the whole structure of the Association, and that steps should be taken to remedy it.

He said that the Chairman of Council had completely misunderstood the object of this amendment. There was no implied criticism of the Council's resolution affirming the complete autonomy of the Committee, but it must be understood that his Division at least was in some bewilderment on this subject. He sincerely hoped that they were labouring under a misapprehension and that the Council had a long-term policy which would bring a united profession into smooth waters. It seemed that there would be four autonomous bodies within the B.M.A. organization—the General Medical Services, Consultants and Specialists, and Public Health Committees, and the British Medical Guild. All these bodies which were directing policy were completely out of control of the representatives and in fact might act in defiance of them. In March last his Division after a very large meeting decided on a betterment factor, but at the Special Representative Meeting they were told by Dr. Wand that they could save their breath because the Committee had decided what betterment factor to go for and had communicated it to the Ministry and the Press. Attendance at that meeting was a complete waste of time. Dr. Wand would say that the I.A.C. had also been autonomous. Perhaps that autonomy was one of the reasons for the break-up last year. The position of consultants and specialists would be made absolutely autonomous. The shadowy Guild had as yet shown few signs of life.

The Chairman here called upon the speaker to pay some attention to the terms of his amendment.

Dr. Ewart Purves went on to say that it seemed to them in Bromley that the only relation they as an Association would have with these autonomous bodies would be as their milch cow. They would have full use of Association buildings, servants, and funds, and yet withdrawal of those facilities would not restrain them; the Association had no direct financial control over them. The only power left to the Annual Representative Meeting was to increase the annual subscription so that they might be supplied with these facilities. There had been a widespread feeling that the Association required drastic reorganization to make it into an effective fighting machine. Reorganization was going on apace, but what was the goal?

Before the meeting voted on this resolution and deprived the Representative Body of its last shadow of authority this salient question should be answered, otherwise the Bromley Division was of opinion that it was waste of time to elect and instruct representatives.

Dr. O. C. Carter (Council) said that no one in the hall was keener on maintaining the responsibilities, duties, and functions of the Representative Body than himself, but, having said that, he wanted to add this, that he was quite sure they would be doing a great disservice to the Association if they passed the Bromley motion. The proper course was to accept the situation created and to adjust the constitution accordingly. A motion by Bournemouth was also on the agenda in which the situation created was realized, and the Council was asked to look into the problem and report.

Dr. Frank Gray (Council) said that the Representative Body was a responsible body and would look at this question in the most serious and responsible manner possible. All the time, and especially since the passing of the new Act, the problems in each branch of practice became not only more serious but more complicated—problems of great detail which could not be decided without careful study or without a considerable degree of detailed knowledge. He thought every member of that meeting would wish the problems of his own particular section to be decided by those in that section, whether general practitioners, consultants, or public health officers. None of them would wish that the general practitioner should tell the consultants what to do, or consultants tell medical officers of health. If that was accepted there must be, as in fact there had always been, a great deal of autonomy in each separate section, but that did not mean in any sense that the responsibility of the Representative Body would be in any way diminished. When any section had looked at its problems and decided the line it wished to take it would come through the Council and the Representative Body to ask that the support of the whole profession should be given in presenting its case to the Ministry. That was the statesmanlike line to take. When the problems of any section were not confined to that section, and impinged on the problems of another, then they could properly be brought through the Council to the Representative Body for settlement. He hoped that the meeting would feel that the practice they had had in the past was to be continued in the future. They did not want bickerings among themselves: it was too serious. They would agree that each section, having settled its own domestic details, was entitled to look to colleagues in the rest of the profession for support.

The Chairman of Council, in reply to a question, said that he could give the assurance that the Representative Body would continue to have the power to advise. He pointed to the fact that a great part of the day and of the previous day had been spent in considering the problems of the General Medical Services Committee. The consultants and specialists required in their field autonomy to go to the Ministry. The Bromley representative had spoken as if these two committees were foreign bodies for which they had no responsibility. If they were willing to give power of action in certain directions to certain bodies, that was a common procedure of business. He suggested that a later resolution in the name of Bournemouth was a perfectly suitable one to be passed for the consideration of the Council in the next session.

Dr. W. Jope (Council) said that the Government wished to negotiate with a body representative of practitioners working in that particular service. It was very right that the British Medical Association should have that body under its guardianship. It was not a "poor relation," but very wealthy. He had taken the general practitioner side as an example, but he was perfectly convinced that the consultants' and specialists' side must have a similar set-up.

The Bromley motion was lost by a large majority.

Dr. Doris Odlum (Bournemouth) then moved:

That the Council be asked to appoint a special committee to consider and report on the situation created by the formation of autonomous bodies within the Association and their relationship to the Representative Body.

She thought this would clarify their minds and define their tion.

It was agreed to refer this to Council, and the same course was taken with a motion by Torquay, "That in order that the Association should become a potent instrument in obtaining satisfaction, the Council should bend all its energies in the coming year to arming the Association with the necessary power to enforce its demands."

Dr. W. N. Leak (Mid-Cheshire) asked whether it really followed from these Council statements and decisions that the general practitioner was considered to have no connexion with hospital matters.

Mr. Newell replied that general-practitioner specialists were represented on the Central Consultants and Specialists Committee; moreover, there was a joint committee of general practitioners and consultants surveying the whole field.

The motion clarifying the position of the Central Committee was adopted.

Representation of the Colleges

Dr. G. Catherine Evans (East Kent) moved, "That the democratically elected Consultants and Specialists Committee is the body which should represent its constituents and there should be no representation of the Colleges as such on the negotiating committee." In a very amusing speech Dr. Evans said that the College representatives were representatives only of the College Council and not of the mass of consultants. The heads of the Colleges were there for their academic distinction, not for their medico-political leadership.

Mr. Eric Steeler (Marylebone) said that at Cambridge last year he had spoken of the difficulties which might arise if the Association set up its own Consultants and Specialists Committee and the Royal Colleges and Scottish Corporations set up their own committee as well. He felt that there would be a division of consultants and specialists into two camps. Mr. Newell had told them how that difficulty had been overcome by the creation of the Joint Committee presided over by Sir Lionel Whitby.

After Dr. A. Smith (Lanarkshire) and others had joined in the debate, Mr. Newell said he wanted the meeting to think carefully before it passed the East Kent resolution. It would put him in an impossible position at this stage when they were considering as a united body the new terms and conditions of service. This resolution would destroy that body. The Joint Committee was formed for the purpose of putting forward the views of the constituent bodies to the Ministry and had never taken upon itself the power to agree to any of the Minister's proposals.

The East Kent motion was rejected.

Position of Non-teaching Staffs

Dr. Catherine Evans (East Kent), moving that it was essential that on all specialist committees non-teaching consultants and specialists should be represented at least equally with members of hospital staffs, said that it was a question of fairness. She thought it was generous of her Division to propose "equal representation" because the non-teaching hospitals did more than twice the amount of work the teaching hospitals did. There should be at least equal representation. Dr. A. V. Russell (South Staffordshire) supported Dr. Evans.

Mr. N. Ross Smith (Bournemouth), also supporting the motion, said that on the Central Health Service Committee there was no member of a non-teaching hospital staff; on the regional boards there was a preponderance of teaching hospital staffs with a very small representation of non-teachers. On the Distinction Awards Committee there was only one person who was attached to a regional board of non-teaching hospitals; on the review committees there was also a preponderance of representatives from teaching hospitals, and that might be the reason for such an unsatisfactory number of S.H.M.O. posts in the regions. On the representative side they had endeavoured in the formation of the Central Consultants and Specialists Committee to get a greater proportion, but it was noteworthy that objection was raised by the non-teachers that at the formation of the Joint Committee the non-teaching representation was reduced to two or three out of 18. This was causing great discontent among the non-teaching hospital staffs. No provision had been made in the Amending Bill for giving the staffs of non-teaching hospitals any statutory position on the medical staff committees, such

as existed with the teaching hospitals. He hoped that alterations could be made for the proper representation of the non-teaching staffs in the administration of the Service.

Dr. G. MacFeat (Council) supported the motion because the provision in Scotland for some of the consultants was not satisfactory. They were not getting an adequate voice in decisions, and the Colleges were having too much influence.

Dr. P. C. McKinlay (East Yorkshire) said that the feeling among non-teachers in his area was very strong. The chairman of the Consultants and Specialists Committee had appealed for unity, but this matter was creating a serious threat to that unity because non-teaching staffs were trying to create an association of their own. He would suggest that if B.M.A. members were to honour the position taken up at Cambridge a larger proportion of places should be allowed to non-teaching specialists.

Mr. R. L. Newell said that he hoped the meeting would not pass the resolution because it said "all specialist committees." There were specialist committees attached to boards of governors all the members of which were teachers. The regions had been asked to appoint two people, one a teacher and one a non-teacher. The Committee would be bound considerably if this motion was adopted, and he would prefer that it should be referred back for further consideration. It had wide implications, and at the moment they were negotiating to try to make the medical committees statutory bodies; if that was obtained that would be the time to consider the formation of these committees. He thought in his central committee the non-teachers were well represented; if not fully represented, they nevertheless spoke a great deal and their remarks were listened to.

Dr. Evans, in reply, suggested that five out of 18 could not be called a fair representation. The people who did the work should be the people representing the workers, and she hoped that it would be agreed to carry at least equality of representation.

Dr. Doris Odlum asked if it was not out of order to dictate the composition of a committee which was to be autonomous, to which the Chairman replied that he thought that was what Mr. Newell was trying to put forward.

The resolution was carried.

Proposed Terms for Hospital Medical Staff

Dr. T. W. Morgan (Kingston-on-Thames) moved: "That this Representative Body deplores the delay in offering final terms of service to consultants and specialists and demands that such terms be offered forthwith for their consideration." He moved this formally because these terms had now been disclosed.

Mr. A. Lawrence Abel (Marylebone) said that it was true that the substance of the motion was now out of date, but there was one matter which had not arisen and which did not arise anywhere else. Instead of saying "demands that such terms be offered forthwith," they could say now that these terms had been offered, and demand that three months be allowed for their consideration. He moved this as an amendment.

Dr. E. C. Warner (Marylebone) strongly supported the amendment.

Mr. Newell said that the terms had been issued for many months and they had been amended; people were getting anxious about very large sums of money in respect of retrospective payments. These terms had been sent to the regions, not for them to go through them again in detail—that had already been done—but for consideration as to whether they could be accepted or not and to give reasons. His committee was meeting within a week or two and would consider reports from the regions; the Joint Committee would meet to consider reports from the Colleges. They did not really require a further three months' notice to go through these terms; the alterations were not very great, and he hoped this decision would not be delayed any further.

In reply to a question, he said that the terms had been issued to boards of governors and regional hospital boards and they had been published in the *Journal*. Instructions had been given to these bodies to draw up contracts, and that was why he had reiterated the statement that no consultant should sign the contracts until he had had some indication from the Central Consultants and Specialists Committee. The boards of governors and regional boards would be powerless if the contracts were not signed. There could be delay, but to fix a time for the delay would be unfortunate. Many men were owed large sums of money and they were in difficult circumstances. If it was decided not to accept, well and good; but if they went on for three months and then accepted the terms they would find themselves in a difficult position. "Do not bind the Central Committee at this moment in terms of months."

Dr. Morgan said that one of the difficulties was that up to recently most specialists and consultants during their interim contracts had had a certain number of sessions with which they had been comparatively satisfied. The gradings being made had in a large number of cases been disappointing. Men had assumed on the terms of remuneration issued that their incomes would be a certain figure and were prepared to accept that. The review boards had been and were in process of cutting down those sessions, and consequently the income of the consultants was going to be considerably reduced. In the area of one particular regional board the gradings had not yet been published, and as the consultants and specialists did not know their gradings they could not compute their income; and how could they then accept these terms? They must have sufficient time for consideration, and therefore he supported the amendment.

Dr. R. Cove-Smith (Marylebone) said that at a meeting at Oxford a few weeks ago it was stated that 11 out of 70 had received their gradings, and great anxiety was expressed as to the position of the younger members and the registrars because the delay was causing some financial hardship. Arrangements should be speedy, simple, and more publicly known; but it was felt that any hardship that a small number of younger specialists might feel as a result of a few months' delay was considerably offset by the fact that they must have a long-term view on this point. They were aiming at producing a satisfactory status for consultants and specialists in 10, 20, or 30 years' time. "Do not let us be worried too much about sacrificing a few for a few months lest we fail to obtain satisfactory terms and status for the many in several years' time." At a London hospital last week the terms were put before a group of junior consultants, registrars, and house officers, and every one decided to turn them down forthwith.

Mr. Lawrence Abel said that the chairman of the Central Committee had misled the meeting on two points. He said that they had had months to consider this matter: the terms of service were published in the *Journal* at their own expense on June 11, barely three weeks ago; they had been reprinted in a booklet and sent to each one, also at their own expense. Mr. Newell also said that there was not much change; but there was a good deal of change. If they had read the terms and the memorandum sent with them they would see that the first change was that England was not to have a single specialist; they were going to have consultants, and they were going to have hospital medical officers, and the hospital officers were going to do the specialists' work. How did Mr. Newell fit that in with no change? Thousands of his colleagues, general practitioners and others, thought they were going to be graded as specialists; the profession had recognized them as specialists for years; but there was no specialist status in the whole of the terms of service. Both the full-time people and the part-time people were going to sign on the dotted line that they would not treat private patients without being at the whim of the lady almoner. Was that no change? Was it "no change" to have no private practice?

The consultants and specialists must have time to think again. The work had been done by specialists for years, but that grade was going to disappear. The Spens report talked about consultants and specialists, but that report was being denied in spirit, word, and deed. "We must have three months; we must give the men time to find out what was happening to the medical service of the country when the Government cannot produce a single specialist. Let us have specialists brought back into British practice, where they have always been, and let us not have their livelihood taken away from them. The Central Committee is to meet on July 5 at 11 in the forenoon, and the meeting, I understand, will start with two minutes' silence." (Laughter and applause.)

The motion, as amended, was carried.

Security of Tenure

Dr. T. W. Morgan (Kingston-on-Thames) moved to protest most emphatically at the procedure, now developing in London, of a few teaching hospitals giving notice of termination of appointments of consulting staffs at smaller hospitals which had been "designated" by the Ministry of Health. He asked that the Council should take suitable action forthwith to end this practice. He said that if this was passed unanimously it would strengthen the hands of the Council.

Mr. Newell said that they had been very much concerned about this, particularly in four hospitals in London, and had received certain assurances, but he would accept the motion with great pleasure.

Mr. Lawrence Abel moved an amendment so that the motion would read :

That the Representative Body protests most emphatically at the procedure, now developing in London and elsewhere, in the action of a few boards of governors of teaching hospitals and regional boards giving notice of termination of appointments of consulting staffs at smaller hospitals which have been "designated" by the Minister of Health, and demand that the Council take suitable action forthwith to end this practice.

Mr. Newell accepted this also.

Miss Gladys M. Sandes (Marylebone) said that the action of a regional board in ordering the closing of a hospital without consultation with the consultant and specialist staff was completely totalitarian. She wished to emphasize this unheard-of behaviour. It was scandalous that a body which was politically controlled should contravene all the elements of justice, and, what was more, get away with it.

The motion as amended was carried.

The Senior Hospital Medical Officer

Dr. F. M. Rose (Preston) had a motion deprecating the arbitrary action taken by the Regional Hospital Boards in assessing the status of the medical staffs of hospitals. This was not a vote of censure on regional boards as such, but on the general procedure of this business of setting one medical man against another in the judgment of his work. At one stage it was proposed that there might be certain gradings of general practitioners. He was very glad to say that any such attempt was resisted. Nothing has caused greater disquiet than the application of this method by which so many anomalies were created, particularly in the case of general-practitioner specialists and in some of the categories like anaesthetists, who had received no appropriate grading at all.

Mr. P. A. McCallum (Torquay) moved to add the words "and assures the Central Consultants and Specialists Committee of the Association's full support should it be decided to advise members to refuse to sign contracts." The motion was a good one, but not strong enough, and feeling was running very high. He could assure Mr. Abel that the feeling was just as high in the provinces as it was in London. Many men were alarmed at the idea of becoming senior hospital medical officers and remaining as such, possibly for the rest of their lives. It was not only an indignity, but it meant a very serious loss of remuneration—in some cases possibly £1,000 a year or even more.

The amendment was accepted, and the motion as carried read :

That this meeting deprecates the arbitrary action taken by the Regional Hospital Boards in assessing the status of the medical staffs of hospitals and assures the Central Consultants and Specialists Committee of the Association's full support should it be decided to advise members to refuse to sign contracts.

Dr. D. M. Hughes (South-West Wales) moved to instruct the Council to urge the Minister of Health so to amend the Acts or Regulations that the regional grading committees should by statute consult the medical practitioners of all classes, general practitioner or otherwise, on the merits of individual applicants for grading. When grading committees sat hundreds of miles away from the area it was very difficult for them to assess the position as general practitioners saw it. The general practitioner was the keystone on the arch poised between the patient and consultant, and he was surely the man to help the judge in assessing the merits of the consultants with whom he had worked so closely in the past. Grave injustices would never have occurred had there been experienced general practitioners on these grading committees.

The motion was carried unanimously.

Dr. Hughes further moved to instruct the Council to take immediate steps to urge the Minister so to amend the Act that specialists dissatisfied by the decisions of regional grading committees might have the right of appeal to independent appeal tribunals.

Dr. J. A. Brown (Council) thought it doubtful whether any amendment of the Act was required in order to set up these tribunals. He moved an amendment : "That an appeal committee should be set up in each region and that such committee should include among its members some of those who made the original assessment. The appellant should have the right to make a personal appeal before the Appeals Committee."

Mr. Newell said that the procedure at present adopted was that the original review committee should act as an appeal committee with the addition of two individuals, one nominated by the appropriate college and one by another review committee. He thought that Dr. Brown's suggestion was an extremely satisfactory one, and he was prepared to accept it.

The amendment moved by Dr. Brown was carried.

At this point the meeting adjourned (5.30 p.m.) until Monday morning.

MONDAY, JUNE 27

The Representative Body resumed its meeting, under the chairmanship of Dr. Gregg, at 10 a.m., following a meeting of the Council earlier in the morning. In accordance with previous arrangement, the business under "Organization" was first taken.

ORGANIZATION

Constitution of Central Council

Dr. J. A. Pridham, chairman of the Organization Committee, as a recommendation of Council, moved :

That the Representative Body approve the principle that the number of members of Council directly elected by members in the Branches and Divisions of the Association in Great Britain and Northern Ireland should be increased.

Dr. Pridham explained the changed circumstances which had induced the Council to bring about this alteration in the method of election. The first was the enormous growth in the membership of the Association ; the second was the increasing encroachment of the State upon the way of life and the pocket of every doctor. The rank and file desired to have some means of making their views and opinions felt at the centre, and the difficulty was, with very large electoral areas, to ensure that members of Council could keep in touch with their constituents.

Dr. H. G. Dowler (Gloucestershire) moved the reference back of para. 124 of the Annual Report and Section (viii) of Appendix IV of that Report. There had been a certain lack of confidence in the B.M.A. and its leaders. He thought this was unjustified, but it did seem to exist in the Branches. The real trouble had been a sense of remoteness which had led to an inability to understand the difficulties with which the Council had to contend. The alternative was increasing apathy and the possible formation of competing bodies. The Council and the Organization Committee were to be congratulated on dealing with this problem, but they had failed to grasp the essential thing, and in some respects their proposals seemed to make the position worse than it was at present. As many members of Council as possible should be directly elected by constituents which should be as small as they could be made. There should be no "back stairs" method of election. The proposals failed to meet the requirements. Instead of aiming at more areas having one member each, the report suggested several larger areas having two or more members. It would be better to delay matters than to make mistakes which would be regretted afterwards.

Mr. N. Ross Smith (Bournemouth) supported the reference back, and for additional reasons. This question [illegible]

of the Council was a complicated and difficult one. It was necessary to make the Council a stronger and more flexible instrument of medico-political action than in the past. Two factors which demanded consideration were the formation of autonomous organizations of general practitioners and specialists and the formation of the British Medical Guild. He believed that the formation of autonomous bodies was absolutely necessary, but it had two consequences. The power of the Council and of the Representative Body in medico-political matters within those spheres had largely disappeared, but all matters of common interest should be the province of the Council, and for that purpose it should have more sectional representation. It was not enough to have merely the chairmen of the autonomous committees on the Council. The Guild, which had to organize and finance collective action, made it more necessary still that the Council should contain direct representatives of the autonomous committees.

Dr. J. L. McCallum (Westminster and Holborn) felt that they were not proud enough of their Association. He supported the reference back, which meant that they reaffirmed their pride in what had been done already. The B.M.A. was the only organization which could save the profession. The danger lay in apathy in the Divisions. More seats rather than fewer were required for members directly elected on the Council by the Representative Body. Only in the Representative Meeting could the relative merits of the individuals who should be on the Council be weighed up.

Dr. S. Noy Scott (Plymouth) urged the rejection of the reference back. The Organization Committee had produced a set of recommendations. Was it desired further to delay matters before these were accepted?

Mr. H. H. Langston (Winchester) said that in the Association they needed two things: a really strong Council, confident of the support of its members, and a Council in close touch with the periphery. They had been told that the Council had much the same constitution as in 1907. The directly elected membership should be substantially increased, and in Winchester they did not think that the proposals put forward by the Organization Committee went far enough. If this motion was passed as it stood the matter would not come up for discussion until next year, and it would be two years before the new Council could be formed.

Dr. P. C. McKinlay (East Yorkshire) drew attention to some of the anomalies in the proposed groupings of Branches and Divisions for election of Council, in particular the allocation of only two seats to Yorkshire as compared with four to Lancashire and Cheshire.

Dr. R. W. Cockshut (Hendon) said that the point was whether they should abolish the two-tier method of election they had at present. Should they do away with the great deal of the power of the Representative Body to elect members of Council? Election at the periphery was often uninformed, while election by the Representative Body was informed. In two constituencies the members had not even troubled to nominate a candidate for the Council, and then they were told that these were the people who should have the power to elect the Council, while that power was taken away from the Representative Body. It was up to the Representative Body who were in touch with the periphery to elect this important part of the Council.

Dr. G. de Swiet (Paddington) supported the reference back and instanced the position in the Metropolitan Counties Branch, which would be apt to be dominated in electoral numbers by the important Marylebone Division.

Mr. G. Whyte Watson (Bradford) said that it was necessary to have a strong Council. The apathy in the periphery arose from the lack of contact of members of Divisions with their Council representatives. In many cases the representative had to cover a wide area and could not possibly be much known by his constituents. If they did not get down to smaller areas and more locally elected representatives the Council could not take decisions with any assurance that the rank and file of the profession were behind them.

Dr. F. Gray (Council) said that there were two objectives: the best men for the job, and contact between the centre and the periphery. Their forefathers seemed to have thought of the first but not of the second, and at a critical moment when the Council had to make important decisions contact with the periphery was lost. It was useless to have elections of people who were only names on a piece of paper; there must be contact and it must be maintained. Every member of Council should be *ex officio* a member of the executive committee of every Division in his area; there should also be contact between Division secretaries. The meetings should not go into details but should accept the principle so that progress could be made.

Dr. C. Watney Roe (Chelsea and Fulham) supported Winchester. There was no need to refer the matter back to Council; the rank and file would not support the Council unless it had confidence in it.

Dr. I. G. Innes (Council) said that the resolution was put before the Representative Body after very careful consideration. The position in London and the surrounding counties had been considered, but the greatest difficulty arose in the very large areas in other parts of the country.

Dr. D. L. Gullick (East Herts) said that the original motion was quite modest, but the amendment of Gloucestershire was sweeping—the reference back of this section of the Council's report. If this was passed no further discussion on the Winchester reforms could take place, and he asked that the reference back be opposed.

Dr. J. G. Thwaites (Council) said that the essential principle being debated was whether the direct representation of the periphery on the Council should be increased, and he thought the meeting would wish to adopt this principle and not refer it back for further consideration. His experience as a direct representative was that he did not receive co-operation from the Divisions, and if this principle was adopted he hoped members would do their part by attending meetings and show their appreciation of the fact that their member of Council went to see them.

Dr. S. Wand (Council) said that he came to the meeting prepared to support the recommendation, but the arguments he had heard made him feel that this should be given further consideration, because he feared the young men who made their mark in the Representative Body would not get a better chance of election. He had in mind the election of an aldermanic bench, and as the matter was so important and principles were involved he supported the reference back.

Dr. Pridham, in reply, associated himself with the tribute paid to Winchester for their interest and work in this matter. This was not a contest between the Council and the Representative Body; it was a matter purely for the Representative Body to decide. There was evidence that the periphery wanted something of this sort, and it was that which induced the Council to make these recommendations. Now the representatives could show whether that was so or not. If it was referred back the Council would not know what was wanted, and it would more or less kill it for some time to come. It was hardly likely that the Council would call a Special Representative Meeting to discuss only this question. He would suggest that the general principle should be adopted and then the details could be considered.

Dr. Cockshut, on a point of order, said that there were other methods of calling a Special Representative Meeting, to which Dr. Pridham agreed; but this was a proposition which had been considered very carefully indeed. If they liked the general principle and wanted to get at the details—"throw out the amendment and pass the original resolution."

The Chairman of Council said that the resolution was a matter of principle only. Many speakers had obscured the issue by going into detail, giving reasons for the reference back; but he hoped before that was done that the meeting would express its approval of the increase of direct representation. By referring it back on this amendment no opinion would have been expressed. It had already been agreed that the Council would have to consider the constitution of the Association in view of the establishment of two autonomous bodies, the result of which might involve some reconstruction of the membership of Council. He hoped the principle of direct representation would be accepted and the rest of the report referred back for reconsideration.

Dr. Dowler, in reply on the amendment, said that the debate had served to show that changes were needed. Dr. Cockshut's point that two Divisions had failed to make nominations was an indication surely of the apathy which existed. He agreed with Dr. Gray that Council members should visit their constituencies, but that was not at present possible, because of their size. He could not agree that there would be very much delay if the matter was referred back. It must be settled, and it was urgent and important for the future.

The Chairman pointed out that the meeting should understand the effect of passing the Gloucestershire amendment. It meant that with the exception of two constitutional changes—namely, that the chairman of the General Medical Services Committee and the chairman of the Central Consultants and Specialists Committee should be members of the Council, if not already members—the whole of the proposed constitutional changes in so far as they affected the composition of the Council were set aside for reconsideration.

The amendment was lost.

A motion was then proposed by Dr. Brown, and seconded by Dr. Russell:

That this meeting, while approving the principle of increased direct representation on the Council, refers back to Council for consideration the detailed reconstitution of Council.

Mr. Langston supported this proposal, but said that the numbers of directly elected representatives proposed were, in his view, "chicken feed." A considerable increase in directly elected members was necessary.

Dr. H. Barbara Woodhouse (Harrow) opposed the amendment on the ground that delay ought to be avoided.

On a show of hands the amendment was carried:

In favour	174
Against	116

This result wiped out a large number of motions which were on the agenda.

Agenda of Representative Meetings

Dr. R. Hale-White (Marylebone) brought forward certain proposals to facilitate business at Representative Meetings. He moved that representatives whose motions and amendments had been "grouped" or "held covered" should be given at least 48 hours' notice in writing, and on the day of the meeting should have an opportunity to meet for discussion to decide on the proposer of the motion. These and other suggestions were put forward by Marylebone to clarify debate.

Dr. Pridham thought the Marylebone suggestions might assist the Representative Meeting. Dr. J. A. Ireland (Council) doubted the practicability of the suggestions.

Mr. A. Lawrence Abel (Marylebone) urged that consideration should be given to them.

The Marylebone proposals were adopted and a proposal from Mid Cheshire for a "steering committee" for the agenda was referred to Council.

Regional Secretaries

Mr. H. H. Langston (Winchester) had a motion defining the duty of regional secretaries. He considered that the primary duty of such secretaries should be to their regions, to which they should pay regular visits and be available for liaison with divisional secretaries. It was most important that members in the regions should be kept in close touch with what was going on at Headquarters through the regional secretaries, and that the regional secretaries themselves should be well informed of opinion at the periphery. He did not believe that regional secretaries could really know what was going on if they merely went down occasionally and addressed a meeting.

The Chairman of Council said that the assistant secretaries were appointed by the Council for particular duties under the direction of the Secretary. It had been arranged that each of them should be in charge of a region; but their primary duty was to the Council, and he hoped that the Winchester resolution would not be passed in its present form, which stated that the primary duty of these secretaries was to the region.

It was agreed to pass to the next business.

Other Organization Matters

Dr. Pridham, in moving the adoption of the remainder of the report under "Organization," said that some fall in the membership might have been expected when the excitement had died down, but it had continued to rise and had now reached a record figure. A conference of honorary secretaries was held during the year which was very well attended; the chairman of that conference would be sent all the documents of the Organization Committee and asked to attend its meetings as observer. The honorary secretaries were working as well as ever they did, and on behalf of the Council he thanked them. The Council could be congratulated on the work accomplished during the year, and he would draw attention to an important document which had just been issued—"The Role of the Division." Fears had been expressed that with the formation of the autonomous bodies the Division or Branch might find its work superseded, but the reverse was true. The contact of the ordinary members was in the Divisions, and the Division must see to it that on the functional bodies there was a sufficient number of people in whom they had confidence. "So do not have a defeatist feeling about the work of the Division, study the report and make your Division more alive than it was before."

The resolution was carried.

Dr. P. W. F. McIlvenna (Reading) moved that the quorum of the Representative Body should be reduced from one-half to one-quarter. His Division felt that one-half was too high a figure for a body of this size. One of the Special Representative Meetings disintegrated, although there were important resolutions to discuss, because of this rule.

The resolution was lost.

Dr. G. W. Ireland (Lothians) moved to request the Council to make the duties of representatives more clear in the *Handbook*. He said that the instructions were not precise enough; it depended upon the interpretation of the words "so far as may be." This interpretation had led to a good deal of confusion. Many representatives asked for permission to depart from their instructions in the light of the debate, which was the right procedure, but there seemed to be some who did not realize that that could be done. In minor issues they used their own judgment, but in matters of high policy where decision was vital they felt their hands were tied. He was not putting in a plea for the abolition of Divisional instruction, but the essence of democracy was trying to find the right way through. It should be made clear to representatives that they must have their instructions, but they must be prepared to change their opinion in the light of the debate.

Dr. S. F. L. Dahne (Reading) supported the Lothians motion. It was an essential part of the democratic character of the Association. It had been laid down by Burke that no Parliamentary representative should be bound by instructions from his particular constituency. He must use, and had a right to use, his own discretion in the light of circumstances.

The motion was carried.

On the motion of Hendon it was agreed to urge the Council to take steps for the preparation and early issue of a *New/s Qualified Practitioners' Handbook*.

The Chairman of Council accepted for consideration a motion from Lanarkshire that payment of mileage be made to members attending Committees of Divisions and Branches and also certain Central Committees where a mileage grant would be appropriate and equitable. He said he realized the difficulties of remote areas.

This was carried, notwithstanding a request of Dr. Dahne that it turn it down on the ground that it reduced the Association to the level of the Boilermakers' Union.

Dr. A. Weston (West Middlesex), for the Metropolitan Counties Branch, moved that all medical members of the U.S. Army Air Force Medical Corps be elected as honorary members of the Association during their service in the United Kingdom.

Dr. J. B. Wrathall Rowe (Harrow) suggested that U.S. medical officers visiting this country in ships of the United States Navy be included.

The motion was agreed to with applause, except that, in accordance with the by-laws, the word "honorary" was changed to "associate."

Dr. W. Smith (Greenwich and Deptford) asked the Council to consider ways in which Divisions could honour members who had rendered outstanding services on their behalf. He said that his own particular Division had one member who for 40 years had rendered outstanding service to the area.

The Chairman of Council said he was prepared to look into this matter. He realized that the opportunities they had at the moment for recognizing distinguished service at the periphery were meagre.

PSYCHIATRY AND THE LAW

Dr. Doris Odlum, Chairman of the Committee on Psychiatry and the Law, moved the portion of the Report under this heading. She said that her committee was a joint one of magistrates and doctors, the latter including both psychiatrists and general practitioners. It had been at work since 1945 and had produced some memoranda of interest. Last year it produced a memorandum on the treatment of sexual offenders, the proposals in which had been received with great favour, as letters testified from all over the world. The committee also had a part to play in amendments to the Criminal Justice Bill. Other matters which it was proposing to look into included the delinquent adolescent boy, solicitation and the law, and drink and drug addiction.

The section was approved.

CONSULTANTS AND SPECIALISTS

Senior Hospital Medical Officers

The meeting then turned to the portion of the Report under "Consultants and Specialists" from the point where it left off on Saturday.

Dr. E. J. Warburton (Reading) moved:

That this meeting views with concern the creation of a body of senior hospital officers without right of appeal against their assessment to an independent tribunal.

Mr. A. M. A. Moore, on behalf of the Central Committee, said that this was the view of the committee, and he accepted the motion on its behalf.

Mr. A. Lawrence Abel (Marylebone) moved to add the words "and feels that this grade should be allowed to die out." He said that when they discussed this matter with regard to various types of consultants and specialists it was pointed out that in tuberculosis and mental institutions there was a grade of men who had never wished to become more highly qualified or to be what would be called specialists, but nevertheless they did outstanding work, and it was for these men that this category had been set up. The word "Specialist" had now been omitted. There was no such grade as that of Specialist. There were only Consultants and Junior and Senior Medical Officers. There was no mechanism whereby a hospital officer might ever become a consultant, and therefore it was felt that this grade should be allowed to die out. The public, Mr. Abel added, were losing something. What the average man in the street had had in the past was good doctoring and increasingly better doctoring. Some would say that the term "consultant" included "specialist." Very well. Then let them have it in the "Book of Words." The elimination of the specialist was a device of the Government to save money at the expense of the population. What would be the effect upon the consultant and specialist service of this country? It would mean that no man in the Service could become a specialist, or if he did he would not be so called.

Mr. Moore said that this again was already the policy of the Central Committee and had been impressed upon the Committee very strongly indeed by Sir Lionel Whitby and his Joint Committee.

Dr. Warburton, the mover of the original motion, thought Mr. Abel's an unfortunate addition to the amendment. It introduced something entirely different from the original motion.

Dr. J. C. McMaster (West Somerset) said that the average rate of remuneration offered for a senior hospital medical officer worked out at an average of £178 per annum for one session per week, which compared unfavourably with general-practitioner remuneration, though he would not agree that the latter was adequate. In his view the whole memorandum concerning hospital medical staff should be entirely redrafted.

Mr. Abel's additional words were taken as a rider, and both the original motion and the rider were carried unanimously.

Dr. J. C. Arthur (Gateshead) moved:

That tuberculosis medical officers of standing and experience should be classified as specialists and not as senior medical officers.

He said Mr. Abel had stated that the Minister had killed off the specialists. He held that tuberculosis medical officers should come within the specialist category.

Dr. T. W. Davies (Swansea) said that tuberculosis officers were men who fulfilled entirely the criteria laid down in the Ministry's memorandum. They were men of experience, in charge of beds, and held in the highest regard as consultants by their general-practitioner colleagues.

Dr. A. Smith (Lanarkshire), in supporting the motion, said that, if there was not an adequate establishment of tuberculosis service in the future, young men would not be inclined to enter that service. He quoted the pre-war figures for tuberculosis in Glasgow. New cases in the last pre-war year were 3,300, and in 1948 they were 9,981. The waiting-list in 1939 was 127; it was now 1,481. These were terrifying figures. But this service could be improved only by obtaining a reasonable establishment of senior consultants so that the men who entered it could be assured of their future.

The Gateshead motion was carried.

Dr. R. G. Cooke (Derby) proposed the creation of an intermediate grade between senior hospital medical officers and specialists, to include medical superintendents not already graded as specialists, with a salary range of between £1,500 and £2,500. He said that the administrative work these medical superintendents had had to do, especially in general hospitals, had adversely affected their claims to specialist payment. The result of the proposals which had been put forward was that quite a number of people in general hospitals would be no better off at all. The suggestion of Derby would avoid the victimization of a class of people who in the past had worked so well that they had brought municipal hospitals to the high standard in which they had entered the National Service.

Mr. Moore said he was very sympathetic to this motion, but he suggested that it should be reworded as follows:

That the salary of medical superintendents not graded as specialists be in the range of between £1,500 and £2,500.

He pointed out that the meeting had already agreed on Mr. Abel's motion that the grade of senior hospital medical officers be allowed to die out.

THE ASSOCIATION OVERSEAS

Before calling upon the Chairman of the Colonial and Dependencies Committee to present that part of the Council's report, the Chairman expressed pleasure at the presence of a number of representatives from Overseas Branches in the Representative Meeting. There were difficulties at home, but all were conscious that their colleagues overseas had difficulties and problems which perhaps were not fully understood, but he would assure them that all possible help would be given to them if they would put their problems to the Council of the Association.

Dr. J. B. Wrathall Rowe moved on behalf of the Chairman of the Committee that the report be received. He said a good deal of work had been achieved during the year. Although it became clear that the revised salary scales obtained for the medical service in East Africa were not satisfactory, the Committee decided to press on with a full-scale review of the whole situation in the light of the Spens Report and the terms negotiated for doctors in the National Health Service of this country. There were many and complex problems to be considered, and the help of an expert statistician was called in. The Colonies would have to draw their service doctors from the United Kingdom and would have to compete with the National Health Service; therefore salary scales had to be comparable. The Committee had also given careful thought to the remunera-

tion of locally recruited colonial medical officers. Negotiations were in progress with the Colonial Office, and so far a co-operative spirit had been met with in their representatives, who realized that it was of enormous importance to the Colonial Empire that they should have expert medical services.

One of the greatest problems in the Colonial Empire was the rapid increase of the population, and there was reason to believe that the results of the recent census in East Africa would lend powerful support to the contentions of the Kenya Branch contained in a memorandum which the Council had sent to the Secretary of State for the Colonies. The Council was also watching with great care the negotiations taking place on the unification of the Malayan medical service. It hesitated to express an opinion on this complex problem, but it was true to say that the unification scheme which was outlined at the Representative Meeting last year had contributed to its solution.

With regard to private practice in the Colonial Medical Service the Council's view generally was that private practice should be forbidden to Colonial Medical Service officers except in certain circumstances. It was quite clear that if private practice was not allowed in some places the medical service would not be of reasonable standing.

A number of matters not included in the Council's report were dealt with. The Council was prepared to take just as much trouble over the affairs of the many members of the Association overseas as over the affairs of members in this country. The Council was always glad to have the assistance and guidance of the members of the 53 overseas Branches, and was grateful to the officers of those Branches for their devotion to duty. Dr. E. Grey Turner's visit to the Sudan and East African Branches earlier in the year was much appreciated, and it was hoped to send a Committee member or a Secretary to the various parts of the Colonial territories. In conclusion, he added his own words of welcome to the representatives from overseas.

Dr. D. R. Belletty (Assam) conveyed sincere greetings from the tea-growing districts of India. While he was Secretary medico-political problems cropped up, and so far as India was concerned it was premature to formulate any definite and fixed policy with regard to the Indian Medical Association, which had not quite made up its mind as to its approach to the B.M.A.

Professor C. C. de Silva (Ceylon) said he would probably be the last representative of the Ceylon Branch of the B.M.A. to bring greetings. Next year one of his colleagues would be the first representative of the Ceylon Medical Association, which would be affiliated to the parent body. He thanked the B.M.A. for all the help and service given to his country during the last 62 years in manifold and diverse ways.

Dr. P. Moran (Eire) said his country had walked out of the Commonwealth with its head up and its tail up, but so far as he could see there was no desire on the part of the medical profession to set up an independent medical republic. They were deeply indebted to the British Medical Association for all the help it had given in shaping the Eire Association, and for the facilities and amenities placed at its disposal. He paid a particular tribute to the clerical staff of the B.M.A. for all the help they had given to the Eire Association clerical staff in the difficult work of reorganizing the new association.

Dr. C. J. Austin (Fiji) brought greetings from the smallest and most distant Branch represented at the meeting. His Branch was very grateful for the interest of the parent body in its welfare; that its assistance was needed could be seen by a comparison of the minimum scale of salaries drawn up by the Association with the scale actually paid in Fiji.

Dr. R. E. Anderson (Malaya) said that the Branch went out of existence during the Japanese occupation, although it held largely attended meetings during the internment. It was reconstituted after the war, and the membership increased from 278 in December, 1946, to 505 in December, 1948. One of the major questions considered by the Branch was the conditions of service: Asian members were now being paid basic salaries at the same rate as European doctors, which was fair, as the local qualification was recognized by the G.M.C. Proposals for a unified service were under consideration. He thanked the parent Association for its support and hoped that it would be continued.

Mr. G. C. Halliday (New South Wales) said that last year the Commonwealth Government passed an Act by which it was necessary for the practitioner who provided free medicine to his patients to prescribe according to the Commonwealth *Pharmacopoeia* and on forms provided by the Commonwealth Government. The profession determined that this Act was not in the best interests of the patients and refused to implement it. It was very significant that in Australia the members of the British Medical Association so firmly stood behind the Federal Council that less than 2% consented to work under the Act. The Commonwealth Government was now proposing an amendment which involved liability of a fine of £50 or three months in gaol. It was certainly likely that Australian members would need the support of their colleagues in the Home Country.

Dr. Owen Johnston (New Zealand) said that in his Dominion they considered themselves definitely a branch of the B.M.A. In fact, the official designation was "B.M.A." and in very small letters following it "New Zealand Branch." He congratulated the Council on setting up the Empire Medical Bureau, which provided a wonderful service.

Mr. A. Smith Gray (Auckland) brought the greetings of the president and over 200 members of the Auckland Division. He paid a tribute to the excellent organization of the Representative Meeting, and also added a word of appreciation of the assistant secretary, Dr. Grey Turner, who had played such an efficient part in the organization of overseas affairs.

Dr. J. Lloyd Simmonds (Queensland) said that Australia still looked on Great Britain as her home country and was proud to belong to the British Commonwealth of Nations. In Australia, with over 6,000 practitioners, fewer than 100 answered the call of the Government to enter into its scheme, and the non-adherence included non-members of the B.M.A. as well.

Dr. L. L. Davey (South Australia) said that the last two years had been anxious ones for the profession in this country. The problems in Australia and in Great Britain were in many respects similar. They were sticking to the four principles of the paramountcy of the welfare of the patient, the freedom of the doctor, the acknowledgment that in medical matters he was the official expert, and the maintenance of the doctor-patient relationship.

Dr. D. E. Thompson (Tanganyika) spoke of the great appreciation of the members in East Africa of Dr. Grey Turner's visit.

Dr. J. S. Brown (Uganda) said that in most of the Crown Colonies the service was equivalent to the National Health Service in this country, and home practitioners would know how many difficulties were attendant with such a service. They had been greatly heartened by the interest taken in their own difficulties by the parent body.

Dr. G. T. James (Victoria) said that all the branches in Australia had been described as autonomous, responsible to their own Federal Council, but they strictly observed mutual loyalties.

Dr. A. H. Tonkin, medical secretary of the Medical Association of South Africa, said that his association, though it no longer had the letters "B.M.A." after its name and had become in a sense an independent body, was fully aware of its long ties with the parent body.

Overseas Organization Committee Proposed

Mr. Eric Steeler (Marylebone) moved:

That a subcommittee be appointed to consider the B.M.A. Overseas Organization including Dominions, Colonies, and Dependencies, and to ascertain the feeling of all sections of medical practitioners and others interested.

He pointed out that hitherto the majority of doctors working in the Colonial Empire had been recruited from the United Kingdom. This situation was now altering and in many Dependencies non-European doctors were beginning to predominate. These places were not immune from racial and political currents. Some Colonies were now independent self-governing Dominions, and others were moving in that direction. The present problem was how to direct the growing national

tion into right channels. It was not possible to divorce the medical from the political aspects. One of the main effects of the spreading of civilization had been to make life duller for the ordinary inhabitant. There was need for deeper knowledge for this almost unexplored field of social study. A new policy must be devised for the profession overseas if the Association was to remain in the van of progress. He asked that this Committee might be set up to consider the whole problem, to sift facts from emotions, and weed out prejudices and partially informed opinions, and to consider whether it might not be wise to establish autonomous branches in all those areas affiliated to the B.M.A.

Mr. A. Smith Gray (Auckland) opposed this motion. He took exception to the suggestion that autonomous Branches should be set up. If this were passed it would create the impression that the parent body was finding such overseas Branches as theirs a problem and an encumbrance. He knew the proposer would say that was not the intention. Much had been heard about the periphery, and he would suggest that there was a periphery far beyond the shores of this country, and those of them who were so situated would like to feel that the link with the centre would continue as strong as ever.

Dr. R. B. MacGregor (Central Malaya) also opposed the motion. He protested against anything that might make for disintegration. They were told that the main problem which faced the Association in its overseas organization lay in those parts of the Empire where non-European doctors were likely to outnumber the others. Malaya was one of the places where this state of affairs already existed. There were already more non-European doctors than European. It was true that their interests frequently conflicted with the interests of doctors recruited from Great Britain, and that they were not immune from racial and political currents. But the B.M.A. in its present form provided the one forum where they could meet and discuss their problems on grounds of equality.

Miss Gladys M. Sandes (Marylebone) put forward the point of view of the postgraduate non-European student who came to this country. These students were not in all cases from countries where they had the opportunities mentioned by the previous speaker and where there were good relations between European and non-European doctors. These postgraduates, some of whom had obtained European qualifications and some not, were gravely concerned about the situation arising in some of their areas and were quite convinced that unless they were able to have more consideration for their point of view they would be forced to keep out of the B.M.A. The Marylebone motion asked for an inquiry, and those of them who had had some hand in the training of these people wished to put over that point of view.

Dr. D. R. Belletty (Assam) said that so far as India was concerned they thought that this matter should be kept as it was. They were quite content to let matters go on, and any changes might be misinterpreted.

Dr. C. F. Mayne (Plymouth) supported the Marylebone motion. Some of their overseas colleagues had mistaken their intentions. The Council of the Association was about o appoint a committee to go into the problem of the Colonies and Dependencies, and some parts of this problem were very wide and far reaching. Those of them who had worked on such a committee were aware of the implications and asked for the appointment of the committee which Marylebone had in view. A number of pressing problems called for a committee consisting of members who were prepared to take wide views in the solution of them.

Professor C. C. de Silva (Ceylon) also supported the motion. There was not only a serious shortage of doctors but also of teachers. The Government sent 40 to 50 doctors to this country each year who took their Fellowships, etc., but that was not enough, and he begged that they should be given internships. This was something in which a special committee could help. Ceylon would also be grateful if distinguished men in the profession would visit the country, and he wished that young graduates could go out from this country to help with the teaching and do their research at the same time.

The Chairman of Council said that he was interested to find that those who had spoken in favour had come from this country and from Ceylon, whose problem so far as organization was concerned was solved. The overseas representatives had expressed some anxiety with regard to this proposed committee, and he thought it would be unwise for this body to pass such a resolution if the people on the spot were not in favour of it.

Dr. J. B. Wrathall Rowe said that he was sorry that Marylebone had persisted in putting forward this resolution after the information he had given that morning. The motion said "A special committee should be appointed." He did not think there was any need for a special committee: all that was necessary could be done by the present committees.

Mr. Steeler, in reply, said that he had asked for a committee to go into the whole question; it should have much wider terms of reference than the Colonial Committee.

The resolution was lost.

A motion by Dr. F. E. Gould (Birmingham Central), seconded by Dr. J. A. L. Vaughan Jones (Council), that the time of speeches be limited to five minutes and three minutes was agreed to.

CONSULTANTS AND SPECIALISTS

Discussion was resumed on Dr. Firth's motion that an intermediate grade be created between senior hospital medical officers and specialists to include medical superintendents who were not already graded as specialists, and that the salary of this grade range between £1,500 and £2,500. He said that the Ministry wished to put the medical superintendent down to a salary commensurate with that of a lay secretary, which was most unjustified.

Dr. E. C. Warner (Marylebone) said that there was no doubt that the intention of the Minister was to try to drive out of the profession those who had done valuable work—medical superintendents. No cognizance was being taken of the qualifications and experience which medical superintendents and their deputies had had. They should be graded higher than hospital secretaries.

A suggestion was made that the resolution should read as follows: "That the salary scale of medical superintendents not graded as specialists be £1,500 to £2,500." The meeting accepted this suggestion and the motion in this form was carried.

Dr. W. D. Steel (Worcester and Bromsgrove) moved: "That the reference in para. 63 of the Council's report should be to group medical committees, as in a number of areas the medical advisory committee is a subcommittee of the management committee, of which none of the members are elected by or representative of medical hospital staffs."

Mr. A. M. A. Moore said that it was hoped that an amendment to the Amending Bill which was before Parliament would be moved on these lines.

The amendment was carried and was then adopted as the substantive motion.

Mr. Weldon Watts (Newcastle-upon-Tyne) moved to instruct the Association to press either for direct representation of appropriate sections of the profession on boards and committees of the National Health Service, or that medical practitioners be appointed to such boards and committees after consultation and in agreement with such sections of the profession. He said that a trusted member of the profession was nominated and elected last year to the regional board; the same member was nominated this year but was not elected, a clergyman with left-wing tendencies being elected instead. No one could think that a clergyman could adequately represent the medical staffs.

Dr. D. S. Saklatvala (West Bromwich and Smethwick), who had asked permission to withdraw a later resolution on this matter, supported the Newcastle motion.

Mr. Moore said that the Central Consultants Committee was pressing this same view on the Ministry all the time and he fully supported the motion.

The motion was carried.

Mr. Moore then moved that para. 66 of the Council's report be approved.

An amendment by Worcester that after the word "partnership" in line 3 of the fifth paragraph there be inserted, "whether with other specialists or with general practitioners,"

so that it would read, "specialists acting in partnership, whether with other specialists or other practitioners, should be entitled to have their superannuation contributions adjusted," was accepted, and carried as the substantive motion.

Domiciliary Visits to Nursing Homes

Dr. H. M. Golding (Bristol) moved a resolution regretting the setting up of regulations making a patient in a nursing-home both private and N.H.S. at the same time, and demanded that the anomaly be resolved. He said that a consultant was called to see a patient in a nursing-home, and both she and the general practitioner and the patient thought she attended under the Service; but when her account was presented it was refused, the senior medical officer stating that patients in nursing-homes were regarded as private patients. It seemed that a serious anomaly had been set up; a patient could be a private patient and a Service patient at the same time in the same place, and for the same illness. His Division suggested that it should be put right by allowing either all N.H.S. patients in nursing-homes, domiciliary visits by specialists or the charging of fees by their general practitioners.

Mr. N. Ross Smith (Bournemouth) hoped that the meeting would not approve this motion, especially with regard to domiciliary visits by specialists, because it might have a serious effect on private practice. The specialist going into the nursing-home would be a part-time specialist and dependent upon his fees for his livelihood. Those who felt that continuance of private practice was essential for the freedom of the patient and of the doctor would agree that the motion should not be accepted in its present form.

Mr. A. M. A. Moore supported Mr. Ross Smith. This matter had been fully considered by the Central Consultants Committee, who saw the danger of this proposition, and he would urge the meeting not to accept it.

Dr. Golding, in reply, thought that the sense of the motion had been misunderstood.

A motion to pass to the next business was carried.

A representative of Edinburgh moved that the recommendation to the committee in regard to domiciliary visits in nursing-homes should be extended to include all urgent medical or surgical or other cases. He failed to see why obstetric and neonatal cases should be distinguished from other medical and surgical conditions.

Mr. Ross Smith thought exactly the same objections applied here as in the case of the Bristol motion.

Here also it was agreed to pass to the next business.

Dr. J. A. Ireland (Council) moved:

That it would be advantageous to hospital medical staff committees for them to co-opt any local member of the central B.M.A. council as observer.

which was accepted on behalf of the committee.

Mr. A. Lawrence Abel (Marylebone) moved to emphasize para. 72 of the report of Council on the subject of trainee specialists and urged that consultation with medical staff committees should be made statutory. This was agreed to.

Dr. G. O. Barber (Mid Essex) moved:

Economy in hospital management should be effected firstly by a reduction in administration costs.

He said that this was brought to his notice by the consultants in a local hospital in his Division. There the cost of administration was said to be from 2% to 3% of the cost of the whole service. If the cost of the service were analysed and the amount of salaries for men working in that service were separated from the large sum of money spent on drugs, appliances, etc., this percentage might represent a quite unreasonable proportion. When they were told that cuts had to be made in hospital services it seemed reasonable that administration expenses should be cut down.

The motion was carried, and further motions were carried without discussion—namely (Chelsea and Fulham) that a list of specialists willing to undertake domiciliary consultations should be circulated to general practitioners without delay, and (Westminster and Holborn) that a proportion of the appointments which may be booked for out-patient consultation at hospitals should be reserved for urgent cases.

ELECTIONS

In the course of the meeting the results of the following elections were announced:

Chairman of the Representative Body: Dr. E. A. Gregg (unopposed).

Deputy Chairman: Dr. J. A. Brown (unopposed).

Twelve members of Council elected by the home representatives grouped in twelve groups:

Mr. L. Dougal Callander (unopposed).
Dr. P. J. Gibbons (unopposed).
Dr. Alexander Brown.
Mr. D. S. Pracy.
Dr. H. R. Frederick (unopposed).
Mr. A. Lawrence Abel.
Dr. D. F. Hutchinson.
Dr. R. G. Gordon.
Dr. T. W. Morgan.
Dr. G. W. Ireland (unopposed).
Dr. George MacFeat (unopposed).
Mr. Ian J. Fraser (unopposed).

Eight members of Council elected by all the representatives acting together:

Dr. J. C. Arthur.
Dr. O. C. Carter.
Dr. R. Forbes.
Dr. James Fenton.
Dr. I. D. Grant.
Dr. J. A. Gorsky.
Dr. J. A. L. Vaughan Jones.
Dr. S. Wand.

Surgeon Rear-Admiral C. H. M. Gimlette, R.N. (ret.), was elected as the representative of the Medical Branch, Royal Navy, on the Council for the period 1949–52.

Dr. O. C. Carter (Bournemouth) was selected by the meeting to receive the support of the Association in the election of a direct representative to fill a vacancy on the General Medical Council.

GENERAL MEDICAL SERVICES

The meeting then returned to the remaining motions on the portion of the report dealing with General Medical Services. A motion by West Bromwich and Smethwick supporting the action of the General Medical Services Committee in its endeavour to ensure that general practitioners can order stock drugs on Form E.C.10 was carried.

Dr. S. Smith (Tower Hamlets) moved:

That the time has arrived when certain measures should be taken to limit the misuse by patients of the right to change their doctor at any time, while maintaining the principle of "free choice"

This was referred for consideration to the committee.

Ex-Service Doctors and Assessment Compensation

Dr. Smith further moved:

That in place of the present arrangements whereby ex-Service doctors appeal to a tribunal for assessment of compensation to be based on pre-war earning, it should be their right to do so, if they so desire.

He said that the problems of ex-Service men in the recent war tended to be forgotten, and cited a particular case of hardship.

Dr. S. Wand (Council) said that the purpose and duty of the Practices Compensation Committee was to allocate £6 million fairly among all the doctors. Ex-Service doctors had had special consideration. The suggestion that the doctor should have an opportunity of demanding that these pre-war figures be taken into consideration was something which no other doctor was able to demand. Every ex-Service doctor who made a claim could bring forward any evidence he liked, and the Practices Compensation Committee would take into consideration every relevant factor, including his pre-war income, and if the doctor was aggrieved by the assessment he had the right to appeal to an independent tribunal. It was agreed that doctors should be allowed an adequate period of rehabilitation before they were

assessed at their earning value. He asked the meeting that their representatives on the committee, Dr. Jope, Dr. Buchan, and himself, as well as other members, should be trusted to act fairly and equitably.

It was agreed to pass to the next business.

Dr. E. O. Lakey (West Denbigh and Flint) moved:

That superannuation should not be deducted on the cost of expensive drugs supplied by rural practitioners.

Dr. Wand replied that if the expensive drugs came to the value of £100 a year the superannuation deduction was 6%, but that 6% attracted 8% of Government money.

Here again it was resolved to proceed to the next business.

Blackpool requested the General Medical Services Committee to examine the whole question of superannuation with particular reference to the lack of "cover" provided during the first ten years of service.

Dr. Wand asked that any motion of this kind might await the publication of a scheme which was being propounded to build up in units and to provide for different groups in the profession.

Range of Service

Dr. J. C. Arthur (Gateshead) moved to request the Ministry of Health to correct a misinterpretation of Regulation 6 (1) of Schedule 1 of the General Medical and Pharmaceutical Services Regulations. Recently in his area a practitioner asked the Executive council for a ruling on the question whether the giving of anaesthetics was within the range of service. The Executive council referred to the Ministry, which replied that it was.

It was agreed that this matter be referred to the Council.

At this point it was desired by one representative to move, with regard to the newly published Report on Population, "That the giving of advice on contraception should not form part of the range of service of general practitioners."

The Chairman of Council said that those present had as yet had no opportunity of studying the Report on Population. He thought it could be left to the Council to take any necessary steps, and he begged them not to deal with this matter at that meeting.

A motion to suspend standing orders to admit a discussion on this subject was lost.

Various other motions were referred to Council.

Dr. R. Cove-Smith (Marylebone) moved to call the attention of the Minister to the fact that executive councils were giving insufficient notice to the patients of doctors resigning from medical lists. He said that since July 5 there had been in the London area 123 withdrawals of doctors from the Service. In six cases the vacancies were advertised and filled; in 34 the patients were taken over by a partner, but in 83 cases the patients were dispersed among other doctors.

Dr. Wand said if Marylebone would produce evidence of any case in which this had happened it would be taken up in the appropriate way.

A motion by Gateshead to call the attention of the Ministry to the waste of doctors' time caused by the great number of unnecessary references to regional medical officers was referred to the Council.

A motion, by Chelsea and Fulham, that there should be no purchase tax on drugs, was formally moved and carried.

A motion by Lincoln, that doctors when travelling at the expense of the Ministry of Health should be allowed first-class fares, was carried.

Domiciliary Physiotherapy

Dr. P. A. McCallum (Torquay) moved that as a matter of principle it should be within the power of the general practitioner to order domiciliary physiotherapy for patients when in the practitioner's opinion this was necessary. Formerly the general practitioner could order this treatment, but now in the Western region it could be given only on the certificate of a consultant. It was becoming very difficult for some members of the public to obtain some of these services, particularly for bed-ridden patients who could not be admitted to hospital. It might be argued that there were not enough to do the work, but that was beside the point.

Dr. Wand said it would be difficult to carry out this resolution if there were not enough physiotherapists. If the mover of the resolution would be willing for the Committee to explore this possibility as the personnel became available he would be happy to accept it.

The mover agreed to make his resolution a reference to Council, and the meeting agreed to it in this form.

PUBLIC HEALTH

Dr. James Fenton, Chairman of the Public Health Committee, in moving that part of the Report of the Council, said that no official information had yet been received that local authorities were prepared to negotiate. A scale of salaries was prepared 12 months ago, and ultimately the local authorities associations were informed that unless they would begin negotiations by Feb. 28 no more advertisements would be accepted in the *Journal*. This was done, and he wished to express sincere thanks to the *Lancet*, the *Medical Officer*, the *Medical World*, and *Public Health* for taking similar action, at financial sacrifice. Only five doctors were known to have applied for or accepted positions which the *Journal* refused to advertise. Public health officers appreciated the time given to the question of medical superintendents and tuberculosis officers and asked for the same kindness for themselves. The Committee dealt with part-time salaries for practitioners at cottage hospitals, remand homes, and so on, and were in negotiation with regard to these; it also dealt with the question of equal pay for men and women in respect not only of salary but of bonus, and in almost every case where the local authority was approached the Committee was successful in securing equal pay for women. The Committee was considering the recent legislation with regard to milk.

With regard to the Report of the Working Party on Midwives, the Committee's position was that the doctor and midwife constituted a team; it did not regard the midwife as the practitioner of normal midwifery and the doctor as the practitioner of abnormal midwifery; they were a team, and they must work together. The midwife did not lose status by working as a team with the doctor, and he objected to the term "maternity nurse" when the midwife was working with a doctor. She should be called a midwife on all occasions. Finally, midwives should be trained nurses; midwifery training should be a post-graduate training.

Mr. J. Shirley Callcutt (Wembley) moved that the attention of the profession should be drawn to the undesirability of medical practitioners accepting service with local authorities on a sessional basis which would tend to enable such authorities to carry out their public health work and thus ignore the B.M.A. conditions of service for whole-time public health officers. He said that probably many of those accepting part-time work did not realize that they were defeating the object of the Association, and it showed that there was a lack of concerted action among the various branches. To pass this resolution would go some way towards showing that there was mutual interest in the various branches of the profession.

Dr. P. C. McKinlay (East Yorkshire) suggested that blacklisted authorities should not be named in the *Journal* because it gave them a free advertisement. The entry should be that of appointments which conformed to the B.M.A. scale, and all other appointments should be ignored.

Dr. Fenton said that this was a suggestion which he would discuss with the Secretary and the Editor. The Wembley motion set down what was being done; doctors were being warned not to enter into part-time appointments when these should be full-time. He would accept the Wembley motion.

The Chairman asked if the meeting would accept the motion as a reference to Council, but representatives indicated that they wished to vote and the motion was carried.

Midwives' Fees

Dr. E. C. Dawson (Derby) moved that the period during which claims for fees under the Midwives Act may be submitted be extended to six months. He said that "three months" was deceptive; where a post-natal examination was made at six weeks there was only seven weeks in which to make the claim,

and if the doctor went through his accounts every three months he might miss the time limit for this claim. The proposition emanated from a medical officer of health who had had to refuse applications which came in a few days late.

Dr. J. A. Ireland (Council) said that this question had given rise to a great deal of perturbation in his district. If the claims were a day or two late they were refused, but the work had been done and there was a definite obligation to pay. He asked whether the Clause in the Amending Bill would be retrospective and cover the cases where payment had been refused.

Dr. Fenton hoped the meeting would not accept the motion. They were successful in getting the Minister to put in the extension from two months to three months in the Amending Bill, and he did not think it would be wise to ask for a further extension. Local authorities had power to meet claims made after three months in circumstances where the doctor could not send in his bill to time and their auditor would pass it. He did not think the Amending Bill would be retrospective.

Dr. Dawson appreciated what Dr. Fenton had said but hoped the meeting would accept the amendment.

The amendment was lost, and the remainder of the Report was approved.

Institutional Maternity Services

Norwich had tabled a motion urging that steps be taken to ensure that local authorities might run institutional maternity services independently of the regional hospital boards, to which general practitioners should have access. This was formally moved by the Chairman in the absence of the representative.

Dr. N. J. P. Hewlings (Oxford) said that the motion embodied a very important principle, but it was entirely impractical and he moved that it be amended to read:

That this meeting urges that steps be taken to ensure that regional hospital boards retain existing general practitioners' maternity hospitals and beds and provide more institutional maternity facilities to which general practitioners shall have access.

Dr. Fenton said he would vote for the motion, but it concerned consultants and general practitioners and he suggested that it be referred to Council, where it would be considered very quickly.

This was agreed to.

BUILDING

Mr. L. Dougal Callander, Chairman of the Building Committee, moved that the Annual Report of Council under "Building" be received. He said that considerable progress had been made in respect of repairing, redecorating, and rebuilding the Association's House. It was anticipated that the Southern Wing would be completed by 1950, provided the necessary materials were forthcoming, and there were no strikes. It would cost a considerable sum of money, but a large income would be derived from lettings. Only one group of rooms was still requisitioned, and it was anticipated that these would be freed in a few months. It was hoped to make improvements in the Common Room and members' dining-room; the old library had been used for meetings and conferences, and as licences became easier the Committee hoped to provide the amenities for which many members asked.

The report was accepted.

The Association War Memorial

A number of amendments were on the agenda to the proposal of the Council to erect a war memorial in the shape of a fountain in the forecourt of Tavistock House. Harrow and several other Divisions asked that no further action should be taken along these lines, and that, instead, a system of educational scholarships should be set up for the dependents of the fallen. On the other hand, Hendon congratulated the Council on its decision.

The Chairman of Council, in moving the appropriate paragraph of the Annual Report, said that it had been generally agreed that the Association should establish a memorial to the members who fell in the last war. There were a number of amendments in the agenda pointing out different ways in which such a memorial could be raised. There was nothing new in them; they were all considered by the Committee, and for one reason or another had not been proceeded with. The suggestion of scholarships would mean the establishment of a very large fund, and if the capital was used the memorial would be lost. Something had already been done for the children of fallen members; several parties had been to Switzerland at the expense of Swiss doctors, the Association paying travelling expenses at a cost of £1,350. Having considered all the aspects it was decided that a visible form of memorial must be chosen. There was no better site in London for a memorial fountain than the courtyard of Association House, and the Committee offered the suggestion that a memorial be carried out at a cost of approximately £10,000, and that an appeal should be issued to members of the Association to raise that sum of money.

Dr. J. B. Wrathall Rowe (Harrow) moved:

That this meeting totally opposes the action taken by the Council with regard to the choice of a fountain as a war memorial; it requests that no further action should be taken, and suggests that the sum of £10,000 should be devoted to educational scholarships for the dependents of the fallen.

In the Council he had suggested that £10,000 was an enormous sum to expend on an apparatus for ejecting water into the air. He did not think it was a suitable memorial at all. Later the Harrow Division had met and the amendment now proposed was unanimously approved. His Division felt that so large a sum of money ought to be spent on something really useful, not merely ornamental, and that it should be chosen by the representatives and not by a body of outside experts.

Dr. R. W. Cockshut (Hendon) said that the B.M.A. House was a building of very great merit, one of the finest buildings in London. Were they going to finish it or not? As was evident from the four stone plinths at the corners of the court Lutyens left it incomplete because at the time the Association could not afford to finish it. In the past great patrons had spent vast sums of money on art. If there was no one like the Association to take their place then architects would not be able to live.

Dr. G. H. Barendt (Southampton) was against the amendment by Harrow. The Education Act, 1944, expressly laid on local authorities responsibilities with regard to the children whose parents could not afford maintenance fees at secondary schools, public schools, and universities. If they devoted a great sum of money to educating the dependents of doctors who fell in the war they would only be relieving local authorities and the Treasury.

Dr. J. A. Gorsky (Westminster and Holborn) said that his Division asked him to oppose the fountain memorial under the impression that the £10,000 was coming out of the Association funds. But he learnt that it was going to be raised by an appeal to the profession. If the meeting felt that a fountain was an appropriate war memorial apart from the question of educational grants then it was for the Representative Body to ask the Council to issue an appeal.

Dr. D. L. Little (Dudley) supported the Harrow amendment, but suggested it might be possible to provide the scholarships out of income from the money subscribed, and then, when the dependents no longer needed this assistance, the capital might be employed in erecting the fountain.

Dr. J. A. Pridham (Council) reminded the meeting that the purpose of the war memorial was to set up something beautiful as an inspiration to themselves and their successors. For that purpose a visible structure was wanted. A scholarship fund would disappear in the accounts of the Association. He hoped them think of their lovely building with its fine gates, and have something there which would remind all concerned that there were more things in heaven and earth than were expendable.

Mr. A. Lawrence Abel (Marylebone) said that in Marylebone they felt it would be in keeping with Lutyen's building if the forecourt could be made an outdoor room, covered with glass and decorated with palms. He disagreed with the proposal that £10,000 should be devoted to educational scholarships; he hoped they would have something much more worthy of the thing they were trying to remember.

The Chairman of Council said they aimed at a memorial that would enhance the beauty of the building and its surroundings. If they were going to spend £10,000 they were not going to be thrift that they would not expect something real[illegible]

memorial. Moreover, it must be something that was permanent and that would remain in the building for those who came after them. It was proposed to have a competition open to sculptors and artists. The usefulness of scholarships would quickly disappear, and already a number of years had elapsed since the end of the war.

Dr. Janet K. Aitken (Council) supported the proposal for a visible memorial which should be a permanent thing of beauty. Dr. J. A. Brown (Council) supported the idea of a fountain which would be a source of pride to the living and not an insult to the dead. Dr. H. B. Muir (Fife) opposed the fountain idea and appealed for a useful memorial. Dr. K. C. Bailey (West Somerset) felt that the sum suggested was inadequate and said that his Division recommended a subscription of £50,000. Dr. R. Hale-White (Marylebone) said the reason why a beautiful visible memorial did not appeal to more people was that they had only an imperfect idea of what was in the minds of the proposers. If a drawing of the intended memorial could be circularized it would be an advantage. Dr. Elsie Warren (Kensington and Hammersmith) supported the proposal for the education of dependents.

Dr. J. W. Hope-Simpson (Mid Herts) suggested a memorial in the shape of travelling scholarships, which would have the effect of encouraging international good will. Dr. A. Barker (East Kent) urged the formation of a charity primarily for the dependants of those who fell in the war. Dr. A. Brown (Cambridge and Huntingdon) also supported a memorial which would be for the benefit of dependants. Dr. J. A. Moody (Stratford) thought that the fund should aim at £100,000, which would be much more appropriate to the sentiment of the whole profession.

The Chairman of Council reminded the meeting that there was already a War Relief Fund to which the Association had made very generous contributions. That fund was still in existence for the help of dependants, but there were practically no applications for its use at the present day.

Dr. Wrathall Rowe, in replying, said that some speakers had suggested that after a few years scholarships would cease to be needed. In that case the use of the money could be changed. The sum of £100,000 had been suggested. This would change the situation altogether. They might under those circumstances unite a visible with an educational memorial. But he thought that if the clergy of 1840 could start a school at Marlborough the doctors of the present day could do something of the same kind.

The motion by Harrow calling for educational scholarships for the dependants of the fallen was lost by a large majority and the paragraph of the Annual Report of Council was approved.

Cambridge proposed that the war memorial should commemorate all members of the medical profession who fell in the war, not merely members of the Association, and this point was referred to Council.

The meeting adjourned at 6.30 p.m.

ANNUAL GENERAL MEETING

The 117th Annual General Meeting of the British Medical Association was held in the Grand Hotel Ballroom, Harrogate, on Monday, June 27, at 9 p.m. The retiring President, Sir LIONEL WHITBY, was in the chair.

Induction of President, 1949–50

The Minutes of the last Annual Meeting held at Cambridge on June 29, 1948, were confirmed. Sir Lionel Whitby then inducted into the Chair Dr. C. W. Curtis Bain, *M.C.*, D.M., F.R.C.P., as President of the Association, 1949–50, and invested him with the presidential badge of office. In doing so he said that Dr. Bain would enter upon a difficult term of office, but he assured him that he would have the co-operation and support of all the officers of the Association. His family had been known in Harrogate for many years, and he was now the most famous physician in this spa. He wished him good fortune during his year of office.

Dr. Curtis Bain then took the Chair and reserved any remarks he had to make until the following evening.

Balance Sheet

On the motion of the Treasurer (Mr. Moore) the balance sheet and income and expenditure account for the year 1948 was submitted and approved.

Appointment of Auditors

The motion that Messrs. Price, Waterhouse and Co. be reappointed auditors of the Association until the next Annual General Meeting at a fee of 450 guineas was moved, seconded, and carried.

President-Elect

The Chairman of Council (Dr. Dain) reported that Mr. T. P. McMurray, C.B.E., M.Ch., F.R.C.S.Ed., Emeritus Professor in Orthopaedic Surgery, Liverpool University, Consulting Orthopaedic Surgeon, Northern Hospital, Liverpool, and Royal Liverpool Children's Hospital, had been elected by the Representative Body as President of the Association, 1950-1.

Vote of Thanks to Past President

The Chairman of Council moved:

That the hearty thanks of the Annual General Meeting of the Association be given to the retiring President, Sir Lionel Whitby, for *his services as President*, 1948–9.

He said that the Association had been fortunate in retaining many of its Presidents after their term of office had expired. They had continued to take an interest in the central administration. This year the Association had made one of its greatest finds. In Lionel Whitby they had a man who was prepared to take his place in the work of the Association. He had assumed the most difficult job of Chairman of the Joint Committee representing the Royal Colleges and the Association—two difficult bodies to bring and hold together. He was accomplishing that task with great skill. Having obtained the services of so excellent a President, they hoped to keep a tight hold on him, and to see that he did not recede into obscurity. They looked forward to his continued help in the difficult times which faced the Association in the next 12 months. The Association could not be too enthusiastic in its thanks to its Past President.

The vote of thanks was enthusiastically carried.

Sir Lionel Whitby, in response, said they had made him President at a very critical time, when there were no medals to be gained whatever policy was followed. He had enjoyed being President, for many reasons. He had made thousands of new friends. He had developed a tremendous admiration for the efficiency of the Association, which he had never seen before. He had enjoyed the rough-and-tumble of the Council and of the Annual Representative Meeting. He had enjoyed also the quieter matters dealt with in committees. He had enjoyed the kindly and enthusiastic co-operation by every member of the administrative staff. He had learned the great qualities of Dr. Charles Hill and had valued his wise opinion and counsel. He had admired the *British Medical Journal* and the integrity of its Editor. All these had been great pleasures to him and had made it possible for him to pick up the work of the Association with the greatest of ease. He thanked all of them for having made his year of office so pleasurable.

The Annual General Meeting then concluded.

EXTRAORDINARY GENERAL MEETING

An Extraordinary General Meeting followed immediately on the Annual General Meeting held at Harrogate on June 27, Dr. Curtis Bain presiding.

The resolution for the alteration of the Articles of Association, as printed in the *Supplement* of June 4, p. 311, was proposed by the President, as a Special Resolution, with the exception of the proposed new Article 41 (*a*).

Dr. E. A. Gregg, Chairman of the Representative Body, moved the following amendment:

COUNCIL

Composition

The Council shall be composed of the President of the Association, the President-Elect, the immediate Past-President, the Chairman, the immediate Past-Chairman, and the Deputy Chairman of the

Representative Body, the Chairman and (during the year immediately following his period of office as Chairman of Council) the Past-Chairman of Council, the Chairman of the General Medical Services Committee, the Chairman of the Central Consultants and Specialists Committee, the Treasurer, and (during the year immediately following his period of office as Treasurer), the Past-Treasurer, *ex officio*, and of Members of the Association elected by the bodies and in the manner prescribed in that behalf by the By-laws.

This was carried, and the Special Resolution as thus amended was put to the meeting and adopted.

The Extraordinary General Meeting then concluded.

LUNCHEON TO OVERSEAS REPRESENTATIVES

Forty-four representatives of overseas branches and hosts attended the Overseas Luncheon at the Queen Hotel on Friday, June 24. After the Loyal Toast the health of the overseas representatives was proposed by Dr. H. Guy Dain, Chairman of Council. Dr. Dain apologized first of all on behalf of Sir Lionel Whitby, the President of the B.M.A., who was to his great regret prevented from attending. Dr. Dain stated that the Council was fully aware that the Association had over 10,000 members overseas. The Council was at all times anxious to do its best to represent their interests. The B.M.A. was not unimportant in the world and was always prepared to intervene on behalf of the medical profession with governments and government departments. The Colonial Office had shown itself to be much more co-operative and large-minded than certain other departments. The Council required to be kept fully informed of the problems of the overseas members of the Association, and he hoped that their branches would not hesitate to enlist the help of the parent body whenever they required it. The Council in its turn aimed to send out representatives to the branches in the Empire to establish the close contact that could come only from personal relationships.

Dr. R. B. MacGregor, Director of Medical Services of the Federation of Malaya, replied with a felicitous impromptu speech. He thanked the Harrogate Division warmly for all the hospitality that had been shown to the overseas members. He addressed a special word of gratitude to Dr. Curtis Bain for the semi-tropical weather that had clearly been arranged for their particular comfort. Overseas members of the Association were very grateful for the interest shown in their affairs by the parent body. He thanked Dr. Dain heartily for his kind words and called upon the overseas representatives to drink to the health of their hosts.

SUPPLEMENTARY OPHTHALMIC SERVICE

DEPUTY IN INVESTIGATIONS

When a complaint relating to the Supplementary Ophthalmic Service is being investigated the committee must include a professional member belonging to the same branch of the Service as the respondent. The committee contains only one dispensing optician, and if he happens to be an interested party or unable for some other reason to take part, it will be impossible to form a quorum.

The Minister of Health has therefore made the National Health Service (Executive Councils) Amendment Regulations, 1949 (S.I. No. 1120), which provide for the appointment of a deputy to any of the ophthalmic medical practitioners or ophthalmic opticians who are members of the committee, as well as to the dispensing optician, provided that the appointment is necessary to enable a quorum to be obtained.

Correction

In the letter signed "Ex-Assistant" (*Supplement*, June 25, p. 365) the phrase, "He was anxious to get things settled before July 5, 1948, and prevent anyone else coming into the area," should read, "He was anxious to get things settled before July 5, 1948, and before anyone else should come into the area."

Correspondence

Hospital Staff Terms

SIR,—I am writing on behalf of my part-time colleagues in the North-East and myself to draw your attention to a number of the provisions in the proposed terms and conditions of service of hospital medical staff (*Supplement*, June 11, p. 314) which are considered unsatisfactory.

Exceptional Consultations.—Emergency visits by part-time specialists to hospitals not included in the contract with the regional hospital board are not satisfactorily covered. These visits include calls to hospitals in charge of specialists who are incapacitated or on holiday, cases of puerperal pyrexia in infectious-diseases or outlying cottage hospitals with no obstetricians on the staff, and cases presenting obstetrical and gynaecological problems arising in hospitals not normally dealing with this class of case.

Section 6, which refers only to specialists who have no contract with the board, does not make provision for such cases; and para. 28 of the Explanatory Memorandum (*Supplement*, June 11, p. 321) is impracticable, as the time to be spent cannot be estimated. If this time, which varies considerably from week to week, is included in the maximum number of hours for which payment can be made, the service must be given without remuneration, these calls must be refused, or avoidable reduction of regular sessional time must be imposed. A general practitioner is paid £2 for a similar service.

It is suggested that fees for consultation, operation, an mileage in relation to emergency hospital visits should be n less favourable than those payable for domiciliary visits and should not be subject to the "normal maximum remuneration."

Domiciliary Visits.—It is suggested that the mileage payment should be based upon five-mile increases of radius, not twenty-mile increases, which are too great to operate fairly (Section 8 (*b*)). A fixed payment for each mile travelled to cover cost of travel and travelling time would, however, be preferred.

Obstetric Emergencies.—Inadequate provision is made for attendance upon acute obstetrical emergencies in the patients' homes or outlying country hospitals by the "flying squad." In these cases immediate attention is essential—not attendance within a few hours as in most domiciliary and hospital visits—and a high proportion of the calls come during the night. As they are of a life-saving character they should not be cramped by inclusion in the overriding maximum of "200 guineas in any quarter or 800 guineas in any year" (*Section 8 (c)*).

In view of the urgency of the summons, the time spent in resuscitation, the putting aside of more remunerative work at short notice during the day, and the frequency of night calls the proposed scale of remuneration is inadequate (Section 8 (*a*) (i)). An adequate travelling allowance should be made and a reasonable fee should be paid for time-consuming resuscitation as well as for operative procedures.

This letter is sent with the concurrence and support of m colleagues, Professor Farquhar Murray, Mr. Harvey Evers, M Frank Stabler, Mr. Linton Snaith, Mr. T. G. Robinson, S F. J. Burke, and Mr. Bryan Williams.—I am, etc.,

WILLIAM H[illegible]

Newcastle-upon-Tyne.

SIR,—I feel strongly that the terms should not be agreed unt (1) there is proper security of tenure; (2) there is assurance that, in future, regulations will not be introduced to Parliament before the profession have had an opportunity of expressing their opinion. And, moreover, all other points of difference must be agreed *before* permanent contracts are signed.

Security of tenure should be until an agreed age, terminable only for misconduct or incapacity (from some all-in opinion of the position of consultants and specialists under the [illegible] Health Service Act (*Journal*, May 1, 1948, p. 849). The number of sessions should be in accordance with the wishes of the entrant and should be altered only by [illegible]

All regulations regarding [illegible] referred for comment to the Joint Co[illegible]

o Parliament (Annual Report of Council (24) (15), *Supplement*, April 2, 1949, p. 174). Also, quoting from counsel's opinion ited above:

"One of the most unsatisfactory features of the Act is that many of the important matters arising under it are not enacted in the body of the Act, but are left to be governed by regulations. The Minister has very wide powers to make regulations, and is not under any statutory obligation to consult the medical profession before he makes such regulations. . . . I advise that the Minister should be approached with a view to securing an amendment which provides that Section 1 of the Rules Publication Act, 1893 (or a suitable modification thereof), should apply to regulations made by the Minister in future.

"Under Section 1 of the Rules Publication Act, 1893, a Minister is required (*inter alia*) to give forty days' notice in the *London Gazette* of his intention to make regulations. Any public body may inspect the draft regulations and the Minister is required to consider the written representations of any public body interested before he makes the regulations."

A reminder of the Minister's power is in the Forms of Contract (*Supplement*, June 11, pp. 320 and 321): ". . . subject to the terms and conditions of service *determined from time to time by the Minister of Health*" (the italics are mine).

No one would say that there are no advantages to the community and to the profession in the stated terms and conditions, but if we are to be a happy profession able to give our best service to our patients and, in future, if the best citizens are to be attracted into our profession, surely this will be helped by the knowledge that entrance gives a proper security of tenure, and by the knowledge that there is an agreed opportunity for examination and for comment of intended alteration to the regulations by the Minister before submission to Parliament.

Except for those who can find a living entirely *outside* the hospitals among private patients, we are absolutely in the hands of the Ministry of Health both for our private and for our national work—in fact, for our very livelihood. Under such circumstances good intentions, however genuinely intended, must not be accepted. It is absolutely necessary to have the binding document expressed in no uncertain terms.—I am, etc.,

Kidderminster, Worcs JOHN W. STRETTON.

SIR,—It is stated (*Supplement*, June 18, p. 331) that the published terms and conditions of service of hospital staff represent the limit to which the Joint Committee has been able to secure concessions by negotiation.

The terms define senior hospital medical officers as those senior officers performing clinical duties who are not of consultant status but are not registrars. No assurance is given that the grade will be reserved for certain exceptional appointments; instead, there is merely some word-play in para. 8 of the Explanatory Memorandum.

Letters to the daily press indicate that the majority of those practising as specialists have been "assessed" only as senior hospital medical officers. This being so, their grading is not in accordance with the definition. In the face of general policy the appeal machinery is unlikely to affect the result much, and even less since it is worked by the original review committees plus only two new members, one of whom is engaged in similar review procedure in another region.

The conditions under which negotiations of the terms of service were conducted precluded the disclosure of unfavourable trends. If, however, the proposed application of the terms were made known and seriously disapproved, the Joint Committee surely need not have proceeded further; if this were not made known the present position is an evasion and a breach of good faith. It need not remain so after the meeting of the Joint Committee on July 5.

Difficulty and dissatisfaction are bound to result from attempts to assess the worth of individuals, but grading of appointments in terms of remuneration should be a comparatively simple matter. It is the accepted method in almost all large organizations. In the case of the Health Service, which has largely abolished alternative sources of income, the only fair index is the full value of the appointment to the community served. On this basis the reduction in status and remuneration of many former specialists is indefensible.

Distinction awards are a further likely cause of trouble. If appointments are given their fair comparative value, there should be no need for additional payments. In any case, the total remuneration of the individual will in time come to be attached to the post itself and the most suitable be chosen to fill it. This might as well be recognized, and attention concentrated on the one thing that matters—a fair range of payments throughout the Service.—I am, etc.,

Holt, Norfolk. S. W. DRINKWATER.

Grading of Hospital Staffs

SIR,—The local results of the grading of hospital staffs appear to the undersigned completely puzzling. Remembering examples which we had all known of the patchwork character and autocratic set-up of the old health services, we felt justified in expecting better things—first, in co-ordination, and secondly in democratic administration.

Among the decisions which have been made, for example, we do not see any logic in one which gives no higher grade to a senior resident who has a higher degree and takes charge of the hospital in the absence of the medical specialist than to a casualty officer; or in another which gives lower grading to the medical trainees than to the surgical ones, though their qualifications, work, and responsibilities are, to any reasonable observer, equivalent.

In the second place, we, on whose work the Service depends, were not told what our own hospital grading committee recommended; we do not even know the composition, far less the principles, of the regional grading committee. Even our specialist staff have been heard to say that the regional board is a remote body on which local representation is inadequate.

We feel, as more and more workers are feeling, that in this, as well as in other matters, some way must be found of establishing contact between people in offices and people on the job—for example, candid formal reports to individuals on the progress of their work and on the reasons for their grading; representation of the resident staff, in either executive or observer capacity, on the committee which decides their fate.

Without some such changes our cynicism will increase; and cynics cannot be good doctors.—We are, etc.,

FOURTEEN HOSPITAL RESIDENTS.

Grading of Specialists

SIR,—The Council of the Regional Hospitals' Consultants and Specialists Association (Non-Undergraduate Teaching Hospitals), of 45, Lincoln's Inn Fields, London, W.C.2, would be glad to receive from consultants and specialists who are dissatisfied with their grading by the regional hospital board particulars of their case, a copy of the appeal they have lodged, and its result when known, in order that they may estimate how widespread the problem is. It is not the intention of the council to take up individual cases, but to deal with the matter as one of principle.—I am, etc.,

The Regional Hospitals' Consultants and Specialists Association (Non-Undergraduate Teaching Hospitals), 45, Lincoln's Inn Fields, London, W.C.2. NIGEL CRIDLAND, Honorary Secretary.

Specialists: The Minister's Intention

SIR,—At the present time the profession is considering the terms and conditions of service of hospital medical and dental staffs (*Supplement*, June 11, p. 314). In the *Journal* of June 25 the North-West Metropolitan Regional Hospital Board advertised for nineteen specialists in various branches of medicine, surgery, pathology, etc., yet only three of these were part-time and sixteen were full-time appointments. A number of these appointments were in hospitals which were under the county councils of London and Middlesex prior to the appointed day, but others were in old-time voluntary hospitals in the West Herts and Bedfordshire areas.

In view of the repeatedly expressed promises of the Minister to allow private practice to continue for specialists, and in view also of the present Amending Bill, which undertakes not to introduce a whole-time salaried service by regulation, it seems most unfortunate that young specialists are being offered

only full-time appointments and have such little choice of part-time posts. Is the ultimate intention of the Minister and of his regional boards not made clearer than ever?—I am, etc.,

London, W.1. E. C. WARNER.

Mileage

SIR,—At the S.R.M. on March 29 (*Supplement*, April 2, p. 209) both Dr. Wand and Dr. Pearce remarked during the discussion on mileage that they wished speakers had come forward with their facts and figures when the Rural Practitioners Subcommittee was collecting information. I am therefore tempted to ask what information was sought by the committee before it recommended the 3s. single payment per mile (outward) over two miles for each maternity case booked in rural areas.

Be that as it may, I have two very serious criticisms to make: (*a*) that it is wrong in principle to take money from the central mileage fund to meet these payments; (*b*) that the suggested payments are insufficient, and based on an unfair method of calculation.

Let me deal with (*a*). Under the general practitioner service of the N.H.S. there are two different services side by side—viz., (1) general medical services, and (2) maternity services. Payment under (1) is based on a capitation fee per patient on the practitioner's list, and is paid out of a central pool, while payment under (2) is made under contract for work done and varies according to how much service is rendered, and in England according to whether or not the practitioner's name is on the obstetric list. Moreover, the money for this purpose does not come from the central pool and must therefore come direct from the Exchequer. That being so, there is no reason why this precedent should not be followed in regard to mileage payments for maternity work, for mileage is also done under contract. Indeed, if a proper mileage fee is paid the drain on the central mileage fund will be so great (as my figures at the end of this letter prove) that it will be necessary to adopt this procedure.

The rural practitioner can easily prove that he does more work per case than the average urban practitioner and that he is therefore entitled to extra payment. This argument has nothing whatever to do with the question of hardship or with small lists; it merely deals with a reasonable demand—equal pay for equal work.

To conclude my argument under this heading I would like to draw attention to the following facts:

(1) Under the Maternity Services (Scotland) Act, 1937, local authorities paid mileage fees under two methods, the practitioner being left to choose either method of payment. This payment had therefore no connexion with the N.H.I. mileage fund.

(2) Under the present local authority midwives scheme, where a practitioner is called in by a midwife he is paid an appropriate mileage fee by the authority.

(3) When the question of mileage was under discussion no mention was made of mileage for maternity cases. The first indication that mileage for maternity cases was included in the central mileage fund was made by Dr. Wand at the last S.R.M.—a very strange affair.

I therefore contend that the [illegible]ion of maternity mileage has not been properly investigated and that it is quite improper to deduct money for this purpose from the central fund.

Now let me deal with (*b*). The only good thing I can see in the recommendation by the G.M.S.C. is that the rural practitioner's right to be paid a mileage for maternity cases has been established. In every other respect I can only level bitter criticism.

In the first place their recommendation is quite pointless so long as the money for this purpose is deducted from the mileage fund. As I put it at the last S.R.M., it simply means that money is taken out of one pocket of the rural practitioner and put into another pocket. There was no need to make any representations to the Ministry about that. Indeed, I am sure it was ill-timed and ill-considered to take this step before the position had been clarified or properly investigated.

In the second place, the sum of 3s. recommended is hopelessly inadequate. It is not enough to pay for more than a fraction of the extra expense incurred by the rural practitioner attending the case. Compare it with the payment (which itself was inadequate) paid by local authorities twelve years ago under the Maternity (Scotland) Act, when car expenses were much less. The practitioner had the choice of being paid either (*a*) a composite sum of 6s. (outward) per mile over two miles for each case, or (*b*) at a rate of 1s. 6d. per mile (outward) over two miles for each special visit to the patient's home, and at one-third of that rate where the visit was made in the course of the daily round.

I chose method (*b*) for obvious reasons, and I will now give you my figures for 150 consecutive cases, which are therefore irrespective of locality and whether the service was a complete service or not:

(1) Total number of non-mileage cases = 76.
(2) Total number of mileage cases = 74.
(3) Total mileage for mileage cases = 326 miles.
(4) Total mileage eligible for payment = 178 miles.
(5) Total payment received by me = 178 × 1s. 6d. × number of visits = £124 13s. 6d.
(6) Total payment which would be received by me under the scheme put forward by the G.M.S.C. (from the mileage fund) = £26 14s.

Need I say any more, except that my books are open for inspection if any doubts are entertained in regard to my figures?—I am, etc.,

Auchtermuchty, Fife. HUGH B. MUIR.

*** The Secretary of the Association writes: When the Ministry recently agreed to increase the mileage fund from £1.3 million to £2 million, it was agreed that the latter amount should include mileage payments in maternity cases.

Mass Resignation

SIR,—It is very evident from the letters published recently in the *Journal* and motions submitted from many areas of the country that there is grave dissatisfaction with the terms of service and remuneration of general practitioners. Nearly a year has passed since the inception of the Act, and there has been no response from the Ministry to repeated requests to rectify these gross injustices. It is clear that negotiation with the present Ministry is hopeless.

A large majority of practitioners are impatiently waiting for a lead from the Council of the British Medical Association and I would suggest that, through them, meetings be called throughout the country at a very early date to determine our immediate line of action. Let those in favour of a mass resignation come into the open by actually giving in their signature, accompanied if need be by a substantial cheque.

I am, etc.,

Birmingham. G. A. POWELL-TUCK.

Withdrawal of Service: *Correction*

SIR,—I was misquoted in a certain London daily paper as having said that some doctors in my area feared physical violence if they resigned from the Health Service. This is wholly inaccurate. What I said was that I had been told that in certain industrial areas doctors feared physical violence if they refused to treat their patients under the National Health Service.

In my own Division of East Norfolk the doctor patient relationship remains good, and many patients have expressed their dislike of the National Health Service. I therefore write hurriedly to correct any shadow of an impression that we doctors in Norfolk have any such fear.—I am, etc.,

Aylsham, Norfolk. A. G. HOLMES.

Association Notices

MEDICAL STUDENTS' PRIZE ESSAY

The title for the Medical Students' Prize Essay for 1949 is "Clinical Teaching in Relation to the Practice of Medicine." The closing date for entries is Dec. 31, 1949. Those wishing to enter the competition should write to the Secretary of the Association for a form of application.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY JULY 9 1949

SIR WILLIAM OSLER

BY

Sir ARTHUR S. MacNALTY, K.C.B., M.A., M.D., F.R.C.P., F.R.C.S.

"We are often made to feel that there is another youth and age than that which is measured from the year of our natural birth." These words of Emerson's come to one's mind in this centenary year of Sir William Osler's birth. For his teaching and influence are ever-present and in his lifetime he never grew old.



William Osler, the youngest and sixth son in a family of nine, was born on July 12, 1849, in a parsonage at Bond Head, Tecumseth County, Canada. He came of Cornish stock. His father, the Rev. Featherstone Lake Osler, married Ellen Free Pickton in 1837, and they went out to Canada from Falmouth in the same year. Mrs. Osler died in 1907 in her 101st year.

Work on Zoology and Physiology

William's schoolmaster, the Rev. W. A. Johnson, at Weston, near Toronto, introduced him to the study of biology and geology and to the use of the microscope. At 18 years of age Osler began to describe and enumerate the *Diatomaceae* of Canada, and his interest in biology was stimulated further by Dr. James Bovell when he entered the Toronto Medical School in 1868. He published a number of original papers on this subject. In 1870 he became a medical student of McGill University, Montreal, where the clinical opportunities far exceeded those which Toronto then afforded. He graduated M.D. in 1872, and in 1872–3 spent fifteen months in the Physiological Laboratory, University College, London, working at physiology and histology under Professor Burdon-Sanderson. Here he made an important contribution to scientific knowledge by describing the form and movement of the blood platelets, "the third element of the blood." It was Osler who first saw these bodies in the circulating blood, and his observations were presented before the Royal Society by Burdon-Sanderson in 1874. Afterwards Osler published several papers and lectures on the blood, including one on the development of blood corpuscles in the bone marrow. All this work established his reputation as an original investigator.

After obtaining the L.R.C.P.Lond., and visiting Berlin and Vienna, Osler returned to Montreal in 1874 and was appointed Professor of Institutes of Medicine to teach physiology and histology. As professor of physiology in the Veterinary College, Montreal, he also worked at comparative pathology. In 1878 he was elected physician to the General Hospital, Montreal, and immediately afterwards left for London to take the M.R.C.P. examination and to pursue three months' clinical study at the chief teaching hospitals. In addition to clinical work he did an extraordinary amount of original investigation in biology, physiology, and pathology during these years at Montreal. The call to Philadelphia to be professor of clinical medicine in the University of Pennsylvania in 1884 marks the end of Osler's investigations as a pure scientist in the fields of zoology and physiology. As W. T. Councilman said: "He could easily have become a great scientist, but he chose the path which led to the formation of the great clinician which he became: a worthy associate of the great men who have made English medicine famous."

Productive Years in Baltimore

In 1884, together with Clifford Allbutt, he was elected a Fellow of the Royal College of Physicians after the shortest possible period of probation. In the following year he delivered the Goulstonian Lectures to the College on malignant endocarditis, which contained the first comphrehensive account of the disease in English. At Philadelphia he increased his reputation as physician and teacher, studied malaria, and wrote on the cerebral palsies of children in addition to contributing numerous articles to textbooks and medical journals. The Quaker City would have fain kept Osler, but this was not possible. In 1888 he was offered, and accepted, the chair of medicine in the new Johns Hopkins University, Baltimore. Here he built up a great medical school which became famous not only in America but throughout the world. He devoted special attention to the organization of the Johns Hopkins Hospital, where he was physician-in-chief. From an extensive experience of medical schools in two continents Osler welded together the best features of British teaching and of the German clinics. He revolutionized medical instruction in North America by introducing the individual bedside teaching of students, who as clinical clerks had free access to the wards and patients in a clinic under a director with highly trained assistants and laboratory equipment. Osler indeed desired no epitaph other than that "he taught medical students in the wards."

Dr. Welch, the Professor of Pathology, collaborated with Osler in this pioneer work. When Dr. Welch honoured me with a visit in Whitehall in 1920 he spoke with feeling of those happy and productive years with his colleague and friend in Baltimore.

In 1892 Osler gave to the world his famous *Principles and Practice of Medicine*, used by students all over the world and translated into French, German, Spanish, and Chinese. As Harvey Cushing, his biographer, wrote: "The volume, indeed, was what might be called a practical pathology in which were given the results of modern investigation, microscopical, bacteriological, and chemical. On this foundation was built up the symptomatology and diagnosis of disease. . . ." Osler adorned his textbook with personal references to his vast clinical experience, and attractive allusions to personalities, ancient and modern, in illustrations of symptoms and treatment.

On Feb. 4, 1892, the day of its publication, Osler, with a copy under his arm, walked into a house in Baltimore where Mrs. Gross, the widow of Dr. S. W. Gross, his friend at Philadelphia, was staying, and threw the volume into her lap with the words: "There, take the darn thing! Now what are you going to do with the man?" They were married on May 8, Osler then being 42 years of age, and after a visit to Canada and England settled down in No. 1, West Franklin Street, Baltimore, where on Dec. 28, 1895, their son Edward Revere was born.

Grace Revere Osler was descended from Paul Revere, the hero of the famous ride and a distinguished silversmith and copperplate engraver. Witty, wise, and eminently practical, she was a devoted helpmeet to Sir William, entertained his friends and students, lightened the burden of his constant labours, and made their homes at Baltimore and Oxford a Mecca of hospitality and good will. Lady Osler had great personal beauty in youth, and in old age retained her wonted charm. Under a dignified presence—she was often compared to a duchess—she had the kindest and most generous of hearts. It was an ideal union, and at a farewell dinner given to Osler by the profession of the United States and Canada in 1905 Osler said: "Of the greatest of all happiness I cannot speak—of my home. Many of you know it, and that is enough." He was elected a Fellow of the Royal Society in 1898.

In 1904 Osler attended the Annual Meeting of the British Medical Association at Oxford and received an Honorary D.Sc. from the University. His former teacher, Sir John Burdon-Sanderson, the retiring Regius Professor of Medicine, asked him to accept nomination as his successor. Osler at 56 was feeling the strain of his over-busy life at Baltimore, and when he cabled to his wife on the subject she at once replied, "Don't procrastinate; accept at once." They left America amid universal regret and came to Oxford in 1905, eventually to reside at 13, Norham Gardens, which soon became known as "The Open Arms."

During the Philadelphia and Baltimore periods other universities had offered Osler appointments of distinction. His *alma mater*, McGill, asked him to return to Montreal on at least two occasions. Harvard thrice offered him chairs of medicine. In 1895 New York City offered him a university post. In 1900, on the invitation of E. A. Schäfer and others, he actually became a candidate for the chair of medicine at Edinburgh, but withdrew on account of pressure from all sides to keep him at Baltimore.

Activities at Oxford

At Oxford the Oslers were at once plunged in all sorts of activities—social, professorial, and professional. Although elected a student of Christ Church, the College of two of his favourite authors, Richard Burton and John Locke, Osler's tireless energy could never allow him to lead a life of scholarly ease. He was active as physician to the Radcliffe Infirmary, giving ward demonstrations to students and practitioners. He promoted and extended the work of the Oxford Medical School, was Master of the five-centuries-old almshouse at Ewelme, curator of the Bodleian (University) Library, where his profound bibliographical knowledge and love of old books was of great value, at one time member of the Hebdomadal Council which governs the University, President of the Oxfordshire Association for the Prevention of Tuberculosis, one of the founders and the first President of the Section of the History of Medicine of the Royal Society of Medicine—the catalogue of official duties is almost an endless one. He served on two Royal Commissions, and throughout England, Wales, Scotland, and Ireland was in constant request to deliver lectures and addresses at hospitals, universities, and medical societies. He was often called into consultation not only at Oxford but all over the kingdom. With it all he found time for countless unrecorded acts of kindness to others just as he had done in Montreal, Philadelphia, and Baltimore.

In 1906 Osler delivered to the Royal College of Physicians the Harveian Oration, "The Growth of Truth, as Illustrated in the Discovery of the Circulation of the Blood," and the Lumleian Lectures in 1910, on angina pectoris: in 1908 he gave the Linacre Lecture at St. John's College, Cambridge: in 1919, as president of the Classical Association, an office held for the first time by a practising physician, he gave an eloquent address on "The Old Humanities and the New Science."

The *Quarterly Journal of Medicine* and the Association of Physicians of Great Britain and Ireland came into existence in 1907 largely as the result of Osler's initiative and support.

He had been a book-collector for many years, and his superb library contained many *incunabula* and first editions of scientific and medical works. For over five years his

scanty leisure was occupied in preparing the *Bibliotheca Osleriana*, a bio-bibliographical catalogue of his library. It was successfully completed and published in 1929 by his cousin, Dr. W. W. Francis, with the collaboration of R. H. Hill, of the Bodleian, and Dr. Archibald Malloch, now librarian of the New York Academy of Medicine. The library itself was bequeathed with an endowment to McGill University, Montreal.

It has been possible here to mention only the more important of Sir William's writings. His published books, papers, lectures, and addresses covered an extremely wide range and mounted up to more than a thousand, as can be seen from the classified and annotated bibliography by Dr. Maude E. Abbott (Montreal, Canada, 2nd edition, 1939). "So wide are they," wrote Sir Humphry Rolleston, "that any writer, especially with a new idea, observation, or historical subject, would be well advised to find out before publication what Osler may have said upon the subject." His literary style was delightful; adorned with wit, epigram, and historical allusions, and all he wrote possessed the merit of clear exposition. These features are well displayed in his essays, *Aequanimitas* (1904) and *An Alabama Student* (1908). Sir William Osler was the pre-eminent type of the scholarly physician.

Thus, although Osler had accepted the Regius Chair as a relief from overwhelming pressure, his public activities expanded instead of diminishing. In the Coronation Honours of King George V, in June, 1911, his outstanding services were recognized by a baronetcy. Subsequently he was sounded on whether he would accept a peerage, but he declined.

The War Period

The war of 1914–18 came and added to his labours. He was an honorary colonel and a member of committees at the War Office, where on medical questions, such as the establishment of special hospitals, his advice and suggestions were invaluable. He was also on the committee concerned with the Medical History of the War and on the War Reports Committee. He rendered important services to the Canadian Army Medical Corps. As consulting physician he visited regularly the Duchess of Connaught's Red Cross Hospital at Taplow, Beachborough, the Heart Hospitals at Hampstead and Colchester, and the American Hospital at Paignton. Later he visited nearly all the American hospitals in the south of England. At these visits he renewed acquaintance with many of his old friends and students. On the receipt of a cable from an anxious parent he would visit any hospital in England to see a Canadian or American soldier and reply that he had seen that everything possible was being done.

Sir William said at a farewell dinner on May 2, 1905, in New York, that he desired "to be ready when the day of sorrow and grief came to meet it with the courage befitting a man." Noble words fraught with sad premonition. On Aug. 30, 1917, their gallant son, so full of life and promise, died of wounds in Belgium. That very night his stricken father wrote: "Poor Grace! it hits her hard; but we are both going to be brave and take up what is left of life as though he were with us."

Brave indeed was the face they presented to the world. They carried on in the same way, with lavish hospitality, the promotion of cordial relations between North America and England, and a host of medical activities. Only those who knew them well realized the sorrow that lay beneath. Sir William's hair grew white, his face was lined with care, but he continued to work for humanity. His seventieth birthday in 1919 called forth an outburst of universal affection. The medical journals in Great Britain and the Dominions and in the United States issued special "Osler Numbers," and from near and far people vied with one another in paying him loving tributes. A memorial in two volumes, containing contributions by a number of his old friends and pupils from both sides of the Atlantic, was presented to him by his brother Regius of Cambridge, Sir Clifford Allbutt, at the Royal Society of Medicine. The Oxford Medical Graduates Club entertained Sir William at a dinner, and in reply to the enthusiastic toast of his health he said: "I have worked hard all my life. There must be good rubber in my arteries or I should not now be among you still working at three-score years and ten." But even then Mr. Great-heart's course was nearly run. In October, 1919, he fell ill with influenza, and broncho-pneumonia supervened. In bed he read and wrote. His last published paper was a review of *Sir Victor Horsley's Life*, by Stephen Paget, for the *Oxford Magazine*. He kept careful notes of his own symptoms and, cheery as he strove to be to his wife, doctors, nurses, and visitors, he knew that the call had come to cross the River. "I smell the mould above the rose," he said, quoting Thomas Hood's *Stanzas*. The end came in the afternoon of Dec. 29. There was an impressive service in Christ Church Cathedral, Oxford, on Jan. 1, 1920, when men and women gathered from all parts of the kingdom to pay their last tribute to the beloved physician. His ashes, mingled with those of Lady Osler, who died in 1928, repose in an urn in the Osler Library of McGill University, surrounded by the books so dear to him.

William Osler departed from the world leaving behind him the memory of a great physician, a physician of two continents, an inspiration to British, Canadian, and American medicine, a friend of young and old. His teaching and work are an ever-abiding presence not only to those who knew and loved him but to future generations.

OSLER AT OXFORD

BY

Sir CHARLES SHERRINGTON, O.M., G.B.E., F.R.S.

Osler at Oxford! The impression left upon me is vivid enough, although I feel it far from easy to convey. It had its different sides. My privilege was to join him as a colleague in the teaching when he was still relatively a new-comer to the place. I think he regarded his chair—the Regius Chair of Medicine (attached to Christ Church)—as legitimately to be treated as a sort of sinecure; its very stipend was then rather beggarly, and Osler sometimes did not scruple to say so. He looked upon what was expected of him, not, I fancy, as in any ordinary sense a part of the routine teaching of medicine, but rather as a focal point whither to draw together the scattered strands of tradition pertaining to an ancient Faculty, some of them beginning to wear thin. I think he felt what was incumbent on him was to maintain a stately but rather formal professional intercourse, a picturesque ceremonial furbished with tags of scholastic learning, a certain dignity of custom, and the observance of loyalty to certain past ways. In a number of these features Oxford resembled its sister on "reverend" Camus; and Osler was deeply gratified to have as his opposite number Clifford Allbutt, a classical scholar as well as a close friend.

Canadian by birth and upbringing, his ties with the Empire formed a cherished background to his life. The annals of European Medicine were familiar and dear to

him, and that his position should link him with Linacre, Sydenham, and Harvey rose, I think, almost daily to his thought. Not that he lived in the past; rather he trod a stage whose scenery was much of it furnished from the past. The very buildings had their fascination for him. Once as I walked alongside him across the open space between the Camera, the Bodleian, and All Souls, he stopped and, looking round, said: "The finest architectural view in Europe."

Love of Rare Books

One of the happinesses he cultivated in Oxford was to serve as showman to parties of transatlantic visitors and to introduce them to his favourite glimpses of the University scene—a personally conducted tour, leading finally to lunch at his own house with Lady Osler at the table. The number of guests might be anything up to fifteen or sixteen, and the hostess had little notice of exactly how many there would be. But the babble of conversation was unceasing, and their host seemed able to address them each one intimately—Tom, Jack, Jim, or whatever familiarity dictated. One regular item of their entertainment, laid out for their inspection in a small well-windowed room opposite the "Study," would be some dozen or so choice printed books, each volume open at a selected place. These specimen volumes would include first-rate rarities—a fifteenth-century Aristotle from a Paris press, a Descartes' *Method*, etc.

His library was housed mainly in one large room with open shelves reaching to the ceiling and a couple of turntable bookcases, one of them completely filled with editions of his favourite among all books, Sir Thomas Browne's *Religio Medici*. When he resided at Oxford he was engaged in cataloguing his library on a novel plan—a *Bibliotheca prima*, etc. After Osler's death this catalogue was completed by Dr. William Francis, and issued at the Clarendon Press, at the charge of Lady Osler, in a fine folio volume. The books themselves were bequeathed by him to the McGill University library, Montreal. So far as I know he kept none of his books under lock and key, although he was well aware of the frailty besetting certain book-collectors and could relate instances within his own experience. In the Preface to his monumental catalogue he gives some anecdotes of his own adventures in pursuit of specially desirable volumes. His book-collecting seemed to be a "catching complaint," for I think we may suppose it was started in Harvey Cushing—and in others—by Osler himself. A well-known bookseller in London used to say that he attributed to Osler's influence no small share in the increased antiquarian interest taken in early printed books on both sides of the Atlantic. Osler was certainly a most intriguing devotee of the fashion.

A Special Interest

One of the adjuncts of the Oxford chair exerted quite a special appeal on Osler. In virtue of his tenure of the chair he was Master of an ancient almshouse some ten miles out of Oxford, a picturesque low-roofed cloistered building dating from the foundation of the charity, and enclosing perhaps half an acre of plotted garden. The apartments of the old pensioners themselves faced inwards towards this court. The whole stood in a small village which in itself was old-world, rural, and intersected by little running streams or "freshets" full of watercress grown for the London market. Lady Osler made herself unobtrusively a fairy godmother to these aged dependants. Osler as Master had a couple of rooms under the common roof. I happened to be present when he noticed a sort of strong-box in his bedchamber there. The key, wher inquired for, was not to be found, and Osler, thoroughly intrigued, wired to Chubb's, of London, for an expert to pick the ancient lock. The expert when he came looked at the chest, then, taking a small wooden mallet from his travelling-bag, tapped the sides of the lid and almos at once lifted it. "This chest has not been locked thes many years," he said. The box contained deeds, many of them on vellum with seals attached, each seal in its littl case fixed to the ribbon belonging to the document. Osle was enchanted. All the way home he could speak o nothing else.

As Consultant

I fancy that his opinion was considerably sought as consultant during his Oxford years. I was present one when it was—unofficially—appealed to. It interested m to see his manner change at once. It became gravely pro fessional. His voice assumed a deeper tone, his forel frowned slightly; his lips tightened, his bearing becam dramatic and oracular—kindly always, but now dispensin kindness oracularly. His position in Oxford was such th he allowed himself to call on sick people independently invitation from their doctor. William Macdougall, th psychologist, was then in Oxford, and I knew him well. H told me the following. His youngest child, a little ma of 7, was fatally ill. One afternoon Osler called, and afte talking with Macdougall they both went upstairs to th child's room. Outside her room Osler suddenly stopped and tapped at the bottom of the door. Then, opening he stole across to the child's bed with little steps and kne bent to dwarf himself as much as possible, his coat-flap nearly touching the floor, his face on a level with th child's in bed. The child gazed wonderingly at him "Mary," Osler said, assuming a small bird-like voice, I am come to tell you a secret—a nice secret. You are goi soon to leave us. You will be leaving on a journey, to beautiful place, a wonderful place where you will be ver very happy. And all your friends will soon be comin there to join you. I can't stay longer now; I must go off. Good-bye, Mary; God bless you." And he kisse the child gently on the forehead. Then he withdrew he had come, the little girl watching him wondering with a long smile.

Osler's Son

Osler himself had one child, a son, about to enter Chri Church when the first world war broke out. Revere share some of the tastes of his father, and the pair were several ways almost like schoolfellows together. Th world war had been expected by many, but not by Osler When it came Osler's parental anxiety was pathetic t see. After a year of delay his son was called up fo military training; then, rather more than a year later still for service abroad. Almost at once (1917) tragedy hap pened—a chance shell from a far range. The surgeon nearest at hand was the old family friend Harvey Cushing but there was nothing to be done. To Osler the news was overwhelming. He strove on bravely but hopelessly. Th laboratory attendants hearing his step declared it was no longer as it had been. As the year 1919 drew near its close, wintry weather caught him in a hired car far from home in a lonely place towards nightfall, and the car broke down. He and the chauffeur had to pass the night there, and he was chilled through. A day later he arrived home looking ill. He went to bed; bronchopneumonia set in. After some weeks he died, exhausted.

At the funeral service the Cathedral was filled to over flowing—friends attended not only from Oxford but from long distances.

I am not competent even to attempt any judgment of Osler's distinction as a clinician. He had of course a certain position as a man of letters. His literary style was rather obviously formed on his prime favourite, Browne of the *Religio*, without the redundant wealth of classical allusion. One conviction about Osler's influence on his time, of which I am quite sure and to which I would here bear witness, regards the remarkable camaraderie and personal affection which radiated from him. It stood for friendships which were lifelong ties. It was contagious. It propagated itself along his social contacts wherever he moved. His unlocked bookshelves were a part of it. In Baltimore, when he and Cushing occupied adjoining houses, doorways were cut through on each floor to facilitate communication between the households.

THE OSLER FAMILY

BY

W. W. FRANCIS, M.D.
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Osler's ancestors were seafarers of Falmouth, small shipowners, privateersmen, and merchants. His great-grandfather died of wounds in the West Indies; one great-uncle was killed in a sea fight, and another successfully fought off the Barbary pirates from a shipload of settlers he was taking to the Cape. His descendants are numerous in South Africa and Australia—some of them physicians, some cricketers, and a few both. Osler's great-grandmother, a sister of Samuel Drew, "the Cornish metaphysician," is suspected of having infused brains into the line, and it is certain that cheerfulness was irradiated by his grandmother, Mary Osler, better known to the end of her long life as Polly Paddy.

The statement in a recent biography of Sir Jonathan Hutchinson that he and Osler had common collaterals in Lincolnshire is a mistake: Lady Osler, not Sir William, was descended from the learned Anne Hutchinson, who in 1643 was massacred with all but one of her seventeen children near what is now New York.

Change in Bent

With the religious revival in the early nineteenth century the bent of the family changed. Of the five sons of Osler's grandfather, the eldest was a surgeon and an ardent churchman, and two became missionaries. Edward Osler (1798–1863), who attained the distinction of a notice in the *Dictionary of National Biography*, qualified M.R.C.S. at Guy's and St. Thomas's after an apprenticeship with a surgeon in Truro. His MS. eye-witness account of Cooper's famous ligation of the aorta is in the Wills Library. Becalmed on the way to London in 1816 in one of his father's packets, they were jeered one evening by a passing newfangled steamer, but had the satisfaction of overtaking it next morning and offering a tow! For seven years house-surgeon of the Swansea Infirmary, he afterwards practised at Bath and Truro. He is better known as a miscellaneous writer, author of *Church and King*, *The Life of Admiral Viscount Exmouth*, and poems; a hymn-writer ("O God unseen, yet ever near," is almost the sole survivor); and editor of the *Cornwall Gazette* for twenty years. Biological papers of his on marine animalcules were presented to the Royal Society and printed in the *Transactions*. All that I, his grandson, ever heard of his surgical practice is that he was delighted to be summoned one morning to a grand house in the country, and on arrival was told by a supercilious butler to wait in the hall till her ladyship should be ready. Not he! The house had a famous library, to which he found his own way. It was mid afternoon when he remembered what he had come for! His only descendants are in Canada, where his two daughters were a great help to Osler in his Montreal years.

Sir William's Parents

Featherstone Lake Osler (1805–95), the father of Sir William, was a venturesome lad who was sent to school inland to keep him from drowning: but at the age of 12 he was at sea and nearly lost his life in his first wreck. He then joined the Royal Navy and saw varied service in several ships, including the *Victory*, and rose to the rank of lieutenant. Having become something of a student, especially of mathematics, he entered St. Catherine's Hall, Cambridge, in 1833, with a view to taking orders. Thanks to an influential godfather, his prospects in the Church were particularly bright, but in 1836, in answer to a strong appeal, the Upper Canada Clergy Society was formed and he was persuaded that his duty lay there. The next year found him and his bride in what were then the wilds of Canada, forty miles north of Toronto. Undaunted by the incredible hardships of the first few years, they laboured here for two decades, teaching everything from theology to agriculture and sewing. He held services in twenty different places scattered over 2,000 square miles of country. At some distant gatherings he would announce the date of the next service six months or more hence, and the congregation would be there without, as he said, any further notice. One sees where W. O. got his punctuality! The parson's household—when he managed to get a house built—comprised at one time, besides his growing family, five young men whom he was training for the ministry. These included his youngest brother, Henry (1815–1902). A breakdown in health occasioned a visit home in 1841, and the most useful gift, besides money, which he brought back was many dozen pairs of spectacles for those of his flock with failing eyesight.

Osler's mother, Ellen Free Pickton (1806–1907), was a really remarkable woman, small in build and stature, but with tireless energy. Dark as her husband was fair, she was a Cornish "Black Celt," with beautiful features, enlivened by an unfailing wit and good humour, which more than matched her piety. Her influence was long remembered. Girls came from miles around to her Sunday school and to her Thursday afternoon class, which was meant to teach sewing but included everything. Usually thirty would arrive early in the morning and stay all day. Her greatest achievement, however, was bringing into the world and bringing up in the backwoods no fewer than nine children despite her late start: for she was 30 when she married in 1837. She lived to enjoy her hundredth birthday, but left it to her great-grandchildren to blow out the one hundred candles on it. Did it remind her of her first Sunday-school picnic, when she baked three barrels of flour into cakes and bread and fed seven hundred from twelve of her husband's nearest settlements?

Children of Distinction

Brought up by such parents under pioneering conditions in a country parsonage where helpfulness and self-reliance were the order of the day, no wonder that four of the six sons attained distinction. They were educated at an excellent grammar school in Barrie, sixteen miles from their home, and the elder three later studied law in Toronto. When William was 6 the family moved to Dundas, in a

much more advanced district where the amenities were greater and life less strenuous. Unfortunately, little is recorded of the children's younger days, except some of W. O.'s escapades, such as cutting off the tip of his sister's finger, "smoking out the old girl"—namely, the school's unpopular housekeeper—for which he spent a day in gaol and was fined a dollar and costs; or his earliest recollection, which he told so often that he came to believe he could remember how, in his second year, the day his younger sister was born, a calf with which he was tethered butted him into the pail of milk they were sharing and nearly drowned him. A visiting English cousin described him at 16 as "a light-hearted boy, but with many of the tastes and much of the dependableness of a man."

The eldest brother, Featherston (1838–1924), probably the most learned of the family, was thirty years on the bench and head of the commission revising the Statutes of Ontario. His three sons became distinguished lawyers. The non-medical majority of the family consider Britton, known as "B. B." (1839–1901), the most remarkable figure of them all. He was the greatest civil and criminal lawyer of Canada, the "thirteenth juryman." Some of his cases, notably his prosecution of the murderer Burchall, attracted attention in England, and it is a pity that his speeches were not collected and published. Like his medical brother, he had a thorough understanding of his fellow men, with personal magnetism, courtesy, and accessibility. The next lawyer brother, Edward (1842–1906), was early crippled with arthritis. The fourth brother, Sir Edmund, known as "E. B." (1845–1924), early went into business and became a leading financier, a director of the Canadian Pacific Railway, and a member of the Dominion parliament. That did not prevent his being a man of learning also. It was to his generosity that W. O., not four years his junior, owed his two years of postgraduate study and ready help in other financial crises. As for hospitality, at his summer place on Lake Simcoe, not far from his childhood home, I have seen fifty-six sit down to Sunday dinner. "He has the warmest heart and the most open hand of any man I know," wrote Sir William.

A year and a half ahead of W. O. came far from identical twins. The girl, a model of all the virtues, became the mother of nine of the best-looking children in Canada, while the boy became the nearest thing in the family to a dusky sheep—there was nothing black about him. His mother blamed herself for his shortcomings, as she was unable to manage both twins, and the boy was suckled by a squaw. No wonder he became a rolling stone! Whenever possible his adoring young brother used to take the blame and the punishment for Frank's peccadilloes. He ran away (800 miles!) to sea in his teens, was shanghaied, woke up on a whaler, and was missing for two years. His adventures, which included service as a *brancardier* in the Franco-Prussian War, would have been worth recording, but he was quite inarticulate, though a cheerful soul. With a devoted wife who kept the purse-strings tight and the bottle corked, he settled on a fruit farm. Their only son, a most promising young man, was killed, like W. O.'s, in the war of 1914–18. This was a new bond between the brothers, and on lugubrious occasions, such as Christmas, W. O. was not above slipping him a banknote, with disquieting results! The last I saw of the dear old fellow was in 1928 at Lady Osler's funeral. Returning from the Cathedral, we passed the end of St. Giles Street. The Fair was on; he heard the roundabouts, stopped the car, and disappeared more like an 8-year-old than an 81-year-old. He outlived them all, dying in 1932.

In 1937 there had been in America 225 descendants of the three Cornish brothers, all creditable citizens, and among them four physicians—none of the Osler name—including the lamented W. O. Abbott (1902–43), of Philadelphia, a gifted teacher (like his great-uncle) and the co-inventor of the life-saving Miller–Abbott tube.

OSLER: SOME PERSONAL RECOLLECTIONS

BY

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My first meeting with Osler was in the winter of 1904–5, when I took the M.B. at Oxford. I had made a small contribution to anatomical literature, illustrated by my own drawings, but was altogether astonished that he had read it and noticed my draughtsmanship. He found out from me that I was interested in Natural History and that I was shortly going to Malaya. A few days after I received from him some books on the fauna of that region. Later I learned to admire Osler's wonderful power of making every young man he met feel that he was in the presence of one who was taking a personal interest in him. Though this was doubtless the result of some conscious effort on Osler's part, it was certainly an effort that he loved to make, for it was a true and natural expression of the overflowing humanity that was part of him. Universal sympathy always seemed to me the essence of his greatness. His was especially a greatness of personality, and not of intellect, or of demonstrative skill, or of observational acumen, or of learning, or of literary power, though none could deny that he had all these things in good measure. I remained in some sort of relation with him for his last fifteen years, and for part of that time saw him almost daily. I am convinced that it was this universal sympathy that gave him that characteristic power to perceive and elicit the best in any companion.

What sort of figure did he seem to younger men, and why did he impress them so deeply? I can only tell how he appeared to me. He was a small, sallow, extremely dark, quickly moving man, of a lively and often puckish humour, very emotional withal and easily moved to tears, but when he was in earnest he had a grave deep voice which I learned to love. What always struck me most about his physical appearance was his lustrous, almost womanly eyes that seemed to suggest those of the Sistine Madonna. For, despite his gaiety, Osler always appeared to me as profoundly and essentially melancholy. I do not know, and there can now be none living who does know, of any deep sorrow that came to him in his earlier years, but to me he always appears as one who has passed through some tragedy to a life of human service, one who is always whispering to himself, "Down, thou climbing sorrow." It is a great and moving memory.

My contacts with Osler were naturally mainly of a literary kind and concerned especially older books and manuscripts. He was a true book-lover, to whom the very sight and touch of an ancient document brought a deep and subtle pleasure. His humanity, which seemed to me to be his leading characteristic, was especially brought out by the way in which he was constantly discerning the same essential humanness under the most different temporal, social, and personal conditions. Much of what was often regarded as his whimsicality was really a part of this search for the

man in many diversities. If he loved his books he loved the authors of them even more. His antiquarian interests were really a search for man in his diverse guises.

Thus he was a bibliographer and biographer rather than a historian in the proper sense. The literary reference-books that were most often in his hands were, I think, after the *Dictionary of Natural Biography*, Bayle and Thillaye's excellent *Biographie Médicale* and Ferguson's *Bibliotheca Chemica*, a work that contains far more than its title suggests. All are books which tell about people rather than about things. Osler was at his literary best either when he was musing on life and its vagaries or in such bio-bibliographical pamphlets as those on Servetus, on Linacre, or on Fracastorius. It is a great pity that he did not have time to treat in this way the sixteenth-century character whom he loved most of all, Conrad Gesner, for Osler bore some resemblance to Gesner in taste, in catholicity of interest, and even in personal appearance.

MY ASSOCIATION WITH OSLER

BY

LORD HORDER, G.C.V.O., M.D., F.R.C.P.

I first met Osler in England about 1900. He asked my support for his idea of an Association of Physicians, for the formation of which he was so largely responsible. Backed by his energy and influence, it was a great success from the word "Go."

We were next associated when the B.M.A. met at Leicester in 1905. Tooth opened a discussion on meningitis; I followed with an account of the lumbar puncture findings, and Osler, as a distinguished visitor, followed me. The sequence, though a logical one, was unfortunate for me—Osler's prestige was so high that the audience would barely hear me out and showed signs of impatience. "Turnips!" whispered Osler. "Your stuff is bed rock." In the years that followed I was to enjoy this kind of encouragement again and again—the encouragement of the 20-years-older man to his young colleague. I treasure a postcard which he wrote me when I was knighted in 1918: "I am glad it has come whilst the sun is on your face," it said.

In consultation Osler was profound in his knowledge of the "case," but not very impressive to the "friends." The diagnosis made, he tired a little in laying down a plan of treatment; so that it was not always easy to explain what had determined the choice of him as a final opinion.

In his last illness Osler paid me the signal compliment of asking me to go to Oxford to confer with his doctors. He was not only a very ill man, he was a man indifferent to life, so bludgeoned had he been by the loss of his beloved son. But he preserved towards us all that winning manner, and towards himself that equanimity, which we had always associated with him.

"When he came to die, Osler was, in a very real sense, the greatest physician of our time. He was one of Nature's chosen. Good looks, distinction, blithe benignant manners, a sunbright personality, radiant with kind feeling and good will toward his fellow men, an Apollonian poise, swiftness and surety of thought and speech, every gift of the gods was his; and to these were added careful training, unsurpassed clinical ability, the widest knowledge of his subject, the deepest interest in everything human, and a serene hold upon his fellows that was as a seal set upon them."—F. H. Garrison, *An Introduction to the History of Medicine*, 1929, page 631.

GRACE REVERE, LADY OSLER

BY

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Some day someone will write a long-overdue essay on the ways in which great men in our profession, and in its allied sciences, have been aided in their achievement by the selfless devotion of their wives. Meanwhile it is supremely fitting that, in an issue commemorating Sir William Osler and his varied accomplishments, Lady Osler and her contribution should receive some special mention. For it is impossible to overrate what she did to stimulate "the great physician," to help him to make right decisions, to provide him with necessary recreation at home, to entertain their numerous friends while leaving him free for his work, and in countless other ways to be his ideal partner for twenty-seven eventful years.

"No. 13"

Mr. Arnold Muirhead, Dr. Harvey Cushing, and others have written of Grace Revere with far more intimate knowledge than I can claim, and my sole justifications for producing this account are the need already mentioned in the preceding paragraph, the present preoccupation of Mr. Muirhead with other matters, and the fact that I can perhaps be regarded as representing those many who, introduced to Lady Osler but with no special claims upon her, nevertheless received a warm welcome thenceforward at No. 13, Norham Gardens, found their hostess keenly interested in their relatively minor doings, and can look back on an inspiring friendship with a truly great lady to whom they remain for ever indebted.

As an ex-Service medical student at Oxford in 1919 I was privileged to have one short talk with Sir William. The next year an American theological student with whom I shared rooms, and who had brought with him an introduction to Lady Osler, asked if he might take me with him on his next visit to "The Open Arms" at No. 13. In consequence I became a regular caller there once or twice a term during the rest of my time in Oxford, met many of the Osler circle, and added considerably to my store of happy undergraduate memories. Oxford in those days was still a dream city, with a population only a quarter of its present figure, the surrounding country unspoiled, the Cherwell an enchanted stream, the beauty of the High as yet unsullied by the vast amount of traffic which now passes through it. At that time, too, to an extent which is now quite impossible, the friendly inhabitants of North Oxford dispensed hospitality each Sunday afternoon to undergraduates and others who called upon them, and thereby contributed greatly to the pleasure of our educative years. At Lady Osler's there were often thirty or more to tea, but each visitor was conscious of a personal welcome, and each came away stimulated and inspired by the kindness and interest which he or she had encountered.

The above is a pen-picture of the early nineteen-twenties, and for more information about the central figure in it, and particularly about the qualities which made her so ideal a wife to William Osler, we turn to the excellent biography by Mr. Muirhead.*

*Mr. Muirhead has most kindly given me permission to make such use as I will of his account.—K.J.F.

Ancestry and Early Life

Grace Revere was born in Boston on June 19, 1854, with French Huguenot ancestry on her paternal side and English on her maternal side; one of her great-grandfathers was the American patriot Paul Revere, and she displayed, as did he, "a strong will, positive opinions, and a delight in emergencies which called forth all" her "power and energies." From her parents, on the other hand, she inherited sympathy with and a desire to assist others, and these traits were *precociously developed* through the personal losses sustained by her family during the Civil War. Through her English-style schooling under Miss Foote in Boston she derived understanding of the people with whom in the future she was to have so much to do; throughout her life, too, she was an excellent letter-writer, and had an enviable memory for names. Finally, in so far as these general notes are concerned, we recall her love of flowers and her artistry in arranging them, also that she was as beautiful in her youth as she was handsome in her later years.

Her first husband, whom she married in 1876 and who was seventeen years her senior, was Dr. Samuel Weissel Gross, of Philadelphia. His father, the leading surgeon of the city, was a widower, and the young bride acted as hostess in his home as well as in her own. So she had early experience of large-scale entertaining, and from the beginning she proved herself a most efficient housekeeper. Apart from this not unimportant social side, she brought her strong will and enthusiasm to bear on her husband's professional career, and until his premature death from pneumonia in 1889 she fired him to greater efforts whenever his own ambition and spirits were flagging.

Her Marriage to Osler

William Osler, who had come from Montreal in 1884 to the Chair of Clinical Medicine in the University of Pennsylvania, had done so largely through Dr. Gross's persuasion. In 1889 he went from Philadelphia to Johns Hopkins and set to work on his great textbook; shortly after it was finished—i.e., in 1892—he married his friend's widow. They had reached an understanding earlier, but she had insisted, as she did on many subsequent occasions, that their personal inclinations should be made subservient to the greater claims of medicine, and she had brought Osler round to her point of view. Many more items could be extracted from the story of their joint life in America and in England up to the outbreak of war in 1914, but here I shall content myself with but three. The first is an example of her decisiveness, and it is given in the cable ("Don't procrastinate: accept at once") which she sent to him when he was in doubt, in 1904, if he should allow himself to be considered for the Regius Professorship at Oxford. The second shows her sense of humour, as well as the way in which she shielded Osler from non-professional chores which many husbands undertake for, or at least share with, their wives. When they were about to leave for England she had arranged all their household packing while he went off for three days with a handbag and thereafter met her at the steamer. This unequal division of labour produced the sly remark that "Willie's motto may well be *Aequanimitas*, because he always flies when things like this are going on." The third item recalls her remarkable personality, to which all who knew her pay affectionate tribute. Shortly before her husband was designated a Baronet in the Coronation Honours List she herself was presented at Court, and the girls who were presented with her said afterwards that "she looked as though she owned the Palace and was about to ask the King and Queen to spend a few days there!"

Her Courage in Bereavement

At the outbreak of war in 1914 she and her 18-year-old son, Edward Revere Osler, had just arrived in Canada on a visit to relatives and friends. They returned at once in the same boat, now painted black—Lady Osler to devote her seemingly endless energy to all kinds of war work, Revere soon to pass into the Army and eventually to die of wounds in August, 1917, in Belgium. The courage shown by his parents in carrying on after that appalling blow is a major item in their joint story, but it needs no redescription here. I will pass instead to 1919, in July of which year Osler received world-wide tribute on his seventieth birthday only to be stricken down with illness in September and to die in December. Lady Osler's feelings on this second blow can only be imagined, and she would have been tempted to leave Oxford but for two things. In the first place, she had to arrange for the completion and cataloguing of Osler's library and its transfer to Montreal; in the second, she found the tradition of No. 13 already so great that she could best help others by remaining there to receive old friends and to welcome new ones, to pass on something of Osler's spirit to those who could appreciate it, and to give to young people some of the love which Revere had not returned to enjoy.

How well she did all these things during the next eight years is well known; how valiant an effort it must have been for her to do them in her double bereavement can only be guessed. The main tasks, at all events, had been accomplished by the time that she herself died, at No. 13 and in the presence of her sister and of Dr. John Fulton, on Aug. 31, 1928. She remains in our grateful memories as "one who has loved and worked for the profession and the sweet influences of whose home have been felt by successive generations of students."

Under the Transfer of Functions (Food and Drugs) (Scotland) Order, 1949, certain functions exercised by the Secretary of State for Scotland will be taken over by or shared with the Minister of Food. The local authorities' duties of enforcement are not affected. The Ministry of Food will be responsible for those sections of the Food and Drugs (Adulteration) Act, 1928, which imposed restrictions on the mixing of colouring and other ingredients with foods and prohibit the sale of food not of the nature, substance, or quality demanded. The Ministry will also take over the Central Department's responsibilities under the Food and Drugs Acts relating to margarine, margarine-cheese, milk-blended butter, condensed milk, and dried milk. The Secretary of State will exercise jointly with the Minister of Food the general power to make regulations concerning the composition of food and the conditions under which it is imported, prepared, transported, or sold. The Secretary of State will be concerned mainly with hygiene and the Minister of Food with labelling and composition, but the Secretary of State will remain the central authority for the purposes of the Milk and Dairies Acts and the inspection of slaughter-houses and of meat derived from home-fed animals. The two Ministers will exercise jointly the power to make regulations governing the qualifications of public analysts. The Department of Health for Scotland will continue to supervise and give guidance to local authorities on these matters. The Secretary of State, acting through the Department of Health, will continue to be the central authority in respect of drugs coming within the scope of the Food and Drugs Acts and as regards the protection of the public from infected food.

TREATMENT OF 160 CASES OF ERYTHROBLASTOSIS FOETALIS WITH REPLACEMENT TRANSFUSION*

BY

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AND

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The discovery that Rh antagonism is a cause of erythroblastosis foetalis has revolutionized the treatment of this disease. Many authors consider early induction of labour to be a method of some importance in protecting the infant as much as possible against the attack of Rh antibodies, which pass the placenta mainly towards the end of pregnancy; when caesarean section is applied to prevent their penetration during labour. However, from several points of view this measure is open to discussion. Transfusions with washed Rh-negative cells or with Rh-negative whole blood have been widely applied with success. Maternal milk is often withheld because of the possibility of Rh antibodies being harmful in the first days of life through permeability of the intestinal tract. The application of vitamin K as a protection against haemorrhagic diathesis is still in use.

Owing to the studies of Wiener *et al.* (1947), Wallerstein (1947), Diamond (1947), and other workers a new method of treatment has been introduced. The principle of this method consists in replacing the Rh-positive infant's blood by Rh-negative blood of the homologous ABO group in order to eliminate the Rh-positive red cells, which will be rapidly haemolysed. At the same time Rh antibodies in the infant's circulation are washed out.

Although the different authors base their method of treatment on the same principle, the technique can be applied in various ways.

Wallerstein's method consists of infusion of blood into one of the greater veins, the blood being withdrawn with syringes out of the sinus sagittalis longitudinalis.

Wiener uses the saphenous vein for infusion of the blood and the radial artery for bleeding. It is very important to balance the rates of inflow and egress in order to prevent plethora by too rapid a transfusion, and to prevent shock from too rapid withdrawal of blood. In order to prevent clotting of blood the child is heparinized (Wiener and Wexler, 1946). Wiener, Wexler, and Shulman (1948) succeeded very well even with massive transfusions of 1,000 ml.

Diamond's method consists in introducing a plastic catheter into the umbilical vein. The exchange (or replacement) transfusion is performed by repeatedly replacing small quantities (20 ml.) of the infant's blood by citrated fresh donor's blood. He uses a closed system with the aid of three-way valves between catheter, syringe, and blood-transfusion ampoule.

In Holland exchange transfusion was started in January, 1947, as soon as the necessary information was obtained from Diamond and Wiener (van Loghem, 1948; van Loghem *et al.*, 1948). Exchange transfusion has been performed in 160 cases in two years by 43 physicians.* Nearly all the serological examinations were carried out in the Blood Grouping Department of the Central Laboratory of the Netherlands Red Cross.

Under the direction of the Working Committee for Rh Investigation courses of instruction were given; these greatly helped in acquainting physicians with simple methods of serological Rh-investigation and with the technique of exchange transfusion.

Diamond's method is very easy to perform, and was done even 40 hours after birth. Wiener's more complicated method does not offer any special advantage, except when the umbilical vein is obliterated, and even then it may be possible to use Diamond's method in one of the greater veins (vena femoralis). In only a few transfusions have we used Wiener's system.

Recently another method has been described which offers the possibility of performing the exchange transfusion through the umbilical vein a few days after birth, when the passage of the umbilical cord is obstructed. Pinkus (1948) described a new approach to the umbilical vein above the insertion of the umbilical cord.

Method of Treatment

Through lack of the plastic catheters recommended by Diamond one of us (Soeters, 1947) tried a rubber nelaton catheter which has now come into general use (No. 6—inner diameter 1 mm., outer diameter 2.6 mm. No. 8—inner diameter 1.5 mm., outer diameter 3.1 mm.—is also very useful). These catheters are very easy to insert into the umbilical vein. They are slightly modified—the end of the catheters being opened to facilitate the inflow of blood, or even cut off and well polished. One advantage they have over plastic catheters is that they are easy to sterilize by boiling and are very elastic. Furthermore, the end not being sharp, there is no danger of damaging the venous wall. A small glass tube is inserted between the rubber catheter and the adapter in order to control the inflow of blood and to prevent the inlet of bubbles of air. During the exchange of syringes the catheter is carefully closed by arterial forceps. One should be very careful in using the syringes. After every withdrawal and injection of blood they should be thoroughly washed in saline with heparin, and afterwards in pure saline. We use syringes of 20 ml. An assistant fills the syringes while the physician injects and withdraws the blood.

Heparinized blood is mostly employed for the exchange transfusion. "Heparine vitrum" (Brocades and Stheemann, Amsterdam), 20 mg. in 10 ml. of saline, is mixed with 500 ml. of donor blood of the homologous blood group. Heparinized blood should be administered within a few hours after taking, because heparin is apt to denaturate rather quickly. In general the infant is not heparinized. During the exchange transfusion the catheter is washed a few times with 1 or 2 ml. of a weak solution of heparin (2 mg. of heparin per ml.) in order to prevent clotting in the catheter. In our experience this is quite sufficient, although some prefer to heparinize the child by the injection of 10 mg. of heparin into the umbilical vein or intramuscularly before beginning the exchange transfusion.

If citrated blood is used, 90 ml. of 3.3% disodium citrate and 15% glucose is sufficient for 500 ml. of blood. Mollison

*Report of the Dutch Foundation for Blood Group Research.

*We are greatly indebted to all the physicians who have provided us with detailed clinical data of their exsanguinated babies and the necessary information about the histories of the pregnancies.

and Cutbush (1948) use the same quantity, 2.5 g. of disodium citrate and 3 g. of glucose, but dissolved in 50 ml. of distilled water, which has the advantage of preventing dilution of the blood so far as is possible. To increase the haemoglobin content of red cells of the donor blood Mollison eliminates about 50–100 ml. of the supernatant plasma citrate. By using citrated blood there is some risk of causing tetany by hypocalcaemia. About 5 ml. of a 10% solution of calcium gluconate is equivalent to the prescribed quantity of disodium citrate. To prevent tetany small quantities of calcium gluconate solution may be injected intravenously (about 1 ml. after every 100 ml. of citrated blood). It is also possible to administer calcium gluconate through the catheter, but previously the catheter should be washed carefully with saline in order to prevent clotting due to the presence of citrated blood.

As nearly all mothers of erythroblastotic children were submitted to an antenatal examination and were admitted to the hospital before delivery, it was possible to perform the exchange transfusion in nearly all cases immediately after birth, which has the advantage that the procedure goes very smoothly because of the free passage through the umbilical vein. It is also important from a therapeutic point of view to remove the Rh-positive blood and the Rh antibodies as soon as possible.

The infant is placed on an operation table in a well-heated room and held by a nurse. After disinfecting the abdominal skin with iodine the child is covered with sterile blankets and kept warm with electric cushions. Through the window (2 by 12 cm.) in the blanket the umbilical cord is brought outside. The operator, assistant, and nurse should take all the aseptic precautions necessary for an ordinary operation.

Before inserting the catheter the umbilical cord is cut off at a distance of about 1 or 2 cm. The cord is kept open with two forceps by an assistant, and the catheter is inserted into the great umbilical vein (6–8 cm.).

A stricture caused by fibrous tissue in the linea alba may obstruct the introduction of the catheter. It is always possible to pass this stricture—if necessary by dilatation by means of a sound. In any case it is advisable to cut off the cord very close to the skin to avoid unnecessary difficulty.

One of us (J.M.S.) studied the venous system of the newborn by means of *x*-ray photographs of cadavers after filling the venous system with thorotrast. In this way the catheter's route could be followed. It is possible to insert

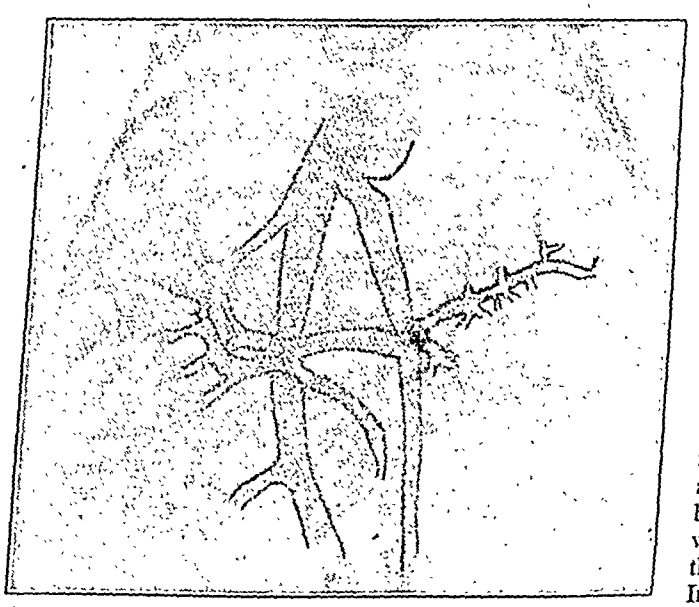


FIG. 1

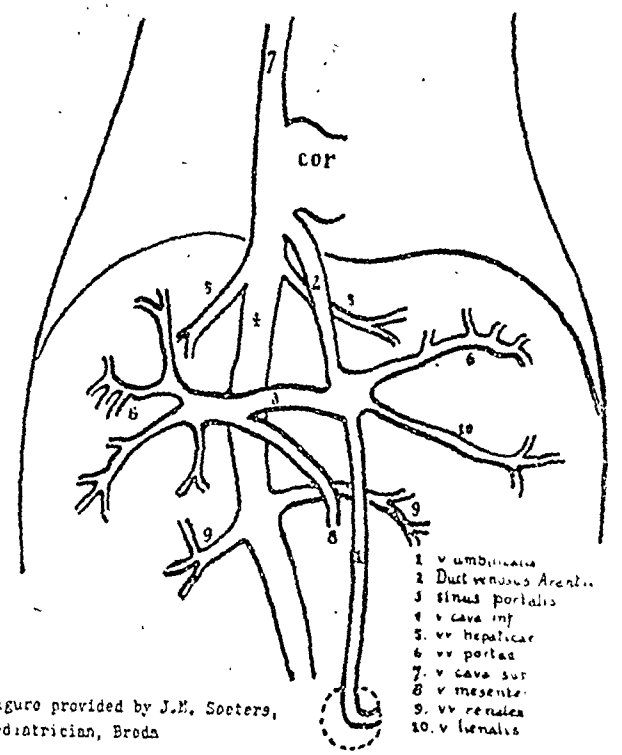


Figure provided by J.E. Soeters, pediatrician, Breda

FIG. 2

the catheter up to the vena *jugularis*. It passes umbilicalis, sinus portalis, ductus venosus Arant cava inferior, vena cava superior, and the vena (see Figs. 1 and 2). Sometimes it is difficult to h catheter into the ductus venosus *Arantii* because stricture of the distal part of the duct, when the is apt to turn off to the left or right side into the of the portal vein. When the catheter has been to a length of about 12–14 cm. it has reached th cava inferior. A stoppage at about 11 cm. that the catheter has entered the left or righ branches.

The withdrawal of blood from the vena cav proceeds very smoothly; in the sinus portalis it difficult. Most of us have found that it is not nec to insert the catheter up to 14 cm., but that the wi al and injection of blood is very easy to perfor after inserting the catheter into the umbilical vein for

The catheter is filled with saline and closed with terial forceps. When the catheter has reached its rig place a syringe filled with saline is fitted on to the catheter. The arterial forceps is now removed and a small amount of saline is injected very carefully. When this can be done smoothly, an attempt is made to withdraw the baby's blood. Sometimes it takes a few moments to find the right place in the umbilical vein for the injection and withdrawal of blood.

The quantities of aspirated and injected blood are carefully measured in order to prevent overdosage. In cases of severe anaemia a supplementary injection of blood (maximum 50 ml.) is given. The quantity needed for the replacement depends on the infant's blood volume. The amount of circulating blood is about one-tenth of the birth weight. In general an exchange transfusion is done with about one and a half times the blood volume. In this way at least 70–80% of the infant's blood is replaced. In nearly all cases of exchange transfusion the percentages of replaced blood were controlled by one of us (J.J.v.L.)

Methods Used

(*a*) The best method for calculating the percentages of replaced blood is that of Ashby, modified by Mollison (1947). To 1 ml. of a red-cell suspension in saline an equal amount of a very powerful anti-Rh (anti-D) agglutinating serum is added. After an incubation period of one hour the tubes are centrifuged for one minute; the tube is then gently shaken and stood for a few seconds to allow sedimentation of the large clumps to start, and a drop of fluid from the column is examined for the content of non-agglutinating cells. By means of a control of the same red-cell suspension with an equal amount of saline instead of anti-Rh serum the percentages of Rh-positive and Rh-negative cells are calculated. Before this examination the infant's red cells have to be eluted thoroughly, as they are coated with incomplete antibodies, which sometimes prevent strong agglutination. The non-agglutinating cells in both tubes are counted in a counting chamber. In the control tube there are no agglutinating cells; in the other one there are a number, depending on the presence of Rh-negative cells, as nearly all the Rh-positive cells are clumped by the anti-Rh serum.

(*b*) It is also possible to obtain a rather rough impression of the replacement of blood by determining the titres of iso-agglutinins α and/or β. This is done in the following way.

The titres of α and β agglutinins in the donor's blood are carefully determined. In the blood of newborn infants these iso-agglutinins are usually absent or very weak. By comparing the increasing titres of the above-mentioned iso-agglutinins in the succeeding fractions during and after the exchange transfusion with the titre of iso-agglutinins in the blood of the donor it is possible to find how much of the baby's blood is replaced by that of the donor. If the exchange transfusion has been done correctly and about one and a half volumes of the baby's blood used for the exchange transfusion, the titre of the last fraction of the baby's blood will generally be a little lower than the titre of the donor's blood.

The Rh factor and Coombs's test are controlled during the replacement and are found to become negative.

The percentage of replaced blood (method of Mollison) corresponds well with the mathematical formula given by Wiener, Wexler, and Shulman (1948). When the exchange transfusion has been completed 20,000 units of penicillin are injected and the catheter is withdrawn. The umbilical vein is ligated and the cord sutured with catgut.

Indications for Exchange Transfusion

The following factors are considered to be indications for this therapy.

It is very important to have the previous history of affected children. The death of previous children *in utero* during the last months of pregnancy certainly calls for early induction of labour, but not before the eighth month of pregnancy, because prematurity adversely influences the clinical course. Clinical manifestations, such as anaemia, jaundice, and oedema, are of great help in arriving at a decision. In the same way oedema of the umbilical cord and hydropic placenta are also important. A pale placenta weighing more than one-sixth of the birthweight must be regarded as a significant sign.

Sometimes it is very difficult to know whether an exchange transfusion is necessary. Serological investigations are often of great help (high titre of Rh antibodies of the incomplete form, homozygous genotype of the father). Occasionally there is a definite increase in the titre of Rh antibodies during pregnancy, but there may even be a fall in titre during the end of pregnancy. In general the control of the titre of Rh antibodies does not in itself give sufficient indication for exchange transfusion.

Sometimes the condition of the newborn may show a rather sudden and unfavourable change, so that even when the children seem to be in good condition it is necessary to apply exchange transfusion if the history of previous children is bad and the Rh factor and direct Coombs's test are positive.

Haematological examinations are of great value, especially when the infant shows no clinical symptoms shortly after birth. The findings may include hyperchromic anaemia, mild or strong leucocytosis with immature forms, erythroblastaemia, and hyperbilirubinaemia.

Mollison and Cutbush (1948) report that haemolytic disease was very mild in all infants whose cord-blood haemoglobin was above 15 g. per 100 ml. and cord-bilirubin concentration below 3 mg. per 100 ml., and that a stormy or fatal course would be likely in infants whose cord blood showed anaemia or a bilirubin value of over 4 mg. per 100 ml.

We observed a few cases in which the blood showed little abnormality shortly after birth and the bilirubin content was not increased in the cord blood, but kernicterus developed a few days after birth and the children died. We are inclined to believe that, apart from the haematological investigations, the other facts are of considerable importance.

The cord blood is used directly after birth for the necessary investigations preceding the exchange transfusion (direct Coombs's test, blood-group determination ABO and Rh, blood counts, blood smear, and bilirubin content).

The results of exchange transfusion are very favourable in cases of severe jaundice with anaemia, but it is difficult to decide whether it reduces the frequency of kernicterus.

The clinical symptoms gave the impression that haemolytic disease of the newborn is not merely restricted to the action of Rh antibodies on the red cells, but that liver, placenta, and other tissues also contain Rh antigen. The first investigations to establish the presence of Rh antigens in different tissues were done by Boorman and Dodd (1943). One of us has made a detailed study of this subject (van Bolhuis, 1948). The placenta of Rh-positive infants suffering from haemolytic disease of the newborn caused by Rh incompatibility nearly always had an inhibiting effect on Rh agglutinins. This influence was demonstrated in 27 out of 31 placentas.

Diseased parts of other organs, especially the basal ganglia of the brain in cases of kernicterus and the diseased liver in cases of icterus gravis, also have an inhibiting effect on Rh antibodies. On the other hand, suspensions of apparently normal organs do not absorb Rh agglutinins in any great quantity. It seems reasonable, therefore, to accept the view that kernicterus is due to the direct action of Rh antibodies on the brain, especially the basal ganglia, and that damage to the liver may be the result of Rh antibodies reacting with Rh antigen present in liver tissue.

Not until the diagnosis was firmly established on clinical and serological findings and the indication was clear was exchange transfusion performed.

Cerebral haemorrhage and congenital heart disease are, of course, contraindications to exchange transfusion.

Most cases were caused by D–d antagonism (replacement with cde/cde blood), one by C^W–C (cde/cde blood), one by c–C (replacement with CDe/CDe blood), one by B–O, and two by A–O antagonism.

Results of Exchange Transfusion

From Jan. 1, 1947, to Jan. 1, 1949, 160 newborn babies were treated with exchange transfusion*: 36 of them died—

*It is impossible to mention in detail here all the clinical and serological results of this material.

i.e., a mortality rate of 22.5%. The following were the causes of death.

Technical Failures.—Air embolism:—In one case the catheter was not closed during the exchange of syringes and caused aspiration of air. *Blood of the wrong group*:—Four children were treated with Rh-positive blood; two of them died shortly after the transfusion. It may be that Rh-positive blood was the cause of death, although the two other children had a normal clinical course. One case of A–O antagonism was treated with A rr blood: this child also died shortly after the operation. *Infection*:—One child died from sepsis. An abscess was found in the ductus Arantii. There were thrombosis of the portal vessels and multiple lung abscesses.

Possible Influence of Heparin.—In five children death was caused by: adrenal bleeding, 1; cerebral bleeding, 2; lung and cerebral bleeding, and bleeding in other visceral tissues, 1; and bleeding in all visceral tissues plus kernicterus, 1. It is not quite certain that heparin was the cause of death, but it may have had an influence on the haemorrhagic diathesis. Jorpes *et al.* (1939) proved that protamine sulphate synthesized in a special way is a harmless antidote against heparin. It is probable that it will be the medicament of the future to inactivate the action of this anticoagulant.

Treatment too Late.—One child was treated on the fifth day after birth. It already showed symptoms of kernicterus.

Treatment of Too-Premature Children.—Once exchange transfusion was applied to a baby 7½ months old. It is well known that prematurity has a bad influence on the diseased child.

Very Severe Cases of Haemolytic Disease of the Newborn.—Four exchange transfusions were applied to infants with hydrops foetalis, three of whom died. The child which survived was a milder case, with only oedema of the umbilical cord, hands, and feet, though it also had hepatosplenomegaly and a severe haemolytic anaemia (1,200,000 erythrocytes).

In the following cases there was nothing to suggest any relation to technical failures or other faults:

Eight children died with symptoms of kernicterus. One child died with cerebral symptoms (? kernicterus). Four children died from secondary infections about three to four weeks after birth—otitis plus gastritis, 1; [illegible] 2; scarlet fever or streptococcal sepsis, 1. S[illegible] shortly after birth without the cause of death being known. One child died from rupture of spleen (the preceding child also died from spleen rupture, although untreated). In 36 children the treatment was unsuccessful.

In order to arrive at the results of the therapy it seems reasonable to exclude the following cases in determining the mortality rate:

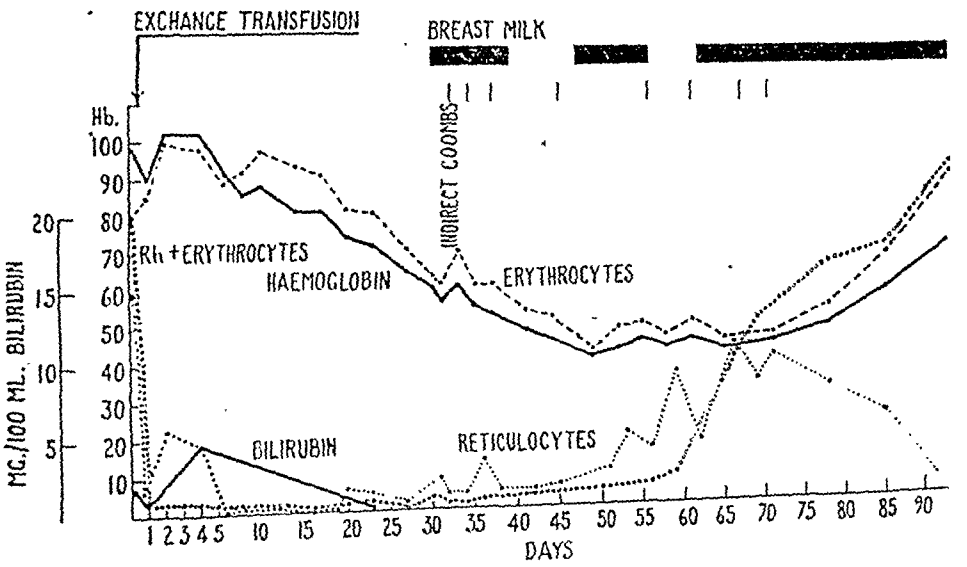
One case of air embolism; one case treated five days after birth, when symptoms of kernicterus were manifest; one case of sepsis; four cases of secondary infection, death occurring three weeks after birth; one case of spleen rupture.

By excluding these cases the mortality rate is reduced from 22.5 to 17.5%.

It is difficult to determine in what way the other above mentioned factors such as heparin, Rh-positive blood, and symptoms of hydrops foetalis have had a direct influence on the lethal course.

We have received information concerning the subsequent clinical course of 135 patients treated with exchange transfusion. In five cases there were sequelae of brain damage. In a great number of cases a hypochromic anaemia occurred up to three to nine weeks after birth, in one case even combined with a fresh attack of jaundice. In a few cases it was necessary to give supplementary transfusions with Rh-negative blood.

One of us (G.M.H.V.) made a detailed haematological study of his exsanguinated babies. Haemoglobin content and erythrocytes decreased in nearly all infants. In a few of them who could be followed up for a period of three months a severe anaemia with a haemoglobin content of 6.4–8 g.% (40–50%) developed in three to nine weeks. In most cases the red cell count and haemoglobin content increased spontaneously. The following facts were noticed, as shown in the accompanying Chart.



The decline in haemoglobin content and number of erythrocytes correlates with the physiological decay of the transfused Rh-negative erythrocytes. After three months these cells have nearly all vanished, and the infant's own Rh-positive erythrocytes have replaced them. It is remarkable that the bone marrow does not deliver Rh-positive cells sooner, for the total number of red cells is decreased gradually. The nucleated red cells disappear in a couple of days. The bilirubin content increases in general after the exchange transfusion. Although the liver-cell damage and the obstruction of the bile ducts will in most cases contribute to the jaundice after exchange transfusion, the increase of bilirubin may be caused by the total destruction of the remaining 20% Rh-positive erythrocytes.

In order to determine whether the mortality rate of icterus gravis was reduced significantly by this therapy we compared in the same families the percentage mortality of icterus gravis cases not treated with exchange transfusion with that of the newborn infants who were treated.

In examining the obstetrical histories of 88 families, out of the same group of 160, with 465 pregnancies we found the results given in the following Table. It will be seen that the mortality rate of icterus gravis is 73.7%, and including mild cases 63.5%. After treatment with exchange transfusion it decreased to 22.5%.

Before exchange transfusion came into practice the death rate had already decreased by application of partus arte praematurus, plasma transfusions, and Rh-negative whole blood or packed red cells (Parsons, 1947).

It is impossible for us to compare the mortality rate of icterus gravis treated by simple blood transfusions with

Table showing Comparison between Newborn Infants Treated with Exchange Transfusion and Cases of Icterus Gravis not so Treated

No. of Families	No. of Pregnancies	Normal Children	Mild Cases of E.F. (Haemol. Anaemia and Mild Jaundice)	Icterus Gravis		Stillbirth (5th to 9th Month)	Abortion
				Alive	Died		
88	465	192 (41%)	25 (5·3%)	41	115	57 (12·2%)	38 (8·1%)
				156 (33·5%)			

Mortality rate of icterus gravis, 73·7%.
Mortality rate of icterus gravis, mild cases included, 63·5%.
Mortality rate of 160 cases of icterus gravis treated with exchange transfusion 22·5%.

that of cases treated by exchange transfusion, for we have not sufficient personal experience of the latter.

It is beyond doubt that the prognosis in icterus gravis of the newborn has improved considerably owing to the treatment with exchange transfusion, whether preceded or not by partus arte praematurus.

Summary

After a short introduction the method of exchange transfusion applied to 160 newborn infants suffering from haemolytic disease is described.

The indications for the application of exchange transfusion are discussed.

The mortality rate of 160 babies treated by this method was 22.5%.

In order to determine whether the mortality of icterus gravis was reduced by this therapy, the results of treatment with exchange transfusion were compared with those in icterus gravis of children not so treated. Although we have no data on the results of treatment with simple transfusion of Rh-negative blood, the difference (63.5 to 22.5%) seems to indicate that the prognosis of the newborn suffering from icterus gravis has improved considerably by the application of exchange transfusion.

We wish to express our gratitude to Dr. R. R. Race for all his kind help and much useful advice.

We are greatly indebted to Miss M. v. d. Hart and Miss A. Paulussen for their skilful help in serological investigations and statistical analysis.

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The Minister of Health intends to dispose of all hospital land and premises other than those which are being used or are likely to be needed for the hospital service. Hospital management committees have been asked to consider what property is suitable for disposal. The Minister will agree to the retention of endowed property only where there is a clear need for it—for example, when in the hospital board's opinion it should be reserved for future development. If the development and disposal of hospital property near a hospital is likely to injure the amenities of the hospital, the Ministry's attention should be drawn to the risk, so that it can consider including restrictive covenants in the conveyance of the property. In some cases boards may wish to make a case for the retention of such property.

A CASE OF ANAMNESTIC REACTION WITH Rh AGGLUTININS

BY

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Since the recognition of the importance of Rh agglutinins in relation to pregnancy and haemolytic disease of the newborn the interpretation of the serological findings has become a rather complex problem. The discovery of Rh agglutinins during the antenatal period does not necessarily foreshadow damage to the foetus, as it may represent a "carry-over" from the previous pregnancy. Of much greater significance is the demonstration of a rising titre, which is generally accepted as evidence of specific antigenic stimulation by the Rhesus-incompatible cells from the foetus. The importance of this assumption hardly needs to be emphasized, since on it may depend the decision to induce premature labour.

The following case is recorded because of its rarity and to draw attention to a possible alternative interpretation of the serological findings in pregnancy.

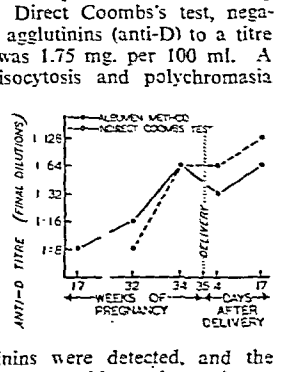
Case Report

The patient, a woman aged 34, had been married twice. By the first marriage she had a normal male child. Eight years later, in December, 1945, she was delivered of a normal male infant (by the second marriage). In December, 1947, she gave birth to a male child which was normal at birth but became jaundiced on the second day and died on the sixth day, deeply jaundiced and exhibiting kernicterus.

At this time the mother was found to be Rh-negative and her husband was thought to be homozygous positive. The infant was found to be R_2r (cDE/cde). The mother's serum contained albumin agglutinins to a serum dilution of 1:16.

In 1948 she became pregnant again and attended the antenatal clinic of this hospital. At the 17th week of pregnancy her serum was found to contain albumin agglutinins (anti-D) to a titre of 1:8. Examination of the patient's cells showed her to be group A_1,N,rr. At the 32nd week the titre was estimated to be 1:16, and two weeks later it had risen to 1:64. Taking into account the past history and the rising titre of antibodies, it was decided to induce labour in the 35th week. A normal female infant was subsequently delivered and has since made good and uneventful progress.

Examination of the cord blood yielded the following information: Group A_1,MN,rr. Direct Coombs's test, negative. Serum contained albumin agglutinins (anti-D) to a titre of 1:32. The serum bilirubin was 1.75 mg. per 100 ml. A blood film showed marked anisocytosis and polychromasia and a number of nucleated red cells (late forms)—approximately 9 per 100 white cells. A haemoglobin estimation performed on capillary blood was 18.9 g. per 100 ml. The picture was consistent with the degree of prematurity.



Examination of the mother's serum four and 17 days after delivery gave titres of 1 : 32 and 1 : 64 respectively—in albumin (see Chart). No saline agglutinins were detected, and the indirect Coombs's test gave fairly comparable results as shown. No anti-M could be detected in the mother's serum. Examination of the father's blood showed him to be group A_1, R_2r.

Discussion

The delivery of a D-negative infant came as a surprise in the face of the alleged genotype of the father, but, this

having been satisfactorily explained, interest was focused on the rising anti-D titre. After repetition of the tests it was concluded that the rise was more than could be accounted for by technical error.

This would therefore appear to be an example of an anamnestic reaction. While others have apparently observed the phenomenon in connexion with Rh agglutinins, only one case has been recorded so far (Davidsohn, 1948). The latter described the case of a woman who had an affected child by a homozygous husband and three years later became pregnant by a D-negative artificial insemination donor. A normal D-negative child was subsequently born, but a marked rise in agglutinins was observed about the sixth month of pregnancy. In the bacteriological field, in which anamnestic reactions have previously been studied, attempts to reproduce the phenomenon experimentally have not given consistent results. However, it has been pointed out (Topley and Wilson, 1936) that where an appreciable rise did occur in response to the introduction of a second antigen, the latter bore some relation to the primary antigen.

Our knowledge of the chemistry of the blood-group antigens has been considerably increased in respect of the ABO system (Morgan, 1947), but is very much more scanty so far as the other antigens are concerned. However, one might reasonably look in this direction for a source of antigenic stimulation in anamnestic reactions, since they apparently occur amongst the ABO substances (Davidsohn, 1948).

In Davidsohn's case there was no ABO incompatibility between the mother and infant, and the MN grouping of the mother was not known. In the present case the only foreign antigen is the M derived from the MN cells of the infant. This is known to be a weak antigen in man, and anti-M has been detected in human serum (Paterson, Race, and Taylor, 1942). Whether M has anything in common with the Rh antigens is a matter for speculation, but the failure to detect anti-M in the mother's serum would seem to rule out any possibility of M being responsible for the rise in anti-D titre in this case.

The problem remains, therefore, in both its clinical and its more academic aspects. From a practical point of view a rising anti-D titre will result in one of three possibilities: (1) an affected D-positive infant, (2) an unaffected D-positive infant, or (3) an unaffected D-negative infant (anamnestic reaction). In coming to a decision the obstetrician will undoubtedly set against induction the second and third possibilities. There are grounds for hoping that in the not too distant future an explanation of why a positive infant may escape can be turned to practical advantage, and in order that the third possibility may be put into its proper perspective it is obviously relevant to know how often an anamnestic reaction may occur.

I am indebted to Dr. A. E. Mourant, of the Lister Institute, for his advice and help in genotyping and MN grouping; to Dr. J. Murray, of Queen Charlotte's Hospital, for kindly supplying details of previous investigations; to Mr. G. F. Gibberd and Dr. F. A. Knott for permission to publish this case; and to various members of the laboratory staff for their assistance.

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CARCINOMA OF THE BREAST IN CASTRATED WOMEN

BY

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Although it well known that carcinoma of the breast m occur after the natural menopause, and although it is a established that women of 60 and 70 may suffer from ac carcinomatous mastitis, carcinoma of the breast occurr after castration, performed either by irradiation or by s gery, is a less familiar condition. At a time when castration is being suggested by many workers as a sound adjuvant in the treatment of cancer it is useful to recall the following facts.

Anatomical and Clinical Data

1. *Frequency.*—In 2,000 cases of carcinoma of the breast I have found 32 (1.6%) occurring in castrated women (statistics from the Centre Anticancéreux, Lyons). This figure is higher than that of carcinoma occurring during pregnancy (21, or 1.05%) or in men (16, or 0.8%).

Summary of Results

Case No.	Castration			Age at Onset of Carcinoma	Age at Death	Remarks
	Reason	Means	Age			
1	Fibroids	X rays	28	43	49	
2	"	Surgery	32	35	36	
3	"	X rays	32	53	54	
4	Miscellaneous	Surgery	36	37	43	
5	Fibroids	"	37	41	42	
6	Miscellaneous	"	37	51	56	
7	Fibroids	X rays	38	45	57	
8	"	Surgery	39	46	47	
9	"	"	40	63		Alive aged 85. No recurrence
10	Miscellaneous	"	40	64		Alive aged 67. No recurrence
11	"	"	41	58	62	
12	C. reinoma of cervix	"	42	49	52	
13	Double pyosalpinx	"	42	50	51	
14	Fibroids	"	42	55	58	
15	"	"	42	62		Alive aged 80. No recurrence
16	"	"	43	44		Alive aged 65. No recurrence
17	"	Radium	43	53	57	
18	Ovarian tumour	Surgery	43	57		Alive aged 62. Recurrence
19	Fibroids	"	44	64	66	
20	Metropathia	X rays	45	47	57	
21	Fibroids	Surgery	45	51		Alive aged 55. Recurrence
22	"	"	46	60	63	
23	"	"	46	63	73	
24	Miscellaneous	"	48	66	69	
25	Metropathia	Radium	50	51		Not followed up
26	Miscellaneous	Surgery	52	59	60	
27	Fibroids	"	55	64	67	
28	Prolapse	"	60	61	65	
29	Fibroids	"	63	64		Alive aged 85. No recurrence
30	Miscellaneous	"	67	85	87	
31	"	"	70	75	77	
32	Carinoma of cervix	Radium	71	74	75	

2. *Age of Onset.*—The Table shows the age at castration and the age at onset of carcinoma, the limits of which are 35 to 85 years. There are seven cases between 50 and 55 years and nine between 60 and 65. These are the same as the highest figures for carcinoma of the breast in non-castrated subjects, but with a particular predilection for the 55 to 65 age group.

3. *Interval Between Castration and the Onset of Carcinoma.*—This ranged from two months to 24 years. In nine cases only was it less than five years, and it must be admitted that the cancer might have already been established at the time of castration. In 23 cases the interval was over five years.

4. *Means of Castration.*—These are shown in the Table. In seven cases castration was performed by irradiation (three by radium and four by *x* rays) and was followed by amenorrhoea when done before the menopause.

5. *Indications for Castration.*—In 19 cases castration was performed for fibroids or metropathia haemorrhagica. In 16 of these cases the procedure was carried out before the age of 48. There was one case of bilateral pyosalpinx (age 42), one case of prolapse (age 60—vaginal hysterectomy performed), two cases of carcinoma of the cervix, and one case of recurrent tumour of the ovary that was operated upon when the patient was aged 32 and 43. (This appeared as a solid tumour, the exact nature of which it was impossible to determine.) Eight cases were castrated for miscellaneous reasons.

6. *Influence of Age at Castration on the Interval before the Appearance of Carcinoma.*—It is impossible to correlate the age at castration with the interval before the onset of carcinoma. One can only observe that when castration is performed after the age of 50 the interval is often short (four cases out of eight). In 16 cases in which castration was performed during the menopause, between 40 and 50 years of age, the interval was usually long. In only two cases was it less than five years, and these two patients survived longer than five years.

7. *Types of Carcinoma.*—When first examined the patients presented carcinomas that could be classified as follows: grade 1, 9 cases; grade 2, 11 cases; grades 3 and 4, 9 cases; not precisely classified, 3 cases. Among the nine advanced types five had developed in less than six months. Only one had developed over a period of 10 years, after the age of 45; this patient had undergone castration by *x* rays at 38. No comment need be made concerning the morphological type or histological picture of these carcinomas. Only one was of the endocrine type.

8. *Mode of Development of Carcinomas.*—These carcinomas appeared to be particularly malignant. Of 32 patients one was not followed up, one survived for two years, two survived three years and now show evidence of recurrence, and four survived up to 10 years. Of the 24 patients who died of carcinoma, five survived five years after treatment. These were five women castrated at an early age (28 to 46). One (Case 1) had been operated upon two years after the appearance of the tumour. The condition recurred in the sixth to the ninth year after treatment, in the form of metastases in the lungs or widespread metastases in the vertebrae. On the other hand, seven patients out of 24 died in less than a year. Among these there were two with grade 1 carcinomas; both were castrated at the age of 32 and developed carcinoma at 35 and 53. The other five patients had grade 4 carcinoma which developed in less than six months and permitted only palliative treatment.

9. *Remarks on Case Histories.*—The effect of treatment must be taken into account in deciding the length of time during which the carcinomas developed. Apart from one case which was treated by a combination of surgery and irradiation, all the others (i.e., 23) that were suitable for radical treatment underwent Halsted's operation (with the exception of one patient with grade 1 carcinoma treated by local mastectomy). Four patients survived up to 10 years without recurrences among these 23 cases, giving one of the worst statistical results in surgery.

Some cases seem to merit special mention: (*a*) in two definite cases (carcinoma of the cervix) and in one probable case (recurrent tumour of the ovary) castration was indicated for malignant tumour of the genital tract; (*b*) in 19 cases out of 32 castration was performed for a fibroid or for hyperplasia of the uterus; (*c*) nine post-menopausal cases were retained in the series because many pathologists consider that even in these circumstances castration still has a favourable action. No conclusion can be drawn from my own observations.

In some cases there are circumstances that I consider to be especially unfavourable: one case had previously undergone a biopsy and had been treated with small doses of testosterone; after castration two cases developed goitres, one of which was toxic (these were removed); and in one case the woman's mental condition (neurasthenia) might have been responsible for the rapid development of the growth.

Comment

The study of these 32 cases demonstrates the relative rarity of carcinoma of the breast in castrated women. The figure arrived at (1.6%) agrees with the figure of 1.5% that Herrell (1937) has established. He included benign growths in his series, and showed that in a significant number of patients dying of non-cancerous conditions the frequency of antecedent castration was 15.4%. However, although rare in castrated women, cancer does occur. Interpretation of a limited number of results is always hazardous, and these observations are mainly set down for the purpose of recording the facts. It is, however, obvious that in this series the age of onset of carcinoma is relatively late, and that the number of patients above the age of 60 is significantly high. It is particularly interesting to note that when castration was performed between the age of 40 and 50—at the age when the amount of circulating folliculin is considered significant—carcinoma of the breast appeared in general late (in one case the interval reached 23 years), and in all cases the development of the carcinoma was rather slow, even in cases of early onset.

The large number of cases of highly malignant carcinoma, in young as well as old women, is surprising. It is on this point possible to invoke not only the earlier experimental work of Cori and Murray, referred to by all surgeons and radiotherapists supporting the principle of castration, but also the more precise results obtained by other workers. The liberation of the growth hormone of the pituitary after castration has been demonstrated by Sauerbruch and Knake (1937). The favourable action of the gonadotrophic hormone on the growth of tumours of an ovary, the follicular secretion of which has been neutralized by splenic implantation, has been demonstrated by Penchar and Biskind (1947). One should perhaps attribute to an action of this sort the rapid growth and early onset of mammary tumours after castration and the unfavourable influence of treatment of a goitre in two cases.

At the same time it is well known that the menopause, natural or artificial, does not always suppress the appearance of folliculin in the circulating blood, and endocrinologists have occasionally been able to discover the presence of significant levels. The discovery of hyperplasia or adenomas of the suprarenal by Wooley and Little (1945) in mice after castration at birth, and by Gardner (1942) in older animals, shows that probably it is this gland that ensures the secretion of folliculin after the castration, and in the experience of these authors the frequency of spontaneous carcinoma of the breast is not altered.

The age at which castration is performed is certainly highly important, and the appearance of extragenital folliculin capable of producing carcinoma of the mammary gland is probably not so rapid in castrated women in the stage of hyperfolliculinaemia. I present this simple theory to explain the relative benignancy of carcinoma of the

breast occurring after castration at the menopause. This hypothesis stands to be confirmed or disproved by frequent estimations of the amount of folliculin circulating during the years following castration. Since comment on these anatomical and clinical findings can be made only with the help of experimental data, it is important to measure here the extent of our ignorance in this field. It must be admitted that three factors are undoubtedly present at the time of the appearance and development of mammary carcinoma—the milk factor (Bittner's mammary tumour inciter), the genetic factor, and the hormonal factor. Of these the clinician knows only one. Wooley and Little, for example, have convincingly demonstrated that only certain strains of mice develop suprarenal hyperplasia after castration, and van Gulik, Korteweg, and Muilbock, of Amsterdam, have shown, following the work of Lacassagne (1939), that sensitivity to oestrone varies according to the strain studied.

Conclusions

Until clinicians possess as many data concerning their patients as experimental workers have concerning their mice, castration by surgery or irradiation will never become a therapeutic procedure the efficacy of which can be guaranteed. On the contrary, there are perhaps cases where sterilization will have harmful effects. From the practical point of view these and other observations on castration performed for carcinoma of the breast, either already treated or first seen in an advanced stage, leads to the following conclusions.

(*a*) When carcinoma of the breast begins after castration, or even in spite of castration, the prognosis should be regarded as bad unless castration was performed near the time of the menopause. Castration has therefore, above all, a value in prognosis.

(*b*) Routine castration after treatment of the carcinoma is not a guarantee against later manifestations of the malignant condition. The problem is evidently not the same as in the cases discussed here, since the mammary tumour has been removed or irradiated. The point is to assure prophylaxis against local recurrence or metastases to bones or viscera. The sensitivity of these different sites to the action of hormones is very variable, and there is no proof that all of them are likely to be influenced. We know, for example, that a recent case of surgical castration, done shortly after combined surgical and *x*-ray treatment for carcinoma of the breast in a woman of 34, was followed after three months by the appearance of extensive mediastinal and pulmonary metastases. Recently Rudler reported similar cases at the Académie de Chirurgie. The fact that castration, advocated more than fifty years ago by Shinzinger and Beatson, has never been generally accepted as a favourable measure is proof of its relative ineffectiveness. At present the results reported by Horsley (1947) are often quoted; he combined surgical castration with treatment of the primary lesion and obtained excellent results over a period of five years. I think that the restricted number of these cases and the follow-up period of five years render these results open to criticism, and observation of our own cases castrated at the menopause shows that the value of this procedure can be judged only after an interval of at least ten years.

(*c*) Castration by surgery or irradiation in advanced carcinoma of the breast has given us two good temporary results (of 3 to 13 months) in ten cases in which the castration was performed surgically; of 28 cases in which castration was performed by irradiation 14.39% showed some degree of remission. Cases of highly malignant carcinoma appearing in recently castrated young women make us consider the possibility of failure of castration in similar circumstances.

However, the immediate favourable effects, even on the day of operation, on the pain of vertebral metastases or on the lymphatic infiltration in the mammary region, lead one to envisage a special neuro-hormonal or vasomotor effect of castration rather than a long-lasting endocrine effect.

Surgical castration has, especially for me, an academic interest, since on four occasions out of ten I have found metastases from the mammary tumour in the ovary. In these four instances manifestations of malignancy were severe, and it is possible that the occurrence of metastases in the ovary brought about an exacerbation of the condition. This is a valuable pathological argument in favour of systematic castration after treatment of carcinoma of the breast, but the endocrine problem will not be settled on this single fact. Thus, although there still exist some reasons for castration in carcinoma of the breast, the prognosis of this condition after castration should remain very guarded.

Summary

Thirty-two cases of carcinoma of the breast have been observed after castration by surgery or irradiation. They represent 1.6% of a series of 2,000 cases. Only four of these patients have survived for ten years without recurrence. Many tumours grew rapidly despite castration. The longest interval before the appearance of carcinoma was in women castrated between the ages of 40 and 50. Some comments are made and conclusions reached on the value of castration in cancer of the breast.

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CONGENITAL HEMIATROPHY ASSOCIATED WITH OTHER CONGENITAL DEFECTS

BY

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Minimal body asymmetry is very common in human development. Halperin (1931), in discussing normal asymmetry, states that the left side of the body is slightly larger than the right, particularly the cerebral hemisphere, skull, face, leg, and breast. When the inequality is such that it is noticed at or soon after birth it constitutes one of the rarest congenital abnormalities. The case reported here was associated with partial dental aplasis, cutaneous pigmentation, and talipes equinus.

Case Report

A girl aged 3 years 2 months was admitted to hospital in status epilepticus. Subsequent investigation showed that this was due to whooping-cough with bronchopneumonia. The status epilepticus was followed by a left-sided hemiplegi which cleared up completely after five days. The cerebr spinal fluid was normal. The Wassermann reaction w negative in mother and child.

The patient was a full-term second baby, and pregnancy an labour had been normal. The birth weight was 8 lb. (3.6 kg. The child was bottle-fed. The father developed shingles abou one week after the estimated date of conception. Bot parents are alive and well. There is no familial diseas or abnormality. At birth the child exhibited a vesicular erup tion on the left leg and on the dorsum of both hands. Thi condition lasted about four months and healed with scarring particularly on the left leg. The aetiology of this eruption i uncertain and may have been a bullous impetigo. Brow pigmentation of the skin was also present at birth, and it ha not altered in character or distribution.

When the child was 3 months old the mother noticed tha the left leg was shorter than the right. At 1 year the child walked with a painless limp, and the left leg was considered to

be weaker than the right. At 18 months she was seen by an orthopaedic surgeon, who found ¼-in. (0.95-cm.) shortening of the left leg. Recently the mother has had difficulty in obtaining a pair of shoes to fit both feet.

Examination

The child is thin and has a small face with a receding chin: height, 38 in. (96.5 cm.); weight, 26¾ lb. (12 kg.). She is right-handed. Although moderate in degree, the smallness of the left leg is immediately noticed. No scoliosis is seen clinically.

Head.—The left side seems flatter than the right, with narrowing of the left palpebral fissure. The ears and pupils are equal.

Skin.—There is an increased amount of hair present on the left arm and leg. Scalp hair is equally distributed. Atrophic hairless scars are present on the left arm and leg, corresponding to the site of the vesicular eruption in infancy. Melanotic linear pigmented areas are present over the anterior part of the trunk on the left side, extending for 2 in. (5 cm.) down the front of the thigh. This pigmentation is also present over the lateral wall of the thorax on the right side. It does not show a somatic segmental distribution. There are no cutaneous naevi, no evidence of sclerodermia, and no difference in sweating on the two sides.

Teeth.—Some deciduous and permanent teeth are absent. The distribution of the teeth is shown in Table I: of the deciduous teeth, the lateral incisor and first molar are absent from the right upper and lower jaws, and the upper lateral incisor is absent from the left side. No deciduous teeth are present in the left lower jaw. Of the permanent teeth, the lateral incisor, both pre-molars, and the second and third molars are absent from the right side in both upper and lower jaws, and in addition the canine is absent from the lower jaw. In the left upper jaw only the medial incisor and first molar are present. In the left lower jaw the only permanent unerupted tooth present resembles a canine in its radiological appearance, but it is well developed and calcified and shows some features of a lateral incisor.

TABLE I

e c a | a c d e	6 3 1 | 1 6
e c a |	6 1 | 2 (?)
Deciduous teeth	Permanent teeth (calcified unerupted)

Limbs.—The measurements are shown in Table II. The apparent smallness and shortening of the limbs on the left side are more striking than would be expected from the differences in measurements. All movements of the left leg are weaker than those of the right. A talipes equinus is present on the left side. Tilting of the pelvis when standing is seen clinically and radiologically. The difference in size of the long bones has been confirmed radiologically. Bone architecture is normal. The skull is normal radiologically. The bone age agrees with the chronological age, and no difference has been detected between the two sides.

TABLE II.—*Measurements of Limbs*

	Left	Right
Arms:		
Length of whole arm	28·5 cm.	29·0 cm.
Circumference of upper arm	16·5 cm.	16·2 cm.
Circumference of forearm	15·4 cm.	16·0 cm.
Length of third finger	5·8 cm.	6·0 cm.
Legs:		
Length of whole leg	46·0 cm.	47·6 cm.
Length of thigh	25·2 cm.	26·0 cm.
Length of lower leg	20·8 cm.	21·6 cm.
Circumference of thigh	29·0 cm.	30·1 cm.
Circumference of calf	18·7 cm.	19·8 cm.
Length of foot	14·5 cm.	15·0 cm.
Half circumference of trunk at level of umbilicus	26·5 cm.	28·0 cm.

The child's mental development is normal, and no abnormality was found in the central nervous system.

Discussion

In 1927 Kraus and Perkins reviewed the literature on hemiatrophy and collected 18 cases, of which only five were not associated with motor disorders such as hemiplegia and athetosis. They classified hemiatrophy into congenital, familial, and acquired types. The hemiatrophy may be partial or complete. The sex distribution is equal. Hemiatrophy more commonly affects the left side of the body, as opposed to hemihypertrophy, which is commoner on the right side. Later, Landauer (1939) was able to collect 22 cases of partial or complete hemiatrophy, mostly in America.

Mental defect and cutaneous abnormalities are common in cases of hemihypertrophy, but are rarely associated with hemiatrophy.

Only one of the cases of hemiatrophy reported by Kraus and Perkins showed cutaneous abnormality. The case reported by Masten (1936) showed cutaneous pigmentation and defects of the nails of the fingers and toes on the atrophied side. I have been unable to find a previous report of dental aplasia associated with unilateral atrophy. There is no familial history of dental or cutaneous abnormalities in the present case. The distribution of the teeth that are present shows some degree of symmetry.

The occurrence of transient hemiplegia affecting the left side following convulsions suggests an abnormality in the right cerebral hemisphere. Unfortunately it was not possible to carry out encephalography in this case. Ross (1941) found cerebral atrophy in cases of infantile hemiplegia. Penfield and Robertson (1943) examined cases of growth arrest and atrophy, and at operation found lesions (e.g., scarring) in the post-central gyrus of the contralateral cortex. The majority of their cases followed birth injury.

The aetiology of congenital hemiatrophy is still obscure. In the above case the history of shingles in the father shortly after the estimated date of conception of the child may be significant. It is possible that the male germ-plasm was affected by the virus, and this may have caused a defect in the resulting embryo. The asymmetry is probably apparent very early in foetal life. Phisalix (1888) found a 10-mm. human embryo which was asymmetrical. A case of congenital hemihypertrophy reported by Wakefield and Hines (1933) was associated with complete bilateral deafness. No further details are given.

Hemiatrophy is sometimes seen in chondrodysplasia (Ollier's disease), which is essentially a condition affecting one side of the body. Certain features of the case of hemiatrophy reported by Zondek (1945) were suggestive of Ollier's disease. There was no such evidence in my case.

Very few cases of congenital hemiatrophy without motor disorders are reported, but the condition is probably more common than a review of the literature suggests. There is a considerable variation in the degree of asymmetry in the cases, and also in the extent to which this asymmetry develops with growth of the patient. Both sides of the body may grow at the same rate or the difference may increase.

When the case is seen at an early age it is sometimes difficult to decide which is the abnormal side and whether the case is one of hemiatrophy or hemihypertrophy.

The association of dental aplasia predominantly on the left and the left-sided talipes equinus, muscle weakness, cutaneous pigmentation, and transient hemiplegia indicate that the left is the abnormal side in the present case.

Summary

A case of congenital hemiatrophy, associated with partial dental aplasia, cutaneous pigmentation, and talipes, is reported. A possible aetiological factor is mentioned.

I am indebted to Dr. M. E. Edmunds for permission to publish this case and for much helpful criticism and advice.

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Medical Memoranda

A Case of Mepacrine Dermatitis

The following record is of interest because of several features not previously reported.

CASE REPORT

The patient was a private in the R.A.M.C., aged 36, with two years' service. He had previously been a plumber. In November, 1946, he had a generalized rash, most pronounced over the shoulders, loins, buttocks, internal aspects of forearms, and external aspects of legs. The axillae, palms, and soles were free. The rash consisted of deeply pigmented macules with petechiae, mainly in line with the ribs, and a keratotic follicular spiny element giving rise to a "nutmeg-grater" skin, chiefly present on the back. The nails were exfoliating and discoloured, and showed a pronounced heaping up—the so-called Beau line. The hair was thin on the scalp, and the outer third of the eyebrows had disappeared. There were some lichen-planus-like lesions of the mouth. No complaint of itching was made. The eruption had been present for three months.

The rash began on the waist after prickly heat at Singapore in March, 1946. It rapidly spread to the arms, legs, ears, feet, and forehead. The eyebrows and scalp hair began to fall at the same time, and the nails were also affected. The rash, originally red and irritating, soon developed into rough scaly spines, and had reached its present static state a month later. The patient had taken mepacrine for six months and had been in India for eight months before the eruption appeared. He had not noticed any irritation from khaki. The eruption had been diagnosed in Singapore as tropical lichenoid dermatitis.

He had suffered from backache and pains in the loins for the past six months, but had not had any other diseases. His mother has had a scaly rash of uncertain origin on her legs for many years. He complained of malaise and poor eyesight. On examination the B.P. was 120/65 mm. Hg. Nothing abnormal was found in the heart and lungs, abdomen, C.N.S., lymphatics, and upper respiratory tract. Urine: no albumin, sugar, bile; no deposit. Kahn test was negative. B.S.R., 8 mm. in one hour. A blood count showed: Hb, 118%; red cells, 5,500,500; C.I., 1.02; white cells, 6,600 (polymorphs 56%, lymphocytes 37%, monocytes 2%, eosinophils 5%). Platelets numbered 720,000 per c.mm. A radiograph revealed some calcified areas in the right base, but no evidence of active infiltration. The heart shadow was normal. The Hess tourniquet test was negative. Liver function shown by the Quick and Schlesinger tests was normal. A skin biopsy was done and the pathological report stated: "There is an increase in the stratum corneum. The granular layer appears more distinct than normal. There is considerable widening of the papillae, and the pars papillaris contains an excess of free and fixed cells and many melanophores." The mepacrine patch-test was negative. Soon after starting an oral test course of mepacrine the patient's lesions were aggravated. In addition he described a burning irritation of the hands and feet, which had not previously been affected. About this time he suddenly developed mental symptoms of a schizoid type, with confusion and excitement. On stopping the drug the mental condition rapidly returned to normal and the skin to its former state. Mental symptoms have been seen in cases of mepacrine intolerance (Gaskill and Fitz-Hugh, 1945; *British Medical Journal*, 1945; Duncan Shiers, 1946).

A variety of local applications and vitamin therapy appeared to have no specific effect, and this has been the general experience (Sulzberger and Baer, 1945). A year later the lesions were still present but showed considerable improvement, and the pigmentation was less intense.

COMMENT

There seems to be little doubt that in this case mepacrine was the cause of the dermatitis. The association of the skin condition with cerebral symptoms has not previously been described, and the nail dystrophy, which was such a pronounced feature, has not received much attention. Pigmentation (Lutterloh and Shallenberger, 1946) and loss of nails (Wilson, 1946) have been mentioned as occurring, while it is known by fluorescence under Wood's light that mepacrine is excreted in the nails (Kierland *et al.*, 1946). In the present case the Beau line of the nail corresponds in date with the first acute appearance of the eruption three months before. Growth of the nail has been normal since. Especially noteworthy is the long continuance of the eruption since cessation of the drug 18 months ago.

Acknowledgment is due to Dr. J. E. M. Wigley and to Dr. I. Muende for help in the investigation of this case, and to the War Office for permission to publish.

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Rheumatic Pericarditis with Hyperpyrexia

It is stated by Miller in the *British Encyclopaedia of Medical Practice* that "rheumatic hyperpyrexia has now virtually disappeared. When it occurred it was almost always associated with acute pericarditis and was at one time usually fatal. It was always much commoner in adults than in children."

The following report of the case of a young soldier in which the temperature reached 109.2° F. (42.9° C.), with recovery, may therefore be of some interest.

CASE REPORT

A signalman aged 19 was admitted to a military hospital on Dec. 11, 1947, complaining of pains and stiffness affecting the wrists, knees, and ankles. He had had quinsy in childhood, hernia at 13, and appendicitis with peritonitis in July, 1947. There was no history of scarlet fever, rheumatic fever, or growing pains.

He had been quite well until the evening of Dec. 9, when he suddenly felt tired, shivery, and generally "out of sorts," and complained of sore throat and pains in both shoulders and upper arms. Next day these symptoms were still present, with frontal headache and dizziness on moving about. On Dec. 11 he started to get pains and stiffness in the knees, ankles, wrists, and elbows. He noticed that his left knee was swollen. He vomited twice that day. On admission to hospital he felt weak and ill, his throat was still sore, and the joint pains were still severe. He had also constant dull pain in the precordial area. His appetite, normally good, had been poor since the onset of symptoms and he had become constipated. There was no cough or sputum; nor were there any urinary symptoms.

On examination he was flushed and ill, the tongue was moist and coated, and the throat slightly injected. The mucosae were normal. No rash, no palpable nodes, and no cyanosis or clubbing were present. The temperature was 100° F. (37.8° C.), pulse 94, and respirations 20. The heart was not clinically enlarged. The heart sounds were normal at all areas; there were no murmurs. The blood pressure was 130/75.

Respiratory system: no dullness; sounds vesicular all areas; no adventitious sounds. The abdomen was lax, with some tenderness in the left upper quadrant. The liver, spleen, and kidneys were not palpable. The central nervous system showed no disease. There was pain on passive movement of wrists, elbows, knees, and ankles, with redness and swelling of the left knee. The urine showed no abnormality. On *x*-ray examination the heart and lungs appeared normal. White blood cells numbered 7,300 (N. 77%, L. 18%, M. 3%, E. 1%, B. 1%). Acute rheumatism was diagnosed and salicylate therapy started.

Progress.—The joint symptoms responded to salicylates, and after the first few days in hospital the patient was free of joint pains and stiffness. The pyrexia, however, gradually increased. On Dec. 17 a pericardial friction rub was audible over the greater part of the cardiac area. The temperature was 102° F. (38.9° C.). On Dec. 19 the area of cardiac dullness had increased and the rub had disappeared. *X*-ray examination confirmed gross cardiac enlargement with pericardial effusion. By Dec. 20 the pyrexia had become remittent in type, reaching 104–105° F. (40–40.6° C.) each evening. White blood cells numbered 21,000 (N. 89%, L. 9%, M. 2%).

On Dec. 23 blood culture was sterile. Agglutination tests for the enteric group of organisms and *Brucella abortus* and *Brucella melitensis* were negative. Pericardial puncture yielded 20 ml. of evenly blood-stained serous fluid. Films showed lymphocytes and polymorphs in equal numbers, and no organisms. Culture was sterile.

Despite negative findings it was deemed advisable to start penicillin therapy—50,000 units three-hourly. There was no response to chemotherapy. The temperature continued to swing, reaching 106.4° F. (41.3° C.) on Dec. 25 and 109.2° F. on Dec. 26. Immediate cold sponging and the application of ice-bags lowered the temperature to 105° C. (40.6° F.) within fifteen minutes.

On Jan. 2, 1948, the patient was unable to take fluids and became very dehydrated. Chlorides disappeared from the urine.

X-ray examination showed gross pericardial effusion hiding the lung as far up as the second rib anteriorly, with opacity of the lung above, due to collapse. He was given intravenous saline and by Jan. 5 the dehydration had improved and he was again taking fluids orally. Further needling of the pericardium yielded similar blood-stained fluid containing a moderate number of white blood cells, mainly lymphocytes. Both these specimens gave no growth on culture for acid-fast bacilli. From this date the temperature gradually fell from 103–105° F. (39.4–40.6° C.) to normal.

On Jan. 15 *x*-ray examination showed some diminution of the heart shadow and there was a definite improvement in the general condition. Blood examination showed: red cells, 2,560,000; Hb, 8 g. %; M.C.H., 31 $\gamma\gamma$; white cells, 5,900 (N. 51%, L. 42%, M. 7%).

Convalescence continued satisfactory over the next four months, apart from a marked degree of anaemia which responded slowly to iron therapy. On May 10 the patient was transferred to a hospital near his home. His general condition was excellent and he had put on a considerable amount of weight. Clinically the heart was not enlarged, the heart sounds were normal, and no murmurs were audible. A radiograph showed the heart shadow to be within normal limits. The B.S.R. was 28 mm./hr. Blood examination showed: red cells, 4,300,000; Hb, 10.7 g. %; M.C.H., 22 $\gamma\gamma$; white cells, 9,400 (N. 62%, L. 31%, M. 5%, E. 2%).

I am indebted to Lieutenant-Colonel E. H. P. Lassen, R.A.M.C., for permission to publish this case, and to Major T. B. S. Dick, late R.A.M.C., for assistance and advice.

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Captain, R.A.M.C.

Self-castration

The following case seems to be rare enough to justify publication.

CASE REPORT

A man aged 34 was brought to the casualty department by ambulance on July 10, 1947, at 8.50 p.m. He stated that he had removed both his testicles with a razor two hours previously: he was an epileptic, and had been told that castration would effect a cure. He appeared to be healthy and robust, and in complete possession of his senses. He had a severe lacerated wound of the scrotum, which was not bleeding very severely. He was not at all shocked, and was very garrulous. He seemed quite well satisfied with his action, which he had been contemplating for some time. This was evidenced by such statements as, "Well, I have done it now, doctor."

On examination the scrotum had a large lacerated wound on the anterior wall, which had been literally ripped open. Both compartments of the scrotum were filled with blood clot, making it difficult to assess the amount of trauma to the cord and soft tissues. He had his testicles in a small cloth bag, which he stated was his "money bag," and this was rolled up in the front of his vest. He produced these with an air of great satisfaction. The calmness with which his actions were performed was very remarkable.

In order to gain sanction for the necessary operation the patient was solemnly asked if he would sign the following statement: "I ..... state that I cut my testicles out to-night with a razor blade, and I consent to an operation." This was done before operation to provide legal cover in the even of any subsequent action after the patient had realized his deformity.

At operation the lacerated ends and the bleeding-points of the spermatic cord were secured and ligated and the scrotum was closed with a small drainage-tube. He was treated with penicillin and made a good recovery from the effects of the operation. The wound healed within two weeks.

In view of the comment excited by the case, and as he was obviously an undesirable patient to keep in the general ward of a hospital—he made no secret of his act, and was indeed rather proud of himself—he was transferred to the county mental home next day. He was subsequently shown at a clinical meeting, when his attitude had not changed. Up to the time when last seen (July, 1948) he had had two fits, but was under suitable mental treatment.

R. D. N. BISSET, F.R.C.S., D.A.

According to the *Manchester Guardian* a report presented to the Leeds Executive Council showed that during the first nine months of the National Health Service in Leeds the general medical services cost £372,094, prescriptions £224,097, general dental services £280,751, ophthalmic services £173,397, and administration £15,670. The total expenditure of more than one million pounds was equal to £2 a head of the population. The 484,000 people on doctors' lists shared more than two million prescriptions, obtained 35,500 pairs of glasses, had 75,000 sight tests, and paid 48,663 visits to the dentists.

Reviews

EAR, NOSE, AND THROAT

Diseases of the Ear, Nose, and Throat. By D. G. Carruthers, M.B., Ch.M., F.R.A.C.S. Second edition. (Pp. 344; 140 illustrations. 25s.) Bristol: John Wright and Sons. 1948.

L'Exploration Clinique en Oto-Rhino-Laryngologie. By Georges Portmann. (Pp. 934; 541 illustrations. 2,500 francs.) Paris: Masson et Cie. 1948.

Mr. D. G. Carruthers's small book, hailing from Sydney, is written for students who want to learn the elements of the subject. No controversial theories are discussed, nor are major operations described: the subject matter is simple and practical. The first chapter describes the examination of the nose, throat, and ear, with helpful illustrations, and gives several "tips" for the comfort of the patient and the success of the observer. The coloured plate depicting various appearances of the tympanic membrane is good, though one of them might with advantage have shown a marginal perforation. Hearing tests are briefly dismissed; after advocating the spoken word as the most practical test and mentioning gramophone audiometry, it seems a pity the author added the forced whisper and the watch test. The explanation and illustration of the labyrinth tests are good.

There follow sections devoted to the diseases of the individual parts of the upper respiratory tract, beginning with the throat. The operations for removal of tonsils and adenoids are fully described and illustrated. In the discussion on retropharyngeal abscess and its treatment mention of such a rare complication as erosion of the internal carotid seems out of place. Again, in describing syphilis of the pharynx the author states, "A primary lesion takes the form of a shallow and slightly indurated ulcer." In this country a primary syphilitic lesion of the pharynx is extremely rare and does not take the form of an ulcer. Exception may also be taken to lack of emphasis that tuberculous ulceration of the pharynx is only seen as a complication of advanced phthisis.

The section on the nose and sinusitis wisely recommends a conservative line in treatment, that every effort should be directed to restoring the nasal lining to normal. For chronic sinusitis standard operations are advocated, but an external fronto-ethmoidal operation surely may be classed as a major procedure. In several instances antibiotic chemotherapy is advised, but is given second place to surgery. Again, it is unfortunate the author states that a common cause of headache of nasal origin is reflex irritation from sharp septal spurs and ridges, a view long abandoned in this country.

The next part deals with the ear, and is perhaps the best in the book. The pages on meatitis are excellent; obviously the author has had very wide experience of every variety. His advice on chemotherapy in acute otitis media is exactly what is needed by the student. In the description of acute mastoiditis the indications for operation are good, but should include deafness and facial paralysis. Lastly comes the section on the larynx. Acute and chronic laryngitis are described, but one complication of the former—ulceration and perichondritis—is surely too rare for inclusion. The discussion on paralysis of the cords is the weakest part of the work. There is no description of the muscles that move the cords, and one sentence must leave the student in doubt whether only the left recurrent nerve passes round the aorta. Further, a page of pictures of the larynx to show the various positions of the cords in different kinds of paralysis is upside down. There follows a good description of the operation of tracheotomy. Other chapters discuss foreign bodies in the air and food passages, diseases of the oesophagus (with good *x*-ray pictures), internal-ear deafness, and the use of hearing-aids.

In *L'Exploration Clinique en Oto-Rhino-Laryngologie* Docteur Georges Portmann asserts that the clinical approach to the patient is vital, and unless the doctor has this clinical knowledge all his scientific learning is useless. He emphasizes throughout the importance of symptoms and signs, and this monumental work fully justifies his claim to carry out his task; the student who had never seen a patient could, if he read and followed the instructions exactly, examine the ear, nose, and throat adequately. The method of taking the history is fully explained. Normal appearances and methods of examination are clearly described, and in some cases every step is illustrated not only by diagrams but with excellent photographs; as an example, the passage of the Eustachian catheter is given eight pictures.

There are six sections: ear; nose; mouth and pharynx; larynx, trachea, and bronchi; oesophagus; laboratory examinations.

The description of the examination of the ear is detailed, profusely illustrated, and includes the anatomy and physiology. To explain the internal ear there are several reproductions of microscopical sections. Functional examination of hearing is fully discussed, and the analysis of the reactions of the labyrinth occupies many pages, every stage being shown in photographs. Radiography of the mastoid is demonstrated in various positions. The same meticulous care and detail is devoted to the examination of the nose and naso-pharynx. The author uses a special naso-pharyngoscope and a sinuso-pharyngoscope with which the cavity of the antrum can be studied.

The section on the mouth and pharynx includes a description of sialography and explains how radiographs of the pharynx and the teeth should be taken. Chapters on the larynx, trachea, and bronchi open with a detailed account of the anatomy (as in all other sections), after which the voice and the use of the stroboscope are considered. There follow a great number of illustrations of various methods of direct examination, including the suspension laryngoscopy of Killian, which is now rarely used in this country. The gastroscope also has a place in this part of the book.

The work ends with a full description of laboratory methods, which is not considered necessary in English books on the specialty. The compilation of this tome, the work of one man, must be regarded as a fine achievement.

W. M. MOLLISON.

PSYCHOBIOLOGY

Psychobiology and Psychiatry. By Wendell Muncie, M.D. Second edition. (Pp. 620; 70 illustrations. £2 5s.) London: Henry Kimpton. 1948.

Psychobiology is a school of psychiatry initiated by Dr. Adolf Meyer. Under Meyer's leadership the Henry Phipps Clinic at the Johns Hopkins Hospital became a teaching centre of international repute. Many teachers in key positions in this country studied there under Meyer, whose doctrines have therefore exercised an important influence on British psychiatry.

Psychobiology has three significant aspects: a philosophy, a mode of approach to the patient, and a framework for clinical description. From the philosophical point of view it is monistic, demanding that the individual should be treated as a unity and not in the separate categories of body and mind; and it maintains that the laws of behaviour are distinct from, and of a higher order than, those of physical medicine, as the laws of chemistry are not directly to be derived from the concepts of physics but have a validity of their own. The psychobiological approach to the individual patient is mainly directed to an effort to understand his behaviour as the resultant of past experiences and present circumstances. Mental disorders are conceived as reactions; the approach is biographical, the concepts employed are dynamic. Allowance is made for organic and constitutional factors; but every attempt is made to account for as large a part as possible of the total picture in terms of what is individually rather than generally significant. So it is that such concepts as that of the "endogenous" psychoses come to have little meaning, and even the specific features of organic states tend to become submerged under the emphasis given to the total reaction of the individual.

Standing midway between the classical psychiatry which stems from Kraepelin and the pan-psychic theories developed by the psycho-analysts, psychobiology has been assailed from both sides. From the point of view of the former, its principal weakness is that it leaves little room for the specific

states derived from organic process and hereditary predisposition. The strength it gains in therapy is lost in the fields of diagnosis and prognosis. As the individual patient always remains an individual, features shown in common by groups of patients receive scant attention. It has accordingly proved remarkably sterile in stimulating research, and in this respect cannot be compared with either neo-Kraepelinian psychiatry or psycho-analysis. From the psycho-analytic side it is criticized for the insufficient emphasis it places on the unconscious and for its neglect of free association as a technique of investigation and treatment. In the United States its position has become weaker, and it seems that it will disappear under the rising tide of adherence to the Freudian school. Nevertheless, it has important advantages over both the opposed trends. It has corrected the too static concepts of the older psychiatry, and has especially fructified the study of the neuroses. In this field some of its concepts are indispensable, and it is probably the best available discipline for the student of psychotherapy. Compared with psycho-analysis, it has the great advantages of retaining the medical viewpoint and of being balanced, scientific, and undogmatic. Every student of psychiatry, no matter to what school he is drawn, should read Dr. Muncie's exposition.

ELIOT SLATER.

FEMALE SEX HORMONES

Die weiblichen Sexualhormone in der Pharmakotherapie. By O. Mühlbock, H. Knaus, and E. Tscherne. (Pp. 300; illustrated. 24.80 Swiss francs.) Bern: Medizinischer Verlag Hans Huber.

This book on therapy by female sex hormones is one of a series intended to discuss the treatment of individual diseases and the uses of various therapeutic substances. It opens with a section on the biochemistry, physiology, and pharmacology of oestrogens and progesterone. The chemical structure, preparation, site of formation, and metabolism of the steroids are dealt with in turn, and methods of chemical and biological assay are mentioned. A brief description is then given of the action of the hormones on the reproductive tract and other organs in the body. This general introduction adequately fulfils the authors' intention of providing a summary of reasonably accepted knowledge for practising doctors.

The second part of the work is concerned with the use of female sex hormones in clinical practice. It is illustrated by clear diagrams and describes the hormonal treatment of menstrual abnormalities, pregnancy, and sterility. The methods proposed do not conflict with current practice in this country. The final section treats of the use of oestrogens in endocrine disorders, in circulatory disturbances, and in dermatology, urology, psychiatry, and other branches of medicine. Much of this matter consists of summaries of uncontrolled observations reported by clinicians who on purely empirical grounds have found oestrogens beneficial. This section may provide ideas for treating refractory cases, but it is not based upon sufficient scientific knowledge. It is remarkable that the strikingly successful use of oestrogen in the palliative treatment of cancer of the prostate is not mentioned at all.

P. L. KROHN.

The third edition of *Handbook of Orthopaedic Surgery*, by A. R. Shands and R. B. Raney (pp. 574; 159 illustrations; $6.00 or £1 12s. 6d. St. Louis: The C. V. Mosby Company; London: Henry Kimpton), has apparently been found of great value as an adjunct to undergraduate orthopaedic study in the United States, where many of the leading medical schools dispose of the subject in twenty-four lectures of an hour's duration. Accordingly, this work is divided into twenty-four chapters, which provide a sound and comprehensive outline of orthopaedics. The book is excellently produced and beautifully illustrated, with the exception of the radiographs, which are generally not reproduced photographically but represented by artists' drawings. Although this has been done to eliminate unnecessary detail it introduces a confusing element of unreality. The work is naturally deficient on those aspects of orthopaedics which in any case cannot be learnt from books—namely, after-treatment and splintage. One of the best features is a really excellent bibliography, providing a valuable "source book" of orthopaedics, a feature which will appeal greatly to the postgraduate student.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

The Mental and Physical Effects of Pain. By V. C. Medvei. M.D., M.R.C.P. (Pp. 59. 3s.) Edinburgh: E. and S. Livingstone. 1949.

Some Notes on Galen's Anatomy. By W. L. H. Duckworth, M.A., M.D., Sc.D. (Pp. 42. 2s. 6d.) Cambridge: W. Heffer. 1949.

Minutes of the Dental Board of the United Kingdom, 1948. Vol. 27. (Pp. 101. No price.) London: Constable. 1949.

Haemoglobin. Edited by F. J. W. Roughton and J. C. Kendrew. (Pp. 317. 40s.) London: Butterworth. 1949.

Modern Practice in Psychological Medicine, 1949. Edited by J. R. Rees, M.D. (Pp. 475. 50s.) London: Butterworth. 1949.

Lehrbuch der Geburtshilfe. Part II: Pathologie. By H. Martius and others. (Pp. 1,196. M 72.) Stuttgart: Georg Thieme. 1948.

Death Be Not Proud. By J. Gunther. (Pp. 212. 7s. 6d.) London: Hamish Hamilton. 1949.

A Dictionary of Scientific Terms. By I. F. Henderson, M.A., and W. D. Henderson, B.Sc., F.R.S.Ed. 4th ed. by J. H. Kenneth, M.D., F.R.S.Ed. (Pp. 480. 32s.) London and Edinburgh: Oliver and Boyd. 1949.

Principles of Psychiatric Nursing. By M. E. Ingram. 3rd ed. (Pp. 525. 19s.) Philadelphia and London: W. B. Saunders Company. 1949.

Modern Contraception. By P. M. Bloom, M.B., Ch.B. (Pp. 46. 2s.) London: Delisle Limited. 1949.

Essentials of Orthopaedics. By P. Wiles, M.S., F.R.C.S., F.A.C.S. (Pp. 486. 42s.) London: J. and A. Churchill. 1949.

College Zoology. By G. W. Hunter, Ph.D., and F. R. Hunter, Ph.D. (Pp. 821. 27s. 6d.) London: W. B. Saunders. 1949.

Blood Transfusion. Edited by G. Keynes, M.A., M.D., F.R.C.S. (Pp. 574. 52s. 6d.) London: Simpkin Marshall. 1949.

Textbook of Obstetrics and Obstetric Nursing. By M. M. Bookmiller and G. L. Bowen, A.B., M.D. (Pp. 737. 22s. 6d.) London: W. B. Saunders. 1949.

Post-traumatic Epilepsy. By A. Earl Walker, M.D. (Pp. 86. 15s.) Oxford: Blackwell Scientific Publications. 1949.

Clinical Orthoptics. By M. E. Kramer. (Pp. 475. 40s.) London: Henry Kimpton. 1949.

Fractures and Dislocations. By E. O. Geckeler, M.D. 4th ed. (Pp. 370. 27s. 6d.) London: Baillière, Tindall and Cox. 1948.

The Nursery Age. By H. M. Cousens, S.R.N., R.S.C.N., S.C.M. (Pp. 180. 10s. 6d.) London: Faber and Faber. 1949.

Plaster of Paris Technic. By E. O. Geckeler, M.D. 2nd ed. (Pp. 220. 16s. 6d.) London: Baillière, Tindall and Cox. 1948.

Forensic Medicine. By Sir S. Smith, C.B.E., M.D., F.R.C.P., D.P.H., and F. Smith Fiddes, O.B.E., M.D. 9th ed. (Pp. 659. 30s.) London: J. and A. Churchill. 1949.

Clinical Aspects and Treatment of Surgical Infections. By F. L. Meleney, M.D., F.A.C.S. (Pp. 840. 60s.) London: W. B. Saunders. 1949.

Clinical Roentgenology of the Digestive Tract. By M. Feldman, M.D. 3rd ed. (Pp. 901. 44s.) London: Baillière, Tindall and Cox. 1948.

Mayo Clinic Diet Manual. By the Committee on Dietetics of the Mayo Clinic. (Pp. 329. 20s.) London: W. B. Saunders. 1949.

Semiologia Radiológica de la Columna Vertebral. By L. R. Badia. (Pp. 101. No price.) Barcelona: Byp. 1949.

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THE ANNUAL MEETING

Last year the Annual Meeting was held at a time when the medical profession was full of anxiety about the introduction of the National Health Service. It was fitting, therefore, that the B.M.A. then met in an ancient university town, where it could be reminded that the advancement of learning was something but little affected by the shifting political scene. In spite of difficulties those responsible for arranging the Cambridge meeting set a very high standard for those who were to succeed them as hosts year by year. The Harrogate Division, under the new President of the B.M.A., Dr. C. W. Curtis Bain, rose to the occasion with conspicuous success, and the meeting last week had much of the flavour and atmosphere of annual meetings held before the war. Harrogate turned out to be an ideal place for a conference of this kind. Not only was the setting full of charm and good weather, but the buildings in which business was conducted and the visitors were lodged were so conveniently grouped in the centre of the town that it was easy to pass from one to another without fatigue and on foot. The fact that the meeting ran so smoothly is indeed a tribute to the remarkably efficient organization behind it. Dr. and Mrs. Bain were the most delightful and unassuming of hosts. Upon the honorary local general secretary falls much of the burden of organization, and in Dr. D. D. Payne, Medical Officer of Health for Harrogate, the Division had found the right man for the job. He was ably helped by Dr. T. A. Best, Mr. T. V. Pearce, Dr. T. G. Reah, and Dr. L. J. Prosser in providing for the comfort and entertainment of the guests not only from this country but also from overseas. The civic authorities under the Mayor, Councillor Mrs. M. Fisher, J.P., worked obviously in the closest co-operation with the local medical profession to make the week in Harrogate memorable and enjoyable.

If Harrogate was a social success, it was no less a success intellectually. One of the principal reasons for holding the meeting is to provide through the scientific sections an opportunity for the visitors to hear from authorities what they know and think about current medical progress. For the first time four days instead of three were given to the scientific sections, an innovation introduced by the honorary local science secretary, Dr. J. V. Wilson, to whom the B.M.A. is much indebted for the first-class and varied intellectual fare last week. The Sections were very well attended, and in most of them there was time and scope for discussion.

Before the main body of visitors arrived the Annual Representative Meeting, at which there was a record attendance, had spent three and a half days in debate on the various matters now preoccupying the mind of the profession generally. In fact the agenda was so heavy that, in spite of the efficient conduct of the business by Dr. E. A. Gregg, the Chairman, there was not enough time left on the last morning to deal adequately with many important committee reports. Two subjects stood out in the meeting, on one of which there was complete agreement and on the other of which there was disagreement. On arbitration the Representative Body enthusiastically followed the lead given to it by Dr. H. Guy Dain, and comment on this appears in another leading article. On the organization of the B.M.A. the R.B. once more found itself with a divided mind; the proposals before it were the result of the most thorough examination by the Organization Committee and the Council. The debate on this, which was fully reported in last week's *Supplement*, at least shows that representatives take a lively interest in the question how the B.M.A. should adapt its structure to changing conditions. Apart from the question of how, for example, members should be elected, the desire seems to be for a larger representation on the Council of the B.M.A. This is understandable and supported by argument. It may nevertheless be asked whether an increase of size makes for an increase of efficiency. The whole question of organization has once more been referred back, and it is probable that a special representative meeting will have to be called to look into this highly important problem. The meeting, preoccupied as it was with the present and the future, did not forget the past, and earnestly considered how best it might commemorate those medical men and women who lost their lives in the war. It decided finally to adopt the Council's suggestion that there should be a visible and permanent memorial in the shape of a fountain in the courtyard of B.M.A. House, Tavistock Square.

No meeting of professional men is complete without the ceremonial and ritual which give it cohesion, strength, and dignity. In spite of the heat of the day a large procession wended its way to the church on Tuesday, where it had the privilege of hearing a sermon by the Archbishop of York. The Adjourned Annual General meeting was once more, and this time with greater significance, made colourful by the introduction one by one

of delegates from overseas. On this occasion the Gold Medal of the Association awarded to the late Dr. John W. Bone, who for many years held office, including that of Treasurer, in the B.M.A., was presented to his son, Mr. Alan W. Bone. The popular lecture at the conclusion of the meeting was attended by a full gathering of the people of Harrogate to hear Dr. Charles Hill's well-known voice on the subject of "Health and Happiness."

At each annual meeting the Association, in electing its President for the coming year, also chooses the man as President-Elect who is to be the next to preside over the B.M.A., the choice this year being Professor T. P. McMurray, the well-known orthopaedic surgeon in Liverpool. If Liverpool succeeds in emulating the example set by Harrogate then we may be sure that the large numbers who attended this year's meeting will be present next year in a county whose rivalry with Yorkshire has been told so often in the history books.

ARBITRATION

During the second reading debate on the National Health Service Bill in May, 1946, Mr. Greenwood, replying for the Government, pointed out that the Minister was given power to prescribe by regulations the conditions of service and remuneration of those employed in the National Health Service. He went on to say that Mr. Bevan's intention was to use "the familiar machinery of discussion and negotiation with employees" before prescribing terms of service or rates of remuneration. Where suitable machinery existed it would be used with such adaptations as might be necessary. "What my right hon. friend [Mr. Aneurin Bevan] has in mind where there is no machinery is to set up some machinery of the Whitley Council type, behind which there may be provision for agreed reference to arbitration." In view of what has happened since, we should draw attention to the words "may" and "agreed." In May, 1948, the Minister agreed that after the inception of the Service it would be open to the profession to raise through Whitley machinery the question of betterment. It was because of this that the chairman of Council, Dr. H. Guy Dain, was able to persuade the medical profession to enter the National Health Service. A document setting forth the Government's proposals for Whitley machinery was sent to the B.M.A. in October, 1947.[1] In this the following statements appeared: "It will suffice here to say that, while the Government hopes that the normal working of Whitleyism will minimize the necessity for arbitration, it is anxious to accord the fullest rights to arbitration subject to the preservation of the Government's prerogatives. *A code of conduct is unlikely to be arbitrable, but a simple proposal for a change in wage or salary rates almost certainly is.*" (Our italics.) But when representatives of the General Medical Services Committee went to the Ministry of Health in April of this year and asked whether the question of remuneration for general practitioners could be raised through Whitley machinery and, in the event of disagreement, if recourse could be had to arbitration, it received this reply: "It must not be assumed without further discussion that participation in the Whitley machinery necessarily involves, in the event of disagreement, the right to resort compulsorily to arbitration on all subjects."[2]

The Minister is under a moral obligation to provide machinery for arbitration in the event of disagreement on the remuneration of those medical men and women working in the National Health Service. What betterment factor should be applied to the remuneration of general practitioners and consultants and specialists so as to carry out the recommendations of the Spens Reports is now being discussed. In the event of disagreement it is imperative that the right to arbitration should be granted and Ministerial promises thus be met. As Sir Lionel Whitby pointed out in a recent letter to *The Times*,[3] under Clause 12 of the Amending Bill, the Minister of Labour has the power to refer disputes to arbitration and is unlikely to do this if the Minister of Health does not want it to be done. Sir Lionel asks why the Government have gone back on their pledge and are proposing to treat professional workers less fairly than the rest. He points out that the implications of the Government's attitude are far reaching, as more and more professional workers are becoming employed by the State indirectly or directly. This is not a question affecting only medical men and women, and it is because of these wider implications that the medical profession must press for a satisfactory settlement of a matter which weekly becomes more confused by this or that interpretation of this or that mechanism. As the Secretary of the Association pointed out at Harrogate, the profession had been promised that the voluntary arrangements under the Whitley machinery should be buttressed by an arbitration system. A constitutional issue was raised by the fact that remuneration would in due course be the subject of regulations. Now that so much of industry is nationalized and the medical profession also, the Government has lost its function as a balancing mechanism between two sides in a dispute, as it now becomes a party in disputes in nationalized industries and professions. If this country is to preserve its reputation for justice and fair play it is essential that in disagreements between the Government as employer and, for example, the medical profession as employee there should be as a matter of principle a method of referring such disputes

[1] *British Medical Journal Supplement*, April 23, 1949, 237.
[2] Ibid., April 23, 1949, 237.
[3] *The Times*, June 20, 1949.
[4] *British Medical Journal*, 1949, 1, 762.
[5] Ibid., 1949, 1, 948.

to arbitration in a way that will allow the medical profession to do its work free from a feeling of grievance. Arbitration has already been the subject of two recent articles in this *Journal*,[4 5] and we make no apology for returning to this theme once more.

The Joint Committee representing consultants and specialists decided on Tuesday afternoon to advise consultants and specialists not to sign permanent contracts. In a letter sent to the Secretary of the Ministry of Health (and published in the *Supplement*) Sir Lionel Whitby, as chairman of the Joint Committee, asks that there should be established for consultants and specialists a permanent negotiating machinery, and that disputes (including those on remuneration) should be referable to arbitration, both parties to be bound by the decision of the arbitrator. As Dr. Dain said at Harrogate: "We must have the right to go to arbitration even though it is the Government which is the employer. It is essential to us if we are to continue in the Service that freedom to go to arbitration should never be in question."

PAST AND PRESENT

Dr. H. Guy Dain this year did not seek re-election as chairman of Council, and thus brings to an end a memorable period of office. Dr. Dain was elected chairman in 1943 and during the past six years has been in the forefront of the controversy that has raged over the National Health Service. At no time in the history of the B.M.A. has a chairman of Council had to bear such a heavy load of responsibility. At no time have the decisions and actions of the chairman been of such consequence to the medical profession. Amid conflicting counsels and changes of mood in the profession Dr. Dain has with courage and tenacity kept clearly in front of him —and in front of the doctors of this country—the principal policies of the British Medical Association. With this he has combined a remarkable grasp of detail and a capacity to expound before medical meetings both the particular and the general in forthright and orderly English. This he has done with an energy and endurance that might be expected of a man one or two decades younger than himself. It is indeed difficult to recall that he was in 1917 a member of the Insurance Acts Committee, of which he became chairman; his services for the medical profession under the N.H.I. Acts were recognized in 1936 when he received the Gold Medal of the B.M.A. It is good to know that he has agreed to continue taking an active part in Association affairs by serving on its Council and on many committees.

It can be no easy task to follow Dr. Dain, but, like him, the new chairman of Council, Dr. E. A. Gregg, has been chairman of the Insurance Acts Committee and of the Representative Body. He therefore brings to his new and distinguished office a long and well-tried experience in medical politics and a capacity, too, to give unstintingly of his time and energy to the affairs of the Association. There are in the coming year also changes in the membership of the Council, and fourteen doctors will for the first time take part in its deliberations. There is provision in the Association's constitution for the past President to be a member of Council, and in this capacity the Association will continue during the next year to have the advantage of Sir Lionel Whitby's interest in and grasp of the business of a body which can through its membership speak for the profession as a whole.

WILLIAM OSLER

We celebrate this week the centenary of the birth of a great physician—"a physician of two continents"—for William Osler's name is honoured as much in Canada and the United States of America as in Great Britain. In paying tribute to Osler's memory we have been helped by six men who knew him well and whose memories of their friend bring him vividly before the reader thirty years after his death.

Sir Charles Sherrington, who as Professor of Physiology at Oxford worked closely with the Regius Professor of Medicine, tells of Osler's influence there as a scholar, humanist, and physician. In modern times Oxford has received many professors from other universities, but there can have been no worthier adopted son or one who so speedily became imbued with its spirit and tradition. Professor Charles Singer speaks of Osler's love of old books and manuscripts: "He was a true book-lover, to whom the very sight and touch of an ancient document brought a deep and subtle pleasure." Professor Singer also discerned in him, despite his gaiety, a profound and essential melancholy, as of one who had passed through some unknown tragedy to a life of human service. This trait was accentuated in Osler's last years by the loss of his only son.

Osler's cousin, Dr. W. W. Francis, who worked under him at Johns Hopkins University and completed the *Bibliotheca Osleriana* in a spirit of scholarly devotion, contributes an interesting account of the Osler family rich in new biographical detail. Lord Horder, who attended Osler in his last illness, emphasizes his encouragement of, and interest in, a younger colleague. Professor K. J. Franklin pays tribute to Lady Osler. As he says, "It is impossible to overrate what she did to stimulate 'the great physician,' to help him to make right decisions, to provide him with necessary recreation at home, to entertain their numerous friends while leaving him free for his work, and in countless other ways to be his ideal partner for twenty-seven eventful years." Lady Osler was a great and good woman, and no tribute to her husband's memory would be complete without reference to the important part she fulfilled as wife and helpmate. Lastly, Sir Arthur MacNalty contributes a biographical study of Osler based on personal knowledge of the great physician during his years at Oxford.

The life of Osler falls into three distinct periods: the Canadian period, during which he did his scientific researches as zoologist, physiologist, and pathologist and taught the new learning in medicine at McGill University; the American period, in which at Philadelphia he enhanced his reputation as teacher and physician and afterwards as Professor of Medicine at Johns Hopkins University built up a famous medical school from the beginning; and the Oxford period, in which he not only served the Oxford Medical School but advanced British medicine and became one of its recognized leaders. Here too he found opportunity for gratifying his love of letters and for welding closer links between Britons and Americans, links which have been of paramount importance in two world wars. In the 1914–18 war Osler himself rendered conspicuous service as a consultant and adviser to the War Office.

Osler was an outstanding figure in medicine in his day and generation. He was the author of an original and widely read textbook of medicine, based on personal experience. He first described the blood platelets in the circulating blood; he made a number of observations on some rare diseases, two of which bear his name; he wrote monographs on medicine, lectures, and historical studies of men and books; and he was an able teacher and medical administrator. But these facts are insufficient to explain the great influence that he exercised on his contemporaries and on medical progress, or to render it apparent to a younger generation. The answer to this question will be found in the contributions from his friends and students assembled in this issue of the *Journal*. Throughout each and all of these tributes, like a golden thread in a variegated tapestry, runs, in addition to profound admiration for Osler's intellectual gifts, a reference to his humanity and the magnetic charm of his personality. Everybody who met Osler at once became his friend—high and low, rich and poor. The child, the student, the colleague, the old men at Ewelme, all realized that in Osler they had found a sympathetic confidant. This gift of approach to men and women was aided by his marvellous memory for faces. It was said of Osler that he never made an enemy. He never spoke unkindly of anyone, and, realizing the imperfections of mankind, sought out the best in everyone. Like St. Martin, one snowy night in Baltimore he gave his cloak to a beggar, who in return bequeathed to "my good friend William Osler" his liver, hobnailed by drink.

In some respects Osler was a saint of medicine, yet, as his practical jokes showed, a very human saint. He spent himself freely for others, for the honour and dignity of his profession, and for the common weal. He declared that happiness lies in absorption in some vocation that satisfies the soul; that we are here to add what we can to, not to get what we can from, life, and he lived up to that belief.

EARLY WEANING

Is breast-feeding on the decline? General impressions are that it is; on the other hand, history records that from the time that infant feeding became the subject of special study in this country there have always been many mothers unable or unwilling to suckle their babies. Fashion, fancy, poverty, ignorance, and social trends have all in their day had the blame attributed to them. So has the mother-in-law, despite the fact that breast-feeding has no more effective propagandist than the mother-in-law who has herself nourished all her family on the breast. The influence of these various factors changes with the times, and without more reliable evidence it would be unwise unreservedly to accept that the mothers of to-day are less inclined to breast-feed than those of previous generations. If there is reason to doubt an absolute decline in the incidence of breast-feeding there is more justification for believing that a tendency exists for breast-feeding to be terminated earlier than hitherto. Spence[1] drew attention to this before the last war, and evidence in support of his views was later put forward by Robinson[2] and Hughes.[3] In last week's *Journal* (p. 14) Dr. F. H. M. Dummer described a recent investigation in Hertfordshire. He found that only 13.2% of babies were still wholly breast-fed at the age of six months, and he pointed out that the "mode" in breast-feeding is set by the primiparae. Physical incapacity on the part of the mother or infant is a relatively rare cause of failure to continue breast-feeding. Failure is not infrequently ascribed to "physiological insufficiency." Dummer rightly criticizes the use of the term, for it includes many ill-defined causes concerning which little is known, no matter how suspect they may be.

In a Ministry of Health report[4] the opinion was expressed that a rigid feeding routine in institutions may have an adverse effect on breast-feeding. This view finds its extreme form in the self-regulating feeding programme recommended by Aldrich and Hewitt.[5] Obviously there is a need for compromise between a routine rigidly imposed and self-regulation freely allowed. Allowance must be made for the emotional disturbances which are experienced by the recently delivered mother and which tend to be aggravated when she returns home from hospital—a crucial time for the successful maintenance of breast-feeding. Midwives, health visitors, and doctors who are themselves mothers are the readiest to testify to this fact and to its particular importance in the case of a mother recently delivered of her firstborn. Naish,[6] a staunch advocate of breast-feeding, has warned against irrational insistence on complete breast-feeding when convincing contraindications are present. A persistently hungry baby and a continuously miserable mother are poor advertisement for breast-feeding.

It is probable that insufficient use is made of complementary feeds as a temporary measure to tide over the difficult lactational phases which may occur in the first and third months after delivery. For success in the use of complementary feeds the full co-operation and complete

[1] *British Medical Journal*, 1938, 2, 729.
[2] *Arch. Dis. Childh.*, 1939, 14, 259.
[3] *British Medical Journal*, 1942, 2, 69.
[4] *The Breast-feeding of Infants*, 1944. Ministry of Health Report, No. 91 London: H.M.S.O.
[5] *J. Amer. med. Ass.*, 1947, 135, 340.
[6] *Breast Feeding*, 1948. London.
[7] *Arch. Dis. Childh.*, 1946, 21, 105.
[8] *University of Leeds Medical Magazine*, 1943, 18, 37.

confidence of the mother have to be won. Perhaps it is failure to secure this that contributes to the trend towards premature weaning, for some mothers not uncommonly discontinue breast-feeding without seeking professional advice of any kind. Antenatal care offers valuable opportunities for obtaining the mother's confidence, and preparation for breast-feeding along the lines advocated by Waller[7] has much to recommend it on both physical and psychological grounds. Intimate, unhurried, and understanding advice, whether given in the home, in the antenatal clinic, or in the lying-in ward, encourages the mother to continue to seek guidance about the feeding and care of her infant. It is important that she should not feel that the continuity of professional advice is broken, and, ideally, the mother should be present with her baby when responsibility for supervision of a "case" is being transferred by the midwife to a health visitor. Mothers are quick to sense discrepancies in the views held among those who advise them, and continuance of breast-feeding is unintentionally discouraged on occasions by the variety of advice proffered. Overlapping is not uncommon and should be avoided.

Breast-feeding is a subject calling for joint research. More opportunities are needed for the general practitioner and his medical and nursing colleagues in the maternity and child-welfare services to exchange clinical observations. Craig[8] considers that the answer to many of the problems of premature weaning are to be looked for in the home and the clinic and not in the hospital; and that the answers, when forthcoming, may well call for revision of instructions given to pupil midwives, student nurses, and medical students.

THE HADAMAR TRIAL

The Hadamar Institution, near Limburg, in Hesse-Nassau, was a mental hospital up to 1940. In January, 1941, it was given the further duty of putting to death German nationals alleged to be mentally ill and with undefined prospects of recovery. In the first seven and a half months there were 10,000 of these killings, at first by gassing and later by "medications and injections." It was a condition of the work that it should be performed in secrecy. In June, 1944, this practice was extended to non-German nationals, chiefly Poles and Russians, who allegedly suffered from advanced tuberculosis. The Hadamar trial was concerned with this second series of killings, totalling 476. It was conducted in Wiesbaden during October, 1945, by a military commission appointed by the commanding general of the United States Army, Western Military District of Germany. Its proceedings[1] provide a fantastic record of the change which can take place in the outlook and standards of a hospital once the motive for its existence has been lost.

The medical officer, Dr. Adolf Wahlmann, was not the administrative head of the institution. Neither did orders to kill have to be given, because "these people came with the aim of being killed." They came "after they had been examined by a specialist for lung tuberculosis," or, as Dr. Wahlmann later said, "I cannot know that. They might have been general practitioners." These people "came and were killed without my seeing them. . . . They came and walked in through the main gate. Then someone called up—I don't know to whom, but not to me." Dr. Wahlmann's job was "to hand out the medications. That was my task, and without medications death would not have set in." He did not know the average dose: that was "left to my chief nurses," and "the pharmacy was open to the two of them, so to speak." There were bottles containing morphine, scopolamine, chloral hydrate, and paraldehyde, and tablets of "veronal," sulphonal, and "trional." In the morning, on his desk, he received a slip of paper that the patients had died in the night, and he went down to the cellar to make an inspection which was "not thorough." He did not feel their pulses, or use a stethoscope: "I had to rely on the fact that my chief nurses had determined the death beforehand." He agreed that some of the dead "looked remarkably healthy." His motive in inspection was "to protect the personnel in case somebody accused them of cruelties or injuries." Also he signed the certificates, assuming "besides the tuberculosis, [death] from a weak heart or some other disease." Dr. Wahlmann had qualified in 1903, retired on pension from mental-hospital work in 1936 on account of heart disease, was recalled to service in 1941, and sent a year later to the Hadamar Institution. He was sentenced to hard labour for life.

Those sentenced to be hanged were Alfons Klein, the administrative head of the hospital and a member of the Nazi party, and Heinrich Ruoff and Karl Willig, the male nurses who gave the "medications and injections." There were also three further sentences of hard labour. There is little medical interest in the case of Klein: he seemed anxious in evidence to justify the administrative decision that these killings should take place. Ruoff, one of the male nurses, emphasized that, as well as injections, "we did quite a bit of work with tablets." Morphine and scopolamine were in short supply, and the men took the tablets "without any trouble." The women, who did not like tablets, were given injections. So were the children.

The killings of German nationals were not the subject of the trial, but were admitted in evidence as giving the background of the institution. They were in fact the reason that Poles and Russians—presumed to be from the German slave-labour force—were killed in this way and in this place. Two points of interest were the secrecy of the operation and the concentration of the killing in only four institutions, of which Hadamar was one. As to the first, Dr. Quanbusch, ex-chief prosecutor of Wiesbaden, testified that four or five years before the trial he reported to his superiors his suspicions that German insane persons were being put to death in asylums. He was visited by the Chief Prosecutor from Frankfurt and told that all prosecutors and court presidents had been invited to a conference in Berlin where, after viewing some pictures of insane persons, they were shown a photostat copy of an order from Hitler authorizing the killing of insane persons by physicians in the institutions under certain undefined conditions. This was classified as a "State Secret Affair," and it was no doubt this secrecy which led to the concentration of killings in particular institutions. The result was that what had been a hospital became a place of execution, acting not on its own medical judgment—apart from principle—but on decisions taken by others.

[1] *The Hadamar Trial.* War Crimes Trials, 1949, Vol. IV. General Editor, the Rt. Hon. Sir David Maxwell Fyfe. (Pp. 250. 10s.) London: William Hodge.

INSTITUTES OF MEDICAL STUDIES IN THE U.S.S.R.

BY

V. LEBEDEVA

Director of the Central Institute of Advanced Medical Studies of the U.S.S.R.

The provision of facilities enabling physicians to undertake advanced studies to improve their theoretical knowledge and practical qualifications is an important part of the public health system of the U.S.S.R. In the Soviet Union the advanced training institutes for physicians at the hospitals, polyclinics, maternity homes, maternity and child-welfare centres, and medical educational institutions are under the central authority of the State, which organizes and finances them.

The Soviet Government has issued a number of decrees on advanced medical studies. After every 3 to 5 years' work in the provinces every physician has the right to advanced training at State expense. During training he continues to draw his pay from his place of employment. The doctors attending the courses are provided with living quarters and all other conditions ensuring effective study.

Before the October revolution in 1917 Russia had only one institute for advanced medical studies. It was in St. Petersburg, and very few physicians could afford the cost of studying there. Only 9,906 physicians graduated from the institute in the 32 years of its existence (from 1885 to 1917), but in 25 years of Soviet power over 37,000 physicians graduated from it—that is, 1,500 a year, or five times as many as before the revolution.

The Soviet Government opened ten similar institutes in Moscow, Kazan, Kiev, Kharkov, Odessa, Minsk, Novosibirsk, Tashkent, Tbilisi, and Baku. The largest is the Central Institute, in Moscow, founded in 1930. Over 52,000 physicians have graduated from it in the 18 years of its existence—an average of 3,000 a year.

There are two systems of raising the qualifications of physicians: (1) Specialization—that is, learning a new medical specialty; and (2) advanced training, when the specialist gains further knowledge of an already acquired specialty. The course for advanced training used to be of 2 to 3 months' duration, but now it has been prolonged to 4–6 months and in some cases to 12 months.

This course covers the main branches of medicine—such as therapy, surgery, paediatrics—and also special subjects such as endocrinology, helminthology, laboratory testing, diet, remedial physical culture, and so on.

Physicians can improve their qualifications in various branches of medical science, including patho-physiology, pathological anatomy, and other theoretical disciplines.

The Central Institute

The Central Institute of Advanced Medical Studies has 49 chairs distributed among the three faculties of surgery, therapy, and sanitary hygiene. The teaching staff includes seven members of the Academy of Medical Sciences, six corresponding members, 43 doctors of medicine, and 111 masters of science (medicine).

The major clinics of the Central Institute are in the Botkin Hospital, the largest in Moscow. The chairs of theoretical subjects and of hygiene, such as epidemiology, microbiology, communal hygiene, food, and industrial hygiene, are part of the Institute's organization. The chair of public health is of special importance. The task of this department is to train skilled administrators and organizers of the public health service. The training course is 12 months.

The Institute maintains contact with its graduates through the consultation bureau, which advises them on various theoretical and practical subjects. Hundreds of physicians in the provinces are engaged in scientific work under the guidance of the Institute. In the second half of 1948 alone twenty physicians defended their theses on material received from the Institute.

The serial publications, *A Practical Physician's Library*, issued by the Institute and consisting of a number of monographs on problems of theory and practice, serve as an important means of contact between the physicians and the Institute. The Institute has its publishing house, which issued 40 books in about 500,000 copies in the last two years. It also has a library with 70,000 volumes.

The Central Institute sends its teachers out to various places. Some teams have already visited the Lithuanian, Latvian, Esthonian, Byelorussian, Central Asian, and Transcaucasian Republics.

One of the most important tasks of the Institute is training postgraduate students and housemen in all the medical branches represented at the Institute. This course of training is three years.

The five-year plan of the Ministry of Health envisages advanced training and specialization for most physicians. The major part of the plan will be carried out by the Central Institute of Advanced Medical Studies in Moscow.

LEBANON HOSPITAL FOR MENTAL DISEASES

The 50th annual meeting of the Lebanon Hospital for Mental Diseases was held in London on June 15, with Mr. H. Lyn Harris, chairman of the general committtee, presiding. The history of the hospital and its background was sketched by Mr. Albert Hourani, who gave a vivid picture of the primitive Lebanon of fifty years ago as compared with the modern republic. The hospital itself had shared in these changes. From being a place for the segregation of the mentally afflicted, and then a place for their treatment and relief, it had become a centre of demonstration, experiment, and training for work in mental diseases in the Middle East.

Dr. J. Tylor Fox, on behalf of the medical director, Dr. R. B. Robertson, presented the medical report. There were 454 patients admitted during 1948 and 375 discharged, both figures showing an increase of some 120 on the previous year; 320 patients were now in residence. Electric convulsion therapy was used during the year in 171 cases, chiefly of schizophrenia and affective psychoses, with recovery in 70, relief in 41, and temporary relief in 28. Prefrontal leucotomy had been undertaken by Dr. Jidijan, of the American University at Beirut, on two patients. This was believed to be the first time the operation had been performed in the Middle East. One interesting and important departure was the setting up of an out-patient neuropsychiatric clinic at Beirut. Dr. Tylor Fox said that the turnover of the hospital for its size was larger than that of any mental hospital in England. In physical treatment and in occupational therapy it was a pioneer in its part of the world. Four-year medical students from the American University went there for training in psychiatry. Even such a modern feature as the hospital club for staff and patients had been instituted. Short addresses were given by other sympathizers with the work, including the minister of the Swiss Church in London.

ROYAL SOCIETY OF MEDICINE

NEW HONORARY FELLOWS

Sir Henry Dale, O.M., who was re-elected for a second year as President of the Royal Society of Medicine at the annual meeting of the Society on July 5, presented on the same occasion diplomas to five newly elected honorary Fellows.

In making the presentation to Sir Ernest Rock Carling he referred to his innumerable activities, especially on the Radium Commission and the King Edward's Hospital Fund, and described him as a distinguished surgeon, a great servant of the community, and a valued counsellor in the Society. Dr. Brock Chisholm he greeted as a Canadian and as one who by virtue of high international office was charged with great responsibility for the co-ordination of medical activities over a large part of the world. He was most fittingly the first Director-General of the World Health Organization. The next

diploma was presented to a recent president of the Society, Sir Gordon Gordon-Taylor. Sir Henry Dale referred to Sir Gordon's distinguished record in the war, when he was "arrayed as it seemed with such natural fitness in the uniform of a rear-admiral." His eminence in surgery and his gift for imparting knowledge were recognized all over the world, as witnessed by the fact that Melbourne, Toronto, and Athens had honoured him with degrees. His readiness to serve the Society was a great support to its present president. The fourth diploma was presented, *in absentia*, to Dr. Alan Gregg, head of the division of medicine of the Rockefeller Foundation, who had shown most sympathetic understanding of the needs and true spirit of research. "I find it impossible to suppose," said Sir Henry Dale, "that any internationally constituted organization within any future which we can discern will be able to devise quite such wise and independent distribution of support for medical research on so completely an international basis as that which the Rockefeller Foundation has achieved with such success." The last recipient was Professor René Leriche, of Paris, who was described as one of the most fertile and original workers in the field of surgery. The president had a special interest in welcoming Professor Leriche to honorary fellowship, because he was an exponent of surgery which had its roots in experimental physiology. He specially mentioned his work on the surgery of the sympathetic system. He already held the Lister Medal for surgical research.

After the presentations the ordinary business of the annual meeting proceeded. The report of Council showed that the Society had 9,389 members, a gain of 360 on the year, and that 1,393 members were resident abroad. A vote of thanks was accorded to the retiring honorary secretary, Mr. W. A. Pool, and the retiring vice-presidents (that is, presidents of sections) and other members of Council.

CONGENITAL PULMONARY STENOSIS

SURGICAL TREATMENT

The second Alexander Simpson-Smith Memorial Lecture under the auspices of the West London Hospital Medical School was given by Mr. R. C. Brock on June 15.

Mr. Brock opened by saying that the relief of certain forms of cyanotic congenital heart disease had aroused considerable interest during the past two or three years. The present seemed a suitable time to review the position and to assess the results of the Blalock-Taussig operation and its modifications. The problem of the "blue baby" had always been a tragic one, but it was only since operation became possible that the incidence and the full tragedy of the condition had been manifest. Many of these children had been hidden away, confined to their house or room for the greater part of their lives. There were children as old as 6 who had never been able to walk.

The mortality during the first few years of life was high, and only a few patients who reached the twenties were able to carry on any useful employment. At the congenital heart clinic at Guy's Hospital during 15 months 340 cases (185 male, 155 female) had been seen. One in two reached the age of 7, one in five the age of 14, and less than one in 10 the age of 21. During those 15 months 24 patients had died while awaiting admission to hospital.

Although the operation carried a considerable risk, the risk in most cases was far less than that of leaving the condition untreated. It was not enough for the surgeon to acquaint himself with the technical details of vascular anastomosis, nor was it a type of surgery for the lone operator. Team work was essential, and at Guy's 15 people were actively engaged in the management of these cases. As soon as it became possible to operate on cases of this kind, accuracy in diagnosis ceased to be an academic refinement. Clinical assessment was of first importance, aided by routine radiography.

Pre-operative Assessment

Blalock and Taussig had pointed out that the cyanosis and disability were due to the mixing of the venous and arterial blood in the heart and to inadequacy of the supply of blood to the lungs; the most important element in their contribution was the elucidation of the part played by this second factor. Th pulmonary blood flow must be assessed in each case. By radio graphy and radioscopy it was possible to exclude those case in which there was evidence of plentiful or excessive blood flo in the lung, as shown by the degree of vascularity. Mr. Broc here illustrated methods of cardiac catheterization and angio cardiography. By angiocardiograms it was easy to demonstrat right and left shunt, and by studying the anatomical arrange ment of the vessels the surgeon could form an idea whethe they were likely to be suitable for anastomosis.

Owing to the smallness of the vessels, operation before th age of 2 was not recommended by Blalock. The policy at Guy' had been not to operate much before the age of 5. Olde children on the waiting-list could not with safety be left to wai as long as the younger. Blalock also, if possible, avoide operation on patients over the age of 20, and with this th lecturer fully agreed. The oldest patient operated on success fully at Guy's was aged 29.

Mr. Brock went on to describe Potts's operation, which ther had been a tendency to adopt because it appeared to be quicke and easier than Blalock's operation. If it was possible t mobilize the subclavian artery to make an effective anastomosis it seemed to him unjustifiable to use the aorta. In the choic between the subclavian and the aorta he could not feel it righ to choose the aorta; if anything happened to that importan structure there were no means of retrieving the situation. Th special advantage of Potts's operation was in those cases i which the subclavian artery was very small or very short. H felt that the use of the carotid or innominate artery could no be justified.

Blalock recommended an antero-lateral intercostal approacl but the lecturer himself had given that up after trial, preferrin a postero-lateral approach. He had also, after 50 cases, aban doned the approach from the right side. By working from th left side a very thorough examination could be made. Ther was a marked tendency for bleeding to occur after operatior and he made it a rule to drain the chest in every case. Tha was an important point for those who were intending t embark upon these operations.

Mortality and Results

In his latest report on 610 cases Blalock gave an overal mortality of 17%. In the first 50 cases at Guy's seven patient had been lost, a mortality of 14%. The total number of case in which Blalock's or Potts's operation had been employed wa 86, with 13 deaths, a mortality of 15%. Among these 86 wer a large number of very poor risks. Blalock stated the result to be excellent in 75% of his cases. Among the first 50 case at Guy's, in addition to the seven deaths, there were three i which there was no improvement, but in 66% the result wa described as "almost perfect." He mentioned the case of lad who previously could not walk 10 yards, but after opera tion was able to ride a motor-cycle. A young woman who wa rescued from a condition of helplessness by operation was no married and pregnant and the pregnancy was being allowed t continue.

Mr. Brock finally discussed pulmonary valvular stenosis an its relief by valvulotomy, which he had performed with succes in five cases, and also infundibular stenosis and its relief b direct operation, which had been achieved with success i five cases. All these cardiac operations, he said, cause considerable anxiety and raised many difficult problems, bu he felt that it was only by dealing with these cases that th feasibility or otherwise of such operations could be judged Although most of the present work was directed to the relief o congenital abnormalities, the relief of acquired heart lesion was now feasible in some cases, and here the knowledg obtained by the surgeon in dealing with congenital lesions mus help.

Reference was made by Mr. Brock himself, by General Nei Cantlie, who took the chair, and by Dr. Geoffrey Konstam who proposed the vote of thanks to the lecturer, to the promis ing young surgeon, Alexander Simpson-Smith, in whose memor the lecture was founded. Simpson-Smith was taken prisone at Tobruk. He made a gallant attempt to escape to the Britis lines, and his body was subsequently found.

Nova et Vetera

ST. THOMAS'S PARISH VESTRY RECORDS AND A BODY-SNATCHING INCIDENT

There is now available for those who wish to study them in the library at County Hall, London, a collection of books and documents of the vestry of St. Thomas's Parish, Bermondsey, which the L.C.C. has recently acquired. St. Thomas's parish comprised St. Thomas's Hospital on its old site, Guy's Hospital, and a small area around: Horwood's map showing the parish boundaries in 1819 is reproduced in Parsons's *History of St. Thomas's Hospital*.[1] It ceased to be a separate civil parish in 1899.[2] It has been suggested that it was a separate parish even before the church was built, and was certainly one in 1378.[3] For ecclesiastical purposes it was merged by Order in Council in 1898 with St. Saviour's (now St. Saviour's with St. Peter's), the parish and hospital church being to-day the chapter-house of Southwark Cathedral.

The muniments acquired by the L.C.C. cover the period from the latter part of the seventeenth century to the early part of the nineteenth. As is to be expected, there are references in the records to St. Thomas's Hospital and to Guy's Hospital. In 1703 the vestry declined to appoint a committee to negotiate with the former the exchange of almshouses for other houses "untill the Gouvrnors of the said Hospital have given ye vestry Satisfaction in Relation to the Vaults under our Church."[4] Another time there was amicable discussion on whether the parish or the hospital should pay for the "surplices."[5] The underwardens' accounts for 1754 include an item: "ye Hospitals Beadles £5."[6] At a vestry held in the school-room on March 22, 1805, it was reported that "the Treasurers of St Thomas's and Guy's Hospitals were authoris'd by their Committees to advance the Parish the Sum of £150, towards defraying the Expence demanded, on the failure of raising seven Men for the Army of Defence." As that left a deficiency of £58, the meeting decided to raise a shilling in the pound rate.[7] In 1815 there was friction between the parish and the hospitals about whether certain persons connected with the hospitals should pay rates. The parish won a test case at the Quarter Sessions. The counsel representing the vestry thereupon "proposed to give up the Cases of Mary Boyce the Cook of Guy's Hospital, and of John Spooner the Porter, Cathne Wheeler the Cook, Jane Wright the Matron, and Jas Patterson the Porter of St Thomas's Hospital, the aggregate amount of whose Rates was inconsiderable," if certain other appeals were abandoned.[7]

Body-snatching

From the medical point of view, however, perhaps the most interesting item in the records is the transcription in the minute-book in 1795 of a report of a general meeting held at the Crown and Anchor Tavern to consider the "lately discovered Depredations in Lambeth Burial Ground." The account given at the meeting states:

". . . It appeared, that the robberies of the said Burial Grounds, were discovered by three men being disturbed as they were conveying from thence five human bodies in three sacks, in the night of the 18th of February last.

"That in consequence of such discovery, people of all descriptions, whose relations had been interred in that Ground, resorted thereto, and demanded to dig for them; which being refused they in great numbers forced their way in, and in spight of every effort the Parish Officers could use, began like mad people to tear up the ground; at the same time, charging the Officers and every one that offered them any opposition, with being privy to the robberies, and in general terms threatening them: thus circumstanced, the Parish Officers finding nothing but down-right force, (and that of more strength than the civil power) could prevent the populace, and fearing to bring on a riot (which in its effects might produce the most serious consequences) after having used every effort, short of force, were necessitated to give way, and let the people go on in their searches; by which a great number of empty coffins were discovered, the corpses having been stolen from them; great distress and agitation of mind was manifest in every one, and some, in a kind of phrensy, ran away with the coffins of their deceased relations; and the generality of the populace were so ripe for mischief, that they attacked a house with stones and brick-bats, upon the bare suspicion that the occupier had been concerned in, or privy to the robbery of the ground, and it was with difficulty they were prevented from demolishing it.

"To restore order, and discover the offenders if possible, a large reward was offered, and the committee aforesaid appointed; by whose enquiries, it was found that the Grave Digger, and three other persons were the robbers, and that the bodies had been conveyed away in a coach to different people for various purposes, as was made appear to them by informations upon oath; the material parts of one of which informations being now read, showed, that within the knowledge of the informant, eight surgeons of public repute, and a man who calls himself an Articulator (and by hand-bills openly avows the trade, exclusive of others of less note) are in the constant habit of buying stolen dead bodies, during the winter half year; in whose service the following fifteen persons are generally employed, namely, Samuel Arnot, alias Harding; John Gilmore, Thomas Gilmore, Thomas Pain, Peter McIntire, alias Mc Intosh, James Profit, Jeremiah Keese, Moris Hogarty, —— White, a man called Long John the Coachman, John Butler, John Howison, Samuel Hatton, John Parker; and Henry Wheeler, whose depredations have extended to thirty Burial Grounds that the informant knows of; and that grave diggers, and those intrusted with the care of Burial Grounds, are frequently accessory to the robberies, and receive five shillings per Corpse for every one, that with their privily is carried off, by which means many hundreds are taken from their graves annually.

"That with the Surgeons and with the men above alluded to, there is a set price for dead bodies, Viz. for an Adult, two guineas and a Crown, and for every one under age, six shillings for the first foot, and nine per inch for all it measures more in length; that the bodies thus procured are used here in various ways, and the flesh by some burnt, by others buried, and by others the informant did not know how it was disposed of; that some bodies are prepared and made into Skeletons, and sent to America, and the West Indies; and many with the flesh on, or made into Skeletons, are sent into different parts of the Kingdom.

"By another informant upon oath, the whole of which was also now read, it appeared that the aforesaid Articulator, makes the most wanton use of some that fall into his hands, substituting human skulls for nail boxes, and having the Skeleton of a Child, instead of a doll, for his own child to play with.

"The Chairman also acquainted the meeting, that from other evidence (which though not yet upon Oath yet such as may be relied on) information is given that experiments have been tried and perfected, whereby human flesh has been converted into a substance like Spermaceti, and candles made of it, and that Soap has also been made of the same material."

The representatives of the various London parishes who attended the meeting were indignant at the state of the law over body-snatching, and a subsequent meeting decided to try to get a Bill passed to make the stealing of bodies a capital offence. St. Thomas's vestry decided to subscribe five guineas to the expenses of such a Bill.[7]

LAURENCE DOPSON.

The licensing of foreign medical graduates in the United States has recently been discussed by Barker and Mooney in the *Journal of the American Medical Association* (1949, 140. 10). Twenty-three States will not admit graduates of any schools outside the United States and Canada. At the time of writing there were eight States in which recent graduates of foreign medical schools may be permitted to practise. In addition, graduates of certain schools in Great Britain may be acceptable in several other States. It appears that two States, Mississipi and Rhode Island, admit foreign graduates without much restriction. The rules made by the various State examining boards change rapidly, and it is difficult to provide completely reliable and up-to-date information.

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[1] Parsons, F. G., *The History of St. Thomas's Hospital*, 1932, 1, facing p. 126. London.
[2] London Government Act (62–63 Vict., c. 14).
[3] Parsons, F. G., *The History of St. Thomas's Hospital*, 1932, 1, 52.
[4] L.C.C. Muniments, P/71/213.
[5] Ibid., P/11/215.
[6] Ibid., P/71/2.
[7] Ibid., P/71/216.

ONE HUNDRED AND SEVENTEENTH ANNUAL MEETING

of the

British Medical Association

HELD AT HARROGATE, JUNE, 1949

THE SECTIONS

SUMMARY OF PROCEEDINGS

In subsequent issues there will be printed in the BRITISH MEDICAL JOURNAL *a few of the opening papers read at the Scientific Sections. All the papers will be published in full in a separate volume of Proceedings. The reports of the discussions in this and successive issues are intended to give members who were not present a general idea of the proceedings.*

SECTION OF MEDICINE

Tuesday, June 28

Diabetes Mellitus

After Professor R. E. TUNBRIDGE (Leeds), president, had opened the meeting, Professor A. P. THOMSON (Birmingham) took the chair, and Dr. R. D. LAWRENCE (London) opened a discussion on diabetes mellitus. He said that recent experiments, especially with tracer elements, had shown that a large amount of the excess of carbohydrate taken into the body was rapidly changed into and stored as depot fat. Chemical metabolism was dependent on enzyme actions, accelerated or retarded by hormone influences; glucose was unavailable until it had been changed into phosphate compounds. Insulin stimulated the enzyme hexokinase, which formed hexase phosphate; after that, other enzyme systems took on further processes in carbohydrate utilization. Insulin thus made an excess of glucose available by phosphorylation, first for immediate burning, secondly for a glycogen store, and thirdly and largely for storage as fat.

Diabetes might be divided into two types—they might even be two distinct diseases. There was the middle-aged obese person, particularly women at the menopause, in whom the urine was laden with sugar but there was no ketosis. That type should rightly be treated by diet alone, a diet low in carbohydrate, fat, and calories, with the aim of reducing weight. When those patients had lost weight the sugar disappeared. The use of insulin was bad, for it tended to continue and even increase the obesity, which was the essential defect. The second type, with wasting and ketosis, occurred mostly in young adults, and the presence of ketosis indicated a real deficiency in insulin production requiring substitution injections. Thus the test for ketones was of the greatest importance.

There were now several types of insulin (see Table). Their difference in time and strength must be clearly appreciated for their efficient use in treatment. Dosage must be regulated by trial and error; there was no individual dose.

There were two groups of the type of diabetic who needed insulin. The severe diabetic produced no endogenous insulin, responded rapidly for some hours while insulin absorption was strong, but relapsed into a severe diabetic state when absorption ended. There was also the milder group of patients who produced some endogenous insulin but who needed some exogenous insulin after eating a reasonable amount of carbohydrate.

Professor R. E. TUNBRIDGE (Leeds) said that experimentalists had shown that in diabetes in animals, produced by partial pancreatectomy or alloxan, a limitation of calorie intake slowed the rate of development of hyperglycaemia and ketosis, and statisticians had shown that there had been a decline in mortality from diabetes mellitus after the introduction of rationing during both world wars. It seemed that calorie restriction was essential in constructing a diabetic diet. He suggested the following as being reasonable diets: (1) For the obese, a period on a diet of 1,000 to 1,500 calories; (2) for the elderly, a diet of 1,200 to 1,800 calories; (3) for the remainder of the diabetics, a calorie value of 1,800 to 2,400. Only a small percentage of patients actually took the diets prescribed. Of 94 patients attending the Leeds General Infirmary who recorded their food intake for one complete week in March, 1948, together with its cost and other relevant sociological factors, 16 yielded satisfactory results; in 44 the findings were tolerably satisfactory, and in 34 hopeless. The causes were (1) lack of intelligence and inadequate training; (2) economic; and (3) sociological. Unfortunately the intelligence quota of many out-patients was such that it was almost impossible to teach them the intelligent use of equivalents. The economic factor was usually overlooked. The survey showed that the cost to the average diabetic patient was at least 25s. per week (compared with an average of 10s. per week for non-diabetic diet), and only in one or two instances had it been possible for a person to maintain an adequate diet at a lower cost.

Insulin in Adults

Type of Insulin	In Doses	Duration of Action	Commonest Time of Hypoglycaemia	Remarks on Type of Action
Soluble	to 10 units to 20 ,, to 40 ,, +	5–6 hours 6–8 ,, 10–12 with big doses	2–4 hours 3–6 ,, 6–8 ,,	Begins action within ½ hour Quick and strong Balances much carbohydrate
Protamine zinc insulin	to 10 units to 20 ,, to 30 ,, 40 units +	6–8 hours to 12–18 hours to 18–24 ,, 24 hours or longer	5 hours 8–12 hours 8–20 ,, 16–24 ,,	Begins action within 3 hours Action weak but prolonged Balances carbohydrate poorly
Delay (retard) and globin zinc insulin	to 20 units to 40 ,, + to 60–100 units +	8–10 hours 12–16 ,, 24+ ,,	5–8 hours 9–10 ,, 10–24 ,,	Much nearer soluble insulin in action than to P.Z. insulin

Mr. D. A. HALL, Ph.D. (Leeds), described a method of estimating the blood sugar—a micro-colorimetric method repeatable with great accuracy, quick, simple, requiring little apparatus, and with durable reagents. Blood, 0.1 ml., was washed into 3.7 ml. of isotonic copper and sodium sulphate solution (320 ml. of 3% $Na_2SO_4.12H_2O$, 30 ml. of 7% $CuSO_4.5H_2O$). The protein was precipitated by 4 drops of 4% sodium tungstate. The mixture was then shaken and filtered through fluted paper into a tube graduated at 1, 1.5, 2, and 5 ml. 1 ml. was collected; Solution A (1.3% $CuSO_4.5H_2O$) was added to 1.5 ml., and then Solution B (24% sodium potassium tartrate, 4% Na_2CO_3, 5% $NaHCO_3$, 3.68% potassium oxalate, 0.14% KI). The tube was plugged with cotton-wool and boiled for 10 minutes. After cooling, phosphomolybdate solution of Folin and Wu (1920) was added to the 5 ml. mark. The colour was then compared with standards.

Dr. A. J. BALLANTYNE (Glasgow) described the ocular changes in diabetes, and said that the late stage was not often seen because of cataracts, vitreous opacities, and haemorrhages, but the disk became obliterated by infiltration and oedema, and there was gross infiltration throughout the fundus. There was no cure for diabetic retinopathy.

Mr. H. H. FOURACRE BARNS (London) said that pregnancy complicated by diabetes mellitus was associated with a high mortality rate. Despite the introduction of insulin the foetal mortality rate had remained at approximately 40%. Large babies and a high foetal mortality rate occurred also in the case of women who subsequently developed diabetes. It had been thought that overactivity of the maternal anterior pituitary gland might be responsible. A series of diabetic pregnant women had therefore been treated with 35–40 mg. stilboestrol

daily; so far 16 had been treated, with four neonatal deaths. There had been no reduction of the tendency to produce large infants, which would suggest that either their hypothesis of the diabetogenic growth complex causing gigantism was incorrect or stilboestrol in the dosage given was not effective in suppressing the production of that hormone.

Dr. CHARLES ROLLAND (Edinburgh) thought it possible that overactivity of the anterior lobe of the pituitary might be the common cause of diabetes, large foetus, and pre-eclamptic toxaemia.

Dr. R. G. PALEY (Leeds) said that cutaneous reactions occurred in 55.8% of patients. They were due to impurities in the insulin and could be greatly reduced by using six-times recrystallized insulin solution. In 30% of patients there was a spontaneous desensitization, and in the rest the symptoms were rarely severe enough to indicate the purified insulin. Dr. K. M. A. PERRY (London) remarked that 1 in 40 diabetics developed pulmonary tuberculosis, and therefore it was essential to examine their chests by *x* rays at frequent intervals. Dr. R. R. BOMFORD (London) emphasized that growing adolescents were the exception to the rule of dietary restriction. They must have enough food to grow.

Dr. ELLIOT P. JOSLIN (Boston, U.S.A.), described by the chairman as the "grand old man" of diabetes and as essentially a general physician, discussed the changes in treatment that had taken place in his lifetime. He had treated diabetes for 25 years before insulin; now diabetic coma had almost disappeared. Diabetes was commoner than generally believed. In his home town the U.S. Public Health Service had carried out a survey of the 5,000 inhabitants, and besides the 40 known diabetics they had found 30 more unknown ones. The doctor treating diabetes who maintained a strict control over his patients had great opportunities for studying disease and learning of its beginnings. Of the 229 deaths which had occurred in his diabetic patients only 5 had resulted from the diabetes. Diabetes was universal; it was as common in rich towns as in poor towns. It was as common in the Red Indian as in the negro and white populations. In the 150 millions in the United States there were one million known diabetics and probably as many unknown.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Tuesday, June 28

Breech Presentation and its Management

Mr. R. NEWTON (Manchester) said that many statistics on breech presentation and its management had been produced since the Annual Meeting at Belfast in 1937, when Macafee and McClure surveyed a series of 349 breech deliveries, with a corrected foetal mortality in primiparae of 10%, in multiparae of 3.42%, and in all cases of 6.10%. Potter, of Buffalo, had fired the imagination with his good results, and at the B.M.A. meeting at Eastbourne in 1931 Holland, Gibberd, and Bourne had pointed out the heavy loss of foetal life in breech deliveries. Since 1931 external version had come to be accepted by nearly all authorities. Keith Vartan had shown that by the thirty-fourth week most cases had undergone spontaneous version and that few would undergo reversion. The reversion rate was higher after external version, "a fact which suggests that the obstetrician is not so clever as the foetus in deciding when the operation should be done." External version was best accomplished by pushing on one pole of the foetus and turning the easiest way. At Withington Hospital, Manchester, he had found that there was a foetal mortality of 2.6% in 116 successful versions. If version failed, the obstetrician's first duty was to exclude the possibility of contracted pelvis.

The first stage of a breech delivery could be managed in much the same way as a normal vertex presentation. There was greater likelihood of prolapse of the cord when the membranes ruptured. Several authors—for example, Heaton and Guyer—had shown that early rupture of the membranes, which was more common in breech deliveries, did not contribute to foetal mortality. Difficulties arose in the second stage of labour. Sir Eardley Holland had emphasized that the foetus died of trauma, always or nearly always—and nearly always at the outlet. Other causes of death were not important.

Mr. Newton stressed the need for attention to detail. He practised conservative methods of delivery, but when difficulty arose he undertook complete extraction under general anaesthesia. This presupposed a trained anaesthetist. Episiotomy, he thought, was nearly a necessity in every primipara, but he preferred conservatism and the insertion of a stitch as soon as the perineum showed signs of tearing. It was seldom that the tear extended when this was done. For the arms he used Potter's or Lövset's method; for the head, the Mauriceau grip, but forceps always in difficult cases.

The speaker went on to analyse 12 years' booked cases at St. Mary's Hospital, Manchester. They showed a corrected foetal mortality of 7.1%.

Foetal Mortality

Total Number of Cases	Caesarean Section	Remainder	Gross Foetal Mortality	Corrected Foetal Mortality			
				Twins Included	Second Twins Excluded	First Twins Excluded	Prolapsed Cord Excluded
1,148	147	1,001	26·5%	6·6%	6·8%	7·3%	6·1%
Corrected to 5½ lb. (2·5 kg.)				6·8%	7·4%	7·9%	6·5%

Foetal Mortality Rates in Primiparae and Multiparae

	Gross Foetal Mortality	Twins Included	Second Twins Excluded	First Twins Excluded	Prolapsed Cord Excluded
Primiparae ..	21·5%	6·7%	7·1%	7·4%	6·5%
Multiparae ..	34%	6%	6·2%	6·9%	5·1%
Corrected to 5½ lb. (2·5 kg.) ..					
Primiparae ..		7·3%	7·5%	7·5%	7·5%
Multiparae ..		6·2%	7·3%	8·7%	6·5%

The corrected foetal mortality for the last five years was as follows:

Weight	Corrected Foetal Mortality
From 3–4 lb. (1·4–1·8 kg.) ..	40%
4–5 lb. (1·8–2·3 kg.) ..	28%
5–6 lb. (2·3–2·7 kg.) ..	3%
6–7 lb (2·7–3·2 kg.) ..	6%
7–8 lb. (3·2–3·6 kg.) ..	4·5%
Over 8 lb. (3·6 kg.) ..	24%

By treating contracted pelvis, large babies, or prolonged labour by caesarean section, more babies could have been saved. There remained a hard core of "unexplained" foetal deaths, as well as those with prolapse of the cord. The answer to this was supervision by a team of experienced obstetricians and probably the more common use of breech extraction.

Dr. J. LÖVSET (Bergen) was welcomed as a distinguished visitor responsible for a marked advance in the treatment of breech presentation. He reviewed the conditions of practice in Norway. He stated that in breech deliveries he did not interfere before the buttocks were born if labour was proceeding normally. He considered that there were three indications for bringing down a leg: (1) mechanical disproportion (compound presentation or extended legs); (2) functional dystocia when incision of the cervix might be required at the same time that the leg was brought down; (3) signs of distress in the mother or foetus. Which leg was brought down was unimportant.

Dr. Lövset's material comprised breech deliveries over the last 14 years at the Hospital for Women in Bergen. During the first seven years the deliveries were managed conservatively, whereas during 1941–7 they were treated as he had previously indicated. Twins, versions, and extractions were excluded. The corrected foetal mortality rate for 1934–40 was 9.86% and for 1940–7 3.93%. He advised a careful watch during labour and delivery, and the prophylactic bringing down of the leg.

Mr. B. L. JEAFFRESON (Leeds) considered only primigravidae. He said that the factors favouring successful delivery were as follows. (1) A small child. Labour should be induced if there was evidence that the child was likely to be larger than one weighing 7 lb. (3.2 kg.) (2) A pelvis of normal size and shape. In all cases this should be investigated by internal palpation or by x-ray pelvimetry before labour started. (3) Relaxation of the pelvic floor and vulval orifice. It was possible that this could be obtained by the exercises advocated by Grantly Dick Read (see *Journal*, April 16, p. 651). (4) Adequate experience on the part of the obstetrician. (5) Deep surgical anaesthesia. The practice of the same doctor anaesthetizing the patient and conducting the delivery was to be condemned. Caesarean section was to be considered only when the patient was elderly or the delivery was made difficult by some other obstetric complication.

Mr. C. MCINTOSH MARSHALL (Liverpool) said that the foetal mortality in breech delivery was primarily and finally dependent more upon the weight—that is, the size—of the infant than upon any other single factor. He produced figures, which are shortly to be published, in support of this thesis. Three general rules could be disregarded only at the expense of foetal lives: (1) There should be no vaginal breech delivery, whatever the weight of the infant, through an abnormal or contracted pelvis. (2) There should be no vaginal delivery of an infant over 7 lb. (3.2 kg.) through a "borderline" pelvis. (3) There should be no vaginal delivery through a normal pelvis if the weight of the infant was estimated to be over 9 lb. (4.1 kg.). These rules may be relaxed slightly in the case of multigravidae.

Mr. Marshall analysed 686 breech deliveries in 10 years. There were 27 foetal deaths—a mortality rate of 3.94%. And to show that progress was being made, in the last five years there were 374 deliveries with a mortality rate of 3.21%.

Professor A. M. CLAYE, who presided, opened the discussion by questioning Mr. Marshall's choice of different weight categories. He found it difficult to judge the weight of the foetus *in utero*. Mr. T. F. REDMAN (Manchester) said there was little justification for claiming that foetal losses in breech delivery could be reduced to the losses in vertex delivery. Certain factors—for example, prolapsed cord and difficulty at the brim—could be circumvented only by avoiding breech presentation. He believed, and produced evidence to show, that these factors operated as frequently in multigravidae as in primigravidae. Consequently, multiparae should receive just as much obstetrical care as primigravidae. All breech presentations should be delivered in hospital under responsible supervision.

Others taking part in the discussion were Mr. A. L. GUNN (London), Dame LOUISE MCILROY (London), Dr. ALAN BARKER (East Kent), Mr. G. GORDON LENNON (Oxford), and Dr. S. L. NAVARATNAM (Colombo).

Dr. LÖVSET in reply said he had never seen prolapse of the cord after bringing down a leg. He showed a film of the Lövset method of dealing with the shoulders. Mr. MARSHALL showed two films of breech delivery, and Mr. NEWTON summed up the discussion.

SECTION OF PATHOLOGY AND BACTERIOLOGY

Tuesday, June 28

Laboratory Diagnosis and Prevention of Whooping-cough

Professor ROBERT CRUICKSHANK (London) pointed out that whooping-cough was to-day the most serious of the specific fevers of childhood. It attacked some 70% of children and was an infection of early life with two-thirds of the cases in pre-school children and more than half the deaths in the first year of life. It was generally accepted that the infection was caused by *Haemophilus pertussis*, which could be cultivated from nasopharyngeal swabs or bronchial secretion on Bordet-Gengou medium.

Methods of controlling spread of the infection might be by early diagnosis and isolation of the primary case in nursery or family; by passive protection of contacts with specific antiserum; and by active immunization of susceptible children with pertussis vaccine. Because early clinical diagnosis was difficult when the child was most infectious, and because the cough-plate method was not easily carried out in domiciliary practice, they had used either swabs passed through the mouth to the postnasal space (postnasal swab) or fine swabs on flexible wire passed through the nose (pernasal swab). The latter method, used on infants between 6 and 18 months of age, had given a higher proportion of positive results and more profuse growth, practically free of contaminants, compared with the postnasal swab taken from the same infants at the same time. As an example of the value of these bacteriological methods of diagnosis, in the practice of one doctor swabs or cough-plates from children with suspicious coughs had in one year yielded positive cultures in 24 out of 36 cases subsequently confirmed clinically as pertussis; 23 of the positive results came from 24 early doubtful cases.

The demonstration of specific antibody by complement fixation or agglutination reactions was of no value for early diagnosis, as the antibody developed late in the infection, but a positive result could be used to confirm a dubious clinical history up to four to six months after the onset.

Early bacteriological diagnosis of a primary case in day or residential nurseries allowed the effective use of specific antiserum, prepared in horses or rabbits, for the passive protection of susceptible contacts. In three outbreaks antiserum had been given to half of the susceptible contacts, and the results indicated that the serum gave temporary protection if injected during the incubation period. Because of the risk of reactions to a foreign protein, hyperimmune serum, prepared by the immunization of adult donors, had been used, apparently with success, by American workers both for prophylaxis and for treatment. As the dose was 20 ml. repeated once or twice, it seemed a logical step to fractionate such hyperimmune serum and use the concentrated antibody-containing globulin.

At first sight active immunization against whooping-cough seemed to present little difficulty, since the infecting organisms were all serologically of one type and the clinical infection resulted in a high degree of immunity. Early experience with pertussis vaccines, before it was realized that smooth (phase I) virulent strains must be used, was disappointing, but even more recently different trials in America had given discrepant results, and a controlled trial among nursery children with a British vaccine had failed to show any protection. Obviously, with the increasing interest in the prophylactic use of pertussis vaccine, it became desirable to carry out controlled field trials with vaccines prepared in different ways to find out if any vaccine gave sufficient protection to justify its large-scale use and, if so, what were the essential requirements in a good vaccine. A committee of the Medical Research Council had been attempting to find the answers to these questions during the past few years.

Dr. W. C. COCKBURN (London) described the organization of the M.R.C. trials which were being carried out in eight different areas throughout the country. Only infants between the ages of 6 and 18 months, now totalling some 16,000, had been accepted, and every effort had been made to keep the vaccinated and control groups strictly comparable. Analysis of data on age, sex, size of family, feeding history, and previous infections other than pertussis showed that the two groups were remarkably alike. Workers engaged in the trials did not know which children had received the pertussis vaccine and which the control material. There was a very careful follow-up period of at least two years, with laboratory confirmation of suspicious cases.

Dr. D. G. EVANS (Manchester) pointed out that the antigenic structure of *H. pertussis* was complex. At least four antigens had been detected in phase I strains—agglutinogen, toxin, haemagglutinin, and soluble capsular substance. The importance of any one of these antigens in prophylaxis was not yet clear, and their protective value could be determined only by clinical trial. It was possible, however, from laboratory experiments to obtain some evidence of the relative importance of different antigens. Mice, which could be infected either intranasally or intracerebrally with *H. pertussis*, were being used to investigate the prophylactic effect of different antigens and their respective antibodies. Such investigations might reveal the effective immunizing antigen, or antigens, and allow the production of vaccines of more certain prophylactic potency than

was possible at present. They might also lead to the use of a purified bacterial fraction instead of the whole bacterial body.

In the general discussion, Dr. B. W. LACEY (London) said he had been using pernasal and postnasal swabs for the diagnosis of pertussis in children with suspicious coughs. From some 450 children he had isolated *H. pertussis* in over 100 cases and *H. parapertussis* in 14 cases. In four of the latter group *H. pertussis* was also present. He described the distinctive features of *H. parapertussis*, which could be isolated selectively by incorporating 5 units of streptomycin and 1 unit of penicillin per ml. of Bordet-Gengou medium. The organism was associated with a rather mild infection, usually occurring in small family groups.

Dr. H. SUGARÉ (Leeds), speaking as a general practitioner, stressed the urgent need for an effective prophylactic against this serious and debilitating disease. Dr. J. UNGAR (London) said that he had found 48-hour cultures most virulent for mice, but could not demonstrate a close correlation between mouse virulence and the haemagglutinating fraction of the organism.

In summing up, Professor CRUICKSHANK hoped that practitioners would soon be using the pernasal swab for the diagnosis of suspicious coughs in the same way as they used the throat swab for the differential diagnosis of sore throat.

Care and Treatment of Laboratory Animals

Dr. JEAN VINTER (London), technical secretary to the Universities Federation for Animal Welfare (UFAW), said that the welfare of laboratory animals depended on the good will of the experimenter and his technical assistants, on a sound knowledge of animal husbandry, and on the control imposed by law, in that order of importance. Legal control limited experimentation on animals to *bona fide* scientific purposes, required licensing of the experimenter and the premises, and instituted unannounced inspection by Home Office inspectors. There was legal control of animal experimentation in very few other countries and, as the British law was cumbersome, she had thought of drafting a model law with the inspector as a friendly adviser on animal care and outlining the conditions under which research work on animals was best performed.

Such a model law might be based on a schedule of degrees of suffering rather than on favoured animals, since there was no evidence that rats or mice suffered pain any less than cats or dogs. There should also be a qualified veterinary adviser attached to the Home Office inspectorate, who could be consulted about the breeding and supply of laboratory animals, their care and maintenance, the choice of anaesthesia, etc. It was worth while studying the *UFAW Handbook* and keeping in mind such points as these: needles should be really sharp; animals should have adequate space for exercise; most animals in captivity required water to drink; the best methods of anaesthesia should be known and practised; and there should be the same care and forethought given to the planning of animal as to the planning of test-tube experiments. It would be useful, too, if all medical students were required to attend one lecture on the functions and scope of animal experimentation in medical research.

Professor ALASTAIR N. WORDEN, editor of the *UFAW Handbook*, commented on the quickening of interest and recent progress in the use of small animals for biological research. He mentioned particularly the setting up of the Laboratory Animals Bureau by the Medical Research Council; studies on animal breeding and feeding at the National Institute for Medical Research, Hampstead; and the publication of the *UFAW Handbook*. He stressed the need for better standards in the training and status of animal attendants; the use of suitable food-containers to avoid wastage; the need for supplies of homogeneous stock; and the steps to be taken to avoid natural parasitic, bacterial, and virus infections among laboratory animals.

Professor R. J. V. PULVERTAFT felt that strong representations should be made to hospital management committees and other lay hospital bodies on the requirements for the proper housing and care of laboratory animals. Professor G. P. CROWDEN (London) said that more attention should be given to environmental conditions—heating, lighting, ventilation, and relative humidity—in animal houses.

SECTION OF RADIOLOGY

Tuesday, June 28

Scope and Limitations of Radiotherapy

Dr. J. S. FULTON (Liverpool) said that the action of radiation in the *x* and gamma ranges was fundamentally damaging. The effect of the dosage depended upon the volume of tissue irradiated. This concept enabled the effect of small doses in inflammatory conditions or of large doses in malignant disease to be assessed. A more favourable response was usually obtained when the treatment was in a relatively vascular area; it was less good when the vascular supply was temporarily impaired. Patients with carcinoma of the tongue who had syphilis or had had it previously, for example, invariably responded less favourably. Carcinoma of the lung, which appeared to be on the increase, offered a field in which radiotherapy was of real value, although it could rarely be regarded as other than palliative. The relief from pain and dyspnoea which radiation afforded was a genuine contribution to the treatment of the condition. Carcinoma of the oesophagus, again, was another valuable field for radiotherapy, and the same applied to radio-sensitive tumours of the nasal accessory sinuses.

There was a tendency to regard tumours of bone as hopeless, but this view was frequently unjustifiable, and he instanced cases in which good results had followed radiotherapy. In the treatment of non-malignant conditions he had obtained consistently good results in plantar verruca. The value of radiotherapy in ankylosing spondylitis and arthritic conditions was well established.

Dr. CHESTER WILLIAMS (Bradford) discussed treatment by radiotherapy in four anatomical sites. In the skin, radiotherapy had achieved its greatest success in the treatment of accessible tissues, but the more experienced the dermatologist the more conservative he was in its use. A dermatological colleague had come to the conclusion that it should not be used to treat lesions of the palm of the hand or the sole of the foot. Sufferers from pruritus ani needed urgent relief, which could be given in many cases by radiotherapy. Over 90% of rodent ulcers were treated successfully, but there were limitations in the treatment of epitheliomata—for example, radiotherapy was not successful in the treatment of epithelioma of the dorsum of the hand in the elderly. Lesions in the mouth, whether malignant or non-malignant, responded well to radiotherapy. In cancer of the breast he believed that simple mastectomy and radiotherapy was the treatment of choice. In cases of recurrent and metastatic cancer isolated nodules could be treated and would remain isolated for years, but multiple skin nodules presented an almost insoluble problem. Radiation could be repeated too often; plantar warts should be treated once only. There were also long-term dangers in treating excessive hair growth.

In some general discussion Professor B. W. WINDEYER said that radiotherapy must be regarded as a dangerous method of treatment, not to be used when other simpler and less dangerous methods would be effective. With regard to the treatment of ankylosing spondylitis, if the radiation was given through the sacral joints sterilization was apt to follow, but he thought it was possible to apply the radiation tangentially through those joints in such a way as to avoid this sequel.

Dr. J. R. NUTTALL (Leeds) said that in cases of carcinoma of the prostate he had used a combined method of orchidectomy, stilboestrol, and radical *x*-ray therapy; quite a number of patients were alive and well after four or five years. Dr. C. G. HITCHCOCK (Harrogate) said that sometimes children were seen with warts very widely distributed over the body; if the main groups were treated the whole body was freed. Dr. FULTON said that this was a well-authenticated phenomenon. Warts were contagious, and by taking a careful history the mother wart could be located; if it was treated radically all the warts would disappear.

A question was raised on the use of *x* rays in treating strawberry naevi. Dr. CHESTER WILLIAMS said that he had tried to persuade mothers who had children with this disfigurement to leave it, at least until the children had to go to school; but if the naevi did not disappear spontaneously it was a very slow process. Dr. FULTON said that the worst possible thing was the application of carbon-dioxide snow.

SECTION OF SURGERY

Tuesday, June 28

Prostatic Obstruction

With the president, Mr. T. V. PEARCE (Harrogate), in the chair, Mr. H. HAMILTON STEWART (Bradford) opened the discussion by a consideration of 2,192 patients treated in hospital and private practice. The safest course for the general practitioner was to dispatch the patient suffering from acute prostatic retention to hospital. The dangers of attempting catheterization were trauma, infection, the effects of rapid decompression, and failed catheterization, but if instrumentation was performed these could be offset by a careful technique. An initial injection of 10 ml. of sterile water-soluble lubricant into the urethra was given. The catheter, its end clipped to lock the air in its lumen, was then introduced through a meatus controlled by compression of the glans. This procedure allowed a hydraulic column to advance ahead of the catheter and prevent damage to the mucosa. Catheterization should never be repeated. Suprapubic aspiration, the alternative to catheterization, carried the risk of damage to an intraperitoneal dome. "Silent retention" was easily overlooked if the bladder dome was intraperitoneal; to detect it, bimanual examination was invaluable, with ballottement of the bladder between a hand on the abdomen and a finger in the rectum. Diagnostic catheterization was dangerous, and unnecessary unless urethral stricture coexisted. In general, prostatectomy was desirable as soon as the diagnosis was established, unless coincident disease made the expectation of life short. Only if obstruction was slight and residual urine was small in amount might the patient be treated conservatively—and watchfully. Indwelling catheters required special care; the instrument should not be too large, and leakage of mucus around it should be encouraged by careful and repeated removal of the meatal crust of dried discharge. The presence of a congenital stricture of the urethra called for special care; tight meatal strictures called for meatotomy, higher strictures for transurethral prostatectomy by the perineal route.

It was a mistake to use one method of prostatectomy to the exclusion of all others. In 1,347 perurethral operations, performed with the use of the Thomson punch, the mortality had been 3.04% even though most of the bad-risk cases were included. If properly performed this procedure allowed as thorough a removal as any other and there was no greater risk of recurrence. Open operation, in one or two stages, and chiefly by the transvesical route, had been performed in 613 cases, with a mortality of 2.93%. The one-stage operation had been used in an increasing proportion, and in the last five years had been used in 70.9% of the patients treated by open operation, with virtually the same mortality as was obtained in the 16% of patients so treated in the previous five years. The main indications for the open operation were (1) the concurrence of prostatic obstruction with cancer, diverticulum, or stones in the bladder, or with congenital or acquired stricture of the urethra, and (2) large prostates weighing more than 70 g. Multiple resections were to be avoided except when the only alternative was a permanent suprapubic tube. For carcinoma of the prostate large doses of oestrogen were indicated, obstruction being relieved by transurethral wedge-resection.

Mr. WILSON HEY (Manchester) concluded from the fine results recorded in the previous paper that cases of enlarged prostate should go to the specialist and not to the general surgeon. In the preparation for operation penicillin and, if possible, streptomycin were preferable to sulphonamides. Particularly, these drugs must be given before and after catheterization. If catheterization must be performed (and suprapubic puncture was preferable) then prostatectomy should follow in 48 hours. Malignancy after removal of an apparently benign prostate was a special danger now that the survival period after prostatectomy was increasing. Subcapsular orchidectomy followed by minimal doses of oestrogen was employed in combination with prostatectomy whenever cancer was suspected.

Mr. ASHTON MILLER (Bristol) argued in favour of the retropubic operation. He supported the previous speakers in their advocacy of early prostatectomy and, in acute retention, immediate prostatectomy. Where immediate prostatectomy was inadvisable, low suprapubic puncture was preferred to catheterization. Diagnostic catheterization of patients not yet in acute retention was not now desirable. The desire to micturate after naturally emptying of the bladder was a better index of a high residual urine. Intravenous cystography immediately after natural micturition gave an even more precise measure of the residual urine. The transurethral operation was difficult, and in the hands of the inexpert dangerous, though its efficiency in expert hands was admitted. Transurethral resection was reserved for the small adenomatous or fibrous prostate. The only satisfactory method of distinguishing between adenomatous and fibrous obstruction was cystoscopy, or preferably cysto-urethroscopy. The retropubic operation gave, in his hands, better results than any other, though probably no one method should be used exclusively. Only in a few cases, particularly of small fibrous glands, was the operation difficult. Infection and secondary haemorrhage were particularly troublesome in patients with chronic retention, but even in these the retropubic technique was more satisfactory than any form of two-stage operation.

Mr. JOHN SWINNEY (Newcastle-upon-Tyne) attached particular importance to the character of the stream of urine observed when the patient micturated before him. Rectal examination provided little information of the total size of the enlarged gland and must be supplemented by cysto-urethroscopy. Cystoscopy should be followed at once by operation in cases when it provided a clear diagnosis of obstruction. The amount of residual urine was considered an unreliable guide to the bladder condition; against it must be considered the degree of tone in vesical and sphincteric muscle.

Transurethral resection was limited to glands of less than 100 g. weight—the maximum amount of tissue which could be removed in an hour. Bulky upward enlargement lent itself to the transvesical operation, bulky lateral and posterior enlargements to the retropubic. The total mortality rate was 4 to 5% in any year. The lower rate (1–2%) reported in the United States could not be easily explained; the speaker, using the same technique in both countries had obtained a substantially lower mortality rate in America than he had subsequently obtained in England. Perhaps the explanation was that in the former country patients, more prostate-conscious, came to the surgeon earlier.

In the subsequent discussion introduced by Mr. IAN FRASER (Belfast), vice-president of the Section, Mr. THOMAS MOORE (Manchester) pointed out that the transurethral procedure, often advantageous as it might be, was a serious operation if adequately performed. In his experience the retropubic operation was of less magnitude and, on the whole, better sustained by the patient. Mr. R. MARCUS (Liverpool) urged that streptomycin be reserved for use against the rare pyelonephritis after operation; if given before operation streptomycin-resistance might occur.

Replying, Mr. HAMILTON STEWART emphasized the importance of meticulous haemostasis in preventing post-operative haemorrhage; serious haemorrhage could not be controlled by catheter lavage. In the detection of malignant disease a positive diagnosis by either clinician or pathologist should stand against a negative diagnosis by the other. In the treatment of cancer of the prostate, castration and oestrogen therapy were preferable in the first instance, to be followed by deep *x*-ray therapy if symptoms returned or if the histological pattern of the tumour changed, as it sometimes did. Mr. WILSON HEY, replying to questions, said he preferred the vertical incision when malignant disease was suspected, because of the greater access it afforded, and the transverse suprapubic incision in other cases. Haemostasis depended on accurate use of the endotherm apparatus. The transvesical approach seemed preferable to others because of the wide visual access which it afforded. In the treatment of suspected prostatic cancer wide resection of prostate and seminal vesicles was a prerequisite, even if it put the rectum to a little hazard, or if it entailed opening the peritoneum; carcinoma sometimes developed, after prostatectomy, in the seminal vesicles.

SECTION OF ANATOMY AND PHYSIOLOGY

Tuesday, June 28

Control of Activity in the Gastro-intestinal Tract

Professor R. A. GREGORY (Liverpool) gave an account of experimental work designed to determine the nature of the mechanisms controlling intestinal tone and motility after meals in relation to the passage of food along the intestine. Observations had been made on unanaesthetized dogs with two Thiry-Vella loops in the mid-part of the small intestine. Fluid was fed into the loop from a reservoir and the rate of passage of fluid and the associated intestinal contractions could be recorded; the method was more sensitive than those employing balloons in the lumen of the gut. It measured the resistance to the flow of liquid and the general nature of the motility elicited in the loop. A general diminution in tone was associated with a rapid flow and a decrease in rhythmic contractions. After a prolonged fast the loop was in a "basal" state on which there were superimposed some alternating periods of quiescence and activity. When a meal was given there were almost immediate changes with slowing of the flow and an increase in motility. The effect of a meal might last for several hours, though in diminishing degree.

Analysis showed that the response was nervous and was mediated through the vagus with two probable sites of origin, (*a*) cephalic reflex stimulation, and (*b*) distension of the stomach. If the animal was "sham-fed" the typical response occurred even though the food had not entered the stomach. Alternatively the response appeared if the stomach was distended by a balloon or if the mucosa was stimulated gently by a blunt instrument inserted through a fistula. The reaction did not occur if the loop was denervated, but was gradually restored as regeneration took place.

The effect of alterations in the chemical composition of the fluid perfusing the gut had also been studied. The addition of bile salts, protein digestion products, or hypertonic saline retarded or stopped the flow, and the contractions of the loop were increased so that the fluid tended to reflux to and fro between the loop and the reservoir. Increase in acidity of the fluid slowed the flow until some neutralization had been effected. It was thought that there were local reflex arcs in the wall of the intestine, because the response to chemical changes was abolished by applying a local analgesic to the mucosa.

Dr. J.-J. SPIRA (London) held that the peristaltic wave was the most important means of intestinal propulsion, and that there was no evidence of a physiological mechanism to produce retroperistalsis. The sphincters might operate to prevent retrograde movement of the intestinal contents.

Dr. J. N. HUNT (London) described work undertaken at Guy's Hospital on the rate of emptying of the stomach. Existing techniques for test meals did not allow a complete picture of the emptying pattern to be built up, but by giving serial test meals to an accustomed subject on successive days and withdrawing specimens after different periods it was possible to construct charts which would show, for any instant, the volume of the original meal remaining in the stomach, the volume of the gastric contents, and the rate at which the gastric contents were leaving by the pylorus. The meal, which was physiologically inert, contained pectin, sucrose, phenol red, and NaOH to adjust to *p*H 6.5. The amount of dye remaining in the stomach could be calculated, and therefore the rate at which the meal was passing through the pylorus.

The pattern of emptying had been found to be much more regular and fixed than had been expected. In 21 subjects the mean rate of emptying was 3% of the gastric contents per minute—the rate of emptying varying with the volume of the gastric contents, provided the stomach contained between 20 and 750 ml. of standard meal. About half the contents passed out every 22 minutes.

Dr. A. A. HARPER (Manchester) surveyed the development of knowledge about the regulation of gastric and pancreatic secretion. He had confirmed Mellanby's findings that secretin caused a copious flow of enzyme-free pancreatic juice and that stimulation of the vagus led to the appearance of a small volume of secretion rich in enzymes. Even when all nervous connexions had been cut the passage of a meal from the stomach was followed by a large secretion of pancreatic juice containing enzymes. Working with Professor Raper, he had isolated pancreozymin, a hormone which caused enzyme secretion. This action was not affected by atropine, and the findings had been extended to man.

The duodenal contents were drawn off by a tube, and the injection of secretin caused the formation of a large volume of enzyme-free fluid. If pancreozymin was injected when the fluid secretion had been established by secretin there was a slight increase in the rate of secretion, which then contained amylase, trypsin, and lipase. The preparations of pancreozymin were probably not completely pure, because contraction of the gall-bladder occurred, but they might make possible the development of more complete tests of pancreatic function in man.

Understanding of the regulation of gastric secretion had advanced similarly. Edkin's claim that a hormone, gastrin, which regulated gastric secretion could be extracted from the pyloric mucosa was opposed because of the discovery that histamine was a powerful stimulant of the oxyntic cells. But recently Komarov and others had extracted from the antral mucosa a protein-like, histamine-free substance which promoted the secretion of hydrochloric acid from the stomach. The search for a substance, analogous to pancreozymin, which would stimulate the secretion of pepsin had so far been unsuccessful.

Dr. R. E. DAVIES (Sheffield) dealt with the mechanism of secretion of gastric juice. "Pure" gastric juice was a mixture of the secretions from several types of cells. Recently, biochemical experiments on isolated gastric mucosa, using indicator dyes, had shown that the oxyntic cells were responsible for the secretion of hydrochloric acid at a concentration of 0.16 M, which corresponded to *p*H 1.4.

The acid was formed as such by the oxyntic cells and not in the form of a precursor. Using isolated gastric mucosal preparations, chiefly from amphibian stomach, it had been shown that the acid secretion depended on an ionic exchange. When the gastric mucosa secreted acid there was an uptake of carbon dioxide equivalent to the acid secreted. Hydrogen ions came ultimately from the water of the tissue fluid and blood and an equivalent amount of bicarbonate ions was passed into the blood in exchange for chloride ions; this explained the alkaline tide in urine after meals. The actively acid-secreting stomach required supplies of carbon dioxide from the arterial blood, and the rate of acid secretion could be so fast that the output of hydrogen ions might be much greater than the uptake of oxygen from the blood or the rate of production of carbon dioxide from metabolism in the stomach.

If in isolated gastric mucosa secretion was stimulated in the absence of external supplies of carbon dioxide, then ulcers and perforations might occur. Carbon dioxide prevented this, apparently by preventing the accumulation of alkali formed within the oxyntic cell concomitantly with the acid. Since many more hydrogen ions were formed than oxygen molecules used, most of the hydrogen ions must come initially from the water of the blood, and electrochemical work was needed to separate the positive and negative charges.

SECTION OF ORTHOPAEDICS

Tuesday, June 28

Fractures of Radius and Ulna

With the president, Mr. R. BROOMHEAD (Leeds), in the chair, Mr. E. MERVYN EVANS (Birmingham) opened a discussion on closed fractures of the shaft of the radius and ulna. He emphasized the virtues of non-operative treatment, basing his discussion on torsional derangements of the radius, which were insufficiently recognized. Failure to reduce them was the largest single element preventing an accurate position being obtained and kept. The best method of checking torsion was by comparative radiographs of the patient's opposite forearm in varying degrees of pronation and supination. Views of the upper end of the ulna and radius were taken of both limbs with a tube centred on the front of the forearm and tilted 20 degrees towards the elbow. On the fractured side the upper fragments were brought into equilibrium by the action of the

surrounding muscle, and it remained only to select the correct angle of lower forearm position by making a comparison with the shadow of the upper radial contours of the opposite forearm and then to correct length and angulation. Accurately reduced, the majority of these fractures remained stable, and retention in plaster was satisfactory. For oblique single fractures of the radius, or those also involving the distal end of the ulna, it was necessary to apply traction to the thumb for several weeks. In very few (even comminuted) fractures was it necessary to carry out open operation. Rules for the position in which to retain forearm fractures based upon their site did not hold. The higher the fracture was in the forearm, the more often did it appear that supination of the lower fragments was necessary, though the speaker's study of 50 cases showed that the torsion position was inconstant.

Mr. F. W. HOLDSWORTH (Sheffield) emphasized the need for open reduction and plating for those special types for which thumb traction had been advocated as well as for the majority of other fractures which, because of minor degrees of obliquity and comminution or of the great liability to soft-tissue interposition, were unstable or slow in uniting. Such a course enabled the case, within a day or two, to be treated as one almost of soft-tissue repair and without splintage. Such treatment was dependent upon perfect surgical technique, with avoidance of clumsy instruments and unnecessary soft-tissue damage.

Mr. I. LAWSON DICK (Bradford), in underlining Mr. Holdsworth's argument, mentioned the liability of the radius, after closed reduction, to angulate inwards, and that continued traction on the thumb or any other part of the hand brought its own problems of rehabilitation. Mr. H. H. LANGSTON (Winchester) pleaded for a critical assessment of the need for operation in every particular case, and Mr. N. ROSS SMITH (Bournemouth), while favouring closed methods, thought that some cases were better treated by the simple interlocking of fragments through small incisions. Mr. G. A. POLLOCK (Edinburgh) believed a middle course was right in most cases, for good function could be obtained in spite of interior defects of anatomical reduction.

Dr. F. W. HANFORD (Northern Rhodesia) felt that the advocates of open reduction had underestimated the risks of infection. Mr. H. H. HILL (Western Australia) felt that there were risks in the early movement of plated bones, and found function just as good in those cases in which closed reduction was maintained.

The discussion was concluded by Mr. MERVYN EVANS, who, while agreeing that open operation was rarely needed, thought that the decision should not be prejudged—a delay of two weeks was not harmful. Soft-tissue interposition, comminution, and minor obliquity did not in themselves provide reasons for open operation of any kind.

Lesions of Thoracic Inlet

A discussion on upper-limb pain due to lesions of the thoracic inlet was opened by Professor LAMBERT ROGERS (Cardiff), who described the anatomical relations of the bony circle that comprised the inlet, and the structures, normal and abnormal, which might cause compression, angulation, or chafing of the subclavian artery or the branches of the brachial plexus as they passed over the aperture. Man's assumption of the erect posture, and the dependent position of the limb, had favoured the angulation of these structures, whereas in the lower limb such lesions were unknown, because the evolutionary process had had a reverse effect. There were two types of case. The commoner, of neural origin, was due to the lowest trunk of the brachial plexus being stretched over and compressed against a cervical rib element of bony or fibrous nature, an abnormal first rib, the medial tendinous fibres of the scalenus medius muscle, or an abnormal scalene muscle. Professor Lambert Rogers felt that too much emphasis had been laid upon the scalenus anterior muscle—the medius was often more important. The less common (8 out of 35 operations in his series) type of case was vascular in origin and due to compression of the subclavian artery between the clavicle and a cervical or abnormal first rib. In cases of the neural type pain was of tingling character and mainly of ulnar distribution. In vascular cases the aching pain of ischaemia was associated with peripheral colour changes.

He condemned scalenus anterior tenotomy alone. Though necessary as a step in operative exposure, the exposure must be carried through to the actual site of compression, which should be dealt with adequately. The chief lesions from which these thoracic inlet disturbances must be distinguished were writer's cramp (hysterical) and cervical intervertebral disk protrusions. The latter were radicular in site and more cephalic in distribution, generally affecting the 5th, 6th, or 7th cervical segments. A useful test which also was of therapeutic value was splintage of the upper limb.

Mr. A. C. BINGOLD (Leeds) thought that the lesions under discussion should be termed the thoracic inlet syndrome, and he would add two others: Pancoast's syndrome, in which tumours in this space cause pain in the shoulder and inner side of the arm, intrinsic-muscle atrophy. Horner's syndrome, and, radiologically, an apical pulmonary shadow with more or less rib destruction. The other type was that shown by E. S. R. Hughes to be due to compression of the subclavian vein by a pre-venous phrenic nerve. A possible serious complication of compression of the subclavian artery between a cervical rib and the clavicle was aneurysm, from which, if thrombosis occurred, retrograde spread might cause embolism through the carotid artery and a contralateral hemiplegia. Many cases of thoracic inlet syndrome were in grossly overworked housewives; the usual treatment by rest, etc., was economically impossible. Much relief could be obtained by training such patients in scalene muscle relaxation and by galvanic treatment of the neck muscles—a cure usually being effected in six to eight weeks.

Mr. ROSS SMITH mentioned that there were other lesions of the cervical disk besides protrusion which caused symptoms, particularly in the elderly. These degenerative changes should be borne in mind in the differential diagnosis. Mr. HILL believed that the radiological evidence of protruded cervical disks was unreliable.

SECTION OF RHEUMATOLOGY

Tuesday, June 28

Rheumatoid Arthritis in the Young

Dr. BERNARD SCHLESINGER (London) said that a wider view of the clinical picture of rheumatoid arthritis with less emphasis on the locomotor system was more likely to cast fresh light on its aetiology. Study of the disease in its most acute form and from the onset in the young might be profitable. He had chosen for study 20 patients, all of whom suffered from considerable fever and the general acute manifestations first described by Still. The onset was usually abrupt, and began with arthralgia, followed by migratory arthritis, an urticarial or maculo-papular rash, adenitis, and sometimes splenomegaly. Fever was usually high and continuous at first, but later occurred in irregular periodic bursts. Complete recovery with no residual arthritis was the final result in four cases; 10 developed typical rheumatoid arthritis, two were still in the acute stage, and four patients died.

Apart from a slight degree of anaemia, the most significant change in the blood picture was a marked leucocytosis at the beginning of the disease, which soon dropped to normal. Leucopenia followed in a few cases, sometimes terminating in agranulocytosis. Leukaemia was the final result in two cases. Occasional complications were pericarditis, pneumonitis with pleurisy, and jaundice; rarely, cirrhosis and encephalitis were observed.

In many ways these 20 cases resembled some of the rarer arthritic disorders such as intermittent hydrarthrosis, angioneurarthrosis (Solis Cohen), palindromic rheumatism (Hench and Rosenberg), and Felty's syndrome. Comparison with lupus erythematosus and polyarteritis nodosa might help to elucidate the cause, and some allergic basis was suggested. The form of the antigen was probably bacterial, the initial leucocytosis being a sign of the primary invasion. The occasional leucopenia developing later with agranulocytosis and, rarer still, leukaemia might be due to repeated anaphylactic assaults on the bone marrow. The character of the fever, the clinical course, the regions involved, and the type of lesion in Still's disease all gave support to this theory, but many points remained obscure. N

one had yet discovered the nature of the antigen, explained how it produced a prolonged disease with progressive inflammatory lesions, or what predisposed certain individuals and allowed others to escape. In conclusion Dr. Schlesinger considered that "cortisone" might one day be used in the treatment of this disease, and in this connexion mentioned one of his patients who became hirsute when the illness itself had subsided.

Professor W. S. McR. CRAIG (Leeds) commented on the return to thinking in terms of endocrinology. The sex incidence in infective arthritis was of some interest in this connexion. In the adult it was most common in females at about 20 years and 45 years of age, the latter often coinciding with the climacteric. In the child infective arthritis came at the time of most active growth—namely, about the age of 5 years. He looked for some common factor such as infection, and pointed out that at the age of 5 years infection was usually acute, not chronic, and that foci of infection were more commonly found at that age.

He urged the need for research on a broad national basis, because of the comparative rarity of the disease and lack of clinical material. He considered that parallel studies should be carried out, and in this way it might be possible to check up on such factors as climate, soil, etc. He put in an earnest plea for treatment of the child in the home with home helps and visiting teachers rather than in residential special schools or convalescent hospitals. Professor Craig considered that more money should be spent on this type of case rather than as at present on patients with a less favourable prognosis. He thought that a generous diet was an important part of the treatment.

Dr. DONALD WILSON (Bognor Regis) commented on the rarity of the disease, but thought it was possible that this was exaggerated and that it was at times confused with other diseases. In treatment he emphasized that to avoid deformity orthopaedic measures were needed at an early stage. He gave an account of a child of 11 years he had seen suffering from this disease, treated with ACTH (adrenocorticotropic hormone) in a hospital in Philadelphia. There was alleviation of symptoms after three hours, and in eight hours all symptoms had disappeared. The child was running about and the E.S.R. was normal. The reversal of symptoms lasted eight days, and then the disease returned. Dr. Wilson thought that it was difficult to reconcile primary infection in the aetiology of Still's disease if cortisone or ACTH could cause the disappearance of all signs and symptoms in such a short space of time.

Dr. GEORGE D. KERSLEY (Bath) commented on shock as the trigger mechanism in precipitating the onset of Still's disease, and considered this another link in the theory of excessive strain on the adrenal cortex and anterior pituitary. He said also that the onset of the disease during the period of most rapid growth might point to changes in the anterior pituitary. He wondered if the effect of cortisone and ACTH on the blood picture, in that it caused a fall in lymphocytes and eosinophils, might have some bearing on the leucopenia and occasional agranulocytosis observed by Dr. Schlesinger in his series of cases.

In reply Dr. SCHLESINGER said that he did not regard diet as an important factor in Still's disease. Most of the children in his series came from well-to-do homes. He pointed out that, in a disease where orthopaedic and other measures were essential, admission to hospital was a necessity in the acute and subacute phases of the disease. He had not found gold therapy of any value, nor had he had good results with transfusions using blood from pregnant women, or with induced infective hepatitis.

Clinical Demonstration

Sir HENRY COHEN (Liverpool) demonstrated three cases from the Royal Bath Hospital of arthritis occurring in girls in the first decade of life: a child aged 5, whose illness had started at the age of 15 months: one aged 15, who gave a seven-years history; and a woman of 22 years, whose arthritis began at the age of 3 and had left her severely crippled.

Sir Henry stated that these three cases illustrated a lesson which still needed emphasis—that we were too apt to isolate as separate diseases under the labels of Still's disease, Felty's syndrome, and the like, a number of pathological states whose common feature was arthritis, implying that these might be the expression of differing primary essential causative factors. Experience showed that cases of so-called rheumatoid arthritis were part of a heterogeneous group of arthritides of unknown and probably of variable and dissimilar causation. Another point which it seemed timely to stress in view of the striking effects of cortisone in securing reversibility of the arthritic state was that the arthritic changes which in the early stages were reversible became in later stages irreversible. Cortisone would not replace destroyed articular cartilage or reduce subluxated joints. Early diagnosis and treatment would still be essential. Finally, Sir Henry emphasized the relation of peripheral vasospasm to the problem of arthritis and claimed that it was possible to recognize this as a major factor in the genesis of arthritis in some patients, a factor which possibly rendered the joints less resistant to the specific noxious agent.

Sir Henry demonstrated also a classical case of gout and a doubtful case of gout in a man of 29. Since the latter patient had an atypical history, a normal blood uric acid, and had not responded to anti-gout therapy, Sir Henry doubted the correctness of the diagnosis. The absence of tophi at his age was not of importance in excluding gout.

Dr. LESLIE C. HILL (Bath), in discussing these cases, agreed that the giving of individual titles to relatively rare diseases had no clinical value. He commented on the significance of peripheral vasomotor spasm as exhibited in the second case, and said that the incidence of this condition in patients with rheumatoid arthritis was higher than in the normal person. It might well be "the soil" in which this disease could develop. Discussing the third case, he indicated the danger of calling this a self-limiting disease, and emphasized the necessity for early orthopaedic measures.

Dr. SCHLESINGER said that the marked effusion into the joints in the second child was in his opinion a very good sign, as it made adhesions less likely; in his experience it was the only type of joint which defeated all orthopaedic measures.

SECTION OF TROPICAL MEDICINE

Tuesday, June 28

Tropical Diseases as Aftermath of War

Air Vice-Marshal T. C. St. C. MORTON said that the most important and the commonest tropical disease among ex-Service men was amoebiasis. The usual clinical syndrome was one of irregular bowel action with discomfort over the caecum, and the hepatic and splenic flexures relieved by the passage of flatus. The diagnosis was made by finding *E. histolytica* or cysts in the stool. The specimen should be sent, by post if necessary, to a centre which had special experience in this work. Sigmoidoscopy should also be performed. Amoebic granuloma of the rectum might simulate neoplasm, and discomfort in the right iliac fossa appendicitis. A correct diagnosis was important, because surgical intervention was contra-indicated. Liver abscess or hepatitis might also occur. After they had been treated it was important to sterilize the gut.

The treatment of amoebiasis of the intestine was by means of emetine bismuth iodide, reinforced by "diodoquin." If there was ulceration, and in chronic relapsing cases, penicillin and sulphasuxidine proved valuable in removing secondary bacterial infection and allowing the ulcers to heal: emetine was then more effective.

Colitis following bacillary dysentery was less common. It was treated by rest in bed, high protein diet, sulphasuxidine, and penicillin. Kala-azar might be found, especially in men returning from Bengal; it was often mistaken for undulant fever. Repeated marrow puncture might be necessary to establish the diagnosis. Treatment was by pentamidine.

Enteric fevers were particularly common among those stationed in the Canal Zone in Egypt. There was little risk of frank cases acting as carriers in this country, because of the careful examination before discharge from hospital, but mild atypical cases in inoculated persons might escape detection at the time.

Dr. A. R. D. ADAMS (Liverpool) agreed that amoebiasis was important and required thorough treatment. He relied mainly on emetine bismuth iodide given as enteric-coated pills. Diodoquin had proved disappointing. Chiniofon, given as a retention enema, had been valuable. Anyone who was found to be carrying cysts of *E. histolytica* should be treated, since symptomless infections might ultimately end in acute amoebic dysentery even after lying dormant for 23 years.

Amoebiasis was world-wide and flourished wherever sanitation was bad. He had found a family in this country, living under squalid conditions, several members of which suffered from acute dysentery. Stools from 100 women had been collected in a general hospital and *E. histolytica* had been found in five cases. These five women had not been abroad and none had suffered from dysentery. The true rate of infection was probably higher than was suggested by this particular investigation.

Dr. J. P. CAPLAN (London) described his experience in treating chronic intestinal amoebiasis at Queen Mary's Hospital at Rochampton. Emetine used to be the foundation of treatment, but sometimes it proved [illegible] might perhaps be due to a changed [illegible]; much of the present material was prepared by a synthetic methylation of cephaëline. Failure might also be due to concomitant infection with pyogenic bacteria; this should be treated by penicillin and sulphonamides. He now restricted the use of emetine to the treatment of complications of amoebiasis, such as liver abscess. His standard course was based on diiodohydroxyquinoline ("diodoquin") 0.8 g. three times daily for ten days. This was reinforced by quinoxyl enemata, although these rarely reached the caecum. Dr. Caplan also discussed the treatment of relapsing benign tertian malaria in ex-Service men. Radical cure was best achieved by a combined course of quinine and pentaquine given for ten days in hospital.

Sir GORDON COVELL (London) discussed the diagnosis and treatment of malignant tertian malaria. For prophylaxis he recommended proguanil (paludrine) or alternatively chloroquin. Quinine might cause blackwater fever in exceptional cases, and mepacrine psychosis; it also stained the face yellow. Chloroquin also might on rare occasions have toxic effects. He therefore used proguanil, but reinforced it with 900 mg. of mepacrine on the first day to reduce the fever more rapidly and to diminish the possibility of subsequent relapse.

Loaiasis

Professor G. J. STEFANOPOULO (Pasteur Institute, Paris) spoke of loaiasis, which was common among Europeans working in French Equatorial Africa. Besides the well-known Calabar swellings there were other symptoms due to sensitization which might resemble acute rheumatism, synovitis, lymphangitis, Hodgkin's disease, or tropical eosinophilia. Later the patients became desensitized and most of the symptoms subsided, but pruritus and eruptions might occur. Geographical factors had to be borne in mind in making the diagnosis. Leucocytosis and eosinophilia would be found, and there were microfilariae in the blood in 40% of cases. Intradermal and complement-fixation tests were valuable, *Litomosoides* from cotton-rats being used as antigen.

Previously, specific treatment was unsuccessful, but "hetrazan," which was given by mouth, had a marked effect. Microfilariae disappeared from the blood in 48 hours. At first all the allergic symptoms reappeared or were increased—especially oedema, pruritus, and rashes, which might be papulovesicular or urticarial. After two days, however, these symptoms subsided. Relapse was common. He gave 400 mg. a day for 10 days and repeated this course several times at monthly intervals. He was investigating the possibility of using hetrazan prophylactically to protect French engineers who visited West Africa for limited periods.

Dr. F. HAWKING (National Institute for Medical Research, London) spoke of the valuable work carried out by Dr. D. M. Blair and Mr. Alves on schistosomiasis in Southern Rhodesia. He mentioned the new compound "miracil," or "nilodin," which could be given by mouth and cured infections with *S. haematobium*. He also described the work of Col. W. Laurie and himself on hetrazan in the treatment of filariasis due to *W. bancrofti*. The action of hetrazan on adult worms was doubtful, but it was very effective in destroying microfilariae; apparently it acted as an opsonin. It would probably be useful for the mass treatment of whole villages infected with *W. bancrofti*, so as to prevent further transmission of the disease.

Professor H. E. SHORTT showed lantern slides depicting his now historic discovery of the exo-erythrocytic cycle of the malaria parasite in the liver, a discovery which he and his colleagues described in the *Journal* of Jan. 31, 1948 (p. 192), March 20, 1948 (p. 547), and June 26, 1948 (p. 1225). Dr. H. STEINITZ (Tel-Aviv, Palestine) discussed a new syndrome, "eosinophilic erythroedema," which had appeared in Palestine during the last seven years. Its cause was still unknown, but all the patients gave a positive response to filarial antigen.

Dr. G. W. M. FINDLAY (London), president of the Section, spoke briefly on aureomycin.

SECTIONS OF MEDICINE AND SURGERY

Wednesday, June 29

Treatment of Peptic Ulcer

With Professor R. E. TUNBRIDGE (Leeds), president of the Section of Medicine, in the chair, Sir HENRY COHEN (Liverpool), opening the discussion, characterized peptic ulceration as the most important social and economic medical problem after the group of rheumatic diseases. In this country 1½ million persons were computed to suffer or to have suffered from peptic ulcer, and one-half of the males between the ages of 45 and 54 in the County of London. Peptic ulcers had in common a restriction of site to areas with which acid juice came in contact. If the proteolytic ferments and acids were subjected to an increase in their strength or in the duration of their action, an ulcer might be expected to follow, and a reduction in the resistir power of the mucosa exposed to them would have a simil effect. Local vascular or inflammatory disturbance, f example, might lead to a lowered resistance of a mucos area and render it susceptible to the ferments. Spiced foo might effect a local irritation of the oxyntic cells, but in gener such a local cause was unimportant; they must usually see a more distant and usually nervous cause. Anxiety or hypo thalamic disturbance might produce an excessive secretion of juice unusually rich in acid. In addition to the direct neural mechanism there was a humoral mechanism, perhaps also subject to vagal influences, and dependent on the secretion by antral cells of a hormone called gastrin, which stimulated acid production. The gastrin-secreting cells might be stimulated excessively by local irritative or inflammatory processes, by disturbances in neural control, and perhaps by regurgitating bile.

Treatment must aim at diminishing acid pepsin secretion and increasing mucosal resistance. (1) The neural secretion might be attacked (*a*) at a mental level by adjustment of the individual to his environment and by the administration of sedatives, particularly of the barbiturate group, or (*b*) at a peripheral level by atropine or vagotomy. (2) Hormonal secretion had been attacked, not very successfully, by Ivy's enterogastrone, an extract of intestinal mucosa, and by the administration of extract of pregnant mare's urine. Partial gastrectomy aimed at the same effect. (3) Attempts might be made to buffer acids by the frequent administration of food, to neutralize them by alkalis, to effect their absorption by certain synthetic resins, to dilute them by water, or, surgically, to dilute and neutralize them by allowing intestinal juice to enter the stomach. (4) Gastrectomy, increasingly radical, had been employed, apparently on the general principle that without an ulcer-bearing area there could not be an ulcer.

Of the complications of peptic ulcer, perforation and stenosis required surgical treatment, and haemorrhage was increasingly treated by the surgeon too. Ulcers must be regarded as mere incidents in the life of the subject of the ulcer diathesis, and treatment must be directed to the patient as a whole rather than to his gastric mucosa alone.

Dr. C. N. PULVERTAFT (York) read the paper by the late Mr. A. HEDLEY VISICK—almost completed before his death. The two Sections had stood silent in tribute to his memory for a minute when the meeting opened. In selecting a scheme of treatment for an actual patient, the knowledge of the general practitioner, who alone was familiar with that patient as a whole man, was of paramount importance. Treatment would vary too from district to district, the family doctor being guided in his choice by the facilities for particular types of treatment in his own area. Patients with a long history of the disorder, previous perforation, gastro-jejunostomy already performed, and persistent pain usually required surgery. The patient's emotional constitution must be considered, and his economic situation. The local pathological nature of the ulcer, the scarring or stenosis it may have produced, and its deep penetration were of importance too.

The first method—ambulatory treatment at home—must be carried out by the family doctor, with repeated follow-up by institutional methods. Men under the age of 30 could be treated with high efficiency and complete safety by gastrectomy. The indications for medical treatment were (1) economic unsuitability for surgery, (2) economic suitability for prolonged inactivity under medical care, (3) absence of stenosis, (4) short history, and (5) a pronounced anxiety state. Repeated haemorrhage or perforation and the suspicion of malignancy were absolute indications whatever were the attendant circumstances.

Of surgical methods, gastro-jejunostomy was a safe operation for patients over 50 with stenosing duodenal lesions. Vagotomy had not yet been finally assessed. Gastrectomy aimed at producing complete and permanent achlorhydria. To achieve this effect the gastrectomy should leave a remnant of stomach measuring 5 in. by 2 in. (12.7 by 5.1 cm.), though when performed for jejunal ulceration the remnant should measure only 1 by 1.5 in. (2.5 by 3.8 cm.), and the whole greater curvature should be mobilized, with division of all vasa brevia. The operation must be regarded as only an incident in treatment, and dietetic and sociological matters must be adjusted after it, though a full diet, alcohol, and smoking were usually permissible a week after operation.

Mr. A. DAVIS BEATTIE (Leicester) considered gastrectomy to be the only successful treatment for large or complicated peptic ulcer, but it seemed an unaesthetic and unnecessarily drastic procedure to carry out in cases of duodenal ulceration, and its results showed a smaller proportion of full economic successes than was generally realized. Vagotomy seemed a more physiological operation. Its rationale was based on the reduction of gastric acidity, particularly of the night secretion, and the relief of muscle spasm which followed it. Experience of 200 cases of vagotomy suggested that the operation was particularly suited to (1) uncomplicated duodenal and pyloric ulcers, (2) recurrent or jejunal ulcers after gastrectomy, and (3) small early ulcers of the lesser curvature, especially towards its upper end. The transabdominal approach was preferred to the transthoracic, since it permitted determination of the extent and nature of the ulcerative process.

Vagotomy was followed by an immediate loss of pain. A temporary ileus of stomach and small bowel lasted 24 to 48 hours, to be followed by a gradual increase in intestinal motility during the succeeding 12 to 18 months, and consequent relief of any previous tendency to constipation. Temporary post-vagotomy cardiospasm always resolved spontaneously after 2–3 weeks. Pylorospasm was the only cause of persistent post-operative symptoms and was responsible for nearly all failures. Retention symptoms were present in some degree in 65% of cases, were objectionable in about half of these, and were incapacitating in about 15%.

Apparent recurrence of ulcer symptoms seemed always to be due either to incomplete neurectomy or to retention; in no case could it be proved to be due to persistent or recurrent ulcer. The frequency of retention symptoms had led him in the last 100 operations to combine vagotomy with pyloroplasty or gastro-jejunostomy, and a certain proportion of the first 100 patients treated had subsequently required one or other of these additional procedures. Vagotomy, supplemented by pyloroplasty (preferably) or gastro-jejunostomy, afforded complete relief from all dyspeptic symptoms, improvement in psychological outlook, and the ability to return to full work six weeks after operation.

Dr. RICHARD DOLL (London) discussed the sociological aspects of peptic ulceration. In the latter half of the last century 50% of perforations were in women under 25 years of age, but since 1920 90% had been in men. A similar change had overtaken the incidence of haematemesis. It thus seemed reasonable to deduce that sociological influences were at work. Geographical differences in the incidence of peptic ulceration supported this deduction. Differences in the social scale, too, affected ulcer incidence; deaths from gastric, but not duodenal, ulcer were more numerous relatively among the poor than among the wealthy. An investigation by personal interview of 5,950 ulcer patients, 80% of whom had had a positive radiological, gastroscopic, or operative diagnosis, had been conducted by the speaker and Dr. Avery Jones. The standardized morbidity ratios showed that the incidence of ulcer was highest in doctors. The incidence was average in bus and trolley drivers, lower than average in agricultural workers. Sedentary workers had a low incidence too, not statistically very convincing, but perhaps rendered less dramatic because some ulcer patients had been transferred to clerical work as part of the treatment of dyspepsia. There was no difference in ulcer incidence between men on regular hours and men on shifts, between those who had regular and those who had irregular meals, but perhaps a low incidence in the latter group was obscured by ulcer patients having moved, under advice, from the latter group to the former.

There had been a rise in the incidence of ulcer during the recent war due to industrial fatigue rather than to danger, for the incidence of perforation in Glasgow reached its peak before the air attack on that city (Illingworth). Anxiety at work was of high importance, but only in cases of duodenal ulcer, not gastric. Food processing and smoking were under investigation now, and preliminary results seemed to show no difference between the incidence of ulcer in smokers and in non-smokers. The changed sociological relations between children and parents now as compared with the last century might be of importance in the increase in ulcer-incidence, and Halliday had blamed very tentatively an unhappy background during the first five years of life for the subsequent development of ulcer. One interesting effect of the survey was that it revealed gastrectomized patients happily and successfully performing all kinds of work, even the heaviest manual labour.

Dr. CORNET (Paris) said that ulcers of the anterior wall of the stomach were difficult to detect and follow by radiological methods, and their presence could sometimes be proved only by gastroscopy. Even gastroscopy had its own difficulties, the great oedema around these ulcers sometimes simulating malignant disease.

Dr. J.-J. SPIRA (London) said that hydrochloric acid played no part in acute ulceration, but no chronic ulcer formed in the absence of acid. Chronic ulcers might be classified according to their situation on a mucosa which normally secreted alkali (oesophagus, jejunum, Meckel's diverticulum) or acid (stomach, first part of duodenum). Acid, pepsin, or an acid–pepsin mixture alone could not produce ulcer. A second factor was also required, and that was the presence of bile in the stomach.

Dr. J. LIPETZ (Edinburgh) recommended the greater use of the Gregersen slide test for the detection of occult blood in the stool as a convenient and reliable method for the general practitioner to select those of his dyspeptic patients who suffered from gastro-duodenal ulceration. Dr. D. R. BELLETTY (Assam) had found a high incidence of peptic ulceration in his coolie patients, who were meat-eaters when they could get meat, fairly heavy drinkers when they could get drink, and heavy smokers when they could get tobacco. Dr. MONTGOMERY (Montreal) reported that in North America they were coming to the opinion that the late results of vagotomy did not entirely fulfil the early promise of that operation. Dr. C. M. STEVENSON (Cambridge) blamed the cigarette but not the pipe for ulcer-production. Dr. D. A. JENNINGS (London) had found that only three of over 300 patients on ambulatory out-patient treatment had continued to have pain. The real difficulty was to get the patient off milk and back to work. The principles of treatment were primarily psycho-analytic—the patients must

be taught to relax and to abandon, not merely to reduce, their smoking. Controlled American experiments with nicotine-free cigarettes clearly showed the importance of nicotine in ulcer-production.

SECTIONS OF OBSTETRICS AND GYNAECOLOGY AND RADIOLOGY

Wednesday, June 29

Radiography and Disproportion

Mr. ARNOLD WALKER (London), vice-president of the Section of Obstetrics and Gynaecology, called upon Professor Chassar Moir (Oxford) to open the discussion. Professor CHASSAR MOIR said he believed that distrust of pelvimetry had arisen because radiologists as a class had little first-hand knowledge of obstetrics and often failed to appreciate the intricacies of childbirth. Similarly, the obstetrician seldom appreciated the technical difficulties of *x*-ray methods. He pleaded for close co-operation between obstetrician and radiologist if progress was to be made. Disproportion was the most important of the causes of dystocia, and it was right that it should have special consideration, though measurements of it took no account of such important features as the force and frequency of the uterine contractions, the adaptation of soft tissues, or the moulding of the baby's head. Least of all did radiology measure the patient's psychology.

Adequate pelvic examination necessitated much more than recording the size of the conjugata vera, important as that time-honoured measurement was. Radiological measurement had to include examination of the pelvis in more than one projection, and shape as well as pelvic size was important. The occipito-posterior position of the head, for example, was often associated with a pelvis greater in its antero-posterior than in its transverse measurements. Disproportion could be assessed by various methods. There was the "impressionistic" method, seen at its best in the stereographic technique used by Caldwell and Moloy. This was, however, a time-consuming method. Ball and Marchbanks, of New York, had developed a method of computing head volume and comparing it with pelvic capacity, but this suffered because the technical difficulties were formidable. Nicholson, of Moreton-in-Marsh, had related the pelvic area at brim level and at ischial-spine level to the progress of labour, but he had paid little attention to the size of the foetal head and he had not considered sufficiently the variation of prognosis that derived from variation in pelvic shape. However, Nicholson was to be congratulated on focusing attention on the need for accurate measurement; that work had been done in a busy general practice in a rural district. Roland Williams and the speaker had developed methods by which pelvic outline could be reduced to true size and shape and the charts used for estimating the "fit" of the foetal head. A strict analysis of 193 assessable cases of clinically suspected pelvic abnormality had been carried out, with the following results: When easy labour was indicated by the graphs, the labour in 72% of cases was short, spontaneous, and uneventful; when difficult delivery was indicated, labour was prolonged or required operative assistance in 86% of cases. The accuracy was even higher when dystocia was indicated by contraction in the brim graph, as distinct from the cavity and outlet graphs.

Dr. J. BLAIR HARTLEY (Manchester) said that often the radiologist was reporting to more than one group of obstetricians, and he pleaded for simplification and standardization of methods so far as practicable. No routine examination should comprise more than four films: (1) An A.P. view of the whole field; (2) a lateral view showing the whole of the pelvic canal and as much of the uterus and foetus as possible; (3) an outlet view; and (4) a P.A. view to study and "measure" the foetus—that is, the assessment of available diameters of the foetal skull and of development and normality of the foetal skeleton and skull. He was usually able to assess maturity to within a few days. He disagreed with taking a supero-inferior view through the pelvic inlet, because in this position the foetal breech was most likely to lie in the central beam of the *x* rays and nearest to the tube, a fact which might cause damage to gonadal tissues. So far there was no reliable information on that point. In general, mid-pelvic diameters were the ones requiring most careful study, especially in relation to pelvic mobility. Co-operation with the obstetrician was essential.

Miss MEAVE KENNY (London) said that she was an "impressionist," believing in the value of stereoscopic *x*-ray pelvimetry. There was a great need for the accurate measurement of the pelvis, for although the infantile mortality rate had fallen considerably in the last half-century there had been no difference in the figures of the years 1900 and 1947 of deaths in the first day and first week due to birth trauma (Martin, *British Medical Journal*, 1949, 1, 438). The day might come when every woman would have her pelvis *x*-rayed. There was no absolute indication nowadays for caesarean section, and the incidence of this operation had not risen because of *x*-ray pelvimetry.

Dr. S. JOSEPHS (Newcastle-upon-Tyne) described his method of cephalometry. He said that 30 cases had now been collected in which radiological cephalometry had been performed twice, and in no case had there been any evidence of growth during the last four weeks of pregnancy. That investigation was continuing, with estimations of foetal skull size at 32 weeks, 36 weeks, and at term.

Mr. LINTON M. SNAITH (Newcastle-upon-Tyne) said that he had been associated with Dr. Josephs in this important discovery. He stressed the importance of estimating mid-cavity pelvic size, and labour should not be allowed to proceed where it was inadequate. Dr. ALAN BARKER (East Kent) thought Professor Moir's charts were the answer to the general practitioner's problems.

Dr. A. J. MACLEOD (North Uist) thought ossification of the foetal skull was more important than size. Mr. J. A. STALLWORTHY (Oxford) described himself as an "unbeliever" and maintained that after two years' experience a registrar could give a better forecast of the outcome of a labour by clinical means than by using the available radiological methods. Professor T. N. A. JEFFCOATE (Liverpool) advocated the uses of trial labour and of "intranatal" radiology (*x*-ray examination during labour).

Others taking part in the discussion included Mr. C. SCOTT RUSSELL (Manchester), Mr. ARNOLD L. WALKER (London), Mr. R. NEWTON (Manchester), Dr. R. D. B. WRIGHT (Hull), Dr. T. F. REDMAN (Manchester), Dr. J. LÖVSET (Norway), and Mr. G. GORDON LENNON (Oxford).

SECTIONS OF PATHOLOGY AND BACTERIOLOGY AND TROPICAL MEDICINE

Wednesday, June 29

The Sprue Syndrome

Dr. J. G. GREENFIELD was in the chair for the first part of the meeting and Dr. BALFOUR KIRK for the second.

Professor A. C. FRAZER (Birmingham) defined the sprue syndrome as including tropical and non-tropical sprue and the coeliac syndrome. Fat absorption was constantly affected, and on this background of steatorrhoea such things as watery diarrhoea, vitamin deficiencies, and haematological changes were superimposed in varying degree. The fat-absorption defect was a partial one, and could be related to the amount of fat fed. The sprue patient was intolerant of saturated fatty acids, and the fat in sprue stools was mainly of this type, though short-chain volatile fatty acids might also be greatly increased. The usual increase in particulate blood-fat (chylomicrons) after a fatty meal was absent in the sprue syndrome. When particulate fat absorption was impaired more fat might be hydrolysed, and there might be increased mucus formation in the intestinal lumen, leading to further interference with particulate fat absorption, and also possibly to flocculation of barium sulphate emulsion, giving rise to the characteristic deficiency pattern seen radiologically. The vitamin deficiencies which were so characteristic of the established sprue syndrome might be associated with an increase of the bacterial population of the intestine. These might invade the small intestine, and even the stomach in achlorhydric patients, and their competition for the vitamins in the diet would impoverish their host. Alterations in dietary fat and an increased susceptibility to overgrowth of intestinal bacteria might account for the increased incidence of the sprue syndrome under tropical conditions.

Professor Frazer's address was followed by a brisk discussion. Professor R. J. V. PULVERTAFT described work in which he had removed the ileo-caecal valve in dogs, thereby allowing colonic bacteria to invade the small bowel; no blood changes had followed this procedure, and steatorrhoea had not been observed. In reply, Professor FRAZER suggested that possibly the quantitative conditions needed for producing steatorrhoea had not been attained. Dr. G. M. FINDLAY asked if there were any explanation for the absence of sprue in tropical Africa; Professor FRAZER quoted work done by Dr. J. M. French in his department, which demonstrated that the type of dietary fat might influence the appearance of the sprue syndrome. There were considerable differences in the fats eaten in India and in Africa. Dr. J. P. CAPLAN asked why prisoners in Japanese hands had failed to developd the sprue syndrome, although on a very deficient diet. This was explained by the very low fat content of their diet, too low to enable steatorrhoea to become apparent.

Dr. D. A. K. BLACK (Manchester) suggested that although impairment of fat absorption was perhaps the most obvious and characteristic feature of the sprue syndrome, it was probably always attended by defective absorption of other substances, though this might not be apparent clinically. He had recently seen a patient who presented a case of iron-deficiency anaemia. Steatorrhoea had been found, and intravenous iron had given a good haematological response, although the anaemia was refractory to iron given by mouth. To the pathologists Dr. Black commended the virtues of a three-day fat-balance test in the diagnosis of doubtful cases of steatorrhoea. When steatorrhoea was obvious on inspection of the stools laboratory tests were not needed. It was important to bear in mind the danger of salt depletion in those patients with sprue in whom there was severe and long-continued diarrhoea. Liver and sulphaguanidine had proved effective in arresting watery diarrhoea in the sprue syndrome.

Dr. K. D. KEELE (London) had had an unusual opportunity of observing the early stages of tropical sprue during his work in Bihar and later in Poona. His experience had led him to distinguish a stage of "onset or relapse" and a stage of "remission." In the early stages diarrhoea was present in 80 to 90% of cases. Anorexia and vomiting were also common. With the appearance of remission, which might happen spontaneously or be induced by liver therapy, these symptoms became less marked, but often abdominal distension or a sore tongue appeared. There was considerable dissociation between the degree of steatorrhoea and the clinical state of the patient. For instance, liver could induce a complete clinical remission without the steatorrhoea disappearing. The action of liver seemed to be to enhance the absorption of water-soluble substances, but not of fat. In the aetiology of sprue, a high fat content of the diet probably played some part. In view of the high incidence of sprue in India in the hot season it would seem that a high effective temperature might precipitate sprue.

Dr. A. W. D. LEISHMAN (Sheffield) spoke of the blood changes in sprue. Marrow biopsy had increased knowledge of the anaemias of sprue. In early sprue severe anaemia was uncommon. In established sprue the anaemia might be macrocytic in type, although a megaloblastic bone-marrow was rather uncommon. This type of anaemia might well be analogous to the anaemia produced in rats by intestinal manipulation. In another type of anaemia found in sprue the haematological stigmata of iron-deficiency complicated the macrocytic anaemia. When the bone-marrow was megaloblastic there was a good response to folic acid; otherwise the response was poor. Macrocytic anaemia must be looked on as a delayed complication rather than as an essential part of the sprue syndrome.

In the concluding discussion Air Vice-Marshal T. C. MORTON contended that the widespread use of sulphaguanidine in suspected cases of dysentery might explain the high incidence of sprue in the 1939–45 war. He also quoted Sir Patrick Manson's dictum that "sprue is the past participle of spree." Dr. G. M. FINDLAY asked whether the type of fat present in the "K diet" might be responsible for the high incidence of sprue in men who had taken this diet. Dr. KEELE, while disclaiming knowledge of this type of fat in the diet, was emphatic about its nauseating properties.

SECTION OF RADIOLOGY

Wednesday, June 29

Radiotherapy in Spondylitis Ankylopoietica and Osteoarthritis

With Professor B. W. WINDEYER, vice-president, in the chair, the subject of radiotherapy in spondylitis ankylopoietica and osteoarthritis was opened by Dr. E. L. GWENDOLEN HILTON (London). The first of these conditions, she said, was often a crippling disease and attacked mostly young men. Gold therapy, which was very useful in rheumatoid arthritis, was of no value in the treatment of spondylitis. She had also seen patients who had been treated for months with vaccines but had steadily got worse. With *x*-ray therapy beneficial results began almost at once. Her remarks were based on nearly 1,500 cases, all of which had been carefully followed up. It was extremely easy to miss the early radiological appearances in spondylitic joints. Not all cases progressed to complete bony ankylosis of the whole spine. The disease might become quiescent spontaneously at any stage. In some cases the disease affected the spine only and not the peripheral joints at all; in others it might affect many of the peripheral joints early in its course. When once bony changes occurred they were permanent. In spite of complete clinical cure she had never noticed any radiological evidence of reversal of bony change.

Patients often asked whether *x*-ray treatment would have any deleterious effect, particularly on the genital organs. If the scrotum was properly protected no damage was done to male genitalia during treatment. In the female it was more difficult, because the ovaries came within the direct beam of the rays when the sacro-iliac joints were exposed, though if the joints were irradiated obliquely the dose received was reduced and amenorrhoea was not produced in every case. In young women *x*-ray treatment of the sacro-iliac joints should not be given unless it was essential; it should be given only if the woman was ill and incapacitated by disease. Finally, she had noticed a considerable difference in the progress made by patients who had received identical *x*-ray treatment but who, on the one hand, had had physiotherapy in her own hospital, and, on the other, had had physiotherapy elsewhere, administered by people who had less experience in dealing with spondylitics. The treatment should be adapted to the individual in each case.

Dr. MARGARET D. SNELLING (London) presented details of a series of cases of spondylitis treated at Middlesex Hospital. The aim of *x*-ray treatment had been to get rid of acute symptoms, restore function, and prevent recurrence of attack. About 300 cases of ankylosing spondylitis had been treated during the period 1937–47. Nearly all of them were males, and the great majority were in the second stage of the disease, in which the disease was active and affected the whole or most of the spine, Of the cases in this stage and in the first stage, with the disease active but localized, much improvement in symptoms within three months of treatment was recorded in 69%. Of 66 patients in the second stage whose progress was followed from three to five years after initial treatment, 48 showed marked improvement in symptoms and 35 marked improvement in signs. It was of the greatest importance to undertake physiotherapy and all adjuvant treatments.

Dr. L. JANET MALLENDER (Leeds) said that in the treatment of osteoarthritis radiotherapy was new; it did not replace the older and long-tried methods but it might offer an alternative. Opinions about the value of radiotherapy differed; it had been suggested that the effect was purely psychological. She presented figures relating to 259 patients with osteoarthritis. She formed the impression that small joints did better than large ones. The dissected figures were as follows:

	Relieved for More than 6 Months	Relieved for Less than 6 Months	Unrelieved
Males 117	55·5%	23%	21·5%
Females 142	46·5%	25·5%	28%

After quoting other figures, she said that *x*-ray therapy in osteoarthritis offered a most useful degree of palliation, and was well worth the small amount of trouble it entailed.

Professor B. W. WINDEYER said that in osteoarthritis radiotherapy should not be used when other simpler measures were likely to be effective. Dr. J. S. FULTON (Liverpool) considered that the value of radiotherapy in osteoarthritis was not as clearly known as it might be. As for *x*-ray therapy directed to the sacro-iliac joint, he did not think it could be given without involving the ovaries, and in his view it should not be given to women capable of bearing children.

SECTION OF ANAESTHETICS

Wednesday, June 29

Post-operative Pulmonary Complications

With the President, Professor R. R. MACINTOSH (Oxford), in the chair, Dr. E. M. BUZZARD (Oxford) began by considering lung abscess. This condition was very difficult to diagnose without *x*-ray examination. The once-common classical picture of the "putrid lung abscess" was now rare because of pre- and post-operative penicillin. The onset was insidious and often symptomless, and bronchoscopy had little place in its treatment. In its early stage the lesion was beyond reach of bronchoscopy. Surgical help should be sought early. There were two types of post-operative pneumothorax. In one, the condition was induced by misplaced paravertebral block needles, and in the other it occurred after an acute obstruction in the respiratory tract. Air escaped from the alveoli into the interstitial tissue and so into the pleura. The early recognition of atelectasis was important if the patient was to be spared prolonged convalescence and the possibility of bronchiectasis.

In the detection of atelectasis at the bedside reliance should be placed on physical signs rather than *x* rays. The characteristic onset within 36 hours of operation and the mediastinal shift shown by tracheal deviation were unmistakable features. Percussion and auscultation confirmed the diagnosis.

In treating atelectasis after abdominal operation bronchoscopy was not a beneficial procedure as a routine. He restricted its use to those weak people who could not cough up secretion themselves. After thoracic operations, however, particularly where purulent secretion was present, bronchoscopy might be life-saving. Carbon dioxide inhalation was of little value; complacency of the attendants was induced and voluntary effort of the patient interfered with. The possibility of the plug being sucked further into the bronchial tree could not be discounted. The incidence of atelectasis was higher after abdominal operations than after operations on other parts of the body, because of the presence of pain and muscle-splinting and possibly a viscero-bronchial reflex.

Dr. H. J. V. MORTON (Uxbridge), discussing the methods by which knowledge of the condition had been derived, emphasized that all complications should be recorded, particularly the minor ones. As a result of this practice the published morbidity rates had grown higher. The only technique for investigating post-operative atelectasis was by personal and repeated observation of cases. Experiments should be deliberately planned for the study of some particular aspect of the problem, and strictly comparable groups of cases used for control. Standard tests of significance should be applied to the data so obtained. Less rigorous methods would perpetuate confusion.

Mr. DONALD S. M. BARLOW (London), speaking as a thoracic surgeon, recognized three groups. In the first the chest was healthy but a bronchus had a mechanical block. In the second infection was present, with a true pneumonia or bronchitis. In the third there was both a mechanical block and infection. In the last group pre-operative lung disease was often present; it might be unsuspected pulmonary tuberculosis. The following factors might lead to atelectasis: aspiration of foreign material into the respiratory tract; operation in the presence of respiratory infection; too much atropine interfering with the normal moisture in the respiratory tract; and long-standing oesophageal obstruction. The oesophagus and stomach should be empty before operation, since fluid might run into the trachea without being noticed. He did not believe that a reflex was connected with atelectasis. The condition was rare in thoracic cases because it was not allowed to occur in hospitals where chest operations were performed. During operation the anaesthetist should be ready to employ suction if necessary. Patients should be oxygenated during the operation and for at least twelve hours after. Coughing was the main item in treating atelectasis. Bronchial plugs should not be allowed to remain for more than 48 hours or there was risk of ulceration of the mucosa. The prevention of chest complications should be part of the duty of the anaesthetist.

Dr. DONALD TEARE (London) described post-operative pulmonary complications in patients who had died within 24 hours of operation. Some died during recovery from asphyxia and anoxia. He had seen pneumothorax as well as air embolism from penetration of the lung by needles during regional block. With regard to atelectasis, the two prime factors were respiratory obstruction and a weak inspiratory effort. Curare could produce both of these by means of bronchospasm and respiratory depression.

Dr. JOAN MILLAR (Newcastle-upon-Tyne) discussed prophylaxis against atelectasis. Pre-operatively, attention was directed towards existing respiratory infection. A radiograph was taken, breathing exercises were initiated, and oral sepsis was treated. During operation she used adequate oxygen, light anaesthesia, and either intubation with suction or gravity to control secretions. Most anaesthetic techniques were equally good; ether did not increase the liability to atelectasis. Post-operatively, endobronchial instillation of penicillin was an important treatment.

Dr. B. G. B. LUCAS (London) showed that during inspiration the bronchi were larger than during expiration. He had tried to produce bronchial dilatation by administering ephedrine for two days pre-operatively. Nebulized amethocaine caused dilatation for a short time, and once the bronchi had closed down again ephedrine was useless. The possibility of oedema of the mucosa and damage to the cilia made that use of local analgesia unsuitable.

Professor R. R. MACINTOSH described cases of pneumothorax which had followed paravertebral block. He had used intravenous procaine as an analgesic after operation and wondered whether its beneficial effect might have been partly due to relaxing bronchospasm. Dr. W. W. MUSHIN (Cardiff) drew attention to the work of Hilding, who had demonstrated that negative pressure and airlessness of bronchi could be produced by the centrifugal movement of mucus films in the bronchial tree. Dr. T. CECIL GRAY (Liverpool) doubted whether bronchospasm ever occurred in human beings as a result of curare. Dr. A. R. HUNTER (Manchester) believed that pulmonary complications were primarily infective in origin. Dr. J. A. G. HORTON (Newcastle-upon-Tyne) had examined the sputum of patients before and after operation. A number of the post-operative samples contained pathogenic cocci not present before operation. Dr. R. F. WOOLMER (Bristol) inquired whether expectorant drugs had any place in the treatment of atelectasis. Dr. BUZZARD doubted whether there were any real expectorants. Drs. H. R. YOUNGMAN (Cambridge), KATHLEEN E. THOMPSON (Morecambe), H. B. WILSON (Aberdeen), G. S. W. ORGANE (London), A. H. GALLEY (London), and W. S. MCCONNELL (London) also took part in the discussion.

SECTION OF ANATOMY AND PHYSIOLOGY

Wednesday, June 29

Anatomy and Physiology of the Skin

Professor H. BARCROFT (London), who spoke on "Factors Regulating Blood Flow in the Skin," reviewed methods of examining and measuring circulation in the skin. For the most part these methods could only be applied to the distal parts of the limbs, parts containing a large proportion of skin with a specialized circulation. Among them were observations on the temperature of the skin of the digits; plethysmographic recording of blood volume or blood flow changes in the digits or in the hands or feet; calorimetric measurement of the heat given out by the blood stream in the fingers; the display of subcutaneous veins by infra-red photography; and the determination of the circulation time by fluorescein.

He then gave an account of recent work. Arnott and Macfie had shown that the blood flow in the fingers was increased by

heating only part of the body; this vasodilatation was caused by inhibition of vasoconstrictor tone rather than by the action of any vasodilators. Light falling on one part of the body caused vasodilatation in another part (Cooper and Kerslake). This was not due to local heating of the blood and a consequent rise in body temperature, because it occurred after occlusion of the arterial supply to the part exposed to light. Vasoconstriction in the skin of the fingers caused by deep breathing continued even after spinal section in man, unlike the vasoconstriction due to psychic reactions. It would appear that there were spinal vasomotor reflexes. Increased blood flow in the skin during pregnancy was suggested by the dilated veins which could be demonstrated by infra-red photography (Bowes). Fluorescein injections had been used to assess the vascularization of the pedicles of skin grafts. The effects of sympathectomy on cutaneous blood flow have been followed in the post-operative period; the immediate dilatation was followed by a rapid return of tone to the cutaneous vessels. It was pointed out that plethysmography offered a means of assessing the action and value of vasodilator drugs.

The discussion which followed this paper centred largely on the changes in cutaneous blood flow which occurred during pregnancy, and it was agreed that there is clinical evidence of vasodilatation.

Dr. C. A. KEELE (London) said that sweating was controlled by (1) stimuli causing sweating, (2) the efferent nerve pathways concerned, (3) the chemical transmitter between nerve endings and sweat glands. Kuno differentiated between "mental" and "thermal" sweating. Thermal sweating was least on the palms and the soles; greatest on the forehead, dorsum of hand, axilla, chest, and back. Mental sweating was greatest on the palms and soles, but occurred also on the forehead and face. Sweating was regulated by the sympathetic division of the autonomic nervous system, and control might be effected at cortical, hypothalamic, and spinal levels. The centre for thermal sweating was in the anterior hypothalamus and was stimulated by a rise in the temperature of the blood. The posterior part of the hypothalamus might regulate cutaneous vasoconstriction and shivering.

The situation of the centre for mental sweating was unknown, but the sweating was sudden in onset and increased quickly. Sweating occurred in certain mass responses—for example, shock reactions—but its usefulness in some of them was uncertain. The nerve endings to the sweat glands were cholinergic, and this had led Keele and Chalmers to look for some upset in the transmitter mechanism to explain hyperhidrosis. The response of normal and hyperhidrotic subjects to acetylcholine injected intradermally had been compared. Although hyperhidrosis might be due to the persistence of acetylcholine owing to some local deficiency of cholinesterase, or to hypersensitivity of the sweat glands themselves to acetylcholine, no evidence pointing to these possibilities was found. Hyperhidrosis was therefore attributed to overactivity of the centres.

Dr. R. E. BILLINGHAM (Birmingham), discussing the anatomical basis of epidermal pigmentation in man, said that melanin pigment granules were found in the deepest layer of epidermal cells, but obviously there were great differences in intensity of distribution between different races. The epidermis had two distinct types of cells: the basal-cell layer, from which by differentiation and keratinization the overlying layers were formed, and the dendritic cells. The latter were responsible for producing pigment. They could be demonstrated by separating dermis and epidermis by the tryptic digestion of small shavings of skin. If the digestion was prolonged the basal-cell layer began to come away and the processes of the dendritic cells were clearly shown. The dopa (dihydroxyphenylalanine) reaction had been applied to demonstrate the formation of dopa melanin in the dendritic cells, but the ordinary basal cells did not show it.

The processes of the dendritic cells ran upwards and horizontally between the round basal cells and ended as caps in contact with some of them. Almost every round cell in the basal layer was "capped," and the pigment granules within them had a polar distribution corresponding to the situation of the cap. In the upper layers the distribution of granules was random. It appeared that pigment was formed in the dendritic cells and transferred to the basal cells. In negro and Indian skin melanin was constantly being produced, but a definite stimulus, such as ultra-violet light, had to be applied to Caucasian skin to cause formation. It was suggested that there might be an inhibitor in Caucasian skin which was removed by the stimulus. The dendritic cells also supplied pigment to the hairs.

Dr. G. WEDDELL (Oxford), describing the pattern of cutaneous innervation, said that specific end-organs could be associated with certain sensations—Krause's bulbs with cold, Meissner's corpuscles with touch. A definite "spot" on the skin, a cold spot or touch spot, was usually related to a group rather than to a single end-organ. Nerve fibres corresponding to each organ left the region, which in this sense had multiple innervation. A hair bulb and hair might have two or three separate nerve fibres in which action potentials might be recorded.

Long-branching beaded processes were associated with pain, and they formed a network which might be the anatomical basis for the reactions on which Lewis based his hypothesis of the "nocifensor system." Disturbances in sensation at the margins of areas of local analgesia due to drugs, ischaemia, or nerve degeneration were thought to be associated with changes in the usual grouping of end-organs or the overlapping supply of the fibres subserving pain. The brain did not usually receive impulses derived from a single nerve ending, and normal sensation might depend upon the pattern of impulses projected on to the central nervous system.

SECTION OF NEUROLOGY AND PSYCHIATRY

Wednesday, June 29

Intractable Pain

Dr. J. PURDON MARTIN said that pain which had become intractable had ceased to be protective. Many cases of intractable pain were associated with lesions in nervous tissue—post-herpetic neuralgia, probably trigeminal neuralgia, causalgia, tabetic pains, the pains of syringomyelia, and the thalamic syndrome. In other cases nerves were involved in new growths. There was a partial lesion, or partial recovery of a lesion, of the pathways conducting painful impulses from the peripheral receptor fibres to the thalamus itself in a large proportion of cases.

A second group of patients were suffering from lesions affecting other structures, particularly bone. Pains might also reflect disturbances of function consequent on an organic lesion, as in angina or intermittent claudication. Pain was excited by a normal mechanism, which became unduly sensitive. The third group of cases, the most intractable, included painful neuroses, obsessional pain, and hysterical pain frequently affecting some part of the neck and tongue. Local operations aggravated the condition, and in Dr. Purdon Martin's experience psychotherapy had not proved helpful.

Surgical interruption of the conducting pathway between the site of the disturbance and the sensorium was applicable to all cases in the first and second groups, except the thalamic syndrome. It was still not known whether such cases could be relieved by an operation on the thalamus, or by prefrontal leucotomy. Prefrontal leucotomy was applied to the obsessional and hysterical cases. Medical treatment had not made any great advance. "Trilene" had a selective action on the trigeminal nerve. Morphine still retained absolute superiority in relieving pain. Pethidine and physeptone were in a lower rank, and pethidine might cause addiction.

Mr. WYLIE MCKISSOCK described the applications of spinothalamic cordotomy and prefrontal leucotomy. Spinothalamic cordotomy had proved highly successful in the treatment of intractable pain in the lower limbs and trunk as high as the fourth dorsal segment. In a total of 44 cases there were 36 successes, 7 failures, and 1 death; 6 failures were due to the low level of anaesthesia. The operation had been undertaken to relieve pain due to malignant growths (28 cases), neurofibromatosis (2 cases), painful flexor spasms (3 cases), and in one case each of osteoarthritis of the hip, spina bifida, post-herpetic neuralgia, abdominal pain, and intractable sciatica.

Intractable pain not extending much above the nipple line could safely be treated by section of the opposite spinothalamic tract at the level of the first to the third dorsal vertebrae. The operation was best performed under general anaesthesia in the sitting position—if the level of anaesthesia was not high enough the wound could be reopened in 24 hours to increase the extent of the cordotomy.

Mr. McKissock then described the details of the operative technique. Transient bladder disturbances which occurred post-operatively after bilateral section of the tract might prove permanent in patients with pre-operative changes in the bladder.

For intractable pain in the upper limb cordotomy was less successful. Intractable pain here was usually due to malignant growths, so that the operation of prefrontal leucotomy might properly be considered when other methods of treatment had failed. The results of leucotomy in a series of six cases had been good. Two patients had intractable thalamic pain, one post-herpetic neuralgia, three malignant disease. After operation the patients never spontaneously complained of pain; they were serene and required no drugs. The result was poor in one patient who required an extensive bilateral leucotomy. He became too apathetic to eat, and would not make a will before he died of carcinoma.

Dr. E. B. STRAUSS said that any discussion of pain raised the insoluble "body-mind" problem. An artificial distinction was often drawn between "real" and "imaginary" pain, despite the fact that all pain was in the final analysis a psychic event. Pain was an emotional as well as a sensory experience. Pain divorced from its emotional component was very different from the total experience, as was well shown by leucotomy. Severe pain which did not respond to analgesic drugs was likely to be psychogenic, or emotionally overdetermined. Many pains primarily psychogenic were secondarily somatogenic. Thus colic associated with a spastic colon would be innervated in the usual way through the autonomic system, although the spasticity might be psychically determined. Such states could be treated pharmacologically as well as psychologically at one and the same time.

Hypnosis was a much neglected reliever of pain. Hypnosis could be induced by the individual without a hypnotist or the mystical concept of *rapport*. Salter, in the United States, had elaborated methods of training people in autohypnosis which appeared to be sound and relatively simple. It was useful for an individual to be able to abolish existing pain at will, cure his insomnia, render himself deaf to disturbing noises, increase his inclination to work, and eliminate stage fright and other crippling forms of self-consciousness without dependence on any psychologist.

Dr. ANDREW WILSON (London) proposed to confine his remarks to the more recent work on analgesics. Although morphine enjoyed world-wide reputation as a pain-relieving drug, its other actions on the gut and respiration, and the possibility of addiction, severely limited its effectiveness. He outlined the attempts made to solve this problem by the preparation of derivatives of morphine—heroin, dilaudid, metopon, and also the pethidine series and the miadone derivatives.

He discussed the absorption of these drugs and the recent evidence that neostigmine increases the intensity and prolongs the duration of their action. The respiratory depressant action of these drugs was important, though some derivatives of miadone did not appear to exhibit this property.

All the analgesic drugs so far tested were potentially drugs of addiction, and consideration must be given to the factors of psychical dependence, acquired tolerance, and physical dependence. More critical methods of assessing the likelihood of addiction to new drugs were needed.

Dr. W. RITCHIE RUSSELL (Oxford) showed a film illustrating his method of treating painful amputation stumps by repeated percussion of the neuroma with a mallet and wooden applicator, as described in his recent paper in the *Journal* (June 11, p. 1024).

Dr. HUGH G. GARLAND (Leeds) discussed the part played by the sympathetic, and recalled that in India he had had many patients with causalgia. Some of these he had treated successfully by sympathetic block. The technique was to produce a temporary block by means of procaine at weekly intervals for three weeks. This was followed later by sympathectomy. More recently he had tried a similar technique for cases of post-herpetic neuralgia with some good results.

Dr. J. E. CAUGHEY (Auckland) said that the incidence of causalgia in the New Zealand Division in the war was small but his experience of sympathectomy was encouraging. He went on to discuss cases of cephalalgia. They usually presented with severe nocturnal unilateral pain associated with running from the eyes and nose. A similar pain could be induced in these patients by a subcutaneous injection of 1 ml. of histamine diphosphate. They could be desensitized by increasing doses of histamine diphosphate—starting with 0.01 mg. twice daily and ending with 0.5 mg. weekly. The headache tended to recur if the treatment was stopped.

Mr. W. R. HENDERSON (Leeds) drew attention to the distribution of organic and psychogenic pains. He said that in many cases psychogenic pain was in the distribution of a nerve and that the differential diagnosis was often very difficult.

Dr. MAX G. VALENTINE (Inverurie, Aberdeenshire) quoted recent reports on the value of unilateral lobotomy for intractable pain. Section on the side of the dominant hemisphere was particularly successful.

Dr. E. STENGEL (London) had noticed that in some hundreds of personally observed cases of psychological disorders treated by leucotomy there was no alteration in the response to painful stimuli apart from a general emotional indifference.

Dr. JAMES VALENTINE (Burley-in-Wharfedale) had seen some poor results following the surgical treatment of intractable pain. E.C.T. had temporarily improved some of his patients.

Dr. DOUGLAS GORDON-CAMPBELL (University of California) described the presence of damage to the occipito-atlantal joints revealed by tomography in cephalalgia due to head injury. Relief might be obtained by deep infiltration with procaine or by manipulation.

The President, Dr. W. RUSSELL BRAIN, described two cases: the first was a woman who had a glioma deep in the right parietal region involving the thalamus. A pin-prick on the left foot produced the typical thalamic overreaction. Pin-pricks simultaneously on both feet failed to produce this overreaction. This raised the most interesting possibilities concerning the part played by the cortex in the awareness of pain. The second case was a woman with carcinoma of the breast and secondaries involving her brachial plexus and causing severe pain. Leucotomy made her euphoric. There was some personality deterioration, but apart from that the result was strikingly good.

Mr. WYLIE MCKISSOCK, in reply, said that his patients, after leucotomy, perceived extraneous painful stimuli normally. He also said that leucotomy, as practised in this country, produced comparatively little personality change. This was probably due to the limited material of the operation as compared with that practised elsewhere. He advocated a technique for undercutting areas 9 and 10. This produced very little personality change and was effective in controlling the pain.

Dr. PURDON MARTIN, in summing up, remarked how the discussion had emphasized the close affiliation between neurology and psychiatry. He said that Professor Weiss, of Strasbourg, had given up leucotomy for intractable pain, except in people with a short expectation of life, because he had found that after a time the pain tended to recur. The problem of persistent post-herpetic neuralgia was particularly difficult because the patients were so often obsessional.

SECTION OF OCCUPATIONAL HEALTH

Wednesday, June 29

The Future of Occupational Health

The President, Professor R. E. LANT (Manchester), who was in the chair, opened the proceedings by stressing that in the present economic predicament this country could not afford to deploy its doctors unwisely. Medicine could exist in industry not as a luxury, but only as a service contributing to the health and efficiency of industry.

Dr. DONALD STEWART (Birmingham) said that a number of individuals and scientific groups believed that there was nee

for the expansion of occupational health services. The Prime Minister had recently appointed a committee to advise on the organization of these services so as to ensure that there was no overlapping with the National Health Service. As a basis of any plan for future expansion the aims and purpose of an occupational health service should be clearly defined, and these had been set out in a recent B.M.A. report (*Supplement*, May 28, p. 296). There were five main purposes. First, to attend to hygiene and environmental conditions. Secondly and thirdly, to assess fitness for work and provide for rehabilitation and resettlement. Fourthly, to provide for the emergency treatment of illness and injury. Here he said that too many medical officers were doing too much curative treatment, which in small units should be cut to a minimum. Fifthly, to promote research. With the reorganized Industrial Health Research Board this country was now pursuing industrial health research as never before.

The purposes could not be fulfilled without educating industrial medical officers on the lines adopted by Manchester University. The selection of these medical officers must be just and wise and satisfactory to all parties in industry. There should be a central authority planning the services. The Ministries of Labour, National Insurance, and Health all had claims, but of the three the Ministry of Health was the one he would choose. Within this Ministry there should be a small Department of Occupational Health, which should first appoint 14 regional consultants who would undertake surveys to find out facts on which the future services would be based. After regional surveys, suitable standards could be laid down and related to different types of industrial organizations. Legislation would be required giving power to force firms with no services or with substandard services to come up to these standards. Those firms already having their own services would be approved, provided their identical health services reached the required standard. Each organization should bear the cost of service with suitable allowances on an agreed basis with the Treasury.

Progress in the development of a national service should be slow and based on facts. It would be wise to start with a small administrative organization capable of expansion. The prospect would be gloomy if there was to be a rapid growth based on confused concepts. It would be foolhardy to rush into a national scheme without essential data.

Dr. STUART LAIDLAW (Glasgow) said that occupational health was a specialized branch of preventive medicine and had a basic relationship with public health. It was reasonable to advocate that the practice of occupational health could be undertaken by some of the larger local health authorities.

In Scotland there were twelve large cities or industrial counties in which over 90% of all its factories were situated. These authorities already had statutory duties and legal powers for factory supervision. In Glasgow two pilot investigations had been carried out in a weaving mill and in the Corporation cleansing department by medical officers attached to the Glasgow Public Health Department. It was shown that an efficient service could be provided for smaller units in industry by a public health authority with the assistance of general practitioners at little extra cost to the community.

Other arguments in favour of an occupational health service based on the major local health authorities were that the school medical and the industrial health services could easily be brought more closely together. The staff of the health department included impartial investigators who had access to and close liaison with other health workers in the local authority. Particular attention should be paid to providing health services for cafés and restaurants.

Dr. N. J. COCHRAN (Burton-upon-Trent) said that the employment of part-time general practitioners in factories offered a more practicable solution to the problem of providing a service for small factories than group services with whole-time industrial medical officers. Group service was impracticable for scattered factories partly because it entailed too much time spent in travel; and even for small factories in areas such as trading estates it was difficult for one doctor to make close contact with many employers and several groups of workers. Provision must be made for other working groups such as those in offices, laboratories, hotels, catering establishments, transport undertakings, etc., which all had both special and general occupational health problems.

The general practitioner with duties in industry could see both the industrial and domestic aspects of disease and ill-health. Dual responsibility of this kind would help to break down the barriers set up by specialization and would eventually be of benefit to the patient. Large industrial communities should have whole-time medical officers. The general practitioner working in industry could help to relieve the growing burden of sickness which weighed so heavily on the personal health services.

In the discussion which followed, Dr. ALICE STEWART (Oxford) said that decisions about new schemes should be postponed until more facts had been collected by the academic departments of social and industrial medicine, which were equipped to carry out selected field surveys.

Dr. E. H. CLUVER (Johannesburg, S. Africa) said that in his country gold-mining was the main industry with the predominant hazard of silicosis. It was now realized that nearly all the people were "occupied" and therefore subject to occupational hazards. In the reorganization of the training of South Africa's medical students it was proposed to pay special attention to social medicine, which would include occupational health.

Dr. W. BLOOD (London) stressed the dangers of increased mechanization, which made it almost impossible to place every worker in a job which satisfied his abilities. He considered that Dr. Laidlaw's work showed the need for increasing the size of the factory inspectorate.

Dr. F. S. COOKSEY (London) said that occupational health must be regarded under the headings of research, teaching, and field work. A central organization was necessary to stimulate research and teaching, but the responsibility for administering field work should be decentralized.

Concluding the discussion, Professor G. P. CROWDEN (London) said that the problems of occupational health called for co-ordinated team work. Before 1939 special intensive courses were organized for medical officers, safety engineers, personnel managers, nurses, and welfare supervisors. They met together and the spirit of co-operation was encouraged at an early stage of their training.

Several other speakers emphasized the importance of making the fullest use of general practitioners in any future scheme for occupational health services.

SECTIONS OF ORTHOPAEDICS AND RHEUMATOLOGY

Wednesday, June 29

Synovial Membrane

Under the chairmanship, first, of Mr. R. BROOMHEAD (Leeds), president of the Section of Orthopaedics, and, later, of Dr. W. YEOMAN (Harrogate), president of the Section of Rheumatology, Professor D. V. DAVIES (London) opened a discussion on the structure and function of synovial membrane. Synovial membrane, he said, was a relatively undifferentiated tissue forming the lining cells of the joint space developed within the embryonic mesenchymal condensation which became skeletal. Being undifferentiated in comparison with bone, cartilage, and ligaments, it had great powers of regeneration. But, being of the same mesenchymal origin, it was not surprising that under pathological conditions it might produce within it cartilage and bone. Its capacity to produce mucin strengthened the similarity to embryonic connective tissue. Its vascular structure influenced the formation and absorption of synovial fluid. The synovial cells were active in the removal of particulate matter from the joint cavity, as was well seen histologically when, after haemorrhage into the joint, those cells were found loaded with haemosiderin. The vascularity was increased at the edges of articular cartilage to form Hunter's vascular circle, which nourished the peripheral portions of that otherwise avascular structure. Except for the mucin, synovial fluid was a dialysate from the blood, and the addition of mucin admirably adapted the fluid to retention within the joint. The innervation of synovial

membrane was a controversial subject, and he supported Gardner's views that no free nerve networks or end-organs were found associated with the subjacent blood vessels. He had been able to prove in a living person that the membrane was insensitive to touch, pricking, and pinching; tugging, however, was soon resented, but the pain was not well localized by the patient and was thought to be due to more remote drag upon capsular ligaments.

Mr. D. ENGEL (Derby) said his own work tended to show that the [illegible] synovial membrane was diminished by inflammatory states and by lumbar sympathectomy.

Dr. D. H. COLLINS (Leeds), discussing varieties of pathological reactions in human synovial tissues, considered the pathological changes in synovial membrane under three heads: (1) Changes in synovial cells; (2) vascular and exudative phenomena; (3) leucocytic reaction. Under the first he emphasized the importance of histiocytic differentiation and phagocytosis, which were characteristic of haemarthrosis and were present in certain benign synoviomata. Such histiocytes might fuse and form the giant cells of a variety of pathological lesions. The vascular reactions of synovial tissues were often out of proportion to the severity of the inflammatory stimulus; the former was not infrequently maximal while the latter was minimal. Perivascular lymphocytic infiltration was slight in cases of chronic trauma and osteoarthritis. Massive infiltration was found only in severe chronic inflammation, and was particularly striking in rheumatoid arthritis; neutrophil polymorphic leucocytes were few, but it was noteworthy that in neighbouring joint effusions the proportion was reversed and they contained many polymorphs—probably because of their greater powers of motility. The rapid development and subsidence of these changes were well illustrated by the articular phenomena of rheumatic fever. Synovial tissues had a great capacity for repair and regeneration. These facts supported the views of Hench and his co-workers on the reversibility of joint inflammation, particularly in its less chronic forms.

Arthritis of the Hip-joint

Mr. H. PETTY (Leeds), discussing the denervation operation, reviewed the anatomy of hip-joint innervation. He had used partial denervation of the hip-joint in 19 cases. The results were encouraging. In three cases relief of pain was complete and in 12 was good, there being only occasional slight aching afterwards. Extraperitoneal resection of the obturator nerve was required, and division of the branch of the sciatic nerve to the quadratus femoris (the main posterior articular supply). The high division of the obturator nerve was justified because of the occasional high origin of articular branches and the advantage of denervating the adductor muscles.

Mr. R. BROOMHEAD (Leeds), after paying tribute to the work of Smith-Petersen, reviewed 100 cases of mould arthroplasty of the hip-joint which he had performed for a variety of conditions. Suitable cases must be medically fit and of a mental capacity to understand and co-operate in the pre- and post-operative regime. Age had little and sex no bearing on the result. The mortality was practically *nil*. The most important local factor influencing the result was the condition of the hip musculature. The best results were in patients with the most nearly normal muscles. The worst muscles were those fibrotic ones found in chronic rheumatoid and spondylitic hips, in which the results of arthroplasty were not good. He pleaded for the earlier consideration of arthroplasty by physicians in such cases, for surprisingly good results had been obtained in treating these acute forms of disease. Among other types of disease osteoarthritis gave the best results with this treatment. In young people those who had had early Perthes's disease or adolescent coxa vara did very well, those with spontaneous osteoarthritis not so well. In the largest group of cases—that is, of morbus coxae senilis—there was, as in all the others, freedom from pain and a range of movement which on the average was 40% of normal. Better results were obtained in patients with a long femoral neck. Deformity, particularly external rotation and flexion, added to the post-operative difficulties. One of the difficulties encountered after operation might be the formation of new bone, which might lock the cup in position and limit movement. It could be minimized by manual care while operating and by washing out all particles of bone dust.

Among the speakers who joined in the discussion Dr. DONALD WILSON (Bognor Regis) and Dr. G. D. KERSLEY (Bath) emphasized the soundness of Smith-Petersen's method of pre- and post-operative care—the training of muscles and the prolonged use of crutches. Mr. NORMAN CAPENER (Exeter), mentioning the unsatisfactory results of mould arthroplasty in ankylosing spondylitis, recommended Batchelor's procedure of excision of the femoral head and neck with a Schanz type of subtrochanteric osteotomy. This view was supported by Mr. F. W. HOLDSWORTH (Sheffield). Mr. H. JACKSON BURROWS (London) mentioned the effective method of hip-joint denervation practised through the Kocher posterior approach by his old teacher Elmslie in his operation of extirpation of the capsule.

Mr. BROOMHEAD in his reply agreed with most of what had been said, but, referring to arthrodesis for single osteoarthritic hips, warned against the possibility of osteoarthritis developing in the opposite hip.

Physical Treatment of Arthritis

Dr. H. F. TURNEY (London) said that whereas superficially applied heat was useful for the knee, short-wave diathermy was more suitable for the hip-joint. Exercises, which should be of non-weight-bearing type, were of particular importance for the restoration and maintenance of movement and for the muscular reconditioning which was of special significance in the knee, the stability of which was so dependent on its muscles. In all this work the Guthrie Smith apparatus, or improvised machinery of this type, was of great value. Active exercises were more important physically and psychologically than passively applied faradism. It was important to avoid fatigue. Reduction of weight by diet might be of value, but no particular diet benefited arthritis. The value of mud packs was in their poultice-like heating effect and not in the nature of their constituents. The beneficial effect of intra-articular injections was attributed to their acid content; he was not convinced of this in practice. Nevertheless such treatment was of great value; non-acid solutions could be used. Part of the benefit appeared to be due to the initial mobilization under local analgesia and the after-treatment. It should not be pursued indefinitely if no relief was obtained. Sometimes the results were dramatic.

Mr. GRANT WAUGH (Sunderland) believed the reactions of synovial membrane and their treatment had been much neglected. Because of the sensitivity of some of his patients to procaine he had given up administering this drug in his injections of lactic acid, the continued good results of which were independent of any local analgesic action. No other drugs were as satisfactory.

SECTION OF CHILD HEALTH

Wednesday, June 29

Common Feeding Difficulties in Infancy

A warm welcome was extended by the President, Emeritus Professor C. W. VINING (Leeds), to guests who included Dr. V. A. FENGER (Danish Medical Association), Dr. I. C. YUAN (World Health Organization), Professor C. C. DE SILVA (Ceylon), and Dr. D. G. CAMPBELL (San Francisco).

Professor R. S. ILLINGWORTH (Sheffield) contended that many of the difficulties arising in connexion with infant feeding were man-made and preventable. Routine regular test feeds might contribute to early failure of lactation by worrying the mother, by implying doubt about her ability to breast-feed, and by leading to the premature adoption of complementary feeds. Doctors, he thought, had a better knowledge of abnormal than of normal infant feeding.

Reviewing other common difficulties, Professor Illingworth deprecated the use of a fixed and rigid feeding schedule; drew attention to the undesirability of too strict insistence on a baby being put to each breast for ten minutes at each feed; stressed the danger of too much emphasis being placed on overfeeding; and commented on the effects of excessive clothing. Loneliness

gave rise to difficulties, and an infant should not be kept separated from the mother. A diagnosis of underfeeding required confirmation by test feeds before any question of taking a child off the breast was answered. Defective weight gain might arise as a result of defective intake, low-grade sepsis, or excessive clothing, or it might follow too literal adherence to "instructions on the tin" and too great reliance on the spoon as an accurate measure. Laxatives taken by the nursing mother were a not uncommon cause of diarrhoea in the infant, but in the breast-fed infant normal stools were often mistakenly described as loose, and stools normal in all respects might be described as constipated because of apparent infrequency.

Dr. CHARLOTTE NAISH (York) discussed common feeding difficulties in infancy from the point of view of the general practitioner. In assessing the value of breast-feeding it was misleading to compare "the underfed breast-fed baby" with "the fully fed baby reared artificially." Insufficiency of breast milk was an indication for complementary feeds and not for the termination of breast-feeding.

Study of 100 consecutive cases in general practice showed that circumstances (excluding accidents and notifiable infectious diseases) calling for domiciliary visits for babies of less than 1 year of age were much less common in the case of infants who had been breast-fed for an appreciable period than in those who had never been breast-fed or who had been breast-fed over only a short period. Morbidity was not influenced by social level.

There were among mothers "good, medium, and poor milkers." Too much must not be made of this fact, however. The likelihood of achieving successful breast-feeding was closely linked with the system of supervision. Often there were too many supervising authorities. Close contact with the patient must be maintained by the doctor. Breast-feeding must be discussed freely during the antenatal period, and continuity of supervision was essential. Portable scales were useful used in the third and fourth weeks at the time of the customary post-natal visits. Advice and supervision could be continued by the general practitioner at clinic sessions organized for this purpose.

Professor S. G. GRAHAM (Glasgow) dealt with problems related particularly to feeding of the premature infant. Feeding problems were inseparable from those concerned with the prevention and cure of disease in premature infants. Considering the smallest premature infants in the first few weeks of life, Professor Graham said that there was no evidence to justify the view that breast milk was not the milk of choice. Those who believed otherwise attached too much importance to gain in weight as the sole criterion of progress. There were other criteria, such as ability to feed, activity, and colour. The amount and technique of feeding were important. It was dangerous to stimulate these infants too early or too quickly. Oedema was common, and resulted from capillary damage due to anoxia and immature kidney function. Anoxia called for oxygen therapy. In the presence of oedema fluids should be withheld for at least 24 to 48 hours. Feeding by the bottle was desirable. Gavage and the use of a pipette involved a risk of aspiration pneumonia. The results of feeding the premature infant depended on the nursing staff.

Impressions based on a survey of 1,000 children attending infant welfare centres were given by Dr. E. BADENOCH (Birmingham). The children represented a random selection. Difficulties in infant feeding had not been eased by social factors related to overcrowding, housing problems, and queueing. While more mothers were attempting breast-feeding, fewer were maintaining it for six months. Difficulties in artificial feeding arose from the nature of "the instructions on the tin"; and from a tendency to give too few feeds. Habit vomiting was a fairly common source of trouble. Approximately 10% of infants are unable to take cod-liver oil in pure form, but they tolerated maintenance doses of concentrated vitamin preparations. Mild rickets was confirmed in 10 out of 2,000 babies examined in connexion with adoption proceedings. Common clinical conditions encountered were: pyloric stenosis under 2 months; gastro-enteritis and respiratory infection between 2 and 5 months; teething disturbance and otitis media between 5 and 8 months; and pyelitis between 8 and 12 months.

Mother-love was important, and the mother's daily presence was essential, and preferable to isolation in a nursery. Dried milks were the most favoured substitute for human milk in the lower-income homes, and have contributed to the reduced incidence of gastro-enteritis among infants.

Dr. J. MACKINTOSH (Birmingham) also stressed the importance of education beginning during the antenatal period. She suggested that local authorities might help family doctors undertaking antenatal care by lending local authority staff to provide the health education. In some instances use might be made of welfare and other centres.

Subsequent speakers raised a number of points. Professor C. C. DE SILVA (Ceylon) referred to the absence of feeding difficulties among the lower-income groups in Ceylon. He asked that the profession in this country should discourage the view common among Europeans that breast-feeding was contra-indicated in the Tropics. Dr. C. C. HARVEY (Doncaster) urged that greater attention should be paid to re-establishing breast-feeding prematurely discontinued. Professor A. E. NAISH (Sheffield) emphasized the value of test feeds, provided that the attendant was aware of variations within the normal range and provided that the mother had had explained to her the purpose and interpretation of the procedure. Test feeds at monthly intervals helped in the early detection of slight falls in milk supply which if uncorrected might contribute to undernourishment and anorexia on the part of the infant. Dr. POOLER (Chesterfield) said child-welfare experience confirmed the need for elasticity in education. The tenth day of the puerperium, when the mother resumed domestic responsibilities, was a danger period in lactation. Dr. SIMON (York) agreed that education for breast-feeding should start antenatally, regretted the multiplicity of foods available because they encourage unnecessary feeding changes, and commented upon the fact that adolescent schoolgirls thought of infants in terms of babies with bottles and teats. Dr. GOLDSBOROUGH (Leeds) said that changes in rationing and the national diet handicapped breast-milk secretion by depriving mothers of essential hormones of exogenous origin. In his experience only 10% of women are able to nourish their babies at the breast.

Dr. MARY CROSSE (Birmingham) shared views expressed previously concerning the value of breast milk for premature infants; suggested that there might be some advantage in giving extra protein to infants of birth weight under 3½ lb. (1.59 kg.); and said she had come across only one case of retro-lental fibroplasia in 3,000 premature babies. Dr. J. WEBB (Windsor) urged a review of teaching methods. Children's physicians and local authority medical officers should have more insight into each other's work. He emphasized the value of hospital breast-milk banks. Dr. S. KELSEY (Cheltenham) confirmed previous criticism of instructions on tins of artificial food. The basis should be expected weight and not age.

Summing up the discussion, Professor ILLINGWORTH stressed the need for knowledge of neonatal physiology; referred to the reduced risk of infection in breast-fed infants; and urged differentiation between overfeeding and wrong feeding.

Domiciliary Care of the Premature Child

Dr. F. J. W. MILLER (Newcastle-upon-Tyne) showed slides illustrating a domiciliary special nursing service at work in artisan homes in Newcastle. The service had been in operation since 1945. Of 244 premature infants born and nursed entirely at home 197 survived. Only 26 were admitted to hospital after receiving care from a home nurse. Assessment of the results was difficult. Comparing results with those obtained in premature units of the highest standard, it appeared that infants of birth weight over 3½ lb. (1.59 kg.) had as good a chance of survival at home as in hospital; and that the prospects of those under 3½ lb. were better in hospital. The value of the domiciliary service was threefold. It has a social value to the family, was a direct help to the family doctor, and facilitated the concentration of care on the very small infants accommodated in premature units.

In reply to questions Dr. Miller emphasized that the key to success in domiciliary care rested with the nurse and that ultimate clinical responsibility rested with the family doctor. Oxygen and electric blankets were supplied to these homes.

SECTIONS OF OBSTETRICS AND GYNAECOLOGY AND DERMATOLOGY

Thursday, June 30

Pruritus Vulvae

Professor T. N. A. JEFFCOATE (Liverpool) said that pruritus vulvae was a symptom for which approximately 10% of women consulted the gynaecologist. When patients complained of "irritations" of the vulva it was easy to assume that by this they meant "itching," whereas often they meant pain, tenderness, or a burning sensation. Unless there was a desire to mislead, the term pruritis should not be used. It was important to determine the site of the pruritus, for pruritus vulvae and pruritus ani often had different causes. It was also important to know if it was associated with pruritus elsewhere.

After discussing the mechanism of production of the sensation of itching, Professor Jeffcoate went on to consider the aetiology of pruritus vulvae. It might be associated with general pruritus, as in jaundice. Glycosuria was an important factor. Pediculosis gave rise to pruritus pubis rather than pruritus vulvae. His analysis of a large series of cases showed how many possible causes there were.

Causes of Pruritus Vulvae in 254 Consecutive Cases, Excluding Pregnant Women

	Number of Cases
Trichomonas vaginitis (not proved bacteriologically in 74, but clinically typical)	100
Chronic cervicitis, cervical erosion, and polypi	28
Trichomonas vaginitis probably present	9
Other factors present	4
Deficiency states	20
Vitamin B, deficiency	3
Achlorhydria	13
Deficiency anaemia (iron or liver factors)	4
Psychogenic causes	18
Skin diseases not specific to the vulva: psoriasis, intertrigo, intra-epidermal cancer, etc.	14
Prolapse	12
"Leukoplakia vulvae"	9
Glycosuria, diabetes mellitus	8
Fungus infection of the vagina and vulva	6
Senile vaginitis	6
Idiosyncrasy to chemicals (soap, "dettol," pessaries, contraceptives)	5
Allergic states	4
Post-menopausal atrophic vulvitis	4
Unknown	20

Professor Jeffcoate considered that one of the greatest advances of recent years had been the recognition that certain deficiency states could cause pruritus vulvae—for example, lack of vitamin A, B complex, and iron and liver factors. Probably 20% of cases were due to these deficiencies. He had details of 46 women with pruritus vulvae who had histamine-fast achlorhydria. They had been treated with dilute hydrochloric acid by mouth, and iron preparations when necessary, but no other general or local treatment. The results were:

Cured	34
Slight relief	1
Unknown	4
No response	7

The 34 cured cases were followed up, and it was found that 25 had permanent relief for one to eight years; one patient died of intercurrent disease; two were not traced; six had relapsed and did not respond to further treatment.

The most important part of the management of pruritus vulvae was a thorough investigation to find the cause. A careful history and full physical examination were required as well as (1) repeated examination of *fresh* vaginal swabs for trichomonas, *Oïdium albicans*, and other fungi; (2) a fractional test meal; (3) full examination of the blood; (4) a glucose-tolerance test; and (5) biopsy of vulval skin in selected cases. He concluded by stressing that even in the present state of knowledge a definite organic cause, amenable to treatment, could be found in not less than four out of every five women who complained of pruritus vulvae. In no more than 5% of cases was it impossible to give relief by one means or another.

Dr. G. A. GRANT PETERKIN (Edinburgh) pointed out that when a dermatologist diagnosed pruritus vulvae it indicated that there was no skin condition present to account for the itching, so that the case was either gynaecological or fell into the so-called "idiopathic" group, in a proportion of which the itching appeared to be entirely due to psychological causes. He thought that the highest incidence occurred between the ages of 30 and 39, and not, as was often thought, after the menopause. It was prudent to remember that venereal diseases could cause pruritus vulvae. He listed other conditions which might be responsible for pruritus.

Condylomata acuminata, when itching might precede the appearance of the warts by several weeks. Podophyllin resin was effective in these cases.

Flexural psoriasis, for which tar and ultra-violet light were best.

Lichen planus, which was often mistaken for leukoplakia, was best treated by the heavy metals, perhaps aided by *x* rays.

Lichen sclerosus et atrophicus was even more frequently diagnosed as leukoplakia. Carcinoma did not arise from the vulval lesions in this disease. Some cases responded well to prolonged treatment with stilboestrol ointment.

Contact dermatitis might be due to quinine pessaries, rubber contraceptives, clothing, medicated toilet-paper, sanitary towels, and even nail-varnish. The commonest cause of all was one of the myriad antipruritics prescribed, especially cocaine. The acute case responded well to treatment with starch poultices and Castellani's paint.

Drug eruptions—for example, those due to phenolphthalein and the sulphonamides—might cause pruritus.

Circumscribed neurodermatitis (*lichen simplex chronicus*) and the *asthma-eczema* group should be treated with crude tar, *x* rays and thorium X, or cod-liver oil and hydrochloric acid.

Flexural infective eczema could be cured by 1% gentian violet, and for *follicular infective eczema* treatment by means of a penicillin spray gave good results.

Fungus infections were due either to true ringworm or to yeasts, and were often found in diabetic patients. It had been pointed out that 18% of healthy women harboured monilia in the gastro-intestinal or genital tract. For fungus infections one of the best antipruritics was undecylenic acid.

"*Idiopathic*" *cases*, Dr. Grant Peterkin concluded, formed a group in which focal sepsis was often an important factor, as also were emotional and anxiety states.

Dr. C. J. MACKINLAY (Glasgow) said that monilial pruritus vulvae affected three groups of patients: the diabetic, the pregnant, and an "idiopathic" group in which no factor could be shown to be responsible for the continuance of the infection. Diagnosis was difficult, and he suggested that no gynaecologist should accept the diagnosis of a Grade I flora (Schroeder), particularly in cases of pruritus, unless swabs had been cultivated on Sabouraud's medium and had failed to grow colonies of fungus. A direct film stained by Gram's method might be most deceptive, as the fungus could assume a form morphologically indistinguishable from Doederlein's bacillus. Treatment by "mycil" pessaries and jelly had given satisfactory results.

Dr. ELIZABETH HUNT (London) said she had never seen a case of "idiopathic" pruritus vulvae. Pruritus was a symptom, not a disease. In her experience psychogenic causes were rare. She thought that "dettol" baths headed the list of irritants. She reviewed 88 cases referred to her for pruritus vulvae from January to June, 1949. The vulva only was affected in 34% of these cases, and in 4% the vulva was not affected at all. General constitutional diseases accounted for 20%, local affections 25%, skin diseases 50%, and other causes 5%. The present-day excessive carbohydrate diet might influence the condition.

Dr. E. LIPMAN COHEN (London) did not believe there was always just one cause for a disease. He thought the psychogenic factor was often primarily responsible in cases of pruritus vulvae.

Dr. F. F. HELLIER (Leeds) thought there was a lot of nonsense being talked at present about vitamin deficiencies

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Dr. S. T. ANNING (Leeds) was sceptical about monilia causing colpitis.

Dr. BRIAN F. RUSSELL (London) said that psychogenic factors were most important. He believed that there were true deficiency states due to dietetic fads.

Dr. MURIEL KEYES (Harrogate) said many women were disinclined to go to their doctor when complaining of vulval itching. She stressed the importance of urethral disorders as a cause.

Others who took part in the discussion were Dr. A. BARKER (East Kent), Dr. G. A. HODGSON (Cardiff), Dr. S. L. NAVARATNAM (Colombo), Mr. J. A. CHALMERS (Inverness), Dr. S. SMITH (London), Dr. W. H. BROWN (Glasgow), Dr. H. R. VICKERS (Sheffield), Dr. A. FRENCH (London), and Dr. J. T. INGRAM (Leeds).

Summing up, Professor JEFFCOATE thought that all were agreed that pruritus vulvae was a symptom and not a disease. Vitamin deficiencies could exist without demonstrable deficiencies in the blood. Some 25% of women were carriers of trichomonas, and he wondered if this infection was not often spread in hospital wards.

SECTIONS OF RADIOLOGY AND CARDIOLOGY

Thursday, June 30

Angiocardiography

The Sections of Radiology and Cardiology combined for a discussion on "Angiocardiography," Sir JOHN PARKINSON presiding over the first part of the meeting and Dr. J. L. A. GROUT over the second. Sir John Parkinson said that this was the first occasion on which a Section of Cardiology had been arranged, and the cardiologists were glad that their first meeting should be with the radiologists, to whom they owed so much. They were also proud that one of their members, Dr. C. W. Curtis Bain, should be President of the Association.

Dr. FRANCES GARDNER (London) said that angiocardiography afforded a clearer understanding than had hitherto been possible of normal cardiac anatomy. In her department they had collected a small series of normal angiocardiograms in different age groups taken in the three standard positions used in fluoroscopy, and in addition to their educative value they had provided a useful standard for comparison with abnormal films. She proceeded to give a lantern demonstration of angiocardiograms in the normal child and adult and showed their value in the recognition of specific aortitis and in the differential diagnosis of aortic aneurysm and mediastinal tumour.

Perhaps the most striking contribution which this procedure had made to modern cardiology was in the realm of cyanotic congenital heart disease. The surgical procedures in this condition initiated by Blalock in the United States and by Brock in this country called for accurate anatomical diagnosis. The first concern in considering suitability for operation was to exclude those cyanosed patients in whom the pulmonary blood flow was adequate or increased. Here angiocardiography might only confirm the clinical diagnosis, but it might also add some useful anatomical details. Many abnormalities were included in this group, and for some of them surgery was contraindicated. The practicability of increasing the blood supply to the lungs depended on the presence of both right and left pulmonary arteries, and only by angiocardiography could this be determined with certainty.

Dr. J. WILKIE (Sheffield) sketched the earliest attempts to outline the cardiac chambers, culminating in the use by Robb and Steinberg of 70% "diodone." Many devices had been evolved for enabling a rapid series of radiographs to be taken. The most likely appeared to be some development of cine-radiography. He described a rotating cassette holder capable of giving six exposures at intervals of about 1 second. The position of the patient during examination was important. The arm must be maintained in proper relationship to the trunk during injection. Adults were examined under full sedation; children under general anaesthesia (cyclopropane). In the latter case a second injection could be made, provided an adequate interval was allowed between the two. Timing of the exposure intervals was correlated with the side of the heart which was suspect. He discussed possible dangers of the procedure, and referred to one isolated fatality. All possible care should be taken in the selection of cases, and the information likely to be obtained should be of sufficient value to justify the risk. He demonstrated the radiographs of four cases—coarctation of the aorta, complete transposition of the great vessels, Fallot's tetralogy, with early and late filling of the aorta, and pulmonary stenosis with an atrioseptal defect and rudimentary right ventricle.

Dr. K. D. KEELE (London) demonstrated the value of angiocardiography in seven cases, all in children with congenital defects. He described the history and signs in relation to the appearances in the angiocardiogram. In a case of patent interventricular septum, for example, the angiocardiogram showed filling of the right and left ventricles in 2 seconds, both remaining filled for 6–8 seconds. In a case of congenital heart block and patent ductus arteriosus the antero-posterior view showed a normal right auricle and right ventricle, poor filling of the left ventricle, small aorta, the pulmonary fields remaining filled for 8–10 seconds, and pulmonary clonus not filled at the same time as the aorta, while the left anterior oblique view showed patent ductus arteriosus. In a case of patent ductus arteriosus the angiocardiogram showed refilling of the left pulmonary artery from the aorta and, on an oblique view, a small localized dilatation of the inner wall of the descending arch of the aorta. The ductus was ligated, and an angiocardiogram repeated five weeks later showed now no refilling of the left pulmonary artery from the aorta, and the localized aneurysm of the inner wall of the descending arch of the aorta was larger than previously.

Dr. T. H. HILLS (London), whose paper was read in his absence through indisposition, said that Guy's Hospital had been fortunate in that a large number of cases in the cyanotic group had been investigated before operation, and the radiological findings had been checked in the operating theatre and at times in the post-mortem room. Angiocardiography was a dangerous investigation in this group, and should not be undertaken solely to confirm a diagnosis in a patient not suitable for operation. About 90 cases had now been *x*-rayed at Guy's. However well established a clinical diagnosis of Fallot might be, the thoracic unit at Guy's was not prepared to consider operation without this investigation. He discussed the technical requirements for the investigation. The films must be large enough to include the vessels of the neck, accurately timed so that correlation of the rate at which the chambers of the heart filled was possible, and taken at such intervals that there was not too great a difference between any two consecutive pictures in the series. Both antero-posterior and oblique views were of value, but if the diagnosis was in little doubt, and it was desired that the risk of a second injection be avoided, the antero-posterior view should be preferred. The oblique view, however, was desirable in a case of supposed ductus or a transposition. He went on to mention a number of points in the interpretation of angiocardiograms.

Dr. F. JACKSON (London) discussed present trends in North American clinics. Angiocardiography had been used at 157 different hospitals in North America, and in some 6,000 examinations. Three main methods were used: cassette-changing method, the continuous roll of *x*-ray film, and photofluorography, in which the fluorescent screen was photographed. At Mount Sinai Hospital, New York, where the greatest number of angiocardiograms had been taken (over 1,500), a gravity machine with electrically operated release was used. The continuous roll method had been developed at the Toronto Children's Hospital and at Ann Arbour. More rapid exposures could be obtained in this way, and many workers believed that the exposures made rapidly during the critical two or three seconds after injection revealed information not given by slower methods. It was believed that there could not be too many exposures in the early seconds. Photo-fluorography was difficult, chiefly because the fluorescent screen emitted only a small fraction of the energy falling on it as actinic light, and he did not think this method would provide a solution, at any rate for some time to come.

The subsequent discussion was chiefly concerned with the dangers of the procedure. Dr. FRANCES GARDINER mentioned some additional points. Some children had been examined while under sedation only, and she did not think that if the sedation was heavy enough the children suffered. Dr. J. WILKIE, on the other hand, insisted on general anaesthesia for children. Dr. E. JACKSON said that at Mount Sinai there had been no death in the 1,500 examinations, and this compared well with Johns Hopkins, but at the latter hospital a great number of very serious cases had been investigated. Dr. G. M. HAYWARD described how at St. Bartholomew's, where between 50 and 60 cholecystographic examinations of children had been carried out, anaesthesia was used, and, moreover, it was insisted that a most expert anaesthetist be employed, usually the anaesthetist who would act at the subsequent operation. Sometimes the patient might be under the anaesthetic for 1½ to 2 hours. There had been no fatalities, and since the use of sedation had given place to anaesthesia these cases had caused much less anxiety. Dr. F. T. FAULKNER (London) said that there had been two fatalities among the cases at Guy's. The first was after gas-and-oxygen anaesthesia, which was unsuitable, and the second was in a case where two injections were given, the second one to take an oblique view, with only 20 minutes' rest between the two. Cyclopropane was the anaesthetic of choice.

SECTIONS OF CHILD HEALTH AND PREVENTIVE MEDICINE

Thursday, June 30

Behaviour Difficulties in Childhood

Overseas visitors at this combined meeting included Lieut.-Col. J. W. REGAN (U.S.A.), Dr. E. H. CLUVER (South Africa), Dr. P. MORAN (Eire), Dr. I. C. YUAN (World Health Organization), and Dr. R. E. ANDERSON (Malaya). The chair was taken by the president of the Section of Preventive Medicine, Professor R. H. PARRY (Bristol) and later by Professor W. S. M. CRAIG (Leeds).

Dr. MILDRED CREAK (London) commented on the controversial nature of the subject and emphasized the need for attention to the preventive aspects of work at child-guidance clinics. She stressed the importance of history-taking and the dependence of successful treatment on lengthy first interviews. There should be closer contact between children's physicians and psychiatrists. An almost insoluble problem was that arising from the unwillingness or inability of parents to make necessary adjustments to the presence of children. Emotional problems could be traced to tension and conflict, which might be at the conscious level or might consist of influences carried over from deeper levels. Prevention could begin in the antenatal stage and be continued during the puerperium. "Rooming-in arrangements," which found favour in American maternity hospitals, were to be commended. They helped the mother to learn what her child wanted and they tempered the attitude of the staff.

One result of the small families of to-day was that adolescents learned little of home life and acquired only a limited experience of children. In our modern way of living, home-making and parentcraft came low in the list of priorities. The effects of the war years were evident among children who did not know their fathers in their earlier years. There was evidence that persisting problems were most common in children who had been evacuated and particularly in those who were evacuated when very young. There was a danger in removing a child from the emotional attachments of his home at certain stages in development. Divorce resulting in loss of a parent was a growing problem as a cause of difficulty in adjustment in children. Short periods in hospital could produce profound disturbances. Aggression in a child in hospital or at school might be a healthy attitude providing evidence of readiness to face and grip new problems.

Speech, reading, and number concepts had an orderly pattern of development. Confusion occurred on returning to school after an absence. Hospitals, she thought, should provide some form of educational help.

Dr. Creak referred to the unique opportunities possessed by welfare clinics if time was spent on first interviews; the importance of not being too ready to sacrifice a mother's warm care of an only child in order to place the child with others of his own age: and she urged the closer association of staffs of hospitals and school health services. More people were having fewer children, and so the child was in danger of being offered greater freedom in a world less ready to receive him. Physicians must try to reinforce the ties inherent in stable family life.

Professor C. W. VINING (Leeds) gave "spoiling" as the most common reason offered for behaviour problems. In fact attempts to avoid spoiling a child might give rise to unhappiness. Behaviour problems more often than not were the result of the imposition of a parent's will. The child needed love and affection from those looking after him. Forcing produced rebellion, negativism, and insecurity, where what was wanted was the promotion of courage, confidence, and freedom. Obedience to repressive measures was neither lasting nor natural. Single incidents did not have prolonged disturbing effects, whereas persistence in a parental attitude not understood by the child did. Spoiling might take many forms, including exaggerated anxiety, undue concern about happiness and well-being, and excessive interest in the natural bodily functions of the child. Most children attending hospital clinics were not suffering from underlying physical disease. The doctor must not encourage a wrong attitude in the child by too long a period in hospital, severance from education, or prologed convalescence. The importance of behaviour problems must not be exaggerated. These problems had wide implications related to common sense, public health, and education.

Dr. W. S. MACDONALD (Leeds), who was introduced to the Section as a family doctor, justice of the peace, and chairman of a juvenile court, referred to children reflecting their parents, to the influence of the mother being vital, and to the importance of the father being limited only by the amount of security he could give the mother. The tempo as well as the scale of juvenile delinquency was on the increase. Only 1% of all children became delinquents in a court sense, and in these cases only 10% called for action in the home. Delinquency was eight times more common among boys than among girls. A point of unquestionable importance was the religious point of view characterizing the family background. Too much emphasis could be attached to physical defect. Low intelligence-engendered a desire in the child to push himself forward if his school was unsatisfactory. Frustration developed and behaviour problems resulted.

Dr. MacDonald urged that education authorities should give the same attention to emotional stability as to intellectual advancement. The general practitioner should aim at enabling people to do without the doctor; and the mother should aim at keeping her child away from the child-guidance clinic. Child-guidance clinics should keep the child away from the juvenile court. Future preventive measures should pay special attention to girls of school-leaving age, too few of whom were conscious of the part they would play in the character formation of their children in the years ahead.

Dr. D. HENDERSON (York) drew attention to the important part to be played by the family doctor in prevention, and recommended closer linking of the child-guidance with other child-health services. Certain published assessments of the extent of the problem of behaviour disorders had probably exaggerated the real problem.

Dr. A. A. E. NEWTH (Nottingham) pointed out that as early suspicions about child guidance were being dispelled a balanced outlook was being established. Contact between hospital physicians and parents was to be encouraged. So also was a closer liaison between school health and hospital services. Psychiatric treatment for the child and the parent should not be undertaken by the same organization. Better treatment facilities for children were required. The influence of school on the child was not fully appreciated. Schooling might give rise to difficulties, but more frequently served as a valuable corrective to the feeling of insecurity due to tension in the home.

Dr. MARGARET LOWENFELD (London) said that children should have the reasons for their admission to hospital

explained to them; that greater importance should be attached to the place of food in the imagination of the child in hospital; and that new hospital design should take more account of a child's psychological needs. The view that religious bodies and local education authorities should take a more active part in tackling delinquency was advanced by Dr. H. SUGARÉ (Leeds). The point was made by Dr. CHARLOTTE NAISH (York) that the family doctor should aim at establishing an attitude of understanding friendship towards the mother, utilizing the opportunities of general practice to further education for health. Dr. D. D. PAYNE (Harrogate) suggested that reference of pupils to a child-guidance clinic should be by the school medical officer. There was need on occasion to protect children from teachers who were enthusiastic about psychology and ready to refer too many children for examination. Organic disease was considered to be a common source of behaviour problems by Dr. W. N. LEAK (Winsford). Dr. F. P. H. BIRTWHISTLE (Barton-on-Humber) argued that children should be told what they should do and not what they should not do, and stressed that threats of correction did more harm than good if not followed by action when indicated.

Dr. P. MORAN (Eire), contrasting the position in his own and in this country, attributed the existence of behaviour problems to an ever increasingly complicated social structure, to emphasis on group existence to the detriment of family life, to failure to appreciate the advantages of isolation, and to lack of emphasis on moral and religious considerations.

Summing up, Dr. CREAK agreed that newer ways of thinking involved risks of a wrong conception that ideologies might replace humble belief in ourselves. She said the value of the father in a child's life was derived from the adventuresomeness and the loving authority of his personality. She gave a reminder that where there was a choice the average person preferred to be physically ill rather than emotionally ill.

Tuberculosis and other Conditions in Childhood

In the afternoon members of the Child Health Section paid a visit to Scotton Bank Sanatorium, where Dr. VINCENT RYAN (Knaresborough) demonstrated an interesting series of patients and radiographs.

OTO-RHINO-LARYNGOLOGY

Thursday, June 30

Nasal Allergy

With the president, Mr. A. B. PAVEY SMITH, in the chair, Mr. R. R. SIMPSON (Hull) opened a discussion on nasal allergy. He gave figures showing the incidence of the condition, and thought that the apparent increase was really due to increased recognition of it. It was merely a local manifestation of a constitutional condition. Treatment should be fundamental and not simply a local palliative. The characteristic nasal picture was described, and compared with that of so-called sinusitis. Nasal polypi were predominantly allergic in origin; 97% of his cases showed marked eosinophilia.

In non-seasonal allergy skin tests were of some use in children, but not in adults.

Specific desensitization was sometimes satisfactory, if temporary, in children, but useless in adults. He discussed the antihistamine drugs, and nicotinic acid given in addition. Local applications to the nose should be isotonic with the nasal secretions and not over 1% in strength. He deprecated ionization, cautery, sclerosing injections, and x-ray treatment. Radium was useful only for the prevention of recurrent polypi. Surgery had little or no place in the treatment of non-infected cases.

Professor R. B. HUNTER (Dundee) described the effects of antihistamine drugs in perennial vasomotor rhinorrhoea. All cases studied had allergic mucosa diagnosed by biopsy, and the standard of cure was the return of mucosa to normal, again as judged on biopsy. All cases were first given dummy tablets for 14 days. During this period 5% were cured. Of the remaining cases, 54% were cured after one month's treatment with "anthisan," and nearly two-thirds of these were still symptom-free after 15 months. It would be well worth while to try to estimate the amount of histamine present in nasal biopsies and determine whether this was in direct proportion to the number of eosinophil cells present.

Mr. J. GERRIE (Aberdeen) discussed allergy in children, which had been increasingly recognized by paediatricians in the last decade. Unfortunately the general public still expected the condition to be cured by removal of tonsils and adenoids. It was important to diagnose and treat allergy in the early stages, and to avoid all treatment which might tend to add infection. He stressed the importance of family history and past history.

A small biopsy was the most reliable diagnostic aid. In treatment general measures were proper sleep, exercise, light and airy clothing, and avoidance of the specific allergen. He had found non-specific desensitization quite valueless and specific desensitization good but troublesome. For local treatment cauterization had given the best results, followed by breathing exercises for a month. Elixir of "benadryl" was useful, and "anthisan" in older children. Operations should be performed only if there was infection, or if there was obstruction by adenoids.

Dr. LEON UNGER (Chicago, U.S.A.) disagreed with Mr. Simpson on the value of skin tests. He thought that 50% to 70% of cases of perennial allergy gave a positive skin reaction, particularly to house dust. He divided cases into three groups: (1) seasonal, due to pollens; (2) seasonal or perennial, due to fungi; (3) perennial vasomotor rhinorrhoea. Three factors were present: (1) constitutional, usually hereditary; (2) contributory, such as fumes, dust, temperature change; (3) exciting allergens. The presence of more than 4% of eosinophils in the cell count of nasal smears was diagnostic of allergy.

Treatment should be preventive, and by desensitization. Probably 75% to 80% of all so-called "sinusitis" was due to allergy. Purulent material from sinuses should be stained and examined: it might then be found full of eosinophils. House dust probably contained some specific factor, the dust from bedding and upholstered furniture being much more potent than that from carpets. Local nasal treatment should not be prolonged. Antihistamine drugs were of some value. Surgery should be reserved for cases of marked polyposis, severe septal deviation, sinus infection, and septic tonsils and adenoids.

Dr. H. HENDERSON MOLL (Leeds) thought that non-seasonal vasomotor rhinitis was often not allergic, but caused by nervous and non-specific factors. Allergic rhinitis, however, was a frequent accompaniment of allergic asthma, and the changes observed in the nose reflected the general allergic condition. Allergy was suggested by the age of onset (under 40), by a positive family history, and, in a high proportion of cases, could be confirmed by skin tests. Nasal polypi occurring with asthma usually pointed to an infective factor. They occurred in an older age group, and were normally associated with infective asthma. The effect of administering para-amino benzoic acid, 100–500 mg. every two hours during the day, was described.

Dr. D. R. BELLETTY (Assam), as a sufferer from nasal allergy, described the failure of submucous resection, followed by improvement later with desensitization and the use of a vaccine. Mr. A. S. DE B. COCKS (Adelaide, South Australia) thought that in house-dust allergy skin tests were positive in almost all cases, and that polypi were usually of allergic origin. Dr. S. F. L. DAHNE (Reading) found that in cases of so-called catarrh or nasal obstruction about 20% of adults and 25% of children were allergic. Dr. J. G. REED (Malaya) asked if varying nasal obstruction was due to allergy. Had any serious side-effects been produced by antihistamines? Was there any scope for psychiatric treatment in children?

Mr. R. SCOTT STEVENSON (London) deprecated the suggestion that operations were harmful, and stressed the importance of the surgeon's deciding whether an operation was indicated. Nothing gave more satisfactory results than submucous resection in the proper case. Dr. KATE MAUNSELL (London) asked if the combination of antihistamine drugs with desensitization was harmful. Dr. S. DEBONO (Malta) thought that any surgery would give temporary relief, but that the condition would recur. Therefore it was best avoided.

Mr. E. R. Garnett Passe (London) said he did not find that turbinectomy or excision of the sphenopalatine ganglion had any effect on vasomotor rhinitis. Mr. Pavey Smith (Harrogate) emphasized the importance of prevention. The duration of efficacy of antihistamine drugs was not known. Increased incidence of polypi among farm workers seemed to be associated with the increased use of dusty chemical fertilizers.

Mr. Scarborough said in reply that points which should be noted were the appearance of the turbinates, the presence of the clear septum, small uninfected tonsils, and normal tympanic membranes, together with a past and family history of allergy.

SECTION OF OPHTHALMOLOGY

Thursday, June 30

Eye and Skin

Dr. James Fison (Harrogate), president, was in the chair, and, during the afternoon, Mr. A. B. Nutt (Sheffield), vice-president. Mr. J. H. Dobart (London), opening a discussion on ophthalmology in relation to diseases of the skin, pointed out some of the ways in which the two specialties overlapped. He deprecated the overtreatment of styes, but emphasized the importance of not neglecting blepharitis. Maladies which implicated the outer coat of the eyeball were considered, with special reference to ocular rosacea, pemphigus, and other vesicular diseases. He also discussed skin lesions associated with disease of the anterior uveal tract, with cataract, and with fundus disturbances, illustrating his remarks with pictures.

Dr. Alan Carleton (Oxford) discussed the vesico-bullous diseases, some of which were known to be caused by viruses. Although wide variations in severity were encountered in practice, and although the immediate or precipitating factor was by no means constant, yet the pathological changes in the epidermis were essentially the same in that group of conditions. The term "aphthosis" had been advocated to embrace such vesicular eruptions, and it would appear that, under the influence of certain noxious stimuli, liquefying epidermal cells released enzymes which interfered with the mechanism of carbohydrate metabolism, so that the tissue was asphyxiated.

Dr. I. B. Sneddon (Sheffield) stressed the association of ocular and dermal abnormality in disorders of development as well as in allergic reactions. It was important to search for localized dermatitis of the legs or other remote regions in cases of unexplained blepharitis. He emphasized the part played by endogenous and exogenous toxins in the production of that disorder. His own clinical experience strongly supported the generalizations made by Klaber and Wittkower (*Brit. J. Derm. Syph.*, 1939, 51, 501) on the typical personality of patients with rosacea.

Dr. N. McAlister Gregg (Sydney, New South Wales) supported the principle of therapeutic simplicity, and testified to the value of hydrogen peroxide and liquor tinctorium in the treatment of blepharitis. Mr. A. G. Cross (London) suggested that it was far easier to cure one particular attack of blepharitis than to prevent recurrence of this condition. Mr. A. G. Palin (Bristol) advocated cleansing of the eyelids twice daily with a face-flannel as a precautionary hygienic measure, but Mr. Doggart subsequently pointed out the dangers of using a piece of material so liable to be contaminated. The unfavourable influence of septic teeth and seborrhoea of the scalp on the eyes and the eyelids was emphasized by Mr. H. M. Jay (Adelaide). Mr. H. G. W. Hoare (Newport, Mon.) mentioned certain disadvantages of penicillin therapy.

Scleromalacia Perforans

Mr. H. V. Ingram (Newcastle-upon-Tyne), discussing scleromalacia perforans, said that the association of that rare disease with polyarticular arthritic disturbance was not invariable. He reported two cases, one of which had derived benefit from operation. Dr. N. H. Ashton (London), who had collaborated with Mr. H. V. Ingram in the investigation of his material, raised the question whether there might be a relationship between scleromalacia perforans and certain cases of brawny scleritis.

Angiomatosis Retinae

Mr. A. G. Cross (London), discussing angiomatosis retinae, briefly surveyed various congenital and acquired conditions which might simulate the von-Hippel–Lindau syndrome. Only a minority of cases would display the complete range of intracranial and visceral lesions in association with the characteristic ophthalmoscopic changes. The latter consisted of localized tumours supplied and drained by enlarged vessels, together with exudates near these masses, or at the macula, or in both situations. Both eyes were affected in about one-third of the cases, and multiple tumours were often evident. Familial incidence had been repeatedly noted. As angiomatosis retinae was a progressive disease, early treatment was necessary. Diathermy and radiotherapy often gave the best chance of arresting it. In neglected or unsuccessfully treated cases retinal detachment usually supervened, and was accompanied or followed by uveitis, complicated cataract, and finally phthisis bulbi. Haemangioblasts, which were the characteristic cells, were capable of forming solid cords as well as elaborate reticulations and adventitious vessels, and the outer walls of the arteries leading to angiomatous retinal masses were usually thickened of distinguishing between retinal arteries and veins in advanced cases of von-Hippel-Lindau's disease. Dr. N. H. Ashton (London) asked Mr. Cross whether he had ever seen malignant metastases arising from these retinal tumours. Mr. Cross replied that he had not.

Mr. A. J. Ballantyne (Glasgow) referred to the difficulty

Watery Eye

Mr. N. P. R. Galloway (Nottingham), vice-president, emphasized the multiplicity and variability of the nerve supply to the lacrimal glands, and reviewed the physical, chemical, and emotional factors which could influence the flow of tears.

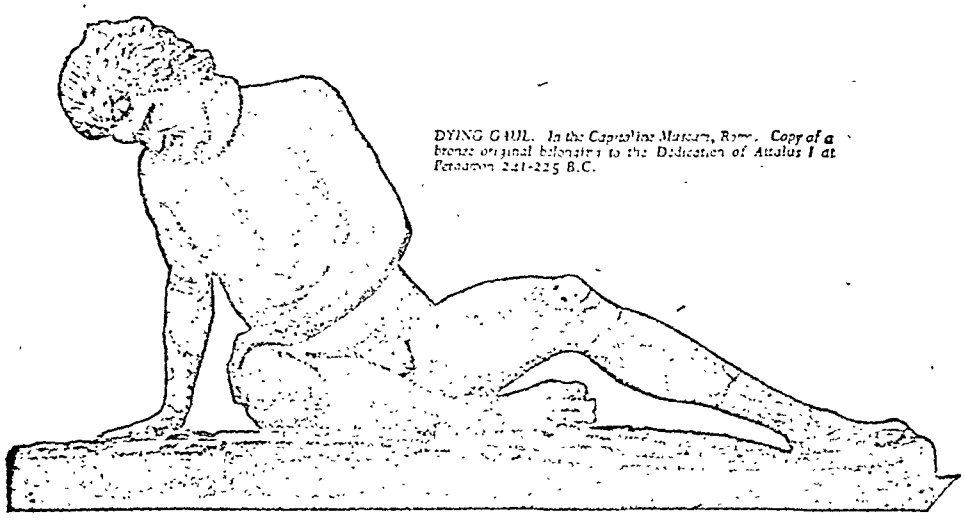
Mr. Doggart and Dr. N. McAlister Gregg cited examples of lacrimation being provoked by various foodstuffs. Dr. Gregg also pleaded for early probing in cases of infantile mucocele of the tear sac. Mr. R. I. T. Lloyd (Bradford) suggested that the long course taken by the fifth and seventh cranial nerves, together with their variable relationship to the sympathetic filaments, obscured the problems of lacrimal secretion. He hoped that light would be thrown on the question by further research into the functions of the hypothalamus.

SECTION OF PREVENTIVE MEDICINE

Friday, July 1

Pregnancy and Tuberculosis

With Dr. R. H. H. Jolly (Wolverhampton), vice-president, in the chair, a discussion on marriage and pregnancy in relation to tuberculosis was opened by Dr. F. A. H. Simmonds (South Mimms). He said that a wide range of opinion existed as to possible risks to the partner; it depended on how far latent lesions were included in surveys. The influence of poor social and economic circumstances was paramount. Probably there was a really, but not excessively, higher incidence of the disease in the consorts of the tuberculous. Married women in general had more favourable mortality rates for tuberculosis than single women. Women whose disease was controlled should not be refused permission to marry. Investigation showed that patients with the disease quiescent who became pregnant remained as well as other women of the same age and circumstances; where active disease was present, no convincing evidence was obtainable that pregnant patients fared worse. Artificial termination of pregnancy was not without its dangers; it should be employed with care and discrimination only when strong indications were present in the individual. In general, patients should be instructed to avoid pregnancy till the disease had been quiescent for two years at least. Marriage and children had a vital place in normal life for a woman and should not be forbidden except for the strongest reasons. The well-being of tuberculous patients depended much more on their natural and acquired resistance, on their economic and hygienic circumstances, and on their happiness in personal relationships than on the prevention of marriage and pregnancy.



DYING GAUL. *In the Capitoline Museum, Rome. Copy of a bronze original belonging to the Dedication of Attalus I at Pergamum 241-225 B.C.*

Shall he expire?

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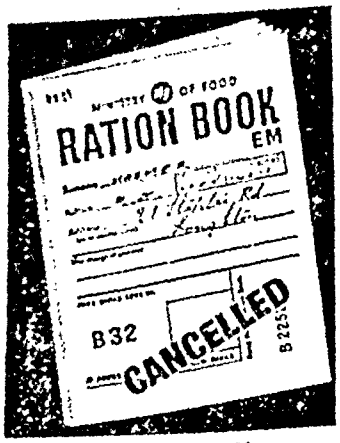
Mesontoin offers considerable advantages over other hydantoins, in that the incidence of side effects is low, the dosage may be maintained at a high level, and that more effective control is obtained in resistant cases

J. Amer. Med. Ass., 1947, 135, 496.
Amer. J. Psychiat., 1946, 103, 159.
Texas Sta. J. Med., 1947, 43, 328.

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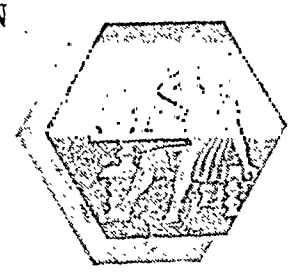
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DE GUSTIBUS NON DISPUTANDUM EST (*Pr.*)



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The need for iron in cases of pregnancy and post-partum anaemia is generally recognised, yet the form in which it is given must depend on the individual needs of the patient.
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Dr. R. C. COHEN (Braintree) said that provided adequate supervision and treatment were available the results confirmed the view that there was no evidence that pregnancy, labour, and the puerperium had any harmful effect on the course of tuberculosis. It was doubtful whether there was a strictly clinical justification for termination of pregnancy, though social factors might justify such a measure.

Dr. JEAN HALLUM (Birmingham) said that tuberculous women, even with severe lesions, gave birth to healthy but often premature babies. Stillbirths were not increased. When prematurity was allowed for, the figures for neonatal deaths showed no increase. The total infant mortality, however, was high (105 per 1,000 live births), the chief cause of death being gastro-enteritis, with which was associated the high prematurity rate, lack of breast-feeding, and risk of infection attached to residential nurseries. As regards the mothers, primigravidae fared worst, especially when the lesion was not diagnosed before pregnancy.

Dr. C. J. STEWART (Colindale) said that exceptionally a patient might be allowed to become pregnant. Prognosis was little different between pregnant and non-pregnant cases. Some deaths and relapses occurred after delivery.

Dr. E. D. IRVINE (Dewsbury) criticized the suggestion that termination of pregnancy might be justified because of social difficulties—present or future. It indicated a failure in public care, and not least in the health service. Dr. H. J. TRENCHARD (Harrow) said that the risk of infection depended more on the resistance of the healthy consort (i.e., tuberculin-negative reaction) than on any other factor. Dr. D. I. MART (S.E. Essex) asked what advice should be given to a tuberculous married woman if she was anxious to have children.

Dr. R. C. COHEN (Braintree) replying to Dr. Irvine, said it was difficult to justify artificial termination on purely clinical grounds. Any strain there might be after delivery was largely due to worry, extra work, or financial anxiety. It was possibly the duty of the State to help in that respect. The possibility of infection in domestic workers suggested that they should be tuberculin-tested. In reply to Dr. Mart he advised against pregnancy in active cases and until after two years' quiescence.

Dr. F. A. H. SIMMONDS (South Mimms) in replying stressed the importance of using all known preventive measures to control the risk of infection to those in contact with tuberculous persons—affianced, consorts, domestic helps, and children. These included routine radiological examination of contacts, tuberculin-testing of infants, children, and young adults, and, when available, the use of B.C.G. vaccination. In the meanwhile removal of babies from the tuberculous environment was important; breast-feeding was permissible only when the disease in the mother was proved quiescent.

Recent Developments in Influenza

With Dr. D. D. PAYNE (Harrogate), vice-president, in the chair, Dr. C. H. ANDREWES, F.R.S. (Hampstead), read a paper on recent advances in the diagnosis and treatment of influenza. Laboratory diagnosis of influenza, he said, was unimportant from the point of view of treating the individual patient. However, it was vitally important to identify the causative agent of outbreaks in order to help our understanding of epidemiology and prospects of control. Recent diagnostic methods included (1) isolation of the virus from throat washings, (2) haemagglutination tests, and (3) complement-fixation tests. The two former had to be done on pairs of samples taken in the acute stage and again in convalescence. Vaccines of high potency could be obtained by purifying and formolizing virus grown in fertile eggs. Their efficacy in preventing influenza had been proved where a homologous strain of virus was concerned. It was not only a question of the two influenza types A and B; there were serological races within the A group differing sufficiently to affect the results of attempts at prophylaxis. Strange antigenic types of virus might spread from one country to another. The epidemiology of influenza must therefore be studied on a world-wide basis.

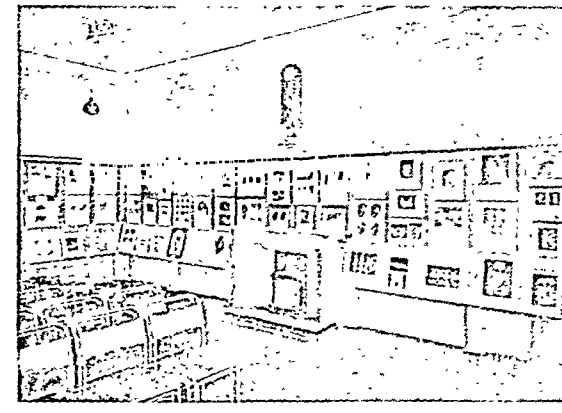
Dr. J. E. CAUGHEY (New Zealand) said that in Auckland they had had an epidemic of influenza which started 18 months ago. The diagnosis had been established by serological tests with antigen (A and B) received from Professor Burnet. Both A and B strains had been present and in some cases A and B combined. There had been four deaths, and the secondary invaders in these cases had been penicillin-resistant strains of *Staphylococus aureus*. Four cases had presented as primary atypical pneumonia.

MEDICAL PHOTOGRAPHY

EXHIBITION IN LONDON

An exhibition of medical photography by members of the Medical Group of the Royal Photographic Society of Great Britain was opened at the Society's headquarters of 16, Prince's Gate, London, S.W.7, by Sir Cecil Wakeley, chairman of the Medical Group, on July 4. The exhibition is open from 10 a.m. to 5 p.m. until July 16. The accompanying photograph (taken by E. V. Willmott, F.R.P.S.) shows one side of the exhibition room. The first exhibition arranged by the Medical Group was held a year ago, and it is hoped that next year's exhibition will include photographs from members in the Dominions and Colonies.

At this exhibition the emphasis is mainly on the clinical appearance of a lesion, though there are many fine photographs of pathological specimens, such as No. 85, "Aortic Valves in Rheumatic Carditis," from the Manchester Royal Infirmary.



Another interesting photograph from the same hospital is No. 93, "Rheumatic Tendon Nodules." Among the many good photographs illustrating clinical appearances are the following: No. 21, "Acromegaly," and No. 23, "Osteoclastoma of Hard Palate," from the Middlesex Hospital; No. 22, "Squamous-cell Carcinoma of Tongue," from the Royal Cancer Hospital; No. 10, "Clubbing of Fingers," from St. Bartholomew's Hospital; No. 11, "Psoriasis of Nails," from the Westminster Hospital; No. 18, "Nodular Tertiary Syphilis," from St. Mary's Hospital; No. 40, "Mediastinal Obstruction" (an infra-red photograph showing venous congestion), from the Postgraduate Medical School; No. 67, "Acid Erosion of Teeth," from the Manchester Royal Infirmary; No. 96, "Osteomyelitis—Cross Leg Skin Flap," from the Royal National Orthopaedic Hospital. These are only a few of the 150 exhibits.

Photographic Assessment of Therapy

There are some conditions which it must be hard for a photographer to record, but very realistic results can be achieved—for example, two photographs of the skin in avitaminosis (No. 89, by Dr. A. C. Roxburgh, and No. 94, from the Postgraduate Medical School). A method of using photographs to assess progress during therapy is illustrated in No. 47, "Spondylitis Ankylopoietica," from the Manchester Royal Infirmary. About fifty of the exhibits are coloured transparencies. Three new motion pictures are also included in the catalogue of the exhibition: "A Case of Gross Involuntary Movements," by Mr. C. E. Engel; "The Multiple Pressure Technique of Vaccination," by Dr. B. Stanford; and "Ankylosing Spondylitis," by Dr. P. Sattin.

Reports of Societies

FUTURE OF MEDICAL OFFICERS IN THE FORCES

At a meeting of the United Services Section of the Royal Society of Medicine on June 28, Sir HENRY TIDY presiding, a discussion took place on the professional future of the medical officers of the fighting forces.

Air Marshal P. C. LIVINGSTON, opening the discussion, briefly outlined the personal qualities that the successful Service medical officer should exhibit at different stages in his career. Surgeon Commander P. G. BURGESS, R.N., said that the naval doctor now obtained some experience in treating women in the W.R.N.S. and children in the families of Service men, but he required more help to keep his professional knowledge up to date. He suggested there was a place for the non-specialist on the staff of naval hospitals, and that specialists should give teaching rounds in the wards and out-patient departments for the benefit of medical officers in port. After his initial commissions at sea and in a shore establishment the young surgeon lieutenant should spend a period in a naval hospital; if he proved his ability, he should have the chance to study for higher degrees.

Speaking for the Army, Major A. D. YOUNG said there must be considered first the requirements of the Service, and secondly the ambition and ability of the individual officer concerned. The general duties officer was as essential to the Service as his specialist colleague, for he achieved familiarity with military administration, tactics, and planning. Major Young suggested the early selection of suitable general duty officers for training for future staff rank.

Group Captan F. E. LIPSCOMB maintained that the general duties medical officer must be afforded certain opportunities. He should be able to render useful service to the R.A.F. as a doctor; to lead a professionally satisfying life; to reach a position of responsibility, authority, and reasonable reward; and on military retirement to compete for employment on an equal footing with other doctors. He added that all careers in a fighting force must be subordinated to a primary aim of that force: the preservation of health in readiness for war. The general duties officer should be encouraged to widen his professional experience and to take greater responsibility in treating his own patients without frequent reliance on the specialist. Group Captain Lipscomb thought that medical administration should be regarded as a specialized subject which could provide a career for many general duties medical officers. It was impossible to offer a full career in clinical medicine in any Service for a non specialist.

Surgeon Lieutenant-Commander L. D. ARDEN, R.N., pointed out the disparity in the recognized value of the general duties medical officer and the specialist. He thought conditions of service could be improved and the officer should take a course and an examination before promotion to the rank of Surgeon Lieutenant-Commander.

Major J. C. BABBAGE said the general duties medical officer was the general practitioner of the Services; he should hold a definite tenure of appointment as a regimental medical officer and attend courses in professional and military subjects. Early specialization among medical officers should be discouraged.

Squadron Leader J. B. LOUDON proposed that conscription of medical officers should be abandoned in favour of the enlistment of more regular officers.

Surgeon Commander T. CRAWFORD said that the administrator, as well as the specialist, must be trained for his post.

A comparison between the lives of a doctor in the fighting forces and his civilian counterpart was made by Major A. BENNETT. He said that the Service medical officer enjoyed a congenial life with opportunities for travel, and regular hours of work. He had ample equipment for treating his patients, and consultants were always available. He also had the chance of postgraduate specialization. The civilian doctor, on the other hand, could expect more family life, a greater variety of clinical medicine, and higher remuneration.

Surgeon Lieutenant-Commander J. GLASS suggested a programme of training for the general duties naval medical officer during the first 15 years of his service. He said that the first course should be held on entry to the Service. It should be concerned with naval organization and health problems. The second course, to be taken after five to eight years' service, should last for nine to 12 months; it should consist of a study of medicine, surgery, public health, administration, and marine medicine. After 12 years' service further instruction should be given to qualify the officer for the rank of surgeon commander. This should resemble the second course, but with emphasis laid on administration. A final course in recent advances in medicine should be held after 15 years' service.

Sir HENRY TIDY, summing up, said that the Services must make the best of the medical officer of average ability as well as the better man. The general duties medical officer would benefit from hospital appointment early in his Service career, and should be offered repeated opportunities for postgraduate study (not necessarily with the aim of his becoming a specialist) to preserve his interest in clinical medicine. He should be allowed to retire if he saw no chance of his advancement after the age of 35. Sir Henry added that it was impossible under present conditions to abolish the conscription of medical officers.

BRITISH ORTHOPAEDIC ASSOCIATION

The spring meeting of the British Orthopaedic Association was held at Nottingham on April 22 and 23. The papers were presented at Nottingham University; the clinical part of the meeting was held at Harlow Wood Orthopaedic Hospital. The value of the meeting was enhanced by the presence of five Canadian and ten American orthopaedic surgeons who were paying a six-weeks visit to orthopaedic centres in this country. Those from Canada were Drs. F. P. Patterson (Vancouver), W. B. McKinnon (Winnipeg), F. P. Dewar (Toronto), R. Gariepy (Montreal), and J. A. Leo Walker (Montreal), and from the U.S.A. Drs. J. H. Allan (Philadelphia), C. B. Larson (Boston), L. R. Straub (New York), Hugh Smith (Memphis), S. B. Fowler (Nashville), B. E. Obletz (Buffalo), J. J. Fahey (Chicago), W. H. Bickel (Rochester), V. T. Inman (San Francisco), and D. W. Blanche (Los Angeles).

Upper Limb

Dr. VERNE T. INMAN (San Francisco, California) illustrated experiments showing that elevation of the upper limb involved rotation of the clavicle about its long axis, and that fixation of the clavicle to the coracoid prevented elevation above shoulder level. In eight patients the clavicle had been completely excised without loss of function, except that holding things above the head required extra effort. This operation was suggested as an adjunct to arthrodesis of the shoulder for joint disease.

Mr. TOM ROWNTREE (London) considered anomalies in the innervation of the hand muscles, referring to 688 cases of median- and ulnar-nerve lesions treated at the Wingfield-Morris Orthopaedic Hospital, Oxford, and at the Royal National Orthopaedic Hospital, London. Cases with known complete axonal division had been accepted—102 of median-nerve lesion and 124 of ulnar-nerve lesion. The observations were checked in a few cases by procaine block of the unaffected nerves. The lumbricals were ignored because of the difficulty of assessing their power, and flexor pollicis brevis was described as one muscle. Of these subjects 33% showed the innervation ordinarily described in the textbooks, the median nerve supplying abductor pollicis brevis, opponens, and flexor pollicis brevis, and the ulnar supplying adductor pollicis, the hypothenar muscles, and all the interossei. The flexor pollicis brevis had a purely ulnar supply in 32% and a clinically demonstrated dual (median and ulnar) supply in 16%. The normal arrangement was, therefore, that abductor pollicis brevis and opponens were supplied by the median nerve, and the adductor pollicis, interossei, and hypothenar muscles by the ulnar; the supply of flexor pollicis brevis was variable and probably usually dual. An anomalous supply was found in 20% of patients, including some with complete

median innervation and some with complete ulnar. In a few cases procaine nerve block had demonstrated an anastomosis between ulnar and median nerves in the forearm. These results emphasized the fallacy of diagnoses based on muscle power alone.

Dr. S. BENJAMIN FOWLER (Nashville, Tennessee), discussing the extensor apparatus of the digits, stated that the extensor communis tendons had no insertion into the proximal phalanges of any functional significance. The inability of extensor communis to extend the interphalangeal joints of the claw hand depended upon hyperextension of the basal joints. If these had capsules tight enough to prevent hyperextension in cases which otherwise would show claw hand the interphalangeal joints could be actively extended by the long extensor tendons.

Mr. R. G. PULVERTAFT (Derby) demonstrated tendon surgery in the hand with a motion picture. Among the procedures shown were shortening of the dorsal expansion in old cases of mallet finger, repair of the boutonnière lesion of the extensor expansion, tendon transplantation of extensor indicis proprius for rupture of extensor pollicis longus, suture of divided flexor tendons of the fingers, and their replacement by tendon grafts.

Mr. DAVID TREVOR (London) described five cases of spontaneous rupture of extensor pollicis longus tendon after Colles's fracture treated at intervals of one week to five months after rupture. He had bridged the inevitable gap with No. 6 nylon (non-capillary) sutures. Good union had occurred. The sutures had been removed three months or more after operation. Rupture was ascribed to aseptic necrosis from ischaemia. Mr. BRIAN L. MCFARLAND (Liverpool) suggested that ischaemic changes in the tendon might be caused by strangulation in the pulley opposite Lister's tubercle.

Mr. E. MERVYN EVANS (Birmingham) put forward clinical and experimental evidence that the anterior Monteggia fracture was caused by a combination of forced pronation and longitudinal compression of the forearm. In full pronation the radius and ulna crossed in contact, and continuing forced pronation would break the ulna near its middle and prise the radial head forwards out of its joint. Closed reduction by supination had succeeded in nine out of eleven cases. Mr. F. W. HOLDSWORTH (Sheffield) confirmed Mr. Evans's observation that "compounding" of this fracture was always forwards. He treated children conservatively, but in older people the ulna might be plated. Excision of the radial head gave bad results. Sir REGINALD WATSON-JONES (London) said that one form was clearly due to direct injury—the "baby-car" fracture or, as the Americans more picturesquely put it, "the side-swipe" fracture. There might still be a place for plating the ulna, but not for open reduction of the radial head. Mr. W. SAYLE-CREER (Manchester) doubted whether supination alone would maintain reduction, which was sometimes prevented by the rent capsule.

Lower Limb

Mr. P. C. ELMES (Oxford) had analysed the results in 115 cases of fractured neck of femur treated by closed nailing and followed up for two years or more. The clinical results were good in 35 cases, fair in 42, and bad in 38; in three of these repinning was successfully carried out, in six unsuccessfully. Anatomical results were estimated in 61 cases radiographed more than two years after operation. Sound bony union had occurred in 39 cases, but nine of these showed ischaemic necrosis with collapse of the femoral head. Established non-union was found in 22. In men fractures of the femoral neck were as common before 55 years of age as after, but in women they were much commoner after that age.

Mr. R. C. MURRAY (Inverness) discussed the classification and results in 100 consecutive patients with trochanteric fracture of the femur treated conservatively by simple weight traction combined with a medial-rotation bandage, early movement being encouraged. Ten patients, aged over 80, died. The anatomical results in the others were: excellent 33; good 29; fair 21; bad 7. The functional results were: excellent 25; good 42; fair 14; bad 9. Apart from patients who had already had spastic paralysis before fracture, the fair or bad results had been mainly due to prior osteoarthritis of the hip. With ordinary nursing skill conservative treatment was best.

Mr. WILLIAM GISSANE (Birmingham) referred to 44 consecutive patients, of an average age of 75, with trochanteric fractures treated by the Capener–Neufeld nail. Of the 32 who had completed treatment 31 had a normal or excellent range of movement in hip and knee.

Dr. L. R. STRAUB (New York) gave the results in 80 cases of lumbo-sacral fusion by Dr. Philip Wilson's method, in which metallic fixation was combined with the Hibbs procedure supplemented by bone chips, both autogenous and from the "bank." One patient had died of post-operative shock. Of the remainder, 69 showed solid bony fusion on radiological examination in various positions at the end of six months; failure in five had been at the lumbo-sacral joint, and in five at a higher level. Recently, metallic fixation had been combined with a cortical graft, and 25 patients out of 27 had shown solid fusion. Among 103 patients treated without metallic fixation there had been three deaths and 29 failures.

Mr. J. ROLAND HUGHES (Preston), discussing the radiological diagnosis of recent lesions of the lateral ligament of the ankle, recalled that avulsion of a bony flake was exceptional, but diagnosis of ligamentous injury by radiography of the ankle with the foot inverted was now well established. He had carried out this examination on 90 consecutive injured ankles and 90 normal ankles. About 6° of tilt represented the transition from normal to abnormal. The lateral ligament was lax with the ankle plantar-flexed and tight with it dorsi-flexed. In the cadaver, important tilting did not occur until the anterior talo-fibular ligament was cut, and the capsule also as far as the lower limit of the articular surface of the talus. Tilt through 30° was then possible. These ligaments were torn by a movement of plantar flexion combined with rotation about the medial malleolus. If tilting occurred through 18 or 20° or more there must be rupture of the anterior talo-fibular ligament, the calcaneo-fibular ligament, and the intervening capsule. The anterior talo-fibular ligament was the first to give way.

Mr. J. GRANT BONNIN (London) considered that tilting up to about 15° indicated rupture of the anterior talo-fibular ligament; 15–30°, the calcaneo-fibular ligament also; more than 30°, all three parts of the ligament. It was important to radiograph the opposite talus, which could be tilted about 4° in 10 to 15% of cases.

Mr. NORMAN W. ROBERTS (Liverpool) discussed osteochondritis dissecans of the elbow. The condition was almost confined to the male, was commonest under the age of 15, and affected both elbows in perhaps a quarter of cases. A diffuse cystic change was frequent. The loose bodies, if detached, were much more often multiple; irregular or ragged lesions were commoner than in the knee. The radial head was usually enlarged, and premature epiphysial fusion might occur. An association with preceding injury was difficult to establish. Radiographs of cases of loose bodies in the elbow very often revealed flattening of the capitellum and pronounced enlargement of the radial head, evidence of an unsuspected origin from osteochondritis dissecans rather than from osteoarthritis, which was often a complication rather than a cause. Mr. H. JACKSON BURROWS (London), said that the presence of bone in the separated fragment was important in distinguishing between osteochondritis dissecans and chondromalacia, which was often mistaken for it.

Professor J. DELCHEF (Brussels), discussing nerve-root pain of vertebral origin not dependent on disk prolapse, emphasized that such conditions as apophysial sprain were real entities and that arthritis of the posterior articulations might be an important cause of sciatica of single root origin. Mr. J. R. ARMSTRONG (London) recalled that the first sacral root, the most frequently affected, was unrelated to a posterior joint, and furthermore that sciatica was not usually relieved by arthrodesis. Almost all cases were due to intervertebral disk lesions.

At a special meeting a transatlantic club was formed, to be known as the A.B.C. Club, representative of its American, British, and Canadian members. The main function of the club is to facilitate similar visits in the future and to concentrate, as far as possible, the work and material to be seen.

BIRMINGHAM AND MIDLAND OBSTETRICAL AND GYNAECOLOGICAL SOCIETY

At the Birmingham Medical Institute on March 31 the final meeting of the Midland Obstetrical and Gynaecological Society was held under the chairmanship of the president, Mr. W. E. BARNIE-ADSHEAD. It was decided to wind up this society and to found a new society to be called the Birmingham and Midland Obstetrical and Gynaecological Society. Professor HILDA LLOYD was elected president, Mr. H. C. MCLAREN is the secretary, and Mr. SAMUEL DAVIDSON the treasurer.

Mr. H. R. DEVAL, Mr. L. M. PARK, and Mr. A. WENTWORTH TAYLOR were also elected as additional members of an interim committee to formulate the rules of the society.

Dr. C. E. PURSTOW, who was the first secretary of the former society in 1912, was invited to become an honorary member. It was also decided to invite former members of the old society to become foundation members of the new society. An informal luncheon was held at the Queen Elizabeth Hospital, after which the members proceeded to a clinical meeting in the Medical School. Two papers were read: one by Professor HILDA LLOYD and Messrs. W. E. BARNIE-ADSHEAD, P. J. GANNER, and C. W. TAYLOR on "Masculinizing Tumours with Pregnancy Following Their Removal," and another by Mr. H. C. MCLAREN—"Control of Menopausal Symptoms by α-Tocopherol."

SCOTTISH SOCIETY OF THE HISTORY OF MEDICINE

On June 18 a party of members of the Scottish Society of the History of Medicine made a pilgrimage to places of interest in connexion with four sons of Scotland famous in the annals of medical history. Dr. Douglas Guthrie, president of the Society, led the party, which visited the grave and library of William Smellie at Lanark. Thereafter homage was paid to the memory of David Livingstone when the Livingstone Memorial at Blantyre was visited. The party then went on to the farm of Longcalderwood, East Kilbride, near Glasgow, which was the birthplace of the brothers William and John Hunter.

NORTH OF ENGLAND OBSTETRICAL AND GYNAECOLOGICAL SOCIETY

The president, Mr. S. B. HERD, of Liverpool, took the chair at a meeting of the North of England Obstetrical and Gynaecological Society held in the Royal Victoria Infirmary, Newcastle-upon-Tyne, on June 17.

Mr. H. HARVEY EVERS described a case of melanoma of the cervix in a spinster of 62 who had complained of slight pink "spotting" twelve years after the menopause. The patient had an atrophic vagina, which made examination difficult, but under general anaesthesia a small vascular shallow ulcer without pigmentation was seen on the vaginal cervix. Unexpectedly this was shown on section to be a melanoma. The patient made an uninterrupted recovery following a Wertheim hysterectomy.

Mr. BRYAN WILLIAMS gave an account of a case of full-time ectopic pregnancy delivered at laparotomy a month after the death of the foetus. The placenta was not removed, and severe haemorrhage was controlled by oxidized cellulose.

Miss C. M. GREY reported a case in which a granulosa-cell tumour of the ovary was associated with an adenoacanthoma of the body of the uterus and was successfully treated by radical operation. Mr. S. MADDEN described a case of chorionepithelioma arising from the Fallopian tube in a patient who had previously had a tubal mole. Finally Mr. T. G. ROBINSON discussed the value of pre-operative penicillin in combating uterine and extra-uterine infection in cases of carcinoma of the cervix.

INTERNATIONAL BOOK EXHIBITION

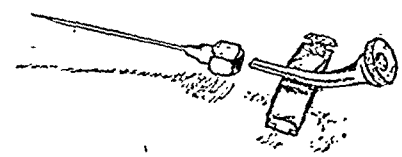
It would be fair to say that British book production can compete with any in the world. In Oslo, for example, British books—and British medical books in particular—make a magnificent showing in the bookshops surrounding the university. Yet a visit to the National Book League's Third International Exhibition of Book Design, on view till July 23 at 7, Albemarle Street, London, W.1, gives the impression that British books are sorry things. This is certainly not due to the amount of space given to them, which is greater than that given to any of the other countries exhibiting. But it is very difficult to see on what basis the selection of books was made. The art books look very well, though not so well as they deserve; the children's books are also good. Other sections fall far below standard, and technical books are extremely badly represented. There are no medical books as such, but there is one on biological assay, the general appearance of which is ordinary. Other countries have included in their more limited number of exhibits excellent technical books, and beautifully produced medical textbooks are shown by Norway and by Holland. The price of admission, 2s. 6d., may put off the casual visitor; the catalogue is extra.

Preparations and Appliances

AN IMPROVED GORDH NEEDLE

Dr. F. L. ROBERTSHAW, Obstetric Registrar, Moorgate General Hospital, Rotherham, writes: The British version of the Gordh non-clotting intravenous needle was described in the *British Medical Journal* (1947, 2, 834). Briefly, it consists of a needle to which is attached a rubber diaphragm. Injections are made through this diaphragm, which prevents reflux of blood into the needle, the latter remaining patent even after a few hours in a vein. The device is especially useful in techniques involving repeated injections of thiopentone and curare, since it avoids the need for an intravenous drip or repeated venepuncture.

As at present supplied, however, the Gordh needle suffers from two drawbacks. First, the needle is too big for small veins, so that haematomata may result from attempts to use it. Secondly, it must frequently be resharpened if it is to enter veins easily. To overcome these drawbacks I have modified the usual Gordh needle by removing the original needle and fitting in its place a standard Record needle fitting. Any needle can now be fitted to the device and replaced when blunt. I have found a size 15 hypodermic needle most useful: with this the device is equally suitable for young children and smaller veins. In addition, the venepuncture can be carried out either with an unmounted needle or with one attached to a syringe, and the device attached when the needle has been well placed in a suitable vein. All the advantages of freedom from clotting are retained, and in addition the smaller needle reduces the risk of haematoma and a sharp point is always available.



The original modification was made by me from a standard Gordh needle and a Record fitting derived from an old one-way tap. The instrument here illustrated has been made by Blease Anaesthetic Equipment, Ltd., 223/227, St. John Street, London, E.C.1. Thanks are due to Mrs. C. Ballantine for the accompanying diagram.

The Ministry of Transport has recommended that a sulphonamide dressing for burns and wounds be included in the Merchant Shipping Medical Scales instead of the picric acid dressing.

Correspondence

Mind, Machine, and Man

SIR,—I feel sure that all of your readers must have been as fascinated as I was by Professor Geoffrey Jefferson's Listerian Oration on "The Mind of Mechanical Man" (June 25, p. 1105). Here we have an example of medical philosophy at its best, for it is a philosophy with its feet firmly on the ground. Perhaps one of the most fundamental points to which he draws attention in comparing the brain with the modern computing machine is the tremendous difference in complexity—ten thousand million brain cells as compared with twenty thousand valves of the American or one thousand of the more economical English machine—factors of 500,000 or 10,000,000 respectively.

To think of, say, a million such machines (the coverage area would give the Ministry of Town and Country Planning cause for anxiety) all properly integrated is beyond the imagination of my 10,000,000,000 cells. But the actual disparity would be much greater than this, for it appears that the brain cell, unlike the electronic valve, is capable of responding to more than a single type of stimulus—e.g., electrical, chemical, physical, and so on. To all of these and their combinations and permutations a nerve cell may react, and so the factors given above must be still further increased. Even if a supermachine were constructed in the future capable of responding to other than electronic impulses, the lecturer reminds us that it would have no self-consciousness, no ego, and so would not be a brain in the truest sense. Those holding completely mechanistic views concerning the relationship between brain and mind would nevertheless probably agree that this shortcoming is more than a mere question of greater, but similar, complexity. Our perception of our own consciousness remains a riddle to-day, despite all the thought that has been given to it throughout the ages.

But so far I have been using your valuable space for a simple paraphrase of Professor Jefferson's remarks, and this was not my intention. I think the lecture provides an analogy to, and a warning concerning, certain tendencies which we see all around us. I was particularly impressed by the author's repeated admonition that we should not allow ourselves to be led away by the specious suggestions that here we have in effect a model of the brain in action, and that we should not "anthropomorphize the machine." Rather should we emphasize the great differences (not only in complexity) between the brain and the machine, otherwise we may fall into the error—common enough nowadays—of believing that because we are able to plan, build, and control the machine we are capable of producing a blue-print of the living brain accurate enough to be put to practical use. I have no objection to the production of a blue-print as an academic exercise, but I have the strongest antipathy to any attempt to apply it, in our present ignorance, to the control of human destiny.

I am afraid that my lack of facility in the handling of words has obscured the issue, and so I fall back on a practical example to make myself clear—at least so I hope. The present population of this country is stated to be some 50,000,000 units, which, although much less than the 10,000,000,000 cellular units of the brain, is nevertheless a vast number. Each unit has its own individuality and its own responses to the stimuli of its environment. Each presents a much greater variation of activity than that of an individual neuron. And so our society, considered as a whole, has as much complexity of organization and variability of response (social and political) as the brain has in its particular sphere of action. Yet we have people in no small number who believe that a blue-print of our social and political life can be drawn up, and who furthermore act upon such a blue-print in advocating what is called a planned State. They appear to have no conception that the meagre information and statistics upon which their plans are based bear no more relationship to the complexities and interactions of social life than does the mechanical computer to the real human brain. Would we permit the clever designers of the electronic computing machines, because of their knowledge, skill, and diligence in that field, to control the whole of our psychological and nervous life?

The reason why I have the gravest doubts, both rational and intuitive, of the planned State is that I do not believe we have at present anything like sufficient knowledge of the intricacies and complexities of social behaviour to warrant interference except in the simplest matters. As doctors we have had a good example of the unpredicted effects of the application of planning during the past year. He would be an incorrigible optimist or a bigoted ignoramus who regarded the outcome as anything more than an extremely disappointing exhibition of the unforeseen vagaries of human reaction under changing circumstances. But planners, possibly intoxicated by the magnitude of their plans, seem to see nothing wrong; and in any case humanity is very adaptable—there is always a considerable time lag before the effects of a change are fully felt and appreciated, and collective mankind has a short memory.

Our own profession's problems are, however, only a small part (probably smaller than we are apt to think) of the general problem which now affects the whole nation. Because mankind can successfully plan houses, Mulberry harbours, atomic bombs, and other mechanisms, the planners, with complete disregard of the enormous difference in complexity between even an atomic bomb and the social organization, audaciously step in where angels fear to tread and force us to accept their plans for our happiness, our desires, our ambitions, and the whole of our destiny.

From Professor Jefferson's lecture we learn to regard with great suspicion any attempt to explain the complexities of thought and psychological action by comparing the brain with the infinitely simpler computing machine. Equally we should be supremely cautious in applying our meagre knowledge of simple social reactions to the extremely complex problems of sociology. Surely it behoves us to regard the question with great humility, not with overweening arrogance. Certainly we should hesitate and hesitate again before taking any action based on our theories which will affect the lives of our fellow men. Let us not be lured from our scientific agnosticism by the facile talk of the planners, for they know not what they do.—I am, etc.,

London, W.1. NORMAN C. LAKE.

SIR,—I should like to stress that the problem of whether or not *the calculating machine* has a mind is fundamentally the same problem as that of whether or not human beings (other than myself) have minds. Each one of us (allow me to assume the problem solved) is conscious only of his own mental processes, and assumes that his fellow beings have minds by analogy of their bodily behaviour with his own, which he knows to be correlated with mental processes.

Let us therefore solve the problem of the machine by constant reference to this older form of the problem, and by asking ourselves what it is in the actions of others that leads us to suppose that minds exist. Space is short, so it remains for me only to state my conclusion after comparing the behaviour of the machine with that of my fellow creatures. I am unwilling to postulate a machine mind, but I do think that this machine provides an excellent teleological argument for the existence of man.—*I am, etc.*,

Withyham, Sussex. P. DUPRÉ.

The Lock Hospital

SIR,—I have refrained from entering into any controversy concerning the fate of the above, with which I have been associated for forty-two years, but I feel that I must now do so before it is too late. The hospital is not being threatened because it is out of date, inefficient, or no longer required. It is a beautiful modern building, specially built for the purpose of treating venereal disease, and situated in the centre of London, where it is ideally placed for the purpose for which it was intended. It is the largest clinic in the West End, much larger than the clinics of any of the general or special hospitals. Patients come to it because they feel they will be treated with kindness, not as pariahs but as unfortunate, frightened human beings.

It was for their treatment that the subscribers to the hospital originally gave the money to build and equip it, long before the public conscience was roused to the necessity and importance of such treatment. They did not give these subscriptions to acquire honours or distinctions, but for the sake of the unfortunate mothers, innocent children, and foolish youths. They would deeply resent its transference to any other hospital, no matter how worthy of support, as long as the need for venereal treatment existed. An appeal is now being made to the Ministry of Health to stop this retrograde step before it is too late.

Everyone with any knowledge of these diseases, and the mental attitude of patients towards them, knows that Earle Moore, of Baltimore, was dead right when he said recently at the Royal Society of Medicine that one-tenth of the treatment was physical and nine-tenths psychological. I was a house surgeon when one injection of "606" was said to cure syphilis, and I have seen the consequences. I am hopeful we may not make the same mistake again through over-optimism.

I have been deeply touched by the anxiety shown by hundreds of old patients who have been coming specially to the hospital during the last two months, since the first rumours of the possible disaster to what they look upon as their hospital have appeared in the Press. Nobody seems to have thought of them in official circles.—I am, etc.,

London, W.1. J. JOHNSTON ABRAHAM.

Prevention of Sea-sickness

SIR,—With reference to your leading article on this subject (May 14, p. 855), it may be of interest to quote our impressions on the use of "dramamine." We have been reserving it for the cases in which hyoscine has been of little or no benefit. We have found that in almost every case dramamine has caused almost complete disappearance of the sea-sickness. As mentioned in your leading article, it seemed to us that the recommended dose was too high, and we find that 50 mg. twice daily will keep most people happy. We are now trying out 25 mg. doses.

It is, unfortunately, not possible in large, fast passenger ships to carry out controlled experiments, but meanwhile our impression is that dramamine is indeed all that it is claimed to be.—We are, etc.,

S. M. RUST.
R.M.S. Queen Elizabeth. F. W. A. FOSBERY.

Quality of Liver Extracts

SIR,—In recent months there has been some correspondence in the medical press in which it has been stated that the quality of British liver extracts made from "pharmaceutical livers" is inferior to those made from fresh, edible livers. Though none of the correspondence which I have seen gives any detailed evidence in support of the writers' views, it was nevertheless decided to inquire into the matter, as it is clearly one of considerable importance both for the welfare of patients at home and for the maintenance of the good reputation which British pharmaceutical houses have won in the export market.

In the course of discussions which have been held here no evidence could be discovered to substantiate the claim that better liver extracts could be made by using fresh, edible livers than by using so-called "pharmaceutical livers." The following points are worth noting.

"Pharmaceutical livers" is a trade term to cover livers which are tough or not sufficiently fresh in appearance to attract the housewife. It does not include tuberculous livers or those with abscesses, cysts, or other obvious disease, and such livers are not used for the manufacture of liver extract. There appears to be no risk of disease being transmitted to patients through the use of pharmaceutical livers, and in any case the production processes provide effective sterilization.

The vitamin B_{12} content of pharmaceutical livers and edible livers has been measured and no significant difference was found. B_{12} is not necessarily the only factor therapeutically active in liver, but at least this test appears to give a fair measure of the anti-anaemic activity.

It is true that rather wider variations in batches of liver extract are found than is the case with most biologicals, but this is due to the absence of an adequate animal test for standardization. The practice of the British pharmaceutical houses is to standardize their batches of liver by the response of one or two pernicious anaemia cases who have not had prior treatment. As the response of individual patients must vary widely, it will be seen that the standardization is less accurate than would be the case with a test using larger numbers and a "standard" strain of laboratory animals. This limitation, of course, applies equally to liver extracts manufactured in other countries. It does explain, however, how patients may occasionally not give the response which was expected. In such instances an alteration of dosage or change to another preparation will in most cases solve the difficulty.

The recent discoveries of folic acid and of vitamin B_{12} illustrate how little we yet know about the relationship of the liver to the macrocytic anaemias, and my Department would therefore be grateful for any scientific evidence on this matter which would assist in securing even better preparations for the treatment of patients suffering from these conditions.—I am, etc.,

Ministry of Health, London, S.W.1. W. DALRYMPLE-CHAMPNEYS.

Medical Fitness for Air Travel

SIR,—Dr. R. Lane (June 11, p. 1053) rightly refers to the great advantage of air travel to many invalids wishing to return to the United Kingdom for special treatment, and points out that he has sent home from Calcutta a number of patients who would have been excluded had the criteria given in our article (April 9, p. 603) been rigidly followed.

These criteria were given merely as a general guide to medical men for the safety and comfort of their patients on long flights, which are more arduous than Dr. Lane suggests, as even many robust individuals complain of fatigue after a flight from such a distance as Calcutta, and more so on longer journeys like those from Australia, the Far East, South Africa, and South America. Among the factors leading to this fatigue are the early hour of starting and the long hours (8 to 12 daily) of travel in a somewhat confined space at an average altitude of 8,000 to 10,000 feet, which is accompanied by a low but perceptible degree of anoxia. It is for the medical practitioner concerned to decide on the fitness of the patient for the proposed air journey on the general advice given, aided by his own personal experience of air travel and his knowledge of the patient.

The British Airlines' policy is to accept at the passenger's own risk all invalids who are vouched for by a medical practitioner as fit to undertake a particular journey, provided that the invalid's condition is not objectionable to other passengers. It is not true to say that in the case of any ordinary severe illness, provided a few common-sense precautions are taken, the risk to the patient is no greater than in an ordinary hospital bed: the anoxia and lowered atmospheric pressure exert a definite and deleterious effect on certain medical conditions, as outlined in our article. In one type of pressurized aircraft travel can be guaranteed at an altitude no greater than 5,000 feet.

It would be impracticable with the present number of passenger seats available in aircraft to have some of them reserved solely for invalids up to 10 days before the actual flight, but the Corporations' station managers are always willing to consider sympathetically the passage of invalids, including last-moment cases, and the practice is to place them in seats near the lavatory and where their attendants can be alongside them.

At present oxygen is always available for passengers in case of emergency, but when the use of pressurized aircraft becomes general the provision of an adequate oxygen supply will not be so easy, as the seating is arranged on as high a density as possible and the weight factor of several hours' supply of oxygen for each patient would have to be considered. It would not, therefore, be practicable to carry more than one or two patients who might need oxygen during the journey, as oxygen is not laid on in pressurized cabins, and special mobile oxygen apparatus would have to be provided.

Our recommendations were based mainly on Service experience and the known facts concerning anoxia and lowered pressure effects over various lengths of time at different altitudes, and which vary with the individual, depending on his physical condition and psychological make-up. The mortality rates for different diseases per flight cannot be stated, as we are not aware of the nature of every case carried in civil aircraft and as a large number of invalids travel without revealing that they have any disability. Fortunately, however, the annual mortality rate for all invalids carried is very low, owing, no doubt, to the care with which such cases are usually selected for air travel. It is wise to err on the safe side in transporting invalids by air, as it is very disconcerting, inconvenient, and expensive for them to be off-loaded *en route* should they be taken ill.—We are, etc.,

H. E. WHITTINGHAM.
A. BUCHANAN BARBOUR.
J. C. MACGOWN.

London, W.1.

Herpes Zoster Treated with Liver Extract

SIR,—I was very interested in Dr. H. S. Gaskell's article (June 11, p. 1037) on the treatment of herpes zoster by liver extract. It is a treatment I have consistently followed since 1946, when you published a letter from Dr. Hugh Dickie (June 15, 1946, p. 942), who advocated this treatment. The rationale is not very obvious, but I suppose it acts as a general "tonic."

In my list of cases, numbering twelve, there was only one in which there was not a rapid improvement and a very much quicker recovery than is usual in this painful complaint. The one exception was the case of an old lady of 82 who had other troubles, of which she died two years later.

The preparation I employ is "anahaemin," and one injection of 2 ml. is sufficient. The relief is rapid and noticed in 3–7 days.—I am, etc.,

Brighton. JAMES ROOTH.

SIR,—I have read with interest the article by Dr. H. S. Gaskell on the treatment of herpes zoster with liver extract (June 11, p. 1037). In *Paris Médical* (Aug. 14, 1948, p. 370) I gave the results of a few cases treated by 0.5 g. of liver extract; I hope presently to be able to give the results in more than 25 other cases. I can already say that though my results are good they are not as good as those of Dickie (June 15, 1946, p. 942) and Gaskell. This might be due to the different liver extract I have used.—I am, etc.,

Paris. M. MANSOUR.

Treatment of Basal-cell Carcinoma

SIR,—In reply to Dr. P. A. M. Robertson's letter (June 4, p. 1002) on recurrent rodent ulcers, his experience is all too common. If the recurrence occurs in or adjacent to a previous lesion I think it fair to assume that treatment was inadequate. If the fresh rodent ulcer is in an entirely new site it should be looked upon as unconnected.

Multiple basal-cell epitheliomata are not uncommon. I have recently seen a patient with eleven scattered over various parts of the body, which have been in existence for twenty years, gradually enlarging. They are sometimes quite superficial and occasionally respond even to repeated applications of thorium-X varnish. The fact of multiplicity gives support to the view that these lesions spring up from incompletely differentiated embryonal cells—i.e., they are not carcinomas, not derived from basal cells, but are naevoid tumours.—I am, etc.,

Brighton. I. P. MYERS.

SIR,—The reasons put forward by Sir Cecil Wakeley and Mr. Peter Childs (April 30, p. 737) in favour of exclusively surgical treatment of basal-cell carcinoma of the skin are hardly convincing. True, surgical excision may be regarded as a good second choice in some cases where an exceptionally skilled surgeon is available, but generally the results are inferior to those of radiation treatment. This has been my experience in a series of over 70 cases. Unless the excision is very wide relapses will occur: for basal-cell carcinomas have a tendency to form advance guards of strands of malignant cells far beyond the limits of the visible lesion.

The authors do not sufficiently emphasize the disadvantages of surgical treatment: unsightly scars; the consequential need of a second, plastic operation; the possibility of keloid formation; stimulation of the growth; and the very real danger of wound infection. None of these may occur if, as said above, exceptionally good surgical workmanship may be counted upon, but potentially they are to be expected after every operation.

Radiation therapy, on the other hand, has been so successful in the treatment of these tumours that a reversal to surgical methods must be regarded as a retrograde step. After all, gamma rays (produced by radium or the *x*-ray machine) have been proved to have a selective effect on the nuclei of tumour cells: their application is a biological procedure—which surgical excision is most certainly not.

In expert hands radiation of basal-cell carcinoma is a safe, clean, painless, and effective method, and in the large majority of cases preferable to surgery. (The late Dr. Sequeira, whose experience in this field was probably unique and with whom I had occasion to discuss the question of radiation or excision, was strongly in favour of radiation whenever possible and feasible.)—I am, etc.,

Nairobi. FRANK PIERS.

Oestrogenic Effect of Amphetamine

SIR,—The following may be of interest concerning the oestrogenic effect of amphetamine. Eighteen months ago I was treating a patient whose condition was rapidly deteriorating whilst on stilboestrol treatment for prostatic carcinoma. He was mentally depressed and had suicidal tendencies. Following administration of amphetamine (10 mg. daily), not only his mental but his physical condition improved markedly, and he appears to be in considerably better health.—I am, etc.,

Prestatyn, Flints. T. H. HARGREAVES.

Treatment of Stress Incontinence

SIR,—Mr. Wilfred Shaw (June 18, p. 1070) is to be congratulated for his ingenuity and for his courage in carrying out the pioneer work which together have produced another valuable contribution to vaginal surgery. There is definitely a need for an operation which can be employed where the modified anterior colporrhaphies have failed. It is essential that the operation performed shall not endanger the integrity of the bladder or the urethra, and it is also essential that it shall cure the condition.

Shaw's operations would seem to fulfil these requirements (I use the plural, for it appears that his technique is still undergoing modifications). The disadvantages at first sight are the formidable nature of the undertaking, the drilling of bone, which surgeons (orthopaedists excepted) naturally abhor, and the scar down the thigh. Curiously enough, the patients do not mind the last, and since the vaginal and vulvar incisions are lost sight of the operation, however formidable it sounds in print, leaves the patient with surprisingly little to show for it. We can accept that in 50 cases no instance of osteomyelitis has occurred.

After witnessing the operation, I have myself performed this on seven occasions and have encountered some teething troubles. Six of my patients are cured—the failure was a patient in whom the sling was brought up through the obturator foramina. It is a pity that this will not always do the trick, for it is easier and less formidable (and sometimes succeeds).

Mr. Shaw states that on incising the pubococcygeus "troublesome bleeding rarely occurs." It can do, however, but it is in my experience easily controlled by packing with ½-in. (1.3-cm.) ribbon gauze until the time has come to thread the strap through. I still use the arched incision including the clitoris; I have not found the bleeding here a nuisance, and have not had to drain. One patient has a sinus at the apex of this wound, presumably because I used silk sutures which have not yet separated.

One important point to keep in mind is that the operation will not cure cystocele. In the excitement of carrying through the Shaw operation step by step one can forget this. If the

patient has both conditions, then presumably after taking the strap from the thigh a routine colporrhaphy must be done and the strap threaded through before finally closing the skin.—I am, etc.,

London, S.E.3. KEITH VARTAN.

Toxic Effects of Antistin

SIR,—I was interested in Dr. Maurice Tobias's account of a case of poisoning by "anthisan" (June 18, p. 1098). I should like to record another case of overdose of an antihistamine substance, which did not, however, result in death.

The patient was a man, aged 46, who took about 20 tablets of "antistin" (2-N-phenyl-N-benzyl aminomethylimidazoline), while intoxicated, at 2 a.m. According to his wife, he lost consciousness within a few minutes of taking the drug, and his face became a dark red colour. He vomited profusely, and when seen by his doctor the following morning he was semi-comatose. He was sent to hospital, and on arrival was unable to answer questions, relapsing into stupor when left undisturbed. No abnormality was found in his tendon jerks. Plantar responses were flexor. Pupils were constricted. A well-marked "triple response" was obtained on scratching his skin. After gastric lavage his condition improved a little, but he remained drowsy for two days in spite of small doses of amphetamine. On the third day he was much better, and was fit for discharge on the fourth day.

It would appear that the toxic effects of antistin are entirely cerebral and resemble those of "benadryl," but that a larger dose is required to produce them (2 g.) with the former than with the latter drug.—I am, etc.,

London, S.W.1. HUMPHREY HAHN.

Zoster and Varicella in the Same Patient

SIR,—I was interested to read Dr. A. Courts's account (June 11, p. 1052) of the co-existence of herpes zoster with chicken-pox. I believe these cases are very rare.

In 1933 I attended a man aged 55 who had severe shingles of the third division of the fifth cranial nerve on the left side. His wife had had a mild shingles of the angle of the mouth a short time before. His was a severe attack with a temperature of 101° F. (38.3° C.). Three days later, after his temperature had fallen, it rose again to 102° F. (38.9° C.); he was acutely ill and developed a typical varicella rash. Recovery was complete in three weeks.—I am, etc.,

Purley, Surrey. C. E. TAYLOR.

Treatment of Cardiospasm

SIR,—Innumerable different operative procedures have been devised to treat cardiospasm. Some have produced no benefit, some have been completely successful, and some have created a worse condition which has ended fatally.

The aetiology of cardiospasm remains unknown. No satisfactory operation has yet been performed on the nerve mechanism controlling the cardia to overcome the spasm. The most successful results of treatment have been obtained by disrupting the circular muscle fibres which are in spasm. This may be carried out by dilatation with the Negus hydrostatic bag, or at operation by dividing the muscle fibres. When operation has become necessary, there are a few most important facts to which I should like to draw attention.

In a normal person the gastric contents are prevented from regurgitating into the oesophagus by two main mechanisms: (1) the action of the cardiac sphincter; and (2) the pinchcock action of the diaphragm. Any operative procedure which is embarked upon to cure cardiospasm must necessarily interfere with the first of these, but it is of the greatest importance to preserve the second—i.e., the pinchcock action of the diaphragm.

If both of these mechanisms are damaged by surgery a patulous cardia results. This produces oesophagitis and eventually peptic ulceration of the oesophagus, which is a worse condition and more difficult to deal with surgically than cardiospasm. The operation of oesophago-gastrostomy should only be mentioned in the treatment of cardiospasm to be condemned. It certainly relieves the obstruction at the cardia, but it creates a dangerous and killing anomaly, for there is nothing to prevent gastric juices regurgitating into the oesophagus. I know of at least one fatality from haemorrhage following this operation, which came from peptic digestion of the oesophageal wall.

In Leeds, a modified Heller's operation has been performed on those cases which did not respond to dilatation with the Negus hydrostatic bag. This is a safe operation, for it does not interfere with the pinchcock action, and post-operatively there has been no regurgitation into the oesophagus. It has given excellent results both symptomatically and radiologically the seventeen times it has been performed. It is the operation of choice, because other operative procedures, altering the cardiac mechanism, may prove to be dangerous.—I am, etc.,

Leeds. G. H. WOOLER.

Treatment by H 11

SIR,—I enclose leaflets on H 11 which I received by the penny post. You will note there is nothing to show who is the sender of these leaflets. I would like to protest strongly against this method of advertisement of a treatment for such an important disease as cancer.

In 1943 H 11 was tried out in a case of bronchial carcinoma. The patient was in a large chest hospital. All facilities were offered to the Hosa Laboratories for the investigation and treatment of the case personally, but these were refused. H 11 was tried out by the medical staff of the hospital, but the treatment failed and the patient died.

I make my protest as I feel that it is most undesirable that hopes should be raised of a cure of cancer.—I am, etc.,

Dorking. P. H. PHIPPS.

Treatment of Thyrotoxicosis

SIR,—The issue of the *British Medical Journal* of April 16, 1949, has only recently come to hand in this part of the world, and the remarks made by Sir Heneage Ogilvie (p. 645) regarding thyrotoxicosis in his otherwise excellent address, "In Praise of Idleness," are by no means in accord with one's experience here nor with that reported from Canada and the U.S.A. The intelligent use of thiouracil and its derivatives in acute thyrotoxicosis has completely revolutionized the treatment of this condition and is paralleled only by the introduction of the antibiotics in other spheres of general medicine.

I have published several articles in the *Medical Journal of Australia* principally on the use of methyl thiouracil in long-term therapy in the acute primary type of toxic goitre, and in a series of 120 cases treated with thiourea and thiouracil and another series of 200 cases treated with methyl thiouracil the results show complete control of the thyrotoxicosis with restoration to normal health and recession of the gland in 80% of cases. In a further 10% there was control of thyrotoxicosis, but an enlarged gland persisted. Recurrences were under 5% and always occurred in the latter class, so now all such cases are subjected to operation. The other 10% for various reasons were operated upon, several because of some sensitivity to the drug, others because they would not or could not carry on with prolonged treatment, and others again for cosmetic reasons.

All the cases have been followed for a minimum period of six months after concluding treatment, and many for two to five years, without recurrence. In addition all secondary cases of thyrotoxicosis associated with old colloid or adenomatous goitres are subjected to short-term therapy until the toxic condition is under control, and then operation is carried out. In this class I now have close on 500 cases.

The figures quoted by Sir Heneage Ogilvie are deplorable, and if they are the average of English experience then it is high time the methods of therapy in vogue should be reviewed and altered drastically. In the 800–900 cases personally treated or under treatment since the "thio" compounds were introduced in 1943 I have had two cases of agranulocytosis—one in the early days and one where a patient developed an acute pyelitis and was given large doses of one of the sulphonamides by her local doctor. Slight reactions have been noted in only 3% of cases, and in only 0.5% of cases was treatment stopped because of a febrile reaction or a leucopenia. The mortality rate has been *nil* for the whole series. Seventeen patients have

been treated during pregnancy and delivered safely with normal babies. Quite an appreciable number of woman have had one to three children after concluding long-term therapy without any recrudescence of the thyrotoxicosis, and I regard this as a good test of "cure."

The mortality rate of surgery in expert hands with the iodine regime was 0.25–1%, but the overall general surgical mortality is nearer 5%; and, even so, many cases are only just pulled through after several very anxious days, whereas with the thiouracil preparation there is seldom any post-operative reaction that would worry either the nursing staff or the surgeon. So far my operation mortality rate is nil, and similar large or larger series are reported from the U.S.A.

It seems that the "week's reflection in the relative anoxia of 12,000 ft.," to which Sir Heneage refers, has made him unduly dogmatic in his pronouncements regarding thiouracil, and he has not exercised that personal supervision of his cases and that clarity of thought that one expects from him. He states he has "not drained a thyroid for 10 years"—possibly a safe proceeding in his capable hands, but not wise advice to give the average young surgeon, as a split tube or corrugated rubber drain for 36 hours is safe in certain cases and leaves no reminder.

As regards the "considerably enhanced difficulty" of operation, I find in cases properly prepared there is no greater difficulty with the large hyperplastic glands prepared with thiouracil and iodine than there is with those prepared with iodine alone, while with the adenomatous glands, even in those patients who have been fibrillating, one is freed from worry and strain both during and after operation, as also is the nursing staff. Perhaps the difference in our results is that I personally supervise both the medical and surgical treatment of all my cases, and it is I who decide if and when the patient should be operated on.—I am, etc.,

Sydney. H. R. G. POATE.

Nutritional Macrocytic Anaemia

SIR,—For the record, Drs. J. Rubie and C. D. Calnan (June 18, p. 1079) may like to see the report of a case of megalocytic anaemia in a young vegetarian (April 22, 1944, p. 558). This young man had a severe "pure" anaemia (without skin or mental changes) which responded promptly to "anahaemin." An initial histamine-fast achlorhydria gave place to a spontaneous secretion of free acid 17 months later; and a presumptive diagnosis of pernicious anaemia was finally ruled out of court.—I am, etc.,

Hartlepool, Durham. R. T. COOKE.

Marriage Guidance by Doctors

SIR,—I would refer to the recommendations of the Royal Commission on Population regarding instruction and advice to the public upon sexual life and behaviour, now at last recognized as of paramount importance to the welfare of the nation. While recognizing the overcrowded nature of the syllabus confronting the medical student, I would wish to propose that in the interests of all concerned some room should be made for the training of the aspirant-doctor in the understanding not only of sexual physiology but also of sexual psychology, including the psychological differences between man and woman, the stresses of women's problems, and the use of birth control, not for avoidance of parenthood but for the proper spacing of families.

It is a regrettable fact that at the present time many otherwise excellent G.P.s have a repugnance to giving advice upon sexual problems, even while they can hardly not be aware of the tremendous incidence of troubles of this nature among their patients and their results upon physical and psychological health. Most of these men have acquired a good deal of insight during their years of practice; but there are many who are unable, through not knowing quite how best to approach it, to give impersonal and yet humane advice in such cases.

Since the subject's importance—indeed, its fundamental character—is now for the first time officially noticed, and since it appears that such help and advice may come within the scope of the health services of the State, it would seem that the need for training of young doctors in this direction is both vital and urgent. If doctors, busy and, indeed, overworked as they all are, can rise to meet this opportunity, I feel that they will be well rewarded. A sympathetic understanding of these human problems will go far to strengthen the ties of good will between doctor and patient, confirming ever more strongly the position of the "family doctor" as an essential and honoured part of our social life.—I am, etc.,

London, W.1. EUSTACE CHESSER.

Adoption Bill, 1949

SIR,—Miss Anne Ashley's admirable letter (April 23, p. 725) embodies all the principles the National Council for the Unmarried Mother and her Child works for. Above all, we warmly endorse her insistence on the right and privilege of the mother to take a decision about her child's future "with proper safeguards and never in a hurry." It is for this reason that this council presses for an amendment of paragraph 3, subsection (2), of the Adoption Bill, 1949, which would, as it stands, allow a consent to be given "whether or not an application for such an order is pending." This section provides for a mother to abdicate from her position and to sign away her child directly after birth, thereby possibly depriving her of the responsibility of taking this decision at a later time.

It is these insufficiently considered and hastily arranged adoptions which bring trouble only too often to the mother and to the adopters alike: much careful thought over a period of many years has served to emphasize the importance of the time factor. Experience has shown that doctors not infrequently encourage adoption at this early date, even when the mother herself wants to keep the child. This council urges the medical profession to use its influence to secure the amendment of this clause when the Bill comes before the House of Lords, and above all asks doctors to consider each case on its merits before recommending adoption.—I am, etc.,

LETTICE FISHER.
London, W.C.1. Chairman, National Council for the Unmarried Mother and her Child.

POINTS FROM LETTERS

Zoster and Varicella

Dr. A. F. DUNN CARRIE (Manchester, 15) writes: Some years ago I attended a female child aged 2 years for a typical attack of chickenpox of moderate severity which ran a normal course till the tenth day, when she developed a well-marked herpetic eruption along the distribution of the fifth dorsal nerve on the left side. As is usual in young subjects, the herpes was attended with little discomfort or pain and subsided spontaneously, requiring no treatment other than the application of a dusting powder.

Milk and Rheumatic Fever

Dr. JOHN T. MACLACHLAN (Glasgow) writes: Two years ago I expressed the opinion in the *Journal* (May 31, 1947, p. 784) that rheumatic fever was probably due to milk from infected rheumatic cows. In my opinion this induction will be clinched if pasteurization of milk destroys the infection of rheumatic fever. Some doctors tell me that rheumatic fever seems to be rare. It would be worthwhile making rheumatic fever a reportable disease to determine this very important point.

Horseflies and Poliomyelitis

Dr. RICHARD V. WRIGHT (Coldbeck, Cumberland) writes: During the summer of 1947 I noticed that the blood-sucking horsefly was very prevalent and a nuisance. Recently, swimming in Lake Loweswater, I noticed these blood-sucker flies made the habit of pouncing upon other flies, including the *Musca domestica*, bringing them pick-a-back to ground and then sucking their abdomens. Now the musca has been shown for certain to carry the virus of poliomyelitis in its intestine, and thus the horsefly could be easily infected on its perforating proboscis, and then infect the next mammal it attacks, and so be the vector into the blood of humans. And this would also account for horses being so commonly affected by poliomyelitis during an epidemic, and also for bathers being attacked so readily by the infection.

Medical Notes in Parliament

THE NATIONAL HEALTH SERVICE (AMENDMENT) BILL

A Standing Committee of the House of Commons began on June 28 the examination of the National Health Service (Amendment) Bill (see *Supplement*, May 21, p. 274). On Clause 1, which is concerned with existing partnership agreements and modification of those agreements, Mr. BEVAN moved and the Committee accepted an amendment for the purpose of making clear that the free transfer of one share in a partnership to another person was in fact affected. The words substituted were "in lieu of the payment of the purchase price by the partner to whom the share is transferred."

Mr. WALTER ELLIOT pointed out that there was a difference of opinion between the Government and the Opposition about the number of persons affected by the Bill. The Financial Memorandum accompanying the Bill had estimated that about 50 practices were involved and that the number of doctors concerned was nearly 150. The Lord Advocate had said on the second reading that only one of these was in Scotland. It was the view of the Opposition that a much larger number of persons was affected. The mere stipulation to bring in a new appointed day showed that the controversy which the Bill was designed to clear up affected a very large number of practitioners, possibly half the number in the country who were in partnerships and a very large number of assistants. The Bill dealt with a problem which affected the whole profession and to which the whole profession had taken grave exception.

Sir HUGH LUCAS-TOOTH said that the clause applied to all partnerships in existence on the appointed day. In Subsection (3) it provided that Section 35 of the National Health Service Act which prohibited the sale of medical practices should be deemed never to have affected the exercise under any partnership agreement of any right or obligation of a partner to sell to, or purchase from, another partner any share in the goodwill of the practice. He thought that in the Bill they were arriving at a happy solution of the problem. On the other hand the Government should be asked whether it had any information about the dissolution of partnerships. In was possible that some practitioners had decided that it would be better to dissolve their partnerships before the original appointed day and to recast them in the light of the known defect of the principal Act. If that were so, certain hardships might not be covered by the clauses of the Bill.

Mr. BEVAN replied that how many cases were affected was purely speculative. He agreed that apprehension of the effect of these clauses had been created among a large number of doctors by irresponsible propaganda in 1946 and 1947. The Ministry had no information how many partnerships, if any, had been dissolved as a consequence. Mr. Bevan explained that in speaking of irresponsible propaganda he referred to sensational headlines which gave rise to fears among a large number of general practitioners. The House, however, knew from experience that larger numbers of doctors had joined the Service than had at the time been estimated to be necessary. The number of partnerships affected by this propaganda would be demonstrated by the number of persons coming forward for compensation. He thought they would be very few.

On Clause 3 (right of medical partners to be entered on lists after appointed day) Sir HUGH LUCAS-TOOTH said the period of two months from the date of the passing of the Bill was reasonable, but there would be exceptional cases in which compliance would be difficult. Doctors who had gone overseas or were ill might require a longer period. It would probably have to be at the discretion of the Minister or some outside body.

Mr. BEVAN hoped he would not be pressed on this. It was impossible for the British Medical Association to arrange for the distribution of the compensation fund while the matter was in doubt. The Bill could not be placed on the Statute Book before the end of July, and the Long Recess would follow, so the profession would have ample notice.

On Clause 5 (modification of other medical partnerships in force on the appointed day) Mr. BEVAN moved an amendment having the effect of giving to all members of a partnership to which the provisions of the clause applied the benefits of Subsection (2). He said that as the subsection was worded the obligation of a partner outside the Service to purchase, in pursuance of an agreement in force before the appointed day, the share of a partner who joined the Service after the appointed day was converted into an option, whereas the obligation of a partner who was inside the Service to make a similar purchase had not been so converted. His amendment with the subsequent one would bring the clause into line with other provisions in the Bill which turned an obligation into an option in cases where the purchaser was acquiring something less than he had contracted for and something which, owing to the provisions of the original Act, he could not sell.

Mr. ELLIOT said this could reasonably be regarded as an easement. On the understanding that the Minister had disclosed the whole meaning of the amendment the Opposition consented to its incorporation in the clause. The amendment and the further consequential one were then accepted and the clause as amended was ordered to stand part of the Bill.

On Clause 6 (existing agreements with medical assistants) Mr. ELLIOT said these had scarcely been mentioned in the debate on the second reading. He believed that the number of assistants affected would certainly reach 1,000, and might be 1,300 or more. He took it that all these were covered by the clause. If it were thought that the clause merely applied to the 50 practices which had been referred to, dismay would be created among those whom the Bill was intended to benefit.

The LORD ADVOCATE (Mr. John Wheatley) said that following the recommendations of the Slade Committee the Government proposed to apply the same principles in this Bill to assistants as were applied to partners within a partnership agreement covered by the Bill. He gave an assurance that assistants were included within the clause in the same manner as partners within a partnership agreement. The number of assistants affected was a matter of speculation. Information on that point should have been more readily procurable from the medical profession and medical organizations than from the Government.

Mr. ELLIOT hoped that if at any subsequent stage of the Bill the Opposition brought forward information derived from the professional organization, its submissions would be received in a spirit of sweet reasonableness. The clause was then ordered to stand part of the Bill.

On Clause 7 (removal of hardships) Sir HUGH LUCAS-TOOTH moved to provide that where the arbitrator or committee acting under the powers conferred by the clause modified the operation of the Act of 1946, or of this Act or of any regulations in relation to the provisions of the agreement, it should immediately report such modification to the Minister, who should from time to time lay a statement before Parliament giving brief particulars of all such reports. Sir Hugh said that the power to vary the Acts and the consequent regulations was wide but necessary. It behoved the Committee to see that what Parliament had laid down was effectually carried out. The subsection might enable a coach and horses to be driven through what Parliament had decided. Two or more doctors could conceivably appoint an arbitrator without the knowledge of the Minister or of Parliament and persuade that arbitrator to modify the provisions of the principal Act and of this Bill. The Committee agreed to the amendment.

Prohibition of a Salaried Service

On Clause 10 (prohibition of full-time salaried practitioner service) Sir HUGH LUCAS-TOOTH moved to insert an amendment providing that payment "except in special areas or except where a basic salary had been granted should consist of remuneration ascertained in relation" . . . to the number of patients. Sir Hugh said the words "special circumstances" were in no way defined in the clause, and the words "wholly or mainly" were without a clear meaning. On the second reading Mr. Bevan had been asked whether these words would enable him to provide by regulation for all doctors to be paid up to 49% of their remuneration by way of salary. As the Minister

in his reply had failed to answer that question Sir Hugh thought the Committee must assume this was a fair interpretation of the phrases which he had quoted. They should have a clear statement from Mr. Bevan on what he thought the words meant. The Opposition in the amendment which he had moved and in the following one wished to provide that the remuneration should consist of remuneration in relation to the number of patients, except in the case of special areas and the case in which a basic salary had been granted. In its second amendment the Opposition proceeded to give definition to the terms "special areas" and "basic salary." It was desirable that the Committee should clearly indicate to those who were to be in the Service what the rights and obligations of those in the Service were likely to be. It was unsatisfactory that people should be expected to enter the Service not knowing how far the terms of service might be altered, because Parliament contemplated that a doctor having once entered the Service at the age of 25 would continue to serve until he was 60 or even 70. In the amendment basic salary was defined as being such salary as might be determined by regulations made under Subsection (1) of Section 33 of the Act of 1946 or the corresponding section of the Scottish Act, and the amendment provided that it should only be payable to a medical practitioner for the purpose of making special provision for meeting cases of hardship or otherwise to provide special assistance to particular classes of practitioners. In the section dealing with special areas power was given to the Minister to provide by regulation for any part of a doctor's remuneration up to 100% to be given by way of salary in special areas where entirely special circumstances prevailed. The obvious case was that of the Highlands and Islands. These amendments carried out the desire of members in all parts of the Committee within the meaning of the pledge which had been given.

Mr. BEVAN said he had made it clear again and again during the controversy which accompanied the launching of the National Health Service Act that it was not the intention of the Government to introduce a whole-time salaried service.

Sir HUGH LUCAS-TOOTH: "Not while the fruit is green."

Mr. BEVAN said that when he had talked about the fruit being green he had meant that the ethical standards of many people would have to be raised before they could be trusted to do their job without the application of rewards and punishments. Even in the Opposition amendment the cases to which it should apply were not defined narrowly. "Or otherwise" was as wide a phrase as that of the Bill itself. It was clear that the Minister should be able to pay a young man in the Service a salary of £300, which might amount to more than half his remuneration. It might also be the fact that aged practitioners who were quite useful might have a declining list which would make the basic salary more than half their remuneration. The Opposition did not contest that this might be desirable and necessary. It was also common ground that it might be necessary for salary to be paid in certain areas because the number of people living in that area would not suffice on a capitation basis to reward adequately the general practitioner. What was left was a suspicion that the words in the clause would permit some Government at some time to impose clandestinely on the medical profession a full-time salaried service before they were prepared to accept it. Never was there a more unworthy suspicion or a clumsier way of trying to meet it. Statutory power was not what the Minister required in such circumstances. What was wanted was the willingness of the profession to accept what was proposed, and no amount of statutory protection would deal with that position. Even if the language of the Opposition were put into the Bill a Minister would have exactly the same latitude as was given in the Bill. Sir Hugh had said he thought the language of the Bill gave effect to the pledge Mr. Bevan had offered in the House. Why then was it necessary to refine this language?

Mr. ELLIOT said the Minister was arguing that because the Opposition had made an attempt to meet him and to give latitude which they realized was necessary the case they had advanced could be brushed aside. Mr. Bevan had asked the Opposition to clear its mind of subjective consideration. Medicine was largely a matter of subjective consideration. Many of the chromium-plated figures of modern health administration were not so satisfactory to the patient as one who showed himself sympathetic and anxious to deal with the human problem of a sick man. In all these matters the Opposition was concerned to maintain the human contact between doctor and patient, which tended to be diminished when a vast central organization came into the matter. Mr. Bevan had referred to his efforts to raise the ethical standards of the medical profession.

Mr. BEVAN replied that when he had said that in many professions ethical standards were not yet sufficiently high to exempt them from State assistance and that they therefore could not be trusted with a full-time salary he had not referred to the medical profession.

Mr. ELLIOT said that if the Minister told the Committee that he had been indulging in a poem more suitable for an Eisteddfod than for a committee of the House of Commons the Opposition was willing to let the matter go at that. He suggested that the Minister should raise a flag when he came to one of his general metaphors but lower it when he came to a concrete application. The step-by-step technique in introducing changes was familiar, and the legal maxim of resisting the beginnings was sound. The form in which the Opposition would cast the clause was positive and indicated the line of approach they might take at subsequent stages.

Mr. BEVAN suggested that the language of the amendment was more dangerous than the language of the Bill, because it made it possible to give a decision on hardship and thus to take in classes of general practitioners.

Sir HUGH LUCAS-TOOTH said that if the Minister objected to the words "or otherwise" he was willing to take them out.

Mr. BEVAN said he had no objection to these words, but to the whole amendment.

Mr. ELLIOT said the Minister would not deny that the medical profession would like to have the amendment.

Mr. BEVAN said he had no evidence that the medical profession would like it. He strongly advised the medical profession not to support the amendment, because it was more capable of being misrepresented than was the language of the Bill.

Mr. ELLIOT assured Mr. Bevan that the medical profession considered the amendment a desirable step.

Mr. LINSTEAD said the Minister seemed to be taking powers in the clause as drafted which would enable him, if he thought there were special circumstances, to apply a fixed salary over the whole profession. If that was not the meaning of the Bill then the Opposition had cleared up a point which was in doubt. The suspicion that the profession would be faced with a full-time salaried service resided in the profession, and it was unjust of Mr. Bevan to pin it on to the Opposition. The dental profession was definitely afraid that an opportunity would be taken to introduce a full-time service paid by fixed salary. The value of the discussion that day had been on the one or two additional assurances the Minister had given of the present intentions of himself and his Government.

Basic Salary

Mr. BEVAN said the Opposition pretended it was speaking for the profession and the country. What it was really doing, and had done ever since 1946, was to stir up as much mischief as possible against the National Health Service Act. Sir Hugh Lucas-Tooth was attempting to induce in the mind of every doctor a suspicion of the Government's intention. Over the last two or three years the Opposition had done its best to sabotage the whole of the health service administration. It was time the country knew this. The Committee had before it an innocent clause carrying out the pledge which he (Mr. Bevan) had given to the medical profession. Every doctor understood it clearly. He had received no letters about the clause and did not believe there was any doctor who did not trust the intentions lying behind the clause. Why should he give Sir Hugh a pledge? He was not entitled to it. What was happening had been agreed between the Government and the medical profession. The profession might wish to alter the arrangements, as there was a great deal of doubt in the minds of doctors about the basic salary. With the ordinary administrative machinery at its disposal the medical profession could make the basic salary practically universal. Many doctors

had bitterly complained that the profession itself was withholding the basic salary which they thought they ought to have. What the Ministry had said was that it must satisfy itself that it was dealing with a bona-fide general practitioner. If a person merely put up his plate and said, "I am a general practitioner" and made a claim, then, said Mr. Bevan, he would not pay £300. There had been instances where he had refused to pay £300 because on inquiry he was satisfied that the applicants were not seriously practising their profession. It might easily happen at any time that the profession might come to him and say they would like to have the basic salary universal to all genuine medical practitioners. Until they did so he would not make it universal. That was the only pledge he was prepared to give. He was not prepared to put the whole of the conditions for the payment of the medical profession within a statute so that the Ministry could not move without altering that statute. Beyond the three categories of doctors for whom the basic salary was necessary—the young doctor who wanted to avoid borrowing money at exorbitant rates of interest, the old general practitioner who wanted to continue practising, and doctors in places where the population was too sparse to give reasonable remuneration—it was not in the mind of the Government to introduce a universal salaried service.

Mr. ELLIOT said Mr. Bevan was arguing along two opposed lines. He was saying that he did not wish to alter the conditions and also that he did not like the amendment because it might interfere with him if he desired to alter them. Mr. Bevan's idea was that the whole of the difficulty between himself and the medical profession arose from the arguments introduced by Conservative M.P.s. He should have noticed in the course of his political life that he was capable of stirring up opposition without the support of Conservatives.

Mr. BEVAN: And of dealing with it.

Mr. ELLIOT said Mr. Bevan must not object when the medical profession felt that he should be treated with a good deal of circumspection. The Minister could point to no instance where the Opposition had attempted to sabotage the working of the Act. He assured Mr. Bevan that the Opposition had the upport of the doctors on this amendment. Later, on the ques ion of arbitration, the Opposition could refer to the proceedings at the conference of the B.M.A. in Harrogate.

Mr. BEVAN said his recollection was that the Harrogate conference had never raised the question of the basic salaries. The Government had received no communication from the doctors about the clause.

Mr. ELLIOT said he could give an assurance that these matters had been discussed with the representatives of the British Medical Association.

Mr. BEVAN asked whether he was to understand that the Opposition had been in communication with the British Medical Association about the amendment though the Association had made no official representation to the Government.

Mr. ELLIOT recalled that earlier the Minister had said that any such approach had his entire approval and that he would accept it from the Opposition. Naturally the Opposition, as responsible persons, did their best to discuss such matters with other responsible people.

An "Intrigue" with the Opposition

Mr. BEVAN said this was astonishing. They had got o the point where the British Medical Association's repre- entatives carried on an intrigue with the Opposition. Had hey got to backstairs intrigues between the Opposition and he medical profession about a Bill before the House of Commons implemented a public pledge given to the House by the Minister of Health? The duty of the British Medical Association, if it thought that the Bill did not give effect to the pledge, vas to come to the Minister of Health and say they did not like he words. They had not come.

Mr. ELLIOT said the Opposition had brought forward the mendment entirely on its responsibility as Members of Parliament. The amendment had been advanced after taking counsel, ut it was advanced solely on the responsibility and on behalf f the Opposition—not of the British Medical Association. The)pposition had never claimed that it spoke with the support of the whole medical profession. He did say that the medical profession was profoundly suspicious of the Minister. The accusation made by the Minister that the amendment was part of a deliberate attempt to sabotage the health service was not justified by the words and arguments which had been used.

Backstairs Pressure

Mr. BEVAN said the British Medical Association had met his officials on this Bill, but on no occasion had they raised the question of this clause. It was the duty of the Association to raise such issues with the Ministry if they wished to call attention to what they considered to be the inadequacy of the language in the Bill. It was exceedingly difficult for the Government to carry on discussions with responsible organizations if those organizations did not use the channels of communication open to them and used backstairs ways of bringing pressure to bear on Members of the House.

Mr. ECCLES said the point of the Bill, of the clause, and of the amendment was to make the Service work better. The Opposition intended that the amendment would help to make more doctors willing members of the health service. There was no question of the amendment having been put down to exacerbate the doctors in the Service, who were still highly suspicious of the Minister.

Mr. BEVAN said that was the characteristic attitude of the medical profession towards every Minister in every country of the world. It was the Opposition which had introduced personalities about the Minister. That was not true about members of the medical profession, but had been deliberately created by the language of the Opposition.

On a division the proposed amendment was then rejected by 13 to 7.

On the motion that the clause stand part of the Bill Sir HUGH LUCAS-TOOTH said the Opposition had not been approached by the British Medical Association or by any official person in the Association about an amendment to the clause. He and his friends had drafted the amendments. They were subsequently seen by the British Medical Association, which took no initiative in the matter, though those members of the Association who had seen the amendments whole-heartedly approved them.

Mr. BEVAN said Sir Hugh's statement must be taken with a large slab of salt, as it contradicted what had been said earlier. He hoped Mr. Elliot would give the Committee some clarification of a serious accusation. It had been said that Opposition members had been in touch with leaders in the medical profession. The Committee should have a frank disclosure of the names of those consulted and their relations with the Conservative party and the British Medical Association.

The Chairman (Sir Charles MacAndrew) said that the debate on the motion that the clause stand part of the Bill was very narrow, and he could not allow those questions to be answered.

Mr. ELLIOT said the Opposition had made a statement on how the amendment was drawn up. It had been shown to responsible persons. It would be wrong for him to go beyond that.

Mr. BEVAN said the Opposition would much regret that morning's work.

Mr. ELLIOT said the Bill imperfectly carried out a pledge given by the Minister in response to representations made by the Opposition after consultation with responsible persons. The Opposition was prepared to leave the matter there.

The clause was then approved, as also was Clause 11.

Settlement of Disputes

On Clause 12 (reference of disputes as to conditions of service of persons employed in health services), Mr. LINSTEAD, on the motion that the clause stand part of the Bill, said it would be helpful to have an elucidation by the Minister of a number of points. Under the clause, disputes over conditions of service or remuneration could be dealt with by conciliation or

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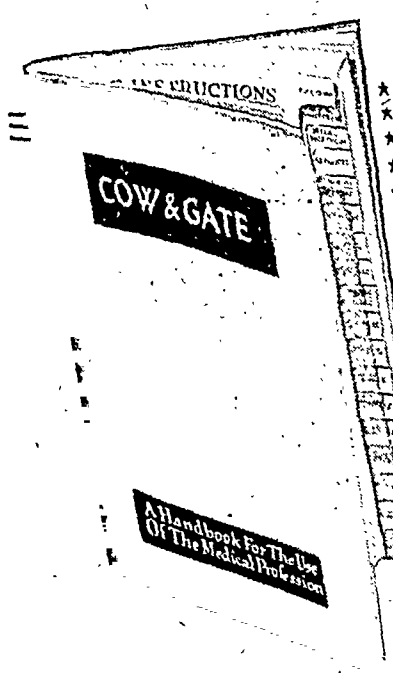
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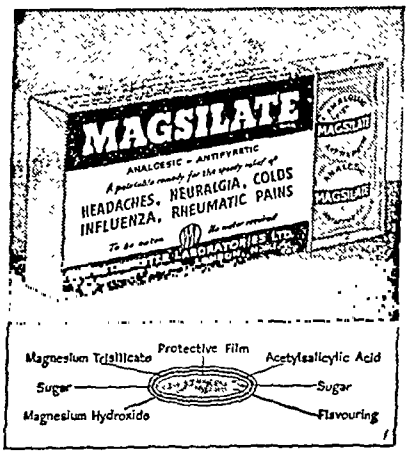
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could go to the Industrial Court, or to arbitration by arbitrators appointed by the Minister of Labour, or to arbitration by a body appointed by agreement by both sides with a chairman appointed by the Minister of Labour. The crux of the procedure was that there could be no arbitration until both sides were agreed that there should be arbitration. If there was a dispute between the Minister and a section of those serving within the Service, the Minister apparently could refuse to allow that dispute to go to arbitration. Under Section 66 of the principal Act the Minister had power to make regulations prescribing the qualifications, remuneration, and conditions of service, so that if he refused to consent to arbitration he could use his power of making regulations and leave the dissatisfied parties with the sole alternative of approaching the Opposition so that a prayer against the regulations could be moved in the House. Mr. Linstead could not feel that the Minister intended the references to arbitration to be a one-sided gesture. He assumed the Minister intended that when there was a dispute he would not use his power to withhold consent and so prevent that dispute going to arbitration. If Mr. Bevan would say so he would go a long way towards clearing up the purpose of the clause. Mr. Linstead recalled that the Secretary of State for Scotland had given an undertaking to Scottish pharmacists that arbitration would be open to them under this clause. Mr. Linstead asked three questions of the Minister. Did he accept the principle of arbitration as the method of settling disputes which arose on remuneration? Did he regard arbitration as binding on the Crown? If a dispute went to arbitration, would the Minister regard himself as bound by that award, despite the suggestion that the award of an Industrial Court or of an arbitrator could not be binding on the Crown?

Mr. BEVAN asked for an assurance that these questions were not put on behalf of the medical profession.

Mr. LINSTEAD said he had not discussed the matter with any representatives or members of the medical profession and took personal responsibility for putting the inquiries.

Mr. BEVAN said he was glad to have that statement. What was under discussion was an agreement forming part of the participation of the medical profession in the Whitley machinery. The Conciliation Act, 1896, and the Industrial Courts Act, 1919, did not provide for compulsory arbitration, and the present Bill would be an inappropriate place in which to amend those Acts. It had always been held that it would be highly undesirable to have compulsory arbitration under those Acts. The whole purpose of the Whitley machinery was to bring about agreement without arbitration. In the course of the last year agreement had been reached over many matters, especially those concerning nurses and domestic workers in hospitals. It had been a wide range of agreement without resort to arbitration. He much regretted that in the last few months some members of the National Health Service had talked insistently of arbitration before negotiations had begun. That was as though there was an intention to disagree, and that arbitration was inevitable. There was every reason why the machinery of the industrial courts should not provide for compulsory arbitration, because arbitration, once it was made compulsory, meant that it was impossible to vary an award. If the award was imposed like a clamp, any mistake was immediately converted into fact and caused the most irritating conditions for both sides. Nothing new was being done in the clause. All the Government sought to do was to provide for ultimate machinery in the event of a breakdown. He could not agree beforehand that everything should go to arbitration. The Spens Committee was not arbitration. It might be much better to have an inquiry to lay down general principles, guiding any future agreement on a particular matter.

Arbitration

Mr. LINSTEAD asked whether the Minister felt he should refuse arbitration when the other party in a dispute desired it.

Mr. BEVAN said discussions were still going on about the nature of the agreement. When those discussions took place the question of arbitration would arise and would be written into whatever agreement might be reached. All the Bill did was to give powers to enable an agreement to be made. The Committee was not writing an agreement into the Bill. To insert an arbitration clause would not be proper, because the present clause covered every element in the National Health Service and it was necessary that the Ministry should have power from Parliament to enable the machinery to be established. He recalled the case of the Burnham machinery where, after discussions between both sides, a report was made to the Minister of Education, who might or might not implement it. If both sides agreed to go to arbitration, obviously the Minister of Health would accept the consequences of the arbitration. It was much better that in each particular case what should go to arbitration should be decided in regard to the circumstances and not beforehand. The fixing of fees was not a matter upon which the Ministry of Health could agree beforehand to go to arbitration. It was much more complicated. The Government could not, over the vast field of National Health expenditure, say beforehand that Parliament should put it out of its power to consider the fiscal consequences of an arbitration. That was why he did not agree beforehand to compulsory arbitration over the whole field. The Committee should not say beforehand that neither the Chancellor of the Exchequer, nor the Government, nor Parliament, but someone else should determine the operation of public revenue and public expenditure. The fact that regulations had to be made implied the right of the House of Commons to refuse these regulations. Mr. Bevan asked if they wanted to put this outside the power of the elected representatives of the people to decide and to have a Fascist set-up. Only in most exceptional circumstances would the House of Commons throw out a regulation reached after arbitration, yet it must have that residual right.

Sir Lionel Whitby's Letter

Mr. ELLIOT said Mr. Bevan had made a statement in convincing language about the necessity for leaving discretion to the Minister when dealing with claims which might result in demands on the public purse. But the contrary opinion seemed to have arisen in the minds of responsible persons in the medical profession. Since there had been arguments on the channels of information by which the Opposition could legitimately ascertain opinion outside the Committee, Mr. Elliot said the responsible person whom he cited was Sir Lionel Whitby, the retiring president of the British Medical Association. He quoted a letter by Sir Lionel appearing in *The Times* of June 20 which said that in proposals issued in October, 1947, the Government had stated that they were anxious to accord the fullest rights to arbitration, subject to preservation of the Government's prerogative. Sir Lionel had added that it seemed the Government had forgotten a pledge given to the medical profession before the start of the National Health Service. That letter had led to a resolution passed at Harrogate recording with regret that the Minister and Ministry had shown little or no desire for co-operation with the profession in its efforts to serve the public, that they had met the profession's suggestions with indifference and procrastination, and that they had been guilty of breach of faith. Mr. Elliot took it that Mr. Bevan felt his conscience was entirely clear in the matter. His argument, however, was not written on a clean sheet of paper. It came at the end of long negotiations in which it would be most unfortunate if any suggestion of breach of faith were not immediately dispelled.

Sir HUGH LUCAS-TOOTH said that, whereas a doctor employed on his own account could go to arbitration and demand that the decision of the arbiter should be enforced, yet as soon as he had access to the bottomless purse of the State he must become subject to the discipline of political decisions. Sir Hugh did not quarrel with the assertion of Mr. Bevan that, subject to the control of the House of Commons, he must retain control of these decisions, but there was a difference, as between the two sides, in arbitrations under the Bill. If the employer wished to insist on arbitration he could, under the clause, see it was made compulsory, whereas the employed could not insist that a grievance should be the subject of arbitration and that the arbitration should be put into force unless the employer consented. That was inherently unfair and undesirable. The medical profession had understood it had received a promise from Mr. Bevan that it would have a right to insist on arbitration equal with the right of its employers. It seemed to Sir Hugh

that Mr. Bevan had not fulfilled those terms, and the Committee should inquire how Mr. Bevan proposed that doctors, nurses, and all concerned were to be treated fairly in the fixing of their conditions of service. *Sir Hugh* asked if the clause meant that either side could refuse an arbitration, or that only the Minister could do so. He believed that the latter was the case.

Mr. LINSTEAD said it was a good thing to take negotiations on salaries out of the hands of the Minister, so that the Minister would be removed from day-to-day friction with the people with whom he was concerned.

No Compulsory Arbitration

Mr. BEVAN said he did not attach undue weight to the adjectives contained in the resolution of the conference of the British Medical Association. That was a very adjectival body, incapable of passing a resolution except in terms of hyperbole. It did not intend every word to be taken seriously. He could tell a tale of procrastination which would show he was the most badly used man in Britain. Part of the difficulty of the Ministry was to get the members of the medical profession to act with more expedition. Their machinery was so cumbrous that months passed before any decision was received from them. Their negotiating committee was never entrusted with negotiating powers, and the profession had prided itself that the negotiating committee had no power to settle with the Minister. Mr. Bevan said he had tried to come to a conclusion on specialists' terms of remuneration, but month after month went by and the profession was quite incapable of reaching a decision. The clause merely enabled machinery to be set up under the two Acts to which the clause referred. Once it had been accepted and the medical profession had joined the Whitley machinery, disputes would be settled in accordance with the Acts. In these there was no provision for compulsory arbitration, nor did Mr. Bevan think that there should be. Negotiations still continued on the agreement under which doctors would share in the Whitley machinery. There could be no charge of breach of faith until a conclusion had been reached, and the letter of Sir Lionel Whitby should not have been written in such terms. The difficulty was that professional persons reached precipitate conclusions and rushed into the Press.

The October, 1947, proposals to which Sir Lionel drew attention did not differ from what Mr. Bevan had said on the previous day. Mr. Bevan declared that he had not altered his statement that a code of conduct was unlikely to be arbitrable, but a simple proposal for a change in wages or salaries almost certainly was arbitrable. Under the two Acts mentioned in the clause mutual consent was necessary before arbitration. He could not take the medical profession to arbitration if it did not wish to go, nor could the profession take him if he did not desire to go. If arbitration were known to be at the end of the road from the beginning, then all would go to arbitration straight away. Instead of talking about arbitration in every case the Ministry should negotiate with the representatives of the medical profession the terms to be agreed. The medical profession should come forward from time to time with their proposals and try to settle them by negotiation. If that was not possible, they and the Ministry should decide what means could be adopted to reach a mutually acceptable conclusion. Those means might not be arbitration. It might be better to have an inquiry or to refer matters to a quasi-judicial professional body for consideration and statement of principles. He wanted to leave the question as open as possible. He appreciated that discussion on the point had been necessary.

Mr. HOWARD said Mr. Bevan had complicated the matter by saying that in arbitration procedure it was necessary to agree on what was to be referred. If Mr. Bevan would give a clear assurance that either party should have the right to refer an unsolved matter to a second independent and impartial body he would receive the whole-hearted support of all professional men and women.

The Industrial Court and the N.H.S.

Mr. BEVAN pointed out that the Minister of Labour was the person concerned under the Conciliation Act. Section 2 of that Act envisaged a battery of agencies by means of which settlement might be brought about by mutually agreed arbitration, and he did not think there was any reason to apprehend that this elaborate machinery would fail. He added that the Government desired to establish a special division of the Industrial Court to deal with the National Health Service and so to create a body of people with special knowledge of that service which would eventually obtain the confidence of everyone concerned. The Minister of Labour would ensure that those appointed had experience of other fields of arbitration. In very few instances would regulations be needed to give effect to any decisions. Only three situations could ultimately arise. The applicants could withdraw their application, in which case the original situation would be revived. They could agree to arbitration. They could agree to accept the Minister's fiat. These were the limitations of reality. No machinery could be more flexible than that which he had described. If the representatives of the profession got themselves into a position where they could only have recourse to arbitration or accept the decision of the Minister, that would be defective negotiation.

Mr. ELLIOT asked whether there was not a fourth course open to the applicants—withdrawal of labour.

Mr. BEVAN suggested there was not, and that members would not believe that a set of professional workers who had been offered arbitration would prefer to strike rather than to accept it. To cease work would be the abandonment of all machinery.

Dr. HADEN GUEST said Mr. Bevan had put his finger on the spot when he talked of special machinery. The machinery devised for the call-up of doctors for war service, working by conciliation, understanding, and agreement, had done most valuable work. A parallel kind of machinery should deal with the special difficulties of the medical profession. In very few cases would arbitration have to be considered.

Mr. ELLIOT referred to Sir Lionel Whitby's letter and said it was the Minister's business to see that such misunderstandings did not arise.

Mr. BEVAN said it was ridiculous to say that the duty of the Minister was to remove misunderstandings on the benches opposite. In some cases a neurologist would be required—not a Minister.

Mr. ELLIOT suggested Mr. Bevan was thinking of a psychologist—not a neurologist. The apprehension had been left not only in the mind of the president of the British Medical Association but in the mind of the Association itself.

Mr. BEVAN asked whether the Opposition desired compulsory arbitration in all cases. Compulsory arbitration was not in the Whitley machinery. A misunderstanding had arisen in the mind of the medical profession: they had confused temporary war legislation with pre-war Acts and with the machinery which the Government was setting up.

Mr. ELLIOT said it was a great pity that as late as June 20 of this year the negotiating body should still be in doubt over what had been proposed to them as long ago as October, 1947. The Minister had just said that a simple proposal for a change in wage or salary rates was almost certainly arbitrable. That was bound to reassure those who had read Mr. Bevan's declaration of the previous day that the fixing of fees in certain circumstances was not a matter on which the Ministry could agree beforehand to go to arbitration. The Minister apparently had in mind that some other proceeding might be applicable, but those who had read his statement could easily take it to mean "I will make a decision and announce it."

Mr. BEVAN said that if clarity was needed by members of the medical profession they could easily obtain it by entering into an agreement with the Government under the Whitley machinery when the clause was part of the Act. This was an enabling clause, and what would be done under it was a matter for negotiation between the Government and the representatives of the medical profession.

Mr. ELLIOT said that in practice the medical profession had been able to work such things very well. The setting up of a committee to decide under what circumstances the Conscription Acts should apply to them had been a shining triumph of voluntary co-operation. In the present matter the medical profession was in a position where they had to negotiate with an all-powerful employer who could legislate. That employer was negotiating with a body of employees who had declared

that under no circumstances would they ever go on strike. The profession desired the assurance, and had that day received a certain amount of it, but it was undesirable that the Minister should deal with the point about procrastination and not with the point about breach of faith. The doctors were negotiating under different circumstances to those of any other profession. Men who held in their hand life and death could not go on strike, and therefore at the end of the day must fling themselves upon the compassion of the Minister.

Mr. BEVAN said that under the 1946 Act the doctors were not in contract with the Crown, but with the regional hospital boards and executive councils. The Minister could not be indifferent to the demands made upon the Chancellor of the Exchequer over so wide a field. He asked Mr. Elliot to say whether he thought that in this field there should be compulsory arbitration.

Mr. ELLIOT replied that everyone who had spoken on the Opposition side had said "No," and he too said "No." What the Opposition was trying to do was to secure for the benefit of the Service something to replace compulsory arbitration, which all sides agreed it was not possible to use. The suggestion of Mr. Bevan that it was desirable to create a special section of the Industrial Court concerned with the National Health Service was an advance, but he begged him to consider that the necessity for a reassurance still remained.

The clause was then ordered to stand part of the Bill without a division.

Resumption of Practice

On the motion that Clause 13 (removal from lists of persons who do not provide services) stand part of the Bill Mr. LINSTEAD asked what assurance a dental practitioner had that if he was taken off the lists on ceasing to provide dental services for persons in that area he would be replaced on the lists when he resumed the provision of such a service. In the clause it looked as though someone who had been disqualified would not have the automatic right of returning to the list when he resumed practice.

Mr. BEVAN said that if such a practitioner wished to come back he could have his name put up—an illustration of the fact that the Minister had got to take him but that he was not bound to come.

Sir HUGH LUCAS-TOOTH asked whether the clause would not be used as a means of disqualifying practitioners who wished to take only a small share in the public service.

Mr. BEVAN replied that the executive councils had reported that it was confusing when general practitioners who left the district entirely or did not practise at all still had their names up, and the Ministry had no way of removing these names.

Mr. LINSTEAD said he understood that what the Minister said meant that a man's name was removed but that he was not disqualified. Mr. BEVAN indicated assent to this, and Mr. LINSTEAD said he was satisfied. The clause was then ordered to stand part of the Bill, as were Clauses 14 and 15.

Mr. BEVAN, proposing a new clause concerned with the superannuation of officers of certain hospitals, explained that the Ministry had contracts of service with hospitals which did not come within the ambit of the National Health Service but of which he wished to make use. Such hospitals found it difficult to get staff because people who went outside the National Health Service lost their superannuation rights. This clause was read a second time and added to the Bill.

Mr. BEVAN then proposed a further new clause concerned with superannuation of certain officers of Government departments. He said that the Government desired to have the utmost mobility within the Government service, so that doctors could move freely about in that service, particularly in the case of the Colonial service. The peculiar situation was arising that because of the success of preventive health services in countries like Great Britain many doctors had not as much clinical experience as formerly of epidemic diseases. The Government desired that they should be able to take part in the Colonal medical service and come back to the National Health Service carrying with them their superannuation rights. This clause was added to the Bill, and the Committee adjourned until July 5.

London Waiting-lists

Answering Mr. PLATTS-MILLS on June 23 Mr. BEVAN furnished these waiting-lists of the London Regional Hospital Boards. He added that a very large proportion of the waiting-lists consisted of ear, nose, and throat cases, the majority of them awaiting tonsillectomy.

	Medical	Surgical	Ear, Nose, and Throat	Tuber-culosis	Others	Total
N.W. Metropolitan	1,150	14,386	7,000	1,438	483	24,457
N.E. Metropolitan	453	9,344	6,259	1,053	4,172	21,286
S.E. Metropolitan	617	5,719	10,129	1,128	5,709	23,293
S.W. Metropolitan	853	7,934	8,032	1,098	3,066	21,033
						90,069

Non-paying Patients in Pay-Beds.—Mr. COLLINS asked Mr. Bevan on June 23 to draw the attention of Regional Hospital Boards to the importance of ensuring that priority in the allocation of private wards was given to non-paying patients who were in need of privacy on medical grounds. Mr. BEVAN said his information was that Boards already followed this practice. In 69 hospitals having 847 private pay-beds, 342 were at the time of his inquiry occupied by non-paying patients on medical grounds.

Universities and Colleges

UNIVERSITY OF LONDON

A Special University Lecture on "Normal and Pathological Physiology of the Kidney" will be delivered by Donald D. Van Slyke, Ph.D., Sc.D. (Rockefeller Institute for Medical Research), at the London School of Hygiene and Tropical Medicine, Keppell Street, W.C., on Monday, July 18, at 5.30 p.m.

The degree of Ph.D. in the Faculty of Medicine (Non-clinical) has been awarded to S. De, M. A. El Meheiri, S. El D. M. Salama, A. S. Sinha, S. Manheim.

UNIVERSITY OF WALES

The following candidates for the degrees of M.B., B.Ch. at the Welsh National School of Medicine have satisfied the examiners at the examination indicated:

PATHOLOGY AND BACTERIOLOGY.—D. F. Brown, Josephine J. Candy, L. M. Charles, D. E. Copas, B. M. Davies, Ifid M. L. Davies, *J. M. S. Dixon, J. L. A. Dowse, D. R. T. Evans, D. W. Evans, J. Evans, B. M. Frost Smith, B. J. Fudge, S. G. Gang, Nansi G Gwynne, A. J. Hooper, D. T. Jones, Mary E. V. Jones, J. Magell, T. M. Morgan, W. B. Morgan, E. D. Morris, T. L. Morris, D. Phillips-Miles, Dilys Rees, J. W. Rees, D. B. Scourfield, A. P. Thomas, Margaret E. Thomas, Margaret H. J. Thomas, Anne G. Tighe, D. S. Wood.

*With distinction.

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council held on June 17 the following appointments were made: *Part-time Lecturer in Neurology and Clinical Teacher:* James Carson, M.B., M.R.C.P. (to be held concurrently with his part-time Lectureship in Psychology). *Part-time Clinical Teachers in Medicine:* K. J. G. Milne, M.D., D.P.H., E. G. G. Rhind, M.B., Ch.B., M.R.C.P. *Part-time Clinical Teachers in Surgery:* J. T. Chesterman, F.R.C.S., F.A.C.S., F. J. P. O'Gorman, F.R.C.S.Ed., M.R.C.O.G., S. Pappworth, M.B., M.Ch.(Orth.). *Part-time Lecturer in Obstetrics and Gynaecology and Clinical Teacher:* David H. Lees, F.R.C.S.Ed.

UNIVERSITY OF BRISTOL

J. S. Baxter, M.A., M.Sc., M.D., F.R.C.S.I., Senior Lecturer in Anatomy, has been elected Reader in Anatomy in the University, from Aug. 1.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Mr. Norman Shenstone, M.D., Hon.F.R.C.S., will deliver the Tudor Edwards Lecture at the College (Lincoln's Inn Fields, London, W.C.) on Wednesday, July 13, at 5 p.m. His subject is "The Treatment of Bronchiectasis."

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 18. [No. 24

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	22	2	18	2	1	45	8	14	6	1
Deaths		—	—				—	1		
Diphtheria	82	10	28	5	10	158	15	56	11	3
Deaths	—	—	1	—	1	1	—	—	—	—
Dysentery	57	5	29	1	2	91	16	41	2	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	—	—	—	—	—	1	—	—
Deaths		1					2			
Erysipelas			22	5	2			34	8	6
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				44					23	
Deaths	33	1	4	1	1	45	4	3	1	3
Measles*	9,152	908	419	259	132	10,624	755	188	151	67
Deaths†			—	—	—			1	1	—
Ophthalmia neonatorum	39	4	6	3	—	53	4	21	—	1
Deaths										
Paratyphoid fever	38	1	—	—	—	8	—	—	1 (B)	—
Deaths	—	—	—		—	—	—	—	—	—
Pneumonia, influenzal	426	18	6	3	6	456	19	1	3	1
Deaths (from influenza)‡	4	—	1	—	—	3	—	—	2	—
Pneumonia, primary			147	23				161	30	
Deaths	159	31		8	5	156	23		6	9
Polio-encephalitis, acute	3	2				—	—			
Deaths										
Poliomyelitis, acute	35	4	2	2	—	15	—	3	3	—
Deaths§	5	—				—	—			
Puerperal fever		—	2				—	8		—
Deaths										
Puerperal pyrexia‖	99	13	5	1	—	96	10	8	—	2
Deaths		—					—			
Relapsing fever	—	—			—	—	—	—		—
Deaths										
Scarlet fever	930	73	196	74	53	1,542	107	374	62	41
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	8	5	—	—	1	7	—	—	1	—
Deaths	1	1	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	2,253	111	101	100	83	3,086	273	40	105	17
Deaths	5	—	2	1	—	6	—	—	1	1
Deaths (0–1 year)	256	32	46	33	4	295	32	35	14	14
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	*4,193*	*619*	*623*	171	94	4,178	635	536	186	109
Annual death rate (per 1,000 persons living)			12·5	10·6				10·8	11·6	
Live births	8,201	1307	968	395	249	8,565	1412	1074	434	264
Annual rate per 1,000 persons living			19·4	24·5				21·7	27·1	
Stillbirths	188	27	21			211	16	32		
Rate per 1,000 total births (including stillborn)			21					29		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales, Eire, and Northern Ireland.

EPIDEMIOLOGICAL NOTES

Paratyphoid Fever in North Durham

Since the beginning of June eighty-one infections with *S. paratyphi-B* have been recognized in North Durham. All those so far tested have been phage type 3a. The infections fall into two main groups. In the Jarrow-Hebburn-Boldon area 74 cases have been investigated. The first case occurred on May 25, and the majority of clinical cases began during the following week. The severity of the disease has varied considerably. In 10 patients the illness was moderate to severe and the condition of three gave rise to anxiety, though there have been no deaths. In the remainder the disease has been mild or trivial; and in nearly half there were no symptoms, the infection being recognized only in the course of examination of contacts. Cream cakes appear to have been the cause of the primary infections. Two symptomless infected persons have been detected in the bakery concerned, though it is not yet known whether they are true carriers or recent infections. One of these, a baker who makes the cream cakes, excreted the organism in his urine. It appears that the primary source of infection has ceased, but further secondary cases are probable, since the cakes believed to have been infected had a wide distribution. In the Sunderland area seven infections have been recognized in five families. No connexion has been established between these families and those infected in the Jarrow-Hebburn outbreak, and no vehicle of infection has been discovered. Variations in the clinical picture have been similar to those found in the Jarrow-Hebburn outbreak. There have been no deaths.

Poliomyelitis in Cornwall

Twelve cases of poliomyelitis have been notified during the last 14 days (up to July 4) in the Redruth-Camborne urban district. Eight of these cases were from the village of Illogan, four in one family. Only five of the patients have developed paralysis, and one child, aged 2½, has died. Of the 12 cases so far notified, nine are in the 1–5 age group.

Quarterly Returns for Scotland

The birth rate during the March quarter of 1949 was 19.0, being 0.8 below the rate for the first quarter of 1948. The infant mortality rate of 50 per 1,000 registered live births was 1 below the rate for the corresponding quarter of the preceding year and 15 below average of the first quarters of 1944–8. The general death rate at 15.1 per 1,000 was 2.0 more than in the first quarter of 1948 and 0.3 above the average of the five preceding March quarters. There were 356 deaths attributed to the principal epidemic diseases, the largest totals being 280 from influenza, 45 from whooping-cough, 14 from cerebrospinal fever, 7 from measles, and 6 from diphtheria. The death rate from all forms of tuberculosis was 78 per 100,000 and from respiratory tuberculosis 70. The former rate is the same as that for the first quarter of 1948, but the latter is 4 more than the corresponding figure for 1948. These rates were respectively 4 less and 5 more than the average of the five preceding first quarters.

Discussion of Table

In *England and Wales* there was an increase in the number of notifications of whooping-cough 447, acute poliomyelitis 18 and paratyphoid fever 14. There were decreases in the incidence of scarlet fever 160 and measles 97.

The largest increases in the notifications of measles were London 107 and Lancashire 98; the largest decreases were Derbyshire 134 and Kent 104. A fall occurred in the incidence of scarlet fever in all areas except the south-eastern counties, where there was a slight rise; the largest fall was 46 in Lancashire.

The chief feature of the returns for diphtheria was an increase of 6 in London. The largest rises in the incidence of whooping-cough were Lancashire 99 and Yorkshire West Riding 53.

A further 28 cases of paratyphoid fever were notified from the outbreaks in Durham, referred to above, where 15 cases

were reported last week. The largest returns during the week were Jarrow M.B. 13 and Hebburn U.D. 7.

A small decrease in the incidence of dysentery was recorded in every area except Lancashire. The rise there was due to the experience of Liverpool C.B., where the cases increased from 8 to 26.

In the rural district of the Isle of Wight 82 cases of food poisoning were notified. A further 25 cases of food poisoning were notified in Northumberland, Hexham U.D.; 25, 4, and 24 cases have been notified in this town during the past three weeks.

In *Scotland* decreases were recorded in the notifications of measles 157, whooping-cough 27, and dysentery 22; an increase was reported for scarlet fever 16. The decrease in the incidence of dysentery was due to the city of Glasgow, where the cases notified fell from 34 to 18.

In *Eire* increases occurred in the notifications of measles 42, whooping-cough 24, scarlet fever 11, and diarrhoea and enteritis 23. The largest of the fresh outbreaks of measles was at Kerry, Listowel R.D. 49. In Dublin C.B. notifications of measles were 36 fewer than in the preceding week, but an increase was recorded for other infectious diseases in this city.

In *Northern Ireland* increases were reported in the notifications of whooping-cough 20, scarlet fever 9, and diphtheria 7, with a decrease of 27 in the incidence of measles.

Week Ending June 25

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,137, whooping-cough 2,181, diphtheria 73, measles 6,863, acute pneumonia 334, cerebrospinal fever 26, acute poliomyelitis 48, dysentery 66, paratyphoid 31, and typhoid 8.

The Services

Major-General K. A. M. Tomory, C.B., O.B.E., late R.A.M.C., has been appointed Honorary Physician to the King in succession to Major-General W. Foot, C.B., M.C., who has retired.

DEATHS IN THE SERVICES

Colonel ALFRED ROSENBLOOM, late I.M.S., died on June 1 at the age of 47. A native of Edinburgh, he graduated M.B., Ch.B. there in 1923 and took the Liverpool D.T.M. in 1929. In 1925 he joined the Indian Medical Service, and he retired in 1947 with the honorary rank of colonel. He leaves a widow and two young children.

Lieut.-Colonel E. J. Curran writes: His many friends in the Services will learn with much regret of the recent death of "Rosie" or "Blossom," as he was known to many of us. A cheerful kind-hearted man who loved his work, he was popular alike with colleagues and patients and was always prepared to give of his best. We have lost a good comrade and reliable colleague.

Surgeon Rear-Admiral WILLIAM WALLACE KEIR, who was formerly in charge of the Royal Naval Hospital at Haslar, died on June 12 at the age of 72. A student at Glasgow University, he graduated M.B., Ch.B. in 1898. During the early part of the 1914–18 war he was medical officer of the minelayer *Iphigenia*. He served at Jutland in the *Warspite*, and from December, 1916, he was senior medical officer of the hospital ships *Rewa* and *China*. He was made a C.M.G. in 1918 and was a Chevalier of the Legion of Honour. After the war Keir was squadron medical officer of the First Battle Squadron and the Battle Cruiser Squadron, and was later in charge of the hospital ship *Maine*. After service in China in charge of the Hong Kong Naval Hospital, he was transferred in 1932 to the Royal Naval Hospital at Haslar, where he succeeded Surgeon Rear-Admiral H. C. Whiteside. In 1934 he was appointed honorary surgeon to the King, and he retired in 1935.

The National Office of Vital Statistics in the U.S.A. has recently reported that the maternal mortality rate for the United States in 1947 was 1.3 per 1,000 live births. This is said to be the lowest reported for any nation. The State with the lowest rate (0.6 per 1,000 live births) was Minnesota.

Medical News

Nuffield Professor of Orthopaedic Surgery

Dr. Joseph Trueta has been appointed Nuffield Professor of Orthopaedic Surgery in the University of Oxford.

Dr. Trueta, who is 51 years old, was born in Barcelona and graduated at the University of Barcelona in 1921, proceeding M.D. the following year. In 1933 he was appointed assistant professor of surgical pathology in the University, and in 1935 succeeded Professor E. Ribas-Ribas as Chief Surgeon to the Hospital de la Santa Creu i Sant Pau, Barcelona, bearing the title of Professor of Surgery. During the Spanish Civil War he gained wide experience there in the treatment of casualties, and developed the closed-plaster technique of treating compound fractures. He came to Britain in 1939, and since then has been working at the Wingfield-Morris Orthopaedic Hospital at Oxford and hospitals associated with it. In 1940 he was appointed to the staff of the Wingfield-Morris Hospital in the capacity of adviser to the Ministry of Health, and from 1942 to 1944 he was in charge of the accident service at the Radcliffe Infirmary, Oxford. Oxford University made him an additional Member of the Faculty of Medicine in 1949. Among his earliest papers on war surgery published in this country was "War Fractures Treated by the Closed Method," which appeared in the *British Medical Journal* of Dec. 2, 1939 (p. 1073). More recently he has studied the renal circulation, and in particular the vascular short-circuiting mechanism and its relation to cortical ischaemia. This work was recorded in a monograph, *Studies of the Renal Circulation*, by himself and his colleagues published in 1947.

Guy's Hospital Honours Lord Nuffield

Lord and Lady Nuffield were present at Guy's Hospital on June 29, when Lord Goschen unveiled a statue of Lord Nuffield by Mr. Maurice Lambert. This was the outcome of a resolution by the Court of Governors in 1944 to mark "their profound appreciation of his manifold benefactions to the hospital, of his inestimable services as its treasurer, and of his never-failing interest in the progress of medicine." The cost of the statue was met by subscriptions limited to the governors and staff of Guy's and to men and women trained there. The intention is that the statue will stand in the new hospital, but in the meantime it has been placed in the west quadrangle. The ceremony was performed in the presence of many distinguished visitors and of large numbers of nurses, students, patients, and their friends. In his speech Lord Goschen thanked Lord Nuffield for his many benefactions to Guy's, among them his gift of £250,000 for rebuilding, and for his services to medicine. In reply Lord Nuffield said that in his travels he had found that Guy's Hospital was renowned throughout the world.

R.A.M.C. Book of Remembrance

The Book of Remembrance, which records the names of 437 officers and 2,026 other ranks of the Royal Army Medical Corps killed in the second world war, was dedicated by the Dean of Westminster at Westminster Abbey on June 27. The ceremony, which took place after evensong, was held beneath the R.A.M.C. window which was unveiled in 1922. Among those present were Lieutenant-General Neil Cantlie, Director-General Army Medical Services, and officers and other ranks of the R.A.M.C.

Recognition for Bravery

The *London Gazette* has announced the appointment as M.B.E. (Civil Division) of Dr. W. J. L. Sladen, Medical Officer, Falkland Islands Dependencies Survey, for courage and fortitude in hazardous circumstances when isolated in Graham Island.

Bilharzia Film

Two films about bilharzia were shown at the London School of Hygiene on June 30. Professor G. Macdonald introduced Mr. K. M. Goodenough, the High Commissioner for S. Rhodesia, who explained that the films had been prepared by the Health and Public Relations Departments of the Government

of S. Rhodesia. The first film, "The African Schistosomiases," was intended for the instruction of doctors and health workers, while the second film, "Still Waters," was for public education. In both films emphasis is placed on the prevention of infection. "The African Schistosomiases" runs for about fifty minutes and gives a full account of the life cycle of the parasites, the pathology of the disease, methods of laboratory investigation, treatment, and prevention. "Still Waters" is a shorter film, illustrating in a convincing way, with the help of actors, the dangers of carelessness and the precautions which should be taken to avoid infection.

British Doctors Honoured in New York

At the banquet of the Seventh International Congress on Rheumatic Diseases held at the Waldorf-Astoria in New York recently the following were presented with Diplomas of Honorary Membership of the American Rheumatism Association: Dr. C. W. Buckley, Dr. J. B. Burt, Dr. D. H. Collins, Dr. W. S. C. Copeman, Professor L. S. P. Davidson, Dr. J. A. Glover, Lord Horder, Dr. G. D. Kersley, and Dr. W. Tegner.

Wills

Dr. Louisa Hamilton, who was senior physician to the Elizabeth Garrett Anderson Hospital, left £21,169. Dr. Hugh Mundle Wilson, of Linton, Cambs, left £10,500; Dr. William John Young, of Kempston, Beds, £7,137; Dr. Matthew McLintock Bainbridge, of Birmingham, £2,283.

COMING EVENTS

Maternal and Child Health in India

A lecture on this subject will be given by the Hon. Rajkumari Amrit Kaur, Minister of Health to the Government of India, at the Royal College of Obstetricians and Gynaecologists, 58, Queen Anne Street, London, W.1, on Monday, July 11, at 5 p.m. Admission is by ticket only; these can be obtained from the secretary.

Netherne Psychiatric Hospital

An exhibition of paintings by patients of Netherne Psychiatric Hospital, Coulsdon, Surrey, will be formally opened by the Countess of Limerick at 1, Grosvenor Crescent, Hyde Park Corner, London, S.W., on Monday, July 11, at 12 noon. The exhibition will remain open until July 16, from 10.30 a.m. to 4.30 p.m. daily (Saturday, 10.30 a.m. to 12 noon). A lecture will be given each day at 3 p.m.

Osler Club

A dinner will be held by the Osler Club at the Royal College of Surgeons on July 12 at 7.15 p.m. for 7.30. Mr. Gilbert Frankau will deliver the Oslerian Oration on "Are We Over-doctored?—A Centennial Reflection."

International Congress of Otolaryngology

The fourth International Congress of Otolaryngology will be held at King's College, Strand, London, W.C., from July 18 to 23, and will be opened by the Duchess of Kent on Monday, July 18, at 11 a.m.

SOCIETIES AND LECTURES

Monday

LONDON UNIVERSITY: INSTITUTE OF CHILD HEALTH.—At Hospital for Sick Children, Great Ormond Street, London, W.C., July 11, 5 p.m., "*The Artificial Kidney*," Alexander Simpson-Smith Lecture by Professor Gordon Murray, Associate Professor of Surgery in the University of Toronto.

Tuesday

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., July 12, (1) 11 a.m., "*Urethritis due to Protozoa, Metazoa, and Fungi*," by Dr. A. H. Harkness; (2) 5 p.m., "*Hydatid Disease and Bilharzia of the Urinary Tract*," by Mr. R. Ogier Ward.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—July 12, 5 p.m., "*The Role of the Aged in Modern Society*," F. E. Williams Lecture by Dr. J. H. Sheldon, F.R.C.P.

SOCIETY FOR THE STUDY OF ADDICTION.—At Medical Society of London, 11, Chandos Street, W., July 12, 4 p.m., "*The Alcohol Problem in Switzerland*," by Dr. Henri Revilliod (Geneva).

Wednesday

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., July 13, (1) 11 a.m., "*Traumatic Urethritis*," by Dr. A. H. Harkness; (2) 5 p.m., "*Stricture of the Urethra*," by Mr. J. E. Semple.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—July 13, 5 p.m., "*The Treatment of Bronchiectasis*," Tudor Edwards Lecture by Mr. Norman Shenstone, M.D., Hon.F.R.C.S.

ROYAL SANITARY INSTITUTE.—At 90, Buckingham Palace Road, London, S.W., July 13, 2.30 p.m., Discussion: "*Health Centres*," to be opened by Dr. J. A. Scott, W. J. Durnford, F.R.I.B.A., and Dr. A. Talbot Rogers.

Thursday

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., July 14, (1) 11 a.m., "*Ureteritis Due to Local Diseases of the Penis*," by Dr. A. H Harkness; (2) 5 p.m., "*Gonococcal Urethritis*," by Dr. W. N. Mascall.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS.—At Royal Society of Medicine, 1, Wimpole Street, London, W., July 14, 5 p.m., "*Caudal Anaesthesia*," by Professor R. A. Hingson (Johns Hopkins Hospital, Baltimore). Admission by ticket only.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—July 14, 5 p.m., "*Adventures in Metabolism*," Bernhard Baron Lecture by Professor John Beattie, M.D.

Friday

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—July 15, Part I, 3.45 p.m., "*Odontogenic Tumours of the Jaws*," Part II, 5 p.m., "*Osteogenic Tumours of the Jaws*," Charles Tomes Lecture by Professor Kurt Thoma (President, American Academy of Oral Pathology).

ROYAL SANITARY INSTITUTE.—July 15, 10.15 a.m., Visits to Messrs. Boots Pure Drug Co.'s Works at Beeston and to sewage disposal works and farm at Stoke Bardolph; 2.15 p.m., At the Guildhall, Nottingham, "*Atmospheric Pollution—the Present Position and Outlook for the Future*," by Alfred Wade; "*Sewage Disposal in Nottingham—Some Recent Developments*," by Hugh Lawson, B.Sc.

APPOINTMENTS

NEWNHAM, C. T., M.R.C.S., L.R.C.P., D.O.M.S., Medical Officer, Western Region, British Railways.

ST. ANDREW'S HOSPITAL, BOW, LONDON, E.—*Senior Resident Physician*, R. King Brown, M.D., M.R.C.P. *Assistant Specialist, Obstetrician and Gynaecologist*, S. Lask, M.D., M.R.C.O.G.

WEST, R., M.R.C.S., L.R.C.P., D.P.H., *Medical Officer* to the National Dock Labour Board's Medical Scheme for the Humber Ports.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Byrne.—*On June 17, 1949*, to Ruth (née Marle), wife of John W. Byrne, M.B., B.Ch., B.A.O., of The Barn, Rush Hill, Bath, a brother for Simon—Jeffrey Patrick.

Fiddian.—On June 26, 1949, at Warwick Hospital, to Audrey (née Maslin), wife of Dr. M. P. Fiddian, a son—Colin Paul.

Majury.—*On June 16, 1949*, at Johnstone House, Belfast, to Margaret (née Huss, S.R.N.), wife of Dr. Arthur S. Majury, a daughter.

Neve.—*On June 25, 1949*, at Guy's Hospital, to Elizabeth (née Hunt), wife of Richard Neve, M.B., B.S., a sister for Michèle.

Playfair.—On June 27, 1949, at Cambridge, to Margaretta (née Blakeston), wife of Dr. A. S. Playfair, a brother for David and Rodney—Quentin.

Smith.—*On April 30, 1949, in Singapore*, to Thorven, wife of Mr. T. E. Smith, a daughter.

MARRIAGES

Shield—Wood.—On June 3, 1949, at St. John's Presbyterian Church, Kensington, London, James Boyd Shield, M.B., F.R.C.S.Ed., Southampton, to Margaret Hay Wood, Aberdeen.

Zetzel—Guttmann.—On June 26, 1949, in London, Dr. Louis Zetzel, of Boston, Mass., U.S.A., to Elizabeth Guttmann (Dr. Elizabeth Rosenberg), widow of Dr. Eric Guttmann.

DEATHS

Lane.—*On June 20, 1949*, at Chevers Lodge, Ballybunion, Co. Kerry, Daniel Thomas Lane, M.D., Lieutenant-Colonel I.M.S., retired.

McAfee.—On June 13, 1949, at West Kirby, Duncan John McAfee, M.C., M.B., Ch.B., aged 63.

Maurice.—On June 19, 1949, at Manton Weir, Marlborough, Godfrey Kindersley Maurice, D.S.O., M.C., M.R.C.S., L.R.C.P., Colonel late R.A.M.C., aged 62.

McCarter.—On June 8, at the Royal Portsmouth Hospital, William Harold Raphael McCarter, M.B., B.Ch., of East Cottage, Hurstpierpoint, Sussex, late of Burgess Hill.

Mullings.—On June 12, 1949, William Thomas Mullings, M.D., of 27, Compayne Gardens, London, N.W., formerly of 84, Belgrave Road, London, S.W., and Dunsfold, Godalming.

Murray.—*On June 19, 1949*, at Bridge of Earn Hospital, Archibald C. Murray, M.B., Ch.B.

O'Malley.—On June 22, 1949, at Wharfedale, Canterlupe Road, Bexhill-on-Sea, John Francis O'Malley, M.Ch., F.R.C.S., aged 80.

Purves-Stewart.—*On June 14, 1949*, at 45, Edwardes Square, London, W., Sir James Purves Morison Purves-Stewart, K.C.M.G., C.B., M.D., F.R.C.P., aged 79.

Thwaites.—On June 10, 1949, at Old Acres, Ashtead, Surrey, Cyril Evered Thwaites, M.R.C.S., L.R.C.P., aged 74.

Any Questions ?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Hypertension and Functional Menorrhagia

Q.—*Is there any relationship between hypertension and the functional menorrhagia of the menopause? Could you please quote references?*

A.—There is no work on record which establishes the existence of such a relationship or which goes to show that hypertension alone ever causes any form of uterine haemorrhage. The idea was popular in the early part of this century, and throughout the literature of that time are phrases such as: "The significance of functional hypertension as a factor in uterine haemorrhage is obvious" (C. Culbertson, *Surg. Gynec. Obstet.*, 1916, 23, 667). Statements of this kind, however, are not supported by evidence. Although this view has gradually lost popularity and is now rarely mentioned in textbooks, it is difficult to find any reference to investigations which prove that hypertension does not cause uterine bleeding. Nevertheless, in most cases of "functional uterine bleeding" another cause can be demonstrated: a significant association between bleeding and hypertension is not noticeable in everyday practice, and uterine bleeding does not occur at the age when the blood pressure reaches the highest levels, therefore, after the menopause.

It might be argued that uterine haemorrhage may result if the hypertension is associated with arteriosclerosis affecting the uterine vessels. This again is an old view which was the basis of numerous articles earlier this century. Many of these were reviewed by E. Novak in *Menstruation and Its Disorders* (Gynaecological and Obstetrical Monographs) in 1921, and he concluded then that "no evidence has as yet been presented which, to my mind, justified us in ascribing more than an occasional role to this cause." Nor has such evidence been produced since that time.

Adrenaline and Blood Pressure

Q.—*Does the blood pressure rise or fall following the use of compound adrenaline injections, tablets, or inhalations for asthma? One preparation is advertised as causing a slow rise in blood pressure, whereas another is said to cause a rise rarely and a fall ordinarily. What is the effect of the isopropyl-noradrenaline compound?*

A.—Adrenaline when infused intravenously causes some rise of systolic pressure and some fall of diastolic pressure, as shown recently by Barcroft and Konzett (*Lancet*, 1949, 1, 148). When injected subcutaneously adrenaline has little effect on the blood pressure, and what effect there may be is similar to that of intravenous infusion. Given as a tablet by mouth, or when inhaled as a spray, adrenaline has no effect on the blood pressure as a rule. Isopropyl-*nor*-adrenaline causes a fall of blood pressure even when injected intravenously.

Estimating Basal Metabolic Rate

Q.—*Is Read's formula for estimating the basal metabolic rate reasonably accurate? Are there any other methods of estimating the B.M.R. without cumbersome and expensive apparatus?*

A.—For many years attempts have been made to find a mathematical correlation between pulse pressure and pulse frequency on the one hand and basal metabolism on the other. The earliest formula devised was that of Read (*J. Amer. med. Ass.*, 1922, 78, 1887). He claimed that if PR is the pulse frequency in beats per minute and PP the pulse pressure in millimetres of mercury, the expression 0.683 (PR+0.9 PP)−71.5 provided a figure which was within 20% of the basal metabolic rate (B.M.R.) in 91% of cases and within 10% in 60% of cases. Two years later he modified his formula to 0.75 (PR+0.74 PP)−72, and claimed that the result of this estimation was within 10% of the correct value in over 50% of cases (*Arch. intern. Med.*, 1924, 34, 553). Read's data were subjected to statistical analysis by Gale and Gale (*Lancet*, 1931, 1, 1287), who tested six different formulae and concluded that PR+PP−111 gave the best correlation, with an error not exceeding 20% in 74% of cases. From a study of his own records, Jenkins (*Arch. intern. Med.*, 1932, 49, 189) suggested that, for males, 0.534 PR+0.436 PP−62.55 and, for females, 0.75 PR+0.57 PP−72 gave the best fit, with a probable error of 9.9% when the Aub-DuBois standards of basal metabolism were used. Bene (*Lancet*, 1949, 1, 147) has raised the subject again by claiming that a more reliable guide is given by his "RP-Index." To obtain this the pulse and respiratory frequencies per minute are multiplied; the normal range is 1,100–1,500, with a mean of 1,296. The observed RP-Index, when stated as a percentage of the mean normal, lies within 10% of the B.M.R. in about 60% of cases.

These observations prove that there is an imperfect correlation between the B.M.R. and the pulse frequency and pressure. The figures given by the various formulae may give numerical expression to the degree of thyrotoxicosis in a rough fashion, but they are no substitute for careful and accurate estimation of the basal metabolism. In practice the B.M.R. estimation is useful in two situations: first, to confirm the diagnosis when some doubt exists; and, secondly, as a guide to progress. The formulae do not give a sufficiently exact correlation for diagnostic purposes and the patient's progress can usually be assessed by changes in his clinical state, pulse frequency, and weight. Thus Read's formulae and their successors never provide information to which much importance can be attached and if it seems desirable to know the patient's B.M.R. it must be estimated in the usual fashion.

Whooping-cough Vaccine

Q.—*Is it necessary to give booster doses of pertussis vaccine? If so, at what intervals, and in what doses?*

A.—If it is assumed that prophylactic vaccination is effective against whooping-cough, the primary course should be given as early as possible in infancy, since 10 to 20% of children are affected in the first year of life and more than half the deaths occur at this time. Little is known about the value of a booster dose or when it should best be given. Kendrick and his colleagues (*Amer. J. Dis. Child.*, 1946, 72, 383) found that the defence mechanism, as tested by the opsonocytophagic reaction, was similar in groups of kindergarten children who had their primary vaccine one, two, three, or four years previously, and the antibody response to a further injection was the same in all four groups. The pertussis attack rate during the first two years' attendance at school was 0.7% among 408 immunized children who received a booster dose, 1.2% among 418 immunized children who did not receive a booster dose, and 6.4% among 829 children not previously vaccinated. A booster dose of, say, 1.0 ml. of vaccine would therefore seem to have some value and should be given two or three years after the primary course, or when the child goes to school.

Vitamin B_1 in Diabetes

Q.—*The carbohydrate tolerance of a male patient suffering from diabetes mellitus has improved since 10 mg. of vitamin B_1 were added to the morning and evening injections of insulin. How does vitamin B_1 act on the carbohydrate metabolism in a normal person and in a person suffering from diabetes mellitus?*

A.—This experiment has been tried by others without being followed by any reduction in the dose of insulin required. Experiences of this kind, which others have failed to confirm, have been reported with so many different substances that it is important to consider the reasons for the discrepancies. There are two, and possibly more, explanations: (1) The patient's health was improving at the time of the experiment, and this is responsible for the change in the dose of insulin and not the

new treatment. (2) The patient has been much more careful over the carbohydrate ration as a result of the new treatment, and consequently requires less insulin.

Travel in Italy

Q.—*What instructions should be given to a would-be traveller to Italy and Sicily this August, with special reference to (a) drinking tap-water, (b) inoculations, and (c) the possibility of contracting malaria?*

A.—*(a)* Except in the largest towns the drinking of tap-water should be avoided unless it has been boiled previously. *(b)* It would be as well to be inoculated against typhoid and paratyphoid. (c) If the traveller is staying only in the larger towns there is little or no risk of his becoming infected with malaria. If he proposes to stay in small towns or villages or to be in the country in the evenings he should take proguanil 0.1 g. daily during the time that he remains in the country.

Anaesthetics for Domiciliary Midwifery

Q.—*In obstetrics in general practice open ether has the disadvantage of inflammability. To what extent is this a danger—e.g., with open fires, paraffin lamps, etc.? If this is a real contraindication, what is the most satisfactory alternative anaesthetic for single-handed domiciliary obstetrics?*

A.—The danger of using drop-ether in proximity to an open fire is that of burning rather than that of explosion of the ether vapour. Although it is generally stated in the textbooks that a mixture of ether vapour and air is explosive, experts in this field are doubtful whether this is so in ordinary clinical practice. The danger of fire, however, is very real, and is doubly dangerous because the ether vapour burns with an almost invisible flame which may travel some distance without any warning and so set fire to distant inflammable objects. The alternative to ether in domiciliary midwifery is either chloroform or trilene. In view of our pharmacological knowledge of these drugs, trilene seems to be the safer. Adequate analgesia with trilene is easily provided by means of one of the many types of apparatus on the market for the purpose. In one of these (i.e., the Cyprane inhaler) the concentration of trilene inhaled by the patient can be increased, should the anaesthetist desire it, and thus general anaesthesia may be induced. An alternative arrangement is to use any gas–oxygen apparatus and to put the trilene in the ether bottle which is usually to be found on such an apparatus. The strength of trilene vapour delivered from the Freedman inhaler is unlikely (except in patients with very low resistance) to produce general anaesthesia.

Protecting a Stiff Thumb

Q.—*A patient has had an injury which has resulted in ankylosis of the interphalangeal joint of his right thumb. He is a very keen cricketer, and finds now that, although he can hold his bat adequately, his right thumb is exposed to frequent injury while batting. He has asked me whether any metal protectors for fingers which have suffered injury are available, and I could not tell him. Can anything more be done for him?*

A.—This is a problem which can probably best be solved by consultation between the patient and a skilled surgical appliance maker. Almost certainly some suitable protective covering for the thumb could be devised. It is possible that a thumb-stall of relatively soft leather, with steel reinforcement sewn into it along the dorsum and over the tip of the thumb, would be adequate.

Loss of Eyebrows

Q.—*What are the causes of loss of hair from the eyebrows? Is there any effective treatment? A male patient aged 29 has had patchy loss of hair from both eyebrows for the last two months. The patches are absolutely smooth and no broken hair can be seen; the skin in these areas is otherwise normal. There is no itching or soreness.*

A.—This case is almost certainly one of alopecia areata, but the location of the changes makes it important to exclude local factors or irritation, such as infection in adjacent sinuses or teeth or errors of refraction. It is more probable that the affection is merely a reaction in a sensitive patient to some constitutional disturbance following minor infection or metabolic or emotional disturbance. In that event the assessment of the patient in relation to his environment may be important, and the prognosis will be influenced by the patient's past history and family history in relation to alopecia, dermatological affections, and mental health.

It must be remembered that the great majority of cases of alopecia areata are transient and of little significance and recover spontaneously. General treatment is important, and a holiday in new surroundings would probably be beneficial. Local measures are not indicated except perhaps to obscure the bald areas by means of an eyebrow pencil.

NOTES AND COMMENTS

Urticarial Reaction to Penicillin.—Lieutenant-Colonel H. S. ANDERSON, R.A.M.C. (ret.), writes: With reference to the question and answer under this heading ("Any Questions?" *June 4, p. 1016*) the questioner may be interested in a personal experience. In March, 1948, I was given four injections of penicillin; the fourth one was given at my request. Nineteen days later urticaria appeared, was personally treated, and remained troublesome for about five weeks. In September, 1948, I received three injections of penicillin. Urticaria occurred on the thirteenth day, accompanied by strangury and haematuria. I was given an antihistamine drug by mouth for four days, but improvement was noticeable within 24 hours, and urine returned to normal rapidly.

Treatment of Asthma.—Major ERNEST SOYSA (Colombo) writes: The association of asthma and leucocytosis in the case mentioned in "Any Questions?" (April 23, p. 736) raises the interesting possibility of an eosinophilic reaction, even though this patient's previous allergic history may not be typical of the eosinophilic respiratory syndrome common in the Tropics. I have recently seen two similar cases, both patients were Englishmen in whom leucocytosis had been detected a short time previously in London, neither having derived any lasting benefit from various asthma treatments. I had their differential counts done: one had 15,000 leucocytes per c.mm. with 48% eosinophils, and the other had 17,900 leucocytes with 50% eosinophils. Examination of the sputum of one patient by a special technique[1] revealed tyroglyphid mites. Oral medication with pentavalent arsenic (carbarsone 1 tablet b.d. for five days, repeated after an interval of two days) produced the typical dramatic cure in both patients, who showed the Herxheimer reaction reported previously in the *Journal*.[2] A recent review[3] of a series of asthmatic cases (in Ceylon) with eosinophilia ranging from 1,000 to 50,000 cells per c.mm. disclosed occupational and environmental risks of inhaling airborne mites in 80% of the cases. Detection of mites in 62% of the sputum examinations undertaken was suggestive of pulmonary acariasis and confirmed the original findings[1] that led to this line of inquiry. Three series of control cases subjected to identical sputum tests gave negative results. Pathognomonic appearances of the eosinophilic respiratory syndrome were observed in 50% of the pulmonary radiographs studied. The strikingly effective therapeutic action of organic arsenicals was constant. A few workers in other lands have confirmed observations made in Ceylon on the association of this eosinophilic respiratory syndrome with pulmonary acariasis. Further studies of the aetiology and pathology are necessary, and will doubtless be forthcoming, in view of the world-wide interest that appears to have been created in this remarkable malady.

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1 Carter, H. F., Wedd, G., and D'Abrera, V. St. E., *Indian med. Gaz.*, 1944, 79, 163.
2 Soysa, E., and Jayawardena, M. D. S., *British Medical Journal*, 1945, 1, 1.
3 ——, *J.R. Army med. Cps*, 1949, 92, 1.

Correction.—H. K. Lewis and Co. are not the publishers of *Collected Papers: The Middlesex Hospital Medical School* (June 18, p. 1085).

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SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY JULY 9 1949

British Medical Association

ANNUAL REPRESENTATIVE MEETING, HARROGATE, 1949

TUESDAY, JUNE 28

On the last day the meeting resumed at 9.30 a.m., under the chairmanship of Dr. E. A. Gregg. The first business was to accord a hearty vote of thanks to a number of distinguished persons and organizations who had helped to make the stay at Harrogate so pleasant for the representatives. Those specially thanked included H.R.H. the Princess Royal and the Earl of Harewood, the Mayor and Corporation of Harrogate, and many others who had afforded hospitality and service, not least the doctors of Harrogate and their ladies.

The British Medical Guild

The Chairman of Council (Dr. H. Guy Dain), in reply to a request, described the progress of the British Medical Guild. The Guild had now been properly established. The board of trustees was constituted of members of Council who had signed the trust deed. Arrangements were in process for obtaining financial support. So far as general practitioners in the Service were concerned the method of collection was already in being. It had been referred to the Central Consultants and Specialists Committee and the Public Health Committee to consider the method to be used in those branches of the profession. In each area there would be a branch of the Guild with its own officers, who would be charged with making contact with all members of the profession.

The Record of Representative Meetings

Dr. C. R. Barrington (Bromley) moved that the meetings of the Representative Body should be recorded verbatim as in *Hansard* and be available for reference. His Division was dissatisfied with the length at which the Special Representative Meeting was published in the *Journal*, and thought that, though it would entail more expense, everything said should be recorded.

Dr. Hill (Secretary) said he would offer no opinion as to the desirability of this or the quality of the volume which would emerge, but it would be a very expensive procedure; and it would be unwise on financial grounds to adopt it unless it was thought that the volume would be published and sold in sufficient numbers to justify the expense.

Dr. G. Catherine Evans (East Kent) supported the Bromley proposal. Representatives took a grave responsibility in coming there, and at some future time they might be very thankful—or terribly embarrassed—if their actual words could be quoted.

Dr. Hill suggested that the report as it appeared in the *Journal*, the work of an experienced reporter of Association proceedings, was probably more useful than a verbatim record.

A representative suggested that any alteration should be in the direction of compression rather than extension. Members were apt not to read such proceedings, and the longer the reports the more likely they were to be unread.

Dr. Barrington said he had read reports of meetings which were accurate in wording but misleading in sense; he was casting no aspersions.

About half a dozen hands were held up in support of the Bromley motion, which was lost.

The next two motions were referred to Council. One was from Lanarkshire, calling for the consideration of measures for safeguarding the interests of practitioners who might in the future be called for service with the Forces, and the other from Westminster and Holborn, requesting the Council to consider the advisability of appointing a legal co-ordinating committee in view of the increasing complexity of legislation since the inception of the National Health Service.

A motion by Bradford which was put forward said the mover (Dr. R. H. Sunderland) with a desire to remove misunderstanding and doubts regarding the status of the British Medical Guild, asked the meeting to express the opinion that the only organization which could protect the interests of the general practitioner was one holding the certificate of the Registrar of Friendly Societies. Questions were raised as to whether such a motion was in order, on the ground that two months' notice had not been given, and that if the motion were implemented it would involve rescinding the decision reached at the Special Representative Meeting concerning the setting up of the British Medical Guild. The Chairman ruled it out of order.

PRIVATE PRACTICE

The Chairman of the Private Practice Committee, Dr. I. D. Grant, gave a summary of the several matters dealt with under this heading which appear in the Annual Report of Council, and said that notwithstanding the large section of business taken over by the General Medical Services Committee it was remarkable how many questions remained within the domain of his committee.

Allowances to Medical Witnesses

Dr. H. F. Hiscocks (South-east Essex), in view of the issue by the Home Secretary of new regulations amending the maximum allowances payable to medical witnesses giving evidence in criminal cases, considered that regulations under which maximum allowances were quoted, but not minimum, led to inequalities in remuneration and were unsatisfactory. He asked the Council to approach the Home Office with a view to a fixed scale of fees being laid down. After giving an instance of what had occurred to a medical witness in his Division, he said that they should demand the rectification of a state of affairs in which professional witnesses could be treated in an arbitrary fashion.

Dr. J. A. Gorsky (Westminster and Holborn) desired to strengthen the South-east Essex motion by adding: "This meeting also views with grave disquiet the action of the Home Secretary in instructing clerks of courts not to pay professional witnesses' fees to whole-time medical officers in hospitals and other health services." The Private Practice Committee had appointed three representatives to go to the Home Office to make representations on this subject. A request that such a deputation should be received was made four or five months ago, and they had not had the courtesy of a reply.

The motion, with the Westminster and Holborn addition, was carried.

The Doctor's Car

On the motion of Dr. J. M. Alston (City) the meeting expressed the view that the sign "Doctor" on motor-cars was now unnecessary and undesirable. Dr. R. Forbes (Hendon) moved to compliment the Council on the design of a car badge prepared in response to the resolution of last year and to restate the view that the badge should be made available forthwith to members of the Association. The purpose of the badge was to enable doctors to make themselves known to the police in a yellow-band area and unofficially to secure a certain amount of priority of treatment.

Dr. D. S. Saklatvala (West Bromwich and Smethwick) hoped that if the present meeting restated anything it would be that any badge was unnecessary and undesirable. Dr. J. B. W. Rowe (Harrow) said that if the badge were made available it would stop the sort of thing he saw the other day—a car with the word "Doctor" on the wind-screen, the port side, and the rear window.

Mr. A. Lawrence Abel (Marylebone) held that there should be something distinctive about a doctor's car. England was almost the only country where there was no indication whatever, except for that overdone word "Doctor." In most countries the registration board of the doctor's car was preceded or followed by the letters "M.D."

The Hendon motion was adopted.

Dr. H. H. Goodman (Newcastle-upon-Tyne) moved: "That this meeting is not satisfied that the profession receives a sufficient measure of priority in the delivery of new cars." The profession should insist on a return to some priority. Any doctor now using a pre-war car should be eligible for immediate supply of a new one.

Dr. Grant said he made no pretence that the car position was satisfactory, but it was not nearly so bad as Dr. Goodman would have them believe. In January of this year the position was so bad that the Association finally got the car manufacturers to agree to what was called a hard core of doctors' cars which really required replacement. The number of "hard core" cases submitted by the Association to the manufacturers was 3,290. The manufacturers took the matter up with the local agents, and as a result of their investigations they cut out 457 of these cases as not being justified. Since January 2,086 cars had actually been delivered, and they had an assurance that within a very short time the remaining 25% would be allocated to the profession. A debt of gratitude in this respect was owing to Dr. Potter, the Assistant Secretary, and his staff. Everything possible was being done.

Dr. P. C. McKinlay (East Yorkshire) moved as an amendment: "That the strongest possible pressure be applied by B.M.A. Headquarters to the appropriate Government Departments to obtain release of cars for doctors instead of the method of persuasion through motor-trade channels." Cars essential for the National Health Service were the responsibility of the Ministry of Health, and it was for the Minister to put pressure on the appropriate Government Department. It was a blow to the prestige of the B.M.A. if members had to turn to other organizations to help them.

Dr. Grant said that the action suggested by this amendment had already been taken.

A representative said that the only way a fellow-doctor had been able to get his car was by being fined at Bow Street because his car was not fit to be on the road.

The East Yorkshire amendment was carried, with the addition of the words: "and instructs the Council to take positive action forthwith to remedy this situation."

Fees

Mr. H. W. Harvey (Marylebone) moved to call the attention of the British Red Cross Society, the St. John Ambulance Association, and the Home Office to the resolution passed at the last Annual Representative Meeting concerning fees for first-aid lectures and examinations (a minimum of one and a half guineas for each lecture, with mileage). This was in view of what was stated in the Annual Report of Council (para. 85). Dr. Grant said he understood that in the great majority of cases this was being carried out. If information was received of cases in which it was not being done action would be taken.

The Marylebone motion was referred to the Council.

Worcester and Bromsgrove desired that when a recruiting board was held in the evening the fee payable should be increased by one-quarter. The representative said that boards were held in the evening to avoid loss of working time to the recruit. Why not compensate the overworked doctor? Dr. Grant said it was not possible to get Territorial recruits for examination in the day-time. It would be difficult, having asked for this work, now to demand a higher fee. The cases were not many. It was agreed to pass to the next business.

Dr. Mona MacNaughton (Newcastle-upon-Tyne) drew attention to the inadequacy of the rate of salary offered to medical students of approved schools in view of the nature and amount of work entailed. She applied various criteria to enforce her argument that this work was underpaid. Among other points, the children were difficult, and it was not suitable for them to attend at the surgery.

Dr. Grant said he was very much in sympathy with regard to the capitation fee in this instance, but with regard to the time spent in the school, this had been estimated for a school of 100 pupils at about one hour per week, for which the doctor received a salary of £75 a year. If information were forthcoming that the doctor had spent much more time than this it would be a good case for more remuneration, but for the coming year the present scale of fees might very well be accepted as a temporary measure.

The motion was referred to Council.

Reports to Insurance Companies

Dr. J. C. Arthur (Gateshead) asked the meeting to reaffirm a resolution it passed in 1937 concerning payment for reports to insurance companies furnished after the death of patients who had been accepted for insurance without medical examination. This resolution affirmed that in such circumstances the certificate should be obtained direct from the medical practitioner of the deceased, that it should not be furnished without the previous consent of the nearest available competent relative, and that a fee of not less than half a guinea should be paid by the insurance company for such certificate. This was amended in 1939 by a resolution calling for the discontinuance of the practice of giving "duration" certificates to insurance companies, or to the relatives at the request of such companies, relating to the health of their patients before death, and asking that practitioners refuse to issue certificates in all such cases.

The motion was accepted by the Chairman of the Committee, *and approved by the meeting.*

Routine Examination of Nurses

Dr. E. C. Dawson (Derby) moved to instruct the Council to press for the payment of fees to practitioners engaged in the routine medical examination of nurses. He said that this had nothing to do with the treatment of nurses in illness. Before the Act the honorary medical staff of the hospital examined these nurses periodically, never expecting remuneration, but taking it as part of their job, but under the Act it was thought that they should receive remuneration. Fees were paid for lectures to nurses, and there should be a fee for examinations of the kind mentioned in this motion. There was also the general-practitioner angle. General practitioners in their surgeries had applications for examination from young girls who were proposing to become nurses. They were in some cases in difficulty as to the sort of examination required, and were rather embarrassed about asking these girls for fees.

Dr. W. Jope (Council) said that at a meeting with the Ministry of Health a few weeks ago it was stated that arrangements had been made for the payment of fees to general practitioners for the examination of nurses to be employed under Regional Hospital Boards, and also of nurses changing from the area of one board to another. He believed the fee was one guinea.

The Derby motion was accepted.

Dr. J. C. McMaster (West Somerset) moved to ask the Council to represent to the appropriate bodies the need for raising the fee of one guinea now recommended for the examination of candidates for appointments under the Regional Boards and

Local Executive Councils, and of half a guinea for emigration, to the same level as that of examinations for life assurance—namely, one and a half guineas.

Dr. Grant said that so far as the emigration fee was concerned the Private Practice Committee would be in entire agreement with the motion. With regard to the other part of the motion he asked that it should not be passed. The examination was not in any way commensurate with a life assurance examination, and the fee of one guinea was not inadequate.

The motion was referred to Council.

OCCUPATIONAL HEALTH

Ethical Rules for Industrial Medical Officers

Dr. J. A. L. Vaughan Jones, chairman of the Occupational Health Committee, moved for approval the revised statement of the duties of and ethical rules for industrial medical officers, which appeared as an appendix to the Annual Report (*Supplement*, April 2) He said it had been widely felt that these rules, first formulated in 1937, were in need of examination. He paid a tribute to the considerable assistance which his committee had received from the Ethical Committee, under the chairmanship of Dr. J. G. Thwaites. The duties of occupational medical officers had been extended under the modern conception of health, with its greater emphasis on preventive work. No fundamental change had been made in the rules, but the rearrangement was advantageous.

The revised statement was approved.

Comprehensive Occupational Health Service

Dr. Vaughan Jones further moved the adoption of the report on "A Comprehensive Occupational Health Service" which appeared as an appendix to the Supplementary Report of Council (*Supplement*, May 21). In doing so he said that this subject was not thought to be urgent until last year, when it became a priority question. The need for a national occupational health service had long been recognized by the Association and other important bodies. With the nationalization of industries following the coming of the Government into power in 1945, a mushroom growth and incoordinated development of industrial medical services had taken place. This piecemeal development was extremely wasteful of medical and nursing personnel. Occupational health owed a considerable debt to the initiative of private enterprise in the industrial field. The greatest need was in the small factories. There was obvious need for the closest relationship between the National Health Service and the occupational health services. The Prime Minister had announced in the House of Commons on June 1 that the Government had recently been considering the relationship between the National Health Service and the various health services provided in industry which made a call on medical man-power. The endeavour was to secure that the country's limited medical resources were used to the best advantage. The Prime Minister had appointed a committee to advise the Government on this matter, and it was very satisfactory that two of their members, Dr. Jope and Dr. Talbot Rogers, were on that high-level committee. ("Hear, hear.")

There was a definite tendency on the part of some people, Dr. Vaughan Jones continued, to consider the development of the occupational health service as a whole-time salaried service. This idea must be countered at the earliest possible opportunity. General practitioners suitably trained acting in a part-time capacity must play a major part in the development of this service. The assistance of all branches of the profession would be required, but the bulk of the work must and would be done by general practitioners. Therefore it was considered essential that an announcement should be made now. There was no suggestion that this service could become a nation-wide one on an appointed day.

Dr. W. N. Leak (Mid-Cheshire) drew attention to the paragraph in the Annual Report which was headed "Prescribing by Industrial Medical Officers." He said that under the new Act conditions were changing. A practice was developing in certain parts of the country whereby patients were asked by their own doctor to go to the factory and get treatment. The changing circumstances of industrial life and the pressure on doctors' surgeries had brought about new ethical and social problems. In some areas this kind of thing had reached such proportions that it had become a real industrial issue. The Council should consider the conditions which were growing up.

Dr. Vaughan Jones said he would accept this as a reference to Council. The matter had already been referred to the General Medical Services Committee, and they had had the benefit of the opinion of that committee in relation to it.

The report was adopted.

NURSING

Dr. Mary Esslemont (chairman of the Committee on Nursing) presented this portion of the Reports of Council. She outlined what had taken place in Parliament since the report was published. The Nurses Bill had passed through the Committee and Report stages in the House of Lords, and efforts had been made to secure amendments in the direction which the Council thought appropriate, and further amendments would be sought in the Committee stage in the House of Commons. She concluded by expressing the thanks of the Committee to Dr. Macrae, Deputy Secretary, for all his help in connexion with the work.

Dr. C. F. Mayne (Plymouth) asked that the Committee on Nursing should take up the question of certain anomalies. He referred in particular to the striking contrast between the salaries paid to highly trained nurses of all types and the clerical establishment of hospitals. A senior sister in his own hospital received £250, plus £120 emoluments, subject to income tax; a junior £180 and £120 respectively, a senior staff nurse £150 and £100, and an assistant nurse £200 inclusive of emoluments. On the other hand, a shorthand typist received £380, an appointments clerk £380, and a junior clerk—really an office boy—£160 as a starting salary.

Dr. Esslemont said she would bring these facts to the notice of her committee.

"BRITISH MEDICAL JOURNAL"

Dr. O. C. Carter (chairman of the Journal Committee) said he had a very satisfactory statement to make with regard to the *Journal*. The circulation had steadily increased owing to the continued rise in the membership of the Association, but also to the increased circulation among non-members. This circulation among non-members stood at the present moment at about 10,000 copies a week. During this last week the record number of 68,000 copies of the *Journal* were posted. During the last 12 months a quarter of a million more copies had been published than during the year before. In addition the *Journal* had increased in size. In fact, in this last year a complete set of *Journals* had contained 800 more pages than in 1947. This great increase had thrown a tremendous strain on the printing capacity by the flat-bed process. The service received had been first class, but the *Journal* had outgrown that method of printing, and it had been decided to revert to printing by rotary press. It was important that quality of production should not be sacrificed to speed. With regard to the contents of the *Journal*, every shade of opinion was expressed. The original articles published continued to be of a very high order. "Any Questions?" was still a very popular feature, and questions were received from every part of the world.

The quarterly journals maintained their high academic standard, but the cost of printing and other services had risen rapidly, and the Council was now finding it necessary to increase the subscription to the quarterly journals—a subscription rate which had remained unchanged since 1926. He submitted the report with confidence. Between the covers of the *Journal* was all that was best in British medicine, and by means of the *Journal* the prestige of the British Medical Association had been maintained and enhanced.

A Popular Health Journal

The report under "British Medical Journal" having been adopted, Dr. Carter went on to move that the Association undertake the publication of a popular health journal, the date for its inception to be determined by the Council in the light of the financial position of the Association then obtaining. He

said that a monthly journal was intended, containing some 64 pages and cover, and fully illustrated. It was felt that this would be practical public relations of the first order. It would give the profession an opportunity of giving public advice on healthy living in its broadest aspect. The Committee had had the advice of two editors of popular publications. It might be asked why an ordinary publishing house had not taken it up. The difficulty was the medical staff. Such a publication was considered to be a job for a medical organization with lay help rather than for a lay organization with medical help. The Committee was confident that the Association could successfully produce a first-rate journal which would be of enormous value not only to the Association but to the whole profession and the public at large.

In reply to a question as to whether they could be assured that such a journal would be kept completely free from medical politics, Dr. Carter said, "Quite definitely, yes."

A Voice: Why?

Dr. Carter: Politics would completely destroy the value of such a journal.

The motion approving the publication of the new journal was carried.

Apathy in the Profession

Dr. A. W. Gardner (Brighton) moved a resolution "viewing with profound regret the apparent apathy in the profession" and instructing the Council to use the editorials of the *British Medical Journal* as much as possible to rouse members of the profession to realize their responsibilities in the outcome of the present conflict. He said it seemed to his Division that more use should be made of the *Journal* to stimulate members of the profession and to dispel apathy. More stimulating articles should be written, and in plain English. This would help the Divisions considerably.

Dr. C. P. Wallace (Guildford) moved as an amendment that the Council be requested to confer with the Editor and the Journal Committee with a view to making the *Journal* more easily readable and therefore more effective as an organ of medico-political opinion. The *Journal*, he considered, was in a large degree responsible for the apathy at the periphery. Too often the scientific articles which appeared were more suitable for specialist journals, and others were produced by intellectual snobs. With regard to the *Supplement*, he urged that it be produced in a more popular form, even at a cost to the Association. He could not agree to the Brighton proposal to instruct the Editor. The Editor, in his view, was comparable to a judge on the bench or a bishop in his diocese. He was in a most privileged position, and it was most reassuring to have heard Sir Lionel Whitby the previous evening say that he had been impressed by the integrity of the Editor. He himself would abhor any suggestion that the Editor should be told to put this or that in next week. An editor would be right to resent such dictation. If they were not satisfied with him they should tell him so, discharge him, and compensate him adequately. But he did urge that an effort should be made to publish the *Journal*, and particularly the *Supplement*, in a more popular form.

Dr. R. G. Gordon (Council) hoped the Representative Body would not countenance any coercion of the Editor. The Editor had done extraordinarily well. (Applause.) Why should the *Journal* be blamed because a certain number of practitioners did not take the trouble to see whether it was interesting or not? In actual fact he was quite convinced that although some 10 or 15 years ago it might have been true that a number of copies were left unopened, this no longer held good. To-day the correspondence columns and the response to "Any Questions?" showed that a very lively interest was taken in everything published in the *Journal*. But Dr. Carter would not mind him saying that the Council through the Journal Committee was constantly examining the situation and trying to make the *Journal* more acceptable to all parts of the profession. A balance had to be kept, and he thought it was being kept so far as the paper situation would allow.

Dr. Carter said it was the fact that in every walk of life there was considerable apathy nowadays, and it was unlikely that the apathy throughout the country would not find some expression in the medical profession. But he did not believe this had anything to do with the make-up of the *Journal*. It was necessary to cater for every type of reader. Next autumn it was hoped to return to a popular pre-war feature, "Treatment in General Practice." The *Journal* would be made more attractive as time went on, with a larger type face and other improvements. The Editor was responsible for all that went in the *Journal* with the exception of material which he was instructed by the Council to publish. As for stimulus, he thought there had been nothing more stimulating than the reports which appeared in the *Supplement* under the heading "The Secretary Reports." It was impossible for a committee to dictate to the *Journal*, but with regard to all medico-political articles the Editor was in close consultation with the Secretary. There was the closest co-operation between the medico-political and the editorial side. (Applause.)

It was moved and immediately agreed to proceed to the next business.

FINANCE

Mr. A. M. A. Moore (Treasurer) presented the financial statement. He referred to the serious loss which the Association had sustained in the passing of Dr. Bone. The Finance Committee in particular mourned a very distinguished figure. Last year was one of heavy expenditure, and for the first time in 30 years there was a deficit on the year's work. This deficit was anticipated from the approximate calculations of the previous year. A large proportion of the additional expenditure could be attributed to the Association's campaign prior to the introduction of the Act. Further deficits must be expected unless the income from subscriptions was increased. The assets as represented by the Association building and its contents had been written down on a generous scale. He drew attention to the amount spent on capitation grants, regional offices, and other matters of local organization—namely £32,295—and to the central meeting expenses—£20,836. He mentioned these items in order that the Representative Body might be fully aware of the need for increased income.

Increase of Membership Subscription

The Treasurer moved the adoption of a recommendation of Council that as from Jan. 1 next the membership subscription rates (except for members of not less than 40 years' standing, those retired from practice with not less than 10 years' membership, and members resident outside Great Britain and Northern Ireland) be increased. The proposed increase in the ordinary subscription is from three guineas to four guineas; that for other categories is set out in the Annual Report of Council (para. 116).

He added that from what he had said already it would be quite apparent that the time had arrived when the Association must increase its income. If the membership was maintained—and he personally had no doubt on that point—it was estimated that this increase in subscription would bring in an added income of between £30,000 and £35,000.

An amendment by Cardiff that the subscription of medical officers in the Public Health Service who received no income-tax allowances in respect thereof should remain as at present was referred to Council.

Dr. C. Watney Roe (Chelsea and Fulham) opposed the projected increase to four guineas. The estimated deficit for 1949 if the subscription was not increased was only £10,000, but an increase of one guinea in the ordinary subscription would bring in another £60,000.

The Treasurer pointed out that the assumption that the increase was equivalent to an extra guinea for every member was quite erroneous. The increase would be between £30,000 and £35,000. He added that the subscription to the Association had been three guineas for the last 26 years. Compared with similar bodies in the Dominions, it was still a very low subscription.

The recommendation of Council to raise the subscription rates in the manner set out was carried by a very large majority.

A Welsh representative pointed out the very small amount down to the Welsh Committee as compared with the Scottish

and Northern Irish Committees. Mr Moore mentioned that £10,000 had been allocated to Wales for the purchase of a Welsh House.

The business under "Finance" was approved.

Further Business

At this point the Chairman said that there was great pressure on the time of the meeting, which must be concluded by a certain hour. He begged those who brought forward motions not to make speeches unless the motions were opposed.

Dr. J. G. Thwaites, chairman of the Central Ethical Committee, in bringing forward the report under "Medical Ethics," referred to the impact of the National Health Service and the increased influence of lay administrative bodies as affecting medical ethics. It had been necessary to take action in several cases successfully on questionaries which medical men in the Service were expected to fill up and which involved a breach of professional secrecy. The high ethical standard of the profession had been well maintained. He closed with a tribute to his predecessor, Dr. N. E. Waterfield, in the chair of the committee.

A motion by Kensington and Hammersmith asking that the pamphlet on medical ethics be issued not only to newly qualified medical practitioners but also to all overseas practitioners who had arrived in this country during the last 10 years was accepted.

Recommendations of Council concerning mortuary accommodation and pathological facilities and also concerning mobile laboratories were approved. These were amended versions of the paragraphs on these subjects which had appeared in the previous Annual Report of Council.

Dr. R. G. Gordon (Council) formally moved the reports under "Nutrition" and under "Science." With regard to the latter he said it was unfortunate that it always came late on the agenda, and its uncontroversial character kept it in the background; but it represented some highly important work. The chief duty of the Science Committee was the allocation of prizes. A very high standard of entry had been reached this year.

Major-General Sir Percy Tomlinson (Council) brought forward the report under "Armed Forces" and mentioned the comprehensive character of the Association's Armed Forces Committee, which now represented all aspects of the Services.

The reports under "Public Relations," "Scotland," and "Wales" were moved formally. Dr. R. P. Liston, chairman of the Films Committee, moved the report under "Medical Films," and spoke of the "farce" of the procedure whereby motions were taken in this hurried manner. The Chairman (Dr. Gregg) took strong exception to the word "farce." Dr. Liston, however, continued to make his objection. The same thing, he said, occurred every year, and it was a reflection on the platform that so many important motions should have to be dealt with at the end of the meeting in this summary manner.

The reports under "International Relations" and under "Medical Benevolence" were similarly taken, and this concluded the Annual and Supplementary Reports of Council.

A motion by Torquay was accepted by the Chairman of Council—

That in order that the Association should become a potent instrument in obtaining satisfaction, the Council should bend all its energies in the coming year to arming the Association with the necessary power to enforce their demands.

Thank You

Dr. J. C. McMaster (West Somerset) moved:

That this meeting desires to express to the Chairman and members of Council and its officers their congratulations and thanks for the excellent work which has been undertaken, as evidenced by the Annual Report of Council, and their continued confidence in the Council.

This was carried unanimously. A further motion by Dr. D. L. S. Johnston (Halifax and Todmorden) expressed the thanks of the meeting to Dr. Gregg for his able chairmanship, and this was carried by the representatives rising in their places and applauding. Dr. Gregg made a suitable acknowledgment. He said he had tried to do his best to get through an immense amount of work in a limited time, and if he had offended any or been guilty of wrongful tactics or omissions he apologized.

The meeting closed at 12.30 p.m.

ADJOURNED ANNUAL GENERAL MEETING

President's Address

The Adjourned Annual General Meeting was held in the Royal Hall, Harrogate, on the evening of June 28, with Dr. C. W. Curtis Bain in the chair. The hall was filled with a distinguished assembly, many wearing academic gowns. The Mayor and Mayoress of Harrogate were among those present.

The Chairman of Council first introduced to the President the following delegates from kindred associations: Major-General G. B. Denit and Lieutenant-Colonel J. W. Regan (American Medical Association), Professors Demuth and Feilinger (Austrian Medical Association), Dr. Edna Guest (Canadian Medical Association), Dr. A. Clausager-Madsen and Dr. V. A. Fenger (Danish Medical Association), Dr. P. Moran and Dr. P. T. O'Farrell (Medical Association of Eire), Dr. Olafur Bjarnason (Icelandic Medical Association), Dr. E. Rabau and Dr. H. Steinitz (Medical Association of Israel), Dr. Eilert Eilertsen (Norwegian Medical Association), Dr. E. H. Cluver, Dr. J. Harvey Pirie, and Dr. A. H. Tonkin (Medical Association of South Africa), and Docent Stig Berseus (Swedish Medical Association).

The distinguished foreign guests next introduced were: Professor Hilding Bergstrand (Stockholm), Dr. Robert A. Hingson (Baltimore), Dr. J. Lövset (Bergen), Dr. Winifred Pitkin (New York). Professor Stefanopoulo (Paris), and Dr. Leon Unger (Chicago).

Representatives and delegates from Overseas Branches of the B.M.A. included: Dr. F. W. Hanford (Northern Rhodesia), Dr. D. E. Thompson (Tanganyika), Dr. D. R. Belletty (Assam), Dr. W. Balendra, Dr. S. L. Navaratnam, and Professor C. C. de Silva (Ceylon), Dr. R. E. Anderson, Dr. R. B. MacGregor, Professor J. K. Monro, and Dr. A. A. Sandosham (Malaya), Dr. J. Coen, Mr. N. McAlister Gregg, and Mr. G. C. Halliday (New South Wales), Dr. J. Lloyd Simmonds (Queensland), Dr. R. A. Burston, Dr. L. Ll. Davey, Dr. W. M. Irwin, Dr. H. M. Jay, and Dr. Peter W. Verco (South Australia), Mr. G. E. Foreman and Dr. G. T. James (Victoria), and Mr. Henry H. Hill (Western Australia), Dr. Salvatore Debono (Malta), Dr. P. J. Fogarty, Dr. Owen Johnston, and Mr. Norman C. Speight (New Zealand), and Dr. C. J. Austin (Fiji).

The Gold Medal

The Chairman of Council said that the next item on the programme was a sad one. It was a posthumous presentation to Mr. Alan Bone, F.R.C.S., of the Gold Medal of the Association which was awarded to his father, the late Dr. J. W. Bone. Dr. J. W. Bone was a very faithful servant of the Association, whose loss they all mourned. The medal was accompanied by a testimonial setting out Dr. Bone's record of work. The testimonial concluded:

In you the Council admires a colleague of high capacity and wide learning, the promise of whose early academic brilliance has been amply fulfilled in the years of maturity. It salutes in you a man greatly gifted in the handling of practical affairs, persuasive in debate, and skilled in the art of negotiation, independent of mind yet ever attentive to opposing arguments and ever responsive to the claims of comradeship. In sincere appreciation of your outstanding achievements, and gratefully recognizing that the many and exacting public duties which you have undertaken have been fulfilled with a completely unselfish and single-minded devotion to the welfare of the Association and of the whole profession, the Council delights to confer upon you the highest distinction within its gift.

The Association prizes were next presented: the Middlemore Prize to Dr. A. A. Douglas (Birmingham) for his essay on "The Value of Orthoptics in the Treatment of Squint"; the Nathaniel Bishop Harman Prize to Dr. F. Hampson (Grimsby) for his essay on "Endometrial Biopsy: Studies on the Normal and Pathological Histology of the Human Endometrium."

The Dawson Williams Prizes were then presented to Dr. J. C. Spence (Newcastle-upon-Tyne) for his research into diseases of children, and to Professor Alan Moncrieff (London) for his work in the field of child health. Nurses' prizes were also presented, the first to Miss G. Kenneth (Malvern) and the second to Miss E. A. B. Davis (London), these in a competition for State-registered nurses not working in hospital. Miss Jean Cumming (Middlesex Hospital) won the prize for student nurses. Prizes were presented to the following medical students for their essays on "The Value of Observation in the Training of the Medical Student."

Mr. L. H. Berman (Edinburgh), Mr. H. J. Bland (Bristol), Mr. H. J. Dawson (Leeds), Mr. M. H. Gough (St. Thomas's), Mr. J. S. Kennedy (Glasgow), Miss Mary C. Shaw (Bristol), Mr. M. H. Sheard (Manchester), Mr. G. T. Smerdon (Oxford), and Miss S. M. Taubner (Royal Free).

Lady Whitby invested Mrs. Bain with the President's Lady's Badge. In so doing she said how much she had enjoyed her term of office and the friendliness with which she had been everywhere received. Mrs. Bain said that she felt she was accepting this decoration on behalf of doctors' wives all over the country, who had to run their houses, bring up their families, and often act as unofficial assistants.

The President then delivered his Presidential Address on "Man and the Machine," which was published in the opening pages of the *Journal* last week.

Finally Dr. E. A. Gregg, Chairman of the Representative Body, proposed a vote of thanks to the President for an address of great weight and scientific interest. They were all indebted to Dr. Bain for having prepared and delivered an address so carefully constructed and documented. The vote of thanks was heartily accorded, and the formal proceedings terminated.

The meeting was followed by a reception given by the President and Mrs. Bain. The numbers attending were so large that the guests had to be divided. Some 600 proceeded to the Royal Baths, and an equal or greater number remained in the Royal Hall. Dr. and Mrs. Bain received their guests at each place in turn. Light refreshments and music were provided.

PROCEEDINGS OF COUNCIL

Monday, June 27

The last meeting of the old Council was held in the Council Room of the Municipal Offices, Harrogate, on Monday, June 27, with Dr. H. Guy Dain in the chair.

The congratulations of the Council were extended to those members of the Association upon whom honours had recently been conferred by H.M. the King. The Chairman said that they would note with special pleasure the knighthood conferred upon Mr. H. S. Souttar, a former Chairman of Council, the C.B.E. for Professor Picken, a prominent former member, and the O.B.E. for Dr. N. E. Waterfield, a present member.

A letter was read from the Medical Secretary of the Medical Association of Eire thanking the Association for its great kindness in arranging to lend that body the sum of £10,000 over a term of twenty years, and without any interest, subject to certain conditions as to repayment.

On the motion of Dr. Pridham, the Council approved, on the request of a large number of members of the Association, the formation of a Tuberculosis and Diseases of the Chest Group.

Association Prizes

Dr. R. G. Gordon, for the Science Committee, brought forward recommendations for the awards of the Association prizes. These included the Nathaniel Bishop Harman Prizes, the prizes for medical students, the Association prizes for nurses, and the various scholarships. A variation had been made in the Association prizes for medical students, for which a total of 53 essays had been received, and the Committee recommended, the Council agreeing, that a total of ten national prizes, each consisting of a certificate and a cheque for £25, should be awarded.

Public Health

Dr. James Fenton, chairman of the Public Health Committee, presented a report on various outstanding matters. These included a statement prepared by the Joint Subcommittee (of the Central Consultants and Specialists, General Medical Services, and Public Health Committees) on the report of the Working Party on Midwives. The Association supported many of the recommendations of the Working Party, but felt that those concerned should recognize that there was no acute crisis in the midwifery profession. Tribute was paid in the comments to the continuous efforts which had been made during the last twenty years by the Central Midwives Board, the College of Midwives, individual tutors, and matrons, to develop the profession, and it was considered that the best results in the future would be achieved by fostering these existing agencies.

A report on action taken was presented by Dr. Wand for the General Medical Services Committee. It concerned the position on remuneration, inflation of doctors' lists, and other matters.

The Central Consultants and Specialists Committee reported that the Minister of Health had decided to appoint a departmental committee to advise how the statutory registration of opticians could best be effected and what qualifications should be required as a condition of registration. The Council decided that the Faculty of Ophthalmologists, the Royal College of Physicians, and the Royal College of Surgeons should be invited to co-operate in setting up a joint committee to prepare a statement of the profession's requirements in this respect, and to collect evidence in support thereof for submission to the departmental committee. The Council appointed three representatives to the Joint Committee.

The Council had before it a confidential report by Mr. St. J. D. Buxton on his visit to Greece as a B.M.A. lecturer, discussing in particular a number of problems concerned with orthopaedic surgery which he had encountered during his stay in that country. Mr. Buxton was heartily thanked for a valuable report, the recommendations of which would be forwarded to the appropriate quarters.

Wednesday, June 29

The first meeting of the new Council was held in the Municipal Offices, Harrogate, on June 29.

Election of Chairman

After discussion Dr. E. A. Gregg was unanimously elected Chairman of Council. He said he could not think that any service he had been able to render to the Association had merited this honour, but he would do his best; and he knew that his shortcomings would be forgiven. He had a real desire to do the right thing and to be fair and just in all his actions.

The Retiring Chairman

The new chairman then asked the Council to pay its tribute to his predecessor. They had always been fortunate in the British Medical Association in those who had occupied its important offices, but they had had no one who in steadfast devotion to the Association's interests and the interests of the profession had spent himself more unselfishly than Dr. Dain. The speaker was able to recall within his own experience practically the entire Association career of the retiring chairman. He remembered him in the old days when he was an ordinary member of the Insurance Acts Committee. From then onwards he had been the unswerving, patient, persistent worker on behalf of his profession that they knew so well. As chairman of the Insurance Acts Committee, of the Conference of Local Medical and Panel Committees, of the Representative Body, and, finally, of the Council, always he had been the same Dain, unassuming, pretending to no gifts of oratory, but offering an example which was outstanding and unforgettable. "We have never had anyone like Dain before—I say that without the smallest fear of contradiction. We have had all sorts of brilliant people who had done wonderful work, and we have appreciated them, but Dr. Dain stands by himself.

On your behalf I offer him the very sincere thanks of this Council and of the Association for the magnificent work he has done on our behalf."

The members of Council rose in their places and applauded.

Dr. Dain, in response, said he could imagine no greater opportunity for the development of character than to have served the Association. Any qualities which he might possess at the moment had been developed over the years in his contacts with members of the various committees and of the Council. He was unable to imagine anything he could have enjoyed better, and if anybody had had any fun out of it he was sure it had come to him. He had always held that responsibility was the salt of life, and this had been his during the last five years in good measure. He had been very happy in the work. The atmosphere in the Council and in the Association generally had been delightful; the friends he had made had been many, and he would not have missed a minute of the experience. In latter years the Association had given him the opportunity of extending his travels and his friendships overseas, and it had been a highly interesting and exciting experience. He had now felt that it was proper and right that he should bring his term of office to an end, but he hoped to be able to continue as a member of Council for a while and to serve on a number of committees in whose work he was specially interested.

New Members

Twelve new members of Council were welcomed.

Dr. Wand, who was *ex officio* a member of Council by virtue of his chairmanship of the General Medical Services Committee and was also one of the eight elected by the Representative Body, said he would prefer to have it in the records that he was a member of Council by the votes of his colleagues rather than by virtue of his office, and it was agreed that some words should be found to denote this.

Dr. Dain read a letter he had received from Dr. J. A. Ireland, no longer a member of Council, expressing appreciation of the kindness and consideration he had received at his hands during the last six years.

Committees

The Council proceeded to the election of its own members on the Standing Committees and to the reappointment of such Special Committees as had not discharged their reference. The composition of the International Relations Committee was widened to include the chairman of the Board of Management of the Empire Medical Bureau and representatives of the British Council and of the British Medical Students' Association.

It was intimated that the Central Medical War Committee had been asked to continue until the end of 1949, but it was expected that it would then cease to exist and that the Government would form a small committee of its own to carry on the work.

N.H.S. Conciliation Machinery

The Council then unanimously agreed to the passing of a resolution expressing surprise and regret at the Government's decision to withhold from the medical profession the right to have disputes referred to arbitration:

This decision (the resolution continued) is a violation of assurances and carries with it constitutional implications of the gravest character, involving open discrimination against professional workers by denying to many of them the rights freely accorded to others engaged in national services.

Autonomous Bodies within the Association

Following upon the Bournemouth resolution in the Representative Meeting asking the Council to appoint a special committee to consider and report on the situation created by the formation of autonomous bodies within the Association and their relationship to the Representative Body, the Council appointed a special committee of 15 members, including the Chairman of Council, Sir Lionel Whitby, and Dr. Dain, its terms of reference being the words of the Bournemouth motion, and it was expected that it would bring in an interim report in October.

Other Business

The report of a Joint Committee of the B.M.A. and the National Veterinary Medical Association was before the Council, but it was stated that the veterinary body was still considering a number of the points, and general approval was accordingly deferred.

A report of a Joint Committee of the B.M.A. and the Pharmaceutical Society was submitted, and its three recommendations were approved as follows:

That it is undesirable that a doctor and a pharmacist should practise from the same premises unless each has a separate address and there are separate means of access to the two addresses.

That it is undesirable that a doctor should have a financial interest in directing his patients to a particular chemist when there are other chemists in the area.

That in order to preserve the principle of free choice and to avoid abuse it is undesirable that a doctor should recommend a particular chemist, or a chemist a particular doctor, unless he is specifically asked to do so by the patient.

It was proposed that the Ethical Committee should be consulted on the ethical problems involved.

Dr. J. A. L. Vaughan Jones, on behalf of the Occupational Health Committee, brought forward a recommendation for the approval as an interim arrangement of certain rates of remuneration for whole-time and part-time medical officers of the National Coal Board, and this was agreed to.

The Secretary reported that he had been in informal discussion with whole-time medical Civil Servants with a view to placing the Association in the right relationship to them on the matter of negotiation on remuneration. Subject to the approval of the Council, it had been agreed that the remuneration of whole-time Civil Service medical officers in relation to the Spens Committee reports should be handled by a committee consisting of three members of the B.M.A. Council, three of the Institute of Professional Civil Servants, and three of the Ministry of Health Medical Staff Association.

The Council agreed to this course and appointed Dr. C. Metcalfe Brown, Dr. James Fenton, and Dr. Dain as its representatives on the proposed committee.

Dr. Vaughan Jones gave notice that at the next meeting of Council he would ask it to consider a motion that chairmen of committees presenting reports at the Annual Representative Meeting be given adequate time for the presentation of their reports to the Representative Body.

OVERSEAS CONFERENCE

The Overseas Conference in connexion with the Annual Meeting was held in the Council Chamber, Harrogate, on Wednesday, June 29. Dr. J. B. Wrathall Rowe, retiring member of Council for the West Indian Branches, took the chair, and the new Chairman of Council, Dr. E. A. Gregg, was present.

Survey of the Colonial Services

Dr. E. GREY TURNER, Assistant Secretary, in charge of the work of the Colonies and Dependencies Committee, gave a brief report. He said that at Headquarters they did their best always to bear in mind the problems of the overseas member. The Colonial Office had agreed that the terms of service in the Colonial Medical Service must be broadly equivalent to those in the National Health Service at home. An attempt had been made to work out a colonial interpretation of Spens. Many special factors had to be brought into such a calculation—taxation, pension arrangements, housing, and a factor which was usually called expatriation. The people in the Colonies were in some ways better off and in other ways worse off than in this country, but the Colonial Office had rejected the suggestion that the various factors might be held to cancel one another out, holding that the figures should be worked out, plus or minus, and the Spens salaries adjusted in that way.

Taxation in the Colonies was very much lower than in this country, but this disparity might lessen, as there was a prospect

of colonial income tax going up. Moreover, the colonial medical officer, in return for such income tax as he paid, did not get the advantage of many of the social services and general amenities which the tax provided, although it might be said that in this country also the social services were not much used by doctors. Pension schemes varied from Colony to Colony, but were substantially more generous than the N.H.S. superannuation scheme. The colonial medical officer was also provided with a house, though the housing might not always be very satisfactory.

The difficult factor of expatriation had also to be taken into account. The colonial medical officer, recruited in the United Kingdom, spent his time working at a great distance from home, and was put to heavy expense in such matters as the education of his children. Cost of living was a difficult factor to assess. Then the colonial officer was separated from his family to some extent. How was that hardship to be allowed for? He had to admit that he had utterly failed to convince anyone that life in the Colonies was substantially at a disadvantage as compared with life in the United Kingdom. He had pointed to the lack of cultural facilities, but he had been told that this was offset by the facilities for sports and games in the Colonies. A figure had to be attached to all these factors and the Spens figure adjusted accordingly. A further point was that the Spens reports were based on U.K. doctors working in the U.K., and it was questionable whether they had any relevance to, say, locally recruited African doctors working in Africa. The utmost should be done to obtain for the locally recruited members the most favourable terms possible, and they must rely on the Branches to negotiate those terms and inform headquarters.

Other matters were being discussed. One of them was recruitment procedure. Sometimes senior appointments were left vacant for long periods. The impression was that those concerned did their best, and that delay was sometimes unavoidable. Other matters were the burden of non-medical work, the thorny problem of private practice, and finally—a matter which he mentioned with a little diffidence—the fact that in some parts of the Colonial Medical Service the spirit of those who worked in it appeared to be unduly depressed. The service did not seem to be as self-confident or as proud of itself as it should be.

A Quick Look Round

Dr. Grey Turner then gave a quick impression of the state of the Branches in the colonial Empire. The Fiji Branch had revived its activities, and was holding four meetings a year. The Hong Kong and China Branch was full of activity and optimistic about the future. The Malayan Branch was large and flourishing. The Indian Branches were in a state of suspended animation at the moment. The Indian and Pakistan Medical Associations had recently been formed, and discussions with the Indian Association were already taking place with a view to affiliation, and it was hoped soon to be in touch with Pakistan. A difficulty was the Indian licentiates. If full affiliation were granted to the body of licentiates in India, difficulty might be encountered among Indian members, of whom there were many, in East Africa. Ceylon was engaged in converting itself into an incorporated Branch, and in future would bear the alternative title "Ceylon Medical Association." The Association at home would continue to take a slightly more remote but none the less warm interest in its affairs.

The Tanganyika Branch went into a period of quiescence during the war, but its activities were now extending. The other Branches in East and Central Africa were flourishing. The Egyptian Branch was quiet at the moment but was remaining in being, and Sudan was keen and active. Almost 100% of the doctors on the "Rock" were members of the Gibraltar Branch. In Malta the Ministry of Health had prepared a health scheme, and the Branch had set up a joint negotiating committee with the Camera Medica. There were a good many members in Transjordan, and he hoped that the Palestine Branch might be transformed into a Transjordan Branch. It was hoped to revive the Mesopotamian Branch, possibly under another name, and to include the many doctors on the Persian Gulf. Many of the West Indian Branches were not very active, though some of them had recently been revived. Sierra Leone Branch was the only one on the West Coast of Africa. The Association had 114 members in Nigeria, and 65 on the Gold Coast, but no Branch, which was a great pity. At Headquarters they were, in the words with which a predecessor of his used to sign his letters, "Always at your service within the limits of our power."

Dr. SANDIFORD, director of the Empire Medical Advisory Bureau, said a few words on the personal service to visiting overseas members which the Bureau performed. Up to the end of May there had been 776 inquiries of the Bureau, and 433 visitors had paid over 800 visits. Most of the visitors came for postgraduate instruction, and the Bureau had a synopsis of the regulations for the various diplomas. The Bureau was able also to help in finding accommodation.

General Discussion

Some of the overseas representatives present made brief observations. Dr. R. E. ANDERSON (Malaya) said that income tax had just been instituted in Malaya, and no doubt would get larger. The housing position in Malaya, perhaps owing to the influx of officers to the new departments, had become acute, and in a number of instances there was a waiting-list. Officers in Malaya tended to keep their children there because of the enormous cost of education in England. Petrol in Malaya cost 3s. 5d. a gallon, and was rationed. Dr. R. B. MACGREGOR (Malaya) considered that the possible hardship of the early age of retirement in the Colonial service should be stressed. It was impossible to generalize on the cost of living in the Colonies. In Malaya the price of many commodities was three times the pre-war cost.

Dr. D. E. THOMPSON (Tanganyika) spoke of the isolation of district medical officers, and the lack of contact with specialists and pathologists. These officers were entirely on their own and had to deal with every emergency that came along. The population expected a comprehensive medical service, and looked to the district medical officer to provide it and made it known in the chamber of commerce or legislative council if he did not. His colleagues in Tanganyika would not be satisfied with the partial restoration of private practice which had been foreshadowed in the Philippson report. They took the view that they would like an adequate salary so that they were free from financial worries, and if that was not possible they would press for the complete restoration of all the sources of income, including private practice, which they had lost.

Dr. J. SCOTT BROWN (Uganda) resented the idea that the colonial officers were geographically and climatically in a happy situation. Save for a small part of Kenya, the colonial empire was no place whatsoever to which people would care to retire. He had rather detected in Dr. Grey Turner's speech a tendency to put forward the Colonial Office point of view instead of the point of view which colonial officers had been bringing home to the Association during the last year or two. Dr. F. W. HANDFORD (Northern Rhodesia) spoke of the cost of living in the Colonies, and particularly the high cost of basic foodstuffs in his country, where there were no food subsidies. Mr. J. M. FITTON (Mauritius) was amazed at the work which the Association was doing for its overseas members. He referred to the lack of materials for hospital medical services abroad. Dr. C. J. AUSTIN (Fiji) mentioned a visit which he had recently paid to Jamaica, where he found what he considered to be a very flourishing Branch.

Dr. CHARLES HILL (Secretary) gave a brief account of the British Commonwealth Medical Conference at Saskatoon, which was attended by Dr. Dain and himself and by representatives of the Dominions. It was an extraordinarily valuable conference, particularly in its examination of the relations between the profession and the State. The next conference was to be held in Brisbane in 1950, and it was hoped that the conference the following year would be in South Africa. He added that clearly the visit of Dr. Grey Turner to the East Africa Branches this year had been greatly appreciated. Advice would be offered to the Colonies and Dependencies Committee that its secretary or some member of the committee or both should pay an annual visit to some of the overseas Branches. If that

was done it should be possible within a relatively short time for all the Branches to be visited.

Other Business

It was reported that a medical officer in the R.A.F. had submitted a suggestion that the Government should establish a boarding school in the United Kingdom for the children of officers in the Armed Forces and in the Colonial Service. An alternative suggestion was that the Government should reserve places in State-aided local authority boarding schools for the children of such officers. The Armed Forces Committee of the Association and the Colonies and Dependencies Committee had asked that the matter be considered by those attending the Overseas Conference. The chairman suggested that representatives on their return should seek the opinion of the other members in their area and write to the Secretary of the Colonies and Dependencies Committee on the subject.

Dr. GREY TURNER made a brief statement on the control of overseas advertisements in the *British Medical Journal*. Overseas Branches occasionally requested that advertisements be refused, without giving adequate reasons. The Committee would work out a policy whereby this control might be more efficient and expeditious. Advertisements could only be refused if they cut across the definite policy of the Association or broke a negotiated agreement. It did not help if an overseas branch secretary returned an advertisement with the remark, "We think this is a little below what it should be." The policy when fully worked out would be communicated to Branches.

Dr. WRATHALL ROWE closed the meeting with an expression of the good wishes of the Association at home to the representatives on returning overseas and to their colleagues in their various countries.

ANNUAL DINNER

The Annual Dinner of the Association was held in the Hotel Majestic, Harrogate, on June 30. A company of just over 400 assembled under the chairmanship of the President, Dr. C. W. Curtis Bain. The guests included the Lord Bishop of Ripon, the Mayor of Harrogate, and others who had afforded hospitality and service to the Association in the course of the meeting, as well as a number of oversea delegates and representatives.

Mr. A. DICKSON WRIGHT, in proposing the toast of "The Mayor and Corporation," referred to the abounding hospitality of Harrogate. Everything the town had had been at the disposal of the visitors. Although the profession had been converted into a public utility, it was a great thing to find that it still had some life left in it and was able to hold its annual conference with the same good spirit of comradeship it had always exhibited.

The MAYOR, Mrs. Fisher, J.P., spoke of the pride she felt in welcoming the Association to Harrogate as one of the first acts of her year of office. If Harrogate had come up to expectations the local people were well rewarded. Another source of pride for Harrogate was the election of Dr. Curtis Bain as President, and she wished him a successful year of office.

"The British Medical Association"

The LORD BISHOP OF RIPON (Dr. Chase) said that he had had a good deal of contact with doctors. In the first war he was a padre, and for the first two and a half years he was attached to one of the hospitals in this country and shared the doctors' mess. Later he was at Cambridge at a college where one of the Fellows was professor of pathology, afterwards the master, and he always brought in the examiners to dine with them in hall. He heard their tales at dinner, and this made him more inclined to propose the health of the patients than that of the doctors.

The Bishop went on to say that he had read a certain amount of what the Association had been talking about during the week, though he could not pretend that he knew very much about the B.M.A., but the previous week he was in London and there at lunch he met a doctor whom he found to be interested in one part of the work of the Association and who spoke of it in highly complimentary terms. This was its work in welcoming doctors and research students from overseas, making them feel at home during their visit to this country and putting them in touch with the right people. His doctor friend bore testimony to the enormous value of that work, and the Bishop wanted to endorse his tribute.

Dr. E. A. GREGG made his first public speech as Chairman of Council in responding to this toast. He began with a reference to his predecessor, Dr. Dain, and the regret they all felt that he should have come to the end of his term of office and relinquished the chair which he had filled with great distinction through such a long and difficult period. He then added for his own part an expression of thanks to all who had contributed so splendidly to their comfort during this visit to Harrogate. It had turned out to be one of the best and happiest meetings the Association had ever known. One of the memories of it he would carry away was of a gracious little lady presenting the Association with a banner in the name of the Mayor and Corporation of Harrogate. That banner would be hung in Tavistock Square. In course of time its colours would dim a little, and other banners would be added there, but for those who had attended the Harrogate meeting it would always continue to evoke the most happy memories.

The Bishop had said that he did not know very much about the B.M.A. What was the B.M.A.? It was the organized representation of the medical profession in this country. It contained within its ranks over 80% of all the doctors. When it spoke it had a right to claim that it was expressing the views of the profession. It spoke as a democratic organization. Some might think, reading the proceedings of the last week, that the voice was a little confused, but for all that the general view of the majority was finally expressed in the form of an easily understood resolution which was rightly taken as the expression of the views of the doctors of this country.

The British Medical Association sought to gather together the views of doctors generally, and to express professional opinion on all subjects. But by far the greater part of the work was concerned with the advancement of scientific knowledge and with assisting doctors in their relations with one another. The Association had asked that the great National Health Service should be introduced by stages; it said it was too big a thing to be introduced all at once, and it had been proved right. The whole scheme did not hatch out of the brain of Whitehall; it had been borrowed from the profession itself, which had been working on the subject for thirty years at least. It had asked Government after Government to devise a scheme of medical care for the people of this country. But this request fell on deaf ears, until a few years ago "when they woke up and took over our stuff, adding to it ingredients which made it less good." He thanked the company for the way in which the toast had been received.

"The Guests"

Dr. T. V. PEARCE, chairman of the Harrogate Division, proposed the health of the guests. He referred in particular to the guests from overseas. There were guests present that evening from China, Israel, Poland, France, Holland, Denmark, Sweden, Iceland, and the United States. The republic of Ireland was represented, as well as all the Dominions—Canada, Australia, South Africa, New Zealand, India, Pakistan, and Ceylon. The Branches represented stretched from A to Z—from Assam to Zululand.

Dr. N. MCALISTER GREGG, *M.C.*, made the first of two responses to the toast. New South Wales, he said, his part of the world, still considered itself as belonging to the British Empire and thought of England as home. He found changes in England, but there was still the same spontaneous and abundant hospitality. He acclaimed the work of the Empire Medical Advisory Bureau.

Major-General G. B. DENIT, M.D., of the American Medical Association, brought greetings and best wishes from that body and from the Surgeon-General of the U.S. Army. The medical professions of their two great countries had always worked together, in peace and war, and the tremendous advances of medicine during the last two decades might be said to represent

their combined efforts. Great Britain had launched on a programme of socialized medicine, while in America they had only talked about it, or, more properly, talked against it. But in America they were watching the British experiment with profound interest, and its success or failure would determine to a large extent their own course.

"The President"

The final toast, that of "The President," was proposed by Dr. W. RUSSELL BRAIN. He spoke of Dr. Bain out of a friendship of more than thirty years, and told one or two stories of his Oxford student career. Subsequently he established himself in practice in Harrogate, where he had built up a great reputation. In his presidential office he would guard those essential values of medicine which were their particular responsibility in the present situation.

The PRESIDENT contented himself in his reply with making grateful reference to his Harrogate colleagues who, while he himself had been more or less a figurehead, had worked over a long preparatory period to make the meeting a success. Praise was due in the first place to Dr. D. D. Payne, the Hon. Local General Secretary, and to Dr. J. V. Wilson, the Hon. Local Science Secretary, who had carried through one of the revolutions they had made at Harrogate—the institution of a four-day scientific programme. Dr. T. G. Reah had been responsible for the entertainments and excursions, Dr. T. A. Best for the dinners and luncheons. Dr. T. V. Pearce and Mrs. Pearce, M.D., must have made many friends in their arrangements for the hospitality of overseas visitors; they had corresponded personally, and sometimes at length, with everyone of the overseas guests. The Ladies Committee had been admirably guided by Mrs. D. D. Payne. There were many others who should be mentioned in connexion with transport arrangements, premises, sport, the museum, and to all of them their thanks were due. The scientific programme was entirely in the hands of the presidents and other officers of the sections, and he hoped that the programme provided had been to the taste of the visitors.

THE REPRESENTATIVES' DINNER

The representatives attending the Annual Meeting at Harrogate, with their ladies, dined together at the Grand Hotel on Monday evening, June 27, under the chairmanship of Dr. E. A. Gregg. The proceedings were shortened owing to the fact that the Annual General Meeting of the Association was to follow immediately, and, as usual, the only toast to which there were speeches was the health of the Chairman of the Representative Body. This was in the hands of Dr. D. M. Hughes, of South-west Wales, who spoke of the charming and patient way in which Dr. Gregg had handled a difficult meeting. Although occasionally he had been stern, he had always been very fair and very straight. However troublesome representatives might become, however unjust their criticisms of the Association, however unlearned they might show themselves in the rules of procedure, the Chairman was invariably fatherly and kind. He had carried through his duties with a fortitude and a skill which they from the body of the hall had sincerely admired. Dr. Hughes also accorded a gracious welcome to Miss Gregg.

The toast was accorded musical honours.

Dr. Gregg said that he had awaited the judgment of his colleagues in the Representative Body with some trepidation, because as time diminished and the pressure of business in the meeting increased, he had had occasionally to be ruthless. But events showed that he need not have feared; and why indeed should he fear in any gathering of the British Medical Association? The members were invariably generous in their appraisement of any ability one put into one's job and in overlooking the many faults of which he himself was conscious. He must be forgiven if he had in the Chair done some things which he ought not to have done, and had omitted to do some things which he ought. His aim had been to get the business through. These annual meetings were a constant struggle to get a quart into a pint pot, to get through in three or four days an amount of work which ought to take twice as long if only the time were at their disposal. He thanked those concerned especially with the last set of amendments in Monday's proceedings—those dealing with the Association war memorial. He had taken unpardonable liberties with those amendments, doing all sorts of things which were unconstitutional, but it was the only way to get the thing completed. The representatives, like the generous people they were, had helped him through it. He spoke in conclusion of the pleasure and satisfaction of working for the Association.

MEDICAL MISSIONARY BREAKFAST

A small company accepted the invitation of the Medical Prayer Union to a "Missionary Breakfast" at Harrogate Hydro on July 1. The President of the Association, Dr. C. W. Curtis Bain, was in the chair, and introduced Dr. R. C. Cochrane, honorary director of the Leprosy Campaign for the Government of Madras, and formerly principal of the Christian Medical College, Vellore.

Dr. Cochrane spoke of the recent political advance of India, where in two years as much had been accomplished as in the previous fifty. He said that missionaries, like others, had to accept the fact that countries such as India were subscribing to an ideology under which it was the State's job to carry out the work of healing and were organizing hospitals along those lines. Although State medicine in the full sense of the term did not yet prevail in India, the Government was largely responsible for medical work. Some of them as missionaries twenty or thirty years ago, aware of the tremendous need, tended to get into a panic because they measured it only against their own poor resources; but they were primarily out there, not to meet need, but to show how need should be met, and to challenge the Government so that it might see that the right approach to the work of healing was a spiritual one.

They had to bring their contribution as physicians and surgeons into the set-up which they found in these missionary countries. Dr. Cochrane spoke of Gandhi, with whom he had conversations with the object of interesting him in the campaign against leprosy. Gandhi told him that he was already interested. He was the greatest leader, said Dr. Cochrane, that India had ever produced, and, moreover, a leader influenced greatly by Christian teaching. He trusted that Gandhi's influence would permeate the new India. In that new India, with its awareness of modern medicine as of other things, medical missionaries had an even greater task and responsibility than in the past.

RELIGIOUS SERVICES

Priests and Physicians

The official religious service in connexion with the Harrogate Meeting was held at St. Peter's on Tuesday afternoon, June 28 when the preacher was His Grace the Archbishop of York. Members robed in the Royal Hall, and, preceded by the professional staff and by the banner presented by the Mayor of Harrogate, walked to the Church. The Mayor and members of the Corporation also attended. The service, which was broadcast in the Northern Programme, was conducted by the Vicar (the Rev. R. H. Baines); the Bishop of Ripon (Right Rev. G. A. Chase, D.D.) was present. The lessons were read by Dr. H. Guy Dain and Dr. C. W. Curtis Bain, the new President. The two hymns were both by medical authors: "Lord of all being," by Oliver Wendell Holmes, and "Praise the Lord! ye heavens, adore Him," by Edward Ostler, an early nineteenth-century surgeon. The words of the anthem, "From Thee all skill and science flow," were by Charles Kingsley, set to music by Dr. Thalben-Ball. A collection for medical charities was taken.

Dr. Garbett, in his sermon, said that the Church had learned to welcome the great advances made in medicine and surgery. It saw in these advances the continuance, under new conditions, and with new methods, of its own healing work. There were various ways in which the Church could help the doctor. The properly trained and spiritually minded parish priest by his ministrations could co-operate with the physician in the

restoration of the sick. Many diseases which were at one time regarded as physical were now known to have their roots in the depths of the mind. Sometimes it was plain that an illness was due to a spiritual cause—depression, persistent and enervating anxiety, the darkness of melancholia, what our fathers would describe as sin. There were diseases for which the help of the priest was required. Advice and treatment given by the doctor needed sometimes to be supplemented by the gospel of faith and forgiveness. Sometimes the priest and the doctor working together could do what neither could do separately.

The Church could also join with the doctor in the war against such social evils as bad housing and malnutrition. Much had been done to reduce malnutrition, but he feared that many mothers of families still suffered from under-feeding. Much had also been done since the war to build new houses, but overcrowding was still an appalling evil. Here the Church could join with the medical profession in exposing these problems.

There was a third way in which the Church could help in the work of healing. It taught the value of the individual, and demanded that every man, woman, and child should be treated with respect and reverence as of value in the sight of God. There was a tendency to-day to lump individuals together and group them under the label of "the common man." There was no such thing as a common man. The medical profession had inherited a noble tradition of treating their patients as individuals with special needs and characteristics. In the medical profession the family doctor had always been held in affection and respect. It might not be so easy to continue in the future, with increasing specialism, the tradition whereby the doctor gave to each patient full individual attention. It would be tempting to make a swift diagnosis and set the patient in a groove in which all were treated in much the same way. Against this the overworked priest and the overworked doctor must be ever on their guard. The fundamental difference between the patient in a totalitarian and in a democratic State was that in the former his value to the State was the first consideration, and if he was feeble, crippled, and unable to do useful work he was thrown on the scrap-heap, whereas in the democratic State each was, or should be, treated according to his special needs. The medical profession, said the Archbishop in conclusion, was passing through a critical and anxious time, but he trusted that out of it would emerge ultimately great blessings for the community.

Roman Catholic Service

Roman Catholic members of the Association, some of them in academic gowns, attended the celebration of Benediction at St. Robert's Church, Harrogate, in the afternoon of June 30, when an address was given by the Bishop of Leeds (Rt. Rev. H. J. Poskitt, D.D.).

The work of medicine, said the Bishop, always ended in apparent failure. No matter how good the doctor or how marvellous the treatment, sooner or later the patient died. It seemed always as if doctors were trying to do the impossible, to confer immortality upon the mortal, to defy the Word of God, which declared, "Dust thou art, and unto dust shalt thou return." Not only was there apparent conflict in the sphere of life and death but in that of pain and suffering. The Christian faith taught that man was destined by the Fall to suffer in this world, and yet the whole work of doctors was to fight such suffering and to banish pain. But all this supposed conflict between religion and medicine was superficial. The work of medicine, so far from contravening the law of God, was fulfilling it in redeeming humanity and exalting the value of human life.

The Bishop went on to remind Catholic doctors that many of the great moral problems were in the field of medicine—contraception, artificial insemination, sterilization of the unfit, euthanasia. It was most important that doctors should be properly instructed in handling ethics to meet these materialistic theories on their own ground. Catholic doctors should make it their business to join the Guild of St. Luke, where they would breathe the Catholic atmosphere and would be taught Catholic principles as applied to the practice of medicine.

OPENING OF EXHIBITION

The Exhibition of Surgical Instruments and Appliances, Drugs, Foods, and Books was installed in the Sun Pavilion at Harrogate. It was opened on the first day of the meeting by the President, Dr. C. W. Curtis Bain.

In his first public speech as President, Dr. Bain said that one of the preoccupations of those who had arranged that meeting at Harrogate was to find a place where the exhibitors could display their products to advantage. The medical profession realized to the full the value of the contribution which the manufacturing firms represented in the Exhibition were making to medicine. One had only to think of the products of modern times—insulin, liver extracts, the vitamins, thiouracil, mercury diuretics, and, not least, the sulphonamides and penicillin—to realize what had been achieved in research and production. Now they were awaiting a product which it was hoped would revolutionize the treatment of rheumatoid arthritis.

There had been a change in the medical profession since the meeting a year ago. In fact, the manufacturers represented in the Exhibition seemed to be one of the few examples of free enterprise remaining. He wished the exhibitors a successful week, and declared the Exhibition open.

The Chairman of Council, in thanking the President, spoke of the ever-increasing interest of the preparations which were introduced for the treatment of disease. The last session of the Representative Meeting was put back a little in order that representatives might look round the Exhibition.

THE POPULAR LECTURE

"HEALTH AND HAPPINESS": BY DR. CHARLES HILL

The closing event of the Harrogate Meeting was the Popular Lecture, which was delivered in the Royal Hall on July 1 to an audience of about 1,300. The lecturer was Dr. Charles Hill, and the chair was taken by the President of the Association, Dr. C. W. Curtis Bain, who was accompanied by the principal officers of the meeting. The Mayor of Harrogate was also on the platform.

Dr. Hill said that his chosen subject, "Health and Happiness," presented so vast a canvas that it was impossible to do more than touch on some of its aspects and make some random reflections. Health and happiness were essentially matters for the individual. Health was difficult to define and measure. Mortality figures, the incidence of infectious diseases, the extent of incapacity were statistically demonstrable, and there had been various health surveys, but even when the last figure had been worked out the picture remained incomplete. It was necessary to beware alike of the politicians who painted improved health in rosy colours with the implication that they themselves were responsible for the improvement, and those who drew a mournful and distressful picture with the object of inflicting their particular nostrums on the people.

What was health? It was more than mere freedom from disease and discomfort. It had been said that it was essentially unawareness of what was going on inside. Mark Twain defined digestive health as, "Eating your food and remaining in blissful ignorance of its melancholy fate in the department below." But what was health in the ideal sense? Was it not something over and above mere mechanical fitness or mere freedom from organic disease? Was there not some "plus" which represented the difference between ordinary existence and the buoyant lively existence of the exuberantly healthy?

There were those who found their happiness not in health but in the lack of it—who "enjoyed bad health." "There are people who do not hesitate even in this beautiful town of yours to throw their varicose veins in your face." But another form of inverted happiness was an excessive interest in positive health—the muscle boy who judged health by the measurement of his biceps, who proudly took his 12 short breaths before the open window in the morning. There were the people who went to near and distant spas in order to absorb such sustaining fluids as might be there available. There was an attitude of mind which was obsessed with health. On the

other hand, the genuinely healthy attitude of mind was not one preoccupied with disease nor with health itself but a sane and sensible outlook based on a knowledge of how the human body worked, with a determination to observe the simple rules of healthy conduct which led to the maintenance and development of health.

The Components of Happiness

From this brief survey of health Dr. Charles Hill turned to a consideration of the problem of happiness. He refused to consider happiness in terms of endocrine glands or of psychotherapy. Happiness was difficult without health, but complete and buoyant health was impossible without happiness. Perhaps to define happiness, to condition it too closely, was to endanger it. Happiness did not depend on surroundings. "More happiness may be experienced by a man playing darts in a pub than by a young hussy sipping cocktails in a high-class hotel." A great deal of happiness in this world came from making other people happy. One of the tragedies of recent developments, however commendable such developments might be on some of their merits, was that they tended to narrow the opportunities of service to others. Too many people were trying to squeeze happiness out of life instead of putting something into it.

An often forgotten source of happiness was a little praise. This was not sufficiently realized in the home. The healthy emotional development of a child needed as part of the building-up process a certain amount of self-confidence and a sense of his worth-whileness which praise could give. In earlier and less sophisticated days there was a warmth and richness of happiness which we were in danger of losing to-day. There was happiness, too, in being treated as an individual and not as a number. There was happiness in being able to live one's life in one's own sweet way. There was some danger of losing one's self in the organization of one's life. Happiness was a matter of simple, unexpected pleasures—"a job to do, something to enthuse about, something to get on with, something that makes you work—for the time has come when we must preach and recognize the essential virtues of work. The mother with the large family has not time to be unhappy. We are pressing for more and more leisure and shorter and shorter hours before we have mastered the art of using our leisure."

Was security necessary for happiness? In some measure, yes. Certainly a sense of security was necessary to the happiness of children. But it was possible that we might be heading for a new problem—the problem of excessive security. Had civilization increased our health and happiness? Well, man had certainly learned the erect posture, but the orthopaedic surgeons were very busy. We drew food from every continent in the world, but digestive troubles increased year by year. Nicotine, alcohol, caffeine—we relied on them more and more in a sort of vague belief that there lay the road to happiness, but we knew that that belief was vain. We knew full well between ourselves that to base our search for happiness on stimulants and narcotics was to lose the quest. We were in fact pursuing something elusive if we set out to search for happiness along such roads. He agreed that many who preached the simple life did not practise it, and told the story of the surgeon who, after giving certain advice, was reminded that he did not follow it himself. His reply was that he was a signpost, "and you do not expect a signpost to travel to where it points."

A Return to the Greek Ideal

Health was largely not a matter of hospitals, doctors, and nurses, but of good housing, good food, and a right attitude of mind, a sensible observance of the rules of living, facilities for education and recreation, and, not least, the individual's assumption of his own responsibilities in this field. A return was needed to the Greek ideal of balance, moderation, and the restoration of the family as the natural unit of society. In listing some of the things which made for happiness he had omitted the satisfaction which came from happiness in marriage. Men were apt to treat the subject with a cynical laugh, but let them be unashamed in this matter and admit that marriage had been the source of richest satisfaction and happiness. A cynical Restoration poet declared that courtship is to marriage what a witty prologue is to a dull play. Well, let them face the dullness, the humdrum of matrimony, and find there a greater satisfaction than in all the glittering externals of this life of ours.

That view might be old-fashioned, reminiscent of lace curtains and aspidistras. But this country could do with a little more of the old-fashioned loyalties and co-operations and, within the family circle, could find greater delight in the simple, the small, the ordinary.

In closing, Dr. Hill pleaded for a more intelligent attitude towards the achievements of medicine. The notion that health was mainly a matter of the medicine-bottle must be exploded. There had been enormous progress in the treatment of disease by drugs during the last 16 or 17 years. Medicine was equipped as never before to fight and to treat a number of infections. But it still remained true that there were far too many people who swallowed a bottle of medicine and expected some magic to be wrought. There was still a secret faith in the unorthodox and the dramatic. Perhaps it was well not to deny people their dreams, not to deride the idea that the eating of crusts was the effective way of producing ringlets in the hair. Let them beware of the invention of new symptoms and the building up of new diseases for which some expensive quack remedy was immediately forthcoming.

THE PATHOLOGICAL MUSEUM

The Pathological Museum, which was opened by Professor M. J. Stewart, attracted a steady flow of visitors throughout the week. The whole exhibit had been admirably planned and laid out by the museum committee, with Dr. Georgiana Bonser as chairman and Drs. T. V. Sutherland and J. V. Wilson as joint secretaries. What made the museum particularly attractive to a diversity of medical visitors was the variety and scope of the exhibits. Pathology itself was well represented by a fine collection of specimens from Professor Stewart illustrating ulcers, cancers, and polyps of the stomach, and cicatricial deformity with pouch formation of the first part of the duodenum following chronic duodenal ulceration. Professor C. Polson (Leeds) supplied ophthalmological specimens of melanomata, gliomata, and various non-malignant conditions. Specimens illustrating bone and joint diseases were contributed by Dr. D. H. Collins (Leeds). An assorted collection of interesting and rare exhibits came from Professors R. J. V. Pulvertaft (London), J. Magnus (London), and T. F. Hewer and his colleagues (Bristol). Dr. J. N. Wilson showed specimens directing attention to the frequency of neoplastic disease in infancy and childhood. Dr. J. W. Burn (Grimsby) showed some of his unique collection of specimens of congenital heart deformities, and there was a most attractive exhibition of medical paintings done by Mary D. Brown for Mr. Allison, of the General Infirmary, Leeds, depicting cancers and peptic ulcers of the stomach and oesophagus. In the same room were photographs from Drs. A. Macpherson and G. M. Findlay (London) of phagedaenic ulcers, noma, and gingivitis treated effectively with penicillin.

An exhibit which excited much comment was a series of electron photomicrographs and x-ray diffraction photographs from Professor W. T. Astbury (Department of Biomolecular Structure, Leeds) showing the detailed structure of muscle and related tissues. The cross-striated collagen fibrils in the connective tissue of human skin and the hill and valley ridging of the epidermis were wonderful to behold. There were other excellent anatomical exhibits in this section, while in another room Professor A. C. Frazer (Birmingham) had a series of diagrams illustrating the partition hypothesis of fat absorption with special reference to the sprue syndrome.

Professor H. E. Shortt (London) had a coloured diagram and microscopical preparations showing the complete cycle, including the exo-erythrocytic stage in the liver of the mammalian malarial parasite, *Plasmodium cynomolgi*, and Professor B. G. Maegraith (Liverpool) demonstrated the pathogenesis of hepatic centrilobular degeneration and necrosis (anoxic syndrome) in the liver lesions in malaria.

An interesting exhibit put up by the Pharmaceutical Society showed methods of sterilizing glassware, oily solutions, suspensions, and powders, etc.; *p*H estimation and sterility tests of solutions for injection; the curarizing effect of decamethonium iodide; and the pharmaceutical application of ultra-sonics.

GOLF COMPETITIONS

The golf competitions at Harrogate attracted a larger entry than usual. As there were three courses available the variety added much to the pleasure of the competitors. The very dry conditions made play on all courses difficult.

Treasurer's Cup.—This was played at Pannal Golf Club and won by Dr. John K. Mackay, of Middlesbrough, with a score of 73 less 1=72 (scratch score being 75) from a field of 29 entrants. The runner up was Dr. L. Hurrich, of Bradford, with 80 less 7=73.

Leinster and Childe Cups.—This competition against bogey was played on the course of the Oakdale Golf Club. The Leinster cup open to all was won by Dr. G. Blair (7), of Middlesbrough, 1 up. The Childe Cup open to those with handicaps of 10 and over was won by Dr. Arwyn Evans (10), of Cardiff, 3 down.

Notts Ladies Challenge Cup.—This was played on the course of the Harrogate Golf Club and unfortunately the entry was small. The winner was Mrs C. R. D. Leeds with a score of 89 less 17=72. The runner up was Dr. M. E. Johnson with a score of 92 less 19=73.

OTHER ENTERTAINMENTS

Visitors to the Annual Meeting at Harrogate were given the choice of many entertainments. Some of these have been described in this issue, but there were many others, more than enough to fill every minute of a crowded week.

While the representatives were debating arbitration some of their ladies, thanks to the kindness of H.R.H. the Princess Royal and the Earl of Harewood, enjoyed a visit to Harewood Park and Gardens. Over the first week-end there were opportunities to admire Rievaulx and Byland Abbeys, Ripon and Fountains Abbey, and to explore the Richmond and Wensleydale countryside. On the Sunday evening there was an operatic concert.

Throughout the week there were tours to Ilkley and Bolton Abbey, Brimham Rocks, Fewston, Burnsall and Appletreewick, Aldborough and Ripley Castle, Spofforth Castle and Plompton Rocks. York attracted many visitors and so did Templenewsam. The excursion to Haworth and the Brontë country was popular and so were visits to Knaresborough Market, Listers Mills, and other centres. Everywhere the organization ran smoothly, and hospitality maintained the Yorkshire tradition.

For the less energetic there were film shows every day and notably "The Medical Motion Picture" which was prepared originally for the centenary meeting of the American Medical Association. There was a cocktail party for the Press and a sherry party arranged by the Medical Women's Federation.

Two functions were attended by many overseas delegates and their ladies. At the British Council's reception on Tuesday evening the guests were welcomed by Sir Gordon Gordon-Taylor, and on the following day a cocktail party was given by the Empire Medical Advisory Bureau.

The Glasgow Graduates had their dinner on Saturday, June 25, and the Irish Graduates' Lunch, which used to be held at annual meetings before the war, was again an enjoyable occasion. After this and other luncheon parties tours of the Royal Baths were popular, and the famous waters were sampled freely.

A great deal of interest was shown in the mobile health unit provided by the Joseph Rowntree Village Trust and on view for two days near the Royal Hall. The ladies found even more to interest them in the mannequin parade which formed a novel part of the Garden Party given by the Harrogate Division on Thursday, June 30.

During the whole meeting there was garden party weather. All the visitors were delighted with Harrogate, and there were few who did not enjoy private hospitality as much as the many more formal entertainments.

HEARD AT HARROGATE

The A.R.M.

The Representative Meeting was the largest since long before the war, and the debates, though scarcely tinged with bitterness (except against the Minister of Health), showed little humorous edge either. By Saturday night fewer than a hundred of the 250 motions and amendments on the agenda had been disposed of. Generally the first morning of the Representative Meeting is given up largely to formal matters, but at Harrogate scarcely were the representatives seated before they were plunged into the big discussion on arbitration and Whitley machinery. If anybody had an idea that the setting up of autonomous committees would ease the burden on the Representative Body, and shift a number of matters on to a conference representing general practitioners in the Service, or one representing consultants, he was disillusioned. The reports of both the General Medical Service and the Central Consultants and Specialists Committees bristled with points which speakers were eager to take up. Yet during the first two days of the meeting there was only one occasion, and that over a relatively minor matter, when there was a close division on a show of hands. Almost everything else was unanimous, or as near unanimous as makes no difference. Once only the voting revealed a majority of two. Someone demanded a recount, and it was put to the meeting whether there should be a recount or not, with the inevitable result that the ayes and noes were again relatively equal. A recount was, however, taken and showed that the majority of two had been halved. The Chairman was assailed with advice as to what he should do in these circumstances—have a card vote, a roll call, a division—but he took the sensible course of proceeding to the next business.

Emperors of Fourth Estate

The Press at Harrogate were accommodated in curtained boxes all around the arena, rather like emperors watching the gladiatorial combat. It is one of the blessings of microphone and amplifier that speeches in large assemblies can be heard equally well in any part of the building, so that there is no longer any need for the reporters to be crowded together at one long table underneath the platform, where they intimidate some speakers and embolden others.

The Section Meetings

It was a new experience for the Sections to gather in comfortable hotel lounges instead of in hard-seated and bare lecture theatres, and to have a break in mid-morning for coffee. The members who attended took full advantage of these amenities, and found that the easy chairs and gilt mirrors and the ornate furniture and tapestries of luxury hotels interfered not at all with their appreciation of angiocardiograms or whatever it might be which was demonstrated on the lantern. The four-day Section meeting was an innovation which seemed to justify itself. In one of the Sections which met on each of the four days the attendance on the last day was the best of all, except for one combined meeting with another Section.

Old Days Back

The Royal Hall at Harrogate, which seats 1,250 people, and stands a good many more, underwent various transformations during Annual Meeting week, and if halls have any personality it must have been rendered giddy by its experiences. For four days it was the forum of medico-political argument, interrupted by a Sunday on which it staged an operatic celebrity concert. On the fourth night it was like a senate house, with gorgeous academic robes and significant ceremonies. On the following night, when the Mayor of Harrogate gave a civic reception to the Association, receiving as many guests as the hall would hold, it was given up to revelry. The arena was cleared for dancing, and those who looked on from the amphitheatre or the galleries probably had as much enjoyment as did the eminent, and some of them venerable, members of the profession gyrating below. But in the corridors afterwards there were tables stretching out apparently to infinity and laden with confectionery. An old member of the Association declared that the old days had really come back again.

STANDING ADVISORY COMMITTEES
CHAIRMEN APPOINTED

The Standing Advisory Committees constituted by the Minister of Health (*Supplement*, Feb. 5, p. 58, and Feb. 12, p. 72) to advise him and the Central Health Services Council on various parts of the National Health Service have elected the following chairmen and vice-chairmen (their home town is given in parentheses):

Medical.—Chairman: Professor Sir Henry Cohen (Liverpool). Vice-chairman: Dr. J. A. Brown (Birmingham).

Dental.—Chairman: Professor R. V. Bradlaw (Newcastle-upon-Tyne). Vice-chairman: Mr. H. T. Roper-Hall (Birmingham).

Pharmaceutical.—Chairman: Alderman W. J. Tristram, M.P.S. (Liverpool). Vice-chairman: Mr. R. H. Henriksen, M.P.S. London).

Nursing.—Chairman: Miss C. H. Alexander, S.R.N. (London). Vice-chairman: Alderman A. F. Bradbeer (Birmingham).

Maternity and Midwifery.—Chairman: Sir William Gilliatt, P.R.C.O.G. (London). Vice-chairman: Mr. A. W. Walker (Cambridge).

Mental Health.—Chairman: Sir Allen Daley (London). Vice-chairman: Dr. W. G. Masefield (Eastbourne).

Tuberculosis.—Chairman: Professor Sir Harry Platt (Manchester). Vice-chairman: Sir Robert Young (London).

Cancer and Radiotherapy.—Chairman: Sir Ernest Rock Carling (London). Vice-chairman: Professor E. Finch (Sheffield).

Ophthalmic.—No permanent chairman has yet been appointed.

The Minister has appointed Miss C. H. Alexander, S.R.N., matron of the London Hospital, to fill a vacancy on the Central Health Services Council caused by the resignation of Miss M. E. G. Milne, S.R.N., on the grounds of ill-health.

MEDICAL AUXILIARY WORKERS
RECRUITMENT AND TRAINING

The Minister of Health and the Secretary of State for Scotland have set up eight committees to review questions of recruitment, training, and qualifications of medical auxiliary workers in the National Health Service. All eight committees are under the chairmanship of Mr. V. Zachary Cope, former President of the Board of Registration of Medical Auxiliaries. Two members on all the committees are Dr. G. A. Clark, Principal Medical Officer, Ministry of Health, and Mr. A. B. Taylor, Assistant Secretary, Department of Health for Scotland. The other members of each committee are:

Almoners.—Dr. F. GRUNDY, Miss M. M. McInnes, Miss M. J. Roxburgh. One vacancy.

Chiropodists.—Mr. ST. J. D. BUXTON, Miss D. Grant Nisbet, Miss C. F. Norrie, Dr. J. A. SCOTT.

Dietitians.—Miss M. C. Broatch, Professor S. J. COWELL, Dr. D. P. CUTHBERTSON, Dr. G. GRAHAM, Miss R. Pybus.

Laboratory Technicians.—Mr. T. C. Dodds, Mr. A. Norman, Dr. G. S. WILSON. Two vacancies.

Occupational Therapists.—Miss M. D. Barr, Miss E. M. Macdonald, Mr. L. W. PLEWES, Dr. T. P. REES.

Physiotherapists.—Mr. J. T. Buchan, Mr. J. H. C. Colson, Dr. J. L. LIVINGSTONE, Miss M. I. V. Mann, Miss M. U. Sharpe, Mr. T. T. STAMM, Dr. W. S. TEGNER.

Radiographers.—Dr. S. COCHRANE SHANKS, Professor G. Stead, Mr. C. Lovell Stiles, Mr. R. White, Professor B. W. WINDEYER.

Speech Therapists.—Dr. E. J. BOOME, Dr. J. B. GAYLOR, Mr. V. E. NEGUS, Dr. C. C. WORSTER-DROUGHT. One vacancy.

The secretary of all the committees is Mr. J. G. Paterson, of the Ministry of Health.

CONSULTANTS ADVISED NOT TO SIGN

The Joint Committee of the Royal Colleges, the Royal Scottish Corporations, and the Central Consultants and Specialists Committee sent the following letter to the Ministry of Health on July 5.

Dear Sir William,

The Joint Committee at its meeting to-day, after considering the views of its constituent bodies, passed the following resolutions:

1. The Joint Committee finds itself unable at present to advise consultants and specialists to enter into permanent contracts on the basis now offered by the Minister.

2. The Joint Committee finds it essential to reopen discussions with the Minister on the following points:

(i) There should be established for consultants and specialists a permanent negotiating machinery, the Minister or the representatives of the profession having the right, in the event of disagreement, within an agreed range of subjects to refer the matter for settlement by arbitration, both parties being bound by the award of the arbitrator.

The agreed range of subjects should include any terms and conditions of service affecting remuneration.

The form of contract should be revised so as to make it clear that the terms and conditions of service offered are those which have been agreed with the profession or determined by arbitration, and not "determined from time to time by the Minister of Health."

(ii) Facilities for private treatment in hospital should be maintained and developed throughout the country for those who desire them.

(iii) Information concerning the remuneration of part-time clinical teachers should be available before the practitioners concerned are called upon to sign permanent contracts.

3. *In the meantime the Joint Committee recommends consultants and specialists not to sign permanent contracts until further advice is tendered by the Joint Committee.*

The Joint Committee desires an interview in order to discuss these resolutions.

Yours sincerely,

(Signed) LIONEL WHITBY,
Chairman of the Joint Committee.

Questions Answered

Three Problems

Q.—*(1) Is a separate fee still payable for a doctor called to a road accident? If so, by what procedure is the fee obtained? I was recently called to an accident involving a motor-car and motor-cycle.*

(2) I have recently been requested to immunize and vaccinate State patients privately. Can a doctor charge for this service if desired by the patient and the material is purchased by the doctor?

(3) I have received numerous requests for the prescribing on Form E.C.10 of various types of contraceptives. In some cases contraception is advisable for medical reasons, and in others desirable for social and economic reasons. Can a doctor order these materials on Form E.C.10?

A.—(1) A separate fee under Section 16 of the Road Traffic Act, 1934, may be claimed when a doctor is called to a road accident. The claim should be made immediately to the injured party's insurance company.

(2) If the patient is a public patient of the doctor concerned no private fee may be claimed in respect of vaccination and immunization.

(3) Discussions are now in progress on the prescribing of contraceptive appliances on Form E.C.10 whether for medical or social reasons. At present these appliances may not be prescribed.

Correspondence

Comparative Incomes

SIR,—The observations by "A.C.E." (*Supplement*, June 18, p. 354) regarding the comparative incomes of medical practitioners, dentists, etc., are most interesting. In view of the present dissatisfaction among medical officers in the local authority medical services regarding salaries, the following table of comparative rates of remuneration of public health medical officers, specialists employed part-time by local authorities, and N.H.I. fees of general practitioners over the past ten years may prove of interest to members of the profession.

	Askwith Memorandum for Assistant Medical Officers	General Practitioners' Capitation Fees	Specialists' Fees for Part-time L.A. Service	
			Consultation	Sessional
1939	£500 - £25 to £700	9s.	£2 2s. 0d.	£2 12s. 6d.
1942	do	9s. 9d. (i.e. + 8%)	do.	do.
1943	do	10s. 6d. (i.e. + 16%)	£2 10s. 4d. (i.e. + 20%)	£3 3s. 0d. (i.e. + 20%)
1946	£650 - £25 to £850 (i.e. + 30%)	15s. 6d. (i.e. + 72%)	do.	do.
1947	£675 - £25 to £875 (i.e. + 35%)	do.	£4 4s. 0d. (i.e. + 100%)	£4 4s. 0d. (i.e. + 60%)
1949	do	Approx. 17s. (i.e. + 88%)	—	—

The percentages given above in respect of assistant medical officers are the increases of the minimum salaries in each range over the 1939 minimum. A person on the maximum salary (£700) in 1939 and now getting £875 p.a. is proportionately worse off, as his increment is only 25% of his 1939 remuneration.

Probably there are few members of the profession outside the public health medical services who are aware that medical practitioners in these services are still paid on a scale originally introduced in 1929, and as recently as 1946 were receiving salaries at the same figure as in 1929 apart from a small war bonus (an increase of only 9% or less).—I am, etc.,

Stafford. H. L. SETTLE.

Hospital Waiting-lists

SIR,—Is it not time that Mr. Bevan realized, or that we made him realize, that his own vindictive regulations are largely responsible for the hospital waiting-lists?

In pre-war days, when accommodation itself was not at the low ebb of the post-war period, the general wards mainly served the "working-class" population. The middle and professional classes did not, as now, compete for admission to these wards, for they had a choice of reasonably priced rooms or cubicles in the hospitals, or a fair range of nursing-home prices.

By Mr. Bevan's regulations the private accommodation in hospitals is now prohibitive. Many London nursing-homes were bombed, and new ones are not likely to arise so long as Mr. Bevan retains the "right" of taking over any going concern of this nature.

Thus at present the entire population is competing for admission to beds formerly mainly reserved for the working classes. In fact, foreign visitors are also allowed to add to the lists and are freely catered for at the taxpayer's expense. But the private British patient—tax-paying and scheme-contributing—obtains no benefits at all, and pays purchase tax on medicines.

These regulations arise at a time of low accommodation, shortage of staff, shortage of visiting and private nurses and of home-helps. It is therefore almost impossible to be ill and adequately nursed at home. Therefore again, the waiting-lists swell.

Cannot the B.M.A. insist:

(1) That in the future any nursing-home or small hospital of private enterprise be un-interfered with?

(2) Some reasonable paying accommodation in hospitals be allowed?

(3) Foreign visitors not accepted in the scheme?

(4) Purchase tax on medicines be reconsidered?

(5) To save taxpayers, some contribution by the recipient be made for wigs, surgical corsets, etc., also for the second or third pair of glasses?

The scheme from the beginning has had many anomalies, many injustices, and many extravagant vote-catching sections. The B.M.A., it appears to me, can only go on trying persistently to stand up for the rights of *all* sections of the population and patch up a singularly ill-thought-out programme.—I am, etc.,

London, W.1. A. BROMAN.

Special Tax

SIR,—The slogan at the time of the introduction of the National Health Service was, "No payment at the time of service." If it was the intention to raise the slogan to the status of a *principle*, which was my impression at the time, subsequent experience has surely proved it wrong. The cost to the Exchequer for the services of the medical profession was accurately forecast. The cost of the services in terms of effort on the part of the profession was completely ignored. How often have we not heard the phrase, "I have come to you, doctor, for such and such, because by so doing it costs me nothing"? The saving of a paltry sum of money for the odd bandage or packet of aspirins *costs* the doctor expenditure of time and effort; but the thoughtless patient assesses it as a pure saving for himself in terms of money.

The bill for the medicines, spectacles, and what not, paid for on a cost-per-item-of-service basis, could not be so accurately forecast. Unlike the item of professional service, its cost is not in sweat and weariness but in terms of pounds, shillings, and pence. I am not concerned to demonstrate the rottenness of the slogan, "No payment at the time of service," elevated to the status of a principle in practice, but I am most concerned to support most strenuously the plea of Dr. Peter H. Keppich (*Supplement*, May 28, p. 300) that any form of contributory payment that may be introduced should not be directed to assessing each item of medical service at either a shilling, a penny, or a pound.

I should be loath to see it assessed at anything in terms of money. Let us take our living in terms of capitation or salary, as you please, for we have to live. But let the item of payment for service at the time of service be directed to the charge of 1s. for each item on a prescription paid directly to the chemist, who is in most instances also a retailer of private prescriptions of his own or proprietary firms. Such a standard charge per item prescribed could be easily collected, would act as a safeguard on the expenditure of public money, and indirectly would relieve the burden on the profession.

I would make only one exception: items to children under school-leaving age should be left free of charge, thus ensuring no neglect of children's ailments.—I am, etc.,

South Molton, Devon. R. A. NASH.

Pay of Service Medical Officers

SIR,—I have read with interest and mixed feelings the letter of "R.A.M.C." in the *Supplement* of April 30 (p. 258), which I received to-day.

I quite agree that the remuneration of medical officers in the permanent Forces is too low and in some cases totally out of proportion to the work that they do. For example, a friend of mine on this overseas station is shore-based and attends the wives and families of the naval and dockyard personnel; and he has estimated that, if he were "outside" as a civilian general practitioner under the N.H.S. scheme, the fees that he would receive from his maternity work alone would be greater than his present rate of pay.

On the other hand the medical services have a higher rate of pay than the executive branch: I, in my second year in the Service, have a higher rate of pay than the executive officer in this ship, who is due for his half-stripe this year and is one year my senior in age. If the B.M.A. Council's proposals were implemented, then it would be grossly unfair to the executive branch if their pay was not proportionately raised.

The theory advanced that medical administrative work should be treated as a specialist appointment, and therefore should

receive specialist emoluments, must amuse the general practitioner working in the N.H.S., with his increased secretarial work, and also the executive officers or adjutants, who have as much, if not more, administrative work but do not get an increased rate of pay. On the other hand, some form of incentive for the doctor with higher degrees to enter or remain in the Services will have to be devised, but I cannot foresee the Lords Commissioners of the Navy or the Army or Air Force Councils permitting a gross disparity of pay between the different branches of their Services, rank for rank.

Does this R.A.M.C. officer consider himself worse off financially than an executive officer of similar rank in his unit? If so, he has just cause for complaint. But if he chooses to remain in the Services he should not start comparing his financial status with that of his colleagues in civilian practice, he should consider the discrepancy in pay of an Army officer with that of those in a similar position in other professions. He may then be thankful he did not choose the Church.—I am, etc.,

SURGEON-LIEUTENANT, R.N.V.R.

Rate of Payment

SIR,—Surely doctors in the underpaid areas are entitled to more support than they seem to be getting from the Association. Headquarters declare that proof is forthcoming that sufficient money has been paid into the Central Pool to allow a capitation fee of 17s. 5d. per annum. Here in Cornwall doctors are being paid at the rate of 15s. 5d. per annum. The difference must be going to someone, but it is difficult to discover to whom. To find oneself less well-off by £200 per annum than doctors in other areas with lists of the same size is a disquieting experience.

Again, the mileage unit in Devon is worth precisely 25% more than the same unit in Cornwall. Why should a doctor in Cornwall receive a cheque for £100 while his colleague "over the water" with the same number of units on his list receives £125?

Are we, in this county, subsidizing inefficiency on the administrative side in our own area or at a higher level?—I am, etc.,

Launceston, Cornwall. DONALD M. O'CONNOR.

*** The Secretary of the Association writes: Basic salaries and inflation of doctors' lists are the two main causes of the lower rate of payment in most areas. For causes of inflation, see "The Secretary Reports" (*Supplement*, June 4, p. 303). Inflation does not necessarily result in underpayment. Its effect is that the properly constituted "pool" has to be spread over many more names than would be the case if doctors' lists were cleared. The General Medical Services Committee has discussed with the Ministry of Health the question of clearing doctors' lists as speedily as possible.

Transport to Hospital

SIR,—Recently a directive has been issued by the local executive council concerning the use of free transport to hospital. It states that a patient may be allowed this service on condition that his illness is of such a degree that he is unable to travel by public transport.

Just as I have to sign false certificates to enable patients to obtain corsets, so I am now forced to order transport, willy-nilly, unless I wish to alienate the patient's feeling for his doctor. How can one possibly judge in every case who shall ride in comfort and who shall fight his way to hospital as best he can? Admittedly, there are a few clear-cut cases, but the vast majority cannot be assessed so easily. Home conditions, difficulty of access to public transport, the awkward hour of appointment—all these factors may be a greater disability to the patient than "the degree of illness." Here again it should not fall to the doctor to stand in judgment.

Quite apart from this problem is the burden placed on the doctor of finding himself deputy unpaid "M.T.O." In my own rural practice I have had frequently to make a visit of 10 miles or more solely to inform the patient when his transport will arrive and to confirm that I have managed to arrange it. Many other examples of these complications can be quoted, such as the occasions when the car has been delayed or fails to materialize. Frantic 'phone calls on my part from a telephone kiosk near one of my branch surgeries are usually in vain, and one is held responsible for all these difficulties, which are bound to arise from the very nature of the scheme. Incidentally, each of my 'phone calls costs a minimum of sixpence, and on one occasion it cost me 3s. 8d. The eightpence had to be borrowed from the patient. One county ambulance centre now require a *special* form to be filled up in every case, but they offer to pay postage, so one should not grumble too much.

Another aspect is the appalling number of cars which have to be ordered for patients attending the out-patient physiotherapy department of a hospital. In many instances the doctor has not ordered the treatment himself, and in some cases the whole set-up is the happy hunting-ground of the conversion hysteric, who prescribes for himself different forms of electrical treatment with increasing enthusiasm for his newfound outlet.

If we have decided that this country can afford a "free" health service, and that the patients are to be provided with hospital cars, then let the patient himself contact the ambulance control centre and explain his circumstances to the officer concerned. As long as certain basic requirements are fulfilled, then transport should be granted.—I am, etc.,

JOHN ESKELL.

St. Briavels, Glos.

Association Notices

PHYSICAL MEDICINE GROUP

A meeting of the Physical Medicine Group will be held at B.M.A. House on Friday, July 15, 1949, at 2 p.m. The main business will be to receive the report of the Group Committee and to discuss any other matters of interest to members.

After the general meeting, at approximately 3 p.m., Dr. W. S. Tegner, chairman of the Group Committee, will address the meeting on his recent visit to America for the International Congress for Rheumatic Diseases. Any non-members of the Group who wish to attend to hear this address will be welcome.

CHARLES HILL,
Secretary.

Diary of Central Meetings

JULY

14	Thurs.	*Journal* Committee, 10 a.m.
14	Thurs.	Publishing Subcommittee, 11 a.m.
15	Fri.	Physical Medicine Group Committee, 12 noon.
19	Tues.	Pharmacopoeia Subcommittee, 2 p.m.
26	Tues.	Proprietary Medicines Committee, 2 p.m.
27	Wed.	Committee on the Postgraduate Education of General Practitioners, 2 p.m.
28	Thurs.	General Medical Services Committee, 11 a.m.
28	Thurs.	Committee on Psychiatry and the Law, 2 p.m.

Branch and Division Meetings to be Held

CAMBS AND HUNTS BRANCH.—At the Town Hall, Peterborough, Thursday, Aug. 4, 1 p.m., annual general meeting. Election of officers for the year 1949–50.

SOUTH WALES AND MONMOUTHSHIRE BRANCH.—At Osborne Hotel, Mumbles, near Swansea, Thursday, July 14, 3.15 p.m., annual general meeting.

SUFFOLK BRANCH.—At Everards Hotel, Corn Hill, Bury St. Edmunds, Thursday, July 14, 11.30 a.m., annual general meeting. Mr. M. W. D. Bulman: "The New Look in Obstetrics."

"THE SECRETARY REPORTS"

This report will not appear next week but will be resumed in a subsequent issue of the *Supplement*.

BRITISH MEDICAL JOURNAL

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THE ASSOCIATION OF CERTAIN OVARIAN CELLS WITH ENDOMETRIAL CANCER*

BY

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AND

BURJOR DASTUR, M.D.Bombay, M.R.C.O.G.

(From the Williamson Laboratory of the Medical College, from the Gynaecological Department, St. Bartholomew's Hospital, London, and from St. Andrew's Hospital, Dollis Hill)

Much attention has been paid in recent years to a possible relation between ovarian function and the development of adenocarcinoma of the endometrium. Marital status and previous pregnancies have been studied by Healy and Brown (1939), and delayed menopause followed by the development of endometrial carcinoma by Crossen and Hobbs (1935), Randall (1945), Masson and Gregg (1940), and Taylor and Millen (1938). A great deal has been written on a possible connexion between endometrial hyperplasia and the development of carcinoma (Novak and Yui, 1936 ; Jones and Brewer, 1941 ; Howard Taylor, 1932). The high incidence of corpus carcinoma with granulosa- and theca-cell tumours has been studied by Schröder (1922), Dockerty (1940), Hodgson, Dockerty, and Mussen (1945), Banner and Dockerty (1945), and Hertig (1945). Recently a paper by Woll, Hertig, Van S. Smith, and Johnson (1948) has drawn attention to the presence of cortical granulomata and thecomatosis in association with adenocarcinoma of the endometrium.

Case 1

On June 5, 1947, a married woman aged 81, with three children, was operated upon. A large combined Brenner tumour and pseudomucinous cystadenoma of the left ovary, together with a small cystic right ovary and the uterus, were removed (W.S.). An early adenocarcinoma of the endometrium was found in the uterus. The large tumour was a typical combined Brenner tumour and pseudomucinous cystadenoma. The case was examined with some care histologically, because it was hoped to investigate the cause of uterine bleeding with Brenner tumours. In the right ovary was a small Brenner tumour together with a cystoma, but the mesovarium contained unusual cells. The cells were localized to the part of the mesovarium immediately adjacent to the cortex of the ovary, approximately at the level of the white line. The cells were large and polyhedral and the protoplasm stained deeply with eosin. The nuclei were large and spherical (Fig. 1) and the cells were superficially similar to the paralutein cells of a mature corpus luteum.

The appearance of the cells suggested that they were in a state of activity, and from their resemblance to paralutein cells it seemed reasonable to believe that they were secreting a hormone-like substance. The rete ovarii also showed some activity. The patient was aged 81, so there was no question that the cells were derived from follicles. Moreover, the location of the cells was quite different from that of Graafian follicles. At the time it was believed that the cells were probably oestrogenic, and it was thought that they might be responsible for the myohyperplasia found in the uterus and might explain the post-menopausal haemorrhage encountered with Brenner tumours.



FIG. 1.—Cells under high magnification (Case 1). Although mainly polyhedral, their shape varies. In the lower part of the photograph the cells seem to be fused together. The characteristic rounded nuclei of the cells can be seen. These cells were found near the hilum at the level of the white line.

Case 2

On Sept. 24, 1947, a nulliparous married woman, aged 40, was operated upon (W.S.) for what was believed to be metropathia haemorrhagica. There was a history of amenorrhoea followed by continuous bleeding. The uterus was found to be slightly enlarged, and the right ovary was palpably about twice the normal size. A subtotal hysterectomy and a right salpingo-oophorectomy were performed. At operation the right ovary was found to be symmetrically enlarged and not to con-

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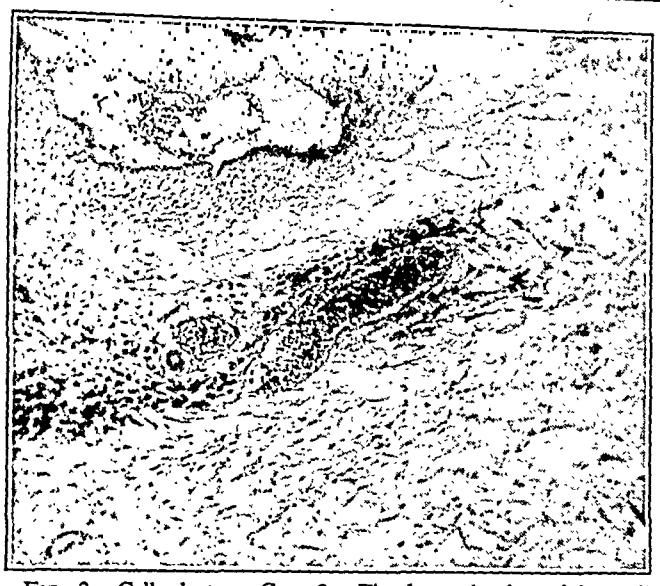


FIG. 2.—Cell clusters, Case 2. The large deeply staining cells which surround the blood vessel in the middle of the photomicrograph are the cells which we describe. The cells seem to be spreading out from the wall of the blood vessel. The light area represents the medulla of the ovary, while, to the left and above, the deeply staining cells form part of the cortex. The cells shown to the left are better differentiated than those which surround the vessel in the centre.

tain a cyst. The endometrium was not polypoidal and was only slightly irregular to the naked eye. The specimen was examined histologically, when a very early adenocarcinoma of the endometrium was found. The tumour was only a few millimetres in diameter.

Comment on Cases 1 and 2

For various reasons it was felt that these two cases should be investigated in detail and reported in the literature.

It was not until March, 1949, that we were able to start work on these and other cases. Case 2 was clearly of an unusual type; consequently the ovary which had been removed was examined in great detail. It contained a small number of primordial follicles, a normal number of interstitial cells, but no corpus luteum and no active Graafian follicle. To our surprise we found deeply staining polyhedral cells in the ovarian medulla which were morphologically identical with those found in Case 1. The identification of the cells was much more difficult than in the first case, for the patient was aged 40 and it was essential to prove that the cell clusters were independent of the follicle system. We have had some experience of ovarian histology and in the past have investigated the morphology of Graafian follicles (Shaw, 1927a), atretic follicles (Shaw, 1925), corpora lutea, and interstitial cells (Shaw, 1926). We concluded that the cells were independent of the follicular system and were not derived from either granulosa or theca interna cells. The analysis was rigorous and critical. No atretic body was found in the vicinity of the cells. The cells were localized to the medulla and the cell clusters were found in separate parts of the ovary without any communication between the clusters. The cells were mainly polyhedral, with rounded nuclei, but sometimes they were fusiform and sometimes stellate. In other areas they were syncytial-like, with the protoplasm of adjacent cells fusing together. The unusual forms of cells found in chocolate cysts have been investigated previously (Shaw, 1927b; Shaw, 1933), and the cell clusters identified in this specimen were different from any of the types of cell found with chocolate cysts of the ovaries. In this case the cells were not located to the subcortical area of the mesovarium but had spread into the medulla. (Photomicrographs of the cells are shown in Figs. 2–5.)

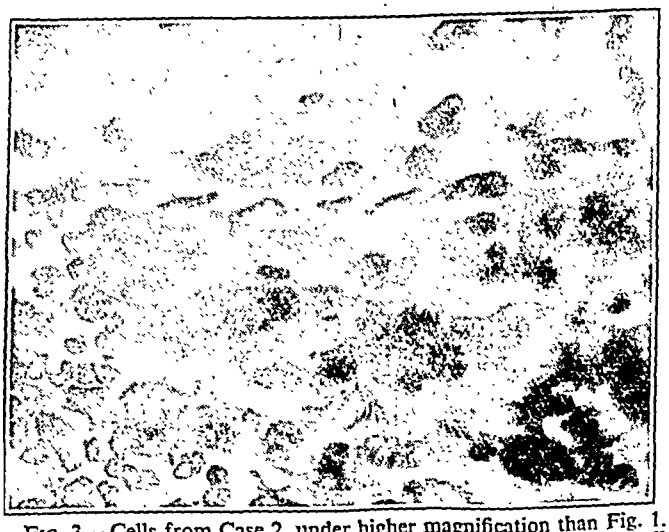


FIG. 3.—Cells from Case 2, under higher magnification than Fig. 1. The same rounded nuclei and the same peculiarities of the cell outline can be seen.



FIG. 4.—Case 2, illustrating the close relation of the cells to the endothelium of the blood vessels. The syncytial-like appearance of the cells is well shown. Above lies the lumen of the vessel with red blood corpuscles.

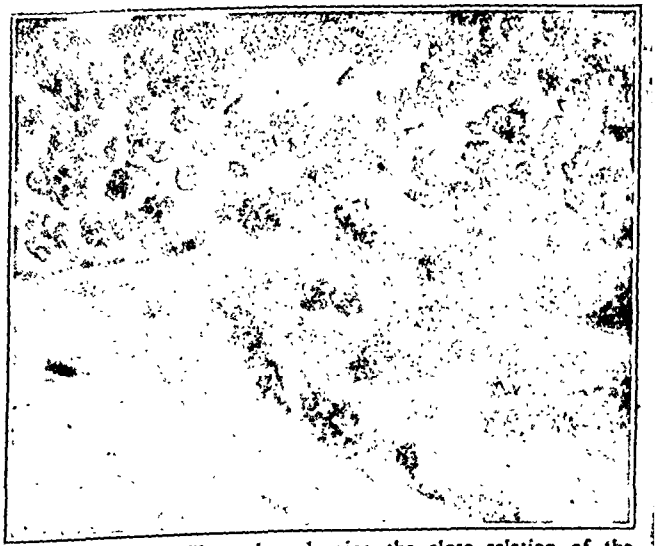


FIG. 5.—Another illustration showing the close relation of the cells to the endothelium. The lumen of the vessel lies in the upper part of the photograph.

As a result of the investigation of these two cases it emed possible that the cell clusters might have some ation to the development of an adenocarcinoma of the dometrium.

Case 3

A married woman, aged 57, had been treated in 1940 by e of us for menopausal haemorrhage by means of an intra-erine application of 50 mg. of radium for 48 hours. The tient was nulliparous. She was admitted to hospital on arch 10, 1949, complaining of vaginal haemorrhage of 14 ys' duration. A biopsy combined with curettage of the rvical canal was carried out next day, and a squamous-celled rcinoma was demonstrated in the specimen. On March 25 Schauta operation was performed (W.S.) and both ovaries ere removed. The uterus contained an early endocervical rcinoma. The ovaries were shrunken.

In view of the findings in the first two cases, both ovaries ere examined in great detail. The same cell clusters found the first two cases were demonstrated in the vicinity of the hite line in one ovary. The cells had the typical appearance f those found in the other cases. The cell clusters were also ound in the second ovary. Some were localized to the vicinity f the white line, while others were identified in the medulla n the neighbourhood of strands of hyaline tissue.

Case 4

A single woman, aged 51, was admitted to hospital on May 18, 1949, complaining of lower abdominal pain and irregular post-menopausal haemorrhage. Curettage was performed by the house-surgeon, and the pathologist reported that the material removed suggested that the patient had an endocervical carcinoma. Because of this report a Wertheim operation was performed on May 27 (W.S.). The growth was found to be an adenocarcinoma of the endometrium, and it was clear that the material removed at the curettage was the lower pole of a polypoidal projection. The ovaries were examined in detail. They were more vascular than normal. They contained no Graafian follicles and no recently atretic follicles. Again, the cell clusters were found in the hilum of one ovary n the mesovarium at the level of the white line. The cells ave been found, up to the present, in only one ovary. In this ase the cell clusters were less numerous than in the first three ases. On the other hand, the carcinoma was more advanced.

Examination of Controls

At this stage of the investigation it became obvious that controls must be examined, although one of us has spent much time upon the histology of the normal ovary and could not recall seeing such cells previously. It was realized, however, that much of this previous work had dealt with the follicular system. One of us has a large collection of slides of ovaries obtained from the Williamson laboratory. They have been regarded in the past as being extremely valuable, and were removed from the laboratory before the war. The slides are numbered in accordance with the registration system of the laboratory.

One evening some 200 of these slides were examined, and in only one were the cell clusters discovered. The next day it was possible to identify the slide. The specimen had been obtained in 1932 by a Wertheim operation (W.S.) performed upon a multipara of 55. In this case the carcinoma was endocervical in type and a pyometra had developed in the cavity of the uterus above the level of the carcinoma. Although the report given from the laboratory stated that the ovaries were normal, one of us had a vague feeling that he had seen the cells as long ago as 1932 and had been puzzled by them but had not investigated them further. After the identification of the cell clusters in this fifth case of carcinoma of the uterus, particularly as the identification had been made without any possibility of bias, we became convinced that the cell clusters had some association with adenocarcinoma of the endometrium and cervical canal.

The next step was to examine the collection of slides in the Williamson laboratory. One of us had been in charge of the laboratory when it was started, and had insisted that every slide and every paraffin block should be stored. Unfortunately, the collection was badly damaged by bombing, and only with the greatest difficulty have old slides been found and identified. Moreover, it seems almost impossible to sort out the paraffin blocks, with the result that the investigation of the specimens is imperfect and incomplete. We have collected together 58 specimens of ovaries from cases of carcinoma of the uterus. We have thought it best to group the cases into those of adenocarcinoma of the endometrium, endocervical carcinoma, and squamous-celled carcinoma of the vaginal portion of the cervix. The results are as follows:

Adenocarcinoma of the endometrium.—Total specimens, 48 (cell clusters found, 24; no cells found, 24).

Endocervical carcinoma.—Total specimens, 9 (cell clusters found, 6; no cells found, 3).

Squamous-celled carcinoma of the portio.—Total specimens, 1 (cell clusters found, 0; no cells found, 1).

The interpretation of these figures is important. The four cases completely investigated were all positive. In the third of these four cases many sections were made before the cells could be identified. In all cases, apart from these four, only one slide of the ovaries has been available. Consequently the negative findings are not regarded as conclusive. We believe that it may be necessary to make a large number of sections from an ovary before the cells can be identified. The small number of cases of squamous-celled carcinoma of the portio is explained because carcinoma of the cervix has usually been treated with radium at St. Bartholomew's Hospital. We are not prepared to draw any conclusions about the incidence of cell clusters in squamous-celled carcinoma of the portio from the material we have at our disposal.

We must stress the difficulty of demonstrating the cells. If they are aggregated in the mesovarium, at the level of the white line, in close proximity to the edge of the cortex, they can be recognized without much difficulty. If, however, they are scattered through the medulla it may be necessary to examine the whole ovary fairly extensively before they can be demonstrated. The size of the cells and their deep staining with eosin help in their recognition. In no case have we found a large number of cells, and we do not regard their detection as being particularly simple.

We have not been able to trace any reference to the cells in the literature. It seems highly improbable that they have not been recognized before and we believe that some previous description will be found.

Significance of the Cells

The number of cases examined is small and we are unlikely to be able to collect a large number of specimens in the immediate future. We have therefore thought it advisable to publish these results so that a wide search can be made in other laboratories. We are convinced that the cells are found in association with carcinoma of the endometrium and cervical canal. It may be that time will show that our work on control specimens has been incomplete, and that similar cells will be found in ovaries not associated with carcinoma of the uterus, but that is not our belief at the present time. Furthermore, at this early stage of the investigation any views that we may put forward are conjectural, hypothetical, and perhaps unsound.

In our view the cells are carcinogenic and lead to the development either of an adenocarcinoma of the endometrium or of an endocervical carcinoma of the cervix. At the moment we have insufficient evidence to show that there is a relation between the cell clusters and the development of squamous-celled carcinoma of the portio. Against this view is the possibility that the cell clusters appear as the result of the stimulation of the ovaries by the carcinoma, and it may be that both the cell clusters and the carcinoma are induced coincidentally by some third factor. The dominance of the uterus by the ovaries has always been the main theme of our previous work on the ovaries. Indeed, the cells of the cell clusters are so similar in type to granulosa-lutein and theca-lutein cells that we feel that the cell clusters are the cause and the uterine cancer the effect.

We are of course familiar with the literature on the development of adenocarcinoma of the endometrium in the absence of both ovaries; three cases were recorded by G. Van S. Smith (1941). We are also acquainted with the large number of cases of stump carcinomata arising after subtotal hysterectomy. Nevertheless, only very few cases of adenocarcinoma of the endometrium arising after the removal of both ovaries are on record. It is possible that cell clusters may be found in the mesovarium further along the ovario-pelvic fold, and that such cells left behind at operation initiated the adenocarcinoma in the cases described. The stump-carcinoma cases arising after the removal of both ovaries cannot be explained by the theory we have put forward. Although it is well known that in many of the cases the carcinoma was already present before the hysterectomy was performed, we must accept the view that a stump carcinoma may develop in the absence of both ovaries. It may be that these cases are mainly squamous growths of the portio.

The frequent localization of the cell clusters to the specific zone in the vicinity of the white line seems to us to be of the utmost significance. We believe that this area should be regarded as an organizing centre for activating cells which are carcinogenic to the endometrium of the body of the uterus and of the cervical canal.

Origin of Cells

We believe that the cells described above are not found either in the normal ovary or in the hilum of the ovary of patients who are not suffering from carcinoma of the uterus. An attempt has been made with the material at our disposal to trace the origin of the cells. Case 2 was of much interest, because the cell clusters seemed to be spreading not only into the medulla of the ovary but circumferentially between the medulla and the cortex. The variation in shape and the syncytial-like arrangement of the cells imply that they were actively dividing. They were invariably found in the vicinity of blood vessels, and we believe that we have traced their origin from the endothelium of small capillaries and of lymphatics. Neither of us is a trained cytologist, so that this opinion may be of little value.

If, however, our main thesis is correct, that the cell clusters are carcinogenic to the endometrium of the body of the uterus and the cervical canal, some attempt must be made to explain why the cell clusters appear. The obvious interpretation is that a hypothetical hormone causes the cells to develop from the endothelium of the blood vessels or lymphatic spaces. This implies that the cause of carcinoma of the endometrium and cervical canal is not a local phenomenon. We realize that such a possibility may alter previous views on the development of carcinoma.

Other lines of investigation present themselves immediately. We feel that wherever possible ovaries from cases of carcinoma arising elsewhere in the body should be examined histologically. This is particularly so in the case of carcinoma of the breast, for there is evidence that malignant disease of the breast sometimes retrogresses after the removal of both ovaries. A similar investigation might be made of the testis and epididymis in cases of carcinoma of the prostate.

Case 3 is of some importance gynaecologically. The patient had been treated previously with radium and an artificial menopause had been created. Although the follicular system in the ovaries had retrogressed completely, the cell clusters were found not only near the white line but also in the medulla. The findings suggest that the cells appear after the creation of an artificial menopause, and that many of the puzzling features of the development of carcinoma of the endometrium after radiotherapy can be explained. Again, in the radium treatment of carcinoma of the uterus it seems that the cells must first be destroyed by radium, otherwise a recurrence of carcinoma is to be expected. It seems to us important to determine whether the cells clusters disappear after the application of radium to the cervix. If the cell clusters are not destroyed, and our thesis that they are carcinogenic is correct, the procedure in such cases should be to remove the ovaries before radium treatment is instituted.

Conclusions

Unusual cells have been demonstrated in the mesovarium and medulla of the ovaries of cases of adenocarcinoma of the endometrium and of endocervical carcinoma of the uterus. So far as we know, the cells have not been described before. If they have been described, little attention has been paid to them. The cells do not seem to be found in normal ovaries, and their presence seems to be restricted to cases of carcinoma of the uterus. They are usually found in the mesovarium, close to the termination of the cortex of the ovary, but they may also be found in the ovarian medulla and, very rarely, in the cortex. Although they may possibly appear as the result of some reaction from the uterine carcinoma or may be stimulated to appear by a hypothetical factor which also initiates the carcinoma of the uterus, we incline to the view that they are carcinogenic. Our main difficulty has been to obtain material.

In only four cases have the ovaries been investigated in great detail. In 54 other cases of carcinoma of the body of the uterus and carcinoma of the cervix, only one slide of one ovary has been available. Of these 54 cases the cells have been found in 26. We emphasize the difficulty of identifying the cells, and we firmly believe that the cells would have been found in a larger number if the whole of the ovaries had been available for examination. Nevertheless, even in this small and imperfect series the incidence of the cells is appreciable. We feel that further investigations should be made, and if specimens are removed and suitable laboratory facilities are not available we hope that the specimens will be sent to us for examination. The number of cases of squamous-celled carcinoma of the portio available for investigation is surprisingly small, and we are not prepared to offer any comment on the association of the cells with the development of this form of cancer of the uterus.

Summary

Unusual cells have been demonstrated in the mesovarium and ovarian medulla of cases of adenocarcinoma of the endometrium and of endocervical carcinoma.

The cells are secretory in type, yet differ morphologically rom any ovarian cells known to us.

They have not been discovered in control cases.

They are found only in relatively small numbers and may e extremely difficult to detect. A single section through the vary is insufficient, as a general rule, to demonstrate them.

The cells may possibly be carcinogenic, secreting a hormone hich stimulates some of the cells of the endometrium of the ody of the uterus and cervical canal to undergo malignant hange. It is hoped that a further search for them will be made n other laboratories.

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INFANTILE DIARRHOEA AND VOMITING

A CLINICAL AND BACTERIOLOGICAL INVESTIGATION

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This paper reports the results of a combined clinical and bacteriological investigation of infantile diarrhoea and vomiting, and includes a note by Dr. F. O. MacCallum on his virus investigations. In order that cases of infective origin should be presented for bacteriological study the clinical material was drawn in the main from outbreaks of diarrhoea and vomiting and from intercurrent attacks in hospital wards. In addition there were included two series of cases admitted consecutively to the gastro-enteritis units of a children's hospital and of an infectious diseases hospital. In these groups there was sometimes uncertainty whether cases should be classified as "infective," "dietetic," or "secondary to parenteral infection."

The first outbreak occurred in the nurseries of a maternity unit, and a number of observers took part in its investigation. Subsequently the course of each outbreak and the clinical progress of each case were followed by one paediatrician. Material for bacteriological examination was dealt with at a centrally placed laboratory as soon as possible after collection. In this way a wide area of field investigation could conveniently be covered. The methods and results of the general bacteriological investigation of the cases are given in a later section.

The detailed study by Crowley *et al.* (1941) left little expectation that a bacterial agent might be determined by a quantitative comparison of the faecal flora of affected and unaffected babies. From the outset of the present investigation it had seemed that bacterial studies would need to follow the modern trend towards subdivision of genera by serological, biochemical, and phage-typing methods. Primary culture plates or subcultured strains were therefore sent to laboratories specially equipped for their detailed examination. Similarly, for virus studies, post-mortem tissues and other material were submitted to a laboratory engaged in virus research.

Previous investigators (Costello and Lind, 1939; Sakula, 1943; Sevitt, 1945; Light and Hodes, 1943; Buddingh and Dodd, 1944) have found a variety of bacterial and virus agents associated with infantile diarrhoea and vomiting. Bray (1945) isolated a particular serological type of *Bact. coli var. neapolitanum* from 42 out of 44 cases of infantile "summer diarrhoea." From an early stage of our investigation, work on a certain type of *Bact. coli* provided a promising line to pursue. Sera for its identification were prepared from the *Bact. coli* strains of infants suffering from epidemic diarrhoea of the newborn. The outbreak in which these cases occurred is described under Group A below. The strain is referred to throughout the paper as *Bact. coli* D 433. A description of the serological work, together with an account of the biochemical activities and other characters of the strain, are given in a later section.

The main purpose of this paper is to report the association of *Bact. coli* D 433 with certain groups of cases of infantile diarrhoea and vomiting and its absence in control groups of healthy and sick babies. Work on similar lines was published by Giles and Sangster in March, 1948. They reported the isolation of a serologically homogeneous strain of *Bact. coli* from over 90% of cases of primary infective gastro-enteritis admitted to hospital during an outbreak in the city of Aberdeen in 1947.

Cases of Infantile Diarrhoea and Vomiting

Clinical and bacteriological investigations were made on the following groups of infants suffering from diarrhoea and vomiting: one outbreak in a maternity unit (Group A); two outbreaks in a mothers and babies' hostel (Groups B and C); one outbreak in a residential nursery (Group D); intercurrent cases of diarrhoea and vomiting in a children's hospital (Group E); routine admissions to two gastro-enteritis units (Groups F and G); and endemic diarrhoea and vomiting in a residential nursery (Group H).

Group A

An outbreak of epidemic diarrhoea of the newborn occurred in February and March, 1947, in the 90-bed maternity unit of a Derbyshire hospital. In all, 20 babies contracted the disease and 14 of them died. At the onset of the illness the age of 19 of the babies was from 6 to 20 days, and that of one baby, retained for the treatment of minor sepsis, was 43 days. All the babies had received early glucose feeds.

Fifteen were fully bottle-fed and four partially breast-fed at the time when the illness began; one baby, apart from early glucose feeds, had been fully breast-fed from birth.

The outstanding symptom was diarrhoea with frequent watery green or yellow stools, preceded in some cases by a period of lethargy, reluctance to feed, and loss of weight. Vomiting also occurred in all cases. Parenteral infection was limited to one case of early bronchopneumonia, some subcutaneous abscesses, and a few minor skin infections. All the babies became dehydrated, most of them severely so.

Nine babies were available for examination during the active stage of the disease, and *Bact. coli* D 433 was isolated from all of them. Five had developed symptoms after discharge from the maternity unit and were readmitted for treatment in the emergency gastro-enteritis unit. The duration of illness at the time of swabbing varied from two to five days. In eight cases the strain was isolated from the rectal swabs and in one case from the upper respiratory tract only.

Group B

A severe and sudden outbreak of diarrhoea and vomiting occurred in a mothers and babies' hostel in Middlesex between Sept. 7 and 18, 1947. The hostel has accommodation for 14 mothers and their babies. They are usually admitted direct from maternity hospitals after the lying-in period. The babies are cared for by their mothers, under the supervision of a small staff of nurses. Of the 12 babies living in the hostel at the time 11 developed the disease. The one baby who remained healthy was fully breast-fed. The others were all bottle-fed babies who had thrived since birth and were in good health at the start of the outbreak. Their age distribution was as follows: under 1 month, 3; 1 month, 3; 2 months, 2; 3 months, 2; 4 months, 1. One other baby, the 9-months-old non-resident child of the daily cleaner, also contracted diarrhoea and vomiting; he was taken into the kitchen each day for his midday meal.

The main symptoms were diarrhoea and vomiting, with dehydration. In several cases the onset was heralded by lethargy and reluctance to take feeds. The stools were green and watery, with mucus but no blood (except as a terminal event in one fatal case). Vomiting occurred in all but two cases; it was severe in four. There was no evidence of parenteral infection at the start of the illness, but secondary infection occurred in several cases during its course. Some degree of dehydration occurred in all the 12 cases; it was slight in two and severe in the remainder. Two cases may therefore be classed as mild and 10 as severe. Seven babies were given intravenous therapy, and these recovered. There were three deaths.

Rectal swabs were taken, at times varying from the second to the eighth day of illness, from 10 of the 12 sick babies in this outbreak. *Bact. coli* D 433 was present in all of them.

Group C

A second and less severe outbreak of diarrhoea and vomiting occurred in the same hostel eight months after that of Group B. Eight of the 17 babies exposed to infection developed the disease between May 13 and June 6, 1948. Seven of the eight were bottle-fed, and one, a mild case, was breast-fed. Seven of the babies were 1 month old and one was 2 months. The clinical features were similar to those of the previous outbreak, but with two exceptions the cases were comparatively mild.

The onset of illness was more insidious than in the previous outbreak, and in three cases was characterized by lethargy and reluctance to feed. The stools were green and mucoid—watery in the severe cases and relaxed in the mild ones. Vomiting occurred, but was never a severe feature. Three of the babies had no more than slight diarrhoea of a few days' duration, accompanied in one by loss of weight and in the others by a temporary interruption of weight gain. Ordinarily these very mild cases might not have been regarded as infective diarrhoea, but it was considered that they were part of the outbreak and therefore mild examples of the disease. The remaining five babies were more severely ill; two became dehydrated, and one of these died.

Bact. coli D 433 was isolated from the rectal swabs of the eight babies with diarrhoea and vomiting. The swabs were taken in five cases on the first, second, or third day of illness, and in the other three cases on the twelfth, fourteenth, and fifteenth days. Rectal swabs had been taken from three babies before the onset of symptoms. *Bact. coli* D 433 was isolated from one baby on seven occasions during the nine days preceding onset and from the other two babies on the preceding one and four days.

Group D

An investigation was made of an outbreak of diarrhoea and vomiting in a residential nursery in Hertfordshire. It has accommodation for 40 children, including a nursery unit for 12 babies. At the end of December, 1947, two babies died from diarrhoea and vomiting; these are not included in the series. Four others developed the disease between Feb. 1 and 15, 1948. They were all bottle-fed. Their ages were as follows: 1 month, 1; 2 months, 2; 3 months, 1. The symptoms were severe diarrhoea with green watery mucoid stools and vomiting. No parenteral infection was found at the start of the illness. All the babies became dehydrated. One baby died after an illness of eight days.

Bact. coli D 433 was present in the rectal swabs of the four cases. The swabs were taken from the fourth to the six... day of the illness.

Group E

An investigation was made of 23 babies who developed intercurrent diarrhoea and vomiting while undergoing in-patient treatment in a children's hospital in London. The occurrence of seven cases in one ward during a period of two months, and of two or three cases in quick succession in three other wards suggested the possibility that some, if not all, of them were of an infective type. The babies were all nursed in single cot cells.

The period of study was from late January to early May 1948. The babies were all bottle-fed or on mixed feeding. Their ages were as follows: under 3 months, 5; 3 to 5 months 8; 6 to 8 months, 6; 9 to 11 months, 3; over 1 year, 1. They had been admitted to hospital for a variety of conditions—i.e., feeding difficulty, rumination, congenital defect, eczema, surgical operation, etc. The attack of diarrhoea and vomiting was characterized by the onset of watery diarrhoea, accompanied in most cases by vomiting. Parenteral infection at onset was found in only two cases. Seventeen of the babies became severely ill and 16 were given intravenous therapy; the other babies had moderate or mild attacks. Two of the babies died.

Bact. coli D 433 was present in the rectal swabs of 21 of the 23 cases of intercurrent diarrhoea and vomiting. The swabs were taken at times varying from the first to the ninth day of illness.

Group F

An investigation was made of 26 cases of diarrhoea and vomiting admitted consecutively between Feb. 4 and March 3, 1948, to the gastro-enteritis unit of a children's hospital in London. The unit consists of one double-cot and eight single-cot cells. Twelve of the 26 babies had developed intercurrent diarrhoea and vomiting while in other wards of the hospital or shortly after their discharge from them. These cases have already been included in Group E.

The other 14 infants with diarrhoea and vomiting were admitted from outside at the request of medical practitioners. They were all bottle-fed or on mixed feeding. Their ages were as follows: under 3 months, 5; 3 to 5 months, 3; 6 to 8 months, 4; over 1 year, 2. On admission nine of the babies had been ill for periods varying from one to six days and five for three weeks or more; three had suppurative otitis media, one severe proctitis, and one a history of recent coryza. Seven were severely ill and were given intravenous therapy.

Bact. coli D 433 was present in the rectal swabs of six of the 14 cases; with few exceptions the swabs were taken on the day of admission to the unit. Of these six babies three had contracted diarrhoea and vomiting in other hospitals, two during outbreaks in residential nurseries, and one, a sporadic case, at home. The eight babies from whom the strain was not isolated had developed the disease at home.

Group G

An investigation was made of 24 cases of diarrhoea and vomiting admitted consecutively during May, 1948, to a gastro-enteritis unit, consisting of 48 single-cot cells, in a London infectious diseases hospital. From each baby a rectal swab was taken in the receiving-room before admission to the unit, and a nasopharyngeal and repeat rectal swab on the following day within the unit.

Two of the 24 babies were partially breast-fed; the remainder were either bottle-fed or on a mixed diet. Their ages were as follows: under 3 months, 7; 3 to 5 months, 11; 6 to 8 months, 3; 9 to 11 months, 3. Three had contracted the disease while in another hospital, four while in a residential nursery, and 17 at home. A history of contact with other cases of infantile diarrhoea and vomiting was found in nine instances.

The clinical picture and the severity varied considerably. Diarrhoea was the main symptom in all cases, and vomiting occurred in all but a few, although it was marked in only five. Parenteral infection was found on admission in eight babies (upper respiratory tract infection, 5; bronchopneumonia, 2; vaccination reaction, 1). On admission 17 cases were classified as mild and seven as severe; in the latter group six were sufficiently dehydrated to need intravenous therapy. Seventeen made uneventful recoveries, four (one of whom died) had severe relapses, and three developed secondary parenteral infections (bronchopneumonia, 2; skin sepsis, 1).

Twenty-one of the 24 babies were admitted during the first week of the disease, two in the second week, and one, with a relapse and pneumonia, in the seventh week. *Bact. coli* D 433 was present on admission in three of the seven severe cases and in two of the 17 mild ones. There were no obvious clinical features to distinguish those cases in which the strain was found. Two of the five babies in whom *Bact. coli* D 433 was present had contracted diarrhoea and vomiting while undergoing treatment in another hospital; the other three were admitted direct from home.

Group H

A mild type of endemic infantile diarrhoea and vomiting was investigated in a large residential nursery in London. Accommodation is provided for 120 children under 3 years of age, including about 40 bottle-fed or breast-fed babies. There is a large turnover of children, with frequent admissions and discharges. On arrival some of the babies are in poor physical condition and are under weight. Rises in incidence of the endemic diarrhoea and vomiting occur from time to time. A period of comparative freedom from the disease was followed by an increase in the number of cases during March and April, 1948.

Investigations were made of 14 cases occurring consecutively during this time. The babies affected were all either bottle-fed or on mixed feeding. Their ages were as follows: under 3 months, 8; 3 to 5 months, 3; 6 to 8 months, 1; 9 to 11 months, 1; over 1 year, 1. Diarrhoea and vomiting, usually of insidious onset, were the main symptoms. Parenteral infections at this stage were found in only two of the babies. Eight showed clinical evidence of dehydration, but only three were severely ill. There were no deaths.

Rectal swabs were taken from the 14 babies at times varying from the first to the sixth day of illness. No *Bact. coli* D 433 was isolated from them.

Control Groups of Babies

Rectal swabs were taken from a control series of 208 babies (Groups K and L). Their ages were as follows: under 3 months, 122 (including 79 under 1 month); 3 to 5 months, 42; 6 to 8 months, 35; 9 to 11 months, 9. Seventy-seven were breast-fed, 43 partially breast-fed, and 88 either bottle-fed or on mixed feeding. Those who had received no more supplementary feeding than water or glucose feeds during their early days have been included in the breast-fed group.

Group K: Healthy Babies.—One hundred and seventy-five healthy babies were examined during the period February–June, 1948. Sixty-seven of them were attending infant-welfare clinics in North and South London, 29 were in residential nurseries in North London and in Hertfordshire, 10 were attending clinics for congenital defects in Central London, and 69 were in the newborn babies' nurseries of three maternity hospitals in East and North London and in Middlesex. No *Bact. coli* D 433 was isolated from the rectal swabs of these 175 babies. After an interval of at least two weeks an inquiry was made about the progress of each baby. Thirteen of them could not be traced. None of the other 162 had developed diarrhoea and vomiting, but it was reported that six neonatal babies had had mild digestive disturbances with relaxed stools.

Group L: Sick Babies.—Thirty-three sick babies were swabbed in the receiving-room of a children's hospital in London immediately before their admission for conditions other than diarrhoea and vomiting. Seventeen of them were examined in May and June, 1948, and 16 in October and November, 1948. No *Bact. coli* D 433 was isolated from their rectal swabs. The clinical progress of each baby was followed for a fortnight after admission; none of them developed diarrhoea and vomiting during this time, but five of them had some relaxed stools while in hospital.

Incidence of Bact. coli D 433

The accompanying Table shows that *Bact. coli* D 433 was present in all the 31 cases of infective diarrhoea and vomiting which were swabbed in four outbreaks of the disease

Table showing Incidence of Bact. coli D 433 in Cases of Diarrhoea and Vomiting and in Control Groups of Babies

Group	Place	Description of Group	No. of Babies Swabbed	Bact. coli D 433	
				No. of Babies Positive	Percentage of Babies Positive
A	Maternity unit	Epidemic diarrhoea of the newborn 20 cases, 14 deaths	9	9	100
B	Mothers and babies' hostel	Severe outbreak. 12 cases. 3 deaths	10	10	100
C	Mothers and babies' hostel	Second and less severe outbreak in same hostel as Group B. 8 cases. 1 death	8	8	100
D	Residential nursery	Severe outbreak. 4 cases. 1 death	4	4	100
E	Children's hospital	Intercurrent cases among sick babies 17 severe and 6 moderate or mild cases. 2 deaths	23	21	91
F	Gastro-enteritis unit 1 (children's hospital)	Routine admissions. 7 severe and 7 moderate or mild cases. No deaths	14	6	43
G	Gastro-enteritis unit 2 (infectious diseases hospital)	Routine admissions. 7 severe and 17 mild cases. 1 death	24	5	21
H	Residential nursery	Endemic diarrhoea and vomiting. 3 severe and 11 mild cases. No deaths	14	0	0
K	Clinics, maternity units, and residential nurseries	Healthy babies	175	0	0
L	Receiving-room of children's hospital	Sick babies on admission for conditions other than diarrhoea and vomiting	33	0	0

(Groups A–D) and in 21 out of 23 intercurrent cases in a children's hospital (Group E). The strain was not, on the other hand, isolated from any of the 14 cases of endemic diarrhoea and vomiting in a large residential nursery (Group H). *Bact. coli* D 433 was present in six of the 14 cases admitted direct to gastro-enteritis unit 1 (Group F), but was found in only five of the 24 cases admitted to gastro-enteritis unit 2 (Group G). It was not isolated from any babies in the control group, which consisted of 175 healthy babies and of 33 sick babies suffering from conditions other than diarrhoea and vomiting.

The great majority of the babies from whom *Bact. coli* D 433 was isolated had severe attacks of diarrhoea and

vomiting, with enough dehydration to need intravenous therapy. Some of the cases in which it was found were, however, mild examples of the disease.

An analysis of the age distribution of the 63 babies in whom *Bact. coli* D 433 was present gave the following results: under 3 months, 33; 3 to 5 months, 15; 6 to 8 months, 11; 9 to 11 months, 4. The first age group included 13 babies in the neonatal period, eight of whom were involved in the outbreak of epidemic diarrhoea of the newborn (Group A). The ages of the babies in the outbreak of Group B were of interest in that they ranged from 25 days to 9 months. The limits of age, taking the whole series of cases showing *Bact. coli* D 433, was 10 days for the youngest baby and 11 months for the oldest.

Further Observations on Cases.

1. *Necropsies.*—Post-mortem examinations were carried out on 13 babies of Groups A–E. The seven neonatal babies all showed hyperaemia of the intestines, particularly of the small intestine; in all but one case there was some enlargement of the mesenteric glands. Two small membranous lesions of the gastric mucosa were found in one of these seven babies, and a few large superficial erosions of the small intestine in another. No evidence of parenteral infection other than one case of early bronchopneumonia was found. Among the group of six older babies four showed some hyperaemia of the small and large intestines; the alimentary tract of the other two appeared normal. In five of these cases the liver showed fatty change. The only parenteral infections found were pneumonia and mastoiditis in one case. A sample of the contents of the small intestine was taken at necropsy from four of the neonatal and three of the older babies. *Bact. coli* D 433 was present in all these specimens. It was also present in the mastoid antra of the baby with mastoiditis. The interval from the onset of diarrhoea and vomiting to death varied from three to 27 days. One of the 13 dead babies had not been swabbed during life.

2. *Nasopharyngeal Swabs.*—Nasopharyngeal as well as rectal swabs were taken from 88 of the babies suffering from diarrhoea and vomiting. *Bact. coli* D 433 was isolated from the nasopharyngeal swabs in 12 cases; 11 of these yielded the strain in the rectal swabs also. Five of these 12 were suffering from epidemic diarrhoea of the newborn (Group A).

3. *Chemotherapy.*—Sixteen babies were on courses of sulphonamides (sulphadiazine, sulphamezathine, sulphasuxidine, or phthalyl sulphathiazole) and three on penicillin treatment when *Bact. coli* D 433 was isolated from their rectal swabs.

4. *Infant Feeding.*—An analysis was made of the feeding of those babies from whom *Bact. coli* D 433 had been isolated. It was found that on the day of swabbing and during the previous few days they had received a variety of dried-milk preparations to which had been added sucrose, glucose, lactose, or dextrimaltose. Expressed breast milk or diluted Hartmann's fluid had been given to a few of them. Two of the babies were fully breast-fed and three partially breast-fed.

5. *Later Swabbing of Babies with Diarrhoea and Vomiting*

(a) Clinical Progress and Bact. coli. D 433.—In gastro-enteritis unit 1 a study was made of the association between the clinical progress of the cases and the finding of *Bact. coli* D 433. From the 20 babies concerned, rectal swabs were taken on admission and on each subsequent Monday from early February to the end of March, 1948. Eight of the babies were negative to *Bact. coli* D 433 on admission and six of these became positive during their illness. The first positive swab was discovered at times varying from the 10th to the 30th day after admission. The finding of *Bact. coli* D 433 was in one case associated with a severe exacerbation of diarrhoea and in three others with mild relapses. Of 12 babies who were positive to *Bact. coli* D 433 on admission nine became negative during their stay in the unit. The stools of three had settled by this time, but those of the other six were still relaxed. The first negative swab occurred at times varying from the ninth to the 34th day of illness.

(b) Re-examination of Cases in Groups A–D.—Eighteen other babies (Groups A–D) from whom *Bact. coli* D 433 had been isolated in the first swab were re-examined during the course of their illness. It was not possible to correlate exactly the clinical progress of the cases with the finding of *Bact. coli* D 433. It was observed, however, that in some cases loose stools continued after the rectal swabs had become negative, and that in others the stools had settled while the result was still positive.

(c) Clinical Relapses.—Four babies admitted to gastro-enteritis unit 2 during April and May, 1948, had at first mild or moderate attacks of diarrhoea and vomiting, accompanied in one case by bronchopneumonia. While in hospital they had relapses of their diarrhoea and vomiting during which they all became dehydrated. Three were given intravenous therapy and one of them died. *Bact. coli* D 433 was not isolated from their rectal swabs during the initial attacks, but was present in all four during their relapses.

6. *Cases Other than Diarrhoea and Vomiting.*—During the course of the investigation 14 babies admitted to the gastro-enteritis units were found to have illnesses other than diarrhoea and vomiting. No *Bact. coli* D 433 was isolated from their rectal swabs.

7. *Other Outbreaks of Diarrhoea and Vomiting.*—*Bact coli* D 433 was present in rectal swabs or stools received from a limited number of cases of diarrhoea and vomiting which occurred in other outbreaks during 1948. The residential nurseries in which they arose were situated in three counties. The results of these examinations, taken together with those listed in the Table, show a distribution of *Bact. coli* D 433 over a wide area. In all, it was isolated from cases of diarrhoea and vomiting in Derbyshire Middlesex, Hertfordshire, Berkshire, Leicestershire, Sussex and London.

Adult and Baby Contacts

A number of adult and baby contacts of infective diarrhoea and vomiting were examined for the presence of *Bact. coli* D 433 in their faeces or rectal swabs. Some individuals were direct contacts and others were indirect contacts exposed only to mediate infection or to possible carriers of the infecting agent.

Adult Contacts.—Faeces (or rectal swabs) were obtained from 84 adult contacts of infantile diarrhoea and vomiting. Specimens were taken, usually once only from each person either during or shortly after an outbreak of the disease. Four of the contacts reported diarrhoeal attacks during the course of the investigation of Groups A, B, and H. No *Bact. coli* D 433 was found in their specimens, but in two instances the diarrhoea was not reported until recovery was complete. The other 80 adult contacts were associated with Groups B, C, D, and E, and none of them reported any attack of diarrhoea. *Bact. coli* D 433 was isolated from only four of these 80 persons—a daily cleaner whose baby had an attack of diarrhoea and vomiting, a laundress whose duties included the washing of soiled napkins, and two mothers, one of whom

was the mother of a case. On re-examination of the laundress and the cleaner six and 11 days later, respectively, no *Bact. coli* D 433 was found in their faeces.

Baby Contacts.—Rectal swabs were taken from 34 baby contacts of cases of diarrhoea and vomiting from which *Bact. coli* D 433 had been isolated. Eleven of the baby contacts were associated with the neonatal outbreak (Group A), nine with the outbreaks in the mothers and babies' hostel (Groups B and C), seven with that in a residential nursery (Group D), and seven with cases of intercurrent diarrhoea and vomiting in a hospital ward (Group E). The rectal swabs were obtained once only from 26 of the baby contacts and on several occasions from the other eight. Nine of the 34 baby contacts were positive to *Bact. coli* D 433. Three of these nine were associated with Group A, one with Group B, and five with Group C. Four of the nine babies were breast-fed, two partially breast-fed, and three bottle-fed. The remaining 25 were negative to *Bact. coli* D 433; seven of these were breast-fed, four were partially breast-fed, and 14 either bottle-fed or on mixed feeding. The progress of the 34 babies was followed for a further fortnight, and all remained free from diarrhoea and vomiting. Rectal swabs were also taken from 28 baby contacts of cases of endemic diarrhoea and vomiting (Group H) in a residential nursery. No *Bact. coli* D 433 had been isolated from the babies suffering from the disease and none was found among the baby contacts.

Subsequent Investigations in Nurseries and Hospital Wards

Rectal swabs were taken some months later from infant occupants of the nurseries and wards in which cases of diarrhoea and vomiting associated with *Bact. coli* D 433 had been investigated. The groups present at the later date consisted, with few exceptions, of different babies from those originally there.

(*a*) On three occasions examinations were made of groups of babies in the maternity nurseries in which epidemic diarrhoea of the newborn (Group A) had occurred in February–March, 1948. (1) Three months after the outbreak, in June, 1947, 20 neonatal babies in the nurseries were swabbed. No *Bact. coli* D 433 was isolated from them. Their subsequent progress was not followed. (2) Fourteen and 17 months after the outbreak, in May and August, 1948, two further groups of neonatal babies in these nurseries were examined. The groups consisted of 21 and 30 babies respectively, making a total of 51. The results were unexpected, for a strain of *Bact. coli* which was closely related antigenically to *Bact. coli* D 433 but which failed to produce gas in "sugars" was isolated from 21 of them. Particulars of this anaerogenic strain are given below. A clinical follow-up of the 51 babies was made 2½ weeks after each swabbing. Fourteen had suffered from mild transient diarrhoea; from 10 of these 14 the anaerogenic strain had been isolated. It was evident that the babies were free from severe epidemic diarrhoea of the newborn. It is uncertain whether any significance should be attached to these minor diarrhoeal attacks, which may possibly have been no more than digestive disturbances common in the neonatal period.

(*b*) The infant community of the mothers and babies' hostel were swabbed three months after the second outbreak of diarrhoea and vomiting (Group C) and that of the residential nursery in Hertfordshire three and six months after the outbreak (Group D). There had been no cases of diarrhoea and vomiting in the intervening months. The number of babies present was 13, 10, and 8 respectively. No *Bact. coli* D 433 was isolated from the rectal swabs. Progress reports for the ensuing fortnight showed that none of the babies developed diarrhoea and vomiting during this time.

(*c*) Thirty-one sick babies accommodated in wards where intercurrent diarrhoea and vomiting had occurred in January–May, 1948, were swabbed in August, 1948. The intervening period had been a quiescent one. No *Bact. coli* D 433 was isolated from the rectal swabs of these babies. Their clinical records for the following fortnight showed that one of them had developed diarrhoea and vomiting during this time, and that the others had remained free from the disease.

Report of Virus Investigations by Dr. F. O. MacCallum

Attempts made to isolate a virus from material obtained from four fatal cases of diarrhoea and vomiting yielded negative results.

1. Post-mortem material was obtained from two babies, aged 9 and 17 days, who had died from epidemic diarrhoea of the newborn (Group A). They had been ill for three and five days respectively. Suspensions of brain, small intestine, and intestinal contents were filtered through collodion membranes which had an A.P.D. of 750 mμ. The filtrates were then inoculated into mice, cotton-rats, guinea-pigs, and young swine. Intracerebral passages were made, using 100 mice. The mice were killed after various intervals and brain suspensions injected into further mice. Eight passages were made, with negative results. Six intracerebral passages using 18 guinea-pigs were negative. Four intranasal passages, using 20 guinea-pigs, of the consolidated lung of an intracerebrally inoculated guinea-pig were negative. Four intracerebral passages using 20 cotton-rats were negative. The original swine were inoculated intranasally and orally, and then three passages were carried out with brain intracerebrally, with lung intranasally, and with intestine orally. Seventeen swine were used, and the results were negative.

2. Post-mortem material was obtained from twin babies, aged 3 months, who had died from diarrhoea and vomiting (Group B). They had been ill for 7 and 8 days. Mice were inoculated intracerebrally with brain, intranasally with lung, and orally with intestine. The material was unfiltered. Two passages using 16 mice gave negative results. Similar inoculations in four cotton-rats and four young rabbits gave negative results. Three passages in 18 guinea-pigs were negative.

General Bacteriological Investigations

The number of cases of infantile diarrhoea and vomiting listed in the Table is 106. Rectal swabs from 85 of these were examined on two to four occasions for non-lactose-fermenters and from 18 on one occasion only. Nasopharyngeal and rectal swabs from 88 of the 106 cases were submitted to general bacteriological examination.

Nasopharyngeal swabs consisted of curved swabs which were passed under the uvula to the posterior pharyngeal wall. They were inoculated on to horse-blood–digest-agar plates, which were incubated aerobically. In most cases rectal swabs were taken through a narrow glass anal cannula for their protection from skin contamination. Culture media used were horse-blood digest agar (one plate incubated aerobically and one anaerobically), horse-blood digest agar + 1 in 1,000 chloral hydrate for inhibition of swarming by *Proteus* (Gillespie, 1948), plain digest agar + 7.5% NaCl for isolation of staphylococci (Chapman, 1945), and desoxycholate-citrate medium (Hynes, 1942) or Difco "bacto S S" agar for isolation of non-lactose-fermenters.

No salmonellae or shigellae were isolated from the rectal swabs of the 103 cases examined for non-lactose-fermenters. Thirty-six of the 88 babies from whom nasopharyngeal and rectal swabs were taken had, prior to swabbing, either had diarrhoea and vomiting for more than seven days or had received chemotherapeutic drugs. They have therefore been excluded from the following analysis of the general bacteriological results. The swabs from the remaining 52 babies were taken in 18 cases on the first or second day

of illness, in 21 on the third or fourth day, in 11 on the fifth or sixth day, and in 2 on the seventh day. The distribution of organisms in the 52 nasopharyngeal swab cultures was as follows: alpha- and non-haemolytic streptococci, 48; *Staph. pyogenes*, 30; *Neisseria*, 23; *Bact. coli*, 18; diphtheroids, 7; *Haemophilus*, 5; pneumococcus, 5; yeasts, 3; aerobic spore-bearing bacillus, 1; *Chromobacterium*, 1; paracolon bacillus, 1. The distribution of organisms in the 52 rectal swabs was as follows: *Bact. coli*, 50; *Streptococcus*, 41; *Staph. pyogenes*, 16; *Proteus*, 16; *Lactobacillus*, 15; *Micrococcus*, 15; paracolon bacilli, 5; *Fusiformis*, 3; *Clostridium*, 2; yeasts, 2; aerobic spore-bearing bacillus, 1.

Bact. coli was present in abundance in 47 of the 52 rectal swabs. The detailed examination of the *Bact. coli* strains is described below. Organisms of the *Proteus* group were isolated from 16 of the 52 rectal swabs, but in abundance from only 11 cases. *Proteus* was not isolated from any of the babies with epidemic diarrhoea of the newborn (Group A) or from those with diarrhoea and vomiting in two other outbreaks (Groups B and C). It was, on the other hand, present in the rectal swabs of all the babies in Group D, but it was also present in the seven unaffected baby contacts in this outbreak.

Only seven of the 14 cases with endemic diarrhoea and vomiting (Group H) were suitable for inclusion in the general bacteriological analysis, and *Proteus* was grown from the rectal swabs of three of them; the organism was also found in 16 of the 28 baby contacts in the nursery. Paracolon bacilli were present in the rectal swabs of five of the 52 babies; three of these five were suffering from epidemic diarrhoea of the newborn. Paracolon bacilli were isolated from the nasopharyngeal swab of one of them. *Staph. pyogenes* (i.e., coagulase-positive staphylococci) was present in the nasopharyngeal swabs of 30 and in the rectal swabs of 16 babies; in 15 of the latter it was isolated from the nasopharyngeal swabs also.

Staph. pyogenes strains isolated from the cases of the first two outbreaks (Groups A and B) were examined for phage type by Dr. V. D. Allison. The distribution of the phage types in the nasopharyngeal swabs was type 7/47 (one baby), type 47 (one), type 52A (one), and type not found (five); in the rectal swabs it was type 7/47 (one), type 47 (one), type 52 (one), type 52A (one), and type not found (two). On account of the variety of phage types in the first two outbreaks, and of the low incidence and sparsity of *Staph. pyogenes* in the rectal swabs in general, phage typing was not continued. The phage types determined in the first two outbreaks were not those commonly found in staphylococcal food-poisoning outbreaks—i.e., type 6/47 and type 42D (Allison, 1949).

Gale (1944) found large numbers of Group D streptococci with an unusually high tyrosine decarboxylase activity in the stools of cases in certain outbreaks of neonatal diarrhoea. A detailed examination was therefore made by Dr. P. M. F. Shattock and Miss M. E. Sharpe of streptococci isolated from the babies with epidemic diarrhoea of the newborn. Group D streptococci in small numbers were isolated from the rectal swabs of only three of these babies. Nine strains derived during this outbreak from these rectal swabs and from the intestinal contents of two other babies after death, together with two strains from the upper respiratory tract, were examined. They were found to be: *Str. faecalis*, 3; *Str. faecalis* var. *liquefaciens*, 3; *Str. faecalis* var. *zymogenes*, 3; unclassified, 2. These strains were found to be of several serological types. Their tyrosine decarboxylase activity varied from a high figure to *nil*. Scanty Group B streptococci were isolated from the rectal swabs of two other neonatal cases in this outbreak. *Clostridium* was found in only two of the 52 rectal swabs.

Thirty-four stools from cases of diarrhoea and vomiting were examined microscopically. Abundant bacteria were seen, varying numbers of epithelial cells, rarely more than a few leucocytes, and very occasionally a few red blood cells. No flagellate protozoa were observed. Stools from the 24 cases admitted to gastro-enteritis unit 2 (Group G) were examined for *Giardia lamblia*, each on two occasions, by Mr. L. G. C. Maslen, but none was found. The ether concentration method was used.

Blood was taken, at times varying from the second to the seventh day of illness, from the internal jugular vein of eight babies with *Bact. coli* D 433 in their rectal swabs. Six had severe and two moderate or mild attacks of diarrhoea and vomiting. Cultures were prepared in liquoid digest broth and incubated aerobically, anaerobically, and under CO_2 at 37° C. for 14 days. With the exception of two contaminated anaerobic cultures, no growth was found.

In summarizing the general bacteriological results of the rectal swabs it may therefore be said that no recognized pathogen was isolated, that *Proteus* and *Staph. pyogenes* (of phage types other than those of food-poisoning staphylococci) were each present in about one-third of the cases, that *Clostridium* was rarely found, and that Group D streptococci were not conspicuous in the outbreak of epidemic diarrhoea of the newborn. *Bact. coli* was the most frequently occurring organism, and, with the exception of a profuse growth of *Lactobacillus*, *Proteus*, or *Streptococcus* on some plates, it yielded the most abundant growth.

Serological and Other Investigations of Bact. coli Strains

Lovell (1937), working on the types of *Bact. coli* isolated from diseased calves, identified his strains by the precipitin reaction. Bray (1945), using the agglutination reaction suitable for the identification of the somatic antigen, isolated a particular serological type of *Bact. coli* var. *neapolitanum* from cases of infantile "summer diarrhoea." Kauffmann and his collaborators, using agglutination tests, identified the O or somatic, the H or flagellar, and the K antigens of the *Bact. coli* group: the K antigen may be of the L type (surface) or A or B types (capsular or surface), which are distinguished by their susceptibility to heat treatment. These workers were able to establish a diagnostic coli antigenic schema of O groups, subdivided into types and classified by their O, H, and K antigens. Giles and Sangster (1948) used their techniques for the identification of a serologically homogeneous strain of *Bact. coli* from over 90% of their cases of gastro-enteritis. Detailed information regarding the serology of the coli group may be found in the review of the subject by Kauffmann (1947) and the monographs by Vahlne (1945) and by Knipschildt (1945).

The methods used by these Scandinavian workers have been followed for the examination of *Bact. coli* strains isolated in this investigation. The first strains of *Bact. coli* to be investigated were derived from the outbreak of epidemic diarrhoea of the newborn (Group A). Primary blood-agar plates were inoculated with nasal, nasopharyngeal, throat, and rectal swabs taken from nine babies in the active stage of the disease, two in the convalescent stage, 11 baby contacts, and four babies at first suspected of epidemic diarrhoea of the newborn but later found to have ailments other than this; the intestinal contents of four babies who died from epidemic diarrhoea of the newborn were taken at necropsy and similarly plated. Colonies suggestive of *Bact. coli* were picked from all those

plates on which they were found, the number picked depending on the number of colonial forms present. Each strain was then tested for its fermentation reactions on a variety of "sugars," the production of indole, urease, and H_2S, utilization of citrate, Voges-Proskauer and methyl red reactions, liquefaction of gelatin, gas production at 44° C., and haemolysis (using the method described by Vahlne). In this way 178 strains of *Bact. coli* were isolated. The subsequent serological investigation of these strains will be described later.

For the preparation of sera, eight strains of *Bact. coli* isolated from active cases of epidemic diarrhoea of the newborn (Group A) were used. Six of these strains had been isolated from the rectal swabs of six babies, one from the nasopharynx of one of these babies, and one from a subcutaneous abscess of another of them. This abscess had formed at the site of a subcutaneous injection. These eight strains were chosen because in their biochemical reactions they showed some slight variation from one another and were representative of other strains found.

O sera were made in rabbits, using as antigen an overnight broth culture steamed for 2½ hours. K sera were made, using a living culture which had grown overnight on a thick 0.1% glucose-agar plate, a suspension of about 500 millions per ml. in quarter-strength Ringer solution being employed as inoculum. O and K sera were made from each of the eight strains. One of the rectal strains was motile, and from this an H serum was made using a formolized overnight broth culture. Thus, a total of 17 sera were prepared. Cross-agglutination and reciprocal-agglutination absorption reactions were carried out between these 17 sera and the eight strains of *Bact. coli* used for their production. From the results obtained it was obvious that five of the strains were serologically identical; of these, three had been isolated from rectal swabs and the fourth and fifth from the nasopharynx and rectal swab respectively of another baby.

This serological type is referred to as *Bact. coli* D 433. It is non-motile, therefore O and K sera only were used for its identification. It was tested with *Bact. coli* sera kindly supplied by Dr. G. Vahlne, and was found to be different from any of the 25 O groups of the diagnostic coli antigenic schema of Kauffmann, Knipschildt, and Vahlne. The organism is not capsulated, so that the A antigen was not considered. The presence of an L antigen could not be demonstrated, but a B antigen may be present, though more work is needed for the proof of this point. Dr. F. Kauffmann in a personal communication states that he believes *Bact. coli* D 433 has a surface antigen of the B type and that both the O and the B antigens differ from those of other strains in the schema. The strain of *Bact. coli* isolated by Giles and Sangster (1948) was tested and found to be identical with *Bact. coli* D 433.

The titre of the *Bact. coli* D 433 O serum was 1 in 6,400 and of the *Bact. coli* D 433 K serum 1 in 800. It was considered that these titres were high enough to show any differences between *Bact. coli* D 433 and related serological types which might subsequently be investigated. All the 178 strains already isolated in connexion with the outbreak of epidemic diarrhoea of the newborn (Group A) were then tested against each of the 17 sera. The results suggested that *Bact. coli* D 433 might be related to the outbreak in that it was isolated from the nine active cases examined, from the four cases at necropsy, and from three of 11 contacts; it was not isolated from the two convalescent cases of the disease or from the four cases other than epidemic diarrhoea of the newborn.

The *Bact. coli* D 433 O and K sera, already prepared with strains from cases of epidemic diarrhoea of the newborn, were used for the subsequent identification of *Bact. coli* D 433 among the sick babies and contacts and controls of Groups B–L. Material from these babies was plated on blood-agar. From all plates on which "coliform" colonies appeared four discrete colonies were tested with *Bact. coli* D 433 K serum by the slide-agglutination method. One agglutinable colony was then taken from each "positive" plate and its characteristics investigated. Without serological tests it was not possible to identify colonies of *Bact. coli* D 433 either on blood agar or on desoxycholate-citrate-agar plates. If *Bact. coli* D 433 colonies were overgrown with *Proteus* they were sometimes found to be inagglutinable by the slide method. In this event it was usual to test discrete colonies on duplicate primary plates of blood agar + 1 in 1,000 chloral hydrate; if these were not available, colonies subcultured on to this medium from the primary blood-agar plates were tested.

In all, 133 cultures of *Bact. coli* D 433 were investigated; they were derived from clinical cases of diarrhoea and vomiting and their contacts. All the strains were non-motile. All fermented lactose, glucose, maltose, mannitol, and sorbitol, with the production of acid and gas, after overnight incubation at 37° C. The fermentation of sucrose, salicin, and dulcitol was occasionally rather slower, but the majority of strains gave acid and gas in these "sugars" in four days. All strains were V.P.−, M.R.+, produced indole, failed to utilize citrate, gave acid and gas in MacConkey broth when grown at 44° C., and failed to liquefy gelatin or to produce H_2S. The large majority of the strains when grown on 10% horse-blood-agar plates showed no ring of haemolysis round well-isolated colonies, though there was always haemolysis in the area of confluent growth. Each strain was subjected to the haemolysis test; only six strains gave a positive result. All strains were agglutinated to titre by *Bact. coli* D 433 K and O sera. Representative strains from each group of babies investigated were used for absorption tests and completely removed all agglutinins to the homologous strain.

We have already stated that an anaerogenic strain of *Bact. coli* was isolated from a number of newly born babies accommodated in the maternity nurseries where over a year before epidemic diarrhoea of the newborn had occurred. This strain produced acid but no gas in lactose, glucose, maltose, mannitol, and sorbitol, failed to ferment sucrose and dulcitol, and gave variable reactions in salicin. The other biochemical reactions were the same as those of *Bact. coli* D 433. The O and K antigens of the two strains were identical, but the anaerogenic strain possessed in addition an H antigen and in this respect differed from *Bact. coli* D 433.

Four motile aerogenic strains of *Bact. coli* having the O and K antigens of *Bact. coli* D 433 were isolated during the investigation. These strains were derived from the rectal swabs of four babies, two of whom had mild attacks of diarrhoea and vomiting and were included in Group E and Group H respectively. The other two were healthy babies. The first of these was included in Group K (healthy controls) and the second was among the neonatal babies swabbed in the maternity nursery where epidemic diarrhoea of the newborn had occurred 14 months previously; their progress reports for 2½ weeks after swabbing showed that they remained free from diarrhoea and vomiting during this period. The biochemical reactions of these strains showed no constant difference from those of *Bact. coli* D 433, though two strains failed to ferment maltose in

24 hours but did so later. In view of their motility these strains have not been classed as *Bact. coli* D 433. It has not been possible to assess their significance, particularly as they have been so few in number.

Thirteen strains of *Bact. coli* isolated from calf scours were tested. The biochemical reactions of some strains were similar to those of *Bact. coli* D 433, but all the strains differed from it serologically.

Pathogenicity tests were carried out, using 18-hour broth cultures of *Bact. coli* strains, by intravenous and intraperitoneal inoculation, with and without mucin, of mice of various ages and by the intramuscular inoculation of guinea-pigs. One strain of *Bact. coli* D 433, two strains from calf scours, one strain from a subcutaneous abscess, and one strain from a healthy child were tested. All the strains were pathogenic to animals, but no marked difference in degree of pathogenicity could be detected between them.

Discussion

Among over a hundred cases of infantile diarrhoea and vomiting no recognized intestinal pathogen was detected and virus studies of four fatal cases yielded negative results. A serological type of *Bact. coli*, referred to as *Bact. coli* D 433, was first identified during an outbreak of epidemic diarrhoea of the newborn in a maternity unit. It was present in all of the nine babies available for examination during the active stage of the disease. The same serological type was subsequently isolated from all of 22 cases of diarrhoea and vomiting examined during two outbreaks in a mothers and babies' hostel and one outbreak in a residential nursery. The results thus showed a constant association between *Bact. coli* D 433 and cases of undoubted infective origin.

Clinically, the characteristic feature of the cases in these outbreaks was diarrhoea and vomiting, leading to dehydration. Parenteral infection at the onset was limited to one case of bronchopneumonia. The strain was also isolated from 21 (91%) out of 23 sick babies who developed diarrhoea and vomiting during in-patient treatment in a children's hospital. In this group only two of the babies showed any evidence of parenteral infection at the start of their attacks. The circumstances in this series suggested that some, if not all, of these intercurrent cases were of an infective type.

Lower association rates between clinical cases and *Bact. coli* D 433 were found among the routine admissions to two gastro-enteritis units. These units accept cases from a wide area on the recommendation of medical practitioners, and therefore admit babies with diarrhoea and vomiting of possibly varying aetiology. In the first unit, six (43%) of the 14 cases yielded the strain. The clinical history of five of these six babies suggested that the attacks were of an infective type. In the second and larger unit *Bact. coli* D 433 was found in only five (21%) of a series of 24 babies admitted with diarrhoea and vomiting. The strain was not detected among the 14 babies examined in a large residential nursery. Their attacks of diarrhoea and vomiting were insidious in onset, and 11 of them were mild in type. The series of cases was spread over a period of two months and appeared to be due to a rise in incidence of the diarrhoea and vomiting endemic in this nursery rather than to an outbreak of the disease: it differed, therefore, in this respect from the sharp outbreaks which were investigated among other infant communities. Among a control series of 208 babies *Bact. coli* D 433 was not found.

The majority of the babies in whom *Bact. coli* D 433 was present had severe attacks of diarrhoea and vomiting. The relatively large number of severe cases associated with the strain may have been due, however, to the selection of this type of case for investigation. An unselected series of cases might have shown a different incidence of the strain in relation to severity. *Bact. coli* D 433 was in fact found in some mild examples of the disease such as those of the second outbreak in the mothers and babies' hostel.

The distribution of *Bact. coli* D 433 was not closely confined to one area or to one season of the year. The strain was found in counties as widely separated as Derbyshire and Sussex, and was isolated during all seasons from the winter of 1947 to the summer of 1948. It was not restricted to one age group among the cases, for the strain was present in babies ranging in age from 10 days to 11 months. It is interesting to note that *Bact. coli* D 433 was present both in young babies with epidemic diarrhoea of the newborn and in older babies with infective diarrhoea and vomiting.

Consideration was given to the possibility that *Bact. coli* D 433 may have owed its existence in the stools to some common factor in the feeding of those babies from whom it was isolated. An analysis of the feeds which were being given at the time of swabbing and during the previous few days showed, however, that the babies had received a variety of preparations and several types of added sugar. A small number were fully or partially breast-fed. Similarly, the administration of chemotherapeutic drugs could not be held responsible for the appearance of the strain, since 42 of the 63 sick babies from whom it was isolated had not received this form of treatment.

A diarrhoeal condition is evidently not essential for the existence of *Bact. coli* D 433; this was shown by the fact that the strain was isolated from a number of adult and baby contacts who remained free from intestinal disturbance. The possibility that the serological type may result from alimentary-tract conditions pertaining to all diarrhoeal states seems to be ruled out by the fact that it was not found in a number of babies with watery diarrhoea. More difficult to determine is whether the strain, present in small numbers and therefore passing undetected in the stools of the normal infant, may grow out freely under particular intestinal conditions associated with only certain forms of diarrhoea. Before reaching a decision on this matter a readier method than slide agglutination will be required for the detection of small numbers of *Bact. coli* D 433 on culture plates.

Relapses are a common occurrence during the course of diarrhoea and vomiting. Five babies were admitted to gastro-enteritis units with mild or moderate diarrhoea and vomiting. While under treatment they developed severe relapses with dehydration. *Bact. coli* D 433 was not isolated from them during their initial attacks, but it was found in all of them during their relapses. It seems possible that the relapses were in fact attacks of infective diarrhoea and vomiting acquired within the unit and superimposed on some milder primary condition.

In the later stages of the work a *Bact. coli* strain closely related antigenically to *Bact. coli* D 433 was isolated from babies in the maternity nurseries in which epidemic diarrhoea of the newborn had occurred more than one year before. It differed from *Bact. coli* D 433 in the possession of an H antigen and in producing no gas in "sugars." Some of the babies from whom it was isolated suffered from a mild and transient diarrhoea, but they were evidently free from diarrhoea of the severe epidemic type. Four aerogenic motile strains having the O and K antigens of *Bact. coli* D 433 were isolated from four older babies, two with

diarrhoea and vomiting and two healthy. The significance of these related strains of *Bact. coli* cannot as yet be assessed, but further work may bring an answer to this problem.

Another and more important problem is the possible status of *Bact. coli* D 433, when confirmed by biochemical and serological test, as a causative agent of infective diarrhoea and vomiting. Its close association with clinical cases in certain outbreaks of diarrhoea and vomiting and its absence from control groups of babies suggest that it may play some part in the genesis of the disease, but further work is necessary before any definite conclusion can be reached. Possible lines of research are animal transmission experiments, pathogenicity and toxicity tests, laboratory investigation of the strain for further distinguishing characteristics, closer correlation between the clinical findings and the detection of the strain, and studies of possible dual virus and *Bact. coli* causation.

Summary

A clinical and bacteriological investigation of infantile diarrhoea and vomiting was carried out. The clinical material was drawn from one outbreak of epidemic diarrhoea of the newborn (Group A), two outbreaks of diarrhoea and vomiting in a mothers and babies' hostel (Groups B and C), one outbreak in a residential nursery (Group D), intercurrent cases among sick babies in hospital (Group E), two series of admissions to gastro-enteritis units (Groups F and G), and endemic diarrhoea and vomiting in a residential nursery (Group H).

No recognized intestinal pathogen was isolated, and virus investigation of fatal cases yielded negative results.

Bact. coli sera, prepared from strains isolated from cases of Group A, led to the identification of a particular serological type, referred to as *Bact. coli* D 433. It was isolated from all nine cases examined during life in this outbreak.

The same sera were subsequently used for the identification of *Bact. coli* D 433 among the other groups of babies studied. It was isolated from all 22 cases (100%) of Groups B, C, and D, from 21 (91%) of the 23 cases in Group E, from 6 (43%) of the 14 cases in Group F, from only 5 (21%) of the 24 cases in Group G, and from none of the 14 cases in Group H.

Bact. coli D 433 was not isolated from any of the 208 babies of the control groups.

Five babies with mild or moderate diarrhoea and vomiting has severe relapses while in gastro-enteritis units. *Bact. coli* D 433 was not isolated from them during the initial attacks, but was present during the relapses.

Bact. coli D 433 was isolated from cases in seven counties and during all seasons of the year. The youngest baby in whom it was found was aged 10 days and the oldest 11 months.

Bact. coli D 433 was isolated from four of 84 adult contacts and from nine of 34 baby contacts examined in connexion with Groups A–E.

Bact. coli D 433 was not isolated from rectal swabs taken three to six months later from 82 infant occupants of nurseries and wards in which cases of diarrhoea and vomiting (Groups A–E) had been investigated. Fifty-one newborn babies, occupying the maternity nurseries in which epidemic diarrhoea of the newborn (Group A) had occurred, were swabbed more than a year after the outbreak. From 21 of them an anaerogenic motile *Bact. coli* strain was isolated which was closely related antigenically to *Bact. coli* D 433. Ten of these babies suffered from a mild diarrhoea the significance of which is at present undetermined.

Whether the serological type of *Bact. coli* has any aetiological significance in diarrhoea and vomiting is undecided. Lines for further research on this matter are indicated in the discussion.

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WHAT IS SOCIAL MEDICINE?*

BY

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It is usually assumed that the expression "social medicine" is of relatively recent origin. Dr. René Sand (1948) has shown, however, that it was used exactly 100 years ago by Dr. Jules Guérin, writing in the *Gazette Médicale de Paris*. The idea of social medicine therefore is certainly not new. The only new thing about it is the reawakening of thought which realizes that here is something of fundamental importance that has been forgotten in certain circles.

If, in the past, clinicians have forgotten the importance of the environment in determining disease, hygienists have perhaps been too limited in their outlook and interpretation. Social medicine attempts to link together clinical medicine and preventive medicine in the hope of benefit to both. It is my purpose to try to illustrate the existence of a common ground between the two.

If we are to understand fully the meaning of and need for social medicine it is necessary to trace briefly the history of medicine as a whole and its relation to other branches of human activity.

To the Greeks medicine meant the art of healing; it achieved importance because of the necessity for curing a sick person of disease. The emphasis was therefore on the treatment of disease, and little or nothing was known of aetiology. Preventive medicine was certainly studied by Hippocrates, and his writings are full of sound reasoning concerning the spread of epidemics. Preventive medicine, however, could make no real advance until the basic sciences of physiology and bacteriology had been developed. Throughout the Middle Ages no advancement was made in

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our knowledge of aetiology, and treatment was largely empirical and often associated with magical and ritualistic rites. The Greeks also developed the idea of health not merely as absence of disease but as something to be cultivated.

The word hygiene, meaning "wholeness of body," is still in use to-day, and is associated with the idea of the production of a greater functional reserve against the encroachment of adverse influences by a discipline of clean and vigorous living. This theme of positive health is well illustrated by the words of William Morris: "First of all I claim good health; to feel mere life is a pleasure; to enjoy the moving of one's limbs and exercising one's bodily powers; to play as it were with sun and wind and rain; to rejoice in satisfying the due bodily appetites of the human animal without fear of degradation or sense of wrong-doing: yes, the wherewithal to be well formed, straight limbed, straightly knit, and expressive of countenance."

England was the first country in the world to control epidemic disease by the sanitary idea. Advancement in this idea did not of necessity depend upon the knowledge of causation of disease; indeed, the decreases in epidemic disease began before the germ theory of disease was established as a scientific doctrine.

Public Health

The Magna Charta of Public Health was passed in 1875, but for many years after that Sir James Creighton was disputing the germ theory of disease, and yet William Budd, working in this City of Bristol, had already shown the practical way in which excremental diseases were spread. Sanitary science is now a well-established technique, and as such it has its obvious social uses. It should not be taken for granted that it is any less necessary or less important than it was a century ago. It was perhaps unfortunate that the practice of public health was largely divorced from the practice of clinical medicine; indeed, it has been the fashion for the consulting physician to regard his brethren in the field of public health as belonging rather to another and inferior world.

The general practitioner, too, has tended to adopt a critically hostile attitude to the medical officer of health, and he has often resented an intrusion into the field of curative medicine. Certainly there has not always in the past been that happy liaison between the two which is to the best interests of the community. The public health services were saddled with the heavy responsibility of administering the municipal hospitals—a responsibility which was thrust upon them because the public health service was the only administrative machine in existence capable of dealing with it. It never was the function of a medical officer of health to enter this realm of curative medicine, and the recent steps taken to put these services under a separate authority are logical and necessary.

Side by side with the study of the environmental factors which affect health there was simultaneously a concentration of study on the disease processes in the sick individual. Diagnosis, which had formerly relied entirely upon the skill and experience of the physician at the bedside, became more and more dependent upon the intricacies of biochemical investigation, radiographic analysis, and the like, and the pathology of internal disease developed *pari passu* with the use of the microscope and the advancement in histological techniques. The era of internal medicine had arrived. Almost the whole of the resources of clinical medicine as practised in hospital were centred upon diagnosis and the removal of the disease process in the individual, and little attention was paid to the study of man in his environment.

This is the point of view which has permeated the teaching of medicine in many of our universities and medical schools. When he first qualified the medical student had received little or no training in the conduct of general practice. He soon learnt by bitter experience that to attach precise labels to disease was often difficult and impossible with his limited facilities. He discovered also that man is a social animal, and many of the disease processes he was called upon to control had roots in social sources, in particular that of poverty and all that is associated with it—bad housing, overcrowding, unemployment, and inadequate food.

Adverse Social Factors

To-day we realize that disease processes can be initiated not only by adverse factors in the purely physical environment but also by adverse factors in the social environment. With the growth of civilization and urbanization the technicalities of life have become more and more complicated and increasingly difficult to understand. The factors which make for a healthy social environment are becoming more difficult to obtain. A happy family circle, a full and adjusted community life at work and at play, a sense of purpose and responsibility in the world—these are of vital importance to social well-being. In the troubled times in which we live it is small wonder that the psychosomatic diseases such as duodenal ulcer and angina pectoris have increased in prevalence; and there are other pointers to psychosomatic imbalance, such as the increased urge for tobacco and the rise in juvenile delinquency.

It is also important to realize that diseases conditioned by an adverse environment have often inevitable social implications and repercussions in themselves. Tuberculosis, venereal disease, and many mental ills are typical and outstanding examples of those conditions in which the individual has in turn a responsibility to the community.

The family physician has always been aware of these various factors in the physical and social environment which affect the health of his patients, and he is equally aware that these factors are of profound importance in determining health or disease. Unfortunately, as an individual he is not always in a position to correct them, as the causes are often dependent upon the social framework and way of life of the community. There are, nevertheless, many factors in the environment which it is in our power to control, particularly by communal action. They come into the realm not only of preventive medicine but also that of curative medicine.

When we consider the effect of environmental factors upon health we find there is no hard-and-fast line between prevention and cure. The use of the term "preventive medicine" in this sense is therefore limited in its scope: the term "corrective" is perhaps more suitable. In America, according to Smillie, the term "preventive medicine" has an even more limited application. It is used to describe those activities in the prevention of disease which are the direct responsibility of the individual, and "public health" serves to denote those factors which are a responsibility of the community. However we define these terms it is clear that the physician in practice has an obligation to his patient and to the community to prevent illness and to promote family and communal health, and for that reason full diagnosis and adequate treatment are impossible without a knowledge of the social and economic factors which influence the life of the patient.

"Internal" and "External" Medicine

One thing is clear: the term "medicine" as used in its widest sense to-day is no longer limited to the art of healing. It includes the prevention and treatment of disease, and takes within its compass the study of the basic sciences of anatomy, physiology, and pathology as well as the healing arts of clinical medicine and surgery. It also includes within its scope the factors which promote health. There is no sharp dividing-line between health and disease—the one merges imperceptibly into the other; and I must stress the point that there can never be watertight compartments in medicine. There is a need for stressing the importance of environment in medicine, because in the teaching schools and in hospital practice this has often been forgotten. We can call this "external medicine."

In what way does "internal medicine" differ from external medicine? Internal medicine has for its background the study of the internal anatomy and physiology of the individual and the elucidation of the changes which take place in disease and their internal causes. It is concerned with the diagnosis of the disease condition and with the treatment of disease by the correction of the deranged mechanisms of the body, whenever possible. External medicine, on the other hand, has for its background the study of social structure and social pathology; it is concerned with the ultimate aetiology of disease and with those factors which promote health. It aims at the control of these factors both by individual and by communal action.

So far as research and investigation are concerned we can see two lines of development. The high-power research of the laboratory has centred largely upon internal medicine, mainly because the immediate results have been of practical value to the patient. But original research and investigation in external medicine, apart from epidemiology, have been haphazard and have lacked organization and co-ordination. With a few exceptions, what has been done has usually been carried out by individuals working alone in the course of busy routine work. But research in external medicine more than in any other branch requires team-work, organization, the use of statistical method, and survey technique. In the past undoubtedly valuable contributions have been made by medical officers of health; but as their time became more and more absorbed with routine work so their opportunities became less.

The result is that our knowledge of disease processes in the body and our advances in diagnostic technique have outgrown our knowledge of aetiology.

The practitioner of medicine must be a complete doctor; he must study and consider all factors affecting health, internal and external. Sir William Osler, one of our greatest clinicians and a prolific writer on internal medicine, was also a great exponent of the value of external medicine.

Definition of Social Medicine

With these ideas in our minds we are now in a position to give a definition of social medicine and to demonstrate its activities.

Social medicine is the study of those environmental factors which affect health, and the application of that study to the benefit of man. It has two main applications: (1) The use of this knowledge for the benefit of the individual both in health and in disease: this is a responsibility not only of the physician and surgeon but of each individual. (2) The use of this knowledge on a community basis: this is a responsibility of the community and has been known in the past as "public health" or "State medicine."

The term "environment" is used here in its very widest sense, to include not only the physical and social environment but also the study of heredity and genetics in their effect upon human health; and by the term "health" is implied "optimum health," and not just the absence of disease. Clearly we cannot be limited in our conception of the communal aspects of this branch of medicine.

From what has been said it is not possible to separate preventive from curative and individual from communal medicine. It may be asked why it has been necessary to reintroduce the term "social medicine" at all. I think the answer lies in the fact that the older terms "public health" and "preventive medicine" are too limited in their scope to define adequately the branch of medicine which I have described and which has definite claims to be regarded as a distinct branch. It also indicates the importance of the social environment as distinct from the purely physical environment. Unless we take into account all factors affecting health, our efforts to improve social evils may cause more harm than good. Thus Dr. Mannheim (1948) has shown that in Cambridge there is a much higher rate of juvenile delinquency on the new housing estates, just as Dr. M'Gonigle at Stockton-on-Tees found a higher death rate in a population which had been moved from a slum area to a new housing estate. Rehousing in itself is no cure for social evils.

Clearly there are many factors not mentioned in the Public Health Acts which affect health, and it is difficult to envisage any field of human activity or endeavour that does not have its repercussions upon the health of the individual—agriculture, the Road Traffic Acts, the employment of labour, town planning, crime, finance, sport, and even politics. It is this common interest which brings social medicine in relation to so many phases of human activity.

Mortality Statistics

One of the basic sciences of social medicine is that of social pathology, just as the basic science of clinical medicine is human pathology. Its function is to study the disorders and ills dependent upon a communal life. The idea, however, is certainly not new. One of the greatest accounts of social pathology was that written by Edwin Chadwick (1842). This was, however, largely concerned with the physical environment. Much of the information on the adverse effects of environment can be ascertained from the study of mortality statistics, first instituted by John Graunt and later developed by William Farr. Our information on communal mortality is contained in the Registrar-General's Reports. Perhaps the most important of all these is the Decennial Supplement on Occupational Mortality for 1931. Although this document was not published until 1938 it constitutes the most complete account in any country of mortality analysed by occupation and social class. The technique of the analysis of mortality statistics has been described by John Ryle (1948) as the "social post-mortem."

It is easy to arrive at erroneous conclusions from a study of mortality statistics. The Registrar-General has made every endeavour to eliminate these from the purely statistical point of view. He is able, for example, to measure the effect of an ageing population and to counteract this effect by the use of special devices: this is particularly important in such diseases as cancer and heart disease. He is not, however, able to measure changes in the fashions and trends of diagnosis. We know that there have been considerable changes and inaccuracies in diagnosis in recording the cause of deaths. This may make considerable differences in such diseases as bronchogenic carcinoma and

the leukaemias. An interesting example is seen in the changing trend of diagnosis between nephritis and essential hypertension, which has recently been analysed in cotton-workers by Platt.

The value of mortality statistics lies not so much in their relative accuracy as in the fact that they are pointers to lines of more detailed study and research, lines of study which should give vitally important information on the causation of disease. It is clear that for their correct interpretation one must have some knowledge of disease processes in the body. There is no doubt that here is common ground for social pathology and internal pathology, and the one can make good the deficiencies of the other.

The morbid anatomist is too often apt to regard his material as characteristic of the population as a whole. Usually, however, his material is highly selective and is based on a very small sample of the population. On the other hand, the information which is gleaned by the social pathologist very often includes the whole population. The wise pathologist will not limit his activities to the field of morbid anatomy. He will combine the studies of experimental and social pathology and endeavour to correlate the findings of these techniques. But the use of such methods is still in its infancy; that is why I look to the future to see the increasing use of morbidity and mortality statistics as research tools of the social pathologist.

Infant Mortality

If we attempt to analyse mortality we find that it is greatest at the extremes of life. In infancy and old age the individual is less adapted to withstand adverse environmental factors. The infant mortality rate has often been used as an index of the healthiness of a community, and there is a considerable differential class mortality, the mortality rate being considerably higher in the lower social groups. This information has been analysed in detail by Titmuss, who has shown that this differential class mortality, contrary to what is usually assumed, is, if anything, becoming more pronounced. I would draw attention to the fact, however, that mortality in the second year of life is probably a more sensitive index of environmental factors. Thus the mortality rate from measles during the second year of life is 19 times greater in the lowest social class than in the highest.

I would here like to draw attention to an interesting feature of infant mortality in relation to the occupation of the father. When we consider those occupations which are connected with the highest infant mortality, are we right in assuming that the social way of life entailed by those particular occupations is responsible for the high loss of infant life, or are there genetic influences at work? Also, are there sufficient numbers from which to draw any significant conclusion?

As one would expect, there is a very high mortality amongst the infants of labourers, costermongers, and similar groups. Three occupations, however, show a high infant mortality where one would not expect it to occur. These occupations are sugar-confectionery makers, retailers of sugar confectionery, and salesmen of sugar confectionery. I shall leave you to decide whether there is any real significance in the association of a high infant mortality with employment in the sugar confectionery trade.

There are, of course, not only diseases of poverty; there are also diseases of affluence. Thus gout, diabetes, and particularly cirrhosis of the liver show a greater mortality in the higher social classes, and in publicans in particular. It is interesting to note that a considerable fall in mortality in these diseases occurred during the war, a fall which was not shared by our neighbours in America. And what of the diseases of worry, the so-called psychosomatic affections, of which duodenal ulcer and angina are important examples? Surely there is some significance in the observation that the mortality has increased during the last few years and that it is greatest in the higher social classes?

I shall not attempt to discuss all the possibilities envisaged by these observations, but hope that they will stimulate others to search this fascinating publication, the Decennial Supplement on Occupational Mortality, for further information, and perhaps even to pursue their own inquiries into the aetiological relationships suggested by this technique of the "social post-mortem." Personally, whenever I pick up some occupational mortality supplement I never fail to find something new and exciting.

Duties of Medical Officer of Health

In 1925 the Ministry of Health issued a memorandum on the duties of the medical officer of health, and in it appears this sentence: "He should endeavour to acquire an accurate knowledge of the influences, social, environmental, and industrial, which may operate prejudicially to health in the area."

So far as the study of the occupational influence is concerned it remains virtually an unexplored field to the medical officer of health. He has therefore a great part to play in the development of this idea, and a fresh sphere of opportunity awaits him. The loss of the millstone of hospital administration can only be to his ultimate advantage, for in that way he is left free to investigate the environmental factors which affect health. The opportunities will present themselves, but to make full use of them he must go to the homes of the people and become more closely associated with the activities of clinical medicine. The formation of practitioner health centres should provide a great opportunity for him in this respect. The only way to obtain the final answer on the aetiology of many disease conditions is to study man in his environment. This is no new idea; it was expressed by Ramazzini in 1705 in words which might be applicable to-day: "For my own share I have done what I was able to do and thought it no indecency to step sometimes into the meaner sort of houses, especially now that almost all physic is reduced to mechanism and the schools sound of nothing so much as an automaton or machine of the body, the shops and houses of tradesmen are the only schools in which we can find any satisfactory knowledge of these matters."

Two important and stimulating addresses on the importance of this idea have recently been given—the first by Professor Parry (1948) in his Presidential Address to the Society of Medical Officers of Health, and the second in a broadcast in the Third Programme by Dr. Cohen (1948); perhaps Professor Parry will forgive me if I make a comparison between the two. Professor Parry has indicated how important it is that the medical officer of health of the future should become more clinically minded and have opportunities for visiting the homes of the people. Dr. Cohen, on the other hand, has shown how meagre is our information on the social sciences, how little we really know of the way people live, and the need for a science of society. There is a woeful lack of data on which to base a scientific approach to the planning of health services and an absence of any kind of research organization in public health departments.

One would have thought that such organizations were essential before we could even begin to find the answers

to some of our practical problems. I hope that in the future the Minister of Health will make some constructive proposals enabling public health departments to set up machinery for sociological investigation, for this is urgently needed to answer some of our immediate practical problems, quite apart from the more fundamental research into aetiology, which must be carried on by university departments of social medicine. Nor must we be cheese-paring in our demands: this type of research requires teams whose sole function is research and whose time is not burdened with routine duties.

Statistical Method

It is clear that false conclusions and deductions can arise from the observations of one man alone, and it was not until the statistical method was applied to the measurements of morbidity and mortality that any real advance was made. Unfortunately, similar mistakes are perpetrated to-day, and medical men in particular are very prone to generalize from results of their own often limited experience. That is why I regard the use of the statistical method of the utmost importance in the study of social medicine.

In the words of Greenwood: "The knowledge which a great physician has of the body and of the mind is neither meagre nor unsatisfactory, but physicians great or small cannot assess group experience without resort to a calculus of groups which must be statistical." One has only to glance through the sections on aetiology in some of the earlier textbooks of medicine to realize the importance of this statement. There are mistakes the origin of which can be traced back to the limited observations of one man. Such mistakes are copied from textbook to textbook, and once they have appeared in print they are more than difficult to eradicate, and even to-day some are still retained. The recorded observations on normal ranges of physiological variations in groups of human beings are also in a very chaotic state, and, apart from Price-Jones's research into the size of the red cell, there has been very little real work done on a statistical conception of normality. The Grant study at Harvard is an attempt to remedy this. When we look for an organized science of aetiological relationships we can see that it is heavy with hypothesis and dismal with uncorrelated observations. Practical success in the prevention of disease depends upon advances in our understanding of causation. As Seiglitz has pointed out, there are predisposing, provoking, and perpetuating factors in disease, all of which come under the heading pathogenesis, and there is rarely one single aetiological factor. I am certain that it is fundamentally wrong to think of a single cause in aetiology. Tuberculosis provides a very good case in point. It may be caused by the tubercle bacillus, but, in terms of practical politics, genetic, nutritional, and environmental factors are of considerable importance in determining the onset of disease. How else can we explain the fact that some individuals can remain perfectly healthy despite heavy and repeated exposure to the tubercle bacillus and yet others require only a minimal exposure to produce a widespread and extensive disease process? Very often the predisposing and perpetuating factors are of greater importance than the provoking factors.

Of all diseases which require detailed investigation none is more important than tuberculosis. Here is a disease of which we know the predisposing, provoking, and perpetuating factors in its causation, and yet it remains the most important cause of death in young people. In females in this country aged 15–20 it still accounts for 40% of deaths. There can be no more important study than the social medicine of tuberculosis.

So far I have confined myself to a study of mortality; that does not mean that the causes of ill-health are not important. In the words of Dickens: "It concerns a man more to know the risk of the fifty illnesses that may throw him on his back than the possible date of the one death that must come." It is over fifty years since Sir John Simon recognized the importance of information on morbidity statistics and advocated their use. We still have no organized means of obtaining such information.

Important Aspects

This conception of social medicine would not be complete if it did not indicate in some degree the emphasis to be placed on its various aspects. There are those who would place this emphasis on its application to the benefit of the patient in hospital, others on health and its communal aspects. John Ryle, himself a clinician of considerable experience and the first professor of social medicine in this country, has elaborated the importance of social medicine in its clinical application. He has nevertheless indicated that the aspects associated with the community and its relation to health are possibly of even greater importance. It is clear that our conception of social medicine must include within its scope the realm of preventive medicine, public health, occupational medicine, and the application of those humanitarian principles so long practised by the good family physician.

There is no doubt that the occupational environment is of supreme importance, but it seems to me that the relative importance of industrial toxicology in the causation of ill-health and death has been grossly exaggerated. It is fascinating and exciting to read about beryllium lung and manganese pneumonitis, but disease arising from such specific poisons is extremely rare compared with the common diseases from which men suffer and die. Many occupations show a high mortality rate because of the social way of life necessitated by those occupations. This is proved by the fact that in a great many occupations the high mortality rate of the men is shared by the wives who are subject to the hazards of the same social environment but do not share the specific occupational hazards. There are of course occupations which have high mortality because they attract men of poor physique—for example, tailoring, printing, and the boot and shoe industry.

Conclusion

In a free society our aims must be to provide a healthy environment and to ensure that all possible measures are taken to secure freedom from disease. Each individual must be left free to develop according to his own needs and requirements. The idea that there should be any dragooning into health savours to me of the Nazi doctrine: hard physical exercise is not the only way to achieve optimum health. That is why I am always a little suspicious of those individuals who talk about positive health.

I regard social medicine as a philosophy which should permeate all branches of medicine, for its implications cannot be divorced from any branch of medical learning. It is a branch of medicine also which provides a connecting-link with the wider humanities. In the teaching of medicine the accumulation of facts has been pursued, to the neglect of the study of man in his environment. The liberal and intellectual structure of medicine and the humanism of medicine are often lost in a welter of technical detail. It is well to remember that the great pioneers of social medicine were men of liberal education and wide outside interests. They were interested in men as part of humanity.

If I were asked to define social medicine concisely I should answer: "The study of man within his environment, to give him life and to give it more abundantly."

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THE AGE OF THE MENARCHE

BY

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During the past century there has been a general tendency for European children and adolescents to grow with increasing rapidity, so that at a given age they are now taller and heavier than children of 50 years ago. This effect is also found in the more privileged classes compared with the less privileged, and has been ascribed to better nutrition (Morant, 1939). Studies of London school-children reflect a similar secular change in growth (Daley, 1948). The possibility that earlier sexual maturity may be associated with this accelerated growth in stature and weight is a matter of some social importance and has led to the present inquiry.

It is generally accepted that the development of sexual maturity is influenced both by heredity and environment and, more directly, by the action of pituitary hormones on the thyroid gland and gonads. H. Hogben, J. A. H. Waterhouse, and L. Hogben (1948), in a noteworthy contribution to the study of puberty, have discussed the salient features concerned in the process of full development. Ellis (1948) has shown that when comparing growth and nutrition in groups of boys and girls the stage of sexual maturity of the individuals concerned is almost as important as their chronological age; he has suggested a simple clinical grading for the use of school medical officers.

The onset of menstruation, now usually referred to as the menarche, represents to the individual girl a very definite point in time, which can be accurately determined retrospectively within a few years of its occurrence. No other aspect of sexual maturation, whether in girls or in boys, is so striking. Thus, although the onset of menstrual periods is only one aspect of a complex developmental process, information regarding it can be obtained quickly and reliably. For these reasons the present study is confined to sexual maturation as exemplified by the age of the menarche.

Observations in many different countries show that groups differ in the average age of the menarche. A number of associations between the age of onset of menstruation and environmental influences have been stressed by several investigators. (1) It has been stated that town girls on an average menstruate earlier than country girls. (2) Associations with height and weight have been demonstrated. (3) It has been asserted that girls nowadays are menstruating on an average at an earlier age than did their mothers (Kennedy, 1933; Pryor, 1936; Michelson, 1944). The present investigation was planned to consider afresh these three suggestions.

Data

Data were collected from nine secondary girls' schools of which three are in Oxford City and the other six in Oxfordshire. The schools draw children from a variety of social and economic environments. The information included the present ages, heights, and weights of the children, together with a record of whether their menstrual periods had started, and, if so, of their age at the time of onset. In order to be sure that the samples were representative of the geographical areas served by the schools children were included only if they had been resident in the area for at least three years preceding the menarche or the date of the inquiry, whichever occurred earlier. At one city school the information was available only for those whose periods had already started. In all, records were analysed for 1,338 girls between the ages of 10 and 19—572 were from city schools and 766 from country schools. Of the total, 604 had not started menstruating when the inquiry was made.

City and Country Schools

The age of onset of menstruation ranged in individual girls from 9 to 18 years. The average age of the menarche among the children who had attained it was 13.23 years. In the three city schools the figure was 13.4 years and in the six country schools 13.09 years. However, in each school a substantial proportion of the girls had not started menstruating, and this fact makes the average ages quoted above dependent upon the age distribution of the children in the various schools. Schools with a higher proportion of older girls will naturally return a higher mean age at the menarche among those whose periods have started. This effect is shown in Table I.

TABLE I.—*Age of the Menarche in City and Country Schools*

	Average Age of Menarche	Average Age of All Children
City schools	13·40 years	14·03* years
Country schools	13·09 ,,	13·70 ,,
All schools	13·23 ,,	13·83 ,,

* Two schools only.

It is evident that the apparently lower age of the menarche in country schools may express no more than the younger average age of the children at those schools. The point was tested explicitly in the following manner. It is possible from the data to calculate for each birth anniversary the percentage of girls who have started menstruating by that age. The information for *every* girl who has passed the particular birth anniversary, whatever her present age, may be used to contribute to the calculation of this percentage. Table II shows

TABLE II.—*Percentages of Children who have Attained the Menarche by Various Ages in City and Country Schools*

Age	2 City Schools	6 Country Schools
9	0·0	0·0
10	0·2	0·0
11	0·6	1·0
12	5·6	7·5
13	24·8	29·6
14	64·6	63·3
15	90·8	89·4
16	95·5	95·4
17	100·0	98·2
18	100·0	100·0

such percentages for city and country children. The "median" age of the menarche—that age at which half the girls have started their periods—when estimated graphically is almost identical at about 13.6 years in the two groups. Nor is there

TABLE III.—*Numbers, Mean Present Heights (in.) and Weights (lb.) of Children according to Present Age and Age of the Menarche*

Age of the Menarche (Years)	Present Age (Years) 10–11 No.	Ht.	Wt.	11–12 No.	Ht.	Wt.	12–13 No.	Ht.	Wt.	13–14 No.	Ht.	Wt.	14–15 No.	Ht.	Wt.	15–16 No.	Ht.	Wt.	16–17 No.	Ht.	Wt.	17–18 No.	Ht.	Wt.	18 + No.	Ht.	Wt.	All Ages No.	Ht.	Wt.
9–10																												1	61·5	140·5
10–11																												12	62·3	130·8
11–12				3	61·2	113·8	5	62·5	144·5	1	62·5	126·5	3	63·2	126·5	1	64·5	140·5										71	63·6	123·3
12–13				6	61·0	106·7	11	62·9	123·6	13	63·4	125·9	16	63·6	123·7	14	64·2	137·2	9	65·2	132·5							212	63·4	119·0
13–14							34	62·2	105·8	67	63·2	119·2	53	63·7	123·4	36	64·0	119·7	14	64·3	127·0	5	65·5	132·5				275	63·9	121·0
14–15										58	62·7	117·3	97	63·6	115·7	75	64·7	125·6	32	64·7	127·3	13	64·4	129·3				132	64·3	116·0
15–16													43	63·7	110·0	45	64·6	116·6	31	64·5	122·0	16	64·8	129·9	3	64·2	116·5	27	63·8	114·8
16–17																9	63·2	109·4	10	63·4	112·9	2	64·8	142·0	2	65·5	133·5	3	66·2	130·8
17+																			1	63·5	108·5	1	67·5	108·5				1	61·5	108·5
All who have menstruated	1	1	—	9	61·1	109·1	50	62·3	113·6	139	63·0	118·2	212	63·6	117·2	180	64·5	122·3	97	64·5	123·5	39	64·7	128·0	8	64·3	120·3	734	63·8	119·7
All who have not menstruated	4	57·5	83·7	158	58·0	84·3	220	59·4	87·2	151	60·9	93·0	53	62·2	100·9	18	63·1	101·6	1	—	—	—	—	—	1	—	—	604	59·8	89·6
Difference of last 2 rows					3·1	24·8		2·9	26·4		2·1	25·2		1·4	16·3		1·4	17·7												
Standard error of difference					0·9	4·8		0·4	3·2		0·3	1·8		0·5	2·5		0·5	2·1												

Metric equivalents: 1 inch = 2·54 cm.; 1 lb. = 454 g.

any suggestion of a greater spread in the age of the menarche among one group of children than among the other. There is thus no apparent difference between the children from town and country in respect of age at the menarche.

Height and Weight

Table III gives the mean heights and weights of all the children studied according to their present age and their age at the menarche. The data for those children whose periods had not started are analysed according to their present age.

The most striking feature of the table is the considerably greater mean heights and weights among those who have menstruated compared with those of the same age who have not. Where weights alone are concerned the frequent plumpness of girls at this phase of life has long been a familiar observation. For children of 11 or 12 the difference in average height is about 3 in. (7.5 cm.) and in weight about 25 lb. (11.3 kg.). For children of 14 or 15 the difference in mean height is about 1¼ in. (3.75 cm.) and in weight about 17 lb. (7.7 kg.).

The columns of the table give some indication of the way in which present height and weight depend upon the interval since the menstrual periods started. There seems to be little or no variation in present height according to the interval since the menarche. There is a slight tendency among the younger girls for those who first menstruated recently to have lower weights than girls of the same age who first menstruated earlier. It is quite evident, however, from the figures that growth is much slower after the menarche, and that there must be a considerable spurt in growth shortly before or around the time of onset of the menstrual periods.

Mothers and Daughters

At one of the city schools it was possible to arrange an approach to the mothers of the girls who had already menstruated, and to obtain, in confidence, information regarding the age of the mother at her menarche. The mothers of 54 girls were involved. The mothers of two were dead, and it was not possible to get in touch with the mothers of three others. A brief explanatory questionary was posted by the school medical officer to the mothers of the remaining 49 girls and replies were received from the mothers of 41. Mother and daughter were given a common code number by the school authorities and so in each instance the difference between the ages at menarche could be determined. In this way genetic differences were allowed for to some extent.

Table IV shows the distribution of the differences in ages at the menarche. In 16 instances the daughter was older than the mother; in 16 instances the mother was older than the daughter; and in nine instances the ages at the previous birthday were identical. There is no evidence from this admittedly small sample of any decrease in average age at the menarche.

TABLE IV.—*Age of Mother at the Menarche Minus Age of Daughter at the Menarche for 41 Daughters (39 Mothers)*

Difference Between Ages at Birthday Previous to the Menarche (Mother minus Daughter)	No. of Instances	
−4 years	1	
−3 ,,	1	
−2 ,,	7	16
−1 year	7	
0	9	
1 ,,	8	
2 years	6	16
3 ,,	2	

Discussion

The negative findings in the first and third parts of this inquiry are not necessarily inconsistent with earlier findings. The association between height and weight and the age of the menarche, which appears so clearly from the figures presented here, suggests that nutrition may be an important factor in sexual development, and the adequacy of nutrition could well differ as between town and country or between one generation and the next. In this instance it is doubtful

if considerable differences in nutrition do occur between the children in the various schools, where milk and meals are provided, or in their homes, where the dietary is both uniform and adequate as a result of equitable rationing during the past nine years. The mothers who were approached regarding their own age at the menarche were drawn from favoured social groups, and it is unlikely that the mothers' nutrition differed greatly from that of their daughters. It is unfortunate that the planning of a similar inquiry among mothers in poorer homes would probably be hampered by prejudices associated with the subject.

The figures in Table III confirm the conclusion of Ellis (1948) that the stage of sexual maturity is as important in assessing growth as is chronological age. It is noteworthy that no entry relating to the age of the menarche is at present included in the new school medical record card of the Ministry of Education. If the physical growth of girls is to be adequately assessed this omission will need to be remedied.

Shuttleworth (1937) presents individual growth curves of 10 girls who first menstruated between 10 years 7 months and 11 years 3 months, and of 10 girls with menarche between 14 years 5 months and 15 years 2 months. The first group were on the average taller during the period from 8½ to 12 years of age than those in whom the menarche occurred later. There was a rapid decrease in rate of growth in stature after the menarche. Those whose menarche was later continued to grow after the girls in the earlier group had practically ceased and in the end were taller. Our findings do not confirm this last observation: Table V summarizes the figures of Table III for the 47 girls aged 17 and 18. There is no consistent tendency for those whose menarche was later to be either taller or heavier than those who first menstruated earlier.

TABLE V.—*Mean Heights and Weights of Girls aged 17 and 18 According to Age of the Menarche*

Age of the Menarche	No. of Girls	Mean Height	Mean Weight
Under 13 years ..	10	64·4 in.	125·4 lb.
13–14 ,, ..	13	64·6 in.	135·7 lb.
14–15 ,, ..	13	64·3 in.	119·9 lb.
15 years and over ..	11	65·1 in.	125·4 lb.
All ages	47	64·6 in.	126·8 lb.

Conclusions

Data concerning the age of the menarche were obtained from 1,338 girls (604 of whom had not yet started their periods), between the ages of 10 and 19, attending three secondary schools in Oxford City and six in Oxfordshire. These schools cater for children from a variety of social and economic environments.

1. No differences in the age of onset of menstrual periods could be detected between children attending the town and country schools. The median age (that at which half of the girls had started menstruating) was 13.6 years. The age ranged in individuals from 9 to 18 years.

2. Girls who have not started menstruating are considerably shorter and lighter than their fellows of the same age whose periods have started. On the other hand, there is little difference in the mean heights and weights of the latter groups when subdivided according to the interval since the menarche. It is concluded that there must be a considerable spurt in growth before or around the age of menarche.

3. The close relation with height and weight means that information on the age of menarche is essential for the adequate assessment of physical growth in adolescent girls. As yet no provision is made for this information on the Ministry of Education's new school medical record card. This omission should clearly be made good.

4. A small number of mothers of a more favoured social group were compared with their children in respect of the age of menarche. There was no apparent tendency for the children to start menstruating at an earlier age.

5. It is suggested that the negative findings (1) and (4), which fail to confirm the work of earlier investigators, may arise from the comparable nutritional status before or during adolescence, in this country, of the groups involved.

6. There is no evidence that the height and weight of girls aged 17 and 18 is in any way related to the age at which they first menstruated.

We are indebted to the educational and medical authorities and the teaching staffs of nine schools in the City and County of Oxford, to Dr. Isabelle Little in particular, and to the mothers of the girls for their help in obtaining the necessary data.

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OBSERVATIONS ON THE TREATMENT OF INFANTILE GASTRO-ENTERITIS

BY

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The aetiology of infantile gastro-enteritis is still far from clearly understood. In a proportion of cases met with in Malta, especially in our hot summers, the disease is almost certainly of infective origin, but the nature of the causative organisms is a matter of acute controversy, as it has been impossible to incriminate any specific agent except in some cases belonging to the dysenteric, enteric, and salmonella group of diseases. Bacteriological examination of the stool of healthy and sick babies has disclosed no qualitative differences; indeed, some paediatricians have held that gastro-enteritis was not provoked by any specific organism but that it originated from the invasion of territory normally sterile, such as the upper reaches of the small intestine (Moro, 1916; Blacklock *et al.*, 1937). Others have postulated a virus infection and offer as evidence the observation that epidemics of gastro-enteritis and of colds seem often to occur together (Gunn, 1944). From the study of some 400 cases Sevitt (1945) concludes that paracolon and proteus bacilli are responsible for many cases of infantile gastro-enteritis. The disease may not represent a single entity, but may be the resultant of a number of different agents.

An Explanation of the Mechanism of Enteritis

If the rapid and abundant loss of fluid which is the cardinal sign of gastro-enteritis originates from the intestinal vascular plexus it must imply quite an abnormal permeability of the capillaries. Although many factors may contribute to produce this exaggerated leakage, it is probable that histamine ranks high on the list.

Histamine is a disintegration product of the amino-acid histidine, and the conversion can be effected by a variety of organisms acting on proteins; appreciable quantities of histamine are found in the stools of mammals. Experimentally, if administered in suitable amounts it is able to induce vomiting and diarrhoea, often with strong colicky pains. The effect is transitory owing to a rapid destruction of histamine by various agents, among which is the ferment histaminase, and perhaps also by a compensatory discharge of adrenaline (Feldberg, 1941).

Analysis of Some Methods of Treatment

If one bears in mind how many different methods of treatment have been proposed for enteritis, most of which are successful in at least some cases, one can reason that it is by no means essential to kill any pathogenic organisms in order to cure the disease.

Castor oil will often clear a mild diarrhoea in a matter of hours, and it can do so only by the rapid excretion of the irritating agents; its antiseptic powers are of course negligible. If we are prepared to admit that histamine is the principal cause of the diarrhoea, then its quick removal lowers its concentration around the intestinal vascular plexus, thus diminishing the permeability of the blood vessels. The natural resistance of the body can then cope with the organisms remaining in the gut.

Heisler (1928) and Moro (1929, 1930) recommended apples for enteritis. This treatment was widely conceded to be effective in mild cases, and various modifications, such as the use of bananas and carrots, were proposed by Continental paediatricians (Feer, 1929; Fanconi, 1930; and Glanzmann, 1939). The mode of action is supposed to be due to the adsorption of toxic and irritating agents by pectin (Salomon, 1936). Ramos (1941) published a study on the carob (*Ceratonia siliqua*), a tree of the Leguminosae family which is abundant in most Mediterranean countries. The pod, whose epicarp is almost as hard as wood, contains a sweet pulp much prized as fodder for horses. Ramos claims that roasted and pulverized carob pulp is very effective in gastro-enteritis.

While apples are rich in pectin (5.7 g. per kg. of apple pulp), a kilogram of a 10% carob suspension contains only 1.8 g. of this carbohydrate: hence the active material in the carob pulp cannot be pectin. Martin du Pan (1945a), who states that carob pulp is very rich in lignin, ascribes its therapeutic action to this. Freudenberg (1939) has written an interesting paper on this hydrophilous colloid, while Martin du Pan (1945b) states that one litre of a 5% carob suspension is able to adsorb 0.74 g. of histamine, whereas a 5% suspension of "aplona" (an apple product) is able to adsorb little more than half this quantity. On adsorption the amino-acids are not susceptible to the action of bacterial enzymes, and thus the formation of histamine and other irritants is much diminished.

The First Antihistaminic

In 1930 Best and McHenry reported that watery extracts of various organs were able to inactivate histamine through the action of a body to which they gave the name of histaminase. Rose and Browne (1938) thought that, although histaminase was not the only agent capable of destroying histamine, they had found that the mucosa of the small intestine contained large quantities of histaminase; it was therefore possible that in the absence of sufficient quantities of this enzyme histamine would display its usual toxic effects. Histaminase is believed to act on histamine by first separating ammonia from the side chain and then finally cracking the ring nucleus containing the two atoms of nitrogen and the three atoms of carbon.

Some years before the last war histaminase was marketed by the I. G. Farbenindustrie under the name of "torantil." Great hopes were entertained on its curative action in gastro-enteritis and in allergic conditions, and encouraging reports by Rigler (1936), Horster (1936), and others were published, but subsequent papers by Miller and Piness (1940) and others have been much less optimistic, so that the drug has now been practically forgotten.

Limitations of Sulpha Drug Therapy

It cannot be denied that some cases of gastro-enteritis do get well spontaneously, especially when the diarrhoea is so profuse that the toxic products are so diluted that they are rendered harmless. The dilution is further assisted when the fluid intake, oral or parenteral, is increased. There are several reports on the good results obtained from the use of sulpha derivatives in gastro-enteritis (Anderson, 1941; Meyer, 1943), but it is common experience to find them useless in some of the severer cases (Hinden, 1948). This can be explained by admitting that if the permeability of the intestinal vascular plexus exceeds a certain critical value, then death through dehydration may occur even in the presence of an efficient sulpha drug capable of killing any causative organisms. It is obvious that no sulpha derivative can neutralize or otherwise dispose of previously formed histamine or related bodies. It is recognized that sulpha drugs are also ineffective in non-specific diarrhoeas due to virus or other unrecognized pathogens.

Antihistamines in Gastro-enteritis

Starting from the assumption that histamine was the immediate cause of the fatal dehydration found in gastro-enteritis and was responsible for many of the toxic manifestations, it was decided to treat a number of cases with an antihistamine ("benadryl" in this series) combined later with a sulpha derivative. Moderately severe and severe cases only were selected, and the criteria were: the presence of pyrexia of 101° F. (38.3° C.) or over in the rectum; more than eight stools a day; and the presence of toxaemia, as shown by the rapid pulse, dyspnoea, and prostration. Vomiting, although present in the majority of cases, was not a constant finding.

The results are given in three Charts. In Chart 1 are included 24 cases treated by a short period of starvation during which half-normal saline or Hartmann's sodium lactate solutions were used orally, or Hartmann–Ringer solution parenterally. After 18 to 24 hours a proprietary buttermilk was given in gradually increasing amounts. No other medicinal measures were used. Four babies died, which gives a lower mortality than is usual in hospital cases; all cases were treated in private homes.

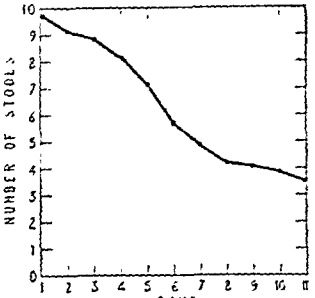


CHART 1.—Showing daily average number of stools in 24 cases treated by a short period of starvation during which various solutions were given.

In Chart 2, 16 cases are reviewed, and these received the same treatment as before but with the addition of

benadryl. Parenteral infusions were not required. Although rapid diminution in the number of stools was observed the fever was often uninfluenced and the condition of some patients deteriorated when the benadryl was stopped. When a sulpha derivative was concurrently administered rapid and permanent improvement set in.

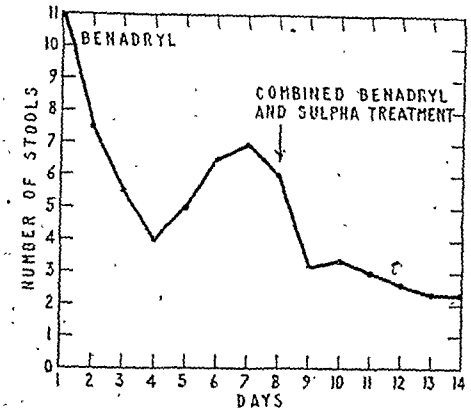


CHART 2.—Showing daily average number of stools in 16 cases treated as in Chart 1 but with benadryl and combined benadryl and sulpha drug added.

The choice of a sulpha derivative is no easy one, and so far can be considered to be largely empiric. Among the non-diffusible derivatives sulphaguanidine, sulphasuxidine, and phthalylsulphathiazole are available, while among the diffusible ones the best are probably sulphadiazine (Klose, 1947) and sulphamezathine. Blatt and his associates (1947) could discover no significant difference between the action of sulphathiazole and phthalylsulphathiazole. It is my impression, based on the observation of over 120 cases, that there is little to choose between sulphamezathine and phthalylsulphathiazole, and I always use one or the other of these two drugs.

As regards the dose of benadryl, I give 1 mg. for every month of age four-hourly, and when improvement sets in the same dose every six hours. This dosage is suitable for babies up to 5 months of age. From 6 months to 1 year the dose is 6 to 8 mg., administered in the same way.

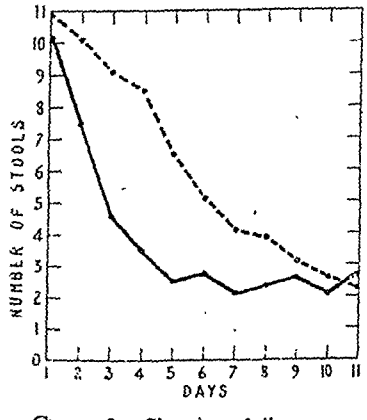


CHART 3.—Showing daily average number of stools in 42 cases treated with sulphamezathine alone (dotted line) and in 40 cases treated with sulphamezathine and benadryl (continuous line).

Chart 3 gives the results in 42 cases treated with sulphamezathine alone and in 40 cases treated with a combination of sulphamezathine and benadryl. It shows that the number of stools diminishes more rapidly when both drugs are used simultaneously, but it does not show the other favourable effects of using the combination of drugs, such as the very quick disappearance of the toxaemic symptoms. Vomiting, when present, ceases in a very short time; the prostration, dyspnoea, and tachycardia subside in most cases in a few hours. The continuous and irritating whine is replaced by a more peaceful cry; this is not surprising, as benadryl seems to have a sedative effect on the central nervous system, and in certain cases infants who have been unable to sleep owing to restlessness or colic repose quietly after a few doses. In no case was it necessary to resort to the parenteral administration of fluid; in fact, four cases among those treated showed a moderate but clearly visible generalized oedema. That this represents water retention is shown by a rapid increase of weight—as much as 200 g. or more in two or three days. The general condition of the patients is excellent, and the swelling subsides when the benadryl is stopped or the intervals between the doses are lengthened. There was only one death in the series treated with sulphamezathine and benadryl, but three deaths occurred in the series treated with sulphamezathine alone.

Conclusion

This communication is of the nature of a preliminary report, and further studies are necessary to assess the value of the combination of antihistamines and sulpha derivatives in the treatment of infantile gastro-enteritis. It is claimed that this combination does influence and materially shorten the course of the disease. Should this claim be confirmed some progress in the treatment of a distressing and often fatal condition will have been achieved.

Summary

The symptomatology of infantile gastro-enteritis can be explained, at least in part, as a manifestation of histamine intoxication.

The beneficial action of various therapeutic measures can be considered as being due to the removal or neutralization of histamine by rapid evacuation, by adsorption, or through antihistamines. Sulpha drugs, by acting on pathogenic organisms, may prevent the formation of histamine.

These measures often fail when the histamine intoxication is severe unless they destroy the histamine *in situ* or prevent the histamine from acting on the intestinal vascular plexus; only antihistamines can do this.

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The Ministry of Health states that the latest figures for nursing and midwifery staffs in hospitals in England and Wales under the National Health Service continue to increase. In March of this year there were 5,600 more nurses than six months earlier, the total being 137,600. This figure includes 21,600 part-time workers—2,600 more than in September, 1948. The number of student nurses increased by 2,578 to 45,300 in the same period. The numbers of full-time midwives in hospitals rose from 4,381 to 4,813, pupil midwives from 3,184 to 3,677, and part-time midwives from 809 to 888. In the same six months full-time domestic staff increased from 99,733 to 100,514 and part-time from 23,131 to 25,065.

EXPERIENCE WITH A SYRINGE UNIT

BY

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Many hospitals in this country are at present considering the establishment of a comprehensive syringe service. Such a unit has been in operation at this hospital for the past sixteen months, and it is felt that our experience may be of help to those about to undertake a similar service.

Method of Cleaning and Packing

Many different techniques have been tried in the sterilization and packing of syringes; the method of our choice is outlined below.

The syringes are first cleaned on the wards, and on arrival at the depot are placed in a bowl of soapy water or soapless detergent and boiled for 20 minutes. They are then rinsed in hot running water. These procedures are carried out with the piston pulled out of the barrel to about three-quarters of its distance. After rinsing well, clean warm water is drawn up and discarded with every syringe. The syringes are then dried in the hot-air oven again, with pistons pulled out to three-quarters of their distance, and, after cooling, a *little* liquid paraffin is applied to the bottom of the piston, the syringe being worked until an even coating of oil is obtained between piston and barrel.

The needles are similarly treated by boiling in soapy water, rinsing, and drying, and are then tested for sharpness and patency.

We have found that the simplest method of packing the syringes and needles is to place them in a hard glass test-tube of appropriate size containing a wad of cotton-wool on the bottom. The top of the tube is then similarly sealed with a cotton-wool plug. The method advocated by the Medical Research Council (War Memorandum, No. 15, 1945) differs from our own in that the assembled syringe is placed in a glass tube of such diameter that the barrel of the syringe is a loose fit but the flange rests on the top of the tube. The disadvantage of this latter procedure is that the top of each syringe must be covered with paper or "cellophane," tied or twisted, to keep its position. Moreover, paper subjected to the required heat often becomes very friable and cracks on handling.

The disadvantage of our method of packing is that the nozzle of the syringe is in direct contact with the plug of cotton-wool at the bottom of the tube. Sometimes pieces of wool become adherent to the nozzle and interfere with a good join between needle and syringe. This difficulty has been overcome by protecting the nozzle of the syringe with a Durham tube.

Two needles of different bore are threaded through a small slip of paper and placed in the same tube alongside the syringe in such a way that the paper prevents the points of the needles from touching the wool at the bottom of the tube.

Sterilization

Sterilization is carried out by placing the assembled units in wire baskets in a hot-air oven at a temperature of 160° C. for not less than one hour. A point of difficulty which often arises is the degree of temperature variation at different places within the same oven. The usual method of estimating the temperature is to place a thermometer through a slot in the top of the oven so that the mercury bulb is just within the cavity. It will sometimes be found that the temperature recorded this way is much lower than that at the bottom and sides of the oven, the variation being as much as 20° C. To overcome this difficulty it is best to place a thermometer in a test-tube plugged with wool and take recordings wherever it is intended to sterilize the syringes.

A further point to bear in mind is the rapid lowering of the oven temperature when cold syringes are placed within it. A considerable time may elapse before the oven regains its heat, and allowances for this factor must be made in the sterilizing time. As an alternative to dry sterilization an autoclave with drying facilities may be used. This would allow sterilization to be effected at a much lower temperature—a distinct advantage when dealing with glass-and-metal syringes.

Syringes

In the past all-glass syringes have been almost exclusively used where sterilization by hot air has been required, but several manufacturers are now producing glass syringes with metal nozzles which will withstand ordinary dry sterilizing heat at 160° C.

This syringe unit started with a stock of all-glass syringes, but these are now being replaced by the metal-and-glass types. There are two serious disadvantages to the all-glass syringe. The first is the fragility of the nozzle: approximately half of our breakages have been due to chipped glass nozzles. The second disadvantage lies in the poor join between needle and glass nozzle. This union is not as satisfactory as with the metal nozzle. A disadvantage encountered in the glass-and-metal syringe is that occasionally the solder melts at sterilizing temperature. This has not been a frequent occurrence in our experience, and when it does occur the syringe can usually be repaired by clamping it in a vertical position, applying gentle heat to the supported metal base, and allowing the solder to set again.

A recent innovation by a firm of syringe manufacturers is the production of interchangeable pistons and barrels. These, however, are as yet produced only in the all-glass type of syringe, but the innovation has much to commend it. A further point to remember is the desirability of eccentric nozzles. In syringes of 5-ml. volume and upwards eccentric nozzles are preferable to the central type, especially when using a metal-and-glass syringe. It will be found that some makes have a rather large metal base, rendering intravenous work difficult without eccentric nozzles. Some manufacturers of metal-and-glass syringes do not charge more for those with eccentric nozzles, but in other cases there is a considerable increase in cost.

Syringe Markings.—This problem has given more anxiety than any other in the syringe service. Originally it was found that the markings on the all-glass syringes had become almost invisible after six to eight weeks of constant use. The notice of the manufacturers was drawn to this fault, and they have improved the staying-power of the markings; but syringes still differ in the durability of the markings, and before large orders are placed it would be wise to test samples for this failing. Syringes with engraved markings are preferable to those of transfer type.

Number of Syringes required for the Service.—From experience it is found that three times the estimated daily turnover is the minimum number of syringes necessary to meet all requirements with efficiency. The estimation of the daily needs is a more difficult problem, and will vary with different types of hospitals. In this hospital, which has 230 beds and caters for fairly large out-patient needs,

it is found that the average daily turnover is in the region of 400 to 500 syringes.

Expenditure.—The following items of expenditure are based on the first year's experience with the service: cost of initial outlay on syringes and needles, £600; cost of replacements, £750; cost of labour, £300.

Breakages and Lost Syringes.—As will be seen from the expenditure figures, the cost of replacements has been very high during the first year's trial period, the average number of breakages being approximately 1% per day. If this rate of loss were to continue the service would hardly justify the expense. Approximately 50% of these losses were due to chipped and broken nozzles, and the introduction of metal nosepieces has proved a great saving. Moreover, to avoid clerical work, an over-generous attitude was originally adopted to the issue of syringes, but it is felt that the system is not conducive to careful handling on the part of the users, so a system has been instituted by which each ward and each department are allotted an adequate number of syringes, and sterilized units are issued only in exchange for used syringes. It is already becoming apparent that the introduction of metal-and-glass types, together with the more rigid check on the return of the syringes, is resulting in a decrease in the number of breakages.

It has been found that one person working eight hours a day is capable of servicing 300 syringes daily. This includes cleaning, assembling, sterilizing, and sharpening of needles.

Conclusion

It is hoped that this short account will save others needless expense and trouble. In particular it is emphasized that before ordering large numbers of syringes the manufacturer's claims should be thoroughly confirmed.

AMOEBIASIS IN ENGLAND AS A HOUSEHOLD DISEASE

BY

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AND

D. R. SEATON, M.B., M.R.C.P.

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The recorded cases of acute amoebic dysentery or amoebic liver abscess occurring in persons who have not been out of Great Britain have for the most part been described as isolated instances, without regard to the source of the infection or of their infectivity to contacts. There have recently come to our notice three families, living in Liverpool, in each of which more than one member of the household was suffering from amoebiasis.

Case Reports

In July, 1947, we were consulted by a ship's officer who had developed dysentery during the previous few weeks. Examination of his stools showed vegetative *Entamoeba histolytica*. While receiving treatment in hospital he mentioned that his wife, who had not been overseas, had recently developed diarrhoea, and he inquired whether he might not have infected her with his complaint. He was assured that this was most unlikely, but, as his wife's diarrhoea continued, her stools were examined, and it was found that she, too, had acute amoebic dysentery.

In July, 1948, a boy aged 16 came under our care suffering from dysentery of undetermined causation which he had had intermittently for the previous two years. His stools contained blood, mucus, and numerous vegetative *E. histolytica*. This boy had dwelt all his life in a Liverpool slum. In the household were his mother, stepfather (a dock-labourer), and six other children, none of whom had lived out of Liverpool. On inquiry it was found that the boy's mother had been troubled with diarrhoea during the previous two months. Examination of her stools showed that she had acute amoebic dysentery. The remainder of the family were in good health, but it was found that the stepfather and four of the six children were passing cysts of *E. histolytica*. This family was also largely infected with threadworms, *Giardia lamblia*, and *Entamoeba coli*.

In February, 1949, a boy aged 7 was admitted under our care suffering from an intractable colitis which he had had for three years. His stools contained blood, mucus, and very large numbers of vegetative *E. histolytica*. This boy had never lived out of Liverpool. Specimens of faeces were obtained from his family, which consisted of his mother, stepfather, and three sisters. Of these the stepfather was found to be passing *E. histolytica* cysts. He had no history of dysentery, but it is of interest that he was born in India and had lived there until he was 13, since when (he is now 45) he has been in England. The remainder of the family had not been abroad.

Comment

The experience of these families serves as a reminder that amoebiasis is a condition which may easily spread in a household where personal cleanliness is not of a high order. This fact, though plain enough, has perhaps suffered from a lack of attention in this country. By contrast, French medical publications contain a number of instances of autochthonous amoebic dysentery in which association with proved carriers was established. Dopter (1917) reviews these; see also Garin and Lépine (1924).

Finally, we would stress the undesirability of diagnosing ulcerative colitis before excluding amoebic dysentery as a possible cause of the syndrome by microscopical examination of the stools by someone familiar with the appearance of *E. histolytica*. Two of the cases recorded here had been ill for years and were sadly reduced in health from the want of this precaution.

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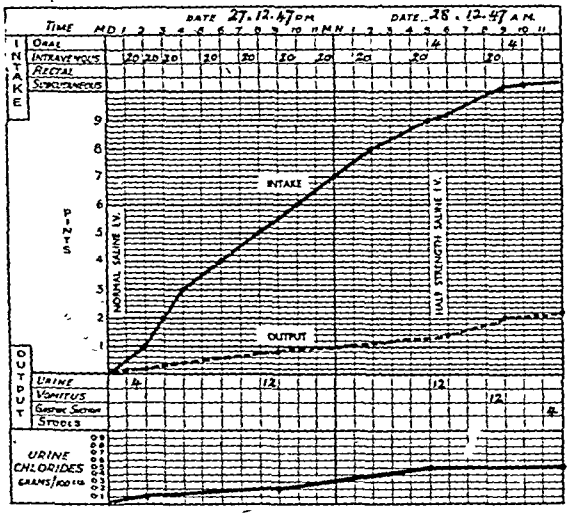
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The National Tuberculosis Association of the United States has made 22 grants for research during the present year. Four of these awards are new; the remainder are for the continuance of work already started. Dr. E. R. Long, director of medical research, has given details of current work aided by the association. Professor James Waring, University of Colorado will be investigating the modification of tubercle formation to allow better access of drugs to the bacillus. Constitutional factors responsible for resistance and susceptibility to tuberculous infection are being investigated by Dr. P. B. Sawin, of Maine, and Dr. M. B. Lurie, of Philadelphia. Dr. D. Seligson of Vancouver, Washington, will be making a study of the blood pictures of tuberculous patients. Work on the virulence of strains of the organism and their resistance to drugs is being done by Dr. Mary Bunting, of Yale. Grants have also been made for further research into the factors responsible for caseation, and it is hoped these studies will indicate how tissue destruction in tuberculosis can be reduced. The chemistry of tuberculin is currently under examination in the Universities of Pennsylvania and Wisconsin; an investigation of moulds to discover an additional therapeutic agent against tuberculosis is being made at the University of Colorado. Most of the remaining grants are for clinical work in tuberculosis.

Medical Memoranda

Salt and Water Depletion in Surgical Practice

At the time of publication of Dr. Marriott's excellent article on the physiology and pathology of water and salt balance (*Journal*, 1947, 1, 245, 285, 328) attempts were being made in this hospital to reorganize the methods of dealing with this problem. The opportunity was taken of putting all Dr. Marriott's recommendations into practice, including the quantitative ward test for urinary chlorides which he suggested. Enough time has now elapsed to evaluate the results; the tests have been an unqualified success. All patients who are, or have been, vomiting severely, or who are having gastric suction, are given intravenous normal saline so long as the vomiting or suction continues, or until the urinary chlorides reach the level of 0.5 g.%, at which time a change is made to half-normal saline, rendered isotonic with glucose. A third solution is in use for infants, consisting of quarter-normal saline rendered isotonic with glucose. We found that the quantitative ward test can easily be carried out by a sister or staff nurse. It may be of interest to note that faeculent, and even faecal, vomiting seems no longer to be "a sign of impending death" in many cases if intelligent intravenous therapy is carried out.



It was realized from this reorganization that the fluid charts in use at that time were not satisfactory, and consequently a new chart was evolved. As this may be of interest to others, a copy of the chart which was used over a period of twenty-four hours in a case of acute jejunal obstruction is included. Its use is best explained by these instructions, which are posted in the ward for the information of nurses:

USE OF INTAKE AND OUTPUT CHARTS

1. The chart is to be kept with the patient's notes and other charts.

2. All measurements should be recorded *on the chart* at the time of making them. It will be seen that there are spaces provided against the various methods of intake and output, and *hourly totals* (giving figures to the nearest 4 fl. oz.) should be recorded in them.

3. Each chart ends at noon, and so it is desirable that all measurements are recorded up to date then. In other words, where possible, bladders should be emptied, vomits measured, and gastric suction bottles emptied and measured, and the measurements recorded.

4. Intravenous, subcutaneous, and rectal drips should be recorded when each bottle is empty.

5. In dehydrated patients—those having normal saline—all specimens of urine should be tested quantitatively for chloride, and the result recorded. Otherwise a daily record only is required.

6. The graph, which is a summation of the nurse's records, should be made up by the sister or senior nurse only.

The sister or senior nurse constructs the two graphs (intake and output) by the addition of figures already entered by the nurses. The urine chloride graph needs no explanation.

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A Case of Polyorchidism

Spermatoceles, cysts of the cord, and other scrotal swellings are apt to be mistaken for an extra testicle, but, actually, cases of polyorchidism proved by operation or necropsy are extremely rare, and Boggon (1933) in an interesting article described what he said was the twelfth case on record. The following case is therefore considered unusual enough to be worth publication.

CASE REPORT

The patient was a German physician aged 50 who came concerning a swelling in the right side of his scrotum and double herniae. In 1940 he noticed a swelling in his right groin which he knew to be a hernia. It was easily reducible, and he began to use a truss. Soon he observed that the right testicle was enlarged, and he attributed this to pressure of the truss. In 1947 he found a small hernia on the left side and began to wear a double truss. On Feb. 22, 1948, he found for the first time a new swelling in the right side of his scrotum and, fearing that this might be a malignant tumour of some kind, he sought advice. His past and family history did not have any bearing on the case.

Physical examination and routine laboratory tests did not *show any evidence* of other disease. He was seen to have bilateral direct inguinal herniae, small in size. The left testicle and cord appeared normal. The right testicle was four times as big as the left and was translucent. Just above the right testicle and apparently attached to the cord was a smooth oval swelling the size of a small hen's egg. It was not attached to the skin and was opaque on transillumination. There was no tenderness on pressure. The cord on both sides felt normal. Rectal examination showed a moderately enlarged prostate but no abnormality of the seminal vesicles.

The nature of the lump above the right testicle was not clear. It was thought to be a haematoma of the cord due to some *trauma*, a *lipoma* of the cord, or, possibly, a malignant tumour. A long list of all the possibilities was written down, but the list did not include what the lump turned out to be. Because of the possibility of malignancy, exploration was suggested. The patient readily agreed, and requested that the hydrocele and the herniae be dealt with at the same time.

Operation.—On Feb. 28, under spinal analgesia, an incision was made over the right inguinal canal, the cord drawn upon, and the testicle delivered. The hydrocele was dealt with by excision of the sac, and the lump above the testicle was then examined. It was smooth in outline and readily dissected from the cord, to which it was but lightly adherent. Soon it became apparent that it had a cord and a vas deferens of its own, and

this extra cord was separated up to the internal ring, ligated, and divided. Both herniae were then repaired.

The pathologist's report was as follows: "*Gross examination*:—Oval-shaped mass of tissue, size 4 by 2.5 cm., with lateral-adhering, round, long cord-like structure, thickness 1 cm., length 10 cm. No epididymis-like structure was seen. The oval mass is covered by dense white connective tissue of the appearance of the tunica albuginea. On section the tissue is yellow, lobulated, and consists of fat tissue. Only on the border near the cord the tissue is dense and whitish red. The cord tissue consists of connective tissue and blood vessels and a vas deferens. *Microscopical examination*:—Only sections from the testicle itself were examined. Sections from three different places gave the same histological structure. The tissue consists mainly of fat tissue with interspersed stroma and blood vessels. On the outer periphery is a layer of dense connective tissue and some muscle fibres. Between this outer layer and the fat is an unsharply outlined narrow space filled with an eosin-stained fibrillar material and numerous spermatogonia and spermatozoa. Parenchymatous tissue of the type of the testicular tubuli was not seen. *Diagnosis*:—Lipoma of a degenerated testicle."

The patient is a married man with one child aged 12. He reports that his sexual functions are normal in every way, and that certainly he has never been oversexed. He is positive that until a week before the operation he had never noticed any abnormal swelling, other than the hydrocele, in the scrotal region.

F. T. RANSON, F.R.C.S.Ed., F.A.C.S.

REFERENCE

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Gastro-colic Fistula after Vagotomy for Stomal Ulcer

Bilateral resection of the vagus nerves is now often carried out in cases of stomal ulcer complicating previous gastro-enterostomy or partial gastrectomy. The following case history is therefore not without interest.

CASE REPORT

A clerk aged 49 was admitted to the Royal Victoria Infirmary, Newcastle-upon-Tyne, in October, 1948, with a history of left-sided abdominal pain for five months. Fifteen months previously he had had a partial gastrectomy for chronic duodenal ulcer. He had been perfectly well for ten months after the operation.

On examination he looked thin and anxious. There was tenderness and guarding of the left hypochondrium overlying a small ill-defined abdominal mass. A tentative diagnosis of stomal ulcer was confirmed by barium meal. The samples of gastric juice following an insulin test meal were too scanty to allow of anything but qualitative analysis. All samples contained free HCl.

Operation.—On Nov. 5, 1948, exploration showed the previous operation to have been an antecolic partial gastrectomy with distal prepyloric section. The scarred remains of an ulcer in the first part of the duodenum still remained. The probable cause of the stomal ulcer was thus not far to seek. The thickening of a stomal ulcer was palpable at the site of anastomosis between stomach and jejunum, at the lesser-curve end of the anastomosis. The small remaining prepyloric portion of the stomach and the first part of the duodenum were mobilized and excised distal to the ulcer. The duodenal stump was closed. The left lobe of the liver was then mobilized and a transhiatal bilateral resection of the vagus nerves carried out. About 2 in. (5 cm.) of each nerve was resected.

The post-operative course was complicated by diarrhoea and pronounced abdominal distension. The patient gradually improved, however, and was discharged home 18 days after operation, symptom-free.

One week later, on Nov. 30, he was again admitted to hospital. He had been well for five days after discharge, but for the last two days he had vomited after meals, and diarrhoea had accompanied the vomiting. On re-examination he looked ill and anxious. His tongue was dry and furred. The abdomen was slightly distended and there was visible peristalsis. The scar of the previous operation was soundly healed, but tenderness was again present in the left hypochondrium. Specimens of stool and vomitus were identical. A barium enema confirmed a diagnosis of gastro-colic fistula.

Second Operation.—On Dec. 3 the abdomen was again opened. A large gastro-jejuno-colic fistula was found and completely excised. The fistula involved the stomach, the efferent loop of intestine, and the transverse colon, and was obviously an extension of the stomal ulceration seen at the previous operation. Continuity was restored in the transverse colon and the jejunum. The remaining portion of stomach was further resected proximal to the stomal ulcer and anastomosed to the jejunum distal to the loop that had been repaired.

The post-operative course following the second operation was satisfactory apart from some initial collapse of the right lower lobe of the lung. The patient was again discharged home symptom-free 18 days after operation. Six weeks later he started work, and further follow-up continues.

COMMENT

It was unfortunate that no insulin test meal was carried out after vagus-nerve resection to test its adequacy. Such was the intention, but events forestalled it. The abdominal distension and diarrhoea for 14 days following this operation were signs which suggest that the nerve pathways had been suitably interrupted.

Some of the most encouraging results of vagus-nerve resection have been obtained in cases of stomal ulcer after gastro-enterostomy or partial gastrectomy. Excision of the ulcer mass followed by gastrectomy is the alternative operation. Few surgeons will disagree regarding the proportionate difficulties of the two procedures.

In this case, however, within a month of bilateral section of the vagus nerves the process of stomal ulceration at the site of a previous partial gastrectomy had proceeded to further penetration, with the development of a gastro-colic fistula.

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With the introduction of death grants on July 5, 1949, the whole national insurance scheme has been brought into operation. Death grant is a cash payment of not more than £20 to help to meet the expenses connected with a death, and will usually be paid to the person bearing the funeral costs. Detailed provisions relating to death grant are contained in the National Insurance (Death Grant) Regulations which were laid before Parliament on June 27 by the Minister of National Insurance. As death grant is an entirely new benefit of State insurance towards which no contributions were paid before the new national insurance scheme began last year, there will at first be many deaths on which no death grant can be paid. It is estimated that a grant will be paid on rather less than half the deaths occurring during the next year, but the proportion of deaths on which payment can be made will gradually increase until the whole population is covered. No grant can be paid for the following deaths: (1) any death occurring before July 5, 1949; (2) the death of a man who was aged 65 or over on July 4, 1948, or the death of a woman who was aged 60 or over at that date; (3) the death under the age of 10 of any child born before July 5, 1948. A leaflet (N.I.49) explaining the conditions for receipt of a grant and how to claim one is available in local National Insurance offices and will be supplied by registrars to persons notifying a death. A special death certificate will also be provided free of charge by registrars for use in connexion with death grant and widow's benefit claims.

Reviews

CONTINENTAL HAEMATOLOGY

Bone Marrow Biopsy. By S. J. Leitner, M.D. English translation revised and edited by C. J. C. Britton, M.D., Ch.B., D.P.H., and E. Neumark, M.B., B.S., M.R.C.S., L.R.C.P. (Pp. 433; 7 plates (6 in colour), and 194 text-figures. £2 2s.) London: J. and A. Churchill. 1949.

In its original form this book was a monumental collection of the Continental literature on the subject, supplemented by the author's own views, and it is essentially a work of reference. It provides access to all the Continental literature during a period when the English-speaking world was cut off from such information. The author obviously found himself in a comparable position, for neither English nor American work receives the prominence it deserves. Those responsible for the English translation have attempted to rectify this last feature, at the same time making cuts in some of the more ponderous and pragmatic pronouncements so dear to the German mentality. In so doing the editors have thought fit to omit from the voluminous bibliography (amounting to more than 2,500 references) titles of papers which receive only brief and uncritical comment in the text. The reader is therefore left in doubt whether a reference is really worth consulting. He is also faced with the difficulty of knowing which is the pertinent reference, for there is no indication, by letter, title, or number, which is meant of the several contributions a given author has made in one year. On the whole the translation is good, but many sentences still exhibit an unwieldy Continental construction which seems strange to English ears (e.g., p. 161: "Schiappoli (1939) . . . as well as marrow hyperplasia . . . observed evidence of much extramedullary haemopoiesis in the liver and spleen").

Leitner's original text suffered greatly from his uncritical attitude towards the work of the many he had considered worthy of notice. His own observations and deductions are on the whole admirable, but he is at times prone to make dangerous teleological statements. For example, in speaking of the macropolycytes of pernicious anaemia (p. 80) he states: "Hypersegmentation may represent a compensatory process in which the body attempts to balance the reduced production of leucocytes caused by maturation arrest by keeping alive the aged cells." Most haematologists will take exception to the statement (p. 171) that, "though in myeloid leukaemia normoblasts are found in the peripheral blood, hypoplasia of erythropoiesis is present in the marrow." It is a pity that Leitner uses the term "erythraemia" as synonymous with erythroblastosis and erythroblastaemia (pp. 166–170). Such juggling with terms will cause confusion in the English-speaking community and should have been adjusted in the English translation. Despite these criticisms, and many others which might have been made, all haematologists will be indebted to Leitner for his compilation of the Continental literature, and to Britton and Neumark for making this work readily accessible in English.

LIONEL WHITBY.

PHYSIOLOGY OF VISION

The Physiology of the Eye. By Hugh Davson, D.Sc. With foreword by Sir Stewart Duke-Elder, K.C.V.O., D.Sc., Ph.D., M.D., F.R.C.S. (Pp. 451; 301 illustrations. £1 12s.) London: J. and A. Churchill. 1949.

Several books have been published recently on vision: Granit's *Sensory Mechanisms of the Retina*, Pirenne's *Vision and the Eye*, Willmer's *Retinal Structure and Colour Vision*, and Wright's *Researches on Normal and Defective Colour Vision*. All these form suitable reading for an advanced worker who is engaged in research, but are not what the student requires. They each discuss one aspect of the physiology of the eye in great detail, whereas the ideal work for the student should be less specialized. This is such a book; it is clearly written, unbiased, easy to read, and interesting. Moreover, the printing and illustrations are excellent.

The first section considers the transparent tissues—the cornea, the aqueous humour, and the crystalline lens. The mechanism of vision is discussed in the second part, which describes the retina, adaptation, and visual acuity. Section 3 gives an account of the muscles of the eye and their innervation, and part 4 contains an excellent description of visual perception, including stereoscopic vision and the perception of movement. Section 5 is devoted to the optics of the eye and the refractive errors, with their diagnosis and correction. This book is one which can be strongly recommended.

H. HARTRIDGE.

OCCUPATIONAL MARKS

Occupational Marks and Other Physical Signs. By Francesco Ronchese, M.D. Foreword by J. G. Downing, M.D. (Pp. 181; 151 illustrations. $5.50.) New York: Grune and Stratton. 1948.

This book will interest practitioners of forensic medicine and dermatologists and should be in the library of the necropsy room. Written by a dermatologist, it describes and illustrates in detail the "stigmata or marks" of occupation found on the skin and in the subcutaneous tissues. It is a summary of existing knowledge and an original contribution to clinical medicine.

In the foreword Dr. J. G. Downing says that "good physicians must be good detectives," to which Dr. Rochese adds, "This essay is not intended to make every man his own Sherlock Holmes." Every person shows positive or negative marks, especially upon his hands. "To be able to detect, solely from the legs of an individual murdered and dismembered, that it was a female, her station in life, [her] probable occupation, and [to give] valuable clues leading to her identity," was one of the author's achievements, as is noted in the introduction.

The text consists of several short chapters dealing with the general and special marks of many occupations, of sex, age, race, and social status. Particular attention is paid to the signs found on the hands of players of musical instruments, to special groups of hand-workers, to nail defects, tattoo marks, and to hair changes. One chapter describes deceptive marks and discusses legal problems, though from the American viewpoint.

Only positive marks are of value for identification: their absence means nothing. Diagnosis by these alone is a hazardous procedure. Knowledge of these indications may give a clue to the diagnosis of obscure skin lesions and aid in assessing compensation. Occupations and their techniques are constantly changing, and differ from country to country and from place to place. Individual idiosyncrasies sometimes confuse the picture, and a short absence from work may abolish the evidence. A rough classification is made of occupational marks, and is supported and illustrated by 151 figures, direct photographs or admirable line-drawings.

Most of the indications named are seen in this country, and general practitioners and housemen can make an interesting and profitable hobby out of their study. Works doctors are familiar with them: some of them have been described in recent literature. An extensive bibliography—but a poor index—completes an admirable clinical study. When writers of detective fiction discover this book a wealth of "new clues" will be available for use—and misuse.

H. E. COLLIER.

LOCAL ANALGESIA

A Surgeon's Guide to Local Anaesthesia. By C. E. Corlette, M.D., Ch.M.(Syd.), F.R.A.C.S. (Pp. 368; 200 illustrations. £1 15s.) Bristol: John Wright and Sons. 1948.

As the name implies, this book by a surgeon is written for surgeons; its value for anaesthetists is limited. It is a guide, but not a complete manual, on local analgesia. Its ultimate aim is shockless surgery, to be achieved by local analgesia in conjunction with the use of adrenaline to act as a physiological tourniquet. The first nine chapters describing drugs, the preparation of the patient, and the preparation and measurement of materials are excellent, and will be of value to all who read them. The remainder of the book, particularly the section on anatomy and the technique of local analgesia, will appeal principally to the practising surgeon.

R. R. MACINTOSH.

ANALGESIA IN MIDWIFERY

Obstetric Analgesia and Anesthesia. By Franklin F. Snyder, M.D. (Pp. 401. £1 12s. 6d.) Philadelphia and London: W. B. Saunders Company. 1949.

This book contains a large amount of information, much of which is original and based upon experimental work performed by the author and his colleagues at the Harvard Medical School, the Johns Hopkins Hospital, and the Chicago and Boston Lying-in Hospitals. The physiology and pathology of labour are dealt with at great length—for example, the chapter on "Respiration before Birth" contains 34 pages, and that on "Intrauterine Pneumonia" 37 pages. Part 2, which starts at page 213, is devoted to the treatment of pain during labour, and the various methods of general and local analgesia are considered in detail. Recent developments such as fractional caudal block are discussed, but curiously enough no mention is made of trichlorethylene.

This book will be invaluable to advanced specialists and research workers, but the casual anaesthetist or obstetrician may be somewhat disappointed, as theoretical considerations are given precedence over the practical details of individual techniques.

C. LANGTON HEWER.

CATHOLIC PSYCHOLOGY

The Driving Forces of Human Nature and Their Adjustment. By Thomas Verner Moore, Ph.D., M.D. (Pp. 461; illustrated. $6.50 or 35s.) New York: Grune and Stratton. London: William Heinemann Medical Books.

Father Moore is well known as the chief authority on psychology from the Catholic standpoint in the United States. The present volume is a complete and erudite exposition of this approach to the subject. After a historical introduction the subject matter is treated from the intellectual, emotional, and volitional aspects, and the biological, physiological, factorial, and philosophic contributions are all duly considered. As might be expected, more stress is laid on the importance of intellectual drive and control than might be met with in a similar treatise by a non-Catholic psychologist. To the latter, therefore, the approach might seem too didactic and somewhat superficial. Such an attitude may, however, be salutary when dealing with the normal individual and is to be criticized only when the subject is abnormal and suffering from psychoneurosis or psychosis. Nevertheless, Father Moore pays attention to Freud's work and his doctrines of conflict, repression, and regression, but he considers that Freud's more extreme doctrines of universal sexuality in deeply unconscious motivation apply only occasionally and to a few cases.

Medical readers will perhaps find most interest in the section on psychosomatic diseases and the visceral neuroses; which are adequately examined without the addition of any fresh concepts. In the section on volition there is, of course, a considerable weight of argument from Catholic philosophers brought to bear in an attempt to prove that human beings are provided with complete freedom of will. Again, the non-Catholic psychologist will find it difficult to follow the author with full confidence, but nevertheless the argument culminating in a discussion on the adjustment of man to God is well worth careful perusal. This is a valuable addition to psychological literature and will certainly repay the medical psychologist if he reads the whole 460 pages.

R. G. GORDON.

The sixth edition of Dr. Israel Wechsler's *Textbook of Clinical Neurology* (pp. 829; £2 2s.; London: W. B. Saunders Company) is as succinct as its predecessors, although many new facts have been added to its crowded pages. An excellent and extensive index simplifies reference, and on the page the facts are clearly stated in succinct sentences. There must be many examiners who would welcome such a prose style in their papers. Among the modifications is an opportune addition to the chapter by Dr. David Wechsler on psychological diagnosis which could with advantage be enlarged still further in later editions. Both psychometric examination and personality testing are now so important as parts of neurological case taking that detailed instruction about them is valuable and has a place in a book of this status. The work can once more be recommended to students of neurology.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

Manuel Pratique de Rhumatologie. By G. Kahlmeter. (Pp 134. No price.) Paris: Expansion Scientifique Française. 1949.

Les Fibres Textiles dans le Monde. Organisation des Nations Unies pour l'Alimentation et l'Agriculture. (Pp. 217. $1.00.) Washington: Bureau Régional Européen de la FAO. 1948.

Pancreopatias Agudas no Dramaticas. By A. A. Ayala. Vols. 1 and 2. (No price.) Barcelona: Byp. 1948.

Lobes et Zones des Poumons. By J. Schaepelynck. (Pp. 104 275 francs.) Paris: Librairie Maloine. 1948.

Zur Sozialen Hygiene. By A. Niedermeyer. (Pp. 197. Sch. 54.) Vienna: Wilhelm Maudrich. 1949.

Signpost on the Frontier. By R. J. H. Cox, M.B., B.S. (Pp. 70. 2s. 6d.) London: Church Missionary Society. 1948.

Lectures to Chiropodists. Collated by F. Charlesworth, F.Ch.S. (Pp. 225. 10s.) London: Charlesworth and Wiles. 1949.

Psychologia Marzenia Sennego. By T. Bilikiewicz (Pp. 325. No price.) Gdansk: A. Krawczynski 1948

Traitement Chirurgical de L'Hypertension Arterielle. By M. Luzuy and J. F. Porge. (Pp. 160. 500 francs.) Paris: G. Doin. 1948.

Tabulae Biologicae. Edited by H. Handovsky. Vol. 19, Part 3. (Pp. 316. No price.) The Hague: W. Junk. 1948

Hallux Valgus. By C. Khoury. (Pp. 227. No price.) Buenos Aires: Lopez and Etchegoyen. 1947.

The Food of the People. By Sir N. Curtis-Bennett. (Pp. 320 16s.) London: Faber and Faber. 1949.

Shadows in the Sun. By S. Taylor, M.D., M.P., and P Gadsden. (Pp. 187. 15s.) London: George G. Harrap. 1949.

Child Development. By M. E. Breckenridge, M.S., and E. L Vincent, Ph.D. 2nd ed. (Pp. 622. 20s.) London: W. B. Saunders 1949.

Symptoms in Diagnosis. By J. C. Meakins, C.B.E., M.D. D.Sc., LL.D. 2nd ed. (Pp. 542 42s.) London: Baillière, Tindall and Cox. 1948.

Structure and Function as Seen in the Foot. By F. W Jones, D.Sc., M.B., B.S., F.R.S., F.R.C.S 2nd ed. (Pp. 333. 25s.) London: Baillière, Tindall and Cox 1949.

Biological Applications of Tracer Elements. Cold Spring Harbor Symposia on Quantitative Biology. Vol. 13. (Pp. 222. $7.00.) New York: Biological Laboratory. 1948.

Gas and Air Analgesia. By R. J. Minnitt, M.D., D.A., F.F.A. R.C.S. 4th ed. (Pp. 86. 5s.) London: Baillière, Tindall and Cox. 1949.

The Parathyroid Glands and Metabolic Bone Disease. By F. Albright, A.B., M.D., and E. C. Reifenstein, jun., A.B., M.D., F.A.C.P. (Pp. 393. 44s.) London: Baillière, Tindall and Cox. 1948.

Recent Advances in Oto-Laryngology. By R. S Stevenson M.D., Ch.B., F.R.C.S.Ed. 2nd ed. (Pp. 395. 24s.) London: J. and A. Churchill. 1949.

The Business Side of Medical Practice. By T. Wiprud 2nd ed. (Pp. 232. 17s. 6d.) London: W. B. Saunders. 1949.

Why Our Children Die. By S. D. Onabamiro, B.Sc., F.L.S (Pp. 196. 8s. 6d.) London: Methuen. 1949

Minor Surgery. Edited by Sir H. Ogilvie, K.B.E., D.M., M.Ch. F.R.C.S., and W. A. R. Thomson, M.D. 2nd ed. (Pp. 192. 14s.) London: Eyre and Spottiswoode. 1949.

Bronchiogenic Carcinoma and Adenoma. By B. M Fried M.D. (Pp. 306. 33s.) London: Baillière, Tindall and Cox. 1948

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AETIOLOGY OF INFANTILE ENTERITIS

Diarrhoea and vomiting in infancy is a syndrome rather than a specific clinical entity. Textbooks on paediatrics classify the condition under such broad headings as dietetic, parenteral, and infective, though in the last group accepted intestinal pathogens are rarely isolated from infants (with enteritis) under 1 year of age. However, in any diarrhoeal condition search should always be made for salmonella and dysentery organisms, nowadays easily and quickly identified, and for giardia. Sonne dysentery is particularly dangerous in an institution because of its high infectivity; giardia infection, causing a less acute diarrhoea, may go smouldering on in a nursery for weeks before attention is drawn to it; and recent evidence suggests that salmonella infection may not be so rare in infancy. Thus an outbreak of gastro-enteritis affecting 68 children, of whom 56 were under 1 year of age, occurred in a hospital population in Melbourne[1] and was apparently attributable, in part at least, to dust-borne contamination of food and food utensils.[2] In most institutional outbreaks, however, the most painstaking investigations have usually failed to demonstrate any specifically recognizable bacterial pathogen, so that the possibility has been considered that a virus may be the cause, particularly in the epidemic diarrhoea of the newborn, which workers in the U.S.A. have been inclined to regard as a disease *sui generis*.

In Britain attempts, both published and unpublished, to demonstrate virus in faeces or other material from newborn and older infants have been unsuccessful. Drs. Joan Taylor, B. W. Powell, and Joyce Wright, in a paper published elsewhere in this issue, refer to investigations by Dr. F. O. MacCallum. In extensive animal tests with tissues removed from four fatal cases of infantile gastro-enteritis he was unable to find any evidence in favour of a virus aetiology. It should, however, be emphasized that there are at least two forms of neonatal diarrhoea; the type that affects both mother and infant may well be due to a virus, as American investigations have suggested.

The view that certain Gram-negative bacteria, including the paracolon group, the proteus family, of which Morgan's bacillus is a member, and *Ps. pyocyanea*, may be causally related to infantile enteritis has long been held by different workers, but the fact that these bacteria are common concomitants in diarrhoeas due to other known causes and the difficulties of their specific identification have prevented general acceptance of their aetiological significance. Lately, close study of the serology of the lactose-fermenting coliform group by Kauffmann[3] and his colleagues has indicated that a few of the many serological types may be potentially more pathogenic than others, for 2 or 3 types were preponderantly present in cases of urinary infection, cholecystitis, and appendicitis. The first indication that a specific strain of *Bact. coli* may be associated with infantile enteritis came from Bray,[4] who isolated a serologically specific late maltose-fermenting organism with a characteristic seminal smell from 42 out of 44 infants admitted to hospital with "summer diarrhoea": he failed to find a similar organism in 100 contact infants without diarrhoea. Then, in the Aberdeen outbreak of gastro-enteritis in the spring of 1947, Giles and Sangster[5] identified a single serological type of *Bact. coli* in the faeces of 86 out of 92 infants suffering from the epidemic infection and from only five out of 116 infants with "parenteral" diarrhoea or mild infections not requiring hospital treatment. This organism was rarely isolated from healthy children or adults, but it was found in the faeces of four infants who twenty-four hours later developed diarrhoea.

Meanwhile a team of bacteriologists and paediatricians (the authors of the report in this issue), working with the support of the M.R.C. at the Hospital for Sick Children, Great Ormond Street, and the Central Public Health Laboratory, Colindale, had set themselves the task of investigating clinical, epidemiological, and bacteriological aspects of institutional outbreaks of infantile enteritis in maternity units and residential nurseries. The first of these outbreaks affected 20 babies (with 14 deaths) in the maternity unit of a Derbyshire hospital; 15 of the babies were bottle-fed, four partially breast-fed, and only one fully breast-fed. The outstanding symptom was diarrhoea with severe dehydration, preceded in some cases by lethargy, reluctance to feed, and loss of weight. The age at onset varied from 6 to 20 days. Rectal and nasopharyngeal swabs were obtained from nine acute cases, and from each of them a serologically specific *Bact. coli*, labelled D 433, was isolated. The same coliform organism was isolated from 10 babies (all artificially fed) who developed acute diarrhoea and vomiting in a mothers and babies' hostel in Middlesex, and again from eight affected babies in the same hostel eight months later. *Bact. coli* D 433 was also found

[1] Mushin, R., *J. Hyg. Camb.*, 1948, 46, 151.
[2] Rubbo, S. D., ibid., 1948, 46, 158.
[3] *J. Immunol.*, 1947, 57, 71.
[4] *J. Path. Bact.*, 1945, 57, 239.
[5] *J. Hyg. Camb.*, 1948, 46, 1.

in the faeces of four babies living in a residential nursery in Hertfordshire where there was an outbreak of enteritis, and in 21 out of 23 infants who developed intercurrent diarrhoea, usually in small groups, in a children's hospital, but in none of 14 babies with mild intercurrent diarrhoea in a residential nursery and irregularly (6 out of 14 cases, 5 out of 24 cases) among children admitted to two hospitals with a diagnosis of gastro-enteritis. Further evidence suggesting an aetiological relationship of this organism to infantile diarrhoea was its disappearance from affected cases during convalescence, its appearance after relapses in infants not previously yielding positive cultures, and its absence from a large series of control healthy and sick babies. It was rarely found in the faeces of healthy adult contacts, but was found in nine out of 34 contact babies, none of whom later developed any clinical infection. It is noteworthy that the strains of *Bact. coli* isolated by Bray, by Giles and Sangster, and by Taylor and her colleagues were all serologically identical.

When a particular member of a family of organisms that normally live as saprophytes in the body is singled out as a possible pathogen the evidence must be specially convincing before its pathogenicity is accepted. A parallel to the present problem of the relationship of one or more serological types of *Bact. coli* to infantile enteritis may be drawn from the pneumococcus family. Pneumococci are present in the throats of 30-60% of healthy individuals, and scepticism about their pathogenicity would have been justified if it was not known that there are many different serological types, only a few of which—e.g., types 1, 2, 5, and 7—have epidemic propensities and are specifically associated with the communicable disease lobar pneumonia. These types are rarely found in the normal throat: on the other hand, certain types—6, 19, 23—are common in the throats of healthy children, and these same types are frequently associated with bronchopneumonia, which affects mostly young children with poor resistance to infection. Bronchopneumonia may therefore be regarded as an endogenous non-communicable infection and lobar pneumonia as an exogenous infectious disease. It may be permissible to postulate a similar division for infantile enteritis—the sporadic cases resulting from parenteral infection or other predisposing cause being associated with the endogenous coliform types, while outbreaks would be caused by the less frequent "epidemic" strains. Attempts to put such a hypothesis to the test would have to take into consideration the intricate serology of the coliform group, the difficulties of isolation and recognition of specific types, and the search for a suitable animal on which to test pathogenicity; the absence of an acute inflammatory reaction in the gut or the development of specific antibody in the affected infant; and the mode of spread of the infection and its selective attack on artificially fed babies under 1 year of age. But the quickening of interest in both the aetiology and treatment of this serious infection, illustrated by the two papers in this issue, augur well for its better control in the future.

EXCHANGE TRANSFUSION

The idea of exchange transfusion is an old one. Nearly three hundred years ago a list was published in the Philosophical Transactions of the Royal Society of London[1] of some of the possibilities of transfusion which trials could settle. No. 8 was as follows: "Whether a dog that is sick of some disease chiefly imputable to the mass of blood, may be cured by exchanging it for that of a sound dog." In the experiments of those times various animals were used, and since the donor could be sacrificed the exchange could be massive. The quantities necessary to secure various degrees of exchange in man have been estimated by Wiener and Wexler.[2] If blood is continuously withdrawn from a patient's circulation while the blood of a donor is infused into a different vein at an equal rate, the infusion and withdrawal of an amount of blood equal to twice the patient's blood volume will achieve about an 86% exchange; thus after transfusion and withdrawal of some 10 pints (5.7 litres) of blood from an adult only 14% of the patient's own blood will be left in his circulation.

It is evident that large-scale exchange transfusions can be performed on adult humans only when many blood donors are available. This is doubtless the reason why it is only recently, with the organization of large blood-transfusion centres, that the operation has been practised in any systematic way.[3] However, it is an easier procedure in an infant. The blood volume of a newborn infant is only about one-twentieth that of an adult: an adult can therefore harmlessly donate an amount of blood twice as great as the entire blood volume of an infant. Many methods of carrying out exchange transfusion in infants have been suggested, but that of Diamond[4] seems to be the simplest and best. Within a few hours of birth a fine plastic catheter is passed up the umbilical vein, and blood is withdrawn and replaced by that of the donor in small successive steps. The route that may be taken by the catheter is well illustrated in the article by Dr. J. J. van Loghem and his colleague which appeared in last week's issue.

1 *Phil. Trans. Roy. Soc. Lond.*, 1665-6, 1, 387.
2 *J. Lab. clin. Med.*, 1946, 31, 1016.
3 Bessis, M., and Bernard, J., *Sang.*, 1948, 19, 40.
4 *Proc. R. Soc. Med.*, 1947, 40, 546.
5 Wallerstein, H., *Amer. J. Dis. Child.*, 1947, 73, 19.
6 Mollison, P. L., and Cutbush, Marie, *Lancet*, 1948, 2, 522.

Exchange transfusion in infants has been practised almost exclusively for haemolytic disease of the newborn. In this condition, at birth and for a variable time afterwards, the infant's own (Rh-positive) erythrocytes are being haemolysed rapidly. Rh-negative erythrocytes are not susceptible to the haemolytic process, and the anaemia may be successfully combated by simple transfusion of Rh-negative blood. If massive transfusions of Rh-negative blood are given the infant's own erythropoiesis dies down, and for a few weeks practically no Rh-positive erythrocytes are to be found in the circulation, the infant relying almost entirely on the transfused erythrocytes. When this method of treatment is carried out it is a few days before the Rh-positive erythrocytes disappear from the circulation, and with exchange transfusion an attempt is made to remove almost all the Rh-positive erythrocytes during the period of the transfusion and thus leave the infant with only a few of its own erythrocytes. At least three possible advantages have been claimed for this operation: first, that it diminishes the likelihood of the development of kernicterus,[5] a toxic state which reaches its climax two to five days after birth and usually causes the death of the infant; secondly, that it diminishes the risk of overloading the circulation of severely anaemic infants; and, thirdly, that it simplifies treatment by enabling a sufficient number of Rh-negative erythrocytes to be introduced into the infant's circulation at a single operation so that no subsequent transfusions are needed.[6] This last claim seems to be the most soundly established, though the expeditious performance of the operation is likely to be achieved only in highly specialized centres.

Dr. van Loghem and his colleagues report a fatality rate of 22.5% in 160 infants treated by exchange transfusion. They contrast this figure with a fatality rate of 63.5% in a group of 88 infants not treated by exchange transfusion. These infants were elder siblings of some of those included in the "exchange" group; no details of their treatment are given, and the authors state, "It is impossible for us to compare the mortality rate of icterus gravis treated by simple blood transfusion with that of cases treated by exchange transfusion." At first sight it would seem that the findings of such a difference in fatality rates made any further trials unnecessary, but this conclusion may not be so well founded as it appears. First, some years ago icterus gravis was diagnosed only in cases which would now be considered as moderate or severe, whereas to-day cases are sometimes included in a series when the diagnosis is based entirely upon laboratory findings, such as a positive direct Coombs's test. Evidently, then, if the mortality of the disease a few years ago were to be compared with that of an untreated series collected to-day an apparent fall would almost certainly be noted. The second difficulty in making a comparison between a series treated "then" and "now" is that inherent in all comparisons of this kind: factors unconnected with exchange transfusion may help to lower mortality—for example, the availability of penicillin. Finally, though exchange transfusion is certainly better than no transfusion, the real point of interest is whether it is better than simple transfusion, and on this point there is still no good evidence.

The question whether the prognosis for a severe case of haemolytic disease of the newborn is improved by giving an exchange transfusion rather than a simple transfusion is an important one to solve. The successful performance of exchange transfusions demands special zeal on the part of the operator. The transfusion must be carried out within a certain time of birth and the operator must be prepared to undertake it at any time of the day or night. He cannot be expected to do this if it is likely that the infant has just as good a chance of recovery if treated by a simple drip transfusion of Rh-negative blood. It is to be doubted whether the relative merits of the two procedures can be settled by anything short of a properly controlled statistical trial in which the same investigators try out both methods of treatment in parallel. Nevertheless, such careful records as those of van Loghem and his colleagues provide invaluable data for those intending to practise exchange transfusion.

HIGH-VOLTAGE X RAYS

Installation has been completed at the Royal Cancer Hospital of the first of the two 30-million volt synchrotrons which, as made known in July, 1947,[1] have been under construction for the Medical Research Council. The second has been allocated to the department of radiotherapeutics in the University of Cambridge. Their function is to provide *x* rays of comparable voltage, at first for physical and biological research and later for therapeutic use in the irradiation of deep-seated cancers. Their advantage, compared with conventional *x*-ray sources, is that depth dosage is considerably increased compared with skin dosage.[2] It should therefore be possible to administer greater dosages to deep tumours without corresponding increase in the risk of surface injury. Much experimental work, extending probably over about a year, will be needed before the apparatus is used for treatment.

The synchrotron is in a basement laboratory which forms part of the physics department of the hospital under Professor W. V. Mayneord. The opening ceremony was on July 5, and the demonstrations which were given illustrated also the general work of the department

[1] *British Medical Journal*, 1947, 2, 101.
[2] Ibid., 1947, 1, 571.
[3] Ibid., 1946, 2, 951.
[4] Ibid., 1943, 1, 554.

in the application of nuclear physics to medicine. Subjects included the use in animals of cobalt-60 (Co^{60}) —the most probable artificial substitute for radium[3]; autoradiography as a research method, with the distribution of radioactive materials in tissue sections shown by the blackening of photographic films with which the tissue sections have been brought into contact; and the handling and clinical use of radio-isotopes. Devices for the remote control of radio-isotopes were shown, some of which have been designed and constructed in the department, and also a number of instruments specially designed for clinical work, and the clinical techniques used with radioactive sodium and iodine.

In the synchrotron, as in other *x*-ray sources, the generation of *x* rays is due to impact on a solid target of a beam of electrons which has previously been accelerated to a high energy.[2] The differences are in the level of energy to which the electrons are accelerated and the means used to accelerate them. Instead of being a "tube" in the ordinary sense of that word the synchrotron has the external form of a cylinder approximately four feet (122 cm.) in diameter. This is because the electron beam is accelerated round a circular track which is many times repeated. The earlier stages of acceleration are magnetic. The later stages are electrical—the accelerating force being arranged to vary in synchronism with the rotating electrons. Hence the name of the instrument. A further point of difference is that whereas a normal *x*-ray source is continuous the synchrotron operates on a pulse principle. It provides 50 pulses of high-energy electrons per second, and the same number of *x*-ray pulses—the duration of each pulse being some millionths of a second. In consequence, though the energy of the *x*-ray beam is very high, the average dosage rate is not high (probably about 10 roentgens per minute at one metre). The electron energies are expected to reach 30 million volts—which is the design figure—but the mean energy of the *x*-ray beam will necessarily be lower, because the electrons are not instantaneously brought to rest on hitting the target, but on the average penetrate it to an appreciable extent before their energy is converted into *x* rays. In other words, there is some loss of energy before *x*-ray generation takes place. This is the case with any form of *x*-ray source.

The first stage of investigation will be to define the physical limits of the *x*-ray beam. At the same time the efficacy of the initial protection which has been provided will have to be investigated, and any further steps which may be necessary must then be taken. This will involve a detailed series of measurements which may well extend over some months. Thirdly, it will be necessary to distinguish between stray electrons which have escaped from the synchrotron and the *x*-ray beam which it is its main function to supply. Only when this has been done can the beam itself be seriously studied. In this connexion Professor Mayneord and Dr. J. H. Martin of his department have been making measurements during the past two years on synchrotrons and betatrons —an earlier type of electron accelerator[2]—both in Great Britain and the United States. Their observations, soon to be published, afford the first comparison in internationally agreed units between the physical results obtained in the two countries.

In the second stage of investigation two related studies will be carried out. One will be of the depth dosage in a "water phantom" which adequately reproduces the course of absorption in the body. The other will be of the range of energies included in the *x*-ray beam. Finally, though the beam itself will be comparatively narrow, with the effective dosage falling off to half at a distance of some degrees off centre, it is likely that means for further canalizing the beam will also be considered. In the next stage the biological effects of the rays on a number of organisms, animals, and specific tissues will be observed. It is hoped in particular to study the effects on tissue cultures, in association with the Chester Beatty Research Institute of the Royal Cancer Hospital and other organizations, including the Strangeways Laboratory at Cambridge. Apart from the extension of the energy level at which such measurements have been made there is the further question of pulse irradiation—the repeated administration of a high dosage rate over very short periods.

A proposal for a gimbal-mounting,[4] which was discussed at an earlier stage, has been deferred until after the experimental period. The effect would be that the direction of the beam could be altered, as in *x*-ray installations generally. It is hoped in any case that the present site will be a temporary one.

The scientific development of the synchrotron has been largely due to a section of the Telecommunications Research Establishment, Great Malvern, which now forms part of the Atomic Energy Research Establishment at Harwell. The magnets and much of the electrical gear have been built by the English Electric Company, Stafford, in consultation with T.R.E., which is also responsible for the electronics. Development costs have been borne by the Medical Research Council. The hospital itself undertook the conversion of an old building to house the synchrotron and with the Medical Research Council has developed a fairly large centre for research in nuclear physics applied to medicine. There has been close co-operation for many years between the radiotherapeutic and the physics departments of the Royal Cancer Hospital. It is recognized to be essential in the present work that the closest touch be maintained between the clinic and the research laboratory.

ARBITRATION

On behalf of the Joint Committee and of the Central Consultants and Specialists Committee Sir Lionel Whitby in a letter to the Ministry of Health on July 5 asked for the establishment of a permanent negotiating machinery for consultants and specialists in the National Health Service. He also asked that the Minister or the representatives of the profession should have the right in the event of disagreement to refer for arbitration any matter within an agreed range of subjects, both parties to be bound by the award of the arbitrator. The agreed range of subjects should include any terms and conditions of service affecting remuneration. The Joint Committee also seek discussion on facilities for private treatment in hospital and for information about the payment of part-time clinical teachers. Until these matters are settled the Joint Committee advises consultants and specialists not to sign permanent contracts.

Of the three points in Sir Lionel's letter the one of outstanding importance is that on arbitration. We print in this week's *Supplement* the reply of the Ministry of Health to the Joint Committee. In this Sir William Douglas, secretary to the Ministry of Health, observes that the Ministry wants a permanent negotiating machinery, which, it is thought, should be established as a medical section of the Whitley mechanism. Sir William Douglas continues thus: "But you also want to add an absolute right to the medical profession, in the event of disagreement in discussion (within a prescribed range of subjects including remuneration), to refer the dispute to arbitration—both parties then to be bound by the arbitrator's decision. Here we certainly diverge from you, but more in the principle involved than what we conceive as likely actually to happen." Sir William draws attention to Clause 12 in the Amending Bill as providing the medical profession the same rights of arbitration already available to any other profession or trade. He points out that arbitration would be by mutual consent, although there are surviving wartime powers which go beyond this and which can be used by the medical profession so long as they are in force. The position, therefore, seems to be that the Ministry of Health agrees that there should be permanent negotiating machinery backed up by arbitration by mutual consent. It is not prepared to agree to *compulsory* resort to arbitration.

In the Committee Stage of the National Health Service (Amendment) Bill Mr. Aneurin Bevan made this important statement: "If both sides agree to go to arbitration, obviously the Minister would accept the consequences." The fixing of fees was not a matter upon which he could agree beforehand to go to arbitration. As those employed in the National Health Service were in contract with the Executive Councils or Regional Hospital Boards the employees were not Civil Servants and not in direct contract with the Crown. What was involved was a very substantial proportion of the budget. "We could not over this vast field . . . say beforehand that Parliament should put it out of its power to consider the fiscal consequences of an arbitration. If that were done I think it would be unconstitutional. That is why I am not agreeing beforehand to compulsory arbitration over the whole field. . . ." He reiterated later that if the Minister went to arbitration this involved acceptance of the results. A regulation would be laid before the House of Commons with the recommendation of the Government behind it. Only in the most exceptional circumstances would the House of Commons use its power to throw the regulation out, but it must have that residual right.

Conservative M.P.s in subsequent discussion agreed with Mr. Bevan that arbitration should not be made compulsory. Sir Hugh Lucas-Tooth, for example, observed that he did not quarrel with Mr. Bevan "in asserting that, subject to the general control of the House of Commons, he must retain control on these decisions." But he added that it would be unfair if the employer had the right under the Industrial Courts Act to insist on arbitration if the employed did not have an equal right. Mr. Bevan said later that under the Acts mentioned in Clause 12 there was no provision for compulsory arbitration. Referring to Sir Lionel Whitby's letter to *The Times* of June 20 and the quoted statement in it that "a code of conduct is unlikely to be arbitrable, but a simple proposal for a change in wages or salary almost certainly is," Mr. Bevan said, "I have not altered that statement. That still stands. I have not departed from that." He went on to say that under the two Acts referred to in Clause 12 mutual consent was necessary before arbitration took place: "I could not take the medical profession to arbitration if they did not want to go; they could not take me if I did not want to go; so we are on terms of complete equality here." Mr. Arthur Howard (Conservative M.P. for Westminster) pleaded that the Minister should make clear in a public statement that it was his intention to see that behind the conciliatory machinery there should be a second independent and impartial body to which either side should have the right of referring a matter in dispute. In Mr. Bevan's view the Conciliation Act of 1896 provided a number of agencies for reaching a settlement under mutually agreed arbitration, and he added that it was intended to establish a special Division of the

Industrial Court to deal with the National Health Service. Mr. Walter Elliot said that a misunderstanding had arisen and that it was a great pity that as late as June 20 this year "the negotiating body should still be in doubt as to what had been decided or proposed to them so long ago as October, 1947." He stressed that in the case of the medical profession the employer could legislate and was also negotiating with a body of employees who had declared that in no circumstances would they go on strike. When he was asked by Mr. Bevan whether on behalf of the Opposition he thought that there should be compulsory arbitration, Mr. Elliot replied, "No. Every hon. Gentleman who has spoken on this side has said no, because it is not possible." Mr. Elliot went on to say that they were trying to secure something in place of the power of compulsory arbitration, and he considered that the Minister's suggestion to create a special section of the Industrial Court concerned with the National Health Service was a step in advance.

The Joint Committee and the Central Consultants and Specialists Committee have asked for compulsory arbitration, and the reasons for it are well known. The medical profession, as Mr. Elliot observed, is in a different position from that of any other section of the community in that by the nature of its work it is unable to use the weapon of the strike. Nevertheless both the present Government and the Opposition, while agreeing on the need for arbitration machinery, refuse to allow it to be compulsory. This question is a matter which the Joint Committee will have to consider seriously when it meets representatives of the Ministry of Health. It is not clear what is meant by the last paragraph of Sir William Douglas's letter, and we should be reluctant to put on it what seems to be an obvious interpretation—namely, that unless matters are speedily settled the terms and conditions of service will not be made retrospective.

THE ONSET OF MENSTRUATION

Although the first menstrual period does not mark the beginning of the changes in physical development associated with the maturation of the genital system, it is an important landmark, since the age at which it occurs is easily ascertained. Elsewhere in this issue Drs. D. C. Wilson and I. Sutherland describe an investigation undertaken by the Institute of Social Medicine into the age of onset of menstruation in a cross-section sample of 1,338 girls in schools of Oxford city and county. As a survey it provides interesting indications about differences between menstruating and non-menstruating girls of the same age, particularly their height–weight ratios. Contrary to popular belief, these workers found that little difference existed between the age of the menarche of girls living in the town and in the country, and that the age incidence had not altered appreciably during the course of the last generation. The significance of the inquiry lies in the findings of the differences in the heights and weights between menstruating and non-menstruating girls in relation to their ages, and it thus confirms the work of Ellis.[1] To know that there is a mean difference of 3 in. (7.5 cm.) in height and of 25 lb. (11.34 kg.) in weight at the age of 11–12 and 1½ in. (3.75 cm.) and over 17 lb. (7.7 kg.) at the age of 15–16 is of some importance for purposes of research (particularly from records) on growth curves of large numbers of children. At the individual examination of girls, however, the clinical manifestations of puberty are so obvious that it would be unlikely for anyone to confuse the overweight child with the pre-pubescent one. If average curves for height and weight are used for comparative purposes it would seem that two curves should be substituted for the one commonly in use—one for those who have reached the menarche and one for those who have not. Even then these curves can be misleading, since the individual child's pattern of growth must be taken into account when comparison with the average curve is made.

Drs. Wilson and Sutherland found no evidence that the height and weight of girls aged 17 and 18 are in any way related to the age at which they first menstruated. The mean height and weight of girls (at the age of 17–18) who began to menstruate at 15 years and over were 65.1 in. (163 cm.) and 125.4 lb. (56.9 kg.); the figures for girls of the same age who began to menstruate at ages under 13 were 64.4 in. (161 cm.) and 125.4 lb. (56.9 kg.). This finding contrasts with that of Shuttleworth,[2] who found in a small group of girls that there was a rapid decrease in the rate of growth after the onset of menstruation. Girls whose menarche was later continued to grow after the height of those who had already begun to menstruate had become nearly stationary; in consequence those in the former group eventually overhauled the girls whose menarche was earlier and who were on the average taller during the period from 8½ to 12 years of age.

The sample studied by Drs. Wilson and Sutherland is not very large, and the figures obtained in a comparatively small city, favourably placed, together with a restricted rural area, may not necessarily correspond with those which would be obtained in densely populated or industrial areas. Further confirmatory evidence is necessary before the findings can be accepted for the country as a whole. The investigation, however, does provide information which medical practitioners, especially school medical officers, should bear in mind. The omission of any mention of the age of onset of the menarche in the school medical record card issued by the Ministry of Education must have been an oversight which no doubt will be remedied in due course. Though this information is unlikely to have much value at the ages of the three statutory examinations, it is of retrospective value and should be included.

[1] *Arch. Dis. Childh.*, 1948, 23, 17.

[2] Monograph of the Society for Research in Child Development, 1937, 2 (5). National Research Council, Washington.

BRITISH CONGRESS OF OBSTETRICS AND GYNAECOLOGY

TWELFTH MEETING IN LONDON

The twelfth British Congress of Obstetrics and Gynaecology was held at Friends House, London, on July 6, 7, and 8, under the presidency of Sir EARDLEY HOLLAND. Normally the Congress takes place every second or third year, but this was the first since that held in Edinburgh in 1939. Seven hundred members registered, four times as many as on the previous occasion.

The Congress was declared open by the MINISTER OF HEALTH. There was one feature of the National Health Service, he said, which gave rise to anxiety in the minds of obstetricians—namely, the division of responsibility between regional hospital boards and local health authorities, which, it was feared, might work to the disadvantage of the maternity service as a whole. In practice, he believed, this dichotomy would be bridged. A very fine team of people were now responsible for maternity services. Mr. Bevan also gave the provisional vital statistics for 1948—a maternal mortality rate of 1.01, compared with 3.13 in 1939; stillbirths 23.1, compared with 38.0; neonatal deaths 19.7, compared with 28.3; and infant mortality 34, compared with 50.6.

Modern Caesarean Section

Mr. C. MCINTOSH MARSHALL (Liverpool) introduced this subject by bringing forward statistics from 19 large hospitals in various parts of the country covering the period 1943 to 1947. The total number of deliveries at these hospitals was 125,179, and caesarean section had been carried out in 7,762 cases (6.2%). There had been 77 maternal deaths (0.99%) among these cases of caesarean section. The lower-segment operation was performed in 5,851 cases, with 35 deaths, and the classical operation in 1,734 cases, with 38 deaths. From these figures the classical operation came out three times worse than the lower-segment operation. "In my paper I speak of the classical operation with restraint and sadness; in public I never speak of it at all." Mr. Marshall recalled that in 1921, at the annual meeting of the British Medical Association at Newcastle, Professor Munro Kerr and Mr. Eardley Holland brought forward a similar collection of cases, covering the years 1911–20, and he compared this earlier series with that of 1943–7. In Kerr and Holland's collection were 1,218 cases of "favourable omen" (patient not in labour) with 19 deaths (1.56%); in the series now presented there were 3,126 such cases, with six deaths (0.19%). In the group of contracted pelvis and other cases (all cases being in labour), the maternal mortality in the earlier series was 4.41% and in the later series 0.96%. In the cases of eclampsia the figures were 32.1% and 7.69% respectively, in toxaemia 21.9% and 1.61%, and so with other indications or groups in which caesarean section had been performed. They had all been more than half aware, said Mr. Marshall, that the scope and safety of caesarean section in this country had been steadily increasing over the last ten years or more. Now the evidence was seen, and the extent of the success could be measured. It would be a pity, however, if they allowed themselves to rest there. The problems to-day were different but just as great as those of thirty years ago. The ideal antibiotic would be discovered, and chemotherapy must still have many gifts in store. Anaesthetic practices would be even more streamlined, though he could not conceive that any method which produced unconsciousness would be without risk. In theory the answers to thrombosis and embolism had been found. And all the time a more thoughtful devotion to their art would lead, more surely than any other thing, to a lessening of maternal mortality in any one of its aspects—and, above all, in caesarean section.

This introduction led to a lively discussion and an almost astronomical multiplication of statistics. Dr. NINIAN FALKINER (Dublin) brought forward figures from the Rotunda extending over seven years: vaginal deliveries were 34,489 and abdominal deliveries 841—the number of deaths following the former being 56 and the latter 15. The same advantage of the lower-segment operation over the classical came out in these figures as in Mr. Marshall's. Mr. A. W. PURDIE (London) described an investigation covering Middlesex county hospitals over the period 1943–7. There had been 1,667 caesarean sections performed, with 23 maternal deaths (1.38%). The total deliveries numbered 51,562. In the cases of "favourable omen" the lower-segment operation was performed 410 times, with four maternal deaths, and the classical 116 times, with one death. Mr. Purdie hoped that the Congress would not be followed by a spate of unnecessary and ill-judged caesarean sections.

"Failed Forceps" Cases

Mr. FRANK STABLER (Newcastle) said that at the Princess Mary Maternity Hospital the policy had been consistently pursued of not refusing section to septic cases, however bad the state of the patient before operation. For many years they were isolated in this practice, but now with improvements in technique and the advance of chemotherapy there was a sway towards their opinion; but they had not been wrong even before the sulphonamides and penicillin. He gave an analysis of his "failed forceps" cases since 1925. In 23 years his department had performed caesarean section on 144 women who had previously undergone attempted forceps extraction. There were 23 deaths (15.9%). Since the employment of sulphonamides in 1936 there had been 61 lower-segment caesarean sections after failed forceps, with six deaths (10%). In the last 10 years, when blood transfusion had been freely available, there had been 33 cases, with one death. Penicillin had been available only for three years, so that it was impossible to show its effect, but it could be said that nowadays a mortality in the region of 5% might be expected. The incidence of "failed forceps" cases was dwindling every year. He did not advocate caesarean section for all "failed forceps" cases. It should be employed for cases of obstructed labour who would need it if there was no question of infection. In 307 cases of "failed forceps," 50 caesarean sections were done.

Dr. KEVIN FEENEY (Dublin) said that too many caesarean sections were being performed. Enthusiasm for this operation should be tempered by common sense. To use it as an easy way out of obstetric difficulty was unjustifiable. In any case it should be performed only by senior members of the staff. Professor DOUGAL BAIRD (Aberdeen) estimated that in 10 years' time there would be 150,000 women in Great Britain who had been the subject of caesarean section. What would be the effect on their future childbearing? On the long-term view they must look forward to the time when caesarean section would not be necessary at all. Contracted pelvis was disappearing among the generation now growing up. It should not be forgotten that childbirth was a natural process.

Professor MUNRO KERR paid tribute to earlier pioneers than Eardley Holland and himself, and said how proud he was to hear these latest figures.

Professor SUNDE (Oslo) said that during the past seven and a half years 600 caesarean sections had been performed at his University Hospital, with five deaths (0.8%). The credit for this low mortality should be given primarily to penicillin and sulphathiazole in cases of infection, heparin treatment of thrombosis and embolism, and the organization of blood banks. Cases of toxaemia were not subjected to caesarean section, and it was his opinion that eclampsia and accidental haemorrhage should as a rule be regarded as contraindications. In older primiparae—over 40—age alone was not considered sufficient indication. Only in complications such as weak pains, large foetus, or breech presentation was section considered. Dr. REX MATTERS (Adelaide) was surprised to learn of the high proportion of cases in which section was done. At the antipodes they did not expect so high a percentage. Dr. G. W. THEOBALD (Bradford) told the Congress of a dream: wishing to visit the gynaecology department, he found that it had been abolished, that menstruation had been completely controlled, that the period of gestation had been reduced to three months, and that all deliveries were by caesarean section, to facilitate which a zip-fastener had been invented! Another slightly satirical speech came from Dr. BETHEL SOLOMONS (Dublin), who suggested that the next Congress should include a first-rate discussion on normal labour.

Pregnanediol in the Urine

Professor G. F. MARRIAN (Edinburgh) opened a discussion on the methods of assay and clinical significance of pregnanediol in the urine. He said that it had been established that during the menstrual period this steroid was excreted in the urine only during the luteal phase; during pregnancy it was excreted in increasing amounts up to the time of delivery, and in women in whose ovaries there were no corpora lutea the injection of progesterone was followed by the appearance of pregnanediol in the urine. Quantitative investigations suggested, however, that the amounts of pregnanediol present in the urine during the luteal phase of the menstrual cycle and during pregnancy might not be quantitatively related to the total endogenous secretion of progesterone or to that fraction of the latter utilized in producing the physiological changes characteristic of the hormone. If that were so it would be difficult on theoretical grounds to justify the use of pregnanediol determinations for clinical purposes. But it would be premature to be dogmatic on the question, and the clinician should adopt a cautious attitude. There were grounds for hoping that pregnanediol determinations would ultimately prove to have a real, though limited, clinical value.

Dr. G. I. M. SWYER (University College Hospital), after examining the results of 860 pregnanediol assays, considered that in general such assays had little to offer the practising clinician. There were no solid grounds for believing that pregnanediol excretion reflected at all closely the progesterone levels of the blood, and undoubtedly the latter were of far greater physiological significance. A simple, direct means of assessing the blood progesterone would supply evidence of much more clinical value than could ever be expected from the pregnanediol excretion in the urine.

The subsequent discussion, in which several French and Swiss workers joined, took very much the same line. Dr. P. M. F. BISHOP (London) said that it had brought out three important points: (1) that pregnanediol assays were time-consuming procedures requiring expert supervision and technical assistance; (2) that they called for close co-operation and understanding between the ward or out-patient department and the laboratory; and (3) that they were of such limited clinical value that the first reaction must be one of disappointment. He considered also that the problems of what might be called medical gynaecology were becoming so numerous and complicated that there was a good deal to be said for referring them to a special department. There was already a tendency to separate the investigation and treatment of infertility from the work of the routine gynaecological out-patient clinic. Dr. A. C. CROOKE (Birmingham) also described this "laborious and somewhat insensitive method" as of very little clinical value in studying abnormalities of menstruation.

Essential Hypertension in Pregnancy

A well-sustained discussion on this subject was opened by Professor G. F. PICKERING (London), who said that there seemed strong grounds for the provisional opinion that essential hypertension was an inherited condition, probably on a simple Mendelian basis, but a more extended survey of the children of hypertensive parents was necessary before such a conclusion could be regarded as fully established. As for the mechanism of the condition, there was no doubt that the raised arteriolar pressure was the result of vascular narrowing, for the cardiac output and the blood viscosity had been measured accurately and found normal. This vascular narrowing was likely to be due to a chemical abnormality either of the blood or of the vessels themselves.

Professor F. J. BROWNE (London) discussed diagnosis, course, and treatment. He considered that with the exception of those cases in which renal function was diminished or in which there was albuminuric retinitis pregnancy might be allowed to continue. As danger to the foetus arose only when blood pressure was above 160 mm. Hg systolic, 100 diastolic, efforts should be made to keep it below that level, and for this purpose the best remedy at present was rest, which should be enjoined throughout pregnancy and its extent increased as pregnancy proceeded, especially after the twenty-fifth week. Sympathectomy was useful in carefully selected cases of hypertension, and was said to give better results if the diastolic pressure was high and the pulse pressure low. It was contraindicated if the kidneys were badly damaged or if there was coronary disease or marked arteriosclerosis. It should be considered if the outlook for a successful pregnancy was bad, and especially if previous pregnancies had been unsuccessful.

Among Professor Browne's conclusions were: (1) chronic hypertension contributed about 25% of all forms of toxaemia of late pregnancy; (2) if the blood pressure at the start of pregnancy was 150/100 or over, the outlook for a viable child was poor; (3) there was no evidence that the hypertension was permanently aggravated by the pregnancy unless the patient developed superimposed pre-eclamptic toxaemia or eclampsia; (4) as pre-eclamptic toxaemia developed in 60% of chronic hypertensive cases, and the risk of chronic hypertension following pre-eclamptic toxaemia was 50%, it followed that about one-third of all women with chronic hypertension who became pregnant had their hypertension permanently aggravated in some degree.

A Warning against "Mutilating Operations"

Mr. G. F. GIBBERD (London) hoped that obstetricians would be on guard against mutilating operations on the sympathetic nervous system. The field of routine midwifery must not be allowed to be invaded by "destructive surgery still in an experimental stage." On the clinical side they were concerned with three well-recognized conditions: essential hypertension, toxaemia of pregnancy, and chronic nephritis; but the more critical they were the more they would find the need for another group unclassifiable in the present state of knowledge. Increased knowledge in the future would come from the fuller study of the relatively few well-defined examples of the disease under discussion rather than from statistical surveys of large numbers of patients placed in arbitrary classes with no clinical significance.

Professor R. J. KELLAR (Edinburgh) summarized the position thus: in normal pregnancy there was an increase in the cardiac output and the blood volume, and an increased flow through the muscles of the forearm and through the skin of the hands at cool room temperatures. In essential hypertension complicating pregnancy the changes were of the same order, with the exception that the flow through the forearm muscles was somewhat increased. The paradox of an increased cardiac output, such as occurred so commonly both in normal and in hypertensive pregnancies, could be explained only by the presence of the highly vascular uterus and the choriodecidual space. Here, therefore, was an example of a positively beneficent effect of pregnancy on the hypertensive process, albeit, alas, a temporary one. Mr. G. J. SOPHIAN (London) said that they were still ignorant of what happened in the early stages of hypertension, but he personally felt that functional vascular spasm due to sympathetic overactivity was the primary factor, and that it resulted, if too severe and long-continued, in an anatomical change in which the muscular reactivity of the vessels was replaced by the relative irresponsiveness of fibro-elastic tissue.

Caesarean Section in Hypertension

Professor T. N. A. JEFFCOATE (Liverpool) brought back the discussion to the previous theme of caesarean section, this time with regard to its place in chronic hypertension and complicating albuminuria. He said frankly that much of the discussion on caesarean section at the Congress was not up to the standard to be expected in a gathering of that kind. Many platitudes had been stated without evidence to support them, and the impression which must have gone out was that the art and science of obstetrics consisted in birth by the natural passages at all costs—the "costs" being the death of the child and very often injury to the mother. It reminded him of what used to be said many years ago—that caesarean section was a confession of failure, the implication being that a dead child was a sign of success. Results which he was able to bring forward showed that by delivering babies by caesarean section—the cases chosen being the worst possible material (that is to say, those in which the disease was most intense)—figures

relating to the children could be produced practically as good as those of spontaneous delivery at term, and in the case of very small babies caesarean section offered the best of all prospects in chronic hypertension complicated by albuminuria.

Mr. DICKSON WRIGHT discussed hypertension from the operating surgeon's point of view, and after a number of others had taken part Professor F. J. BROWNE replied to Mr. Gibberd's remarks about "mutilating surgery."

Carcinoma of the Uterus

A long session of the Congress was devoted to modern concepts in the diagnosis, prognosis, and treatment of carcinoma of the uterus. Dr. J. ERNEST AYRE (Montreal) said the vaginal smear method, first put forward by Papanicolaou in 1928, was a simple means of detection, but the "surface biopsy" modification, by scraping an area of the cervix, was a more sensitive and accurate method of diagnosis in early cases of cancer. A negative "surface biopsy"-scraping might be relied upon to indicate freedom from malignancy. Dr. GILBERT I. STRACHAN (Cardiff) described precancerous changes in the cervix on the basis of an investigation which had comprised the clinical examination of about 500 cases, including the histological examination of many hundreds of sections. He devoted special attention to one lesion of the cervix, namely, leucoplakia, which seemed to be the connecting link between the traumatized and infected cervix on the one hand and carcinoma on the other. Precancerous lesions were not observed at the growing edge of an established carcinoma, the probable reason being that when carcinomatous growth started it extended rapidly, blotting out any intermediate changes. The growing edge of an early carcinoma showed a sharp, sloping line of differentiation between the normal and the affected tissue.

Dr. A. GLUCKSMANN, of the Strangeways Research Laboratory, read a paper on prognosis based on biopsies. He found agreement between the early histological prognosis and five-year clinical results in 97% of cases, and held that suitably selected biopsies were reliable samples of the tumour and of its reaction to treatment. By the method he described patients with tumours curable by radiation methods could be selected for continued radiotherapy, while others were chosen for radical surgery.

Pelvic Exenteration

The Congress then listened to an exposition by Dr. ALEXANDER BRUNSCHWIG, of the Memorial Hospital, New York City, of his method of partial or complete exenteration for advanced uncontrolled cancers, principally of the cervix but also of the uterus and vulva, which he had been practising during the last two years. One type of operation consisted of complete excision of vagina, uterus, bladder, and pelvic lymph nodes, with bilateral implantation of the ureters into the pelvic colon; the other, of complete pelvic exenteration—excision of the bladder, vagina, and pelvic colon, together with the entire perineum, and implantation of both ureters into the colon above an end-colostomy. The partial pelvic exenteration had been done in 26 cases, with a surgical mortality of 19%. One patient had lived for 15 months and died of intercurrent disease, and others were living and well after a year or more. The complete pelvic exenteration had been carried out in 52 cases, with a surgical mortality of 23%, and seven patients were living and well after a period of from one year to 20 months. He defined surgical mortality as death occurring within a month of operation, whatever its cause.

Dr. JOE VINCENT MEIGS, of the Vincent Memorial Hospital, Boston, said that his group had done 35 similar operations, with about the same success as that reported by Dr. Brunschwig. It was the operation of choice in patients in whom radiation treatment had failed or who had fistula or recurrent tumours in the bladder or rectum, especially if they were in fair physical condition, as they so often were. Pictures were shown of these patients apparently, except for the inconvenience of a colostomy, living a normal life.

Mr. VICTOR BONNEY (London) said that some means should be found of distinguishing quite certainly the radiosensitive from the radio-resistant tumours before any treatment was decided. Professor VAN B. BASTIAANSE (Amsterdam) regretted that there had been no reference to the radical vaginal hysterectomy of Schauta. For the surgeon who had had experience in vaginal operations the Schauta operation was not difficult. Its primary mortality was low—only one death in about 250 cases at Amsterdam from 1942 to 1949—and the five-year cure rate was 55.34%. Professor MITRA (India) also drew attention to the many advantages of vaginal hysterectomy as compared with the abdominal approach.

Plea for Radiotherapy

Professor J. HEYMAN (Stockholm) took a different view. In the last six years the absolute cure rate at the Radiumhemmet had been 42% (the relative cure rate for Stage I being 70%, for Stage II, 42%, and for Stage III, 25%). They were very satisfied with the results of radiotherapy, and they had treated about 8,000 cases. He did not believe that there were any radio-resistant cases—there were cases which could not be cured by radiotherapy because they belonged to the group which was particularly malignant, but such cases could not be cured whatever the method used. If they had more extensive surgery it would mean a number of less competent surgeons at work, and they would not be likely to restrict themselves to the carefully selected case. Dr. MALCOLM DONALDSON urged the setting up by the Royal College of a Clinical Cancer Research Committee with an instruction to stimulate and co-ordinate mass investigations into the treatment of gynaecological cancer and to evaluate the results.

Maternal Mortality

Sir WILLIAM GILLIATT, president of the Royal College of Obstetricians and Gynaecologists, was applauded when he protested against the habit Ministers had of using maternal mortality statistics for political purposes. The Minister of Health in opening that Congress had spoken of the team work in the maternity service under the new Health Act and had then gone on to quote the figures, which were excellent in every way. But it might be suggested to the Minister that the National Health Service, which was 367 days old, could scarcely be responsible for the maternal mortality figures in 1948—at all events in the first half of that year. Sir William Gilliatt brought forward an analysis of maternal mortality in 1947 as compared with 1927. In 1927 the number of maternal deaths was 2,707, and in 1947 it was 1,058, a reduction of 61%. In the two groups of infections, post-abortional and puerperal, added together, the reduction had been as much as 82.75%. This he attributed to several factors: improvement in the planning of maternity units and the nursing of puerperal patients, the diminishing virulence of the streptococcus, the advent of the sulphonamides, the discovery of penicillin, and the better feeding of pregnant women. The reduction in mortality in the toxaemic group in 20 years had been 55.5%. Could this be carried further? During the past few years opinion had changed, and now not a low protein diet but a high one was advised, not only for normal pregnant women but also for those suffering from toxaemia, and the good results justified this striking change. In spite of official statistics, haemorrhage was the most common cause of maternal death. It was responsible directly for a large proportion of deaths in some of the other official groups. It was of the utmost importance to prevent unnecessary bleeding and to replace as soon as possible at least the amount of blood lost. He indicated the many ways in which unnecessary bleeding might be prevented.

Professor HILDA LLOYD (Birmingham) urged that normal confinements, after adequate and first-class antenatal care, should be conducted by midwives, whose training, it must be remembered, had been raised to a very high standard, far higher than that of the average newly qualified doctor who had had no further obstetric house appointments. The most urgent problem at the present time was an investigation into the aetiology, causation, and treatment of toxaemia, using the word in its broad sense.

Dr. PERCY STOCKS (Registrar-General's Office) said that about three-fifths of the fall in maternal sepsis between 1928–30 and 1947 could be attributed to the new drugs, the other two-fifths being due to improvements in antiseptic technique, including

the wearing of masks, and routine examination, and to greater antenatal care.

Midwifery and the General Practitioner

Sir EARDLEY HOLLAND, president of the Congress, said that very few individual obstetricians could get a real insight into the causation of maternal mortality, because they saw relatively so few deaths. He himself did not gain such an insight until at the beginning of the war it became one of his duties to investigate every maternal death in the home counties. He found the commonest cause to be shock or haemorrhage or both. Another generalization was that a high proportion of deaths were avoidable. He believed that in the home counties over three years at least half the maternal deaths would have been avoided by quite ordinary standards of midwifery.

Speaking of domiciliary practice, Sir Eardley Holland described the term "general-practitioner obstetrician" as an "absolute sham" and a misuse of the word "obstetrician." In America they had maternal mortality committees, and he thought such committees might be appointed here, consisting of clinical obstetricians and one or two specialists, to report on maternal deaths and analyse them, as was done in the American bi-monthly *Obstetrical and Gynecological Survey*.

Mr. G. W. THEOBALD (Bradford) said that owing to the dichotomy in the service some medical officers of health were persuading women who wanted to be attended by midwives to employ doctors, because if midwives were sent out the charge fell locally, whereas if the general practitioner went it fell on State funds. He believed that recent administrative developments had put back the clock of obstetric advance, though no doubt the blood transfusion service, the use of sulphonamides and penicillin, and so on, would mask the setback.

Dr. KOSMAK (New York) gave further details about the maternal mortality committees in the United States. Practically every large city now had one of these official juries investigating individual deaths. A great many confinements had been found to take place in so-called maternity homes which were poorly equipped, and in which the doctor was privileged to do anything he wanted, from induction of labour to caesarean section, though he might not be qualified to perform it. Through the Department of Health a set of rules and regulations had been drawn up which were in force at the present time and had proved to be of great value. Under these no general practitioner who undertook the care of a maternity case in one of these institutions was allowed to perform any major surgery without consultation. Among others who joined in this discussion were Dame LOUISE MCILROY, Professor DUGALD BAIRD, and Dr. H. R. MACLENNAN.

Sir WILLIAM GILLIATT said that he thought Sir Eardley Holland's suggestion for a committee to be appointed to investigate all maternal deaths was a good one, and that it might be transmitted to the Maternity and Midwifery Standing Advisory Committee recently constituted by the Minister, of which he was chairman.

Further Discussions

A short discussion on the management of pregnancy in diabetics was opened by Dr. WILFRID OAKLEY and Mr. JOHN PEEL (King's College Hospital) in a joint paper. They showed that the foetal mortality rate in the pre-diabetic state reached its maximum in the two-year period immediately preceding the onset of diabetes. The duration and severity of the maternal diabetes appeared to be unrelated to the high foetal mortality, but the degree of control was an important factor. Without proper control of diabetes a significant number of mothers died in diabetic coma, but with proper control the maternal mortality was influenced only very slightly if at all by the presence of the disease. The incidence of hydramnios was high in pregnancy in diabetic women, and that of toxaemia was greater than in non-diabetic women, the highest incidence being in the last three weeks. Reference was made to the high rate of neonatal death in babies born of diabetic mothers. The majority of the deaths occurred within 48 hours.

Dr. PETERSEN (Copenhagen) reported a study of 205 pregnancies in 152 diabetics in two lying-in hospitals in Denmark. He related the foetal mortality to the age of onset of diabetes in the mother. Thus with mothers in whom the diabetes had begun at age 1 to 15 the foetal mortality was 42%; with mothers who first had the disease between the ages of 16 and 24 the foetal mortality was 29%; and in those in whom diabetes did not appear before the age of 25 the foetal mortality was only 6%.

Doubt was cast upon the many statistics given in the course of this discussion when Professor F. J. BROWNE said that an expert statistician, looking at these figures, could "drive a horse and cart through them."

Hernia of the pouch of Douglas was the subject of another brief discussion, opened by Mr. C. D. READ (Chelsea Hospital for Women), and continued by Mr. VICTOR BONNEY, Dr. GREEN-ARMYTAGE, and others.

Throughout the Congress and at every session many members who wished to contribute to the discussions had to be denied owing to lack of time. Visits were paid to a number of hospitals, and at University College Hospital delegates were able to watch by means of television the operations performed in the theatre. This was done by means of Marconi *portable* television equipment. Two cameras, mounted in the *gallery* of the theatre, with their telephoto lenses trained on the operating table, recorded every phase of the operations, which were projected on the 20-in. screens of two Monitor receivers installed in a separate lecture hall.

Social occasions in connexion with the Congress included a banquet at Guildhall and a number of receptions. The next Congress will be held at Leeds in 1952.

COMMONWEALTH AND EMPIRE TUBERCULOSIS CONFERENCE

The second Commonwealth and Empire Health and Tuberculosis Conference, organized by the National Association for the Prevention of Tuberculosis, which is celebrating its fiftieth anniversary, was held at the Central Hall, Westminster, from July 5 to 8. It was attended by 1,200 medical and lay delegates and observers, 160 of whom came from overseas. Although pre-eminently a Commonwealth Conference, the United States, every country in Western Europe, and many foreign countries in Asia and Africa were represented. The discussions were on tuberculosis as a world problem, trends in modern treatment, tuberculosis schemes of local authorities and schemes in the Colonies, the prevention and the detection of the disease, and the psychological and social readaptation of the chronic sufferer. The conference was addressed by several members of the Government, including the Secretary of State for the Colonies, the Secretary of State for Commonwealth Relations, and the Parliamentary Secretary to the Ministry of Food. The Minister of Health sent a message in which he spoke of advances in the control of tuberculosis under the National Health Service. He referred to facilities for mass radiography, the availability of B.C.G. vaccination "within prudent and controlled limits," and the establishment as a statutory duty of the care and aftercare of tuberculous patients by local health authorities. Sir Robert Arthur Young presided over the first sessions of the conference.

Streptomycin

A discussion on trends in the modern treatment of tuberculosis turned largely upon streptomycin, on which several experts from other countries addressed the conference. Professor ETIENNE BERNARD, professor in the Faculty of Medicine, University of Paris, said that streptomycin had transformed the prognosis of miliary tuberculosis of the lungs. But there were two qualifications to be made. During the treatment of tuberculosis with streptomycin, or even after treatment, there sometimes appeared a suppurative cervical adenitis. No treatment was of any value, and in some of these cases, in spite of clearance of the lung fields, the patients died of cachexia. Organisms from the glandular pus showed streptomycin resistance. In other cases of acute miliary tuberculosis, after a complet

cure had apparently been effected a relapse occurred within six months or a year, with reappearance of miliary lesions in both lung fields and extra-pulmonary lesions. The relapses were severe; renewal of treatment was disappointing owing to streptomycin resistance, and some of the patients died in spite of the addition of para-aminosalicylic acid to the streptomycin. Clearing of the lung shadows did not therefore mean that the contest was definitely won, and the late danger of a relapse of miliary tuberculosis, with an unfavourable prognosis, must be borne in mind.

Dr. CECIL GORDON SHAVER, superintendent of the Niagara Peninsula Sanatorium Association, gave an account of the use of streptomycin in Canada. The drug became available to Canadian sanatoria early in 1947, but the cost at first was too high for its general use. In July, 1948, however, free distribution of streptomycin was made possible through federal health grants, and from then until the end of March 1,786 patients in Ontario sanatoria had received 1,950 free courses of treatment. Symptomatic improvement had been noted in practically every case, the main exceptions being those with fibro-cavernous disease. One point generally noted was that cases with fever showed a gradual subsidence of temperature unlike the usual course of tuberculous disease. Of seven adult cases of tuberculous meningitis good results were obtained in four cases but three showed relapses of varying severity. Of 13 cases of miliary tuberculosis 10 showed a good initial response, but six of these subsequently developed meningitis and died. In pulmonary tuberculosis exudative lesions had responded extremely well; in spreading disease, of 116 cases 75 (64%) showed improvement beyond ordinary expectations. In this group there had been five cases of relapse, leaving a total of 60% improved. In 27 cases there was no improvement, and in the remaining 14 the condition became worse under treatment.

After discussing the results in various tuberculous conditions Dr. Shaver said that most of the sanatoria were using a dose of one gramme daily for periods of 42 to 120 days. Investigation of the resistance of tubercle bacilli to streptomycin showed that resistance did not often develop before the end of six weeks; so that if a six-weeks course of treatment would produce the desired result, the drug should be discontinued at or before the end of that period. The Toronto Hospital at Weston reported that in the majority of cases in which streptomycin resistance appeared in the isolated organisms such resistance occurred from five to seven weeks after the beginning of treatment. In a few cases complete streptomycin resistance was not apparent at the conclusion of therapy, but showed itself a few months later. It was not possible as yet to state whether or not resistant bacilli might regain sensitivity.

British Experience of Modern Treatment

Dr. GEOFFREY MARSHALL (Brompton Hospital), after reciting the history of various treatments, some of which had been overrated and afterwards discarded, said that in streptomycin in the treatment of tuberculous meningitis they had something very different from what had gone before. He went on to describe the investigation of the value of streptomycin in pulmonary tuberculosis—an investigation under much more critical control than had ever been planned before in the case of a therapeutic remedy. The improvement under streptomycin was undoubted, but it was not lasting; most of the patients started to relapse during the latter part of the first six months of the trial.

Streptomycin was a valuable but a short-lived remedy. With the development of streptomycin-resistant strains, the preparation was no longer of value to the patient. The danger was that such patients might infect a younger person, who might contract a tuberculous meningitis which was streptomycin-resistant. A particular value of streptomycin was in the case of a patient who should have collapse therapy but was too ill to undergo it. For a limited time such a patient improved greatly under the drug, but the collapse therapy must be instituted within three months. Streptomycin could be used as an "umbrella" for surgery, but it was better to keep it in reserve; it was more effective as a remedy than as a preventive. The value of para-aminosalicylic acid was being tested. The Medical Research Council was conducting a rigid trial of PAS alone, streptomycin alone, and a combination of the two.

Mr. C. PRICE THOMAS (Westminster Hospital) described recent advances in thoracic surgery, particularly resection of the lung. There were some who thought that all patients should be subjected to resection, but this had its dangers, especially non-healing of the bronchus, the patients tending to get empyemas of the lung, and the disease spreading during the actual operative process. He agreed with Dr. Geoffrey Marshall that streptomycin had little power to prevent complications, but it was able to deal with them when they arrived. Operation could be done without streptomycin, but it was desirable that it be used as a cover; he started the administration of streptomycin one day before operation.

Professor J. LEHMANN (Gothenburg) said that chemotherapeutic agents could be considered only as an aid in the treatment of tuberculosis, and that all physical measures should still be used. Treatment with the present therapeutic agents was "only a faltering step in a long and stony way."

Collapse Therapy in Domiciliary Treatment

The increased demand for hospital and sanatorium beds and for more highly trained doctors and nurses consequent upon the newer treatments was emphasized by Dr. J. G. SCADDING (Institute of Diseases of the Chest, London). Streptomycin had greatly increased the average period required for institutional care—care, moreover, in a well-equipped and fully staffed institution. This applied alike to tuberculous meningitis, to miliary tuberculosis, and to pulmonary tuberculosis. One of the great advantages of streptomycin was that it enabled patients previously considered unsuitable for surgical treatment to undergo that treatment, but this needed trained teams and again prolonged the time necessary for institutional care.

The increased demand for beds as a result of these new measures, Dr. Scadding continued, had led to the use of collapse therapy as part of domiciliary treatment in suitable cases. Here he gave an account of work done along these lines in Southwark and in Hammersmith. At one clinic, out of some 90 new patients, roughly two-thirds were treated in their own homes by collapse therapy, with the result that it had been possible to cancel a number of applications for sanatorium accommodation. The scheme required careful co-operation between doctor, nurse, and social worker, but it seemed as if collapse therapy was likely to play an increasing part in the domiciliary treatment of pulmonary tuberculosis. Those engaged in this work had no doubt about the success of these measures, and the improvement in the morale of the patient was very evident. Such measures, however, must continue to be regarded as palliative only, and there should be no undue complacency following on their apparent success.

Dr. E. RIST (France) urged the advantages of artificial pneumothorax. Streptomycin and PAS were valuable, but they had their dangers and their failures. Pneumothorax on its introduction was hailed as the greatest advance ever made, but afterwards it underwent an unjustified decline in favour. He was surprised to find some colleagues preferring thoracoplasty and to read in American literature that many physicians preferred long bed rest to the institution of an artificial pneumothorax. After long experience he could affirm that the results obtained after collapse were more permanent than after bed rest only.

Para-aminosalicylic Acid

Dr. G. BIRATH (Sweden) mentioned the clinical advantages of PAS. An investigation of 150 to 200 cases had been made by the Swedish National Tuberculosis Association, and the results showed a significant difference in every respect, even radiologically, in favour of the PAS-treated cases. The effect was not so rapid as that of streptomycin, although a striking improvement might occur during the first six weeks of treatment. One of the main indications in toxic cases was to employ thoracoplasty, maintaining the patient on PAS throughout; the fever disappeared and the patient gained weight. The development of resistant micro-organisms seemed very rare.

Dr. E. K. PRITCHARD (Southwark) said that Dr. Toussaint, who originated collapse therapy in domiciliary treatment in Southwark, had since left that neighbourhood and he himself had continued to treat tuberculous patients in their homes. During the first eighteen months over 100 cases had been treated, and 31% were now sputum-free; 10% of these patients had died, but in a number of them the disease was fairly advanced before they came into his hands. About half were treated with pneumoperitoneum and half with pneumothorax; the former, he thought, should be the initial measure in the patient's home, except in very light and early cases. Any hope of doing good work in domiciliary treatment depended to a very large extent upon the keenness and efficiency of the health visitor. It was her business to get the patients into the right frame of mind, and to look in on them at odd times and make sure they were resting. PAS had a place in domiciliary treatment, and he had used it in a number of cases.

The long discussion was summed up by Dr. G. S. TODD (King Edward VII Sanatorium, Midhurst), who paid a special tribute to matrons and nurses. Modern treatment would be useless unless there was a competent team. The doctor might see the patient for five minutes every day, but the nurses saw him for hours and had to carry out many onerous duties.

Tuberculosis a World Problem

Another session of the conference was devoted to the consideration of tuberculosis as a world problem. It was opened by Dr. J. E. PERKINS (National Tuberculosis Association, U.S.A.). Dr. Perkins said that in the United States the death rate from tuberculosis was only 30 per 100,000, but tuberculosis was still a leading cause of death in the critically important age groups 15–34. In India the mortality was five times as high as in the United States, and in China even higher; in Asia as a whole the death rate was estimated by the World Health Organization to be between 260 and 360 per 100,000. The first WHO Assembly recognized the magnitude of the problem by giving it top priority for action by the secretariat, but the amount set aside to finance the work was pitifully small.

After speaking of the continuing need for voluntary organizations he pleaded for a clear understanding between these and the World Health Organization. The International Union against Tuberculosis, which gave invaluable service in the past in stimulating the exchange of scientific information through periodical international conferences and in other ways, went into hibernation during the war, but the stage was now set for its return.

A number of delegates then gave information about the position in their respective countries. Dr. C. J. W. BECKWITH (Canadian Tuberculosis Association) said that during the last twenty years the death rate from all forms of tuberculosis in Canada had been reduced by about 50%. In 1926 it was 86·5 per 100,000, in 1947 it was 43.4. It was believed that with intelligent and balanced use of the various measures for control and treatment, including the increasing use of B.C.G. vaccination, this death rate and the morbidity figures could be reduced appreciably further. Sanatorium treatment was provided without charge by law in five provinces; five provinces had legislation for compulsory segregation, and all the provinces had schemes for the support of the family while the breadwinner received treatment.

Dr. FRANK RETIEF (Johannesburg) said that during 1947–8 over 25,000 new entrants to the mining industry from the native territories within the Union of South Africa were examined by miniature radiography, and the radiological findings debarred 199 of them from employment. The death rate from pulmonary tuberculosis in native labourers in the gold mines was 52 per 100,000; the European death rate in the Union was 32, one of the lowest in the world. Miss RUTH BRIDGES gave an account of a special investigation into the relatively high incidence of tuberculosis among nurses in New Zealand.

The Indian Subcontinent

Dr. RAM CHANDRA ADHIKARI (Bengal Tuberculosis Association) painted a sombre picture of tuberculosis in India, where, it was estimated, at least half a million people died of the disease every year and there were about 2½ million open cases in the country. The death rate from tuberculosis in Lucknow was 419 per 100,000, compared with 96 in London. His tale, he said, was unrelieved by any silver lining. But mass inoculation must be introduced at once, and it was a great relief to learn that the Government of India, in spite of so many preoccupations, had seriously taken up the task of manufacturing B.C.G. vaccine on a large scale.

Dr. RIAZ ALI SHAH (Pakistan) said that in his country there were fewer than 700 beds for tuberculosis and only seven clinics. A Pakistan National Tuberculosis Association had been started; doctors had been sent to India and to Scandinavia for training, and 100 tuberculosis beds had been added to the hospital at Karachi. Dr. G. RANAWAKE (Ceylon) said that in his country every public health officer was being trained to become a potential tuberculosis officer, particularly in relation to the families and contacts of sanatorium patients. Ceylon was endeavouring also to make the sanatorium part and parcel of the hospital, instead of allowing the tuberculous patient to be the "private property" of the tuberculosis specialist.

Dr. J. B. MCDOUGALL, secretary of the WHO Expert Committee on Tuberculosis, described how during the past two years the World Health Organization had accepted the responsibility for a world survey of tuberculosis. This summer a number of areas in Central and South America were under scrutiny by WHO consultants; the South-East Asia region, comprising India, Ceylon, Burma, Siam, and Afghanistan, was also being surveyed; and in the Eastern Mediterranean visits had been paid to Iran, Irak, Aden, Egypt, Transjordania, and other areas. Of all the factors entering into the spread of tuberculosis in most countries in the world the extent of infection and the low nutritional standards of the people were the two most naturally linked together. If there was no infection there was no tuberculosis, irrespective of the environmental standards of the community. The lower the nutritional and environmental standards and the greater the amount of infection the higher was the price to be paid in morbidity and mortality. Adequate nutrition was the most useful ally in this campaign, and without help from those directly responsible for world food supplies their efforts would be much less successful. The Expert Committee in its first report had said: "There can be no isolationism in the field of health. The fight against tuberculosis is not a national or racial problem it is a task for the whole of humanity."

Regional and Local Tuberculosis Schemes

From world problems the congress turned to discuss regional, county, and county borough tuberculosis schemes. Sir WILSON JAMESON (Chief Medical Officer, Ministry of Health) said that organized efforts to deal with tuberculosis dated only from 1912, or, more correctly, 1921, when the duty of making provision for the care of tuberculous patients was placed upon county and county borough authorities. With some outstanding exceptions, this provision was inadequate. Tuberculosis was not a disease which could be taken care of by general provision; it required special arrangements for prevention, control, and treatment, and various bodies had a part to play in it. The roots of tuberculosis lay deep in the conditions which favoured infection—bad housing, unhealthy industrial conditions, infected milk, malnutrition, and poverty, and unless all authorities did their duty there was no end to the road. They were apt to refer complacently to the great decline in mortality during the last few years, but the decline started long before any special attack was made, and in 1948 there were still nearly 22,000 deaths from tuberculosis in England and Wales, most of them at ages when the people should have been making their greatest contribution to the well-being of the community; and in the colonial empire it was the most widespread killing disease. The problem could be tackled only on sound epidemiological lines, with the isolation of infected persons, early diagnosis, and the management of subclinical infections.

The details of a tuberculosis scheme, Sir Wilson Jameson continued, were not to be found in the National Health Service

Act—they were a matter for local administration. To regional hospital boards was entrusted the institutional and dispensary part of the scheme, and to local authorities the arrangements for prevention, care, and aftercare. On the family doctor rested the responsibility for the preliminary diagnosis. He was a little weary of hearing complaints of confusion. Was anyone satisfied by the old arrangements under which the care of the tuberculous was isolated from all other branches of medicine? Anyone desiring now to specialize must undergo an extensive training and be eligible for consultant status if he made the grade, and it was only right that his employer should be the regional hospital board. But the preventive and social aspects of tuberculosis were more important than the curative, and the specialist who did not concern himself with all three would be failing in his duty.

The medical officer of health was the person to see that the community was getting the facilities it required and to secure the integration of the various parts of the scheme, one of which was the control of sources of infection. It was only by good will and common sense that a good service could be provided. The introduction of a new Health Service brought a new opportunity. They had better weapons than before to help them to overcome difficulties. What was wanted was a united and determined effort, and he hoped that this conference, held on the fiftieth birthday of the National Association, would mark a turning-point in the fight.

Bridging the Gaps

Dr. I. GREENWOOD WILSON (Cardiff) mourned the passing of the Welsh National Memorial Association. The area physician of that body had acted in every respect like the tuberculosis officer, sitting with the medical officer of health on committees and working in close collaboration with the local authorities. The average waiting-list for admission of Cardiff patients to association institutions over a period of years was 72, and the average time of waiting two to four months. Now the average waiting-list was 158 and the time of waiting three to nine months. The national administration had been split up between 14 hospital management committees. There was an echo of the medical committee in the advisory committee for each region which made recommendations to the regional hospital board, but an advisory body was not as powerful as an executive. There was a certain amount of weakness in an organization which divorced responsibility for institutional accommodation for the tuberculous from responsibility for their individual care. Dr. Wilson went on to describe what had already been done in Cardiff, and pointed out how much an active local authority could do for the care of patients and their families.

Dr. A. B. WILLIAMSON (Leeds Regional Hospital Board) said that the schism created by the Act between the clinical and preventive aspects soon became apparent, and the Board had sought ways and means of bridging the gap. Among these were a system of cross-representation, conferences between representatives of the Board and eleven health authorities, and on the professional side the formation of a technical advisory panel. Councillor G. E. HARDMAN (Withington Hospital Management Committee) said that the Lancashire County Council tuberculosis service had been a model of its kind, and he could not conceal the regret he felt at the break-up of one of the outstanding tuberculosis schemes in the country. He was left with the impression that they were going back in tuberculosis—not going forward. Mr. WILLIAM HARVEY (Northern Ireland Tuberculosis Authority) gave an outline of the Northern Ireland scheme, which was working well.

Dr. W. E. R. SAUNDERS (South-East Metropolitan Regional Board) said that the tuberculosis schemes of counties and county boroughs before the appointed day varied greatly in adequacy and efficiency. The smaller authorities had difficulty in providing a satisfactory service. Some of the larger authorities had much more satisfactory schemes, but even the L.C.C. scheme had two defects: that diagnosis was carried out by a number of metropolitan borough dispensaries while institutional treatment was the function of the county council itself, and that the tuberculosis officers, although carrying out their tuberculosis duties with great efficiency, had obtained their appointments with a view to becoming eventually medical officers of health of their respective metropolitan boroughs.

A discussion of the organization of comprehensive tuberculosis schemes in the Colonies was opened by Dr. CHARLES WILCOCKS (Director, Bureau of Hygiene and Tropical Diseases, London). He referred to B.C.G., a subject which must inevitably be considered wherever the tuberculosis situation was serious. B.C.G. was now being administered on a very large scale, and special teams were being sent by the World Health Organization to tropical and other countries.

Dr. R. B. MACGREGOR (Malaya), Dr. K. C. YEO (Hong Kong), Dr. W. S. HAYNES (Kenya), Dr. L. G. EDDEY (British Guiana), and Dr. P. C. COSGROVE (Sierra Leone), with others, gave accounts of the conditions and facilities in their respective fields.

Tuberculosis among Nurses and Students

A special session devoted to this subject was opened by Dr. JOHN LUNDQUIST (Stockholm). He said that during the last fifteen years special dispensaries for students had been set up in four Swedish cities, subsidized by the State and by the National Association. Students were regularly examined by tuberculin tests, *x* rays, and estimation of sedimentation rates. At first only first-year students were examined, but now older ones were included. It was considered important to examine them annually on account of the risk of infection to which they were exposed. A much higher morbidity occurred among medical students than among students from other faculties. Their long period of training might contribute towards this. At the beginning of their training medical students reacted negatively to about the same extent as other students, but in contrast to these others they often reacted positively during the third year, which coincided with the completion of the course in pathology. Among nurses tuberculosis was perhaps more prevalent than in any other profession. The death rate was six times greater among hospital personnel than among, for example, domestic science students. The disease was usually pulmonary, occurred during the first three years, and was caused by inhalation, often starting with acute laryngitis.

Dr. G. J. WHERRETT (Canadian Tuberculosis Association) said that this subject had received a great deal of attention in Canada during the last 25 years. In protecting the nurse the first step would appear to be the adoption of a rational nursing technique. In many hospitals there was a very casual approach to the question of infection in tuberculosis wards. Four essential points were: (1) adequate instruction of the nurses and students, and also of the patients; (2) care of the person, with adequate washing facilities; (3) protective clothing; (4) routine examination of all members of staff. B.C.G. vaccination had been found to be safe and had been generally accepted. Miss NORA BURROWS (N.A.P.T. Sanatorium, Matrons' Section) indicated some simple methods of prevention which should be carried out in all hospitals.

Dr. E. R. LONG (Pennsylvania) referred to the greatly increased incidence of tuberculosis among medical students as compared with other classes. It looked, he said, as if something happened during the second year, and the finger of suspicion was pointed more and more at the pathology course.

The discussion was wound up by Dr. MARC DANIELS (Medical Research Council). He said that for some reason people were apt to talk of infection in this disease as a useful method of immunization. In many hospitals a lack of elementary precautions, such as would be viewed with horror in wards for other contagious diseases, was tolerated. He referred particularly to the lack of instruction to new nurses or domestics entering the tuberculosis wards for the first time. This did not apply, of course, to the best hospitals, but it applied to many of the others. Infection could often be prevented by the wearing of masks, but these were used in relatively few institutions. Another method of preventing the disease among hospital workers was by the detection and proper treatment of the early lesion. Among nurses and medical students unparalleled opportunities for the early diagnosis of tuberculosis were often missed. There were still too few routine medical examinations in this country, especially when compared with the United States and with France and Holland. He added that he hoped the introduction of B.C.G. would not give people a false sense

of security. The vaccine did not provide complete protection, and the methods of maintaining resistance and avoiding hazardous exposure should still be applied. Recent work had shown that the major part of tuberculous infection was avoidable by taking adequate precautions, without detracting from the quality of the service given by hospital staff.

Administration of B.C.G.

The effectiveness of B.C.G. vaccine was debated at another session. Dr. K. A. JENSEN (University of Copenhagen) said that nearly thirty years had passed since B.C.G. was first employed for the vaccination of human beings, and discussions about whether it did any good were still proceeding. Experimentally it was ascertained long ago that B.C.G. vaccination increased the resistance of the organism but gave no absolute immunity. It would be unreasonable to expect more, for the resistance of experimental animals did not come up to the level of human resistance. Nevertheless, it was possible to ascertain some fundamental rules to which he wanted to call attention once more.

In the non-immunized organism the individual tubercle bacillus produced no toxic effects. It was phagocyted by one of the macrophages, in which it multiplied unhampered during the pre-allergic phase. But, once the state of allergy appeared, the tubercle bacillus exerted a strong influence, to which the organism responded with an acute exudative inflammation. At this juncture there were numerous tubercle bacilli present at the site of invasion, and there followed abscess formation with caseation—a typical primary focus. In the abscess itself the tubercle bacilli might keep on multiplying, whereas bacilli situated in the non-necrotic part of the inflammatory process were destroyed or ceased to multiply. Once a necrotic focus had developed there was danger of its spread.

In the immunized organism an acute exudative inflammation developed rapidly, but as a rule the irritant effect was not strong enough to give rise to a central abscess. Consequently the few tubercle bacilli remained embedded in reactive tissue and did not multiply, so that there was only a slight risk, or none at all, of the spreading of the process by endogenous aspiration or by way of lymphatics or blood vessels. Before long the exudative inflammation turned into chronic inflammation with a tendency to heal. But in the allergic organism the few tubercle bacilli might remain alive for a long time, and if resistance was lowered might multiply afresh. This illustrated the fundamental difference between the infection in immunized and non-immunized experimental animals, and there could hardly be any doubt that this great difference at the start of an infection might decide its later course.

The available experimental and clinical records on the effect of B.C.G. vaccine were now so comprehensive and reliable that they might properly wonder whether to-day it was justifiable to omit B.C.G. vaccination because controls were lacking. It remained to be seen whether B.C.G. vaccination would prove effective in countries where people were living under bad conditions, where natural resistance had been reduced because of malnutrition, and where the risk of exposure was grave.

B.C.G. Vaccination in India

Dr. P. V. BENJAMIN (Tuberculosis Association of India) said that B.C.G. vaccination was started in 1948 in India, where 4,000 clinics were needed and half a million beds, and at present there were only about 105 clinics and 7,500 beds. Vaccination had been in use for many years for small sections of the population, and the results showed that it could reduce considerably the morbidity and mortality rates, but where this had been the case the standard of living had been better than in India as a whole.

Vaccination of a few thousand people here and there could not materially change the trend in a country like India. It was estimated that 100 million people needed vaccination—people who were negative reactors, mostly in age groups below 20. One team of workers, consisting of doctor and nurse or health visitor, with other staff, and a mobile van, could vaccinate 100,000 persons a year. With 200 such teams it would be possible to vaccinate the whole population in five years. The vaccine was now prepared at a laboratory under the control of the Government of India and was certified by a number of experts. Six teams, each consisting of a doctor and two nurses, were supplied from Denmark and were now working in different centres in India. It was hoped by the end of 1950 to have trained about 200 teams.

Professor ARVID WALLGREN (Stockholm) said that there was no doubt that the number of people with natural resistance was increasing; in an isolated population the proportion would be small, but in an older civilization which had been fighting the disease for centuries it would be high. The degree of resistance was not fixed; it altered during the individual's lifetime with differences of nutrition, standards of living, and age. With B.C.G. vaccination the immunity lasted for five or ten years or more. It had been shown to last at least three years in 90% of cases, and six years in 80% of those examined. When sensitivity disappeared, re-vaccination should be undertaken if the risk of exposure continued. The object of this artificial immunity was to compensate for low natural resistance, and it was therefore particularly suitable for infants and small children, children at puberty, and those whose resistance was low owing to heredity or environment.

In addition to the formal sessions, clinical demonstrations were arranged at the Brompton Hospital, and there were visits to the Papworth Village Settlement, St. Mary's Hospital, Carshalton, the British Legion Village at Maidstone, and to Midhurst and other sanatoria. On the social side the delegates were entertained at receptions by the Government, by the British Medical Association, by the Royal College of Physicians, by the High Commissioner for India, and by the Wellcome Historical Medical Museum.

PROGRESS IN TREATMENT OF RHEUMATIC DISORDERS

INTERNATIONAL CONGRESS OF RHEUMATOLOGY

[FROM A SPECIAL CORRESPONDENT]

The Seventh International Congress on Rheumatic Diseases was recently held in New York under the joint auspices of the International League against Rheumatism and the American Rheumatism Association. The opening session at the Waldorf-Astoria was attended by over a thousand people, including some 300 rheumatologists from other countries. Messages from President Truman and Governor Dewey were read by the President, Professor Richard Freyberg. The paper by Drs. Hench, Kendall, Slocumb, and Polley, confirming officially the dramatic results which had been produced in severe rheumatoid arthritis by means of "cortisone" (Kendall)—compound E acetate—received an ovation such as is seldom seen at medical meetings. The effects described by these workers were confirmed by the five leading physicians who had each been provided with 1 gramme of the substance for trial. A brief summary of some of the more outstanding of the hundred papers read can be given by permission of the Congress authorities, who are publishing the proceedings in one volume later in the year (W. B. Saunders and Co.).

In addition to formal papers, a somewhat novel method of presentation was provided by "panel" discussions. Each panel was under the chairmanship of a distinguished physician, who had chosen five colleagues. For an hour they discussed the particular subject which had been allotted to them on the basis of specific questions submitted by outside members of the Congress the day previously. The official banquet was attended by high Governmental and medical personages, and afterwards the Honorary Membership of the American Rheumatism Association was presented to, among others, Lord Horder, Drs. C. W Buckley, W. S. C. Copeman, D. H. Collins, J. B. Burt, R. G Gordon, G. D. Kersley, W. Tegner, and Professor L. S. P Davidson.

Compound E

Drs. Hench, Kendall, and others reported that the adrenal cortical hormone 17-hydroxy-11-dehydrocorticosterone (compound E) had been administered to 16 patients with severe o

moderately severe rheumatoid arthritis. In each case improvement in clinical features and in sedimentation rates began to appear within a few days. When administration of the hormone was discontinued the disease generally relapsed promptly. Compound E has been given, with encouraging results, to three patients with acute rheumatic fever and to one patient with lupus erythematosus with polyarthritis. Essentially similar clinical results accompanied by various biochemical effects, including reduction of sedimentation rates, were obtained from the administration of the pituitary adrenocorticotropic hormone (ACTH) to four patients with rheumatoid arthritis.

The rarity of these compounds at present and in the immediate future, and the limited scope of the preliminary data (especially regarding prolonged administration), make inappropriate now the use of the term "treatment" except in an investigative sense. This paper was presented not as a clinico-therapeutic report but as a study of certain physiological effects which these new hormones exert on rheumatoid arthritis. To provide adequate controls the injections of the adrenal cortical hormone were in some cases preceded—in other cases replaced—by injections of a preparation of similar appearance, a suspension of cholesterol. The times when the control solution and the adrenal hormone were interchanged were unknown to the patients and were for five weeks unknown even to the three clinical workers who were evaluating the results. When injections of the control solution were first administered for a few days, no outstanding clinical or biochemical alterations occurred until these injections were replaced by injections of the hormone. Likewise, when the adrenal hormone was replaced by the control preparation articular and muscular symptoms recurred within a few days and sedimentation rates rose. The changes in the function of joints and muscles were also demonstrated by motion pictures taken before, during, and after the administration of the adrenal cortical or the pituitary adrenocorticotropic hormone.

After the Congress a few of the delegates visited the Mayo Clinic by invitation and were privileged to see a new series of cases of severe rheumatoid arthritis started on this compound. After only three days one stated that she was completely symptom-free, all objective tests being negative. At the end of a week all three appeared to be functionally normal and had remained so for several days after injections were stopped. The difficulty in synthesizing this substance, as well as the occasional occurrence of undesirable side-effects, however, ensure that it will not be available for anything but well-controlled experimental work for some time to come.

Pituitary-adrenal Function

Another paper of the highest importance dealt with the possible relationship of pituitary-adrenal function to rheumatoid arthritis. Its authors, Professor G. W. Thorn (of Harvard) and Drs. P. H. Forsham, J. E. Warren, and T. B. Bayles, reported that the pituitary adrenocorticotropic hormone (ACTH, Armour) in normal subjects and in patients with intact adrenals stimulates the secretion of electrolyte-regulating, carbohydrate-regulating, and androgenic adrenal steroids. A fall in the level of circulating eosinophils (direct determination) and an increase in the urinary excretion of uric acid represent sensitive indicators of the increased secretion of 11-oxy adrenal steroids. With the eosinophil change as a reflection of adrenal cortical function, patients with rheumatoid arthritis, rheumatic fever, and gout have been investigated by administering pituitary ACTH. The initial eosinophil level was found to provide a simple measure of adrenal cortical activity in selected instances. The response to ACTH is a semi-quantitative method of estimating the reserve capacity of the gland. Actions whereby adrenal steroids may modify the course of disease were discussed. Of particular interest is the fact that the pituitary-adrenal system serves as a link between the effect of psychological and emotional factors and measurable changes in metabolic processes.

Endocrines and Ageing of Tissues

Drs. Martin Silberberg and Ruth Silberberg spoke on the effect of endocrines on articular tissues and their relation to ageing processes. They reported that the growth processes and regressive changes occur spontaneously in the articular tissues of ageing mice. The changes manifest themselves in hyperplasia and hypertrophy as well as in destruction of the articular cartilage, outgrowth of bone, swelling or fibrinoid change of the interstitial substance of the ligaments, mucoid change or proliferation of the synovia, and fibrosis of the bone marrow. These age changes differ in different strains of mice; they are genetically determined as to their onset, incidence, and severity, and are controlled by endocrine secretions. Moreover, the course of these age changes may be influenced by nutritional factors. Administration of thyroid or sex hormones delays the time of appearance of the age changes in the articular tissues and decreases their incidence. Conversely, joint lesions can be produced in laboratory animals by the administration of anterior hypophyseal hormone or by removal of the sex glands. The changes thus produced are morphologically indistinguishable from those occurring spontaneously, although the former appear at an earlier age and are more frequent than the latter. Some data on the effects of certain nutritional factors on the articular tissues, in particular of a high fat diet, were integrated with the aforementioned findings. It seemed from the discussion which followed this paper that endocrine secretions may be involved not only in the pathogenesis of rheumatoid arthritis but also in certain types of degenerative joint disease.

New Work on Gout

Gout has been the subject of intensive study in the last few years, and there is now strong evidence of adrenocortical dysfunction as a controlling factor. An important paper was read by W. Q. Wolfson, R. Levine, C. Cohn, E. F. Rosenberg, H. D. Hunt, and H. S. Guterman, of Chicago, reporting their studies in this field. These seem to provide evidence for the existence of two types of adrenocortical dysfunction in gout.

1. In gout, biological androgen activity appears to be maintained by an abnormal male sex hormone which when metabolized contributes only slightly to urinary 17-ketosteroid excretion. Similar findings are not observed in non-gouty hyperuricaemia or in rheumatoid arthritis. This "gouty androgen" appears to originate in the adrenal cortex and to be secreted under the same conditions as normal androgen, and to be oestrogen-opposed. It appears probable that the normal sex differential in plasma urate concentration is controlled by normal androgen and that gouty hyperuricaemia is controlled by the "gouty androgen."

2. An acute relative adrenocortical hypofunction with respect to 11-oxysteroid production appears to provide the prodromal setting for the attack of acute gouty arthritis. This relative deficiency may result from endogenous cyclic metabolic changes, from increased peripheral demand for 11-oxysteroid due to certain varieties of stress, or from the withdrawal of adrenocorticotropin. Alterations in serum cholesterol concentration suggest that this prodromal relative deficiency of 11-oxysteroid secretion may be associated with increased production of other unidentified adrenal steroids. Spontaneous or induced increases in 11-oxysteroid production appear to tend to terminate the attack of acute gouty arthritis.

It appears reasonable to assume that production of an abnormal androgen by the adrenal and the deficient response of the gland to increased demand for 11-oxysteroid are not independent defects but two aspects of a single underlying metabolic disturbance in gout.

Another important paper amplifying and extending these fundamental observations came from Ann Arbor University, Michigan—the role of the anterior pituitary and adrenal cortex in urate metabolism and in gout, by W. D. Robinson, W. Conn, D. Block, H. Louis, and J. Katz. These endocrine factors have been studied by observing (1) the effect of adrenocorticotropic hormone (ACTH) on urate metabolism in normal and gouty patients and on the course of acute gout; (2) 17-ketosteroid excretion in gouty patients; (3) the effects on metabolism and clinical gout produced by stimulating the anterior pituitary with epinephrine; and (4) the effect of colchicine on the pituitary-adrenocortical mechanism. In addition to blood and urine urate determinations by a specific enzymatic method other indices of pituitary-adrenocortical activity were followed.

ACTH produces a marked increase in urate excretion in normal individuals, without a significant fall in blood ur The chief differences in a gouty patient given ACTH d

an asymptomatic period were a sharp decrease in true blood urate to less than 50% of the base-line levels and the absence of any evidence of rebound in pituitary-adrenocortical activity in the post-injection period; acute gout developed on the third post-injection day. Acute gout following tophectomy was not associated with any evident change in adrenocortical function. Injection of ACTH resulted in prompt temporary amelioration of symptoms on two occasions, and was followed by indications of adrenocortical stimulation. Epinephrine in doses of 1.5 mg. intravenously had no effect on acute gout. When it was given to an asymptomatic gout patient intravenously or intramuscularly in divided doses of 6 mg. daily, no metabolic effects were noted except a decrease in eosinophils. Twenty-six determinations of 17-ketosteroid excretion in 10 patients with gout gave values consistently lower than normal, during both attacks and interval periods. Colchicine in doses of 4 to 5 mg. orally and 2.0 mg. intravenously produced no change in eosinophil counts or nitrogen balance in patients with gout. Effects on blood and urine urate levels were inconsistent.

Tentative conclusions to date are (1) the adrenal cortex has a profound influence on urate metabolism; (2) its effect in gouty patients differs from that in normal subjects; (3) gout is characterized by a low excretion of 17-ketosteroids; (4) the adrenal cortex of gouty patients can respond to stimulation both during interval periods and at times of acute attacks. There is suggestive but not conclusive evidence that acute attacks tend to occur at times of decreased adrenocortical activity. Epinephrine appears to be an unsatisfactory method of stimulating pituitary-adrenocortical activity in gouty patients. The mode of action of colchicine through an endocrine mechanism has not yet been established.

Familial Gout

The familial aspects of gout were also reassessed in the light of modern knowledge by Professor J. H. Talbott. Gouty arthritis has long been identified as one of the diseases with a high familial incidence. Scudmore, in the first quarter of the nineteenth century, reported a paternal incidence of gout in 87% of patients who admitted a family history of this disease. Only recently, however, has the subject been studied as a genealogical problem with social and preventive implications. This has been possible in part because of the development of satisfactory methods for the determination of uric acid in serum. This in turn has permitted the accumulation of statistical data of the concentration of serum uric acid in the general population as well as in patients known to be suffering from gouty arthritis.

In the absence of certain obvious disturbances such as renal disease and leukaemia, etc., most non-gouty persons have a serum uric acid of less than 6 mg. per 100 ml., while gouty persons have a concentration above this level. The borderline between normal and gouty persons may be slightly lower in females than in males. Three series of gouty patients and non-affected relatives have been studied in recent years. These researches have been pursued in Ann Arbor, Cleveland, and Boston, respectively. The fourth series is now being investigated in Buffalo. The results are similar and the tentative conclusions significant. Approximately 25% of non-affected relatives of gouty patients have a hyperuricaemia when sampled at random ages. Presumably this percentage decreases in each decade of life, since an occasional non-affected relative with hyperuricaemia will develop gouty arthritis and will no longer be classified as a non-affected relative. The age at which hyperuricaemia appears has not been determined; possibly it is associated with puberty. The statistical evidence suggests that hyperuricaemia in gouty families is a single autosomal dominant gene. The mechanism whereby the dominant manifests itself is still uncertain. The strength of the dominant—i.e., the degree of elevation of serum uric acid—the duration of the metabolic dyscrasia, or an as yet unrecognized factor may each participate. As a problem in preventive medicine, or more appropriately anticipatory medicine, an enlightened approach to the care of gouty families would be the periodic examination of the serum of all relatives of gouty patients. These familial studies lend support to the hypothesis that the pathogenesis of gouty arthritis is related to an increased formation of uric acid by the body rather than to an impaired excretion.

Rheumatism a Social Problem

Dr. E. T. Conybeare, representing the British Ministry of Health, outlined the system on which it is proposed to tackle the problem of the rheumatic diseases under the National Health Service. He pointed out that the present reluctance of the medical staffs of a majority of the English teaching hospitals, and in particular of their specialist physicians, to accept rheumatology as a diagnostic and therapeutic specialty of proved value to patients and students may be regarded as the chief administrative difficulty in developing better medical care for rheumatic patients under the British National Health Service. The reasons for this attitude were discussed and suggestions made for the solution of the problem thereby presented. It appeared that in America professors of medicine were prepared to take the subject and its problems much more seriously, and considerable advances in knowledge had resulted.

Lord Horder spoke on "Rheumatism—A National Problem," and outlined the plan drawn up by the Empire Rheumatism Council to combat it. The dimensions of this problem, he said, were considerable. In Great Britain a conservative estimate of the number of adult sufferers from rheumatic disease is more than one million—or 1 in 50 of the population. The economic damage in sick pay, lost wages, and cost of treatment among the insured workers alone is £17,000,000 per annum, and this accounts for only one-third of the total population. An over-all figure of £30,000,000 would be a cautious estimate. Only by national action can this national problem be adequately dealt with. Health authorities should encourage and subsidize two types of rheumatic centres. (1) A specialized centre at a teaching hospital for diagnosis and treatment of cases referred by local centres, hospitals, or doctors; for teaching home therapy; investigation of new therapeutic methods; postgraduate courses of instruction and research. (2) Local (peripheral) treatment centres for out-patients referred by doctors. The result of such a plan would be to divide rheumatic patients into these groups: (*a*) a large section which with a very brief period of institutional treatment and a sound course of education would be enabled to carry on chiefly by simple home treatment, but would be kept under supervision by periodic visits to a treatment centre or by visits of skilled social service workers; (*b*) another large section which could secure adequate treatment, without much disturbance of normal life, by attendance for the necessary term at a local treatment centre; and (*c*) a smaller but important section which calls for treatment in hospital, rehabilitation, or for attendance at specialized treatment centres.

There is implicit in this plan the existence of some authority which would have the power to approve rheumatism clinics which satisfied the requirements deemed essential.

Rheumatoid Arthritis

Professor L. S. P. Davidson reported the results of a recent controlled investigation into the aetiology of rheumatoid arthritis by the Empire Rheumatism Council. In many previous published reports the absence of a controlled investigation into the incidence of similar factors in persons not suffering from rheumatoid arthritis makes it difficult or impossible to determine the validity of the aetiological claims made. The Scientific Advisory Committee of the Empire Rheumatism Council, believing that a properly controlled investigation into the aetiology of rheumatoid arthritis might provide clues indicating the most profitable direction for future fundamental laboratory studies, decided to devise a special method of case recording for statistical analysis which it was hoped would enable an answer to be given to some 20 aetiological questions. Five hundred cases of rheumatoid arthritis of five years' duration or less, and 500 control persons not suffering from rheumatoid arthritis comparable in regard to age, sex, and civil status, have been investigated and recorded. These records have been examined by the Council's statisticians, and the information from this investigation was summarized and will shortly be published in book form.

Dr. Charles Short, of Boston, and his colleagues presented a paper on the factors associated with the onset of rheumatoid arthritis—a statistical study of 293 patients and controls. His findings appeared to be on the whole more clear-cut

than those of the Empire Rheumatism Council. The onset of rheumatoid arthritis was usually preceded by constitutional symptoms or precipitating factors or both. Of the former the validity of fatigue and anorexia as prodromal symptoms was established. Strain, either mental or physical, and acute infections most commonly preceded the onset of arthritis, with, less frequently, exposure to cold or dampness, surgical operations, trauma, and childbirth. His data suggest that prodromal constitutional symptoms may mark the real onset, and that so-called precipitating factors merely determine a more easily recognizable phase, with articular localization of the morbid process.

The histopathology of rheumatoid arthritis, especially in the extra-articular manifestations, was discussed in a paper by Drs. Gibson and Kersley. They pointed out that further observations on synovial histology have confirmed that in early cases, before development of the Ghormley focus, diffuse plasma-cell reaction is present. By appropriate staining intra-cytoplasmic bodies, similar to those seen in myeloma, have been demonstrated in plasma cells; they are probably of protein nature. They pointed out that the nodules of rheumatoid arthritis can be clearly distinguished from those arising in rheumatic fever, though the pathology may not be dissimilar.

Other studies on the histopathology of the neuromuscular system in rheumatoid arthritis by L. Morrison, P. Catoggio, and Walter Bauer, of Boston, showed that small paravascular foci of round cells were present in the interstitial tissue of the nerves and muscles; these foci were usually in the perineurium or perimysium. The sympathetic chain was similarly affected by cellular infiltrations not only along the course of the fibres but also within the capsules of the ganglia as well. About 75% of the nerves and 65% of the muscles presented these cellular accumulations. In the muscles foci were found, whether blocks were taken from extensors or flexors, from the belly or near the tendon, from close to or far from an involved joint, from atrophied or healthy muscle. And similarly in nerves, whether motor or sensory or mixed, lesions were widely distributed. There was not much relationship between the presence of cellular accumulations on the one hand and, on the other, clinical activity of the disease, the age of the patient, and the duration of the disease. In comparing these nodular foci of round cells with those found in other disease of the connective tissue group like lupus erythematosus disseminatus, dermatomyositis, and rheumatic heart disease, it was concluded that no distinguishing diagnostic differences could be relied upon on account of overlapping pictures in the various diseases.

Further studies were presented from Sweden, America, and Chili on the electrophoretic analysis of plasma proteins, the urinary excretion of amino-acids, and a differential sheep-cell agglutination test for rheumatoid arthritis. Dr. E. G. L. Bywaters reported a "palindromic" variant of rheumatoid arthritis, from which he concluded that the separation of cases of "palindromic rheumatism" from the main body of rheumatoid arthritis may be justified on prognostic and therapeutic grounds, but that from the nosologic point of view, until further information is available about the causation of this group of diseases, we should view this type of case as a variant from the main type of rheumatoid arthritis.

Gold and Copper

The Department of Medical Physics of California University (Dr. J. J. Bertrand *et al.*) reported on the distribution of radioactive gold in the blood of animals and man. They stated that relatively small amounts of gold are held by the blood cells, the white cells containing much more per unit weight than the red cells. Most of the gold is found to be in the plasma and in a form which is chemically bound to one or several of the plasma fractions. It has been repeatedly demonstrated that soon after the intravenous injection of gold sodium thiosulphate it is present in the plasma in a form that will not dialyse through a semi-permeable membrane. At the present time work is under way by which the one or more fractions of plasma proteins which contain the gold may be identified. Dr. L. Grauirer (New York) described successful results in 8 cases of rheumatoid arthritis where gold had failed, by means of post-partum plasma, administered over a period of a year. Drs. J. Forestier, A. Certonciny, and F. Jacqueline from an experience of over 300 cases consider the indications for injections of copper salts to be as follows: (*a*) early cases of rheumatoid arthritis, where the action is quicker than that of gold salts; (*b*) resistance to gold salts (dubious results); (*c*) intolerance to gold salts (favourable results); (*d*) psoriasis arthropatica, polyarticular synovitis with effusion, and certain forms of chronic polyarticular gout. In cases where gold is tolerated, however, this substance remains the better of the two.

Ankylosing Spondylitis

Drs. Roland Davidson and Koetz, of Stanford University, California, read an interesting paper on the effect of △ 5 pregnenolone on urinary 17-ketosteroid excretion and on the symptomatology of ankylosing spondylarthritis, with a note on the results of fractionation. They report that increased urinary excretion of 17-ketosteroids has been demonstrated in ankylosing spondylarthritis in both male and female patients, and is present in early cases with little demonstrable joint change as well as in those patients who have had the disease for many years and show the typical findings of the advanced case. △ 5 pregnenolone is a steroid having several actions not characteristic of other steroids. Its chemical composition makes it a logical process material to act as a precursor of many active steroids. When normal individuals are subjected to acute stress and fatigue adrenal cortical activity is accelerated and increased rates of 17-ketosteroid excretion are observed. Pregnenolone administered under such conditions lowers the 17-kestosteroid excretion, improves performance, and combats fatigue. This steroid has not previously, they believe, been used in disease states. Its general properties, freedom from toxicity, its ability to lower urinary 17-ketosteroid excretion and to combat fatigue suggested its possible value in spondylarthritis.

Two series of cases treated by deep *x*-ray therapy were then assessed. The Canadian workers D. C. Graham, A. A. Fletcher, and Wallace Graham reported that 60% of cases received some symptomatic benefit, but they could find no evidence that the underlying disease process is affected. Severe reactions were rare, but one case developed a fatal leukaemia. Drs. F. Foster and J. Gillespie, of Boston, on the other hand, considered that in some at least of their cases the disease process had been rendered inactive, and in 88% they claimed favourable effects —more particularly in those cases treated within ten years of onset.

An important contribution to our knowledge of the role of heredity in both spondylitis and rheumatoid arthritis (these entities tend to be confused in many American statistics) was made by Drs. Robert Stecher, W. Solomon, and R. Wolpan, of Cleveland. The heredity and familial incidence of rheumatoid arthritis and spondylitis was studied by comparing the family history of patients with rheumatoid arthritis and of spondylitis with each other and with the families of several control series. Rheumatoid arthritis occurred in the fathers, mothers, and sisters of rheumatoid arthritis patients in a significantly higher proportion than it did in the relatives of patients with spondylitis or in the controls. Spondylitis occurred in the brothers and sisters of spondylitis patients and of rheumatoid arthritis patients more than it did in any other group. The figures, which had been statistically analysed and shown to be significant, were striking.

Non-articular Rheumatism

Dr. Henrick Seyfforth, of Oslo, presented a paper on the disease picture presented by chronic overstrain of the skeletal system as the result of faulty posture, occupational stresses, etc., reviewing the whole field from the angle of industrial medicine.

Dr. W. S. C. Copeman illustrated his paper on "the relationship of fibro-fatty tissue changes to certain rheumatic syndromes" with a film-strip. He showed that a completely new pathological entity appears to underly certain of these conditions, which in essence consist of a periodical shift of body fluid accompanied by tension pain. This is probably

under endocrine control, and in its later stages may give rise to actual herniation of the affected fat tissue in certain locations. Dr. O. Steinbrocker, of New York, spoke on reflex dystrophy of the extremities, basing his remarks upon a study of 98 cases, some of which he had followed up for ten years. He considered that stellate ganglion block is the most rapid therapeutic measure in such cases.

The fashionable "psychogenic" conception of certain forms of rheumatism was discussed in four major papers, the most broadly based of which was that of Dr. W. Tegner. He reviewed the problem from the standpoint of general medicine. He said that, though fundamentally the syndrome is present without physical signs of organic disease, there are many reactions which can be elicited which are of help in establishing the diagnosis. Laboratory findings and radiological examination will assist in excluding organic disease. The nature of the sensations of which the patients complain is abstruse and of great interest. It is very personal to the individual patient. The value of physiotherapy, which is so often ordered, is open to debate. The response of patients to various forms of treatment may be so bizarre as to be of diagnostic significance. The disposal of these patients presents a real problem. They are a burden to the community. Their symptoms are of value to them and are not easily dispelled. Individual psychiatry is not normally possible or helpful. Experimental work on group therapy is being carried out.

Drs. A. Walters, Wallace Graham, and H. C. Slade, of Toronto, reported that as the result of a clinical study of cases of this type they conclude that fibrositis may be a mixed entity. Factors influencing this appear to include both peripheral physical faults and central psychological abnormalities. Dr. E. Weiss, of Philadelphia, stressed the unsuspected physical causes such as brucellosis and subacute rheumatic fever which may underly the diagnosis of fibrositis. He considers, however, that a similar picture can arise solely from mental causes, of which marital problems are the most common. Dr. A. Ludwig, of New York, reported a small group of similar cases in which psycho-analysis had demonstrated a characteristic personality structure.

In the pathological sections there were several papers of interest and importance. Those on various aspects of connective tissue pathology—the key to our basic understanding of the rheumatic diseases—were contributed by such authorities as Karl Meyer and Paul Klemperer (New York) and Marian Ropes (Boston). The role of enzymes in rheumatic disease, the histological and chemical changes in skeletal muscle in normal and rheumatic subjects (J. J. Bunim *et al.*), and some new work on cardiac changes induced by certain types of streptococcus (Homer F. Swift) all attracted considerable attention, as did Dr. Douglas Collins's paper on the range of pathological reactions which can be displayed by human synovial tissues—a contribution to the study of specific lesions in which he stressed the need for caution in comparing reactions in synovial and extra-articular tissues. Dr. L. Dienes, of Boston, put forward some further work on the possible relationship of pleuro-pneumonia-like organisms to articular disease. J. H. Kellgren's address on the peripheral genesis of pain, in which he put forward new work on the many different mechanisms involved, was also the object of much interest.

After the Congress

Subsequent to the Congress in New York a party of delegates attended the American Medical Association's Annual Meeting in Atlantic City, where they listened with interest to the denunciation of "socialized medicine" contained in the presidential address which was given before nearly 12,000 medical men and women. After this they were taken on a post-convention tour to some of the chief centres of rheumatic research work. They visited Philadelphia, where they were guests of the American College of Physicians, as also of the University. From there to Boston, where the Massachusetts General Hospital, Robert B. Brigham Hospital, and other famous institutions, including Harvard University, provided scientific sessions and entertainment. The Niagara Falls and the University of Buffalo were visited *en route* (by lake steamer) to Detroit and Ann Arbor University. Next came Chicago and a fascinating practical demonstration of the effects of adrenocortical steroids on both rheumatoid arthritis and gout. From Chicago to the Middle West, to Rochester, Minnesota, where the party were hospitably entertained for three days at the Mayo Clinic under the auspices of Drs. Hench and Kendall. Some delegates remained for another week to study further work in the Rheumatism Department while most of the party proceeded to Washington. Here the heat-wave began to "get down" even the tougher delegates, and the party returned to New York after two interesting days there. The proceedings were marred by the sudden death of the president of the Congress, Professor Ralph Pemberton, whose loss will be widely felt. Dr. Loring Swaim, of Boston, deputized for him throughout.

MATERNITY AND CHILD WELFARE CONFERENCE

Effects of Legislation on Mothers and Children

The annual conference of the National Association for Maternity and Child Welfare was held at Friends' House, London, from June 22 to 24. The general theme of the six sessions was the effects of recent social legislation on mothers and children.

The conference was opened by Dr. CHARLES HILL, Secretary of the British Medical Association, who suggested that the experts in the field of social welfare and legislation were confronted with certain dangers. They were tempted, when reading the recent report of the Royal Commission on Population, to speak of potential mothers as "women of child-bearing age," and to think of children as "contributions to a population policy, also as recipients of calories, as vehicles of infectious disease, as temporary possessors of tonsils, and as a form of biological life worthy of the deepest scientific study by those of reforming mind." He was sufficiently "impertinent" to present a purely parental point of view, and, undismayed by the collection of distinguished obstetricians, administrators, and educationists he saw in front of him, to plead for an emphasis on a field of responsibility which no others could assume—namely, the responsibility which must be placed fairly and squarely on the shoulders of parents.

There was a danger, said Dr. Hill, that there might be handed over to external authority something which belonged to the parent, a danger also that, in tackling the complexities of legislation and struggling with the intricacies of administration, the simplest lessons of all might be forgotten—namely, the need for bringing home to the people—what was the secret of any population policy—that there was far more satisfaction to be found in the humdrum rearing of a family than in all the external delights which civilization had imported into this modern age.

The General-Practitioner Obstetrician and the Midwife

In the first discussion, with Sir ALLEN DALEY presiding, the opener was Dr. E. K. MACDONALD, medical officer of health for Leicester. He discussed the problem arising out of Section 23 of the National Health Service Act—of the provision by local health authorities of a midwifery service. The problem was in the relationship of the general-practitioner obstetrician and the midwife. In theory there was everything to be said for the establishment of a class of general practitioners with special experience and knowledge of midwifery, who would stand at the side of the midwife ready to help when help was needed. But the Ministry's regulations were drawn so loosely and presupposed so low a minimal standard of service for quite good remuneration that at times the patient must suffer. Dr. Macdonald referred in particular to the requirement that the general-practitioner obstetrician must give a minimum of two antenatal examinations. Did anyone feel that this was adequate? The danger was that a few general-practitioner obstetricians might be content with this low standard and, feeling it to be adequate, might not permit the midwife to do antenatal work herself, while the more conscientious practitioners, who were, of course, in the majority, would themselves

carry out a complete service of antenatal care and again exclude the midwife, whose experience would suffer.

While he welcomed the genus general-practitioner obstetrician, he felt strongly that its numbers should be restricted to practitioners who had had real experience and special training in the specialty, and that the principle of the doctor undertaking the confinement so that he might retain the remainder of the family on his list should be forgotten. He added that in Leicester there were some 2,500 domiciliary births a year and 100 general practitioners—giving an average of 25 cases, among which there would be very few "abnormals." Sufficient experience to deal with a bad abnormality could not be gained by that method, and what he would prefer was only 20 general-practitioner obstetricians, who would do all the abnormal domiciliary midwifery in the city.

Dr. BARBARA BAILEY, who continued the discussion from the point of view of a general practitioner, said that the new maternity service had been the cause of some heartburning among doctors and midwives. The difficulty arose over the question of attendance at confinement. The patient usually wanted the doctor to be there when her baby was born, because, rightly or wrongly, the question of the doctor attending the confinement was wrapped up in the patient's mind with the relief of pain. The midwife, who should be, in the words of the Working Party's report, the "practitioner of normal midwifery," felt herself relegated permanently to the position of maternity nurse. The doctor was pulled all ways—by the patient who pressed him to attend her confinement whether necessary or not, by the knowledge that he was not intended to oust the midwife from delivering the normal case, and by the feeling that attendance at a certain number of normal confinements was absolutely necessary to maintain skill and clinical judgment. It was difficult to see how the balance could be struck and good feeling maintained between midwives and doctors; yet it was vitally important that there should be good feeling in the interests of the mothers and babies. It was her own practice to be present at the majority of the confinements of her National Health Service patients, to ask the midwife to deliver the baby and herself to be responsible for the analgesia and anaesthesia as required.

In Middlesex, out of 2,760 confinements occurring during the first nine months of the new Service, a doctor attended in 2,197 cases—an astonishingly high record. These figures showed that the doctors had set themselves a more exacting standard of work than the Act required. The statutory number of antenatal examinations was insufficient. Her own experience showed that eight antenatal examinations were made of each patient; she would regard it as a retrograde step if she saw a patient only twice during pregnancy. Yet that was all that was required by the terms of the Act.

Safeguards for Mother and Child

The Minister of Health was expected to address the final session of the conference, but his place was taken by Mr. A. BLENKINSOP, M.P., Parliamentary Secretary to the Ministry. Mr. Blenkinsop also devoted some part of his remarks to the maternity medical service. In this respect, he said, Scotland had for some time past been a pioneer in the use of doctors in domiciliary confinements. It was hoped to secure a further advance by ensuring that if a doctor was needed by a midwife at the time of the confinement he should be one already conversant with the case he was handling. This would be an additional safeguard both for mother and child. But it was certainly not intended to take away the midwife's feeling of responsibility. It was felt that there was a great opportunity for partnership between midwife and doctor for the benefit of mother and child. The clinic and the centre had a great part still to play, and here again it was certainly not desired to see any diminution of the vital work the clinics had to carry out. There was room for much voluntary work in antenatal supervision, advice on diet, and education for motherhood. The Ministry desired to see the most effective co-operation between doctor, midwife, clinic, and health visitor. This meant that there must be close liaison between the regional hospital boards, the local health authorities, and the executive councils. Mr. Blenkinsop concluded with some remarks on vaccination and immunization. The Ministry was concerned at the fall in the percentage of children vaccinated since the ending of compulsory vaccination. Recent events had underlined the importance of taking proper precautions early. With rapid modern transport there still might occur small outbreaks of smallpox which caused a great deal of worry and concern to large numbers of people.

In reply to a remark by a member of the audience that, while a great deal of lip-service was paid to maternity and child welfare, medical officers were being driven out of the service owing to the salaries offered, Mr. Blenkinsop said that he could not enter into a discussion on the salaries of medical officers of health. He gathered that the medical officers had put in a claim; he was afraid a great many other people were putting in claims at the moment.

Nova et Vetera

HISTORY OF A SPECIALTY

A History of Oto-Laryngology. By R. Scott Stevenson, M.D., F.R.C.S.Ed., and Douglas Guthrie, M.D., F.R.C.S.Ed. (Pp. 155; illustrated. 17s. 6d.) Edinburgh: E. and S. Livingstone. 1949.

The compilation of a history of even a small section of medicine entails a great deal of reading, with separation of the relevant from the irrelevant. In this discrimination the authors have fully succeeded, and they have reviewed references as far back as 3500 B.C.

It is clear that no real advances in the study of the ear, nose, and throat could take place until anatomy was taken seriously, as it was in the sixteenth century with the studies of Vesalius, Leonardo da Vinci, Eustachius, and Fallopius. The seventeenth and eighteenth centuries saw such important workers as Willis, who showed that the seventh nerve was different from the eighth; Valsalva, who observed fixation of the stapes in the oval window; and Scarpa, who described the saccule and utricle in 1789. All these discoveries were remarkable in the absence of modern aids to research. In the nineteenth century, when otology became a science, a galaxy of talented observers arose from all parts of the world. There was Helmholtz in 1862, with his "Sensations of Tone"; Flourens in 1830, and his work on the semicircular canals; Breuer in 1874, who noted that rotation caused movements of the head in animals and nystagmus in men; and that trio, Weber, Rinne, and Schwabach, whose names are still applied to tests to-day. Though a quack, Curtis made a fortune and founded what became the Royal Ear Hospital; he died in poverty

After an account of these workers comes the story of James Yearsley, Toynbee, who was aural surgeon to St. Mary's Hospital (which has the distinction of being the first general hospital to allot beds to the specialty), and Sir William Wilde, of Dublin. There follows an interesting chapter on the education of the deaf down the years.

It is a matter of interest that laryngology did not progress at the pace of otology, but once established it went ahead rapidly. Though Garcia is hailed as the founder of laryngology (he saw his own cords by means of mirrors in 1855) it is satisfactory to read that Benjamin Guy Babington is credited with the invention of his "glottiscope" in 1829, though the authors throw doubt on his having seen the vocal cords. Physick, of Philadelphia, is named the father of American surgery; in 1820 he published an account of his method of removing tonsils by means of a snare, suggesting this was original. The modern sections are crowded with the names of well-known figures, many of whom will be known in person by readers.

This is a most readable volume of great interest to ear-nose-and-throat surgeons, and indeed to all those who enjoy medical history.

W. M. MOLLISON.

The *Daily Telegraph* (July 1) reports that Lloyd's underwriters will now insure anyone against contracting certain infectious diseases. This is a development of a scheme introduced during the epidemic of poliomyelitis in 1947.

ONE HUNDRED AND SEVENTEENTH ANNUAL MEETING

of the

British Medical Association

HARROGATE, JUNE 28 TO JULY 1, 1949

THE SECTIONS

SUMMARY OF PROCEEDINGS

In subsequent issues there will be printed in the BRITISH MEDICAL JOURNAL *a few of the opening papers read at the Scientific Sections. All the papers will be published in full in a separate volume of Proceedings. The reports of the discussions, concluded in this issue, are intended to give members who were not present a general idea of the proceedings.*

SECTION OF ANATOMY

Tuesday, June 28

Structure and Function of Muscle

With Professor JOHN KIRK (London), the president, in the chair, Professor W. T. ASTBURY (Leeds) opened the discussion on the structure and function of muscle by considering muscle as a molecular machine. Studies of muscle protein by *x*-ray diffraction analysis had shown that pure myosin had essentially the same structure as whole muscle itself, and that molecules of myosin were oriented in the direction of the myofibrils. Myosin seemed to be the seat of the contractile properties of muscle. Closely similar diffraction pictures were given by keratin of hair or wool, so that these molecules appeared to belong to the same family of elastic proteins. Recent work, too, had shown that the protein of bacterial flagella had a similar structure. The essential characteristic of all these proteins was that they could alter their molecular length and form. Even in the resting relaxed state they were in a folded configuration, but they could be pulled out into a more extended form or become more folded still. The molecules in india-rubber were somewhat different in that they were ordinarily coiled up in a complex manner, though they too could be pulled out into a chainlike form. The folding of hair and muscle protein was more regular than in the case of rubber. It was possible to make the protein of hair supercontractile so that a hair might contract to half its ordinary length. It would seem then that the basis of elasticity of hair, muscle, and india-rubber was essentially the same—a straightening out of already folded-up molecular chains with the resumption of the initial state when the extending force was removed. Professor Astbury showed electron photomicrographs of myofibrils which he had recently received from Draper and Hodge in Australia. Such work suggested that actual shortening of the contractile elements of the myofibril took place at the molecular level, and thus was not to be observed with the electron microscope but only by the indirect method of *x*-ray diffraction analysis.

Although myosin was now believed to be the actual substance which became shortened at the molecular level during muscular contraction, the work of Szent Györgyi and his colleagues had shown that there was another contractile protein present in muscle—"actin." That, too, could be prepared pure and studied by the electron microscope and by diffraction analysis. Actin could exist in a corpuscular form as a series of discrete rounded particles, and also assume a fibrous form by the joining together of these elementary bodies. This change was reversible, and could be brought about by alterations in the *p*H or salt concentration of the dispersion medium. The modern view was that myosin and actin worked together in the shortening of the myofibrils. The globular (corpuscular) form of actin became converted into the chainlike filamentous form, and contracted (i.e., more folded) molecules of myosin ranged themselves alongside these filaments.

Electron microscopy with the replica technique and the method of stripping successive layers developed in the Leeds school had shown that the cross striation of the myofibrils was real enough, though the surface of the fibril opposite striations was raised, which suggested differential changes during the dehydration necessary in preparing material for electron-microscope examination. In addition to the ordinary bands there were transverse striations some 400 Å apart which might be due to local accumulations of calcium and magnesium. These bands had been studied further by micro-incineration coupled with electron microscopy. Ordinary muscle striations were not essential for muscular contraction; they were not, for example, seen in plain muscle. Their appearance was associated with the need for speed of contraction. Striations might be depots of essential materials such as calcium or magnesium placed ready for use, as barrels of tar might be ranged along the side of a road under repair. Such stores might be used up if the muscle were worked too hard, and indeed an overworked muscle did show fuzziness and displacement of the striations. The flagella of *Proteus vulgaris* were made up of macromolecules; photographs indicated a structure similar to that of myosin. Flagella were probably macromolecular hairs—the simplest possible unit. Those flagella were thinner than the rods of the tobacco mosaic virus—probably about 120 Å against the latter's 150 Å.

Dr. R. BARER (Oxford) said that the sarcoplasm of muscle fibre would escape as a jet through a rupture in the sarcolemma, and the clear fragment of membrane remaining could then be examined with the electron microscope. Minute circular dots appeared on it, but their nature was unknown. The sarcolemma was less than 0.1μ thick. Very fine collagen fibres were closely adherent to the surface of the membrane and could readily give rise to mistaken ideas about the structure of the sarcolemma if examined by the progressive stripping technique of the Leeds workers. The sarcolemma had considerable elastic strength. The old idea of Kühne that sarcoplasm itself was contractile could not be entirely dismissed. There always remained the problem of how the nervous impulse brought in at the motor end-plate was disseminated to the myofibrils. Phase-contrast microscopy suggested that the incoming nerve fibre might lose itself in the granular sarcoplasm. The myofibrils were 1–2 μ in diameter. When a muscle fibre was treated with alkaline Ringer solution the myofibrillar contraction became asynchronous, and it was then possible to study the individual fibrils.

Professor W. E. LE GROS CLARK (Oxford) said that the experiences of the war had started an investigation into the vascular pattern of different muscles from the point of view of its influence on the prospects of regeneration or survival after injury. Each muscle seemed to have its own vascular pattern. Although it would seem possible that there might be anastomoses within the muscle, injection preparations suggested that was not the case, for the anastomoses were inadequate to carry on the nutrition of any devascularized area. The tibialis anterior muscle was supplied entirely from the anterior tibial artery and was therefore more susceptible to necrosis than extensor digitorum longus or extensor hallucis longus, which received branches from the posterior tibial artery also. In a second type of vascular supply a single branch entered a muscle or a muscle belly. That was seen in the two heads of the gastrocnemius muscle, where such single branches formed virtually the whole blood supply. On that account the muscle was susceptible to necrosis. Similarly, the biceps was also liable to have its blood supply interfered with, and a case of necrosis limited to that muscle was on record.

Individual branches within a muscle might anastomose, but such anastomosis might not be adequate for continued nutrition of the muscle. It was possible that in extensive incisions into muscles carried out at operation there might result more extensive necrosis than was commonly supposed. However, muscle was able to undergo considerable regeneration—

surprising amounts of regeneration in view of the commonly held view that muscle healed by scar tissue. By producing vascular lesions and examining the partially devascularized muscle at intervals after the operation he had shown that the necrotic area, which was found after two days, was invaded in about three weeks by streams of nucleated protoplasm growing down from the uninjured muscle fibres. It was astonishing to find that in the rabbit the greater part of the tibialis anterior muscle could be replaced in that way. The empty endomysial sheaths acted as guiding channels for the protoplasmic strands in much the same way as Schwann sheaths guided regenerating nerve fibres. It would appear that protoplasm might grow out with equal vigour from both ends of a muscle fibre. However, if scar tissue became interposed in the path of the outgrowing protoplasmic strands, then they became blocked and swelled up into pools, like neuromata. In one of Dr. F. K. Sanders's preparations of regenerating nerve, regenerating muscle fibres coursed down endoneural tubes. That would suggest that it was the mechanical action of the tubes acting as guides rather than any special chemotaxis which aided the regeneration of the muscle fibres. Possibly the areas of hyaline degeneration occurring in certain muscles in the course of such diseases as typhoid fever might disappear by regenerative processes such as those described.

Dr. R. E. M. BOWDEN (London) described the histological changes taking place in human voluntary muscle at intervals after peripheral nerve injury. After six weeks there was a certain looseness of the muscle fibres, which also had a tortuous appearance. Nuclei tended to become crowded together and the myofibrils were prominent. There was increase in fat and connective tissue, but there was no fat *within* muscle fibres, nor did there appear to be fibrous metaplasia of muscle tissue. Even 26 years after denervation there were still "ghosts" of muscle fibres to be seen. Motor end-plates could be recognized up to nine months after division of a peripheral motor nerve. Blood vessels in the muscle changed, the intima and media becoming thickened and perivascular leucocytic infiltrations appearing. In a favourable type of nerve injury with preserved Schwann tubes nerve fibres could be found struggling across fibrous tissue towards the original motor end-plates when regeneration was taking place, a finding in agreement with the experimental work of Young and Guttman on the possible regeneration of motor end-plates.

As to electromyographic changes shown by denervated human muscle, fibrillation action potentials began to appear 10 days to 4 weeks after denervation. Fibrillation potentials might make their appearance only on attempting voluntary movement. It seemed that the higher a nerve lesion the more rapid the rate of recovery—a finding in accordance with Young's theory of an axonic *vis a tergo* from the cell body being the basis of nerve-fibre regeneration.

Mr. W. F. FLOYD (London) said that fibrillation action potentials seemed to be the units of which ordinary activity was made up. The latter was due to random temporal distribution—i.e., an asynchronous firing-off of the individual motor units. It had to be remembered always that the electrical disturbance was over when the actual wave of muscular contraction took place. The introduction of the needle electrode into a muscle led to a burst of electrical activity—"insertion potentials"—ordinarily of very short duration, but in cases of myotonia atrophica it might last two seconds or more. Tapping a muscle also caused an outburst of electrical activity, which again was prolonged in myotonia. In that condition, too, gentle palpation of a muscle had the same effect. Characteristically, there was a persistence of action potentials after the cessation of stimulation, and that persistence might go on for three or four seconds. The phenomena were not made to disappear by curare. The disease could not, therefore, be one which affected the motor end-plate. It had been found than intravenous procaine modified greatly the myototic response of myotonic muscles.

In the discussion which followed cases were alluded to in which muscular spasm was unaccompanied by any electrical record. It was also pointed out that in the case of heart muscle the electrical manifestations did not necessarily parallel the degree of muscular contraction.

SECTION OF MEDICINE

Thursday, June 30

Streptomycin

With the vice-president, Professor H. W. FULLERTON (Aberdeen) in the chair, Dr. GEOFFREY MARSHALL (London) read a paper on streptomycin. In cases of tuberculous meningitis the drug had been given intrathecally and intramuscularly daily for one month, after which an interval of a week was allowed. This was followed by 48-hourly dosage, continued for at least three months and probably six months. As a result 30% of the children over the age of 3 had been cured; many had survived for a period, maimed either by deafness, blindness, or paresis, but most of these patients had died within a year. In only three cases had resistant strains of tubercle bacilli developed.

There had been fashions in the treatment of pulmonary tuberculosis. They had shown how difficult it was to assess results in this disease. Controls were necessary. It was decided to use streptomycin in patients between the ages of 15 and 30 in whom the disease was of not more than 12 months' duration and of exudative type, where cavitation was not the dominant feature, whose sputum was positive, and pyrexia was present. The cases and controls were selected by a statistician with the usual precautions. Some patients died during the period of observation and were therefore omitted from the series, which left 55 treated cases and 52 controls. The treatment lasted four months and was followed by two months' observation. As a result 69% of the treated cases were improved, against 33% of the controls. He emphasized how well some of the controls had done. They had become apyrexial and even put on a stone in weight. Of the treated patients 7% died during the period of observation, of the controls 27%.

There appeared to be two disadvantages: first, the development of resistant strains of tubercle bacilli, and secondly the effect of the drug on the vestibular mechanism of the body, producing ataxia. In non-tuberculous disease of the lung the drug was particularly effective against *Ps. pyocyanea*, but unfortunately resistance developed within a very short time.

Professor ROBERT CRUICKSHANK (London) said that using the drug had caused the development of more accurate methods for the demonstration of the tubercle bacillus and estimating its sensitivity to streptomycin. The examination of smears was inadequate, and culture had become essential. To achieve this it was necessary to render the sputum homogeneous and to kill other organisms that might be present. The usual method of doing this involved treatment with N/1 NaOH for 20–30 minutes at 37° C. But this was not very satisfactory, since many tubercle bacilli were killed with the other organisms. The method known as Jungmann's acid-iron-peroxide method was the best.

With regard to medium, if egg was used it should be made from fresh eggs and must be sown within three months. The du Boss medium, made with bovine albumin, which protected the tubercle bacillus, was most effective, and it could be made into a solid plate by the addition of agar. It might even render homogenization unnecessary, since penicillin and sulphonamides could be incorporated to prevent the growth of secondary organisms. He hoped that fungicides might also be added. A rapid test of sensitivity could be developed by sowing two plates, one as already described and the other containing streptomycin.

Strains that became highly resistant were in patients who had a poor tissue resistance and invariably did badly. The degree of resistance therefore could be used to some extent in assessing the prognosis. Low chloride in the cerebrospinal fluid was not of value in determining the early stage of meningitis, but on the other hand the sugar value was of great importance; in no case was it found above 50 mg. per 100 ml. In non-tuberculous disease the drug had been most effective in cases of *H. influenzae* meningitis, but all organisms became very rapidly resistant.

Dr. KENNETH PERRY (London) referred to the use of streptomycin in thoracoplasty. Started three days before the operation, it had not proved a very successful umbrella in

preventing spread of infection, though it was most effective in treating it. The optimum time for inducing an artificial pneumothorax for the purpose of closing cavities in the more acute case was three or four weeks after the start of streptomycin therapy.

Dr. MARSHALL, replying to questions, said that he considered the use of streptomycin in clear pleural effusion was wrong, since there was no method of determining which might subsequently develop pulmonary tuberculosis or indeed which were tuberculous; and, further, its use would be likely to produce resistant pulmonary disease. It was found to be not as effective when inhaled as when injected intramuscularly. It had not proved very effective in the treatment of pyothorax, though it was very good when the Semb space was infected.

Radioactive Substances

Dr. R. R. BOMFORD (London) then took the chair, and Dr. RUSSELL FRASER (London) read a paper on radioactive isotopes. These were most useful at present in physiology and experimental medicine, where they could be used for tagging substances either given by mouth or injected intravenously, so that they could be traced through the body. It must be remembered that the patient was given irradiation, and the proper protection was necessary. No patient was given more than 0.01 r in a day. This was quite safe; 25 r was given in a local exposure when a barium meal was performed. Some isotopes were more useful than others. Calcium could not be used, because of its long half-life; conversely, the rays of nitrogen were soft and its half-life was very short. Radioactive iodine was one of the best, since its half-life of eight days was not too long to be dangerous and not so short that it could not be measured.

Isotopes could be used in treatment. Many thyroid cancers did not concentrate iodine, but several did. In the latter radiation could be given to the right place in greater concentration than by any other method. Radioactive phosphorus was very effective in the treatment of chronic leukaemias and polycythaemia. Isotopes might also be given in insoluble materials for the local treatment of accessible carcinomata such as those of the breast.

In diagnosis radioactive iodine could be most useful in showing whether or not a retrosternal tumour concentrated iodine, and so whether or not it was a retrosternal goitre.

To aid the diagnosis of thyrotoxicosis and myxoedema the concentration of radioactive iodine might be measured in the gland itself, in plasma as the percentage of dose per litre, and in urine as the percentage of dose excreted. In the plasma the concentration was weak and therefore not easily measured. In the urine it could usefully be measured as the amount excreted over 48 hours or over different periods, such as 8–12 hours after the injection. In thyrotoxicosis the excretion curve fell rapidly and then flattened out, while the reverse was true in myxoedema. Broadly speaking, the less radioactive iodine in the urine specimen between 8 and 12 hours, the higher the basal metabolic rate.

Radioactive iodine might also be used in indicating the iodine content of histological material obtained from the thyroid gland. Contrary to what has been stated, there was no evidence that the pituitary concentrates iodine.

Anticoagulants

Professor H. W. FULLERTON (Aberdeen) then read a paper on anticoagulants. There was little doubt of the value of heparin in the prevention of arterial and venous thrombosis, but the expense of the drug and the necessity for giving it intravenously had confined its use to hospital. The clotting time should be kept at 30 minutes, and this was rarely attained by dosage less than 75–100 mg. every four hours. It was obtained by a continuous intravenous drip, and could therefore be used only for a few days. Dicoumarol, which can be given by mouth and which lowered the prothrombin concentration, was becoming more firmly established in the treatment of venous thrombosis and coronary infarction. The American Heart Association had recently compared the results of treating 386 patients with the latter disease by conventional methods with those of treating 432 patients with conventional therapy plus dicoumarol. Of the control group 24% died, whereas of the dicoumarol group only 14.9% died. Of the control group 25% had one or more thrombotic complications (secondary myocardial infarct; pulmonary, cerebral, or peripheral emboli; venous thrombosis), whereas only 12% of treated cases were so affected.

No uniform scheme of dosage can be applied, and each individual needed to be controlled by a regular estimation of the plasma prothrombin, otherwise there was great danger from haemorrhage. Plasma lipoid played an important part in coagulation which had not previously been recognized. While the venom-and-lecithin method was the most accurate for prothrombin estimation, the venom alone gave a more accurate method of estimating coagulability, which was much influenced by the amount of fat in the diet. In dicoumarol therapy, while the prothrombin in the blood was lowered the lipoid activator was increased. He therefore thought that the venom test was the best for controlling this therapy. He usually gave 350 mg. on the first day, 200 mg. on the next day, and then endeavoured to keep the accelerated clotting time by the venom test at 40 seconds. There were no definite rules about how this should be done; not only should the accelerating clotting time be noted but also the speed at which it was rising. When haemorrhage occurred it was frequently in the form of haematuria and was controlled by transfusion.

Professor A. P. THOMPSON (Birmingham) said that he had treated patients with heparin by intravenous drip with success, and he felt it was safer than dicoumarol. With this drug he had had two deaths: in one there was a suprarenal haemorrhage; many sub-pleural and sub-endothelial haemorrhages had been a feature at the necropsies.

Professor R. E. TUNBRIDGE (Leeds) recorded a case he had seen where a patient had died although the prothrombin time had been normal; the necropsy revealed many small endothelial haemorrhages and small haemorrhages in many organs.

Professor FULLERTON in reply agreed that heparin was much safer than dicoumarol, but it could not be given for the month or six weeks necessary for the treatment of coronary thrombosis.

SECTION OF PATHOLOGY AND BACTERIOLOGY

Thursday, June 30

Chemotherapy in the Treatment of Malignant Disease

The discussion on chemotherapy in the treatment of malignant disease was introduced by Professor E. C. DODDS (London), who pointed out the obstacles to a rational approach to this problem, since the cause of the disease was still unknown. A great variety of chemotherapeutic agents had been tried, and the most hopeful of these fell into two main groups: (1) substances inhibiting the growth of tumours indirectly by their effect on the host background, and (2) substances with a directly toxic action on malignant cells.

In the first group stilboestrol was the outstanding example, and had been used in the treatment of carcinoma of the prostate with remarkably successful results, although claims for complete cure could not be substantiated. In the second group of cytotoxic agents, of which urethane and the nitrogen mustards were examples, the margin between the therapeutically effective and the toxic dose was small. These substances acted directly on cancer cells.

A new approach had been made with the use of anti-folic-acid compounds which, since folic acid was an essential requirement for neoplastic growth, suppressed selectively the growth of tumour and leukaemic cells. Encouraging results had been obtained with these compounds in the treatment of spontaneous and transplanted tumours in animals, but more work was needed to assess their clinical value.

Professor A. HADDOW (London) restricted his remarks to one type of substance of chemotherapeutic interest with a direct action on the tumour cell. This was a new series of some 200 compounds, mainly aromatic nitrogen mustards or analogous substances. He was representing a team of workers that included G. A. R. Kon, W. C. J. Ross, P. C. Koller, A. Loveless

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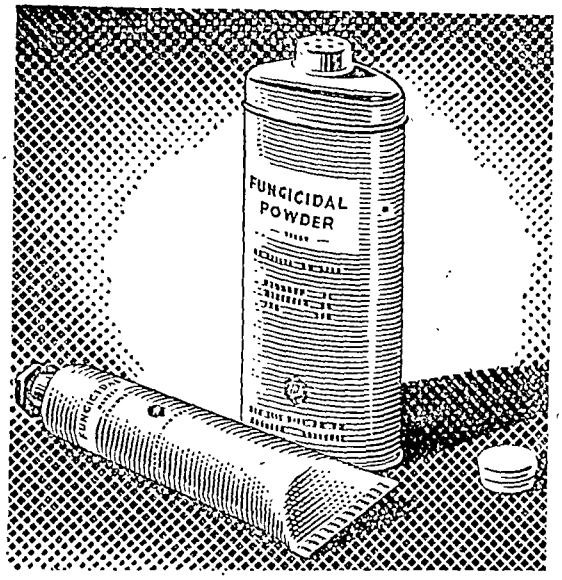
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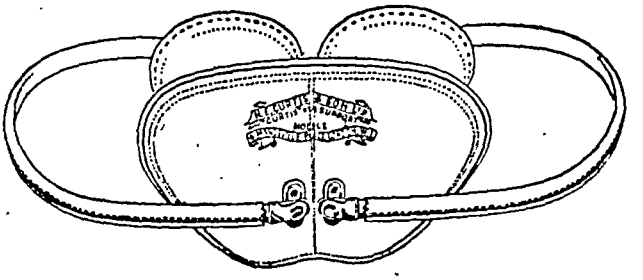
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E. S. Horning, and R. J. Goldacre. While it seemed not unreasonable to expect improved therapeutic efficiency from chemical modification of the aliphatic types so far employed, clinical trial of a few new types, especially the *bis*-chloroethyl derivative of β-naphthylamine, indicated that therapeutic effects were still largely confined to those tumour types—especially Hodgkin's disease—which were most responsive to the aliphatic chloroethylamines. The new aromatic substances had, however, some practical advantage in that they could be readily administered by mouth for considerable periods. Examples were shown of the clinical responses obtained, especially in Hodgkin's disease, chronic lymphatic leukaemia, and plasmocytoma.

That the action of such substances was largely a direct one on the cell was illustrated by cytological evidence—induction of nucleic-acid-deficient zones in the chromosome, chromosome breaks, defects of chromosome spiralization, anaphase bridges, and ejection of fragmented chromatin into the cytoplasm in the form of micronuclei. The significant effect was believed to be produced in the resting stage, with consequent damage to the mechanism of mitosis which became evident cytologically only in the course of cell division; such damage tended to augment in successive divisions until the cell was no longer viable.

Both the clinical responses and cytological effects induced by these substances clearly illustrated their radiomimetric character, and this was further seen in the damage which they inflicted upon cell division in the bone marrow and testis, and in the characteristic and permanent bleaching of pigmented hair in the areas overlying the site of subcutaneous injection: the last effect was quite indistinguishable from a similar effect produced by irradiation with *x* rays or the subcutaneous injection of plutonium.

Since *x* rays and other agents with similar growth-inhibitory properties were known to be carcinogenic, it became important to decide whether the new aromatic mustards were endowed with the same property. Extensive biological tests had now shown this to be so. Examples were shown of sarcomata induced at the site of subcutaneous injection, and there was evidence that these substances were also active by mouth and so might induce carcinomata in the intestinal tract. Many of the induced sarcomata were of exceptional interest on account of their high incidence of cytological abnormality, a feature which appeared to be characteristic and was maintained on transplantation over many generations. Professor Haddow went on to discuss the mode of action of these new chemically active substances on the cell and looked forward to the eventual prospect of correlating the chemical properties of a carcinogen with the chemical and genetic properties of particular chromosome regions. He concluded that the frontal attack on the chemotherapy of cancer was not likely to be the most successful, since workers were inevitably drawn back to questions of the mechanism of carcinogenesis, questions which were more fundamental and hence more fruitful in the long run.

Professor F. DICKENS (London) discussed the use of folic acid antagonists in experimental cancer therapy. Folic acid as a member of the B group of vitamins was essential for cell growth, being particularly concerned with haemopoiesis and probably with the synthesis of nucleic acids and related compounds. Actively growing cells, such as bone marrow and intestinal mucosa, had a special need for folic acid, which was also the vitamin present at the highest relative level in neoplasms. It therefore seemed logical to attempt the suppression of tumour growth by anti-folic-acid compounds such as aminopterin and anethopterin.

Professor Dickens and his colleagues had tested the effect of both folic acid derivatives and anti-folic acid substances in the treatment of mammary adenocarcinoma in mice. With the former group they failed to obtain inhibition or regression of tumour growth, but with anethopterin, given daily by intraperitoneal injections, only two of six mice tumours grew in the same way as in the control animals. Two tumours which had regressed started to grow again and two regressed completely. The treated animals showed pronounced leucopenia and haemoconcentration associated with diarrhoea. Larger groups of mice were now under test.

Sir STANFORD CADE (London) described his experience with both cytotoxic substances and hormones in the treatment of clinical cases. The nitrogen mustards had produced striking improvement in Hodgkin's disease and other reticuloses, and were particularly valuable in cases which had become resistant to *x* rays, but patients who relapsed usually failed to respond to a second course. Urethane was useful in chronic leukaemia, and had the advantage that the maintenance dose could be continued for years. Aminopterin, the anti-folic-acid compound, had been given in acute and chronic leukaemias (lymphatic, myelogenous and monocytic). It acted on both normal and abnormal blood cells and could reduce the total leucocyte count to very small numbers remarkably quickly, but the effect was only temporary.

Discussing the use of hormones, Sir Stanford Cade said that about 10% of prostatic cancers failed to respond to stilboestrol; a very large dosage had no advantages. He had employed both oestrogens and androgens in the treatment of mammary cancer; only oestrogens were effective in male mammary cancer, and in women they should not be given until ten or more years after the menopause. Testosterone was particularly effective against metastases in bone in female mammary cancer; by controlling tumour growth and allowing bone replacement it gave marked relief of symptoms. The tendency to masculinization was not related to dosage. There were no significant blood changes, although hypercalcaemia had been reported and there was an excessive excretion of 17-ketosteroids during treatment.

In the general discussion which followed, Professor R. J. V. PULVERTAFT, the president of the Section, pointed out the analogy between the events of carcinogenesis as described by Professor Haddow and the induction of adaptive modifications in bacteria. Professor HADDOW agreed, and stated that in fact many of the induced tumours had proved on test to be quite insensitive to the cytotoxic action of the compounds used to induce them.

SECTIONS OF SURGERY AND NEUROLOGY AND PSYCHIATRY

Thursday, June 30

Head Injury

With Mr. T. V. PEARCE (Harrogate) and Mr. W. R. HENDERSON (Leeds) presiding, Mr. G. F. ROWBOTHAM (Newcastle) opened a discussion, in the absence of Professor Norman Dott owing to illness, on the treatment, after-treatment, and sequelae of closed injuries to the head. Speaking of the diagnosis and management of the acute stage, he said that head injuries might provide difficult problems in diagnosis. Distortion of the brain was the essential lesion, and the whole brain was involved. Associated injuries must not be overlooked, and they might complicate the clinical picture; injuries to the cervical vertebrae were specially important. He distinguished between the intrinsic injury to the brain (contusion, laceration, diffuse neuronal injury) and the many complications which might develop. The intrinsic lesion might be overwhelming and cause death, but more attention to, and study of, the extrinsic complications should lead to lives being saved.

Careful supervision and nursing were required in the acute stage. Attention to feeding, bowels, bladder, skin, mouth, and eyes were specially important, while restlessness required treatment. It was difficult to know how often secondary complications occurred, or to visualize what was going on within the skull. Nevertheless, if they could control the complications they would save many lives. From studying post-mortem material he believed that even a thin layer of extra-dural blood could turn the scales and cause death. If consciousness was returning, operative interference was rarely required. Dehydration played no part in treatment. When there was grave doubt about the advisability of operation he advocated an exploratory trephine or "inspection hole" so that the site of possible intracranial haemorrhage could be looked at. He stressed the dangers of inadequate debridement of scalp wounds; this might lead to serious intracranial complications.

Dr. W. RITCHIE RUSSELL (Oxford) emphasized the difficulty at necropsy of knowing whether the visible abnormalities were in fact the cause of death. Most cases of head injury did well on "sheer neglect," but perhaps 20% required help with

rehabilitation. He advocated: (1) During the acute stage an environment of confident optimism, which prevented needless anxiety; (2) graduated physical exercises started early and pursued vigorously; (3) some form of advice service to which those patients could turn during convalescence.

A rehabilitation programme for the patient to attempt was helpful, and some competent person should be available to discuss matters fully with him. An early return to a few hours' work a day was specially valuable, but dangerous occupations might have to be given up for a time. Insistence on light work was often undesirable. Half a day spent at hard manual work might be much less tiring than a whole day at "light" work. An essential principle of rehabilitation was that the patient should practise those movements or activities which caused symptoms. For example, orthoptic exercises might be very helpful when reading led to blurring of vision or headache. Where disability was gross or the occupation specially dangerous the situation should be faced without delay, and if necessary a change of occupation advised. The head-injury advice bureau at Oxford had been valuable. Developments along those lines would be a useful form of preventive medicine.

Dr. E. STENGEL (London), speaking of the psychiatric aspects of head injury, said there was no phase following head injury in which the handling of the patient should not be guided by the psychiatric approach. The psychiatric approach was an attitude of mind which made one see an illness or accident as something that happened to a personality rather than to a part of the body. It also implied a distrust of uninformed common sense. They were less concerned than were their predecessors with separating the so-called functional from the organic features among the symptoms following head injuries, and aimed at stimulating the resources of the undamaged parts of the brain by rehabilitation and psychotherapy. Head injury was felt to be a psychic trauma much more than injury to almost any other part of the body. The head was the most significant part of the body image. Neurotic symptoms were apt to emerge when the ability of the personality to deal with the impact of emotional stress had suffered as the result of structural damage. He fully supported Dr. Ritchie Russell's proposal for the establishment of advice bureaux for those with head injuries, and thought that a psychiatrist versed in the problems concerned might be an asset on the staff of such a centre; he would also study the problem of accident proneness, which was part of a specific character structure.

In the discussion which followed, Mr. T. V. PEARCE said that he was surprised to find that the industrial insurance companies were not much impressed by the alleged difficulties in dealing with head injury cases. Dr. D. ENGEL described an increased permeability of the blood–brain barrier in the acute stage. Dr. HUGH GARLAND advocated care in what is said to the patient about fractures of the skull. Dr. GORDON CAMPBELL (San Francisco) referred to associated cervical lesions causing headache and even giddiness. Dr. J. G. GREENFIELD said that pontine lesions were rare, but the clinical picture in fatal cases often indicated a hypothalamic cause of death.

SECTION OF ANAESTHETICS

Thursday, June 30

Dental Anaesthesia

With Dr. H. B WILSON (Aberdeen) in the chair, the discussion on dental anaesthesia was opened by Dr. W. S. MCCONNELL (London), who said that traditionally nitrous oxide was regarded as the safest and least harmful of anaesthetics. It was therefore administered regardless of its limitations, often with poor results. Its "safety" depended on the anaesthetic being abandoned at the whim of the anaesthetist and perhaps before completion of the operation. A physiological insult was offered to a patient by using a gas whose anaesthetic potency was so low that oxygen deprivation had to be used to augment its effect. He stressed the risks of so subduing a struggling patient. Nitrous oxide was contraindicated in children, who had a large oxygen demand and small vital capacity; in large muscular men—the "ageing athlete," who might be resistant when there was any psychological intolerance of general anaesthesia; and in patients who had a pre-existing lesion, such as respiratory obstruction, lung disease, myocardial disease, or anaemia, which made anoxia dangerous. The speaker always made a point of using a strap around the patient's pelvis.

A film was then shown of the technique of continuous nasal nitrous oxide, illustrating the difficulties and their management.

Dr. STEPHEN COFFIN (London) discussed the problem of anaesthetizing children for dental extractions in the chair. They were difficult patients because of a raised metabolic rate, nervousness, and the accentuation of mechanical difficulties by a small mouth. It was important that a child's first anaesthetic should not affect adversely his reaction to future ones. Dr. Coffin preferred nasal nitrous oxide and oxygen, because, though less easy than other methods, it allowed adequate working time and had the advantages of a pleasant induction and a rapid and uneventful recovery. Premedication was not given routinely except in the younger and more nervous patients. Troubles that might occur during maintenance were: difficulty in balancing good anaesthesia and colour, rapid cyanosis in response to oxygen limitation, and mechanical difficulties which reduced the airway. He stressed the prime necessity for a human and friendly approach to dental anaesthesia in children.

Mr. BALENDRA (Ceylon), speaking as a dental surgeon, pleaded for team work so that clumsiness on the part of the dental surgeon might not upset the anaesthesia. He had devised a strap which was part of an apron and was therefore not so objectionable to the patient. He also felt it was unwise to operate on patients who had trismus. In these patients cardiac or respiratory distress appeared suddenly on opening the mouth; they should be anaesthetized lying down.

Dr. A. H. GALLEY (London) drew attention to the value of trilene for children. He used it in the Oxford vinesthene inhaler. Dr. E. F. ADAMS (Birmingham) appealed for the modification of dental apparatus so that the gas mixture could be varied by means of a foot control.

Dr. J. MCAULEY (Blackpool) found a small dose of curare more helpful in the obstreperous patient than thiopentone. Curare with cyclopropane was best for elderly patients with cardiovascular disease. Drs. G. CATHERINE EVANS (Herne Bay), G. S. W. ORGANE (London), and R. P. HARBORD (Leeds) gave examples of their own methods, and described in particular how they gained the confidence of children about to undergo dental anaesthesia.

Continuous Caudal and Peridural Analgesia

With Dr. G. S. W. ORGANE (London) in the chair, Dr. ROBERT A. HINGSON (Baltimore) outlined the history of caudal and peridural analgesia from Sicard and Cathelin in 1901 to the present day, referring in particular to the work of Lundy and Cleland. He showed the instruments he used for continuous caudal analgesia, pointing out that the sacral hiatus was easy to enter and that there were no structures other than the last sacral and coccygeal nerves which were liable to injury. The latter in any case could be cut with impunity so far as the anal sphincter was concerned. A common technical error was injecting fluid or air outside the sacrum and traumatizing the periosteum of the sacral canal, with the production of pain. No standardization of dose was possible—each must be "tailor-made" to fit the individual patient. He had used continuous caudal block to remove the sympathetic vascular tone from the lower half of the body, producing a "bloodless phlebotomy" for those conditions in which a classical phlebotomy might have been undertaken. Pulmonary oedema and eclampsia were examples of conditions in which phlebotomy had been used to treat a vasomotor crisis, and for which caudal analgesia was equally successful.

Dr. Hingson then described the use of this method in the treatment of eclampsia and showed how the sympathetic block relieved hypertension, thus reducing the work of the heart and relieving oedema. Oxygen therapy must always be used concurrently. He demonstrated Tuohy's needle, which allowed a fine catheter to be inserted into the peridural or subarachnoid space in either a cephalic or caudal direction at the wish of

the administrator. Other successful uses of the method had been in cases of chronic ulceration of the legs, thrombophlebitis, and acute arterial thrombosis. In all these cases every safeguard, and particularly oxygen, was needed.

Dr. WINIFRED PITKIN (New York), the British-born widow of the late Dr. George Pitkin, reviewed the neuro-anatomy of the parts concerned in continuous caudal block.

Caudal Analgesia in Obstetrics

Later, at a joint meeting of the Sections of Anaesthetics and Obstetrics and Gynaecology, Dr. ROBERT A. HINGSON read a paper on continuous caudal analgesia in obstetrics. He first referred to ancillary factors which helped to make women in labour more comfortable, such as air-conditioning, artistic wall decorations, music, and television. The safeguards without which he considered caudal analgesia should not be undertaken were a continuous drip infusion and oxygen therapy.

The method was not without its disadvantages from the obstetric point of view, 40% of multiparae and 80% of primiparae needing forceps delivery. The obstetrician must be prepared for this or else he should reserve caudal analgesia for those cases where forceps were going to be applied in any case. He had now managed many thousands of cases with only two maternal deaths, one due to a massive spinal injection and the other to infection following penetration of the rectum. A total of 600,000 cases had now been reported. The extent of the anaesthesia had varied from the xiphoid cartilage to the toes, the duration from one hour to weeks. He advised that hospitals should arrange for teams of workers to cover the whole 24 hours, each team consisting of trained nurses and doctors who would look after the patient continuously. Many statistical and other charts were then shown illustrating how the method had reduced infant mortality, particularly among premature babies. Dr. Hingson again warned his listeners against the use of this method by untrained people and in unsuitable surroundings.

Dr. A. H. GALLEY (London), in opening the discussion, reviewed the anatomical pathways for both sensory and motor impulses connected with labour. He felt that continuous caudal analgesia was contraindicated in cases of placenta praevia, because the relaxed cervix ceased to give support to the placenta. The main indications were: multiparae, breech presentations, continuous contractions of the uterus with much pain, rigid cervix, foetal distress, prematurity, and where forceps delivery was anticipated. Professor R. R. MACINTOSH (Oxford) inquired how Dr. Hingson sterilized his catheters.

In reply Dr. HINGSON again referred to the possible dangers of the methods, saying that it could "assassinate women" if in improper hands or unsuitable circumstances. His catheters were all autoclaved. Formerly he used shellac-coated catheters, but had now found a new plastic material, "vinethyl," and which could be autoclaved. Another type of plastic catheter (polythene) would not stand up to heat but had to be sterilized in aqueous antiseptic. Continuous caudal analgesia carried with it an inherent mortality of about one in 20,000 women, because in one in 10,000 cases a peridural infection followed, and this condition carried with it a 50% mortality.

SECTION OF OCCUPATIONAL HEALTH

Thursday, June 30

Tuberculosis and Occupation

The chair was taken in turn by the vice-presidents, Dr. W. BLOOD (London), Professor G. P. CROWDEN (London), and Dr. F. S. COOKSEY (London). Dr. ALICE STEWART (Harrow-on-the-Hill) opened the discussion by describing an investigation into the incidence of pulmonary tuberculosis in the boot and shoe industry in Northamptonshire. It had been known for at least fifty years that the shoe trade carried a high mortality rate from phthisis. Investigation, based on the results of a mass radiography survey, on notified cases, and on the medical records of men called up, showed that this was partly due to selective recruitment. The shoe trade employed more men with quiescent tuberculosis than other trades. The physique of men was slightly subnormal, and there was a strong family tradition, so that workers were often interrelated. There was no evidence of a specific industrial hazard in boot and shoe factories, and the death rate for other diseases was below average.

The incidence of active tuberculosis was not uniformly distributed. Men and women employed in factories with large workshops contracted the disease more often than those in factories with small workrooms. The phthisis rate per 1,000 was 2.9 in rooms with fewer than 20 workers and 10.4 in those with over 80 workers per room. This same relationship between size of workroom and incidence had been found in the clothing industry. Further work would be necessary before it could be stated categorically that spread of infection was a fundamental cause of this high rate, but it might be an important factor in the epidemiology of other diseases.

Dr. W. POINTON DICK (Denham), discussing the advantages of mass radiography surveys in industry, said that 25% of those over 15 years old worked in factories. With the recent proposal that each worker should bring along a non-factory worker it would be possible to survey a substantial proportion of the adult population. Between 75 and 85% of the total population volunteered, and the degree of response was usually high where relations between management and workers were good. In return visits it was found that the rate of new cases per 100 examined was reduced by a third.

Dr. F. R. G. HEAF (London) said there were three important factors in the resettlement and rehabilitation of the tuberculous. First, it was never certain that a tuberculous person had recovered from his disability. Although there were few reliable figures in the follow-up of tuberculous cases, there was sufficient evidence to demonstrate a high relapse rate. Important factors in preventing relapse were high standards of housing and nutrition and routine medical examination at least once a year. The night sanatorium which offered care, nourishment, and rest had great possibilities in the future.

Secondly, it was not possible to assess the capacity for work of tuberculous persons except by trial and error. Certain occupations such as outdoor work, which was usually heavy, and high-pressure team-work were undesirable. Where possible the tuberculous should be specially trained so that their work had an economic value.

Thirdly, when the disease was active it was usually infectious, but it was probable that inherent resistance was the most important factor in infectivity, and that exogenous infection apart from the primary infection played a small part in causing active disease in those already infected. Financial assistance played a vital part in rehabilitation. This could sometimes be assured by contributions from certain authorities, but to apply a means test would do great harm.

Dr. E. H. CLUVER (S. Africa) said that in his country they were working on the assumption that the primary infection must be avoided. There would be extensive tuberculin testing of the African population from which gold-mining labourers were recruited. Those with a negative reaction would be given B.C.G. vaccine.

Dr. PETER EDWARDS (Market Drayton) said that many of the "incurables" could work and should be given a chance. Untutored idleness was bad for the tuberculous. Exogenous infection was an important factor in spread of the disease but could be controlled by proper sanatorium treatment. It was vitally important to educate the positive case, but a hard core of 10% were ineducable. At Papworth the value of education and sanatorium control was proved by the numbers of children and adults who had never become infected. Dr. BRIAN DAVEY (Oxford) made a plea for using mass radiography as an instrument for epidemiological research.

In reply Dr. HEAF said that tuberculin tests showed that a much higher percentage of the population in the lower age groups was escaping primary infection. B.C.G. vaccination could probably prevent the primary lesion from becoming dangerous. Later, infection by the exogenous route certainly took place, but it need not be harmful if the inherent resistance of the infected was high. Dr. ALICE STEWART suggested that it was easier to stop infection than to attempt to raise the resistance of the total population.

SECTION OF RHEUMATOLOGY

Thursday, June 30

International Congress at New York

Dr. G. D. KERSLEY (Bath) gave his impressions of the seventh International Congress on Rheumatic Diseases held in New York. Naturally, he said, discussions and clinical sessions tended to centre on endocrinology, so much so that Dr. Philip S. Hench coined the word "rheumocrinology" for this field. Much interest was also shown in the histology and microchemistry of connective tissue and their application to the "collagen diseases." Under this heading Professor Walter Bauer discussed rheumatic fever, rheumatoid disease, spondylitis, generalized lupus erythematosus, dermatomyositis, scleroderma, and polyarteritis nodosa.

These diseases had much in common, including a favourable reaction to "cortisone" (compound E), but Bauer advised that these syndromes should be kept separate until more was known of their specific aetiology. The widespread microdermal changes in rheumatoid disease were considered a non-specific response to some biochemical reaction, though they occurred much more frequently in this condition than in any other. Steiner (Detroit) alone maintained that the absence of reticulin network and the compactness of the focal lesions in rheumatoid disease allowed him to differentiate with certainty these lesions from those more rarely seen in other conditions.

The old difference of opinion about the interrelationship of ankylosing spondylitis and rheumatoid arthritis was maintained, the Americans considering the two conditions identical in spite of the different age and sex incidence, rarity of nodules and biopsy changes in the muscles in spondylitis, and their different reactions to gold and *x*-ray therapy.

In the field of orthopaedic surgery the outstanding pre- and post-operative care of cases undergoing cup arthroplasty for arthritis of the hip at Smith-Petersen's clinic at Boston was remarkable, the surgeon himself supervising all exercises during the early stages and rehabilitation being carried on for as long as two years. This operation was still being performed for spondylitic cases, but a second conservative operation was often indicated some eighteen months later. No walking was permitted without crutches for at least six months.

Excision of the heads of the metatarsals where there was pain and deformity was giving good results, and similar excisions of the acromial process, the head of the radius, and the lower end of the ulna were being carried out quite frequently when indicated.

A number of papers were read on the use of endocrines in rheumatic disease, notably by Hench and Kendall (Mayo Clinic), Thorne (Boston), and Woolfson (Chicago). Later a series of cases so treated were seen and examined. In addition to the Mayo Clinic, five other centres were given sufficient cortisone to treat two cases each for two weeks. Each centre confirmed the results obtained at the Mayo Clinic. The use of these hormones could not yet be looked upon as a new treatment likely to be available soon. Not only were supplies so limited that only research centres were likely to have any for some time, but the present cost of about £4,000 for two weeks' treatment was prohibitive. Much more needed to be learnt about actions and side-reactions.

"ACTH" (Armour), the corticotropic hormone of the anterior pituitary, and cortisone (Merck) (compound E acetate), 17-hydroxy-11-dehydrocorticosterone, a steroid from the adrenal cortex, had very similar properties, the former stimulating the adrenals to produce the latter. The dosage required, however, was so great that the contamination of ACTH with "pitressin" would often cause a rise in blood pressure, faintness, and vomiting.

Cortisone given intramuscularly in a dosage of 100 mg. a day produced a dramatic temporary remission in all the collagen diseases and also in gout, and was believed to be of benefit in treating such diverse conditions as metastatic carcinomatosis, hyperpiesis, and the shock of coronary thrombosis. Its action therefore was obviously a fundamental one, possibly on connective tissue, and not specific to rheumatic disease.

In rheumatoid arthritis some symptomatic improvement—relaxation in tension and easing of pain—began within a matter of hours. Within a week, pain largely disappeared, swelling was reduced, the appetite improved, weight was gained, anaemia was corrected, and the sedimentation rate began to drop. However, twenty-four hours after the cessation of treatment some falling off in the improvement was noticed, and often within a week the patient had relapsed, perhaps 80% of the improvement being lost. In rheumatic fever a similar result was obtained, but in only one case did a relapse occur immediately treatment was stopped.

Relief was experienced in attacks of gout within one to four hours, but about four days after the withdrawal of ACTH or cortisone, unless colchicine was administered in large doses, an acute attack occurred owing to the temporary production of a negative phase of corticosteroid production. This artificially produced attack was associated with all the usual chemical and clinical phenomena of gout and of 11-oxysteroid depression. This suggested that gouty individuals had a poor "stress" response from their anterior pituitary glands to shock, trauma, infection, or strain, and that this was the mechanism by which the trigger factors in gout acted.

Woolfson postulated that this sluggish corticosteroid response, together with an abnormal androgen, which was not a precursor of 17-ketosteroids and which helped to regulate a hereditary hyperuricaemia, explained the age, sex incidence, phases of gout, and the abnormally low 17-ketosteroid excretion in this disease. The latter was not due to difficulty in excretion, as testosterone administered to the gouty patient immediately produced a normal ketosteroid response.

In conclusion Dr. Kersley said it was impossible at the moment to define the significance of the recent discoveries in relation to the anterior pituitary and adrenal cortical hormones of the "carbohydrate" group or even their site of action. Their action must be fundamental rather than specific for rheumatic disease, though they affected beneficially all the collagen diseases and probably helped to explain the way in which the same triggers of shock, fatigue, infection, etc., adversely affected all these diseases. To produce results large doses had to be used, and this treatment could not be looked upon as simple replacement therapy, like insulin in diabetes or thyroid extract in myxoedema. He pointed to the absence of arthritis in Addison's disease. In certain diseases it might be that large doses of these steroids might act biochemically, as in the use of massive doses of vitamin C with arsenic, or the compounds may be catabolized over-rapidly in certain people. The only thing that was clear was that a new and wide field for research had been opened up with a reasonable hope of securing a valuable therapeutic weapon at some time in the future.

SECTION OF MEDICINE

Friday, July 1

Cirrhosis of the Liver

Professor R. E. TUNBRIDGE (Leeds), the president, took the chair, and Dr. N. H. MARTIN (London) opened a discussion on cirrhosis of the liver. He said that since Hanot described the condition 50 years ago the studies had been mainly of connective tissue, but what they really wanted to know was the condition of the liver cell. By means of liver biopsy it was possible to follow the changes from the acute phase to the stage of restoration as well as the chronic progressive disease, and it might thus be possible to discover how many recovered and how many subsequently broke down. However, it was only a small sample, and one only of the right lower lobe of the liver. Experimental evidence during exercise showed that there was a markedly diminished flow through the liver; if exercise were allowed too early during the recovery from acute hepatitis, the cells might be intermittently deprived of oxygen and thus permanently damaged. This might also explain the tendency to relapse.

In yellow fever there was little autolysis of the liver cells, and therefore there was rarely any fibrosis; whereas when the liver was poisoned by carbon tetrachloride there was marked autolysis, which he regarded as precirrhotic. It had long been known that carbohydrate had a protective action on the liver; but recently choline and methionine had been shown to

protect the liver from fatty infiltration. If sulphur-containing amino-acids, such as cystine, were cut out of the diet, small areas of haemorrhage and necrosis developed, while α-tocopherol (vitamin E) protected the whole liver when there was a deficiency of cystine and methionine. It was therefore most important not to starve the patient but to ensure an adequate protein intake.

Liver-function tests were disappointing. He usually used four: (1) Circulating bilirubin; (2) total plasma protein, and albumin–globulin ratio; (3) thymol turbidity; and (4) alkaline phosphatase. Steady deterioration shown by these tests indicated obstructive jaundice, whereas they showed gradual improvement in cases of acute hepatitis. The thymol turbidity test continued positive long after the serum bilirubin, urinary bilirubin, and urobilinogen had returned to normal levels. This test might be of value in prognosis, and those cases in which it was positive over a long period might be ones that would subsequently develop cirrhosis. With regard to plasma proteins, estimation of the total protein did not help very much, since it was very variable, but gross inversion of the albumin–globulin ratio was of significance.

Dr. M. H. K. HAGGIE (London) said that everyone had been taught that alcohol caused cirrhosis. He had therefore studied the notes of patients with evident cirrhosis who had come to necropsy at the London Hospital over a period of 40 years to ascertain how many gave a history of alcoholism, and had found that there had been a falling incidence in recent years.

	Alcoholics Per cent.	Teetotal Per cent.	Not Recorded in Notes Per cent.
1907–16 ..	50	31	19
1917–26 ..	33·3	33·4	33·3
1927–36 ..	29·7	46	24·3
1937–46 ..	13·6	54·5	31·8

He had also examined 19 patients with cirrhosis who had been in the hospital in the past two years. They had consisted of 12 women and 7 men, whereas in the old literature the incidence was three males to one female. This also indicated a changing cause. Two of the 19—one a barman and one a barmaid—were alcoholics. He therefore thought that alcohol was a factor in the cause of cirrhosis; but alcoholics often did not eat, and were therefore deficient in the necessary protective factors.

Mr. J. E. RICHARDSON (London) said that surgery was mostly concerned with the complications of cirrhosis—namely, haematemesis and ascites. It had been suggested in the past that portal hypertension might increase the liability of the gastric mucosa to ulcer formation and that gastrectomy was the right treatment; but in his experience a ruptured oesophageal varix was always found at necropsy. Further, if the lower end of the oesophagus was studied radiologically after swallowing barium the indentations of oesophageal varices could always be found in patients who had had recurrent haemorrhages. While ascites was often mechanical, it was sometimes also biochemical, and therefore a gross disturbance of the albumin–globulin ratio was an indication against surgery.

The main cause of post-operative deaths was oozing of blood, and therefore fresh blood should be used for transfusion, since stored blood was deficient in prothrombin and those patients also had a low prothrombin concentration in the blood. Many operations had been considered. Sclerosing fluid had been injected through an oesophagoscope into the varices; but the thrombosis might spread dangerously after that procedure, and it did not remove the cause of the varices. Splenectomy was dangerous because of the large number of vascular adhesions which had to be divided. Recently shunt operations had come into favour, such as anastomosing the splenic vein to the left renal vein, or the portal to the inferior vena cava. Anastomosis of the superior mesenteric to the inferior vena cava and of the inferior mesenteric to the left spermatic had also been performed. The spleno-renal was the easiest technically; it was possible that the porto-caval might eventually prove the best, since it gave the biggest shunt. The results were naturally somewhat better in cases of extrahepatic obstruction than in those of cirrhosis, but the operation carried a mortality rate as low as 10% and had given survival rates of 3½ years up to the present time without recurrence of the bleeding. In cases of ascites it had given survival of 18 months to the present time with no subsequent tapping.

Dr. E. R. CULLINAN (London) said that when Laënnec described cirrhosis 130 years ago he had referred to the golden-yellow colour of the liver; the name had been subsequently attached to sclerosis. He did not believe that acute hepatitis frequently progressed to cirrhosis. He was writing to one in five of the troops who developed hepatitis in the Middle East in 1942 and had had a very good reply; few of them had had subsequent trouble. He thought that patients with this disease needed rest for a considerable time after recovery and that it was vital to feed them to get a quick recovery. Extra rations, including meat and skimmed milk, were now available.

There was a difference between multiple nodular hyperplasia with recurring attacks of jaundice due to necrosis and subacute necrosis, which finally ended with cholaemia and death in jaundice and coma. The state was usually associated with cirrhosis. The first group never developed ascites. The latter condition was a very prolonged one. Early stages were quiet and produced few symptoms apart from attacks of gastro-enteritis, but eventually there were portal hypertension, oesophageal varices, splenomegaly, and ascites. The patients practically never gave a history of preceding jaundice.

Alcohol was a predisposing cause of cirrhosis; it was therefore important to recognize the early stages, since by stopping the patient's drinking it might be possible to prevent the development of portal hypertension. Those patients also often had anorexia, and it was important to get them to eat a full diet, generous in protein and carbohydrate and not restrictive in fats. Such a diet would certainly contain enough methionine. Vitamin-B complex should be given. The evidence in favour of giving androgens was equivocal. Bleeding might be the first sign of the disease, and accounted for 4% of cases of haematemesis; patients rarely lived two years after such an incident. Surgery therefore played an important part in prolonging life in those cases. Patients with ascites sometimes did well with a low-salt diet and mercurial diuretics, but rarely survived three paracenteses, which had the effect of hastening the onset of cholaemia, with confusion, semi-coma, and finally death. Porto-caval shunt therefore did offer some hope of prolonging life.

Dr. H. STEINITZ (Tel-Aviv, Israel) thought that the laevulose-tolerance test was of value and that a test of carbohydrate function should be included. Though they saw many kinds of liver damage in his country—particularly as a consequence of amoebiasis and infective hepatitis—true cirrhosis of the liver with portal hypertension, haematosis, and ascites was very rare. He did not know the cause, but there was almost no drunkenness in Israel or in the Arab population of Palestine.

Dr. R. R. BOMFORD (London) said that the theory that acute hepatitis led to portal cirrhosis was an attractive one but was without foundation. He asked whether every patient who had a palpable liver as his only abnormality should be regarded as an early case of cirrhosis. Dr. J. R. FORBES (Wrexham) said that one knew many people addicted to alcohol who never appeared to develop cirrhosis, and wondered whether there was a constitutional factor. Professor A. P. THOMSON (Birmingham) said that alcohol played a contributory part in the causation of cirrhosis. The poor in the past had had a diet deficient in lipotropic factors which would protect the liver after the drinking of alcohol. In cases of diabetes fatty infiltration and palpable liver were common, but cirrhosis was rare. He had known patients have recurrent haematemesis for 20 years.

Salicylates in Rheumatic Fever

Dr. G. WATKINSON (Leeds) then read a paper on salicylate therapy in acute rheumatic fever. It had first been advocated 73 years ago, but apart from its analgesic and antipyretic actions there was no agreement on its value. A new phase of therapy began in 1943 with the publication by Coburn of the dramatic effects resulting from massive controlled therapy. He had attempted to assess the value of the therapy by treating 90 R.A.F. recruits (87 men and 3 women) aged 18 who developed rheumatic fever between April, 1947, and September,

1949, with salicylates in various doses. Of these, 21 had had rheumatic fever previously; 71 had had an upper respiratory infection in the preceding two weeks, mostly with a positive haemolytic streptococcal throat swab. The results in those observed for 18 months were as follows:

Station	No. of Cases	Previous Rheumatic Fever	Dosage of Salicylates gr./daily	Days before Afebrile	Days before Free of Pain	Average B.S.R. on Admission	Days before Normal	Relapses
1	25	4	14 mil. 11 less than 100	19·6	22·6	43·8	65·9	6
2	30	6	200	5·0	6·0	45·3	38·5	2
3	31	9	200–600	2·4	2·2	60·3	18·3	9

High dosage shortened the period of fever and pain and brought the sedimentation rate (Westergren) more rapidly back to normal. There was some objection to using the sedimentation rate as an index of activity of the disease, since some workers had suggested that salicylates would lower this in other conditions such as pulmonary tuberculosis. He had made some observations on this and had found that the salicylates did have some effect in other conditions but not in the same way as in rheumatic fever.

The six patients in the series who had had pericarditis responded well on doses that were adequate to keep the blood salicylate level above 40 mg. per 100 ml.

The effect on permanent valvular damage was perhaps the most important matter to determine. In that series the number of patients who had ended with valvular disease of the heart was not statistically different in any of the three groups. There had been fewer, however, in the high-dose group who were left with a systolic murmur and had been classified as having potential heart disease. The figures of that experiment compared with those of Coburn were:

Coburn			Watkinson		
Dosage of Salicylate gr./daily	No. of Cases	Valvular Disease of Heart Per cent.	No. of Cases	Valvular Disease of Heart Per cent.	Potential Heart Disease Per cent.
Less than 100	63	31·9	25	8	25
100–200 ..			30	16·6	23·3
200–600 ..	38	Nil	31	9·7	6·5

It seemed probable that none of the patients in the present series had had valvular defects before the attack of rheumatic fever, since they had been recruits, had just been through a medical board, and had had their chests *x*-rayed.

Toxic effects could be divided into three groups. In the first the symptoms were common but important, and did to some extent indicate that an adequate blood level had been reached. They were tinnitus, nausea, sweating, and transient vomiting. The second group were uncommon but serious, and included vertigo, drowsiness, mental upsets, and haemorrhage. The third group were common and alarming, and consisted of severe vomiting and hyperventilation. The occurrence of symptoms of the last two groups called for a modification of dosage.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Friday, July 1

Functional Uterine Haemorrhage

With Miss GLADYS KAY (Harrogate), vice-president, in the chair, Mr. V. B. GREEN-ARMYTAGE (London) opened the discussion by reviewing the history of endometrial biopsy. It was well to remember that functional derangements of several types might result in abnormal bleeding. For instance, it might occur in the patient with a hyperplastic (oestrogenic) endometrium, or in one with an endometrium so atrophic that no material for section could be obtained. On the other hand it might be seen in patients who had either a progestational endometrium or even delayed shedding of the premenstrual membrane, a condition possibly due to some disturbance of the process of constriction of the spiral arteries of the endometrium. Bleeding in all these types was painless and perhaps most frequently seen in the young. Few would deny that the feminine glandular system could be deranged temporarily, and spontaneous cure might account for some of the apparent successes of hormone therapy.

What was the bleeding factor and how could it be controlled? He referred to cases where the psyche controlled metrorrhagia, just as it did amenorrhoea. When it did the individual rather than her organs of generation must become the object of therapy. The hypothalamus influenced the pituitary gland, and presumably it was not until the emotional tension was relieved that there was a return to normality. Functional bleeding, then, was a symptom rather than a disease.

He had consulted records of 384 cases of functional bleeding seen in private between 1930 and 1949. The following table showed the pathological findings in 326 patients between 12 and 45 years of age.

Slight enlargement of uterus	97	29·7%
Small cystic enlargement of one or both ovaries	23	7·05%
Endometrial (oestrogenic) hyperplasia ..	117	35·8%
Atrophic mucous membrane	30	9·2%
Mixed or irregular-patterned endometrium ..	13	3·9%
No abnormal histology	28	8·5%
Polypi, glands or adenomata	14	4·2%
Endometrial tuberculosis	2	0·92%
Malignancy of corpus uteri	1	0·30%
Malignancy of endocervix	1	0·30%

In the series of 384 cases there were 63 cases of puberty or young-adolescent haemorrhage, 15 of which had to be corrected. Eleven patients were classified as having emotional haemorrhage when all other causes had been excluded. In 182 there were various stigmata of endocrine disorder, such as obesity, slight enlargement of the thyroid, etc.

Discussing treatment, Mr. Green-Armytage stressed the importance of first excluding physical, organic, conceptional, and more obvious endocrinal causes of excessive bleeding. If the patient was young and unmarried the administration of thyroid extract, 0.5 gr. (32 mg.) daily, increasing by 0.5 gr. weekly for six weeks, and Lugol's iodine, 10–15 min. (0.6–0.9 ml.), was excellent, but contraindicated in the thin or nervous subject. At the same time iron, liver, yeast, and possibly sedatives were given, and attention was paid to any source of mischief in the teeth, tonsils, and general hygiene. Very often change of food and environment was beneficial. If after 4–6 weeks of that treatment there was no improvement the "Hamblen Plan" was carried out. Stilboestrol, 2 mg. t.d.s., was prescribed for 20 days; at the end of 10 of these days ethisterone or progesterone, 10 mg. t.d.s., was given in addition. That regime must be undertaken at the onset of persistent bleeding. Stilboestrol, 5 mg. q.q.h., for 24–36 hours might be needed as a haemostatic, but there was a danger of profuse haemorrhage following this, necessitating immediate curettage. Androgen treatment might be preferred but was expensive. He did not use radium or *x* rays in this connexion. If a patient was at or about the age of 40 and had failed to react to hormonal treatment or curettage, then vaginal hysterectomy was the ideal procedure.

Dr. P. M. F. BISHOP (London), giving the viewpoint of the endocrinologist, said it might become the orthodox teaching that uterine bleeding was more intimately related to the condition of the uterine vessels than to the histology of the uterine mucosa. He had found that stilboestrol, 5–15 mg. 4-hourly, would stop bleeding within 24 hours, though it might cause nausea or vomiting. The second problem was to prevent troublesome bleeding, metropathia, and menorrhagia. The object in the former was to forestall the bleeding episode and substitute for it an apparently normal period. This could be done by giving progesterone, preferably by injection, in four doses of 20 mg. on alternate days ("medical curettage"). A repetition of the course of progesterone 20 days after the onset of the previous medical curettage would again forestall the tendency to a metropathic flooding.

Menorrhagia was a different problem, and probably mainly due to a disturbance of the normal oestrogen–progesterone ratio in the premenstrual phase. Individual cases required

different treatments—for example, chorionic gonadotropins to stimulate progesterone secretion (daily doses of 1,000 i.u.); progesterone to ensure total shedding of the endometrium; and androgens to antagonize the ovarian hormones, to atrophy the endometrium, or to exert a vascular haemostatic effect. In from one-third to one-half of the cases of functional menorrhagia a course of 10–15 mg. of methyl testosterone daily by mouth would reduce the bleeding, and remission followed for a few months. And there were cases of masked hypothyroidism in which 2–3 gr. (0.13–0.2 g.) of thyroid extract daily produced spectacular results. Endocrine therapy could offer no cure for functional uterine bleeding; nevertheless it could have limited, and on occasions spectacular, results. Endocrine therapy should be logically conceived, properly planned, and abandoned if it had obviously failed after a reasonable trial.

Dr. T. N. MACGREGOR (Edinburgh) said that each case at the Gynaecological Endocrine Clinic of the Royal Infirmary, Edinburgh, was investigated as follows: (1) Detailed history taken; (2) height, weight, and diet recorded (when indicated, an anti-obesity regime was adopted); (3) general physical examination, including haemoglobin estimation; (4) pelvic or rectal examination and endometrial biopsy; (5) given menstrual calendar and temperature chart for recording rectal temperature. At first, treatment was directed towards improving the general state of health. Functional uterine haemorrhages at puberty not responding to general measures could be treated effectively by progesterone (ethisterone, 20 mg. by mouth t.d.s., would clear up haemorrhage in 3–5 days, although the bleeding might be aggravated at first). Severe bleeding requiring immediate control was best treated by ethinyl oestradiol, 0.05 mg. t.d.s. Initial control of bleeding, whether by oestrogen or progesterone, was followed by the administration of ethisterone, 20 mg. t.d.s., from the 14th to the 24th day of the cycle. This treatment was repeated for 3–4 months. Metropathia haemorrhagica was treated similarly, but metropathic bleeding after the age of 35 should be investigated by careful curettage to exclude malignant disease. Such cases did not respond to progesterone so well as the younger cases, and often hysterectomy was necessary. But some cases did respond to short-wave diathermy, the response indicating mild pelvic infection, especially following childbirth or abortion. Male-hormone therapy was dangerous.

Professor A. M. CLAYE (Leeds), the president, asked what was the appropriate time for doing a curettage, and stressed the importance of exploring the uterus in women of 35 and over. He wondered why Dr. MacGregor used the rectal method for recording temperature. Dr. A. BARKER (East Kent) questioned the advisability of vaginal hysterectomy when there was a great possibility of endometriosis being present. He wanted to know the indications for implantation therapy. Mr. G. G. LENNON (Oxford) asked Mr. Green-Armytage if he did a vaginal hysterectomy when the cervix did not come down to the introitus, for many cases of functional uterine bleeding were in multiparae; and were cystic ovaries removed vaginally also? Dr. J. LÖVSET (Norway) thought metropathia was evidence of a Mendelian dominant.

Professor T. N. A. JEFFCOATE (Liverpool) considered that thyroid therapy was excellent. He did not think metropathia was so common as had been indicated. Polypi in the uterine cavity were often missed at curettage, and for that reason hystero-salpingography was useful. The uterine cavity should be explored by incision of the uterus prior to abdominal hysterectomy. Mr. G. W. THEOBALD (Bradford) said that the theory of the influence of the hypothalamus was one he had advanced many years before. Dr. ERWIN RABA (Israel) also contributed to the discussion.

In reply Mr. V. B. GREEN-ARMYTAGE said he regarded 12 days of bleeding (or inability to work) as indications for curettage. He removed the uterus vaginally even when the cervix did not descend, and he pricked or removed cysts of the ovaries vaginally.

Dr. BISHOP pointed out that even small doses of androgen could be harmful. The dosage must be kept under 300 mg. per month—for only two months at a time, with two-monthly intervals. If harmful effects were seen, they disappeared when administration was stopped, except for the deeper tone of voice. Implantation therapy was seldom indicated—ethisterone was not absorbed when implanted—and progesterone had to be put in deeply to avoid extrusion. There was no need to take the temperature per rectum. He endorsed the hypothalamic theory. Dr. MACGREGOR emphasized that, if endometrial biopsy was to be done, pregnancy had to be excluded. The only indication for implantation treatment was recurrent abortion, when progesterone was used. There might be a psychological effect of rectal temperature recording. Irregular bleeding in a woman older than 40 must be regarded as due to malignant growth until cancer was excluded.

SECTION OF PATHOLOGY AND BACTERIOLOGY

Friday, July 1

Pathology of Hypersensitivity Reactions

Dr. J. G. GREENFIELD (London), the vice-president, took the chair. Professor HILDING BERGSTRAND (Stockholm), discussing the pathological anatomy of hypersensitivity in man, thought the general term "hypersensitivity" was preferable to "allergy" if they were to appreciate the different manifestations in that group of disorders. They included anaphylactic shock—a rare disease in man—characterized by contraction of smooth muscle and dilatation of capillaries and small blood vessels due to an interaction between antigen and antibody in the tissues of the sensitized animal. A mild form of anaphylaxis, now becoming rare, was serum sickness, with joint pains and swellings, skin rashes, oedema, etc., appearing 7–10 days after injection of a foreign protein. The Arthus phenomenon was a severe local anaphylactic reaction of haemorrhage and ulceration following repeated intracutaneous injection of an antigen. Atopy was the American name given to a variety of allergic diseases in man, of which the prototype was pollen hypersensitivity; in asthma, contraction of the smooth bronchial muscle was a prominent feature, as it was in anaphylaxis. The skin rash of serum sickness had its corresponding atopic skin disease, such as infantile eczema. There was a group of hypersensitivity reactions associated with drugs which were not themselves antigenic but became so after conjugation with a protein. The tissue reaction here could be of either the atopic or the bacterial type; the latter was exemplified by contact dermatitis, in which there was a delayed, not an immediate, response to the antigen. In the bacterial type of tissue hypersensitivity, of which the tuberculin reaction was the prototype, all the cells of the body seemed to be sensitized, in contrast to the localized sensitivity of smooth muscle and endothelium in the anaphylactic reaction. That difference could be demonstrated by experiments on the avascular cornea.

Capillary damage was the main feature of the tissue changes in hypersensitivity diseases. Characteristically it occurred as a focal neurosis with fibrinoid thrombi and some secondary haemorrhage, and that capillary damage could probably explain such phenomena as urticaria, angioneurotic oedema, and joint swellings. Changes in the larger vessels had the character of periarteritis nodosa, with focal necrosis, intramural and perivascular cell infiltration, and proliferation of the vascular endothelium to such an extent that the lumen might be occluded. The secondary changes in the connective tissue consisted of oedema and focal splitting of the collagen fibres into reticulin fibrils which stained black with silver. That was followed by fibroblastic reaction and formation of the "rheumatic" granuloma. An outstanding feature of most hypersensitivity reactions was the localization in different organs, with a markedly focal distribution in the affected organ. That the localization was related to the nature of the antigen was suggested by the finding that rabbits sensitized with albumin developed vascular lesions of the periarteritis-nodosa type, whereas with gamma-globulin glomerulonephritis was the most prominent lesion. The capricious distribution of the lesions would account for the diversity of the hypersensitivity diseases—polyarthritis, endocarditis, pneumonitis, glomerulonephritis, periarteritis nodosa, lupus erythematosus, etc. He hoped that

there might be a closer integration of the clinical, serological, and pathological findings in these hypersensitivity disorders.

Professor M. J. STEWART (Leeds) demonstrated the histological changes in two cases of "allergic prostatitis," both in elderly asthmatics. The characteristic focal granulomata were present, together with a gross eosinophilia, present also in the glandular tissue, so that the eosinophils would presumably have been found in the urinary deposit. Professor K. R. HILL (Jamaica), who had recently worked with Professor Rich, thought that anaphylactic and bacterial sensitivity should be regarded as essentially similar; he discussed "collagenosis" and a paramyeloid condition, both of which were probably hypersensitivity tissue reactions. Professor R. J. V. PULVERTAFT wondered if the acute blood changes—haemolytic anaemia and granulocytopenia—following sulphonamide therapy were sensitivity phenomena; he was interested in the local eosinophilia that sometimes accompanied acute gastric ulcers and appendicitis. Dr. H. ROYLE (London) remarked on the importance of histamine in allergic reactions, but noted that eosinophilia was absent when histamine was used to produce these reactions experimentally. Dr. PURDON MARTIN (London) asked about auto-sensitization, with particular reference to encephalopathies.

Temporal Arteritis

Dr. C. V. HARRISON (London) said that temporal arteritis produced, in the elderly of either sex, a general illness which preceded and outlasted the local signs and which was much more severe than would be expected. It affected mainly the temporal arteries, but the facial and occipital arteries were sometimes involved too, and in about one-third of the cases involvement of the ophthalmic vessels led to blindness in one or both eyes. In a few cases seen at necropsy there had been involvement of many internal arteries as well. Clinically there was intense headache and often fever, leucocytosis (though rarely eosinophilia), and a high E.S.R. The affected arteries were thick, cordlike, and tender, and the skin might be reddened. Removal of a segment of the artery for biopsy seemed to be the most reliable method of giving symptomatic relief. Lantern plates of six cases of temporal arteritis and two cases of polyarteritis were shown to demonstrate the characteristic histology of the former (narrowed lumen, greatly thickened intima with characteristic histology, and inflammatory infiltration of media and adventitia) and the similarity of the two diseases. It was concluded that temporal arteritis was a characteristic disease both clinically and pathologically, but that it resembled polyarteritis enough to justify the view that they might be of similar aetiology.

Professor BERGSTRAND believed that temporal arteritis was merely a form of polyarteritis, and Professor PULVERTAFT recalled two cases of temporal arteritis, one of which had eosinophilia.

Vascular Changes in Diabetes

Discussing the vascular changes in diabetes, with particular reference to the renal and retinal vessels, Dr. NORMAN ASHTON (London) compared the histopathological changes in the retina with the general vascular condition and the kidney lesions in 32 fatal cases of diabetes. With the aid of new staining methods, particularly the periodic acid technique of oxidizing polysaccharides to polyaldehydes and then staining with fuchsin-sulphite, he showed, with a series of coloured lantern slides, that the essential lesion was a capillary microaneurysm confined to the retinal vessels and chiefly localized in the posterior polar region in the capillaries which link the deeper and more superficial plexuses. He compared the occurrence of this retinopathy, graded according to severity, with the presence of intercapillary glomerulosclerosis, and found that the more severe the retinopathy the more constant was the association with this particular renal lesion. The two conditions were manifestations of the same pathological process modified by different anatomical structures. He hoped that histochemical methods would be used to find if the waxy exudate in the retinopathy was the same as the hyaline material in the glomerulosclerotic lesion. Professor K. R. HILL believed that the hyaline masses in the glomerulus in intracapillary glomerulosclerosis were in fact microaneurysms, as could be shown by serial section.

SECTION OF RADIOLOGY

Friday, July 1

Radiology of Joints

Under the chairmanship of Dr. C. G. HITCHCOCK (Harrogate), vice-president, a discussion took place on the radiology of joints. Dr. E. DUFF GRAY (Manchester) said that in the radiological examination of joints the following features required individual study: (1) The "joint-space," (2) the articular surfaces, (3) the architecture and density of the neighbouring bones, (4) the para-articular soft tissues, and (5) the effects of movement and posture. The routine radiographic projections were well known and had become largely standardized; their aim was to show as much bone-free joint-space as possible and to demonstrate the relationships of the opposing articular surfaces. The true joint-space was not normally seen, but could be readily demonstrated by the special technique of "arthrography," and might be occasionally visible when conditions were suitable for the "vacuum phenomenon." The density of the bones near a joint might be estimated by the simultaneous exposure of a similar bone embedded in a special medium to represent the soft tissues in the living subject or by the densitometry readings of a selenium cell with comparative readings of graduated ivory cylinders. The effects of movement and posture had not yet been fully studied radiologically. Lateral films of the cervical spine in flexion and extension seemed to provide a fruitful field for inquiry. A special method of using tracings from such films allowed a ready appreciation of the extent and type of the movement taking place at each vertebral level. It seemed likely that the cervical spine was an early site for rheumatoid arthritis, and its involvement might be indicated by the radiological demonstration of abnormal movement at one or more levels. In the study of joint lesions *x*-ray examination of parts of the body other than the affected joints might be useful, and in the search for a "toxic focus" a wide range of radiological methods was employed. The interpretation of abnormal radiological findings required in most cases a consideration of the history and the clinical picture, because the *x*-ray appearances of joint lesions were rarely specific.

Dr. J. B. KING (Edinburgh) spoke of various respects in which the radiologist could afford more help to the orthopaedist. Everybody who had worked on the subject of degenerative arthritis—a term which he preferred to osteoarthritis—agreed that there was a hereditary predisposing factor in its development, but no attempt had been made scientifically to ascertain to what extent hereditary and acquired factors existed in different individuals. An American observation had shown that identical twins later in life showed similar degrees of costal-cartilage degeneration. This suggested a possibility for research. It might be useful to *x*-ray the cervical spine in a series of identical twins—a fair number would have to be taken because of the likelihood that in many cases the hereditary condition would be obscured by the result of trauma, including the trauma of gravity—and to ascertain to what extent the joints of twins showed similar degenerative arthritis.

After Dr. J. H. WILDING (Manchester) had given a demonstration of the radiological appearances in various conditions of the knee-joint, Dr. J. BLAIR HARTLEY (Manchester) spoke of a certain drifting apart of orthopaedic and radiological departments. Discussions between radiologists and orthopaedic surgeons ought to be more frequent. The radiologist did not always assist the orthopaedic surgeon as he might. How often, for example, was the orthopaedic surgeon presented with pictures of the ankle-joint or joints of the foot taken with the patient lying down, which must be useless when the case was one of flat-foot? An obligation which he always imposed upon himself was to *x*-ray the opposite—i.e., the normal—joint as well as the joint affected. On one point he differed from the opener, who had said that it was in the cervical spine that rheumatoid arthritis began; in his own observation rheumatoid arthritis attacked the cervical spine late.

Dr. R. FAWCITT (Ulverston) said that radiologists saw as patients very few of the people of whom they took radiographs, and if the orthopaedic surgeon would take a little more trouble to tell them something about the patients it might result in



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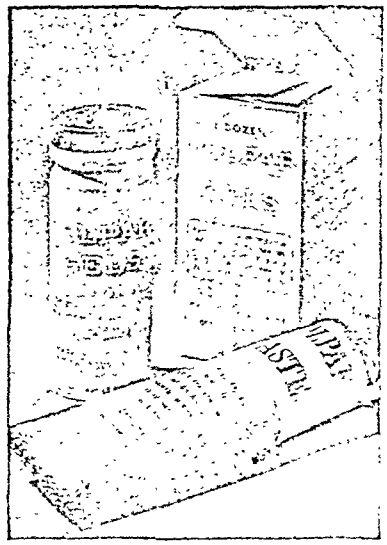
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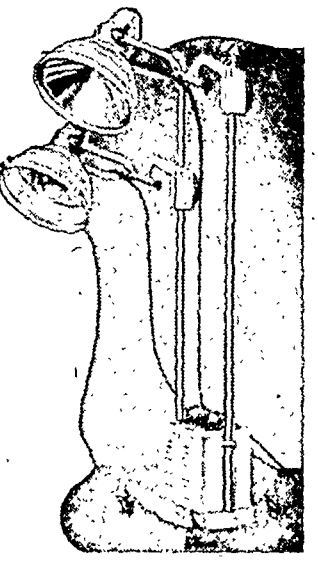
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more helpful positioning and radiography. Dr. J. L. A. GROUT (president of the Section) said that his impression was that ankylosing spondylitis started not in the cervical spine but in the sacro-iliac joint, and this joint should always be included in the examination. He had recently visited a steel firm which had a 400-kV machine for the *x*-ray examination of its material, and he found that they were accustomed always to take eight projections; for the human being it was customary to make use of only two films—antero-posterior and lateral. Dr. LEO DELICATI (Buxton) believed that ankylosing spondylitis and rheumatoid arthritis were the same disease in two different forms. Motion films would be extremely valuable in the elucidation of many points concerning joint structure and aberrations. Dr. J. ALEX THOMPSON (Harrogate) urged the formulation of a standard technique, with standard screens and probably standard exposures based upon the thickness of the part, so that early rarefaction of the bone might be better recognized. It was absurd to have exactly the same technique for the delicate hand of a lady and the thick hand of a labourer.

Dr. W. R. MITCHELL (Northampton) spoke of the problem of detecting very early changes in the articular cartilage of the patella. One of his own early cases had no significant bony change, but the patella showed a frond-like process 2 cm. long. He had no doubt that many arthritic conditions which they were called upon to treat in people over the age of 40 did start in the adolescent years with this peculiar condition of the articular cartilage of the patella, which did not seem to be found in other joints. As an orthopaedic surgeon he had been surprised not to hear more about cineradiography of joints.

SECTION OF SURGERY

Friday, July 1

Pain in Right Iliac Fossa

With the president, Mr. T. V. PEARCE (Harrogate), in the chair, Dr. A. FULLERTON (Batley) opened the discussion by referring to pain in the right iliac fossa as the Cinderella of the abdomen, with the appendix and the right ovary in the roles of the ugly sisters. Pain in general was classified as physiogenic (visceral, referred, and somatic) and psychogenic (anxiety, hysterical, and so on). Visceral pain was due to interference with the blood supply of a viscus, referred pain to deep-seated stimulation of cerebrospinal sensory nerves, anxiety pain to fear, and hysterical pain to a craving for sympathy. If pain in the right iliac fossa, present for more than a week, was due to appendicitis, a lump would be palpable. Chronic pain in the right iliac fossa was never due to appendicitis, or to adhesions, or to a right ovary free from demonstrable disease. Visceroptosis never caused pain in a patient whose autonomic nervous system and emotional reactions were well balanced. In distinguishing between physiogenic and psychogenic pain, age, sex, fertility, emotional conflict, and duration were important, and the prognosis of a psychogenic pain depended on its duration. Appendicectomy was advised for psychogenic pain in the right iliac fossa to remove anxiety about appendicitis. It relieved the doctor of the need to consider appendicitis at each outburst of functional pain, and gave an opportunity for complete exploration of the abdomen to exclude organic disease.

Professor DIGBY CHAMBERLAIN (Leeds) said that when a surgical opinion was sought it was usually with the idea of deciding whether or not pain in the right iliac fossa was due to appendicitis. Surgeons had tried to impress on the general public that that kind of pain might be due to appendicitis, and had been so successful that the public now almost regarded pain in the right iliac fossa and appendicitis as synonymous. Appendicitis might be acute, recurrent, or chronic. Chronic appendicitis was not characterized by chronic pain in the right iliac fossa, and the term "grumbling appendix" was a bad one, had no pathological basis, and should be discarded. In chronic right iliac fossa pain, when the diagnosis was in doubt, there was rarely urgency; in occasional cases, when doubt continued and operation was considered desirable, an exploratory laparotomy should be done and not an appendicectomy through a limited incision.

Mr. KENNETH BOWES (London), discussing the gynaecological aspects of the subject, said that pain from the ovary was referred to the tenth dorsal nerve and pain from the tube to the eleventh, so that the territories of surgeon and gynaecologist overlapped. When consulted, the gynaecologist might find some definite pathological condition of uterus, ovary, or tube, but often he found either no lesion at all, or else one of those pelvic conditions which are neither well defined nor well understood. Endometriosis in the infertile woman of over 30 caused recurring attacks of pain on one or other side, often referred down the inner aspect of the thigh, premenstrual, and relieved by menstruation. Absence of physical signs did not exclude endometriosis; sometimes a palpable swelling followed the onset of symptoms by several months. It was now known that endometriosis was common in the twenties, and 4% of affected women were in the 'teens, so for this reason alone a diagnosis of neurosis must be made with caution. In the treatment of endometriosis, conservatism should be exercised towards ovarian tissue. Partial resection was preferred to oophorectomy.

Straight *x*-ray examination was sometimes of value in revealing ossification in a dermoid—a common cause of continuous pain, with acute exacerbations if torsion occurred. Intermenstrual pain (*Mittelschmerz*) particularly masqueraded as appendicitis if accompanied, as it commonly was, by low pyrexia at ovulation. In the middle-aged woman persistent and rather vague pain suggested carcinoma of the ovary and required urgent treatment, for pain meant penetration of the ovarian capsule. A history of menorrhagia with chronic and usually bilateral pain in the abdomen, together with a tender swollen tube felt on palpation, was characteristic of chronic salpingitis.

A less definite group of patients presented in the adult sex-functioning age period with evidence neither of inflammation nor of any other definite single pathological condition. Pain was referred low in one or other iliac fossa, but usually the right, and there was low backache and dyspareunia. The pain, which was premenstrual, was increased by effort, standing, or emotional strain. Intermittent attacks of acute pain might simulate appendicitis but were accompanied by agitation and emotional reaction. On physical examination there might be tenderness in an ovary or lateral to the cervix, which might be infected. There might be urinary symptoms too, or mammary discomfort, or such psychological concomitants as insomnia, frigidity, headache, or excessive fatigue. Fertility was often low. It was unlikely that psychological disturbance was alone to blame. Disturbances in pelvic circulation might be important, for they could be effected by gravity, bowel function, endocrine influences, and nervous stimulation. Such patients did not require surgical intervention.

Mr. G. H. MACNAB (London), considering right iliac fossa pain in childhood, said that the frequency of abdominal pain in childhood was due to immaturity of the lymphatic system, which seemed over-responsive to infection. He gave a clinical description of abdominal lymphadenitis, non-specific and tuberculous. Mr. M. W. C. OLDFIELD (Leeds) recalled the observation of Braithwaite that an enlarged lymph node could cause pain mechanically, its rough surface scraping over adjacent peritoneum. Mr. PHILIP TURNER (London) added Meckel's diverticulum to the list of causes of pain in the right iliac fossa previously considered, and described two cases of that condition. Spasm of the colon and orchitis in an abdominal testis might also cause right iliac fossa pain on occasion. Mr. IAN FRASER (Belfast) described chronic appendicitis as a sociological phenomenon because of the present pressure on hospital beds. He disagreed with a previous speaker about the age at which the abdominal lymphoid tissue reached full development; in his view that tissue was enormous in quantity, particularly in the young child.

Mr. DICKSON WRIGHT (London) recalled that tragedies had occurred from concluding that a child suffering from tonsillitis and abdominal pain must be suffering from lymphadenitis rather than the appendicitis which was really present. He also disagreed that castor oil was dangerous in itself; it was the delay associated with purgation rather than the purgation itself which was important. He could not believe that the removal of a normal appendix was ever followed by

lifelong invalidism, and he had no hesitation in performing appendicectomy if the diagnosis was doubtful. He used at operation a small incision, big enough only to introduce a finger into the pelvis and to withdraw the ileum for the detection of a Meckel's diverticulum. Girls in the late 'teens suffering from right iliac fossa pain were a common problem and were best treated by appendicectomy. Mr. T. V. PEARCE, the president, recalled from his experience some rare causes of pain in the right iliac fossa. There was a remarkable case of mediastinal abscess, consequent on quinsy, which pointed as a psoas abscess in the right iliac fossa.

Dr. FULLERTON, replying, had found that a tender spot above and to the left of the umbilicus (Power's point) was commonly present in cases of adenitis.

SECTION OF CARDIOLOGY

Friday, July 1

Simulation of Heart Disease by Other Conditions

Dr. RAE GILCHRIST (Edinburgh), in discussing common errors in diagnosis, said that he believed that many mistakes could be avoided if more time were spent in obtaining an accurate history, and particularly in paying attention to the manner in which the story was told. This applied especially to the interpretation of symptoms such as pain. Angina pectoris, for example, had to be diagnosed entirely on the history, not by physical signs. When a patient complained of pain in the chest the chances were that it was not angina pectoris or any other organic disorder. If a person was able to take a brisk walk on a cold day one could be fairly confident that angina was not present.

The speaker then discussed the differential diagnosis between cardiac infarction and massive pulmonary embolism. He stressed that (1) a patient in bed or during convalescence on account of some other illness was far more likely to develop pulmonary embolism than cardiac infarction; (2) the onset of symptoms was abrupt in pulmonary embolism, and they reached their maximum severity at once, whereas in cardiac infarction there was often delay before the symptoms reached their peak; (3) pain in massive pulmonary embolism was admittedly central, but did not, as a rule, radiate; moreover, it was rarely severe, being more properly described as distress from suffocation; (4) in pulmonary embolism, dyspnoea was sudden and intense, whereas in cardiac infarction it was rarely conspicuous at the onset. The distinction could usually be made clinically, although the electrocardiogram was helpful in doubtful cases.

Dr. Gilchrist then turned to physical signs. He had found that hypotension often gave rise to anxiety and that the significance of a fall in pressure following cardiac infarction was apt to be overemphasized. This fall was often only slight and in some cases did not occur at all; on the other hand, low blood pressure frequently resulted from long-continued sepsis or other infection. Oedema was caused by many agents other than heart failure; and in the absence of dyspnoea it was rarely cardiac in origin.

Speaking more generally, Dr. Gilchrist emphasized the importance of avoiding terms like "fatty heart": it was better to tell an obese patient that he had a Rolls-Royce engine but that the bodywork was poor. It was important to weigh the patient. A neurosis could be detected by studying the patient's personality; organic heart disease was rare without dyspnoea; it was often more important to measure the haemoglobin than to take an electrocardiogram; and, finally, fewer mistakes would be made if the physician always demanded an aetiological diagnosis. Even so there was a borderline group in which it was by no means easy to be sure whether there was organic heart disease or not. There was Gowers's syndrome, characterized by weakness, prostration, and bradycardia lasting half an hour or so, in middle-aged women—Ryle's vaso-medullary storms; and there were cases of apparent heart failure in pregnancy in which follow-up studies showed no evidence of heart disease. In fact, in 380 follow-up examinations of cases of heart disease detected in pregnancy 10% appeared to be normal subsequently.

Dr. J. CLIFFORD HOYLE (London) dealt with the simulation of heart disease by pulmonary disease. Purulent sputum was never cardiac in origin. Cough was dominant in heart disease only in the presence of congestive heart failure, gross cardiac enlargement, or aneurysmal dilatation of the left auricle, pulmonary embolism, or pericarditis. Dyspnoea could rarely be ascribed to disease of the heart if that organ was not enlarged, and it was rare for patients with bronchial asthma to develop cor pulmonale. He also stressed the absence of electrocardiographic changes in cases of dyspnoea due to pulmonary disorders.

Paroxysmal dyspnoea, though suggestive of left ventricular failure, might also be due to bullous disease of the lungs or to partial bronchial stenosis with recurrent collapse. Haemoptysis appeared late in heart disease, whereas it often complicated the earlier development of pulmonary disease. Pain radiating into the left shoulder and arm might be due to apical pleural adhesions, and sternal pain might result from mediastinal tumours.

In radiological differential diagnosis Dr. Hoyle pointed out that difficulty might arise in distinguishing between dilated pulmonary arteries and hilar adenopathy, and between the appearances of lymph stasis associated with sarcoidosis, for example, and pulmonary congestion in mitral stenosis, particularly when associated with haemosiderosis; and finally between neoplasm or other space-filling tumours and aneurysms.

Dr. S. W. PATTERSON (Ruthin Castle) discussed the simulation of heart disease by intestinal disease. He lent support to the old aphorism about patients complaining of indigestion having heart disease, and vice versa. He described the painful effects of diaphragmatic hernia, and pointed out that dyspnoea and sweating might accompany attacks. Such pain, however, was not closely related to effort. Breathlessness might be due to the anaemia associated with a bleeding ulcer, gastric neoplasm, or haemorrhage from bleeding haemorrhoids. Vomiting and collapse due to food poisoning was sometimes mistaken for coronary thrombosis.

He went on to discuss reflex disturbances of cardiovascular function, and quoted a case of paroxysmal tachycardia cured by appendicectomy. He showed electrocardiograms and graphic records of respiration and blood pressure illustrating cardiorespiratory dysfunction resulting from oesophageal, gastric, biliary, or colonic distension. Psychosomatic cardiovascular disturbances should not be confused with reflex disorders of the type described.

Dr. WILLIAM PHILLIPS (Cardiff) described the simulation of heart disease by psychoneurosis. Numerous vague and indefinable symptoms, especially faintness, dizziness, palpitations, weakness, exhaustion, and left inframammary pain, were commonly psychoneurotic. In the history of man most of the common emotions had been described in terms of the heart. It was not a bizarre situation that mattered most in psychiatric aetiology, but the ordinary day-to-day disappointments, difficulties, and anxieties. Frequent sighs and inability to take a deep breath were always psychiatric in origin. The only common symptom of organic heart disease was pain or breathlessness on effort; psychoneurotic pain or breathlessness was far less closely related to exertion.

Psychoneurosis might be referred to the cardiovascular system: (1) because innocent symptoms were attributed to the heart by either the patient or his doctor; (2) following a cardiac illness or death in the family or in the patient's circle of friends; (3) because of incautious statements or actions by medical advisers; (4) because there had been no proper reassurance. He thought that 90% of these difficulties would be resolved if there were sufficient time to take a proper history and to study the patient as a human being. Physicians must insist on a full aetiological, structural, and functional diagnosis of organic heart disease; terms such as "tired," "fatty," or "strained" heart should be condemned.

Obstinate Heart Failure

Dr. D. EVAN BEDFORD (London) opened this discussion by defining the term "obstinate heart failure." He considered it meant congestive heart failure with oedema continuing in

patient at rest in bed and despite routine therapeutic measures, including digitalis, mercurial diuretics, and limitation of salt and water; or a similar situation recurring as soon as a patient became ambulant; or persistent left ventricular failure or elevation of the venous pressure and enlargement of the liver without oedema in similar circumstances. The first consideration was to make sure that no aetiological agent which could be corrected was responsible, such as thyrotoxicosis, anaemia, avitaminosis, and Pick's disease. The next step might be to put the patient into a wheel-chair, for it was possible to keep a patient in bed too long. Phlebothrombosis with recurrent pulmonary embolism was encouraged by prolonged recumbency. Dr. Bedford had never been convinced that anything could be gained by giving mercurial diuretics more often than twice weekly; but in cases of obstinate ascites the intraperitoneal route was sometimes helpful; another variation that might help was to change from "neptal" to mersalyl or vice versa when the response became poor. Mechanical drainage of fluid through incisions made over the dorsum of the foot was advised in cases of persistent dropsy. The patient should sit in a chair with the legs down not only while the fluid was draining away but also beforehand, so that the legs were tense before the incisions were made.

A low sodium diet was undoubtedly of great benefit. In an ordinary hospital light diet 3–5 g. of sodium could be expected; sodium could be reduced to 2–4 g. by eliminating table salt and cooking salt; but this was not enough, for less than 2 g. of sodium per day was required. Bread and butter were the chief difficulties in London. The Karrell diet, consisting of 900 ml. of skimmed milk per day, contained 0.4 g. of sodium. The Kempner diet, consisting of rice, fruit, and sugar, contained only 0.15 g. of sodium per day. Modified diets could be arranged of 1,000–2,000 calories, containing from 0.5–2 g. of sodium per day, and these were very helpful in prolonged treatment; but a low calorie diet was often beneficial in itself.

With ambulant patients a close watch should be kept on their weight, and effective treatment should not be withheld until oedema was manifest. Dr. Bedford then discussed the results of therapeutic myxoedema, induced either by means of total ablation of the thyroid gland or by thiouracil derivatives. Myxoedema benefited cases of heart failure not only by reducing the oxygen requirement and therefore the work of the heart, but also by lowering the heart rate. The latter applied particularly to cases of auricular fibrillation or flutter in which the heart rate could not be properly controlled by ordinary means. Therapeutic myxoedema was far less helpful in cases of obstinate oedema than in patients with persistent left ventricular failure or intractable angina. The results of total thyroidectomy were probably better than those with thiouracil, and the mortality rate was not higher. He had used methyl thiouracil in doses of 600 mg. daily in 35 cases of persistent heart failure with good results in 50%; three developed agranulocytosis, and one of these patients died.

He did not object to patients prescribing vitamin E for themselves, for he felt fairly confident that it did them no harm. He used anticoagulants for those with phlebothrombosis. Recent surgical measures devised for particular situations were mentioned. They included ligation of the inférior vena cava and tricuspid valvulotomy for patients with severe pulmonary congestion; anastomosis of a pulmonary vein to the azygos vein in cases of severe mitral stenosis with recurrent attacks of pulmonary oedema; and mitral valvulotomy.

Dr. D. R. CAMERON (York) described the low sodium diet and the results of this treatment in greater detail. He had been able to obtain salt-free bread and butter in Liverpool and admitted that this eased the difficulties in arranging a suitable diet. He was able to provide for these patients 2,000 calories daily containing only 0.4 g. of sodium. In cases of congestive heart failure under control the addition of 2–5 g. of sodium chloride daily caused a demonstrable rise in body weight within a few days. With a satisfactory diet the daily excretion of sodium chloride should not exceed 1–2 g.; using a strict Kempner diet it rarely exceeded 0.25 g. A series of charts were shown illustrating not only the proof that a low sodium diet was beneficial but also the difficulties that were met in coming to such a conclusion.

SECTION OF DERMATOLOGY

Friday, July 1

Psoriasis

With the president, Dr. J. T. INGRAM (Leeds), in the chair, Dr. H. W. BARBER (London) in a stimulating and provocative opening paper stressed the similarity between the problems of psoriasis and of rheumatoid arthritis. He would not exclude the possibility of a specific infective organism such as a virus playing an important part in the aetiology, as in herpes simplex. The weight of evidence, however, was in support of psoriasis being a non-specific reaction of the skin to various kinds of stress in persons with an inborn tendency to that pattern of reaction. There was no specific treatment for psoriasis. The work of Danysz, who produced a variety of non-specific diseases in experimental animals by repeated injection of a foreign protein, was discussed. The particular "target organ" which reacted was specific for the individual. The work of Selye with pituitary and adrenocortical extracts was important, and his term "diseases of adaptation" was very apt.

The relationship of psoriasis to rheumatic fever in childhood and to rheumatoid arthritis, gout, and other "rheumatic conditions" in the adult was considered, and also the occasional association with so-called allergic diseases. Age at onset, race, and climate were all significant. Among the many factors which might be operative in the aetiology of psoriasis attention was drawn to the influence of infections, especially streptococcal infections. This guttate reaction to infections was seen particularly in children. The influence of the menopause in provoking a particular pattern of psoriatic reaction was noted; other influences, such as errors of metabolism and shock or emotional disturbances, were important provocative factors. Pregnancy and jaundice commonly had a temporary beneficial effect upon the course of psoriasis and of rheumatoid arthritis. The association of psoriasis with rheumatoid arthritis was a recognized syndrome. Gout with secondary osteoarthritis when associated with psoriasis gave a very similar picture.

Dr. Barber described two patients in whom the ingestion of cow's milk seemed to be responsible for the eruption of psoriasis, and he felt that the question of food allergy called for further research. Each case of psoriasis had to be considered individually, and if the provoking cause or causes could be determined in a particular case there was a good chance of successful treatment.

Dr. BRIAN F. RUSSELL (London) took the view that the psoriatic state, often latent, was hereditary and probably indicated some error in fat metabolism not yet elucidated. This underlying state, however, might not call for treatment; it was the provocative causes of exacerbations of the condition which had to be treated. In this regard two large groups were those cases following infective states and those associated with psychogenic disturbances. In the latter group the eruption was often of flexural distribution; it would seem that pruritus was commonly the primary symptom and psoriasis appeared secondarily as the result of friction.

Psoriasis was a skin reaction to a wide range of stresses, including all grades of physical injury, lack or excess of sunlight, cold, fatigue, infections, bacterial toxins, drugs, emotional difficulties, and endocrine disturbances. The skin was the organ which suffered, because of an inherited biochemical fault resulting in defective keratinization, a fault which was latent until aggravated by one of these stresses. The stresses were similar in nature to those which might excite rheumatoid arthritis. The tendency in both disorders to spontaneous remissions and relapses, improvement in pregnancy, and response to non-specific measures all seemed to support the possibility that they might both arise from repeated stimulation leading to failure of adaptation in the endocrine–autonomic system.

Dr. J. H. TWISTON DAVIES (Manchester), commenting on Dr. Barber's consideration of the arthropathic forms of psoriasis, drew attention to analogies in other dermatoses. He discussed the generalized form of guttate psoriasis of isolated or seasonal occurrence and its possible relationship to what he termed "seborrhoea." He criticized the conventional classification of

skin diseases. He agreed that psoriasis could sometimes be cured, but felt that in many cases it was better for the patient to adjust his emotional reaction to the infirmity rather than labour with the conventional lines of treatment. He stressed the difficulty of assessing the value of physical and chemical methods of treatment.

In a lively discussion which followed the opening papers Dr. HERBERT BROWN (Glasgow) compared psoriasis of the vulva and peri-anal regions with neurodermatitis in these sites and thought they were often of similar significance; *x*-ray therapy was often useful. Dr. G. A. GRANT PETERKIN (Edinburgh) recognized heredity and trauma as playing a part but raised the question of a filterable virus and quoted cases suggesting contagion. He thought that psoriasis in hot countries was caused by sweating and friction. Sir Norman Walker had employed the "so-called" Goeckermann treatment many years ago. Dr. F. F. HELLIER (Leeds) thought that treatment which included sunlight therapy increased the patient's resistance and diminished the possibility of relapse. Dr. G. HODGSON (Cardiff) said he had seen the part played by trauma as an aetiological factor in mine workers. Dr. MARY SMITH (Glasgow) suggested that those who did not tan were more readily affected, but Dr. A. BIGHAM (Bradford) said he had seen many cases of psoriasis in coloured troops in India.

Dr. H. R. VICKERS (Sheffield) had found thorium X of value in psoriasis of the scalp, and Dr. W. N. LEAK (Winsford) put in a plea for dithranol to be prescribed in cream bases in tubes so as to reduce the staining of clothes. Dr. S. T. ANNING (Leeds) protested against the psoriatic patient being left untreated. Dr. J. T. INGRAM (Leeds) mentioned a patient who had been under his care in infancy with eczema, at 7 years of age with alopecia, and now at 14 for psoriasis. Others who contributed to the discussion were Dr. C. D. EVANS (Bristol), Dr. MCKINLEY (Derby), and Dr. A. J. E. BARLOW (Huddersfield).

In reply Dr. BARBER said that, while a first treatment with *x* rays was often effective, subsequent treatments were not. He stressed the importance of focal infection and quoted the analogous relationship in tuberculide and dermatophytide reactions.

Use and Abuse of Chemotherapy

Dr. F. F. HELLIER (Leeds) introduced a discussion on chemotherapy in dermatology. Penicillin and sulphonamides were frequently prescribed when there was no justification for their use. Penicillin was probably more effective and less likely to give rise to sensitization if used as a lotion or spray. It was of value in the treatment of impetigo, ecthyma, infected ulcers, folliculitis, and sycosis. It should not be used in eczematous states even though infected. The application should be limited to a seven-day period. Sycosis often relapsed through infection being carried in the nostrils, and they should therefore receive treatment.

Parenteral therapy was suitable for deep infections; procaine penicillin was more efficient and less painful than other forms. Its use by mouth should be restricted to infants under the age of 6 months. Common reactions to the drug were erythema and urticaria, though asthma and exfoliative dermatitis might occur. Sulphonamides should not be used for local treatment for longer than five days. Internally they should be given in an adequate dosage for about five days. Sulphonamide dermatitis was now less common, but if it occurred it was very intractable. It was characterized by vesicles about the fingers suggesting a dermatophytide eruption. Recently attention had been drawn to the occasional appearance of periarteritis nodosa as a result of sensitization to sulphonamides.

Dr. P. B. MUMFORD (Manchester) did not think penicillin or sulphonamides should be used locally, and he did not regard the use of soap and water as helpful in the treatment of boils. Dr. H. W. BARBER (London) mentioned a case of periarteritis nodosa due to sulphonamides. He restricted the use of sulphonamides to a single five-day course. Dr. H. R. VICKERS (Sheffield) felt that the specialist did not see the large number of cases treated successfully by general practitioners. He saw much less pyodermia in children than previously, and he thought sensitization in children was very rare. Dr. W. N. LEAK (Winsford) suggested that the microform sulphathiazole used as a cream was more efficacious. Dr. LIPMAN COHEN (London) thought thyrotricin should replace penicillin and the sulphonamides in local therapy, as sensitization to this antibiotic was rare. Dr. P. INMAN (Sunderland) and Dr. A. CARLETON (Oxford), however, mentioned cases of sensitization to thyrotricin. Dr. A. J. E. BARLOW (Huddersfield) had seen penicillin dermatitis follow the insertion of penicillin tablets into dental sockets.

SECTION OF OPHTHALMOLOGY

Friday, July 1

Toxoplasmosis

Under the chairmanship of Mr. N. P. R. GALLOWAY (Nottingham), vice-president, a paper on toxoplasmosis was read by Mr. A. B. NUTT (Sheffield). He described the case of a 3½-year-old girl with signs of old central choroido-retinitis in each fundus together with mental backwardness. Two years previously, when he had first seen the child, a diagnosis of toxoplasmosis had not been considered, because at that time no *known* cases had been seen in this country. But the ravages of the disease might well have been misinterpreted as instances of congenital malformation or as the consequences of other infective agents. During a study visit of the Faculty of Ophthalmologists to Professor Franceschetti's clinic at Geneva last year Mr. Nutt had had the opportunity of hearing Dr. Bamatter's account of toxoplasmosis and to examine a number of cases assembled by that observer. Being struck by certain features of resemblance to his own case, Mr. Nutt had investigated the girl's case on returning to England. No radiological signs of intracranial calcification had been found, but that feature was neither pathognomonic nor invariable. Admittedly the toxoplasma had not been identified, but the intracellular protozoön was notoriously elusive, even during the acute stage of the disease. Laboratory tests, however, had given results supporting that diagnosis, towards which the clinical features had already drawn his attention.

In that case there had been no history of any severe illness before the child's vision had first been presumed to be defective, but intrauterine infection was a well-recognized mode of acquiring toxoplasmosis, and the house inhabited by her mother during pregnancy had contained a dog and was infested by mice. Mice, guinea-pigs, cats, and dogs are among the animals suspected of conveying the organism. Several cases had been reported in a family of taxidermists, and one of Dr. Bamatter's patients had been a woman whose pillow had been shared with a cat.

Clearly the problem of toxoplasmosis required further research, and so far the results of treatment had been disappointing, nor was it yet known to what extent prevention was possible. Meanwhile clinicians should bear in mind the possibility of this protozoal disease as an explanation for low-grade intelligence in association with bilateral patches of old central choroido-retinitis characterized by large size, irregular pigment proliferation, and clear-cut margins. Mr. Nutt's coloured fundus drawings clearly displayed these features, and in his case no similar lesions were present in the outlying regions of either fundus. Peripheral lesions did occur, and might reach a size many times greater than that of the optic disk. When the intrauterine devastation wrought by rubella was first revealed by Australian observers, clinicians in other parts of the world were sometimes inclined to suggest that disease as an explanation for lesions readily attributable to other maladies. The same tendency was already becoming evident with regard to toxoplasmosis. Nevertheless, the disease could no longer be dismissed as a remote possibility in Britain. Hitherto most of the cases recorded had been in inhabitants of the U.S.A. or the European mainland, and he could find only one published case in our literature at the time of reading his paper. (A report by Mr. Harold Ridley of a case of toxoplasmosis has since appeared in the *British Journal of Ophthalmology*, 1949, 33, 397.)

Ophthalmology in Spain and Holland

Mr. JOHN FOSTER (Leeds) then spoke on practical ophthalmology in Spain and Holland in 1948. He had been greatly

impressed by the speed of certain operators in Spain and Holland. At several clinics he had found that the average time spent on diathermy for detached retina was less than five minutes, and once he had witnessed fifteen intracapsular cataract extractions in three-quarters of an hour. Such speed—when it was combined with care and dexterity, as it had been on those occasions—could be achieved only by an able operator supported by first-rate assistants working in a smoothly organized theatre. Another striking feature had been the wide discrepancy between different clinics with regard to operative asepsis. Some surgeons had favoured prolonged washing of hands and forearms before donning gown, cap, mask, and gloves. Others had cared for none of these things, and purists would perhaps be horrified to hear that statistics did not reveal any corresponding discrepancy in the post-operative infection rate.

SECTION OF OTO-RHINO-LARYNGOLOGY

Friday, July 1

Respiratory Obstruction in Children

With the president, Mr. A. B. PAVEY SMITH, *in the chair*, Mr. G. E. ARCHER (Manchester) read a paper on acute respiratory obstruction in infants and young children. He reviewed some of the causes of asphyxia neonatorum, suggesting how it might be avoided and how treated, and emphasized the desirability of having a trained endoscopist attached to every obstetric unit. Nasal respiration was the natural method, and essential in newborn infants. Nasal and postnasal obstruction could therefore cause severe dyspnoea. He stressed the importance of adenoid hypertrophy in the very young, and described acute nasopharyngeal tonsillitis as a clinical entity. He discussed laryngo-tracheitis and the differential diagnosis between it and laryngeal diphtheria. He then described and differentiated spasms of the larynx due to reflex irritation, inflammatory states, or other causes, referring specially to laryngismus stridulus, laryngitis stridulosa, and nocturnal dyspnoeic attacks in children, and he emphasized the importance of other conditions, such as laryngeal diphtheria, retropharyngeal abscess, thyroid and thymic disease, and foreign bodies.

Dr. MARY J. WILMERS (London) discussed the ways in which acute respiratory obstruction presented in infants and young children. She defined four clinical groups: (1) Sudden cessation of breathing without preceding distress, as seen in "breath-holding," *laryngismus stridulus, and pertussis*; (2) laryngeal distress and stridor, the commonest cause being laryngeal diphtheria, though other causes were trauma by instrumentation, as in bronchoscopy, and oedema secondary to scalds or caused by allergy; (3) attacks simulating asthma, due to obstruction of a main bronchus by foreign body or tuberculosis; (4) variable and intermittent stridors, which were absent during sleep or rest. That included congenital laryngeal stridor, and pressure on the trachea from without by an abnormal aortic arch, retrosternal goitre, enlarged thymus, and tuberculous mediastinal and paratracheal glands. It could also occur in cases of papillomata of the larynx and of catarrhal laryngitis.

Mr. J. H. OTTY (Bradford) emphasized how rarely the laryngologist saw the condition under discussion. In a 10-year period at Bradford at the Royal Eye and Ear and the Fever Hospitals only 27 patients required tracheotomy and 10 intubation. He agreed with Mr. Archer on the importance of adenoids, but thought that in infants much help could be obtained from the use of paraffin or ephedrine drops, and from multi-vitamin therapy. He rarely found it necessary to curette the adenoids before the age of 3 or 4 years. Acute retropharyngeal abscess was becoming very rare, and acute laryngeal obstruction by papillomata was extremely rare. He looked forward to the day when fever hospitals would become part of the general hospital system, so that endoscopists would be readily available to them.

Dr. E. C. BENN (Leeds) ascribed the unusual fall in the incidence of laryngeal diphtheria to the type of bacillus. The most important cause of mortality in tracheotomized diphtheria patients was toxaemia. Among the fevers measles now was the commonest cause of laryngeal obstruction. There was the group of varying and often uncertain aetiology, which included those cases of acute laryngo-tracheitis which Mr. Archer had described. He concluded by evaluating the three forms of interference available—aspiration, intubation, *and tracheotomy*.

In the discussion which followed Mr. A. S. DE B. COCKS (Adelaide, South Australia) condemned the use of metal instruments in treating cases of asphyxia neonatorum. He drew attention to the frequent cases of acute laryngo-tracheitis reported in Australia and to the almost complete disappearance of diphtheria in S. Australia. Dr. H. M. JAY (South Australia) described the epidemic of acute laryngo-tracheitis in more detail. All cases were thought at the time to be laryngeal diphtheria, and almost all were fatal from toxaemia. Mr. W. J. DAGGETT (London) strongly deprecated the use of endotracheal anaesthesia in infants.

Dr. J. F. BIRRELL (Edinburgh) stated that the commonest cause of death from respiratory obstruction in infants in the Sick Children's Hospital in Edinburgh was the inhalation of vomit. Treatment by bronchoscopic suction had succeeded in a few such cases. Congenital laryngeal paralysis with associated sensory changes was sometimes a cause. He advocated tracheotomy in cases of obstructing laryngeal papillomata, and favoured removal of adenoids, when necessary, in very small infants. Dr. S. DEBONO (Malta) described an epidemic of laryngo-tracheitis occurring in Malta last winter, and the treatment by direct laryngoscopy and aspiration, with the *administration of streptomycin*. Dr. A. P. M. PAGE (Nottingham) disagreed with giving carbon dioxide to babies. He thought the condition described by Mr. Archer should be called acute laryngo-tracheo-bronchitis, and that it was the extension into the bronchioles and not the toxaemia which killed. Palpation was important in the diagnosis of retropharyngeal abscess.

Mr. T. McM. BOYLE (Leeds) asked if cases of pertussis developing stridor should be treated in the decompression *chamber*. Dr. H. STANLEY BANKS (London) thought that laryngo-tracheitis comprised two or more conditions, either of bacterial or of virus origin. Tracheotomy did not save these patients, nor did chemotherapy. Two fatal cases showed well-marked haemorrhagic pulmonary oedema. The decompression chamber was of no value in treating early pertussis and its complications.

Dr. W. M. JONES (Harrogate) said that most cases of asphyxia neonatorum were due to drugs and anaesthetics given to the mother. Mr. PAVEY SMITH, the president, agreed that tracheotomy in diphtheria was becoming ever rarer. He advocated intubation of the larynx by a gum-elastic catheter under direct vision as the first step in performing tracheotomy. Mr. ARCHER, in reply, agreed that tracheotomy in young infants was an *exceedingly difficult operation. Anaesthetists should be trained* to realize the possibility of damaging the delicate structures of the infant larynx. Laryngo-tracheo-bronchitis had been discussed at some length, but he had seen only four cases, two proving fatal; and in these the oedema present was tracheal and not laryngeal.

CLINICAL DEMONSTRATIONS

On the afternoons of June 30 and July 1 demonstrations were arranged at the Royal Bath Hospital. A large number of patients suffering from osteoarthritis, ankylosing spondylitis, and rheumatoid arthritis were shown in various stages of recovery following surgical procedures. Some of them were still bed cases, others were on crutches or could walk unassisted, some even entered the hall on bicycles, and so right up to apparent full recovery of function. Mr. H. PETTY (Leeds) was in charge of the demonstration, which was followed by a film. The physiotherapy regime for cases of cup arthroplasty was demonstrated. The patient was put on a Thomas splint with skin traction, and passive movements were instituted with the aid of a cord passing through pulleys and attached to the splint. The Thomas splint was taken off at the fourth week, a foot splint used, and the exercises continued. By the eighth week there was progress to crutches, and the patient was shown to be capable of performing certain special exercises.

Obituary

Dr. H. Bruce Low writes: As an intimate friend of HENRY ANSTEY COOKSON may I add a few words to the tributes already paid to him (June 11, p. 1055)? Cookson was richly endowed and had unusually varied opportunities for gaining experience. He was pathologist to a busy provincial hospital, and material from other hospitals in a thickly populated industrial area was sent to him; all of which made him claim to be essentially a clinical pathologist. But he became also an expert in forensic medicine, and coroners' and judicial courts relied to an increasing extent on his investigations and testimony. His attainments were recognized by his colleagues in Edinburgh admitting him without examination as a member of the Royal College of Physicians and later promoting him a Fellow. His scientific standing was acknowledged by his election as a Fellow of the Royal Society of Edinburgh.

Cookson's interests were wide. He was equally at home in discussing moths and butterflies, gannets on the Bass Rock, palaeolithic prehistory, the internal workings of a motor-car, the intellectual and cultural qualifications of bishops, or, it seemed, anything and everything. He had shrewd, wise, and provocative opinions readily expressed on any subject that happened to be mooted. He was prepared to say what districts of the country motorists had passed through by an examination of the insects adhering to their windscreens. With no parade of piety, he had definite religious convictions. He cared not whether a man was Episcopalian or Presbyterian, but he disdained any who were devoid of religious principles. Pride of race and in his country's achievements were a portion of the deeper parts of his character.

But among his friends this man, affectionately known as "Cookie," will be remembered chiefly for his boyish impishness and fun. To be in his company was a delightful entertainment. A humorous remark quickly broke through the reserve of strangers, and a picture comes to my mind of the learned scientist, sitting on his luggage in the corridor of a wartime crowded train, taking his part with a group of passengers in reading a play which a hitherto unknown fellow-traveller happened to have in his bag, the whole performance promoting hilarious enjoyment on an otherwise tedious journey. Be his desk never so high with work waiting to be done, he followed you out of his office, along the passage, down the stairs and to the outer door, firing off quips, jests, and leg-pulls that made the escape of the willing victim difficult. With all his learning and bonhomie, there was a surprising tenderness and depth of feeling for any who were in trouble. His imagination readily put him into the predicament of the unfortunate one and he was apt with sympathy and proffered help. The world of his acquaintances is left sad and impoverished by the loss of this remarkable and lovable man.

Dr. ALISTER FORBES COWAN died at his home in Lincoln on June 9 at the age of 62. For the past two or three years he had been handicapped by illness but had carried on his practice with characteristic pluck. Born in Edinburgh, he was educated at Merchiston Castle School and at Edinburgh University, where he graduated M.B., Ch.B. in 1912. He took the F.R.C.S.Ed. in 1923. After holding resident appointments as house-surgeon in the Royal Infirmary, Edinburgh, and as senior house-surgeon at the Royal Sussex County Hospital, Brighton, he joined the late Dr. F. J. Paley in practice in Hove. He served in the first world war as a captain, R.A.M.C., and subsequently migrated to New Zealand, where for some years he practised at Akaroa and had charge of the hospital there. Always interested in gynaecology, Cowan decided to specialize in this subject and moved to Wellington, but unfortunately he was soon incapacitated by illness. After his recovery he settled in Lincoln, where he practised for the rest of a busy life. Alister Cowan's buoyant and enthusiastic temperament carried him through all difficulties, and his sunny nature made him many staunch friends. He was a fine quarter-miler in his young days, and he loved every kind of sport, especially shooting, golfing, and fishing. To his widow and two surviving children, one an officer in the Gurkhas the sympathy of all his colleagues and friends will be extended.—H. N. F.

Dr. LAURENCE SEBASTIAN MORGAN, of Grenada, British West Indies, died at Virginia Water, Surrey, on June 9, aged 6[illegible] years. He was the elder brother of Dr. H. B. W. Morgan, M.P. for Rochdale. He qualified later in life than usual, and after short service in the R.A.M.C. in the 1914–18 war (from which he was invalided) he returned to the Caribbean area and joined the Colonial Service. He was stationed for the remainder of his life in the Colony of Grenada and its satellite islands, and did at different periods many malarial surveys for the Government. He was secretary, and later president, of the Grenada branch of the B.M.A. Finally he acted as chief medical officer, medical officers of prisons, and principal medical officer of the asylum and quarantine station until his resignation. He was buried in Highgate Cemetery, London, after a service at the Dominican Church, Southampton Road, Hampstead.

Dr. CHARLES MORTON GAVIN ELLIOTT died suddenly on June 10 at the age of 68. He was born in Geraldton, Western Australia, and educated at St. Peter's College, Adelaide. He started work in a shipping firm, but gave this up to study medicine at Edinburgh. He took the Scottish triple qualification in 1914, and was a house-surgeon at the Royal Infirmary, Edinburgh. Afterwards he worked as an assistant to Dr. Ronald of Larbert. On the outbreak of war in 1914 he joined the R.A.M.C., and served in France for four years. He was twice mentioned in dispatches. After the war he returned to Edinburgh to take his D.P.H. in 1919, and later settled in practice in the High Street, Old Portsmouth. He built up an extensive practice, especially with Service families, and continued with his work until shortly before his death. During the recent war Dr. Elliott carried on under difficult conditions, for his house and surgery were destroyed by enemy action. A sound physician, he never spared himself in his devotion to the highest ideals of his profession and to the welfare and comfort of his patients. His qualities won him the respect and affection of all classes. He married Alison Jones, of Larbert, in 1919, and she survives him with a daughter and two sons.

Mr. HYMAN BARNETT LIEBERMAN, who died in Nottingham on June 25 at the early age of 46, was born in Sydney, Australia. He graduated M.B., Ch.M. at the University of Sydney in 1926. He then came to this country, and was appointed house-surgeon to the late Mr. A. R. Tweedie and Mr. H. Bell Tawse at the General Hospital, Nottingham. He had a natural ability for ear, nose, and throat surgery and soon decided to make this his life work. He took the D.L.O. in 1930 and the F.R.C.S.Ed. in 1932. After gaining these higher qualifications he was appointed honorary aural surgeon to the Mansfield and District Hospital, and clinical assistant to the General Hospital, Nottingham. In 1936 he was appointed honorary assistant surgeon at the General Hospital, Nottingham, and throughout the war years, following the death of Mr. Tawse, he was in charge of the ear, nose, and throat department. Long hours of work with a depleted staff, and little leisure, undoubtedly contributed to his early death, for he never spared himself in his service to his patients. After the war he retired from the Mansfield and District Hospital in order to concentrate his work at the General Hospital, Nottingham, where he was appointed to the full staff in 1947. He always had a hankering to go back to Australia. In 1948 he resigned his appointments and travelled to Perth, where he intended to continue the practice of his specialty, but anxiety about the health of his children led to his early return to Nottingham. Not long after this his own health broke down; his death from pneumonia was unexpected and tragic. It could be said of Lieberman that he had three interests—his family, to whom he was devoted, music (he was an accomplished pianist), and his work. The esteem in which he was held by his colleagues and his patients was an indication of the character and value of his services.—G. G.

Dr. GEORGE THOMAS WILLAN, a well-known Hove practitioner, died suddenly at his home on June 24 at the age of 74. Dr. Willan received his medical education at Cambridge and Guy's Hospital, taking his B.A. in 1898 and the conjoint diploma in 1891. In his early days he was especially interested in industrial medicine, and wrote several articles for *Pitman's Dictionary of Industrial Medicine*, including those on the medical examination of employees, factory health, and factory records and statistics. During the South African war he was attached to the 17th Lancers as a civil surgeon. In the 1914–18 war he commanded the 82nd Field Ambulance in the 27th Division from 1915 to 1918. He served in Belgium, France, and Macedonia, and in 1917 was awarded the D.S.O. and mentioned in dispatches. He was invalided from Salonika in 1917. Dr. Willan practised in Carlisle and later in Milton Regis and Sittingbourne before settling in Hove. He had given valuable service to many organizations, including the South African Veterans, the R.A.M.C. Association, the Ypres League, and the St. John Ambulance Brigade. In 1935 he held the office of president of the Border Counties Branch of the B.M.A. During the recent war he was in charge of a camp reception station in Brighton. Dr. Willan was a good all-round sportsman, and enjoyed a regular dip in the sea up to the last. He is survived by his widow, one son, and two daughters. The profession in Hove has lost a fine representative of the old type of general practitioner, who will be much missed not only by his many friends and patients but also by his colleagues, with whom for many years he had worked in steady friendship. He was a good comrade who could always be relied on for help when needed.—L. A. P.

Dr. JOHN GALWEY LEEBODY, medical superintendent of Fulham Hospital and formerly medical superintendent of St. George-in-the-East Hospital, died in Hammersmith Hospital on July 2 at the early age of 49. Although he had been in indifferent health for some time, his death came as a great shock to his many friends. Leebody was born in Edinburgh, educated at Merchiston, and graduated M.B., B.Ch. at Edinburgh in 1923. He obtained the F.R.C.S.Ed. in 1936. Most of his professional life was spent in the municipal hospital service. He was a capable surgeon, but of recent years had devoted more and more time to medical administration. At work he was conscientious to a fault, never sparing himself and doing everything he could for his patients and for the East End Hospital he loved. The hospital building was badly damaged during the war, and the anxiety of these years was no doubt an added strain on his health. Leebody was a man of high integrity and infinite charm who endeared himself to all who knew him. He was an ideal companion, quick with the happy phrase that neatly sized up a personality or a situation. In sport he was an all-rounder, though his activities in this field had necessarily been curtailed of late. The deep sense of loss felt by his colleagues will also be shared by the many nurses who worked with him. He is survived by his widow and a young son, to whom the sympathy of many friends will be extended.—J. R. M. W.

Medico-Legal

A STILL LONGER GESTATION PERIOD

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

Where divorce suits have been founded wholly or chiefly on abnormal length of gestation the Divorce Court has accepted as possible periods of gestation 346 days in 1947 and 349 days in 1948.[1] Mr. Commissioner Blanco White, recently retrying a petition previously heard at Chester in December, 1947, would not reject 360 days.[2] A leading aircraftman serving in Germany had home leave from Aug. 7 to 17, 1945, and was demobilized on Feb. 9, 1946. Between those dates he had no access to his wife, but on Aug. 13, 1946, she bore a child which weighed 8¼ lb. and was apparently normal in every way. This meant a gestation period of either 186 days or 360 days. The wife, so far as the evidence showed, was a respectable and hardworking woman with a small child who lived with her parents. She worked as an assistant linesman on the railway. No allegation of misconduct was made against her. In November and December, 1945, about nine months before the birth, she wrote to her mother-in-law and husband as if with a clear conscience, and when it took place she notified him by telegram and by letter.

The Commissioner was satisfied on the medical evidence that the child could not have been conceived as late as 186 days before the birth, but on the question whether the 360 days' gestation was possible he had to ask himself whether the extra 14 days over the period of 346 days previously accepted by the courts was such as to tip the balance between a reasonable and a fantastic doubt, for adultery has to be proved beyond reasonable doubt. He did not think it right to condemn this respectable woman, who had sworn that she had not committed misconduct, on speculation alone. He could not say, on the court's judicial knowledge of natural laws, that 360 days was an impossible period, and so was not satisfied beyond reasonable doubt that adultery had been committed.

An appeal has now been entered in this case.

[1] *Wood* v. *Wood*; *Hadlum* v. *Hadlum*.
[2] *Daily Telegraph*, March 25, 1949.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

FINAL M.B.—*Part II (Principles and Practice of Physic, Pathology, and Pharmacology)*: J. Armstrong, G. K. Barker, A. Bates, P. E. Bodkin, I. I. Bornstein, E. C. A. Bott, J. F. Boyle, B. I. Brown, P. Bryan-Brown, D. Bulmer, J. F. C. Callow, N. I. Cardno, C. C. Clapham, E. A. Cooper, P. B. Corston, G. A. Court, P. J. Crossland-Taylor, W. G. Dawson, R. D. Eagland, J. G. Elliott, M. A. Epstein, R. W. Fairhead, E. H. R. Ford, P. R. Freeman, A. Gol, D. Gough, G. A. Gresham, B. M. Grimmett, E. C. B. Hall Craggs, J. R. Harris, E. H. Hemsted, R. N. T. Higgins, B. J. Hockey, L. B. Hunt, L. C. Hurst, I. P. James, E. W. P. Jones, M. J. Kehoe, D. S. Kerr, H. P. Kilner, A. J. Lane, D. G. A. Leggett, D. W. L. Leslie, H. P. Lottenberg, J. Lynfield, J. P. Lythgoe, C. McCance, I. R. McWhinney, T. C. K. Marr, J. D. Marsh, E. Monkhouse, W. P. L. Morrison, J. H. Neame, H. R. Odlum, B. W. Peckett, P. T. Perkins, S. T. H. H. Pilbeam, K. N. J. Pocock, A. Polak, H. T. Pym, J. H. Rack, J. M. Roberts, C. A. Rogerson, J. B. Self, V. H. Smith, J. F. Soothill, L. R. Spencer, J. Stevens, T. E. Stockley, R. A. Struthers, T. J. Sullivan, M. K. Sykes, D. G. Thompson, P. W. Thompson, E. Veldhuyzen, D. P. Wagstaff, C. B. Walker, I. S. Waller, S. A. Wartski, J. F. Watkins, R. G. Watkinson, E. J. Watson-Williams, D. D Webb, E. K. Westlake, J. L. Whitby, B. F. Whitehead, M. Wilkinson.

UNIVERSITY OF ST ANDREWS

The following candidates have been approved at the examinations indicated:

M.D.—Elizabeth M. Ford, D. Myles, D. Thomson.

M.B., Ch.B.—W. G. F. Adams, O. R. Akinsheie, Anne Astley, T. S. Beveridge, S. C. Cameron, R. E. Candlin, P. G. Cannon, Jean E. H. Charlton, Elizabeth M. Chester, J. J. Christ, Denys P. L. Cooper, J. A. Doig, D. W. Emuchay, Denys V. I. Fairweather, Eileen R. Forrest, J. L. Galloway, D. G. Garrow, C. W. Grant, P. W. Grant, Sheila C. Grant, J. D. Green, W. Guthrie, J. B. W. Halley, F. T. Hardy, Margaret M. A. Harley, W. A. Henderson, P. M. Joubert, Margaret M. Kennedy, G Kerr, A. S. Liddell, A. S. Lindsay, Doreen S. Lowson, Anthea L. MacBean, Mary E. McGavin, J. A. McGregor, A. D. McInness, A. M. McLeod, Margaret G. Macnaughton, R. A. Main, Pamela A. Mais, Muriel I. K. Nicoll, Isabella G. R. Nimmo, Joan North, Margaret Oliver, Evelyn J. Paterson, Joan E. Perry, I. R. Purdom, I. H. Redhead, A. W. Robertson, Monica V. Robinson, M. Rosen, J. N. Rushforth, A. Saddler, J. Simpson, Isobel M. Smith, A. W. Sumner, G. Williams, Janina Zaborowska.

UNIVERSITY OF LONDON

The following members of the medical profession have been appointed representatives of the University on the governing bodies of the institutions indicated in parentheses: Professor S. J. Cowell

the amendment would be fulfilled if a local authority provided one apparatus. What Mr. Thorneycroft wanted was a stunt and not analgesia.

It was for the clinician to decide what it was best to give the mother and for the Minister to put into the hands of the midwife or the doctor the full range of clinical services which might be necessary. It was not the duty of laymen like Mr. Thorneycroft to say what should be clinically applied in a given set of circumstances. There were other ways of inducing painless birth which were not analgesia. Why did not members of the Opposition move an amendment to provide that streptomycin should be given in all cases of tuberculous meningitis? They could go through the whole range of clinical medicine and insist on each case being mentioned in a Bill. Each piece of clinical practice was a part of the general Health Service. It was the duty of the Minister to put at the disposal of the medical profession the full range of medical apparatus and then to leave the medical profession to apply it in the light of changing experience. In six months or a year this practice might be entirely dated and they would have an Act of Parliament insisting on the administration of an out-dated practice. If Mr. Thorneycroft was better acquainted with the subject he would know that some obstetricians and gynaecologists objected to this form of birth. In this field Parliament must give proper attention to the welfare of the Service as a whole and the health of the patients in particular. It would be sheer idleness to accept the amendment, because the words would mean nothing. Parliament ought not to single out any special form of treatment. It had done so under the principal Act with regard to dental priorities and Members could see what had happened.

Dr. GUEST pointed out that the new Clause included a duty on the local health authorities to secure that the midwives whose services were provided were enabled to render "all services reasonably necessary for the appropriate care" of the women they attended. Surely that provision included analgesia and everything else.

Mr. BEVAN agreed that these words covered the whole range of services which at any moment might be regarded as clinically necessary—not only analgesia but all services.

The Committee then divided and Mrs. Manning's amendment was rejected by 16 votes to 15. Mr. Bing's clause as originally proposed was then added to the Bill.

On the Schedule covering minor amendments of the Acts of 1946 and 1947 Mr. BEVAN moved to insert words to enable the Exchequer grant to be paid on the money which local health authorities had to find to make good the annual deficit of the Central Midwives Board. The Committee agreed to the amendment.

An amendment by Dr. SEGAL to add representatives of ophthalmic and dispensing opticians to the local representative committee was withdrawn when Mr. Bevan agreed in principle to accept it at the report stage.

Drugs for Private Patients

Mr. RICHARD LAW moved to insert words to enable patients who were treated by private practitioners and not under the National Health Service to receive the advantages of the Act so far as pharmaceutical services were concerned. There was a very strong feeling among private patients that they were being unfairly treated.

Consideration of this amendment was adjourned until the Committee resumed for a fourth sitting.

When the Committee resumed on July 6 Mr. BEVAN replied to Mr. Law, whose amendment proposed that a doctor, who treated a private patient could prescribe drugs, medicines, and appliances, which would be provided under the National Health Service. He said that if this were allowed there would be no effective check on expenditure. It was a mistake to say that the Ministry could make regulations to provide for a doctor who was outside the Service being brought inside for disciplinary purposes in this respect. The patients of private doctors were not denied the services provided under the Act: they denied themselves. Probably less than 4% of the population still chose to have private doctors. A large number of doctors in the Service had private patients as well. He saw no reason why they should not have, if they wished to maintain the relationship of private doctor and private patient which had formerly existed, but he saw no reason why Parliament should pump out public money to support the proposition moved by Mr. Law.

The National Health Service (Amendment) Bill afforded unlimited scope for the Opposition to put down amendments to the National Health Service Act, yet the only substantial amendment proposed was this one which added to the expenditure without adding to the Service. A doctor wishing to retain a private patient might be induced to prescribe expensive drugs because the more he satisfied that patient that he was prescribing astronomically the more inclined the patient would be to keep him as a private doctor. Until the Service had stabilized itself Parliament ought not to do anything that would bring about a return to the old situation.

Sir HUGH LUCAS-TOOTH asked Mr. Bevan whether he would accept an amendment which would enable doctors who were in the Service to prescribe for their private patients.

Mr. BEVAN said the fact that a doctor treated a person privately put both of them outside the Service in respect of that treatment.

Sir HUGH LUCAS-TOOTH pointed out that a doctor could prescribe for a visiting patient or for a foreigner.

Mr. BEVAN said the Opposition could have put down an amendment to deal with the problem and exclude foreigners, but all it wished to do was to create bitterness and prejudice without facing the problem. If visitors to this country fell sick they took advantage, as a general rule, of the hospital system, but that was no reason why the Committee should make a general breach in the system.

Sir HUGH LUCAS-TOOTH said that a person could go to a doctor as a private patient and at the same time be placed on the list of some other doctor under the scheme and take advantage of that fact to obtain medicines recommended for him by his private doctor.

Dr. HADEN GUEST said that was not the way that medical practice worked. If it took place it would be regarded as a very serious matter by both doctors. The majority of doctors in the Service were men of the highest integrity. Some forms of treatment were very expensive. It might be necessary to prescribe for patients gland extracts at a cost of £100 per week. To suggest that such treatment should be outside the control of the National Health Service was fantastic. Doctors would resent having to send in two kinds of accounts and would prefer to deal with the matter from a National Health Service point of view. From the doctor's point of view the advantage of the Service was that it got rid of commercialism.

Colonel STODDART-SCOTT drew a comparison between a British subject who paid his taxes and his contributions to the Health Service but could not get that service, while a foreigner was able to get any treatment under the Health Service without being on the list of any doctor.

Dr. SEGAL hoped that Mr. Bevan would set his face against the amendment. He believed that the present glut of overprescribing was a relic of the bad old days. The tendency would diminish as the Service developed. He did not see how Mr. Bevan could make a concession which would add to the opportunities for overprescribing.

Mr. LAW said Mr. Bevan had been unreasonable in arguing that the change proposed was not administratively possible, and unreasonable in arguing that it was a dodge to endow private practitioners with public funds.

Mr. BEVAN said that if a citizen contributed to the upkeep of a park which he never entered he suffered no injustice, because the park was not withheld from him. It was not true that the Government was withholding from a British private citizen what it was giving to a foreigner. Old age pensioners and also wives and children did not pay the contribution and were still entitled to the medical service. If he made the concession which had been asked for, the 4% of population outside the Service would grow very rapidly.

Mr. LAW's proposed amendment to the schedule was then rejected by 20 to 7.

An amendment by Mr. HOWARD to provide for compensation for "loss of remunerative time" by individuals attending hospital management committees or other bodies in place of

the provision in the Bill for compensation for "any loss of earnings" was withdrawn after Mr. BEVAN had given an assurance that the phrase used in the Bill involved no narrowing of the provision.

Election of Chairmen

Colonel STODDART-SCOTT moved an amendment the purpose of which was to provide that the Minister, having nominated every member of every regional hospital board and every member of every board of governors of teaching hospitals, should permit them to elect their own chairmen from among the people he had appointed. The amendment also asked that management committees should be allowed to choose their own chairmen.

Mr. BING said that the power which the Minister possessed enabled him to make appointments of a semi-political nature which it would be difficult for the regional boards themselves to make.

Mr. BEVAN remarked that of all his tasks in connexion with the National Health Service the appointment of boards of governors and their chairmen and of regional hospital boards and their chairmen had been one of the most difficult. He did not seem to have been able to please anyone, but he was consoled by the fact that the regional boards and the boards of governors were settling down quite happily to their tasks. Nothing could be more undemocratic than to permit a body of nominated persons to elect a chairman and thereby to stop the House of Commons from criticizing the Minister for the administration of these boards. The Executive Council was not an agent of the Minister but a statutory and contractual body, and therefore it was proper for it to elect its own chairman.

The amendment was withdrawn.

Mr. BEVAN moved an amendment authorizing him to pay certain expenses to members of subcommittees of the Executive Council. The Committee agreed to this amendment and to further drafting amendments, and the Committee Stage ended.

The Lock Hospital

Sir HUGH LUCAS-TOOTH asked Mr. Bevan on July 7 whether he had considered the proposal of the Regional Hospital Board that the London Lock Hospital should cease to be used as a hospital for the treatment of venereal diseases: and whether such action had received his approval or sanction.

Mr. BEVAN said this proposal had not been before him officially, because the Regional Hospital Board's delegated powers for the planning and development of hospital services in their area did not require them to obtain his approval before they made changes in the use of particular hospitals. If representations were made to him that a hospital ought not to be diverted from or to a particular purpose he would take these representations into account.

Dr. STEPHEN TAYLOR said the Regional Hospital Board had given most careful and sympathetic consideration to the case of the Lock Hospital. Only after the matter had been carefully discussed for a long time did the Board reach this decision.

Mr. BEVAN said it was undesirable that regional boards should be interfered with in their detailed plans.

Analgesia in Childbirth Bill

A Standing Committee of the House of Commons resumed on June 28 consideration of the Analgesia in Childbirth Bill.

Mr. J. J. ROBERTSON said that the Government proposed in committee on the National Health Service (Amendment) Bill to accept in principle new clauses standing in the name of Mr. Bing and Mrs. Mann. Mr. Bevan and Mr. Woodburn took the view that under the National Health Service Act local health authorities could be required to make provision for the supply of apparatus, for transport, and for the training of midwives in the use of analgesia. The domiciliary midwifery service was part of the National Health Service, and the provision of analgesia for women confined at home should not be divorced from other care given by domiciliary midwives to their patients. It would be wrong to single out analgesic apparatus and transport but not to secure that midwives were provided with other equipment and drugs required for the efficient practice of their calling.

Mr. THORNEYCROFT said that those who proposed to make specific provision for analgesia were not the first people to single out something in the National Health Service Acts. The Ministry had placed specific duties on local health authorities. The Government had made it a duty and not the option of the local health authority to arrange for the care of mothers and children under the age of 5. He had no doubt that if the Bill passed there would be a greater use of analgesia. The machines were available and were piled up in the stockrooms of the manufacturers.

Dr. HADEN GUEST said it would be better that action should be taken on an amendment to the National Health Service (Amendment) Bill to confer not only the power to make use of analgesia but power to do everything else necessary to make motherhood safe, to diminish maternal mortality, and to diminish the fear of pain. He thought that in future the psychological and physical preparation of a woman for childbirth would be more important than it was now. Safer motherhood depended on a big and elaborate organization. They had had that organization in London for some time and it could be set up in other places.

Mr. THORNEYCROFT said that if the Government was prepared to put a specific duty on local authorities in respect of the supply of drugs, apparatus, and transport he was prepared to drop the Analgesia in Childbirth Bill.

Mr. BLENKINSOP, for the Government, said Ministers wished to make the position clear by accepting words ensuring that the Minister had power to impose a duty on local authorities over the whole range of the services and not merely for analgesia. After further discussion the proposal that Clause 2 stand part of the Bill was defeated by 21 to 13. Subsequent clauses were accepted with minor amendments. The Bill was then reported to the House.

On July 1 the Bill was considered as amended in Standing Committee, and Mr. THORNEYCROFT offered to accept several amendments proposed by Mr. Bing. Discussion of these continued till the time appointed for the rising of the House, and the Bill did not then receive a third reading.

On July 8 the third reading of the Bill was moved and was rejected by 108 to 44.

Beryllium Poisoning.—Mr. JAMES GRIFFITHS said on June 28 that beryllium poisoning had been added to the list of prescribed industrial diseases. He was also considering a recommendation about certain forms of cancer among nickel workers.

Sickness Benefit.—Mr. TOM STEELE stated on July 7 that it was estimated that about 800,000 persons were in receipt of sickness benefit on June 1, 1949. A statistical inquiry into the average duration of sickness in 1949 was being made, but the results would not be available until early next year.

Extravagant Prescriptions.—Mr. PETER FREEMAN on July 7 asked the Minister of Health whether he knew that much larger quantities of medicines were frequently supplied on National Health Service prescriptions than were necessary, and what steps were being taken to prevent such waste of public money. Mr. BEVAN said a doctor whose prescriptions suggested extravagance might have his prescribing investigated by a local professional committee. Before this he would be given the opportunity of explaining his reasons to, and being advised by, one of the Ministry of Health medical officers.

Health Centres.—Mr. BEVAN announced on July 7 that 26 existing clinics were being run as health centres, medical or dental. One important new scheme was under way, and three other proposals were being considered. Meanwhile a special committee of the Central Health Services Council had the whole subject of future development in view.

The Ministry of Health reports that nearly 26,000 new blood donors were enrolled in the first three months of 1949, bringing the number of donors in the National Blood Transfusion Service to approximately 375,000. During the quarter there were 106,766 blood donations—23,000 more than in the comparable period last year. To keep ahead of the steadily increasing demand of hospitals, and to avoid, where possible, calling on the individual donor more often than twice a year, it is estimated that another 200,000 donors will be required.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 25. [No. 25

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	26	3	16	2	—	34	1	17	4	1
Deaths		—	—				—	2		
Diphtheria	73	17	24	6	5	137	17	44	6	1
Deaths	2	1	—	—	1	3	—	—	—	—
Dysentery	66	7	43	—	—	64	10	39	1	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	—	—	—	—	—	—	—	—
Deaths		—					—			
Erysipelas			18	3	3			21	9	1
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				39					46	
Deaths	17	1	4	—	—	33	1	11	2	—
Measles*	6,863	613	301	200	153	10,571	880	165	144	66
Deaths†			1	—	—			—	—	—
Ophthalmia neonatorum	52	4	10	—	—	47	9	11	—	—
Deaths										
Paratyphoid fever	31	1	—	—	—	8	1	2(B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	334	25	3	10	4	373	19	1	14	—
Deaths (from influenza)‡	7	—	1	—	—	4	—	—	1	—
Pneumonia, primary			153	25				142	26	
Deaths	111	17		9	4	114	14		4	4
Polio-encephalitis, acute	4	—				4	1			
Deaths										
Poliomyelitis, acute	48	6	2	3	—	27	7	2	1	—
Deaths§	3	1				—	—			
Puerperal fever		—	6				2	12		—
Deaths										
Puerperal pyrexia‖	88	3	3	1	—	109	13	5	—	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,137	76	175	68	57	1,649	103	394	40	36
Deaths†			—	—	—			1	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	8	2	2	1	—	3	—	3	1	—
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	2,181	90	57	87	82	2,803	217	38	86	12
Deaths	8	2	—	1	—	2	—	1	2	3
Deaths (0–1 year)	216	25	38	18	11	256	40	46	17	8
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,183	616	561	154	116	4,018	615	586	151	137
Annual death rate (per 1,000 persons living)			11·3	9·5				11·8	9·4	
Live births	7,666	1197	1010	425	251	7,743	1246	1015	448	246
Annual rate per 1,000 persons living			20·3	26·3				20·5	28·0	
Stillbirths	193	26	29			241	35	26		
Rate per 1,000 total births (including stillborn)			28					25		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

Notifications in England and Wales in the week ended July were poliomyelitis 80 (48), polio-encephalitis 1 (4). (Figures f the previous week are shown in parentheses.) Counting polio myelitis and polio-encephalitis together, multiple cases w reported from the following counties: Cheshire 2 (1), Corn wall 9 (3), Devon 4 (3), Essex 3 (5), Gloucester 3 (2), Her ford 3 (1), Kent 2 (2), Lancashire 5 (5), Leicestershire 2 (1), London 6 (6), Middlesex 9 (3), Oxford 4 (2), Somerset 2 (1), Yorkshire East Riding 2 (0), Yorkshire West Riding 9 (4), Carmarthen 2 (0).

The general epidemiological picture is one of a widespread increase, but the only definite groupings of cases so far reported have been in Newhaven (last case reported June 17), Camborne-Redruth U.D. (last reported case July 8), and Camberwell (last reported case July 7). A feature of the outbreaks has been the occurrence of unusual numbers of multiple cases in families. There have been three instances of two cases in one family, in Camberwell in two instances and in Newhaven in one instance. Cases have occurred among children rather than adults.

Many clinicians believe that muscular activity in the early indefinite stages of the disease is harmful, and Ritchie Russell brought forward evidence on this point based on his questioning of 100 patients who had poliomyelitis in 1947 (*Journal*, 1947, 2, 1023). His conclusion was that "complete physical rest in bed from the onset of the pre-paralytic stage greatly reduces the danger of severe paralysis. Severe physical activity at this stage is almost suicidal, while the continuance of even average physical activity is dangerous." This point was mentioned in the Ministry of Health memorandum published in the *Journal* of July 26, 1947 (p. 141), but did not perhaps then receive the emphasis which should now be given to it.

Food Poisoning at a London Hospital

Over a hundred members of the staff and patients at a la London hospital were affected by an outbreak of food poi ing on July 5. *S. typhi murium* has been isolated from a n ber of those attacked. There is little doubt that the vehi infection was "queen of pudding," eaten by some 600 p at lunch on that day. This pudding was made in two First breadcrumbs were mixed with a custard made fro and the yolks of 200 duck eggs, and baked in the o about half an hour. The white of the eggs was then up with sugar and poured on to the top of the spo grilled until the surface was lightly browned.

No members of the kitchen staff had had any susp illness before the outbreak, and it can be assumed that infe originated from the duck eggs. It is possible that parts of the sponge which had been baked in the oven for half hour may not have reached sterilizing temperatures; but it certain that the heat treatment given to the white of the eg was not sufficient to kill the organisms in this part of th pudding.

This outbreak, together with other recent incidents in whic duck eggs have been involved, is a further reminder of the potential danger of consuming duck eggs without adequate he treatment. Furthermore, unless the origin of the egg is know and it is certain that they are not infected with *S. typhi murium* it is dangerous to use duck eggs in the preparation of merin

Discussion of Table

In *England and Wales* there was a decrease in the not tions of measles 2,289, acute pneumonia 92, and whoo cough 72. The only increase was in the incidence of s fever 207.

The largest declines in the incidence of measles were Lon 295, Warwickshire 254, Yorkshire West Riding 254, Kent Sussex 131, Surrey 122, Middlesex 111, and Northumberl 108.

There were only small changes in the notifications whooping-cough, notably an increase of 31 in Essex and decrease of 55 in Lancashire. An increased incidence of scar

fever was reported throughout the country; notifications increased appreciably in Yorkshire West Riding 42 and Warwickshire 34.

The 73 notifications of diphtheria represented a new low record, which was eight less than the previous lowest return. The chief feature of the returns for diphtheria was the rise in London from 10 to 17, due mainly to an outbreak in Bermondsey with 10 notifications.

A further 28 cases of paratyphoid were notified from the outbreak in Durham (Hebburn U.D. 17; Jarrow M.B. 7). Notifications of dysentery from the outbreak in Lancashire, Liverpool C.B., numbered 32, which was six more than in the preceding week.

In *Scotland* decreases were recorded in the notifications of measles 118, whooping-cough 44, and scarlet fever 21, with a rise of 14 in the incidence of dysentery. This increase in dysentery was due to the experience of Glasgow, where the notifications increased from 18 to 31.

In *Eire* there were falls in the notifications of measles 59, whooping-cough 13, and scarlet fever 6. In contrast to the general trend a rise of 17 in the notifications of measles was reported from Dublin C.B.

In *Northern Ireland* there was an increase of 21 in the notifications of measles. This increase was confined to two counties—Antrim 10 and Armagh 12.

Week Ending July 2

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,031, whooping-cough 2,260, diphtheria 80, measles 6,984, acute pneumonia 376, cerebrospinal fever 23, acute poliomyelitis 80, dysentery 49, paratyphoid 13, and typhoid 4.

Medical News

Twelfth British Congress of Obstetrics and Gynaecology

A dinner was held in the Guildhall on July 8 at the conclusion of the Twelfth British Congress of Obstetrics and Gynaecology. Sir Eardley Holland, president of the Congress, was in the chair, and the guests included the Archbishop of Canterbury, the Lord Mayor, and Lord Webb-Johnson. Sir Arthur Gilliatt, president of the Royal College of Obstetricians and Gynaecologists, in proposing a toast to the Lord Mayor, referred to the powers of the connexions between the City and the Royal Infirmary and the close association of the present Lord Mayor before he was at St. Bartholomew's Hospital. The Lord Mayor replied, and welcomed the visitors from overseas to the City. Dr. J. V. Bonney proposed "The Congress," to which Sir Eardley Holland responded. Mr. Victor Bonney proposed a toast to "The Guests," who, he said, represented over 20 countries. Dr. Claud Gauclère (Paris) and Professor Ebbe Brandstrup (Copenhagen) replied. Professor Hilda Lloyd proposed a toast to Sir Eardley and Lady Holland.

World Federation for Mental Health

At a Press conference held in London on July 7, Dr. J. R. Rees, president of the Federation, spoke of the immediate plans of his organization and the difficulties it was now facing. The consideration, which was in the first year of its existence, was made up of 55 societies representing 33 countries, and more were to be admitted. It enjoyed consultative status to Unesco and accredited to WHO. Dr. Rees said that it was planned later to carry out a world-wide investigation of mental health, but even that on more limited activities their financial difficulties were considerable. The Federation needed £30,000 a year in order to appoint and establish an office in Geneva and arrange meetings of its committees. At present the offices of the Federation were in London, and delegates travelled to the conferences at their own expense. He added that an anonymous donor had recently given £2,500 for three years as the salary of a medical director, and the Macy foundation had made a grant of $45,000. The first congress to be held in Geneva in August would discuss how the Federation could contribute most usefully to the plans of WHO. Dr. Rees hoped that surveys of rural, industrial, and student mental health could be carried out, making use of the existing administrative machinery of WHO. He emphasized that the Federation would not be made up solely of medical men and women, but would include educationists, journalists, and representatives of other professions concerned with mental health and public education.

Royal College of Obstetricians and Gynaecologists

The Honorary Fellowship of the Royal College of Obstetricians and Gynaecologists was conferred on Sir Henry Dale, O.M., F.R.S., and Professor E. J. Heyman, of the Radiumhemmet, Stockholm, at a meeting of the council of the college held on July 5. Professor Hilda Lloyd and Professor Chassar Moir, sponsoring Sir Henry Dale, referred to the effect of his work on ergot and pituitrin on practical obstetrics. Dr. Malcom Donaldson and Miss Martindale introduced Professor Heyman. The president of the college, Sir William Gilliatt, welcomed the new Fellows.

South African Medical and Dental Council Overruled

Recently the Medical and Dental Council of South Africa refused registration to Dr. Grantly Dick Read. This ruling was set aside by the Supreme Court on June 23. According to Mr. Justice de Villiers, " . . . as the Act and the rules now read, in my judgment, Dr. Read has fulfilled all the conditions requisite for registration, and the council had no jurisdiction to refuse him registration on grounds extraneous to the clear provisions of the Act."

Rye Flour

The Ministry of Food states that patients who are allergic to wheat or wheat-flour extracts need no longer produce a medical certificate to obtain supplies of rye flour. They should try to get rye flour from a retailer in the normal way. If they have any difficulty they should seek advice from the local food office.

Commonwealth Fund Fellowships

Appointments to Commonwealth Fund Fellowships in Medicine from September, 1949, are announced as follows: J. C. S. Paterson, M.B., Ch.B., M.R.C.P. (to University of Rochester); G. J. Romanes, Ph.D., M.B., Ch.B. (to University of Columbia); and G. Smith, M.B., Ch.B. (to Johns Hopkins University). Information concerning Fellowships, which are offered by the Commonwealth Fund of New York, may be obtained from the secretary, Commonwealth Fund Fellowships, 35, Portman Square, London, W.1. Appointments are tenable by British graduates in American universities for one year.

Sanderson-Wells Prize

Dr. S. S. B. Gilder, assistant editor of *Abstracts of World Medicine*, has been awarded the Sanderson-Wells (Senior) Prize of the University of London for 1949 for his essay entitled "Symptoms and Signs of Experimentally Induced Vitamin Deficiency in Man." The prize (value £20) is awarded for the best essay on a subject set by the university submitted within one year of the competitor's taking the London degree of M.B., B.S.

Cambridge Medical Graduates' Club

Mr. W. H. C. Romanis presided over a meeting of the Cambridge University Medical Graduates' Club at Pembroke College on July 8, followed by a dinner in the College Hall. Mr. S. C. Roberts, Master of the College, gave an informal speech of welcome. Mr. H. U. Willink, P.C., Master of Magdalen, said that so far as he could judge the quality of the students entering medicine was high, and Sir Lionel Whitby said a few words about the plans for medicine in Cambridge.

Wills

Dr. Lorimer Gifford Nash, of Ashwell, Herts, who left £55,685, left £100 to the Royal Medical Benevolent Fund; Dr. Walter Edward Manby, of Pembroke, left £24,071; Dr. Harold Edward Gibson, of Seaton, Devon, £19,598; and Dr. Septimus Bodger, of Redditch, Worcs, £19,197.

COMING EVENTS

International Congress of Otolaryngology

The Fourth International Congress of Otolaryngology will be held at King's College, Strand, London, W.C., from July 18 to 23, and will be opened by the Duchess of Kent on Monday, July 18, at 11 a.m.

Old People at Home

A conference is being held on July 20 and 21 at the Royal College of Nursing at the request of the Public Health Section to discuss with representatives of national voluntary bodies immediate and economic ways of helping the aged and infirm in their own homes.

Banting Memorial Lecture

Dr. R. D. Lawrence will deliver the Banting Memorial Lecture at King's College Hospital Medical School, Denmark Hill, S.E., on Friday, July 22, at 10.30 a.m. His subject is "Insulin Therapy; Successes and Problems."

British Standards Institution

The annual general meeting of the British Standards Institution will be held on July 27 at 3 p.m. in the council room of the institution (first floor), 24, Victoria Street, London, S.W.1.

Psychotherapy and the Community

A summer school on "The Contribution of Psychotherapy to the Life of the Community in Medicine, in Education, and in Religion" will be held at the Davidson Clinic, 26, Chalmers Street, Edinburgh, on July 28–Aug. 3. The guest lecturers are Dr. S. H. Foulkes and Dr. George H. Day. Information may be obtained from the secretary at the address above.

International Congress of Catholic Doctors

The fourth International Congress of Catholic Doctors will be held in Rome from Sept. 24 to Oct. 1. An Audience with His Holiness will take place on Sept. 29. "Man in the Light of Medical Science" forms the subject for discussion. Doctors wishing to join the English delegation, which will be led by Dr. W. B. Pemberton, should communicate with Dr. W. J. O'Donovan, O.B.E., 130, Harley Street, London, W.1, before July 31.

SOCIETIES AND LECTURES

Saturday

BRITISH ASSOCIATION OF ALLERGISTS.—At Cardiff, July 16, general meeting. *Morning:* At Medical Unit, Cardiff Royal Infirmary, 10 a.m., "*The Treatment of Bronchial Asthma*," by Dr. Leon Unger; 11.15 a.m., "*Prognosis in Asthma*," by Dr. D. McCracken; 12 noon, "*Sino-bronchial Syndrome*," by Dr. P. T. Bray; 12.20 p.m., demonstration of pollen slides. *Afternoon:* At National Museum of Wales, 2.45 p.m., business meeting; 2.30 p.m., "*Pollen and Mould Studies at Cardiff*," by Messrs. H. A. Hyde and D. A. Williams.

Monday

LONDON UNIVERSITY.—At London School of Hygiene and Tropical Medicine, Keppel Street, W.C., July 18, 5.30 p.m., "*Normal and Pathological Physiology of the Kidney*," by Dr. D. D. van Slyke (Rockefeller Institute for Medical Research).

Tuesday

INSTITUTE OF UROLOGY.—At St Paul's Hospital, Endell Street, London, W.C., July 19, (1) 11 a.m., "*Collection of Specimens for Laboratory Diagnosis*," by Dr. R. Thomson; (2) 5 p.m., "*Non-gonococcal Urethritis*," by Dr. A. H. Harkness.

Wednesday

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Street, London, W.C., July 20, (1) 11 a.m., "*Skin Diseases of Possible Venereal Origin: Differential Diagnosis of Genital Dermatoses*," by Dr. W. N. Mascall; (2) 5 p.m., "*Fistula, Carcinoma, and Foreign Bodies of the Urethra, and Injuries of the Urethra*," by Mr. C. H. Mills.

Thursday

DREADNOUGHT SEAMEN'S HOSPITAL, Greenwich, London, S.E July 21, 3 p.m., demonstration by Mr. S. Power.

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Str London, W.C., July 21, (1) 11 a.m., "*Yaws, Pinta, and Bejel*," Dr. W. N. Mascall; (2) 5 p.m., "*Tumours of the Testicle*," Mr. W. K. Irwin.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—At 26, P land Place, London, W., July 21, 7.30 p.m., "*The Mass Contro Malaria with the New Insecticides*," by Dr. A. Gabal (Venezuela). A discussion will follow.

Friday

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Str London, W.C., July 22, 5 p.m., "*Injuries and Diseases of Testicle and Epididymis other than Tumour or Tuberculosis*," Mr. Harland Rees.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark Hill, S.E July 22, 10.30 a.m., "*Insulin Therapy; Successes and Problem* Banting Memorial Lecture by Dr. R. D. Lawrence.

Saturday

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.— Leicester Royal Infirmary, July 23, 28th annual general meeti Presidential Address by Dr. C. Hamilton Wilkie; "*The Leices V.D. Clinic and the New Health Scheme.*"

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Bishop.—On July 1, 1949, at River Park Nursing Home, Leamington Spa, Dr. Mary (née FitzClarke), wife of Dr. J. W. Bishop, a son.

Blair.—On July 2, 1949, at Queen Victoria Nursing Institution, Wolverhampt to Mary, wife of Dr. Eric J. Blair, a son.

Fraser.—On July 8, 1949, in London, to Edith Victoria (née Foyle, M.B.), v of Frederick E. Fraser, M.B., a son.

Harper.—On June 22, 1949, to Barbara, wife of Ernest Harper, F.R.C.S., East Malling, Kent, a daughter.

Millar.—On July 2, 1949, at the London Hospital, to Patric'a, wife of Dr. Bruce Millar, a son.

Thurston.—On June 28, 1949, at St. Mary's Hospital, Paddington, London, \ to Gabrielle (née Denvir), wife of John V. Thurston, M.B., B.S., a son Graham Patrick.

DEATHS

Birks.—On June 25, 1949, at 4, Goldington Road, Bedford, Guy Thorn Birks, M.B., B.Ch., aged 71.

Briscoe.—On July 1, 1949, James Rynd Briscoe, M.B., B.Ch., of Chardstock

Darroch.—On June 19, 1949, at an infirmary, Glasgow, Margaret Baird Spr Darroch, M.B., Ch.B., late of Blackpool.

Finlay.—On July 10, 1949, at Wells Dene, Gloucester, Douglas Edward Finl M.B., B.S., J.P.

Forman.—On June 23, 1949, at a nursing home, Scarborough, Bernard Gil Forman, M.B.E., M.B., J.P., late of The Beeches, Cloughton, aged 75

Green.—On June 27, 1949, at 24, Romsey Road, Eastleigh, Hants, Le Ernest Green, M.R.C.S., L.R.C.P., aged 45.

Henderson.—*On July 1, 1949, at 52, Prestwick Road, Ayr, George Hender* M.B., Ch.B., *formerly of Peckham, aged 73.*

Hood.—On July 1, 1949, at a nursing home, Thomas Hood, C.M.G., M.R.C. L.R.C.P., of Miramar, Pelham Gardens, Folkestone, aged 78.

James.—On June 24, 1949, at 32, Marine Terrace, Aberystwyth, Gwilym Jam M.R.C.S., L.R.C.P.

Johnson.—On June 28, 1949, Arthur Carveth Johnson, M.B., B.Ch., of Bassaleg Road, Newport.

Jones.—On July 6, 1949, Reginald Lewis Jones, L.S.A., Surgeon-Comman R.N., Ret., of Riversdale, Brixton Deveril, Warminster, Wilts.

Lawrence.—On July 5, 1949, Laurie Asher Lawrence, F.R.C.S., of Bels Square, London, N.W., aged 91.

Leebody.—On July 2, 1949, in Hammersmith Hospital, John Galwey Leebo M.B., Ch.B., F.R.C.S.Ed., aged 49.

Lieberman.—On June 25, 1949, Hyman Barnett Lieberman, M.B., Ch F.R.C.S.Ed., 44, The Rope Walk, Nottingham, aged 46.

Macdonald.—On June 30, 1949, at 73, Greenhill, London, N.W., Geo Alexander Macdonald, M.B., Ch.B., 137, Harley Street, London, W.

Mahony.—*Recently, at 189, Drake Street, Rochdale, Martin James Maho* L.R.C.P.&S.Ed., aged 82.

Milne.—*On July 4, 1949, Alastair David Milne, M.R.C.S., L.R.C.P.*

Milroy.—On July 1, 1949, at 26a, Warren Drive, Wallasey, William Cunnin ham Milroy, M.D., J.P.

Morgan.—*On June 9, 1949, at Virginia Water, Surrey, Laurence Sibast Morgan, M.B., Ch.B., aged 67.*

Ross.—On June 30, 1949, at the Stratford-on-Avon Hospital, Henry Ross, M I C.M., aged 87.

Ross.—On July 3, 1949, at Twickenham, Gilbert Matheson Ross, M.B., Ch.

Simpson.—On June 22, 1949, at Meadow Bank, Thursby, Carlisle, Haro Christopher Simpson, L.M.S.S.A., D.P.H.

Smith.—On July 7, 1949, at home, John Charles Smith, M.B., L.D.S.

Spillane.—On June 12, 1949, in a Singapore hospital, David James Patri Spillane, M.R.C.S., L.R.C.P., Lieutenant-Colonel, I.M.S., aged 38.

Swayne.—On June 30, 1949, at 16, Higher Polsham Road, Paignton, Devo Richard Woodward Swayne, O.B.E., M.B., B.S., aged 69.

Tait.—On June 25, 1949, at a nursing home, Edinburgh, Joseph Gillison Ta M.R.C.S., L.R.C.P.

Willan.—On June 24, 1949, at 14, York Avenue, Hove, *George Th* Willan, D.S.O., T.D., M.R.C.S., L.R.C.P., late Colonel R.A.M.C., aged

Wittkowski.—On June 26, 1949, at Hampstead General Hospital, Da Wittkowski, M.D., 24, Aberdare Gardens, London, N.W., aged 81.

Any Questions ?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Pulmonary Tuberculosis and Pregnancy

Q.—*What is the safest, least violent modern method for terminating pregnancy of two months' duration? The case in question is that of a girl aged 17 who has recently come out of a sanatorium, where she has been for three years with bilateral pulmonary tuberculosis. Although the disease seems to be quiescent at the moment, the patient's general condition is not good.*

A.—Although there may be special circumstances which justify it in this case, a decision to terminate pregnancy should be made only with the knowledge that the consensus of modern opinion is that pregnancy and childbirth do not have any significant effect on pulmonary tuberculosis—no matter whether it be active or quiescent. This is the general conclusion reached by C. J. Stewart and F. A. H. Simmonds (*British Medical Journal*, 1947, 2, 726); R. C. Cohen (ibid., 1948, 2, 775); C. J. Barone, J. A. Fino, and L. H. Hetherington (*Amer. J. Obstet. Gynec.*, 1947, 54, 475); L. L. Friedman and J. R. Garber (*Amer. Rev. Tuberc.*, 1947, 54, 275), and was again expressed by speakers at a meeting held in Newcastle-upon-Tyne on March 25, 1949, and reported in this *Journal* (June 11, p. 1047). The whole subject was also discussed at the recent meeting at Harrogate of the Section of Preventive Medicine (July 9, p. 92). It is extremely doubtful whether induction of abortion improves the patient's prospects—at least in those cases where a sanatorium regimen and collapse therapy are available during and after pregnancy.

If it is decided to terminate pregnancy the operation should be carried out at once, if only because it becomes technically more difficult and dangerous as the pregnancy advances beyond eight weeks. Up to this stage dilatation of the cervix and evacuation of the uterus under general anaesthesia is probably the most satisfactory procedure. Anaesthesia provides little in the way of a problem provided a specialist anaesthetist with modern equipment is available. A method of inducing abortion which has achieved some popularity in this country in recent years is the intrauterine injection of an abortifacient paste. It is attractive in that it is simple and does not require an anaesthetic, but it is a method which is by no means free from risk, nor is it certain in its results. It was dealt with in considerable detail in a reply to a question published in this *Journal* (1947, 2, 317).

"Pituitary Obesity"

Q.—*What is the modern treatment of pituitary obesity? Is there any preparation of anterior pituitary available for use in this condition?*

A.—The diagnosis of pituitary obesity implied in this question is usually made in the absence of any detectable gross lesion, and is somewhat hypothetical. Further, the question implies that the adiposity is due to a deficiency of anterior pituitary and can be rectified by replacement therapy with one of its hormones. If the pituitary itself is a primary cause of adiposity, the reverse of this supposition is probably the case, and the poor food intake with consequent wasting of animals subjected to hypophysectomy but whose hypothalamus has not been interfered with is well known. It has recently been shown that pituitary adrenocorticotropic hormone leads to an increased appetite and increased weight, quite apart from water retention. Therapeutically, in the absence of a gross lesion the treatment of pituitary obesity, or hypothalamic-pituitary obesity, or idiopathic obesity, consists of (1) low-calorie diet; (2) diuretics to counteract water retention; (3) such substances as amphetamine sulphate, which reduce appetite by central nervous action.

Lipstick Dermatitis

Q.—*Is anything known about allergy to lipsticks? What is the treatment in the case of a woman aged 33 who has a condition of the lips characterized by constant painless exfoliation, leaving small raw patches which heal, and by a swelling of the lips about two hours after the application of lipstick?*

A.—Lipstick dermatitis may be due to hypersensitiveness to perfume, fatty base, or colouring matter—usually eosin—and this can be determined by patch-test investigation. The great majority of cases are due to hypersensitivity to eosin, and there may be a superadded factor of induced light-sensitiveness, eosin being fluorescent. There are few lipsticks which do not contain eosin, but such should be sought if that substance is shown to be the cause of the dermatitis; inquiry from recognized cosmetic firms is advised. If the dermatitis is due to perfume or base, a change of lipstick would probably be effective. The previous application of a barrier cream, of the kind employed as a protective against industrial irritants to the lips, has been known to permit the use of a lipstick without injury.

Combined Diphtheria-Pertussis Vaccination

Q.—*A baby, now aged 15 months, had a first inoculation of diphtheria-pertussis vaccine when aged 9 to 10 months. What is the risk of sensitization attacks now? Is it safe to carry on as usual? What dosage is recommended for diphtheria and whooping-cough vaccine, singly or combined?*

A.—There is no risk of sensitization in an infant of 15 months given an injection of combined diphtheria and pertussis prophylactic six months previously. A second injection of 1 ml. of the combined vaccine given now will act as an efficient secondary stimulus. The combination of pertussis vaccine and diphtheria toxoid does not interfere with the immunizing potency of either reagent.

Intravenous Iron Therapy

Q.—*Is there a preparation of iron safe for intravenous use? If so, please give dosage and precautions necessary.*

A.—Saccharated iron oxide in 5% dextrose solution may be successfully given intravenously. Davidson and Girdwood described a dramatic response to saccharated oxide of iron given intravenously in a case of refractory iron-deficiency anaemia (*British Medical Journal*, 1948, 1, 733). Nissim recommended the following course:

10 mg. of iron in	1 ml.
25 " "	2·5 ml.
50 " "	5 ml.
100 " "	10 ml.
250 " "	25 ml.
500 " "	50 ml.

Thrombophlebitis, fever, tachycardia, cyanosis, and headache may arise after the larger doses. A detailed description of the intravenous use of an iron–sucrose preparation has just been published by Slack and Wilkinson (*Lancet*, 1949, 1, 11), and this should be consulted, as should Nissim's paper (Ibid., 1947, 2, 49).

Sulphur-containing Sweat

Q.—*A man of 44, in good health except for a long history of constipation, has noticed that his touch turns silver articles black. What is the pathology and what is the treatment of this complaint?*

A.—It is probable that the black discoloration of silver articles is due to the formation of silver sulphide; the sulphur is presumably derived from the patient's sweat. It is known that chronic constipation is occasionally associated with sulphaemoglobinaemia in the condition called "enterogenous cyanosis." Possibly in the present case the prolonged constipation has been combined with excessive formation of hydrogen sulphide in the bowel, sufficient being absorbed to increase the excretion of sulphur compounds in the sweat. It would be interesting to know if spectroscopy shows any evidence of sulphaemoglobinaemia. Whatever the precise cause, the indication is to establish a normal bowel function.

Osteomalacia or Senile Osteoporosis?

Q.—*What is the modern treatment of osteomalacia, and what is the prognosis? A female aged 65 suffers from this disease, most marked in the bodies of the cervical and lumbar vertebrae. This has led to a loss of weight, knock-knees, and disk lesions at the levels of C4-5 and L5-S1. At present she is having a high-protein diet with 180 gr. (12 g.) calcium gluconate and 2,700 units vitamin D daily and suitable physiotherapy. Serum calcium and urine calcium figures are within normal range. The history is approximately of nine months' duration, and there is no evidence of hormone imbalance.*

A.—If the diagnosis of osteomalacia is correct the treatment being given appears to be appropriate and should prove effective. But osteomalacia is uncommon in this country, and unless there are special features to support the diagnosis it seems more probable that the case is one of senile osteoporosis of the spine. True osteomalacia is usually characterized by curvatures of the tibiae and femora, and coxa vara; the shape of the pelvis is altered, the acetabula being displaced medially. These deformities represent the effect of body weight on the softened bones. In senile osteoporosis the main changes are in the vertebral bodies. There is considerable bone atrophy, and the intervertebral disks bulge into the softened spongy tissue of the vertebral bodies, which assume a biconcave appearance. There is a general kyphosis, often pronounced, and in addition there may be marked wedging of individual vertebrae. The underlying cause of senile osteoporosis is unknown, and curative treatment is not available. Nevertheless the wearing of a light but strong spinal support is often a useful palliative.

Letterer–Siwe's Disease

Q.—*I am interested in a child of 19 months who was taken ill in South Africa some months ago with what at first was diagnosed as glandular fever; she has been ailing ever since, with mild pyrexia, and her condition has recently been recognized as Letterer-Siwe's disease. Would you kindly tell me the cause, treatment, and prognosis?*

A.—Letterer–Siwe's disease is a systemic aleukaemic non-lipoid reticulo-endotheliosis occurring sporadically, usually in infants or young children. It is characterized by fever, marked splenomegaly, some hepatomegaly, generalized adenopathy, eczematous, granulomatous, petechial, or haemorrhagic cutaneous lesions, localized tumours with rarefactions in bone, and secondary anaemia with usually a normal white cell count. The cause is unknown, but possibly may be infective. Treatment is uncertain and unsatisfactory, but chemotherapeutic agents, antibiotics, and x-ray irradiation may be tried. The majority of reported cases have been fatal.

Intermittent Claudication

Q.—*What are the prognosis and treatment of intermittent claudication in a man of 50 otherwise in good health? X-ray examination shows some calcification of the leg vessels. Does this finding add to the gravity of the prognosis?*

A.—The word "prognosis" in this question has a certain ambiguity: it may refer to the survival of the patient or to the survival of the patient's lower limbs. In respect of the first, the outlook at this age is not good and expectation of life is undoubtedly reduced. Arterial degeneration is unlikely to be limited to the vessels of the legs, and many patients with this disorder die from coronary thrombosis; this is a danger additional to the threat to life which would be afforded by the onset of gangrene. The prognosis in respect of the legs is also likely to be poor. At such an age the arterial obstruction is usually diffuse and adequate collateral circulation is difficult to attain; the degenerative process advances more rapidly than in a man twenty years older, and consequently the blood supply to the legs will probably become increasingly defective. Calcification in the arteries of the leg indicates that these vessels are degenerate; it does not make the prognosis more grave. The presence of intermittent claudication is already evidence of arterial inadequacy.

Treatment depends somewhat on the site of arterial obstruction: if of a main vessel, efforts to increase collateral circulation by plasma transfusions, intermittent venous occlusion, and sympathectomy are often followed by improvement. When the distal vessels are affected the prognosis is worse and the results of treatment more disappointing. In both types scrupulous care of the feet is essential if gangrene is to be avoided. The precise details of treatment will be found in any of the current textbooks.

Ergotamine Tartrate

Q.—*A patient who for many years has waked in the night with a severe throbbing headache has received complete relief from 1 mg. of ergotamine tartrate taken prophylactically before retiring. Is this patient likely to develop ergotism, and, if so, approximately how long is it safe to go on giving the ergotamine?*

A.—Different people differ greatly in their tolerance to ergotamine tartrate. Usually 1 mg. is well tolerated, but if the drug is being taken every night the patient must be on the look-out for such symptoms as burning or tingling sensations in the legs, toes, or hands. Ergometrine should be tried instead of ergotamine. Ergometrine is equally effective in relieving attacks of migraine in many people, and does not cause ergotism. If this does not work, then dihydroergotamine (DHE-45) might be given in a dose of 2 mg. This drug is considerably less toxic than ergotamine.

NOTES AND COMMENTS

Dyspareunia.—Dr. B. SANDLER (Urmston, Lancs) writes: May I disagree with the reply given under this heading ("Any Questions?" June 4, p. 1017)? In a patient with a psychopathic background, as described, glass dilators should not be used at all—not even on patients with a normal background are they often required. She should be advised to apply oestrone ointment to the introitus, and then perform self-dilatation by the gentle insertion, first of her forefinger, next of two fingers, and finally of two or three fingers and thumb, over a period of a fortnight. The use of her own fingers is less frightening and more completely controllable; whilst the oestrone ointment produces local vasodilatation, which assists in relaxation.

Report on a Cure for Cancer.—Dr. F. WIBAUT, Secretary-Treasurer of the Netherlands Medical Association, writes: An Amsterdam physician, Dr. J. Samuels, advertises at home and abroad that he has found a universal method to cure malignant and benign tumours, diabetes, and multiple sclerosis. The method consists of radiotherapy by means of radiation with short waves of the hypophysis. Dr. Samuels does not judge the result according to the usual clinical and pathological methods, but by observing the supposed changes in the circulating blood. These changes are alleged to be visible through a fold of the skin by means of a spectroscope. The Minister of Social Affairs, who is also responsible for the supervision of public health, has asked the President of the Council for Public Hygiene to examine this matter. The result of this examination has been that not one single case of cure of the diseases mentioned above has been confirmed. Besides that, the method of diagnosis and the therapy must be looked upon as completely worthless.

The result of the examination has been published as "The Report to the Minister," dated January, 1949 (States Printing Office, The Hague. Price 1.27 florins). An abstract of the report has been published by the medical weekly of the Netherlands Medical Association, *Medisch Contact*. Copies of this issue of *Medisch Contact* may be obtained on application to the office of the Netherlands Medical Association, Keizersgracht 327, Amsterdam (C).

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SUPPLEMENT TO THE
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MINISTRY'S REPLY TO CONSULTANTS

The following letter has been sent from the Ministry of Health to Sir Lionel Whitby, chairman of the Joint Committee, in reply to the letter sent by him on July 5:

Dear Sir Lionel,

I have your letter of July 5, telling me the matters which your Joint Committee regard as still outstanding, for further discussion. We are ready to discuss these points at any time—but you will not need me to remind you of the urgency of a decision being reached without avoidable delay.

It may accelerate discussion if I set out shortly our view on your points (i), (ii), and (iii) in Paragraph 2 of your letter.

As to (i), we are at one with you in wanting a permanent negotiating machinery, which we think should be established as a medical section of the Whitley machinery already being developed. There have been delays—e.g., in respect of public health medical officers—but we hope we can soon reach agreement on that.

But you also want to add an absolute right to the medical profession, in the event of disagreement in discussion (within a prescribed range of subjects including remuneration), to refer the dispute to arbitration—both parties then to be bound by the arbitrator's decision. Here we certainly diverge from you, but more in the principle involved than in what we conceive as likely actually to happen.

In the amending Bill now before Parliament we have inserted a provision which gives to the medical profession just the same rights of arbitration as are already given to any other profession or trade; and arbitration would be by mutual consent, as it is for everyone else. (So far as there are surviving wartime powers which go beyond this, you too can use them as anyone else.) But you go on to ask for something which no other profession enjoys, and for something which might produce a situation where the arbitration of one or more individuals could override Parliament and the Government itself—even in circumstances where the national interest was clearly in conflict with it. Constitutionally this would be impossible to accept.

It is important to consider what the practical position is likely to be. There will be, say, a proposal from the profession to raise the capitation fee, or something similar. At this stage neither side ought to be thinking about arbitration. Discussion and conciliation should be the first aim—and normally that should bring agreement, we should hope. But suppose it does not, and a deadlock arises. If arbitration is the obvious course (and there are no serious national considerations against it) it will be agreed upon, and obviously the Minister will normally agree to accept its findings, subject always to the overriding authority of Parliament. And the same would apply the other way round. Alternatively, both sides might prefer, on some subjects, to refer for independent advice to an *ad hoc* committee, like the Spens Committees, or to take any other course which both thought best. Arbitration is not always the best machinery. It can sometimes embarrass those who seek it, by its very finality and inflexibility.

But the main point is that—instead of asking the Government to say now, for ever, that they will accept the dictate of an outside tribunal on any unknown subject, at any future time, whatever its effects on the national welfare which the Government exists with Parliament to protect—it is more sensible and practical to say that, as and when any deadlock arises in future discussion, both sides can consider which is the best thing to do, and if arbitration seems best the Minister will certainly agree to it and to be bound by the result, subject only to Parliament. This would, I think, probably lead naturally to leaving out the words "by the Minister of Health" in the model contract, so that it would simply refer to terms of service "determined from time to time."

Now, as to 2 (ii) of your letter, it is difficult to see how your intentions could be written into any statute or contract. It has been agreed that there will be facilities for private as well as public patients in the hospital service. So long as there is the demand for private practice in hospitals, clearly it will be necessary to secure accommodation for it on the lines contemplated in the Act, and not drive all private patients out of the service and into the nursing-homes. But this cannot be reduced to a formula and written in an Act.

As to (iii), this is a matter not within the control of the Minister, and ought not to be imposed as a condition precedent to the signing of a contract.

On your last paragraph, let me say this. We should certainly be willing to meet the Joint Committee again soon, on the above points, if necessary. But you will appreciate the impossibility of a situation in which consultants and specialists are continuing to be advised to postpone entering into contracts, while being assured by us that any solution will be retrospective for them. This is an aspect that we shall be bound sooner or later to review, and we want you to help us to make any such review unnecessary by joining us in speeding the solution.

Yours sincerely,

(Signed) WM. S. DOUGLAS.

Ministry of Health, Whitehall, S.W.1.

The following letter, which was sent by Sir Lionel Whitby to the Ministry on July 5, is reproduced from the Supplement of July 9 (p. 44).

The Joint Committee at its meeting to-day, after considering the views of its constituent bodies, passed the following resolutions:

1. The Joint Committee finds itself unable at present to advise consultants and specialists to enter into permanent contracts on the basis now offered by the Minister.

2. The Joint Committee finds it essential to reopen discussions with the Minister on the following points:

(i) There should be established for consultants and specialists a permanent negotiating machinery, the Minister or the representatives of the profession having the right, in the event of disagreement, within an agreed range of subjects to refer the matter for settlement by arbitration, both parties being bound by the award of the arbitrator.

The agreed range of subjects should include any terms and conditions of service affecting remuneration.

The form of contract should be revised so as to make it clear that the terms and conditions of service offered are those which have been agreed with the profession or determined by arbitration, and not "determined from time to time by the Minister of Health."

(ii) Facilities for private treatment in hospital should be maintained and developed throughout the country for those who desire them.

(iii) Information concerning the remuneration of part-time clinical teachers should be available before the practitioners concerned are called upon to sign permanent contracts.

3. In the meantime the Joint Committee recommends consultants and specialists not to sign permanent contracts until further advice is tendered by the Joint Committee.

The Joint Committee desires an interview in order to discuss these resolutions.

THE CONSULTANTS' "NO"

A special meeting of the Central Consultants and Specialists Committee was held at B.M.A. House, London, on July 5, under the chairmanship of Mr. R. L. Newell, to formulate a recommendation regarding the acceptance or otherwise of the Ministry's terms and conditions of service of hospital medical staff, which, with an explanatory memorandum, were published in the *Journal* of June 11. The chairman said that there were many matters connected with the terms of service which were extremely important; among them was, most prominently, the question of arbitration, also the form of the proffered contract whereby the Ministry was allowed to change its terms, and other points of perhaps a less crucial character.

A summary placed before the committee of the replies received from the regions showed that in very nearly all in England and Wales the opinion appeared to be against acceptance. The representatives of each of the regions then gave some account of the feeling in their areas. Even those areas which had not answered an emphatic "No" had qualified their consent by insisting on certain conditions of acceptance, most prominently the concession of the right to arbitration. In the Scottish regions the position was rather different; while there was still insistence on rectification of the points at issue, the majority—in some cases the large majority—favoured acceptance.

Before the vote was taken there was some discussion on the question of arbitration. The meeting was reminded that under Section 12 of the amending Bill settlement by arbitration could have effect only if both parties agreed, and the Minister would not say in advance that he was necessarily prepared to agree. One of the Minister's objections to acceptance of arbitration was that it was Parliament—not an external independent person (the arbitrator)—who must determine the size of the budget. But this ignored the consideration that Civil Servants up to a certain salary level (£1,200)—admittedly a level below that proposed for consultants—were permitted recourse to arbitration, and in view of the large numbers so involved an arbitration decision might make far more difference to the budget than any arbitration which concerned the medical profession.

After full discussion the committee decided that consultants and specialists should be advised not to sign the proposed contracts unless certain changes were made.

The question of arbitration was immediately put to the meeting, and received unanimous assent. The Scottish representatives, like those of England and Wales, insisted on the right of arbitration as a *sine qua non* of acceptance. Other matters considered were the unilateral nature of the proposed contract, the doubt as to security of tenure, the apparent intention to diminish if not to eliminate private practice, and the questions attending the creation of the grade of senior hospital medical officers; though on this last question it was pointed out that the eventual agreement might be wholly satisfactory or wholly unsatisfactory, and yet this grading, with its unsatisfactory features and its dangers, would remain.

The resolution agreed upon by the committee was as follows:

That this Central Consultants and Specialists Committee recommends the Joint Committee to advise consultants and specialists not to enter into permanent contracts on the basis now offered by the Minister unless and until the following changes are made:

(1) There should be established for consultants and specialists a permanent negotiating machinery, the Minister or the representatives of the profession having the right, in the event of disagreement, within an agreed range of subjects to refer the matter for settlement by arbitration, both parties being bound by the award of the arbitrator.

The agreed range of subjects should include any terms and conditions of service affecting remuneration.

(2) The contract should be an agreement between contracting parties and not subject to unilateral determination or modification by the Minister.

(3) The safeguards for private practice should be greatly strengthened. For example, Clause 5 of the whole-time contract and Clause 2 of the part-time contract should be amended to make it clear that there will be no encroachment on opportunities for private practice.

HOSPITAL EYE SERVICE

THE MINISTER'S VIEW

The Ministry of Health has sent a circular to hospital boards and committees announcing that the Minister disagrees with an opinion expressed by the Ophthalmic Group Committee and published in the *Supplement* of June 4 (p. 304). The committee expressed the view that ophthalmic opticians employed in the hospital service should be appointed on a full-time basis. The circular states that the Minister "feels it necessary to point out" that this does not represent his policy. In the Minister's view optical staff may suitably be employed on a part-time sessional basis (other than the senior ophthalmic optician, who should be a whole-time officer) as well as on a whole-time basis. "Boards and committees should accordingly have regard to the advantages of part-time as well as of whole-time service when making appointments of optical staff in the hospital eye service."

MEDICINE IN EIRE

DANGERS OF STATE INTRUSION

Dr. P. Moran, President of the Medical Association of Eire, said at the annual meeting of the association on July 7 that medical science was a private, personal, and confidential service, and its value and efficiency depended on mutual trust and confidence of patient and doctor. He is reported in the *Irish Times* as saying: "We unreservedly accept the thesis that the best means of achieving and maintaining, or restoring, health should be available to all, but we reject the thesis that this can best be done on mass-production lines under State control." The Health Act of 1947 was on the Statute Book, he added, but the present Minister of Health had given the association a written assurance that he would not make any major decisions implementing the provisions of the Act without consulting them.

Referring to the British Service, he said it had been very far from an unqualified success, and many were forced to the conclusion that the old system was much to be preferred.

HEARD AT HEADQUARTERS

His Own Doctor

Some practitioners have put their own names on their lists of patients, taking the injunction, "Physician, heal thyself," too literally. The Ministry holds that it is not possible to allow a doctor or anyone else to prescribe for himself under the Act. Nevertheless, there are cases in which some indulgence might be claimed. One case which the Association has brought to the notice of the Ministry is that of a doctor in a rural area, with no colleague within reasonable distance, who prescribed insulin for himself. The prescriptions were disallowed, but on the representation of the Association the sympathetic consideration of the Ministry is to be given to the question of refunding the cost in this instance. And, of course, as one member remarked, "If a doctor removes himself from his list he will then be at liberty to charge himself for any service."

Questions Answered

Disagreement Between Principal and Assistant

Q.—*In the event of a disagreement between a principal and an assistant concerning an increase in remuneration and car allowance, is there any authoritative body to whom the assistant may refer his claim as an alternative to terminating his engagement?*

A.—An assistant is usually engaged on mutually agreed terms, which should be embodied in a properly constituted legal agreement. The contract is between principal and assistant, and either should have the right to terminate it after giving due notice if it should prove unsatisfactory. No third party or outside body can intervene, though by mutual consent a disagreement can be referred to arbitration.

Correspondence

The Tail End

SIR,—For some time I have taken a passing interest in the correspondence in your columns concerning the National Health Service, but as one who leads a comparatively secluded life in a hospital laboratory such problems as the capitation fee, mileage fund, central pool, and so on did not affect me directly except in so much as my sympathy was extended to those who were endeavouring to earn an honest living in medicine. The National Health Service, however, has now washed up against the door of my laboratory for the first time, and the tidal refuse which it has deposited there has compelled me to take a livelier interest in the vacillations of such things as regional boards.

I suppose one might describe me as a middle-aged specialist (whatever that is) or consultant (whatever *that* is) in clinical biochemistry, reasonably well qualified both in science and in medicine, and with some considerable experience in both teaching and research. The glorious fifth of July found me in the position of a university lecturer and one of the honorary (unpaid) biochemists to what was once the largest voluntary hospital in the country.

Like the great majority of others I viewed the whole position with a pair of Micawber-like eyes, and carried on expecting that some day something might possibly "turn up." After eight months I discovered the existence of a body known as the "regional hospital board," and wrote them a timorous little letter inquiring whether or not I was employed by the National Health Service. They stated in reply that they did not know, but that they would set the problem before a committee to find out. Further inquiries spaced at monthly intervals evoked no response until the latter half of June, when two long letters arrived. From these letters three solid facts emerged: (1) that the board hadn't the faintest idea what the position of biochemists was, (2) that the whole matter was being handed over to the university, and (3) that as far as the Spens Report was concerned biochemists didn't exist anyway. Two days later the bombshell arrived.

The university authorities informed me that in addition to my university duties my appointment now covered "all duties which you may be required to perform in connexion with the biochemical services of the regional hospital board." Prior to receipt of this information, it could be calculated that my university salary was £570 per annum. This salary was raised to £650 per annum. The only logical conclusion that one can draw is that my biochemical services to the board are valued at £80 per annum.

Practical joking can be excluded; such an august body as a university court does not indulge in that sort of thing. Clerical error can also be ruled out, since the advice note from the accountant confirmed that the last quarter's salary from April to June had been increased by £20.

The possibility has been suggested that 50% of the revised salary may correspond to university work and the other 50% to hospital work. This implies that, for exactly the same amount of university work, the salary has been reduced from £570 to £325 per annum for no apparent reason. It would also imply that the university is being used to bolster up the Socialist Health Service financially by cutting lecturers' salaries in half. Further suggestions are that the salary will increase annually and that it represents only part-time employment, but the official letter gives no clue to the amount of time ("number of sessions" is, I understand, the modern jargon) that one is expected to devote to one's work; but it seems unlikely that the board would allow me to start up in general practice as well.

One is therefore forced back to the conclusion that the clinical biochemist is rated at £80 per annum. It is interesting to compare this remuneration with that enjoyed by other hospital employees. Omitting the higher-paid ranks, the tail end of the financial scale appears to be as follows:

Porter	£260 p.a.
Female cook	£226 p.a.
Kitchen maid	£195–£211 p.a.
Cleaner	£195 p.a.
Biochemist	£80 p.a.

I can discover no one lower down the scale than the biochemist, if we exclude the ward cat, who has so far avoided nationalization and has been allowed to continue his mousing activities in a purely honorary capacity.

Parenthetically, it is interesting, as indicative of modern methods, that one is not "offered" such an appointment. The correspondence states that "the university court has arrived at the decision that your salary *will be* . . . and that the salary is an inclusive one. . . ." Apparently a university lecturer is *ipso facto* a servant of the Ministry of Health, however much he may be opposed to State medicine.

There is, however, good in everything, and even when the biochemist finds that the bottom has fallen out of the blood-urea market he can still find consolation in appreciating the ridiculous side of it all. More detailed inspection reveals that the revised salary has been paid for only one of the four quarters which have elapsed since the glorious fifth. Deducting income tax, I discover that I have pocketed to date £11 plus a few odd shillings as the financial reward for a year of hospital work under the new Socialist health racket.

Heaven and heredity have combined to endow me with a good sense of humour, and I freely admit that the joke is on me. I have been led up, around, and down the garden by a charming gentleman who regards me as "worse than vermin" and who has given me just sufficient salary to buy enough D.D.T. to poison myself. I must give full marks to the little Welshman who can treat a Scotsman (and an Aberdonian at that, by thunder!) in this fashion and get away with it.—I am, etc.,

Edinburgh. E. B. HENDRY.

Grading of Hospital Staffs

SIR,—I am wondering if it is worth while intervening at this late stage in the unhappy situation in which we find ourselves. It appears to me that the injustices and inequalities, everywhere apparent, of the policy of grading individuals would have been avoided by grading the posts at hospitals; in other words, by fixing the medical establishment, which could be altered later as necessity arose.

Hospital A may have two specialists in a given department with approximately equal claim to consultant status, while Hospital B, in the same region, may be *doing the same work* with a medical officer having neither the background nor degrees considered necessary for the grade of specialist; by fixing the establishment at one consultant per specialty in either hospital and deciding by negotiation among themselves, or by advertisement of the post and appointment in the usual manner, the matter should be settled to the satisfaction of everybody. It is at least in accordance with democratic practice. The acting specialist at Hospital B becomes a senior hospital officer, but this should not prejudice his rising later to specialist status either by virtue of increased experience (it may be under one of the consultants appointed) or by the acquisition of the appropriate degrees. The same principle should apply in appointing subordinate grades to enable the Minister to ascertain exactly the staffing and remuneration costs at each hospital.

On the vexed question of lay versus medical administration it must be conceded that there are strong arguments in favour of conserving our professional resources by increased use of specially trained laymen who should undertake the general organization and supervision of hospitals under the medical staff and in conformity with the decisions of the various committees and subcommittees of the boards. One hears of instances in which secretaries and administrative officers consistently ignore the decisions of properly constituted committees, placing their own interpretation on the Minister's instructions, without prior reference to them, with disastrous results. Committees—lay, medical, or mixed—have the appropriate remedy in their own hands.

In consequence of the reorientation of effective control there are good reasons for increasing the status and power of the

financially as well, but, again, I would stress that in the past these men did valuable and irreplaceable service. But times and needs have changed and—who knows?—in 20 years the pure consultant surgeon and obstetrician may be replaced by the expert in preventive medicine—and how we will all resent and hate it!—I am, etc.,

Irvine, Ayrshire. RICHARD DE SOLDENHOFF.

Marriage Allowances for Medical Officers

SIR,—Mr. Alexander is reported as having replied to a question by Colonel Stoddart-Scott in the House of Commons concerning the marriage allowances of Service doctors that he did not think these officers were badly off compared with other National Service officers. All comparisons, we know, are odious. This one is also entirely irrelevant, for the following reasons.

As Dr. E. J. Trimmer pointed out (*Supplement*, April 30, p. 259), medical officers are fully trained prior to their engagement. They require little preliminary training at Service expense to be capable of the kind of work required. This is also true of officers employed in other professional branches, but there are few of these serving on a National Service basis at the moment.

The majority of the remaining National Service officers have to be trained by the Service prior to their commissioning. Also these men are six to seven years younger and therefore mostly unmarried; hence the problem of such allowances does not affect them.

I can only conclude that the reason for such shoddy treatment is an attempt to browbeat us into signing on for longer engagements (thus making us eligible for these monetary awards amongst other privileges—e.g., leave entitlement). However, I think most of us are made of sterner stuff and will not submit to such pressure. We shall just do our time and depart with bitterness, which is a pity and unnecessary.

Sir, is there nothing that can be done to remedy such inconsistencies? I regret signing myself in anonymity, but circumstances at the moment require this.—I am, etc.,

FLYING OFFICER.

Ethics of the Profession

SIR,—Mr. Bevan closed his speech in the House of Commons on the N.H.S. Amending Bill with a claim so richly humorous, and incidentally untrue, that it should not be, I think, passed over in silence.

Mr. Bevan, in his short term of office, has destroyed certain ethical standards observed by the medical profession in every civilized country for more than a thousand years. He has, by regulation framed on his sole authority, compelled the doctor in his Service to break the Hippocratic Oath to regard the confidences made to him by patients in his professional capacity as the "holiest of secrets." Mr. Bevan now compels the doctor in his Service, by regulations issued by himself since the passage of the N.H.S. Act, 1946, to divulge these "holiest of secrets" to a number of lay persons; the disclosure required involving a practitioner parting with his records of patients, the ultimate destination of which cannot be foreseen. That breach of age-old tradition which has made the medical profession one of the proudest of the great professional bodies will be peculiar to British medicine, where it has hitherto received the strictest observance. Yet Mr. Bevan had the effrontery to declare in his speech in the Commons that he was bent upon "raising the ethical standards of the profession." Comment is superfluous.—I am, etc.,

House of Commons. E. GRAHAM-LITTLE.

POINTS FROM LETTERS

New School Tie

DR. ALAN MABERLY (London, W.1) writes: Any morning now a consultant may find on his breakfast table, to his consternation or gratification, a notification to the effect that he is a specialist. I suggest that much confusion might be saved his patients, and embarrassment to his colleagues, if the regional boards were to issue an appropriate tie for identification. A blazer might be thought to be savouring of advertisement.

Association Notices

FORMATION OF A MERSEYSIDE BRANCH

The Council has formed a Merseyside Branch comprising the following Divisions of the Lancashire and Cheshire Branch: Birkenhead and Wirral, Chester, Liverpool, St. Helens, Southport, Wallasey, Warrington.

The new Branch comes into existence as from the date of publication of this notice.

CHARLES HILL,
Secretary.

PROPOSED MANCHESTER AND EAST CHESHIRE, AND NORTH LANCASHIRE BRANCHES

Notice is hereby given by the Council to all concerned of a proposal that two new Branches should be formed in place of that part of the Lancashire and Cheshire Branch not covered by the Merseyside Branch—namely:

(1) A "Manchester and East Cheshire Branch," coterminous with the areas of the following Divisions of the Lancashire and Cheshire Branch: Ashton-under-Lyne, Bolton, Bury, Crewe, Hyde, Leigh, Macclesfield and East Cheshire, Manchester, Mid-Cheshire, Oldham, Rochdale, Salford, Stockport, Wigan.

(2) A "North Lancashire Branch," coterminous with the areas of the following Divisions of the Lancashire and Cheshire Branch: Blackburn, Blackpool, Burnley, Furness, Lancaster, Preston.

Any Division or member affected by the proposed changes and objecting thereto should write to the Secretary of the Association by Aug. 13, 1949, stating the objection and the ground therefor.

CHARLES HILL,
Secretary.

TUBERCULOSIS AND DISEASES OF THE CHEST GROUP

The Council has approved the formation of a special group of members of the Association engaged wholly or predominantly in the field of tuberculosis and diseases of the chest. Members so engaged are invited to apply to the Secretary for a form of application for membership of the group.

An inaugural meeting of the group will be held as soon as practicable, due notice being given in the *Supplement* of the *Journal*.

CHARLES HILL,
Secretary.

Diary of Central Meetings

JULY

19	Tues.	Organization Committee, 2 p.m.
19	Tues.	Pharmacopœia Subcommittee, 2 p.m.
21	Thurs.	Ethical Rules Subcommittee, 2 p.m.
26	Tues.	Proprietary Medicines Committee, 2 p.m.
27	Wed.	Committee on the Postgraduate Education of General Practitioners, 2 p.m.
28	Thurs.	General Medical Services Committee, 11 a.m.
28	Thurs.	Committee on Psychiatry and the Law, 2 p.m.

Branch and Division Meetings to be Held

DORSET DIVISION.—At Old Shire Hall, Dorchester, Thursday, July 21, 8 p.m., coloured sound film: "Angina Pectoris." Doctors are invited to bring their wives, and nursing sisters are invited.

MID-CHESHIRE DIVISION.—At General Hospital, Altrincham, Friday, July 15, 8.15 p.m., annual meeting.

SOUTHAMPTON DIVISION.—At Royal South Hants and Southampton Hospital, Wednesday, July 20, 8.30 p.m., general meeting. Dr. S. J. Hadfield (Assistant Secretary, B.M.A.) will speak on the present position.

WORCESTERSHIRE AND HEREFORDSHIRE BRANCH.—At Alton Street Hospital, Ross-on-Wye, Thursday, July 21, 2.30 p.m., annual meeting.

YORKSHIRE BRANCH.—At Rehabilitation Centre, Richmond Park Avenue, off Handsworth Road, Handsworth, Sheffield, 9, Wednesday, July 20, 2.45 p.m., annual meeting. President's address by Dr. D. C. Barron: "Rehabilitation Methods"; followed by short talks on this subject by Dr. J. A. L. Vaughan Jones and Mr. F. Holdsworth.

BRITISH MEDICAL JOURNAL

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FIBRO-FATTY TISSUE AND ITS RELATION TO CERTAIN "RHEUMATIC" SYNDROMES*

BY

W. S. C. COPEMAN, M.A., M.D., F.R.C.P.

Physician in Charge, Department of Rheumatic Diseases, West London Hospital; Hunterian Professor, Royal College of Surgeons

the observations I here put forward are correct, we are w in a position to turn over a fresh page so far as our nception of certain of the so-called rheumatic syndromes concerned. I am not able to do much more than write chapter heading for this new page; it seems to me, wever, that this new chapter will be worth writing when equate material is forthcoming.

It is generally agreed that much of the pathology scribed for the chronic rheumatic diseases is speculative her than factual. Biopsy does not seem to confirm the rrent impression that muscle or fibrous tissues are generly the seat of cellular change in non-articular rheumatism, r indeed that inflammation is the underlying pathology. So far as aetiology is concerned, I suggest that bacteriogy has had its day, and that the day of endocrinology d perhaps genetics is dawning. The therapeutic witchnt for focal sepsis is slackening—we need an alternative e of thought.

Pathologically, the contribution I wish to make is simple t, I believe, fairly far-reaching in this field. There is a rd tissue, also of mesodermal origin—namely, fat—which s seldom been considered in this connexion, but which ems to be quite commonly subject to pathological varians which may cause symptoms that are labelled "rheuatic." Fatty tissue is widely distributed and constitutes arly 20% of the body weight. It appears to be functional well as protective, and, this being so, it would be strange its functions were not sometimes disordered. One of ese functions seems to be concerned with water storage e most striking example of this is perhaps seen in the haviour of the camel's hump). It has been established recent years by Bishop and others that human fat may ain water to a pathological degree in certain disorders. would seem to be some derangement of this normal action of water storage which underlies the syndromes cussed here.

Fibrositis

Fibrositis as a clinical entity has for many years past en accepted in this country, although its pathological undations are, as has been mentioned, slender, resting most entirely upon the theories of Gowers (1904), the ually unconfirmed histological studies of Stockman (1920), d the suggestion of Elliott (1944) regarding muscle spasm a cause. Stockman defined fibrositis as "a condition of ronic inflammation of the white fibrous tissue of the cial aponeurosis, sheaths of muscles and nerves, ligants, tendons, periosteum, and subcutaneous tissues, curring in all parts of the body and giving rise to pain. hing, stiffness, and other symptoms, the result of preding general infections or local inflammations or injuries."

It is now generally defined less comprehensively as an idiopathic disorder of the soft tissues chiefly characterized by pain and tenderness, which may be local, widespread, or referred, and is often associated with muscular spasm.

Nature of the Pain in Fibrositis

It was only comparatively recently that Lewis and Kellgren and others pointed out that the pain in fibrositis generally has its origin in certain focal points from which the more general subjective pain complained of by the sufferer is referred according to a segmental plan. This referred pain may seem to be situated at a considerable distance from its real origin. A good example is to be seen in those cases of sciatica not due to a disk mechanism, in which the focal point of pain—the "trigger-point"—may be found in the region of the iliac crest or even in the lumbar region. These trigger-points, which when palpable are generally termed "fibrositic nodules," are definite objective clinical entities in so far that when they are found by the examining finger the patient winces involuntarily. They are not merely tender spots, which are also commonly found, but they are specific points at which real pain is produced, and from which the more general pain can be referred by quite light pressure. The existence of these trigger-points is now well recognized in view of the therapeutic success which often attends their injection with focal analgesics in saline. Palpable nodules which are not tender are not infrequently found, but do not appear to be significant from a clinical point of view.

Classification of Fibrositis

Himsworth, in his 1949 Oliver-Sharpey Lectures, has emphasized the liberation of medical thought which has resulted from the substitution of syndromes for "disease entities" as units of illness. The syndrome has its philosophical basis in a chain of physiological processes, interference with which at any point produces the same impairment of bodily function. He points out that the same syndrome may thus arise from different causes. This conception inspires a much more catholic concept of aetiology, which is no doubt fully applicable to the field of "rheumatism" in all its forms. It must not therefore be assumed that the conclusions put forward here are thought to explain more than a certain proportion of cases. It will also be apparent that an aetiological classification will be unlikely of attainment in this field, where causes are probably multiple.

It would seem that the only objective sign of the disorder lies in these localized trigger-points, which are, moreover, sometimes palpable in the form of nodules; it therefore seems reasonable to attempt to classify idiopathic fibrositis according to the anatomical nature of the nodule where this is known or strongly suspected. Very little biopsy or

*Hunterian Oration delivered at the Royal College of Surgeons of gland on March 25.

other work of this nature has been done as yet, and the accompanying table based upon this objective must be regarded as being very provisional. It seems possible, however, that some form of classification such as that which follows might ultimately prove useful.

Classification of "Fibrositis"

Nature of Pain	Site	Clinical Finding	Morbid Anatomy	Cause
1. Focal ..	Tendon or aponeurosis	Nodule, small and hard	Fibrous	Trauma, rheumatic fever
2. Focal ..	Lumbar or gluteal	Larger nodule	Fibro-fatty	Oedematous changes
3. Focal ..	On muscle belly	Smallish elongated "nodule"	Local spasm of muscle fibres	Irritative focus in neural segment
4. Diffuse ..	Whole muscle group	Muscle tenderness	Unknown	Toxaemia
5. Diffuse ..	Many muscle groups	Spasm	Chronic muscular fatigue	Psychoneurosis
6. Diffuse .. (sometimes local)	Subcutaneous tissues	Panniculitis, tender fat deposits	Abnormal oedematous deep fat	Endocrine

Aetiology of Trigger-points and Nodules

It was observed (Copeman, 1943) that the pain in the back which accompanies most pyrexial illnesses is of the same nature and pattern as in fibrositis. It was shown, moreover, that, although the pain disappears with the cessation of pyrexia, the tender trigger-point will persist in a proportion of cases often for very long periods, unknown to the patient. These trigger-points can be reactivated by a recurrence of pyrexia, even if this is due to a different cause. It is therefore suggested that the tissues in which trigger-points and nodules subsequently occur in the course of fibrositis may sometimes have been "sensitized" earlier in life in the course of an attack of influenza or one of the exanthemata. The nature of the lesion may be a recurrent oedema painfully distending certain fat lobules in the deep subcutaneous tissues. It has also seemed certain that trauma, and probably also the direct action of cold, can be causative of similar lesions or at least precipitate their development in this way. No evidence of the direct causative effect of focal infection has been established.

Fibrositis Due to Oedematous Changes in the Fibro-fatty Tissues in Certain Sites

Method of Investigation

The frequency of the occurrence of "fibrositic" pain of the lower back in otherwise healthy young soldiers first stimulated our interest in this matter. As a first step exact measurements were taken of the site of these trigger-points or nodules in a large number of sufferers and a pain chart (Fig. 1) was plotted. The back of every patient who died in hospital was systematically dissected and special reference was made to these areas. As the result of this, and of many subsequent clinical observations and biopsies, certain conclusions regarding "fibrositis" and similar conditions in this and other regions of the body have been arrived at, many of which are embodied in this paper. The pain chart which evolved as the result of plotting the site of the trigger-points or painful nodules in our series of cases of lumbar fibrositis, as already mentioned, was found to outline the erector spinae muscles, the crest of the iliac bones, and the sacro-iliac joints. It was later found that this chart also corresponded with areas in which residual fat occurred, even in patients dead with the grossest forms of cachexia.

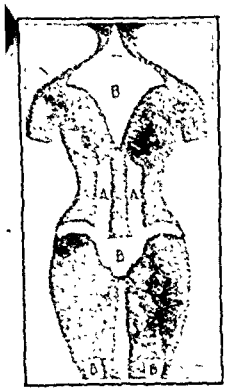


FIG. 1.—Usual sites of fibro-fatty lesions. A, herniation. B, tension pain.

As no evidence of pathological change could be found in fibrous tissue or muscle in biopsy material, we decided to examine the deeper layers of fat which constituted the remaining tissue in the neighbourhood of the trigger-points—notwithstanding the usual assumption that no pathology of interest normally affects this type of tissue. We were lucky in our first case in that we noticed a curious herniation of a large lobule of distended fat through a defect in the deep fascia. In a later biopsy of an easily felt and tender nodule from which widespread pain was being referred we discovered by cautious dissection that the nodule in this case was an oedematous-looking node of fatty tissue lying among superficial fat of the upper buttock, but with a pedicle which could be traced down to the layer of fat lying beneath the deep fascia.

Fatty Structures as a Site for Painful Lesions

In our original paper (Copeman and Ackerman, 1944) we described the areas of fat in which painful "fibrositic" lesions occurred as being in the main "residual," in the sense that lobulated fat remains in these areas even when it disappears from other areas as the result of extreme cachexia. The colour of this residual fat in such cases was often darker or pinker than ordinary fat. In two cases we were able after death to trace the pedicle of a superficial fat hernia down to the paranephric fat mass. These observations suggested to us that the areas of fat liable to be affected, at any rate in the lumbar region, might bear some relation developmentally to the primitive renal fat gland round which, from a comparatively early period of embryonic development, fat congregates in closely lobulated clumps, which in rats (according to Hammar) are also of a darker colour than normal. The well-marked area of residual fat which lines the rim of the ilium may not be covered by this hypothesis, although another primitive fat-organ is described in the outer groin in some textbooks. The largest of these fat-organs is said to be situated between the scapulae—a position which seems to correspond with that of our "dorsal fat-pad."

Normal Anatomical Disposition of Fat

Not much information is to be found on this subject in most anatomical textbooks. Subcutaneous fat exists very generally throughout the body, although its distribution is not uniform. In certain situations it collects more abundantly. Here it forms a considerable layer beneath the reticular layer of the corium, where it is laid down in the subcutaneous areolar tissue—panniculus adiposus. This areolar tissue forms a thin, indistensible fibrous capsule round the large lobules, where the fat is lobulated. T lymphatics serving fat accompany the blood vessels in ve close relation as they enter the lobule. There are numero sensory nerves to the blood vessels, and possibly to oth structures in the lobules, and sympathetic-nerve fibr which run to the fat cells control the function of stora and yielding. Where the skin is thicker and less movab the reticular layer is fixed to the deep fascia by numero stout fibrous bands (retinaculum cutis), the space betwe being filled with firm fat-clusters. This formation normall occurs mostly on the posterior aspects of the trunk an the upper and outer aspects of the limbs.

Pathological Herniation of Fat Lobules

From the brief account which has so far been given will appear that what pass as fibrositic trigger-points ca often be shown to be related topographically in the lumb sacral region with the basic fat pattern. Where these tend points were surgically explored, herniation of distended f lobules through deficiencies in their investing fibrous cove ing was often found. Removal or disruption of the

herniae in such cases provided lasting relief from pain. Histological examination of the material removed has shown in practically every case nothing but normal fat tissue distended with oedematous fluid—suggesting that the cause of this oedema is not inflammatory.

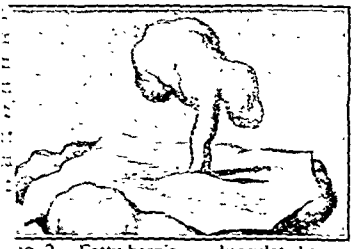


FIG. 2.—Fatty hernia: pedunculated type.



FIG. 3.—Fatty hernia: non-pedunculated type.

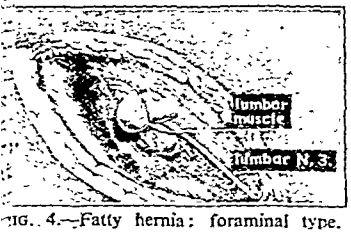


FIG. 4.—Fatty hernia: foraminal type.

In the lumbo-sacral region the fat herniae seen so far have been of three types: (*a*) pedunculated (Fig. 2), (*b*) non-pedunculated (Fig. 3), and (*c*) foraminal (Copeman and Ackerman, 1944) (Fig. 4). The first two are self-explanatory, the herniation occurring from the deeper layer of fat through a flaw in the fascial covering or layer into a more superficial layer. The foraminal herniae occur along the foramina which exist in the deep fascia of the sacro-spinalis muscles, along which pass the lateral branches of the posterior primary divisions of the first, second, and third lumbar nerves together with a small artery and vein.

Twenty-two selected case histories from our series have been published (Copeman and Ackerman 1944, 1947) in which removal of a fat hernia of one of these types resulted in a permanent cure of the pain, and many subsequent unpublished cases have been investigated with similar findings and results. Herz (1945), working in Cleveland, has confirmed this work and has published two further, larger series of successful cases.

Lesions Other than Herniation Occurring in Fat of Normal Distribution

Upper Dorsal Region

The skin is normally six to eight times thicker in this situation than in most parts of the body, and islands of fat may be found actually in the reticular layer of the corium of patients suffering from panniculitis. In the upper back the fibrous projections between the corium and the deep fascia normally form a series of honeycomb-like compartments which are filled with vascular fat. The axes of these "cells" are found to be roughly parallel with the tension (cleavage) lines of Langer. This structure is particularly noticeable in the upper back area, and we have called this diamond-shaped area the "dorsal fat-pad." It is one of the common sites of "fibrositic" pain, and its area corresponds fairly accurately with that of the trapezius muscle which lies beneath it.

When painful nodules are palpable, as is commonly the case in "fibrositis" of this region, they are seldom fibrous in nature. Biopsy will generally disclose the nodule to consist of the fatty contents of one or more of these compartments, swollen and under tension. Tension is shown by the fact that if the incision is made at right angles to the lines of tension in the skin the wound will gape and the lobule will be seen to present above its surface. It is also shown by the *peau d'orange* appearance if the skin and subcutaneous tissues of an affected area are compressed laterally. Negative evidence of this is afforded by the well-attested observation that palpable nodules of this type can be "rubbed away" by means of deep massage; a fact that could not be rationalized if they were formed of solid material such as fibrous tissue. Herniation of these lobules into adjoining compartments has been observed, but is uncommon owing to the density of their walls.

Periarticular Fat-pads

It does not seem to be generally appreciated amongst clinicians that localized collections of fat are to be found normally in association with certain joints, particularly the knees and ankles, and that these may become painful without the joint itself necessarily being affected. When this occurs an irresponsible diagnosis of arthritis is often made as the result of insufficient examination.

(*a*) *The Patellar Fat-pads.*—A normal intracapsular fat-pad is situated between the joint and the patella. This is well recognized by anatomists and surgeons. These infra-patellar pads will often become tender and painful without the joint itself being affected: this is particularly so around the time of the menopause. It is this lesion that commonly gives rise to the sensation of grating on movement, which is sometimes considered to imply that arthritis is present. A fold called the infrapatellar synovial fold extends posteriorly from the apex of each fat-pad to be attached to the femur inside the joint cavity. No doubt in certain cases, if this is also affected, intra-articular function will to some extent be deranged.

(*b*) *The "Popliteal Fat-pad."*—This has not so far as I am aware, been described as a separate entity. None the less, it is present in more than 80% of normal people over

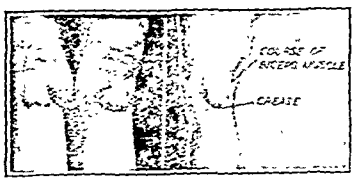


FIG. 5.—The popliteal fat-pads: normal structures which generally enlarge when painful. Often mistaken for bursae.

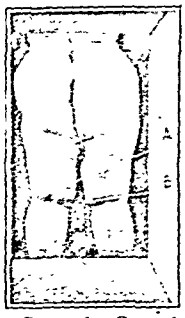


FIG. 6.—General obesity. A, Enlargement of popliteal fat-pads. B, Additional fat-pads at inner aspects of knees. (By courtesy of *Amer. J. med. Sci.*)

40 years of age. When it attracts notice by enlarging and becoming tender it is often wrongly described as a bursal enlargement (Figs. 5 and 6). It is sharply limited at its lower margin by the upper crease of the popliteal skin, and its outer border lies roughly parallel with the course of the semimembranosus muscle. Its upper border, when the pad is large, is delineated by another crease which develops in these circumstances. The inner border lies to the outer aspect of the midline of the popliteal space. This fat-pad lies between the superficial and deep layers of the fascia covering the popliteal space. When large it distends the skin, although the cause of pain and tenderness seems to lie rather in the distension of the fat itself. In these circumstances, however, full flexion of the knee-joint, by compressing the fat-pad, may give rise to pain—and so again to a mistaken diagnosis of arthritis.

The Sacral Fat-pad

This can be observed in about 10% of normal persons (Fig. 7). In structure it is very similar to the dorsal fat-pad. It is rather smaller than the sacrum, but is of the same shape and lies over it. It sometimes enlarges painfully as an isolated phenomenon, but is more often in association with a general condition of panniculitis, either with or without obesity.



FIG. 7.—The sacral fat-pads, present in about 10% of normal subjects.

Two other small fat-pads exist in many normal persons and in all who are obese. I can find no published description of these, however. The first is situated over the dorsal surface of the basal phalanx of the great toe. The so-called "male hairs" described by Wood Jones spring from its surface. It seems to be designed to buffer the strong action between the tendon of extensor hallucis longus and the skin. It is seldom of clinical significance, although its enlargement greatly contributes to the shiny swelling of the skin in this region in cases of acute and subacute gout. The other fat-pads which seem to be of some significance, in so far as they often become swollen and locally painful in obese persons, are situated at the ankle-joint. Medially there is one between the malleolus and the heel, roughly over the flexor retinaculum; whilst on the fibular side one lies over the stem of the inferior extensor retinaculum. A further fat-pad sometimes develops over the adductor tendons of the thigh at their pubic origin. It is rather doubtful, however, whether this can be considered to be of normal occurrence. It always develops in cases of obesity, and may be very painful.

Clinical Effect of Altering Volume and Distribution of Body Fluids

If the views which have been propounded are correct regarding the role of increased fluid tension in certain tissues causing pain, it should prove possible to relieve the pain by reversing this process. An experiment was accordingly planned (Copeman and Pugh, 1945) whereby 22 cases of fibrositis in which we believed that the pain might be of this type were selected. In these patients we induced the state of clinical dehydration; at which point we added electrolyte to the extracellular fluid to increase its osmotic pressure. Since the cell membranes are impermeable to sodium and chloride, intracellular dehydration would result.

The method of achieving this was to restrict the fluid intake of these patients for 36 hours to about 8 oz. (225 ml.). After this they were allowed neither food nor drink for 24 hours, and their fluid output was increased by the administration of ½ oz. (14 ml.) of sodium sulphate at hourly intervals for six doses. The process of dehydration could be followed by noting the daily loss of weight, which varied between 1 and 3.5 kg. This preliminary stage of dehydration was followed by an intravenous injection of 50 ml. of 30% sodium chloride (15 g.) into a vein. Immediately after this injection the patient was allowed to drink 4 oz. (114 ml.) of tea to mitigate thirst. Apart from this no fluid was permitted for four hours, after which no further limitation was imposed and the patient was encouraged to get up and about.

The clinical result of intracellular dehydration in this group was that of the 22 patients submitted 13 were rendered completely free of pain for variable periods. It was thought that this experiment confirmed other evidence about the nature of the mechanism of the pain suffered in the successful cases.

Relationship of Panniculitis with Fibrositis

According to Stockman pain of unknown origin occurring in mesodermal tissue, which he believed (as is indicated by his nomenclature) was always due to inflammation of the white fibrous tissues, is covered by the generic term fibrositis. Pain which has been described above as occurring from the distension in normally situated subcutaneous fat lobules can also therefore conveniently be classified under this heading. Where pain of this type occurs in abnormally deposited fat, however, it will be referred to as panniculitis. The condition was described by Stockman (1911) and also by Telling. It was defined by the former as being fibrosis of the deep subcutaneous tissues, or more specifically as "a chronic inflammation of the areolar tissue of the panniculus adiposus, including the small nerves and blood vessels." Although he recognized the presence of excessive fat locally he considered this to be the result of the inflammation and did not recognize that it had any association with the pain.

Panniculitis is a common condition which is insufficiently recognized as a cause of pain which is not infrequently labelled "psychogenic." Our investigations have shown no single instance histologically of an inflammatory reaction having occurred, and we believe that the pain in this condition originates as the result of oedema, and consequently distension, of lobules of the abnormal fat deposits. Panniculitis can best be considered in relation to those regions of the body in which it is most commonly encountered—namely, the upper dorsal region, the upper and outer aspects of the limbs, around certain joints, especially the knees, elbows, and ankles, and some other sites. Panniculitis is often associated with general obesity. Even in cases showing this association the sites of pain generally remain confined to the regions in which pain is situated in cases not so complicated. This continuing localization of the pain in cases of general obesity may be due to the less lobulated nature of the fat which is laid down elsewhere and also to the fact that in other sites, such as the abdominal wall, no fibrous fascia or capsule is present to limit the distension of the fat if it becomes oedematous. Herniation of fat lobules is common in association with obesity.

Although adiposis dolorosa would seem to differ from the preceding syndrome merely in degree, it does show more generalized areas of pain. The nodular feel of the fat deposits, the fluctuation in the sites of pain, and the histological findings, however, suggest that the underlying cause of the pain may be the same as in the preceding syndromes—namely, a shifting non-inflammatory oedema affecting the pathological fat deposits. In this connexion it is interesting to note in Dercum's (1892) original description that "occasionally very severe paroxysms of pain occurred, and these were coincident with temporary swelling and hardening of the fat masses."

Panniculitis of the Upper Dorsal Region

The "dorsal fat-pad," which has been described as the seat of local lesions in fibrositis, is more generally involved in cases of panniculitis. The tissues are sometimes excessively thickened and the subcutaneous tissues cannot be lifted between the finger and thumb. It is sometimes the only region involved in this process, in which case the condition tends to be concentrated round the base of the cervical spine—the "buffalo hump."

Panniculitis of the Upper and Outer Aspects of the Limbs

Tender nodules not infrequently form along the upper and outer aspects of the thighs, often in association with enlargement of the periarticular fat-pads of the knee, which are discussed below. Pain due to this cause is generally diagnosed as "fibrositis." A few biopsies and dissections have been made in order to study the method of formation of nodules in this site.

The usual situation of these localized collections of fat is in the panniculus adiposus, where certain portions of the areolar tissue seem to become more heavily charged with fat than do others. These portions appear to be more closely lobulated and independent of the average layer of fat at this level, although lying in it, and give the appearance of being small independent "mesenteries" each with its own blood and lymphatic supply. There is also a large potential space between the superficial and deep layers of the fascia which overlies the fascia lata of the thighs, and fat nodules sometimes form also in this space.

In cases in which these collections become painful in this situation it is found that they have become circumscribed by adhesions which seem to prevent lateral extension of the fat mass. The pain is presumably due in such cases to attempted distension of the unyielding fascial walls. The cause of these limiting adhesions is unknown; it may be traumatic, but since their occurrence appears to be related in many cases to the menopause they may result from a drying up of the normal lubricating fluid of the fascia. No detailed investigations have yet been carried out to investigate similar conditions in the region of the upper arm or round the elbow-joints, where panniculitis is also commonly found.

The Knee-joint

An abnormal fat-pad develops over the inner aspect of the knee-joints as a menopausal manifestation and perhaps precursor of ultimate osteoarthritis. It also occurs as a prominent feature of general obesity at any age, and of course in those rare cases known since 1892 as Dercum's disease (adiposis dolorosa). The appearance of these abnormal fat-pads, which may become very large and pendulous, is well known (Fig. 6). They are generally bilateral, although pain or tenderness is often confined to one side only. Posteriorly they cover the lower insertion of the inner group of hamstring muscles, being separated by a definite sulcus near the midline of the popliteal fossa from the normally present (but probably enlarged) popliteal fat-pads described above. Anteriorly they are limited by the internal aspect of the patella, but often appear to blend lower down with the infrapatellar fat-pad. There is no accompanying sensory abnormality of the overlying skin, although it is often the seat of multiple stellate or spider-like collections of thin superficial veins.

Varicose veins and local thromboses are also a common association, as is spontaneous bruising. On palpation distinct lobulation of the contained fat is easily felt, and it can be appreciated that only certain lobules—which feel more tense—are tender. If these be marked it will be found that this localized tense tenderness will affect different lobules on different days. This tenderness appears, therefore, to depend upon a condition of shifting oedema which moves from lobule to lobule. Excision of the painful fat-pad successfully relieves the pain. Microscopical examination shows only oedematous fat of normal structure and with no cellular reaction.

These pads are not to be considered as lipomata; the fat is laid down in the reticular areolar tissue between the corium of the skin and the synovial capsule, into the folds of which lobules will often penetrate and adhere. The arrangement of this areolar tissue does not seem to be as a continuous layer but in discrete sheets which when infiltrated with fat lobules in this way have the appearance each of a separate miniature mesentery. The various collections of lobules are thus in fact discrete clumps, each with its own blood supply and lymphatic system.

These medial fat-pads when they attain a large size can interfere considerably with the free function of the joint, and pain from these is quite often referred to the joint itself subjectively, although carefully objective search will reveal a tense periarticular fat lobule in the pad as its real origin. The differential diagnosis of "arthritis" and its despondent-sounding implications is all too often made in such cases, more particularly if the normally occurring "age-changes" are interpreted as radiological confirmation of this view.

Aetiology

Endocrine

The cause of the non-inflammatory oedema which is found locally to be distending the fat lobules which cause pain in the type of "fibrositis" which has been described, and in panniculitis, is unknown, although it may well be part of a more general process. It may be part of a general condition of dysfunction of fat-water metabolism, as it appears to be in those cases associated with obesity. It is this factor which accounts for those rapid and otherwise inexplicable variations in weight which occur during the dietetic treatment of the obese.

In view of the frequent association of these syndromes with the female menopause (both natural and artificial) it is tempting to suspect that the underlying cause must be endocrine. It seems to be accepted by endocrinologists that excessive secretion of oestrogens in the human will result in water retention, which largely affects the fatty tissues. This is released at a normal period, but if this does not occur the condition may become cumulative. Some reflection of this process is often seen clinically in the cases which have been described. The fault here may lie in the dysfunction of the ovarian glands or, more probably, further back in the pituitary or hypothalamus. The latter probability is strengthened by the fact that men suffer from these syndromes, more particularly the fibrositic one, quite often.

Overactivity of the pituitary and the adrenal cortex is known to be associated with pregnancy and the climacteric, and commonly results in obesity. In most cases, however, no objective evidence of endocrine disorder is to be found, and it may be surmised that the metabolism-regulating centres of the hypothalamus are disordered. This is known to result in water retention, owing to the interference with secretion of the antidiuretic factor of the posterior pituitary lobe. It is said that in these cases administration of chorionic gonadotropin will reduce the subcutaneous fat and release water, and probably the effect of this should be tried in selected cases. It may be presumed that there is no gross pathology present in the majority of the cases which are being discussed, and it seems possible that the lesion may be primarily of genetic determination. The thyroid gland has also been invoked, largely on account of its value in the treatment of certain of these cases; it is thought, however, that as this substance possesses the property of eliminating excessive tissue fluids its benefits probably do not reflect any share in aetiology.

Kling (1947), writing of what he terms "juxta-articular adiposis dolorosa" (probably a condition of panniculitis localized to the joints), states that no high degree of endocrine disturbance was found in his patients, although

B.M.R. estimates were only markedly abnormal in one-third of them. He also failed to find evidence of interstitial inflammation of sensory nerves, but he found evidence of increased tissue tension in these sites and considered it probable that the mere increase of the fat tissue causes pressure on the nerve endings and so gives rise to tenderness and pain. Where enlarged knee fat-pads were only part of a more generalized condition of adiposis dolorosa, these findings were generally found to be applicable to the other joint areas which were affected.

No generalized abnormality has been detected in the majority of our cases of panniculitis; all routine clinical tests, including the B.P. and E.S.R., were normal. Arthritis did not develop in those cases which were successfully treated for the periarticular condition. The condition is not necessarily associated with general obesity, although it may be; and when it is it tends to be more severe and widespread. Adiposis dolorosa, both in its full form and in the periarticular form described by Kling, may constitute only a variation of this entity.

Sodium Balance

Disturbances of water exchange in general betoken dislocation of sodium balance. It can be demonstrated experimentally that cells, including fat cells, swell or contract in a predictable manner in response to variations in sodium concentration in the interstitial fluid, since all cell membranes permit the free passage of water but not of sodium and chloride. The water and salt levels are now believed to be controlled largely by activity of the hormone of the posterior lobe of the pituitary and the influence of the desoxycorticosterone fraction of the adrenal cortex.

Genetic Factors

There may also prove to be a genetic factor involved, since close questioning of 50 unselected female cases of severe panniculitis revealed a history of a similar condition having occurred in the family (mostly in a mother or a mother's sister) in nearly one-half of them. This is a very high proportion, but it does not necessarily point to the disease being a familial one, since all these patients had been subjected to similar endocrine disturbance as represented by the menopause. It is perhaps more probable that it is the body type which is familial, and panniculitis certainly occurs most often in that type which Sheldon (1940) designated the endodermic somatotype.

Cold

It is striking how sudden the first onset of pain may be in some cases, leading occasionally to a wrong diagnosis for this reason alone. It has seemed that in a large number of these cases cold has been the precipitating factor, no doubt merely activating a state already in being. This is understandable in light of the observation of Bazett and his co-workers that a temperature gradient exists between the surface of the body and the deep tissues extending inwards to a depth of 2–3.5 cm. and having a temperature difference ranging from 5 to 15° F. (3–9° C.). The fatty tissues which we believe to be chiefly implicated in the type of fibrositis that has been described and panniculitis lie well within this gradient, and, since the temperature gradient—and to some extent its depth—vary in response to the cooling power of the atmosphere, these tissues must be directly affected by the external environment. These reactions are no doubt responsible for the well-attested phenomenon of weather-sensitivity in these cases.

Treatment

The pain which occurs in the two main syndromes considered in this lecture—namely, a certain type of fibrositis and panniculitis—has been shown to be due in each case to a painful distension of fat lobules within a confined space. Treatment in both will therefore be along similar lines and have the same objectives. Where these syndromes are complicated by the addition of obesity, the factor of weight reduction will also have to be faced.

The results of treatment at the present time are variable, and relapse is common. If the syndrome occurs at the menopause, however, as is not uncommon, and remission can be induced for a sufficient period to cover the completion of this process, prognosis is fairly good. The desiderata of treatment may be epitomized under various headings.

Diet.—Since fat is the site of the painful lesion in these cases weight reduction is always indicated even in patients who do not appear to be overweight. It is seldom that any improvement is noted as the result of other methods unless the body weight is falling. Restriction may be limited to starch-containing foods and to fat. Ordinarily, protein foods need not be limited.

Endocrines.—It has been pointed out that there is clinical evidence that oestrogen tends to cause fluid retention in the tissues, which is released at menstruation, and that in the menopausal patients this condition may become cumulative. Theoretically, androgens might in such cases be the proper remedy, and some recent observations tend to confirm their usefulness. In menopausal cases ordinary endocrine treatment should be tried; in patients who are not menopausal thyroid is none the less sometimes helpful, except in those cases which normally show a rapid pulse rate. In these cases thyroid extract will generally result in palpitations but no reduction in weight. There are no known drugs or hormones which will reduce pituitary activity, although such an objective would seem to be desirable.

Diuresis and Dehydration.—The type of diuresis that is required in these syndromes is that which not only increases the urinary volume but also depletes the body fluids, producing thirst. This is the type called by physiologists "obligatory diuresis." There are several substances which may be employed, and, since there is no contraindication to employing them at the same time, it is reasonable to do so. (*a*) Chemical substances which act by distorting the internal environment, such as urea. This may be given in large doses (20 g.), suspended in a little water or fruit juice after each meal, for long periods. (*b*) Chemical substances which alter the acid-base equilibrium and electrolyte balance, such as ammonium chloride. This is often given to supplement the action of mercurial diuretics, which may also be employed with benefit, and whose effect seems to be to decrease the amount of sodium chloride reabsorbed by the renal tubules. (*c*) A salt-free diet, which is effective in reducing the volume of body fluid where there is an excess. Its effect results from the removal of one of the essential components of this process, whilst restriction of water, the other chief essential, is rendered unnecessary and thirst will thus be relieved.

Physiotherapy.—Firm localized massage is used to disperse the swelling where oedematous fat lobules can be felt and are the cause of pain. It will generally prove very painful at first, and any reaction caused by this process must be allowed to die down before a subsequent treatment of this sort is administered. In time the patient will become less sensitive, and regular treatment will become possible. Previous exposure to radiant heat and infra-red rays will often increase the patient's tolerance to such treatment. Where actual herniation of fat lobules has occurred, but has not become fixed by adhesions, reduction of the herniation by this method may be possible.

Injection.—The object of local injection treatment is to disrupt the swollen fat lobule by hydrostatic pressure and so relieve the painful tension. Mere infiltration with anaesthetic solution will give temporary relief only, except in those infrequent cases in which this procedure has seemed to allow auto-reduction of a hernia, as judged by the subsequent permanent disappearance of both the nodule and the pain. The solution which we have used mostly for this purpose has been procaine 0.5% in saline. Undercutting or "teasing" with the point of the needle afterwards will complete the disruption. In cases of localized panniculitis the affected area may be thoroughly

infiltrated with an oily anaesthetic solution—such as benzyl salicylate—under pressure, with the same object in view. The fibrous compartments separating the fat lobules should afterwards be disrupted with the cutting edge of the wide-bored needle employed, to prevent recurrence.

Surgery.—Surgery has no place in fibrositis in which herniation is not a cause of the pain. Removal of irreducible fat herniae which cannot be disrupted by injection, however, remains the logical procedure, and in well-chosen cases is highly successful. These structures, however, are sometimes surprisingly difficult to locate in a well-covered person and local analgesia is essential, as the patient's subjective impressions are often necessary to ensure that it has been rightly localized. It must not be forgotten that herniations are sometimes multiple. In cases of panniculitis with obesity, persistent pain which cannot be remedied by other means can sometimes be cured surgically by undercutting the painful area. Presumably the sensory nerves responsible are cut in the course of this procedure. In two cases of persistent severe pain situated in an enlarged fat-pad on the medial aspect of the knee-joint the whole pad was excised, with permanent relief of pain, to the satisfaction of the sufferers, who had found no relief from less drastic procedures.

Several papers have been published in America during the last few years confirming the part played by fat herniae in the causation of pain in the lumbar and gluteal regions. The largest series is that of Hertz, of Cleveland. In a personal communication in 1948 he stated that since 1944 his series of such cases had reached a total of 229, 68 of which he had operated upon. At his last follow-up 62 of these had maintained complete relief from pain. Hutcherson, in a paper read before the Association for Surgery of Trauma in July, 1948, reported 42 such cases operated upon, with permanent relief of pain in 40. In England I know of no published series, although I have received accounts of isolated operations of this type which have been successful. Among surgeons who have communicated with me in this way I wish to thank Messrs. L. E. C. Norbury, S. L. Higgs, Rodney Maingot, Harold Edwards, J. C. R. Hindenach, and David Trevor.

Summary

It is thought that an aetiological classification, although desirable in the case of a "disease entity," must remain impracticable in the case of a syndrome. The classical conception of fibrositis is briefly reviewed, and a classification based upon the structure of the nodules found at the source of the pain is tentatively proposed.

Evidence is produced that the fat tissues of the body are subject to pathological variations which cause pain. This pain is generally labelled as "rheumatic" or "fibrositic." When this occurs in the neighbourhood of joints the condition is often wrongly termed arthritic.

It has been shown that several recognizable "rheumatic" syndromes can be the result of an abnormal retention of fluid by fat lobules in certain situations. When this occurs they endeavour to swell, but, being confined by indistensible fibrous tissue, they are unable to do so, and tension pain results. This oedema shows no sign of being inflammatory in nature.

In some such cases a flaw occurs in the fibrous covering, resulting in herniation of the enclosed fat lobule into an adjoining layer. Such herniations may be of three types, which are described.

The origin of this selective swelling is probably endocrine. The direct effect of cold may unmask it.

The syndromes described as being due to this abnormality of fat are: (*a*) "fibrositis," which occurs in any of the several normally occurring fat-pads which are described, and (*b*) panniculitis, which occurs in abnormally deposited fat, mostly in predictable sites. Panniculitis may occur with or without general obesity. In either case the chief sites of pain tend to remain similar. Adiposis dolorosa (Dercum's disease) would appear to be only a quantitative variation of this combination.

Treatment must be directed concurrently along several lines if success is to be achieved. Those discussed include diet, endocrines, diuresis and dehydration, local injections, physiotherapy, and surgery.

The indications for surgery are limited but tend to afford dramatic relief. These are the removal of irreducible fat herniae, and to a smaller extent removal of localized areas of painful tissue in severe cases of panniculitis.

The illustrations are from a film-strip kindly made for me by Mr. E. Wilson in the Photographic Department of the Royal Society of Medicine.

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RHEUMATOID ARTHRITIS IN THE YOUNG*

BY

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[WITH PHOTOGRAVURE PLATE]

The aetiology of rheumatoid arthritis still remains unsolved, but fresh light has been cast on the problem by a wider view of the clinical picture. The term "rheumatoid disease" has been wisely suggested (Ellman and Ball, 1948), and realization of the extensive nature of the condition, with less emphasis on the locomotor system, is a great step in the right direction. Arthritis has obviously attracted the most attention, but concentration on this single manifestation has certainly hampered search for the cause. That is why a study of the disorder can most profitably be undertaken in the young, for it is then that disease in general appears in its most acute and unadulterated form.

My remarks will be chiefly confined to certain aspects of Still's disease, which all now agree is no more than an acute form of rheumatoid arthritis in children. Further, I will try to correlate several striking features which have appeared fairly constantly in the group I have been studying with some of the rarer syndromes described by the able physicians of the past.

The study of rheumatoid arthritis, even in children, has to my mind centred too largely on the disease after it has become well established. Investigators have often not the opportunity of witnessing the onset and must rely largely on second-hand accounts from the child's relatives. In this way important developments may be missed.

Acute examples of a disease are also more likely to give information than insidious cases. I have therefore chosen for study from my case notes 20 children all of whom suffered from considerable fever and the usual general acute manifestations first described by Still. In nearly all of them careful clinical observations were made early in the disease, if not from the onset; subsequently the progress of the children was followed for many years, sometimes into adult life.

The account deals particularly with the early stages and general aspects of the disease; following the principles already expressed, arthritis will receive only short consideration.

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Mode of Onset†

This is more or less abrupt and could often be dated to a day. In most instances there was considerable fever and the disease began with *arthralgia*. At first there was little obviously wrong with the joints until attempts were made to move them, which were painful. Sometimes they were puffy and, though somewhat stiff, movement was not greatly restricted. Later definite *arthritis* set in, but at this early stage it was usually migratory, flitting from joint to joint and lasting only for a few hours (see Chart I). Redness of the surrounding skin has been observed in some instances, and the glistening appearance, swelling, and pain so resembled gout that blood uric acid levels were estimated but were always found to be normal. Sometimes the onset was like that of rheumatic fever, but failure of adequate salicylate therapy soon proved this diagnosis to be wrong.

In a few cases joint manifestations were minimal or entirely absent, and the main clinical features were listlessness, anorexia, adenitis, an unexplained fever, and a rash. The diagnosis then generally inclined towards glandular fever or brucellosis, but this was not supported by laboratory tests.

Adenitis.—This constantly occurred at some period, but with few exceptions could not be counted as one of the earliest features. Once present the enlarged glands persisted throughout the acute phase and disappeared only if the child made a good recovery. When a more chronic form of rheumatoid arthritis developed glandular enlargement continued until the disease became "burnt out."

Splenomegaly.—This was not prominent at the beginning and was found to any degree in only just over one-third of the cases. Later enlargement of the spleen became more obvious.

The Rash.—This appeared in 15 children, usually at the onset, and varied in intensity more or less with the temperature. At a later stage it vanished altogether, and that is no doubt why it has not been greatly stressed in the literature. The rash had a fairly widespread distribution on the limbs, the trunk, and occasionally the face. It was sometimes urticarial at first but without the usual pronounced irritation; soon it became maculo-papular and was often migratory. With the associated adenopathy it is not surprising that cases have been wrongly suspected of being rubella. Rarely the macules fused into a widespread erythema; occasionally petechiae appeared and the capillary fragility was found to be raised.

Fever.—In his original description Still stated that the fever might be continuous or might occur in bouts. Both types were seen in 16 of the 20 patients: usually a prolonged intermittent or a high irregular continuous temperature in the opening stages, giving way to periodic febrile attacks later (see Charts I and II). The periods of pyrexia were not so clearly defined as in Hodgkin's disease or melitensis, or undulant, fever, but careful analysis clearly showed their phasic character, which varied considerably from case to case and from bout to bout (see Charts I–III). In fact, the temperature in some children never remained normal for long; nevertheless the "switchback" appearance of the curves was typical (see Chart IV).

Both joint involvement and the rash tended to lessen or to vanish completely when the temperature dropped. Adenitis and a raised B.S.R., on the other hand, persisted throughout the acute and active stages of the disease. During the bouts of fever the child was very miserable, obviously ill, and in pain. Improvement followed the fall in temperature, but the clinical condition slowly deteriorated with each successive rise. Eventually the febrile attacks ceased and a typical clinical picture of varying degrees of rheumatoid arthritis remained (11 cases). Complete recovery with no obvious residual arthritis was the final result in three (cf. Hench, 1949), death occurred in four from causes which will be discussed later, and in two the acute stage has not yet terminated.

CASE	SEX	AGE AT ONSET	RASH	SPLEEN	LIVER	JAUNDICE	INITIAL LEUCOCYTOSIS W.B.C. per cmm.	LATER LEUCOPENIA	PERICARDITIS	FEVER		RESULT
										IRREG.-CONT.	PERIODIC	
1 C.B	M	10/12	+	±	++	SLIGHT	18 000 P 87	1500 P15 L85	P.M.	+	±	* LEUKÆMIA DEATH
2 T.D	M	2 4/12	+	±	–	–	24 000 P 84	–	–	+	–	ARTHRITIS AMBULANT
3 J.C	F	6 8/12	+	+	–	–	31 000 P 92	–	–		+	COMPLETE RECOVERY
4 A.B	M	10 6/12	–	–	–	–	17,000 P. 72	–	–	+ →	±	ARTHRITIS
5 W.C	M	5 2/12	+	–	–	–	22,000 P 78	–	–		+	RECOVERY
6 E.L.	M	3	–	–	–	–	14 400 P 66	2 900 P53 L44	P.M.	TERMINAL		* DEATH
7 R.H	M	6	+	–	–		22 800 P 77	–	+		+	ARTHRITIS
8 T.M	M	7 6/12	+	–	–	–	20 000 P 80	–	–	+ →	+	MIGRATORY ARTHRITIS
9 M.N	M	2	+	–	–	–	23,000 P 82	–	–		+	* DEATH (GOLD)
10 K.S	M	4 3/12	+	+	+	–	12 700 P 84	–	–	+ →	+	MIGRATORY ARTHRITIS
11 W.H	M	2 7/12	+	++	+++	SLIGHT	19,200 P 87	–	–	+ →	+	NO ARTHRITIS HEPATIC CIRRHOSIS
12 G.H	M	6	+	+	+ later	+	21200 P 82	–	–		+	SLIGHT ARTHRITIS DEMENTIA
13 M.H	F	3 9/12	+ later	+	+	–	NORMAL	–	?(PLEURISY)	+ ←	+	ARTHRITIS
14 A.B	M	9/12	–	+ later	+ later	–	19,000 P 75	–	?(PLEURISY)	+ ←	+	SEVERE ARTHRITIS
15 A.B	F	2 2/12	+	+ later	+ later	+	28,200	3400 P71 L24	+		+	SLIGHT ARTHRITIS RECOVERY FROM LEUCOPENIA
16 M.C.	F	9	–	±	+	–	17,500 P. 72	–	–	+ ⇄	+	SEVERE ARTHRITIS
17 J.C	M	4	+	+ later	–	–	22,600 P 87	–	+	+ →	+	ARTHRITIS AMBULANT
18 E.M.	M	5	+	+	+ later	–	16 500		+	+ ←	+	RECOVERY
19 S.D	F	3	+	–	–	–	13,900 P 76	–	–	±		ARTHRITIS
20 D.P	M	3 9/12	–	++	+	–		3 000 P3 L97	–		+	* LEUKÆMIA DEATH

Table incorporating the chief clinical points referred to in the text. Adenitis was an early feature in all cases. Subcutaneous nodules appeared only in Cases 8 and 12 at a later stage. Gold therapy in Case 9 provoked a severe and fatal reaction almost at once.

Blood Picture.—With any prolonged fever anaemia is to be expected, and it was not surprising to find before long a reduction of the red cells to between three and four million per c.mm., with a corresponding drop in the haemoglobin. More significant was the pronounced leucocytosis, almost invariably present at the beginning of the disease (18 out of 20 cases). Counts between 17,000 and 30,000 white cells per c.mm. were commonly registered, with a pronounced polymorphonuclear cytosis in the region of 80 to 90%. Very soon, however, the number of white cells returned to normal and leucocytosis was seldom repeated (see Table and Chart IV).

On rare occasions and at any stage the disease appeared to become too much for the bone marrow. Severe leucopenia then set in. Both neutrophils and lymphocytes might be equally affected, but agranulocytosis has also been observed (Plate, Figs. 1 and 2), and in two cases the final clinical picture and bone-marrow biopsy were indistinguishable from that of *lymphatic leukaemia* in an aleukaemic phase (Cases 1 and 20). Leucopenia developed in four cases—three patients died (Cases 1, 6, and 20), and one recovered rapidly and soon had a normal blood count (Case 15).

Other Clinical Features and Complications

Pericarditis is a well-known manifestation, and occurred in six of the series. It may in fact precede all other manifestations and be mistaken at first for acute rheumatic pericarditis (Chart III). Doubt arises when the illness does not follow the usual course and the myocardium is not found to be greatly involved. Sometimes the physical signs are not very obvious; pericarditis is then masked by the acute febrile disturbance and is observed only at necropsy (Cases 1 and 6).

†The following section should be read in conjunction with the accompanying Table, in which the main features of the 20 cases are summarized.

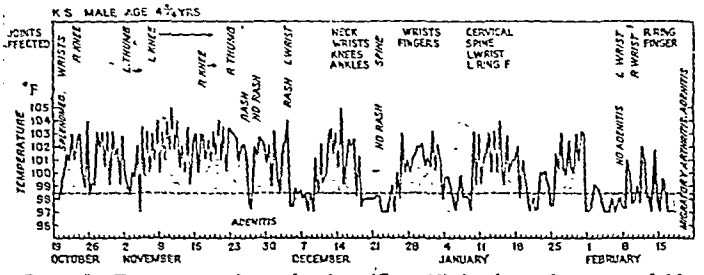


CHART I.—Temperature chart of a boy (Case 10) in the early stages of his disease, showing at first an irregular continuous form of pyrexia which subsequently became phasic in character. The migratory nature of the arthritis is also well demonstrated.

Pleurisy and pneumonitis are commonly associated with the pericarditis, but occasionally they may occur on their own (Cases 13 and 14) (cf. Ellman and Ball, 1948).

Jaundice figured as an occasional complication in Still's riginal account. In the present group it appeared in four ases and the liver became enlarged in nine. In one remark- ble instance (Case 11) the liver and spleen reached well elow the umbilicus, and laboratory tests at the time lemonstrated impaired liver function. After a year's illness ll signs of rheumatoid arthritis vanished; the boy appeared well and active, but was left with an enlarged spleen and *irrhosis* of the liver (see Chart II and Plate, Fig. 3). Amyloid disease has been described (Imrie and Aitkenhead, 1939), but it was never demonstrated during life or after death in the present series.

Only one account of *encephalitis* as a complication could be found in the literature (Spühler, 1941). This was in three adults with Still's type of acute rheumatoid arthritis. In one of my cases (No. 12) convulsions and prolonged coma suddenly developed with pneumonia, pyelonephritis, cardiac failure, and transient hyperpiesia (B.P. 200/120) as additional features (see Chart IV). The boy recovered from all these, but has been permanently aphasic and demented ever since. The aetiology of all this is obscure. Polyarteritis nodosa has lately been much debated in relation to rheumatoid arthritis, and the question naturally arose in this case, but the condition was not confirmed by muscle and vessel biopsy.

Among other early features in the series were excessive sweating, rapid muscular wasting, and generalized bone rarefaction. Later hirsuties, particularly round the labia, was often noticed in quite young girls and is difficult to explain. One other factor should be mentioned: in a few isolated instances the onset of the disease followed within a few hours of some severe trauma or shock, such as a fall down a deep chalk pit, with concussion, or sudden accidental immersion in cold water. Such occurrences may be purely fortuitous and have no bearing on the problem, but they may have some aetiological significance. Similar happenings are well known to anyone who has had wide experience of juvenile rheumatism, and serious relapses have been observed in children with acute rheumatic carditis following fractures, after surgical operation, or subsequent to a long drive in an ambulance (Bland and Duckett Jones, 1935).

Relationship to Other Syndromes

Henry Cohen (1948) in a chapter on "the rarer arthritic syndromes" has picked out one or two groups which seem to be interrelated. Some of them bear a striking resemblance in part of their clinical course to the acute form of rheumatoid disease just described. In his description of *intermittent hydrarthrosis* Garrod (1910) refers particularly to the associated skin rashes, which might be urticarial, erythematous, or haemorrhagic. Although the knee-joints were usually alone affected, others have observed a migratory arthritis. The disorder differs, however, from the disease we are considering in its more benign course and in the greater regularity of its periodic outbursts. In Garrod's cases the condition was mostly superimposed on damaged joints; in mine it was often the precursor of permanent arthritis. It is interesting to find that Garrod also mentions injury as a precipitating cause.

Pyrexia is not a great feature of intermittent hydrarthrosis; when present it coincides with the joint swellings and exhibits a fairly regular periodicity. More severe fever occurred in an allied disorder which Solis Cohen (1913) called "angioneural arthrosis." About 40% of his cases were febrile, and in a number of them the pyrexial attacks had the same phasic character.

Comparable also to a few of the cases in my series was the erythematous or gouty appearance of the joints during the attacks. More or less the same clinical picture was described by Hench and Rosenberg (1944) in a condition they term "palindromic rheumatism," which seems to be a milder form with no effect on the blood sedimentation rate, no fever, a normal blood count, and little tendency to chronic arthritis, but with widespread nodule formation. Palindromic rheumatism has also attracted the attention of Parkes Weber (1946), who finds a common thread running through all these separately described syndromes, including also those of Schlesinger (1899) and Kahlmeter (1939). In many respects their course differs considerably from that of Still's disease in its usual form, but several striking points of resemblance can be found.

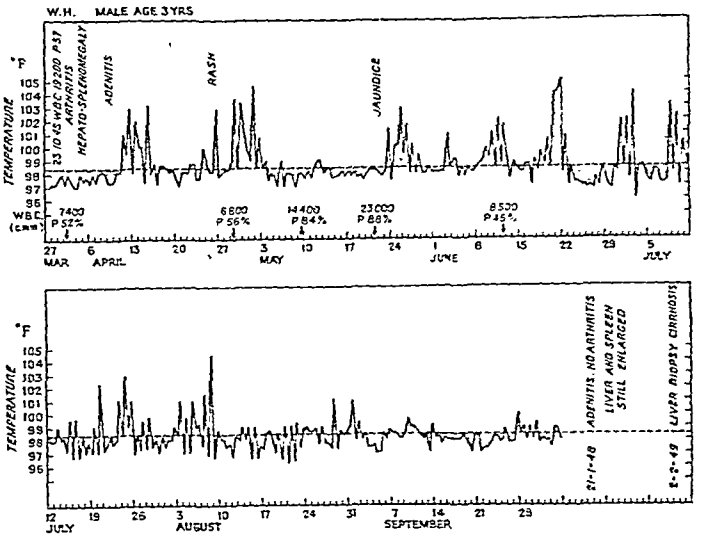


CHART II.—Chart of a boy (Case 11) five months after the onset. Short periodic bursts of pyrexia are shown. Leucocytosis, present at the onset, is no longer evident; the temporary recurrence later was associated with jaundice. There was complete recovery from arthritis, but cirrhosis of the liver developed (see also Plate, Fig. 3).

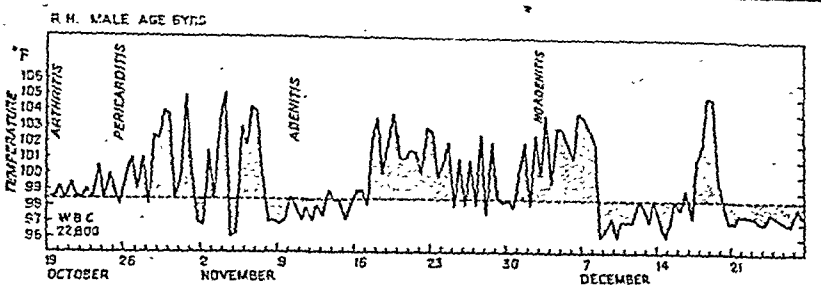


CHART III.—Chart of Case 7 with pericarditis as an early feature. Irregular bouts of fever are again obvious.

Precursor to Leukaemia

The rare termination of Still's disease in lymphatic leukaemia, which I have discussed, raises all kinds of possibilities. Preceding this there may possibly be a stage of undifferentiated leucopenia (panleucopenia), a complication of acute rheumatoid arthritis first described by Felty (1924). In his syndrome the neutrophils were not specially picked out and the low white cell count persisted for many months without the patient being in great distress or the joint affection severe. Felty remarked upon the associated pigmentation and the resemblance of his cases to those described by Banti. The glands and spleen were enlarged but not the liver, although in one case some liver impairment was suspected.

There are also one or two accounts of agranulocytic leucopenia in rheumatoid arthritis, not attributable to any specific form of therapy (Collins, 1937; Blechmann and Carcanagues, 1940). None of these cases proceeded to leukaemia, but this followed in one patient described by Türk (1938).

It seems as if the severer cases of Still's disease are in danger of developing leucopenia. From this the patient can occasionally recover, but the condition is more likely to proceed to agranulocytosis and in rare instances degenerate into leukaemia. Further research by repeated bone-marrow biopsy during the course of the disease is required in order to discover the exact sequence of events.

Discussion

Recently some form of allergy has again been suggested as the basis of the pathological process in rheumatoid arthritis, and in support of this two rare conditions—lupus erythematosus and polyarteritis nodosa—have been repeatedly quoted. Both are thought to be allergic disorders and to bear a certain resemblance to acute rheumatoid disease. This is suggested by the pathology of *lupus erythematosus*, in which the collagen tissue is chiefly affected by fibrinoid changes (Klemperer, 1948; Humphreys, 1948). The clinical features—fever, glandular swelling, arthritis, anaemia, leucopenia, and occasionally pericarditis and diffuse or focal cerebral disease—are also significantly similar to the symptomatology we have been considering. Focal myocarditis, another frequent lesion in lupus erythematosus, might be taken as further evidence of a common pathology, particularly by those who consider rheumatic fever and rheumatoid arthritis to be associated.

The morbid anatomy of *polyarteritis nodosa*, on the other hand, does not seem to bear such a close relationship, but its clinical course is somewhat similar, particularly the arthritis, fever, sweating, prostration, tachycardia, skin eruptions, and occasional involvement of th pericardium (Schlesinger and MacCarthy, 1949)

Glomerular nephritis, which is common i these two rare disorders, is not a feature o Still's disease. The link here is perhaps mor with serum disease produced experimentally i animals and resulting in a number of lesion which are also found in human serum diseas nephritis, polyarteritis nodosa, rheumatic feve and rheumatoid arthritis.

Comparison of Still's disease with thes two rare disorders, whose character ha only recently become clearer, and with syndrome of the past in which an infective factor has alway been in doubt does seem to favour some allergi basis as the underlying cause. Its exact form is still mos obscure. No one has yet discovered the nature of th antigen, explained how it produces a prolonged disease with progessive inflammatory lesions, or discovered what pre disposes certain individuals and allows others to escape Possibly some organism, normally innocuous, may be livin in harmonious symbiosis with its human host and suddenly become pathological when the balance is somehow deranged by stress or trauma. This might explain th occasional effects of shock, to which attention has already been drawn.

The dual role, partly infective and partly sensitizing, tha bacteria can play in the development of disease is wel known. The tubercle bacillus in tuberculosis and th streptococcus in nephritis and in purpura are good examples So far no specific infection has been constantly found t precede the onset of rheumatoid arthritis, but an infectiv factor is strongly suggested by the pronounced polymor phonuclear leucocytosis which was revealed in the early stages of nearly all the cases under review. Leucopenia and agranulocytosis might possibly be the detrimental effect o the bone marrow of repeated allergic reactions.

The changing character of the fever from a more or less continuously high level to an irregular periodicity migh also conceivably be regarded as the successive result of an infective and an allergic process.

Mesenchymal lesions in the skin, lymph nodes, joints heart, lungs, and spleen result from the experimenta

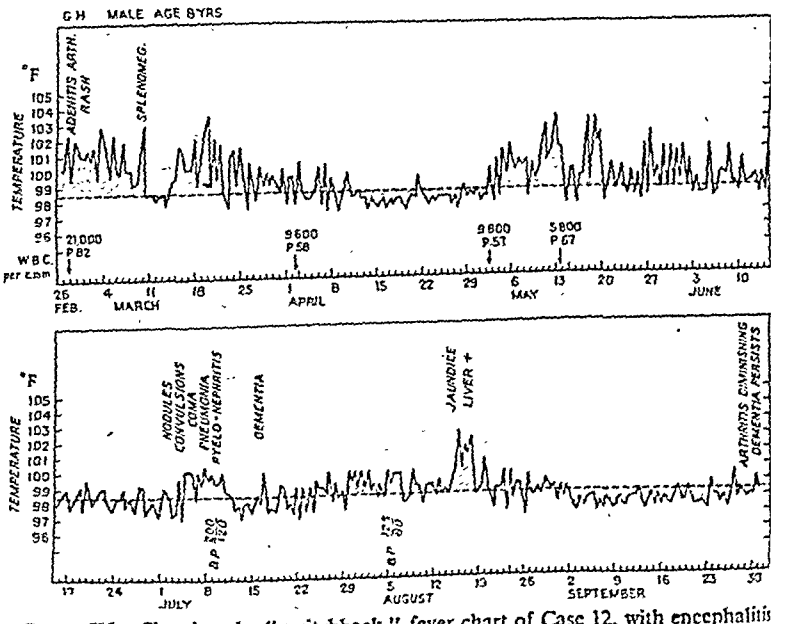


CHART IV.—Showing the "switchback" fever chart of Case 12, with encephalitis and dementia as complications. Initial leucocytosis occurred, but did not persist for long

intravenous injection of soluble antigens (horse serum) into animals, while somatic antigens (whole bacteria) produce their effect mainly in the lungs, liver, and spleen (Ehrich *et al.*, 1949; Gregory and Rich, 1946). Most of these are regions commonly involved in Still's disease, and, as has been shown, the lungs, the heart, and the liver may not escape.

Conclusions

Study of the most acute cases of Still's disease emphasizes the widespread nature of the lesions. Although the majority of cases proceed to progressive arthritis, some patients may recover completely. Characteristic types of pyrexia can be recognized at different stages, and significant effects on the blood picture have also been observed. In rare instances the clinical picture may change from Still's disease to leukaemia. The close resemblance of Still's disease, particularly at the onset, with certain rare syndromes of an allergic nature suggests that rheumatoid arthritis may have a similar aetiological basis. Should this be so, some form of primary bacterial invasion seems to be likely in the course of events.

I am indebted to several of my medical colleagues for allowing me to study their cases, and to Dr. Bodian and Mr. Martin for the histological sections and microphotographs reproduced in the photogravure plate.

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The current issue of *Planning* is the three-hundredth in the series which PEP began some 17 years ago. It looks back on the early history of PEP between its foundation in 1931 and the outbreak of war. A brief account of its origin mentions the men who were most concerned with the development of the group. In the early days PEP was given some special grants by the Rockefeller Foundation, but over the period 1933–9, 12 major and two minor reports and more than 150 broadsheets were published on a budget of no more than £56,000 for these seven years. There is a brief description of the *ad hoc* working groups set up by PEP, and an attempt is made to assess its contribution to contemporary knowledge and ideas. The first major report to be prepared by the Civic Division of PEP was that on *The British Social Services*, and this was followed in December, 1937, by the *Report on the British Health Services*. Three groups which did important work during the war were the Social Security Group, the reconstituted Health Group, and the Population Policies Group. The report on *Population Policy in Great Britain*, however, was not published until April, 1948.

PSYCHOGENIC RHEUMATISM

BY

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In a large hospital to which patients are referred suffering from "rheumatism" considerable diagnostic experience is needed in order to classify the various conditions included in this omnibus term. There is no agreement at present on the scope of the term; it is customarily taken to indicate a group of painful disorders of the locomotor system. It is obvious that a large number of syndromes come under this heading. While the arthritides, neuralgias, and other somatic conditions as a rule present straightforward signs and symptoms, patients are continually encountered whose experiences do not seem to fit in with any recognized syndrome and in whom physical signs are absent or minimal. In such cases one may be tempted to regard the patient as suffering from pain which is primarily of psychogenic rather than organic origin. If this hypothesis is correct, it is plain that rheumatic disorders of this type call for particular care in diagnosis and for treatment more far-reaching than analgesics and physiotherapy.

In recent years there has been a growing disinclination to accept all rheumatic complaints as somatic in origin. Even before the war one of us had coined the term "polyalgia syndrome" to describe the symptoms of which some patients complained. In England, Ellman *et al.* (1942) studied 50 patients with "fibrositis": 23 had no physical signs, although they had been diagnosed as suffering from somatic disease; 25 showed hysterical tendencies. An interpretation of the rheumatic complaint in psychological terms was given by these workers. An important contribution was made by Flind and Barber (1945); many of the subjects investigated by them were found to be suffering from psychiatric rather than organic states. Hench and Boland (1946) gave a full description of psychogenic rheumatism in a paper on the incidence of rheumatic disease in the United States Army; this condition was the third most common diagnosis made in their series of 800 patients.

If psychogenic rheumatism is to be accepted as an entity both by those who diagnose and treat rheumatic disease and by psychiatrists, our concept of it needs clarification and acceptable diagnostic criteria must be established. This demands close collaboration between clinician and psychiatrist: it is the purpose of this paper to show the results of such an endeavour.

Fifteen patients regarded by the clinician as suffering from psychogenic rheumatism were referred for detailed psychiatric examination. In each case the patient was first examined by routine clinical methods. The haemoglobin and sedimentation rate were estimated. The group contained 14 women and one man; the distribution by age was: 15–29, four; 30–39, three; 40–49, four; 50 and over four. The preponderance of women in this group was in accord with the assumption that psychogenic rheumatism in clinical practice is considerably commoner in women. A control group of patients suffering from a painful disorder of which the cause was known was investigated by the same means. This group consisted of subjects of the same age and sex distribution, and broadly of the same social class. The diagnoses were: osteoarthritis

brachial neuralgia (3), fracture of a joint (3), cervical rib (1), periarthritis (1), lesions of an intervertebral disk (2), rheumatoid arthritis (1), alveolar abscess (1). The psychiatric examination was conducted along three main lines—clinical interview, psychometric examination by two projective methods (Rorschach test and Thematic Apperception test—T.A.T.), and appraisal of information given by a relative, employer, or friend.

Results

A. Form of Rheumatic Complaint

Expression of Complaint.—Brief and consistent terms ("sharp," "sore," "aching"): controls, 10; patients, 3. Compound or unusual terms ("twisting," "heaviness," "burning," "stinging and stabbing," "shooting and numbness," "terrible," "hard to describe"): controls, 5; patients, 12. The patients often seemed to be trying to put into words an indescribable sensation. The impression to the observer is frequently that of a mystical or ecstatic experience, with an undercurrent of satisfaction, which recalls Helene Deutsch's (1947) elaboration of masochism as a primary feminine trait. Terms may be used which convey the description of a mental state rather than of a physical stimulus—e.g., "irritation." The psychological precipitants are at times stated quite plainly—e.g., "boredom causes irritation."

Site of Discomfort.—Localized: controls, 11; patients, 3. Widespread: controls, 4; patients, 12. In the majority of the control group discomfort was confined to the area of the lesion or to an area related to it. The distribution of discomfort in the test group was commonly very extensive—e.g., neck, spine, knees, shoulders, calves, hands. The phrase "pain all over" was employed by several patients.

Factors Influencing Severity of Discomfort.—In the controls the most common aggravating factor was touch or movement of the affected part: 11 cases. Among the patients the following were mentioned: work, 4; relaxation, 4; mood, 2; noise, 1; heat or cold, 2; doubtful, 2. Relief of distress in the control group followed rest in 10 cases and treatment in four. Of the patients, seven did not admit relief with any activity or form of treatment; in the remainder some relief occurred with rest or exercise, a hot bath, or quiet. Analgesic drugs produced improvement in six out of seven control subjects in which they were tried; out of eight patients, none noticed any effect from these drugs. Two control subjects considered that the complaint was influenced by their state of feeling, as compared with six patients. Variations in the severity of discomfort throughout the 24 hours, or from day to day, showed no great differences between the groups. The effect of climatic conditions—cold and damp—was similar in both groups. Degrees of disability from slight to total were noted in six control subjects; only one patient suffered any disability, and this was slight.

Associated Symptoms.—Depression, tension, irritability, poor sleep, or phobias were present in 14 of the patients and in five of the controls. In two of the latter the nervous symptoms were considered to be secondary to the somatic disorder.

B. Circumstances of Onset

Two of the controls and 13 patients became aware of the onset of the disorder in circumstances associated with emotional tension. In the remaining 13 controls the onset of illness appeared to be fortuitous. In the majority of the test group the rheumatic condition could be shown to have a comprehensible meaning in relation to the patient and her life situation.

C. Psychiatric Status

Clinical Examination.—In 10 of the control group no significant psychiatric abnormality was found. In the other five the physical condition was accompanied by nervous symptoms:

The first of these subjects complained of worries, fears, tension, and fatigue. It was considered that her conditions of housing were producing anxiety and frustration, which increased the disability due to her organic state (osteoarthritis). In the second, depression, lack of energy, and poor sleep appeared about one month after the onset of brachial neuralgia and seemed to be a consequence of pain and limitation of activity.

In the third, a right-sided cervical rib had begun to cause symptoms a few days after a fall on the right hand. On examination the patient also admitted to shakiness, depression, disturbing dreams, and fear of the dark and of open spaces. These were discovered to accompany sexual maladjustment with dyspareunia and fear of pregnancy. They appeared unrelated to the rheumatic complaint.

In the fourth subject pain from periarthritis of the right shoulder was accompanied by fatigue, headache, and insomnia. The shoulder condition followed a fall a few months before the time of examination; the other symptoms had been present over many years and were the expression of a lifelong neurotic state.

The fifth subject, with a twelve-months history of rheumatoid arthritis, complained of lassitude, depression, and disturbed sleep. She gave a history of previous nervous illness. In view of the common observation that rheumatoid arthritis may become manifest after emotional trauma, the circumstances of onset in this patient were carefully reviewed. No significant precipitating event was found, and the nervous symptoms were considered to be secondary to the arthritis.

In only one patient of the test group were there no associated nervous symptoms. With two possible exceptions the rheumatic condition in every patient in this group formed one component of a reaction pattern which was also expressed in disturbance of affect and behaviour. The pathogenesis of the condition in each patient is considered in more detail below.

Psychometric Findings.—(*a*) *Rorschach test:* This is a sensitive indicator of personality disturbance. Interpretation of records is a skilled task and cannot be reduced to a quantitative scoring method. For the purposes of this investigation the accompanying table of incidence of certain Rorschach signs of maladjustment was drawn up; it shows a greater degree of disturbance in the test group than in the control group taken as a whole. If the two control subjects with neurotic features on clinical examination are excluded the difference becomes more pronounced. More patients than controls showed evidence of difficulties in the emotional field: domination by emotional impulses or a morbid fear of and withdrawal from situations likely to arouse them. "Blocking"—complete failure to handle adequately such situations—was more often found. Awareness of alien forces within the personality of a sinister and threatening nature was commoner in the patient group

Results of Rorschach Test

	Responses < 15 or > 70	No Colour Response	Colour Response C Only	Rejections Other Than IX	Last 3 Cards			Content Categories Under 5	P. Responses Under 4
					Under 30%	Above 45%	Total		
Controls	4	4	—	5	6	—	6	6	7
Controls, without neurotic subjects	2	2	—	4	6	—	6	4	5
Patients	11	6	2	8	8	2	10	10	11

Signs of sexual maladjustment occurred more often. The various effects of anxiety on the test performance were shown to a considerably greater extent in the controls than in the patients' records.

(*b*) *Thematic Apperception Test* (selected series of cards): The patients showed in general a greater preoccupation with themes of violence, injury, crime and punishment, murder, and suicide. For example, one at least of the cards was interpreted as showing a murder by six of the patients, as against three controls; as showing a suicide by four patients, as against one control; and as showing some form of violence by five patients, as against one control. Themes of guilt after wrongdoing were also more frequent in the patients' records.

The material from the Rorschach and T.A.T. records will be used at a later date to build up a formulation for the pathogenesis of illness in the test group.

D. Physical Status

The control group showed the physical signs appropriate to the physical disorder from which they were suffering. The complaint was in general consistent in its expression and the discomfort was localized to one, usually anatomical, body area.

The test group complained in the main of diffuse and severe discomfort, inconstant in site, in degree, and in nature. The terminology used to express the complaint was often bizarre. The distribution of the discomfort did not correspond to that of a recognized physical disorder. Physical signs of a skeletal abnormality were absent. To say, however, that no physical signs can be elicited is not usually correct. A typical reaction to examination was found. Tenderness was often diffuse and due to skin hyperaesthesia. The patients found relaxation difficult, and muscular tension had often to be overcome before full joint movement could be demonstrated. Deep reflexes were exaggerated. In several cases the patient took the examiner's hand and applied it to the painful portions of her body.

X-ray examination and sedimentation rate estimation in the test group showed no abnormality.

Pathogenesis

The absence of physical signs of organic disease and the clinical characters of the complaint, especially the distribution of the discomfort and the significance of the complaint in the patient's total reaction, place this type of rheumatism in a class apart from the hitherto recognized rheumatic disorders. Its formulation as a "psychosomatic" condition cannot, however, be considered as adequate unless the morbid physiology underlying the physical symptoms can be articulated with the psychodynamics of the patient's emotional state.

In the test group a tentative formulation of the pathogenesis could be arrived at in 13 of the 15 cases. A fuller account embodying the psychometric material and further physiological data will be published later; a summary of each case, necessarily simplified, is here given.

Miss A., aged 24, is described as "fussy, upright, proud; holds herself very upright." Mother: rheumatism; nervy, quick-tempered. Mother died in 1943; in 1945 father began to carry on a liaison with another woman, who drank. Patient objected to this, and there were quarrels, after which she felt very disturbed and tense. Her feelings "seem to bottle up inside." Onset of generalized pains, mainly neck and spine, in 1945. Pathogenesis: somatic expression, perhaps in muscular tension, of strong moral resentment of father's behaviour.

Mrs. B., aged 50, was nervous and timid in childhood; illness diagnosed as chorea. Nail-biting and enuresis until 11 years. Home unhappy. Marriage unsatisfactory; husband has "bad nerves" and accuses her constantly of infidelity. "Prolapse of womb" in 1946; after this she was convinced that "something was wrong inside" which had not been discovered. Pain in the right side and back began at this time, accompanied by hysterical outbursts. Pathogenesis: nosophobia.

Mrs. C., aged 45. Father: violent, unstable. Mother: nervy. As a child patient was timid and nervous and afraid of father. Marriage happy; wanted large family but had only one child. Operation at 30 for sterility; at 42, uterus and one ovary removed. Very distressed by this; felt inferior to other women. Backache began after the operation. Rorschach: gross disturbance by a sinister fantasy life, with aggressive and sadistic trends. Pathogenesis: somatic expression of self-punitive trend at her failure to bear children.

Mrs. D., aged 39, is an unstable, dull, shallow person who nevertheless has considerable determination and can usually get her way with people. Married during the war and left her husband next morning as she could not tolerate sex relations. Felt strongly the need for home and security. Onset of pain in back and perineum while living alone in London. This resisted all treatment until she found a congenial job with friendly people. Pathogenesis: somatic expression of intense self-concern and need for affection.

Miss E., aged 27. Father: rheumatism; bad temper. Mother: rheumatism; irritable. Patient a diligent, conscientious, active person. Is compelled by circumstance to do a good deal of housework as well as her job, and resents it. Both parents are difficult and obstinate, and there are continual family quarrels. Onset of generalized pains after an increase in household duties on her sister's marriage. Pathogenesis: somatic expression of suppressed resentment of her parents' attitude and demands.

Mrs. F., aged 42, was nervous and timid as a child; enuresis till 12 years. Regular dysmenorrhoea; after marriage, disinclination for sex. Onset of pain in rectum while on evacuation from London during the war; this was relieved by injection for haemorrhoids, but she was told that the "neck of the womb was out of order." Became convinced that she had some disease of the uterus, probably cancer; pain in rectum returned, with backache. Pathogenesis: nosophobia.

Mrs. G., aged 53. Father: rheumatism "all over"; irritable. Mother: rheumatism. Patient nervous and worrying as a child. Family unhappy. All her life has had to look after invalids; her husband died of tuberculosis after a long illness. Had one child which lived only two weeks; pain in the back at this time. Had to take care of a sister with Parkinsonism who did not appreciate what was done for her; exacerbation of rheumatism at this time. Depressed; considers her life is empty. Pathogenesis: somatic expression of anxiety with guilt over her aggressive impulses towards sister.

Mr. H., aged 23, was wayward and delinquent as a boy; preferred sport to work. Served in R.A.M.C. during the war, much of the time abroad. Found this "nerve-racking"; longed for home. Onset of pain in left chest during a football match, probably from a minor injury, in Singapore after return from home leave. After demobilization, dissatisfied with civilian job and living conditions. Pathogenesis: prolongation of physical symptom due to frustration and discontent.

Mrs. I., aged 42. Mother: rheumatism; very concerned over children's health. Patient is married and has four children, who are a constant worry to her lest they fall ill or are injured. Never lets them out of her sight, but is impatient if they resist her—"would like to take a knife to them." Onset of backache during a depressive illness. T.A.T.: preoccupation with death and suicide. Pathogenesis: somatic expression of tension from markedly ambivalent feelings towards children.

Mrs. J., aged 33. Father: backache, nervous. Mother: "curved spine." Patient always wished to do well in business and was happiest when managing a public house. Has always been irritable, tense, and unable to relax. Marriage fairly satisfactory, but she had dysmenorrhoea, distaste for sex relations, delayed conception, and vomiting in pregnancy. She sleeps badly, and while half awake sees vivid pictures of death

and injury. T.A.T.: preoccupation with and fear of sadistic impulses. Onset of pain in back, legs, and hands during last pregnancy. Pathogenesis: somatic expression of discontent from thwarted masculine aims and ambitions.

Mrs. K., aged 32. Father: rheumatism in head, arms, shoulders, knee; "always rubbing himself"; "nerves in the head." Patient "takes after father very much." Onset of aching pain in back, arms, and legs while living away from London during the war. No immediate source of emotional tension found. Patient very preoccupied with her complaint and sure she is going to be crippled with rheumatism, as her father and aunt were. Probable pathogenesis: nosophobia.

Miss L., aged 19. Father died when patient was 11. Brought up by mother, with whom she has always got on badly. Patient described as "hysterical; flares up easily." Both she and her mother have violent tempers. Patient says she wants to leave home, yet is clearly very dependent on mother. Has one boy friend, with whom she quarrels continually. They became engaged, hoping that this would ease things; the quarrels ceased, but the patient developed pain in shoulders and arms, with odd sensations in the limbs. Pathogenesis: somatic expression of anxiety from two main conflicts—over dependence, and over relation to fiancé; with utilization of illness as a means of avoiding marriage.

Mrs. M., aged 52. Father: ill-tempered and unstable; left home. Patient strong and active; reared in a convent. Marriage difficult; husband a chronic invalid who died, leaving her with five young children. She had to work to support the family. Onset of pain in back and limbs after a confinement in her early thirties. Repeated mild attacks of depression, ascribed to worry of looking after children. T.A.T.: marked preoccupation with theme of injury and reparation as between mother and child. Probable pathogenesis: somatic expression of guilt over care of children.

Miss N., aged 59. Father: nervous, temperamental. Mother: rheumatism. Patient has energetic and forceful disposition, with strong intellectual and social ambitions, which have never been realized. At about 24 she began to suffer from insomnia with "visions," in which she could see herself as a crowned queen; with this, she felt irritation under the skin. At about 50 pain began in knees, ankles, and fingers, worst during the night, when she cannot sleep. T.A.T.: preoccupation with and fear of sadistic impulses. Pathogenesis: somatic expression of suppressed resentment from thwarted ambition, precipitated by menopause.

Miss O., aged 43. Mother: fainting attacks; chronic fatigue; dominating and strict with her children. Patient active, vigorous, ambitious, and successful; reached her goal—to be a head mistress. Onset of backache during the war, at a time of especial stress while she was concerned over danger to her mother from the air raids. Had to give up her career to look after mother because of illness. Pathogenesis: somatic expression of anxiety from conflict over relation to mother.

Diagnosis and Treatment

The principal diagnostic features of psychogenic rheumatism appear to be in (1) expression of complaint; (2) area of discomfort; (3) failure to conform to an established organic syndrome; (4) setting of the illness in relation to the patient's life situation; and (5) lack of response to physical treatments.

The treatment and disposal of patients regarded as suffering from psychogenic rheumatism has always provided a real problem to the clinician. It is part of the syndrome that they do not respond to treatment which is limited to physical measures. It seems clear that to these patients their suffering is something very personal and valuable; it makes them important, interesting, and worthy of sympathy, and is a protection against an unkind world. To treat them with passive physiotherapy is to acquiesce in their own diagnosis of disease and to allow it to take a deeper root. Such treatment usually gives temporary relief but does not cure; after a time it may come to be indispensable to the patient. Physiotherapy which is painful may remove the symptom; another symptom will then take its place. Injections of a local analgesic may be tried; they generally have a dramatic effect. Even as little as a few drops of 1% procaine may lead to fainting and hysterical manifestations.

One of us has attempted to treat the patients in groups by general ultra-violet irradiation followed by exercises; this method has had some success. Group psychotherapy of selected patients has now been started and has already given encouraging results. It is probable that an approach along these lines will prove to be the most profitable measure.

Summary

An investigation by a physician, a psychiatrist, and a psychologist of a group of patients suffering from a rheumatic disorder without signs of organic disease is described; a comparison with a control group is made.

In the former group the disorder was found to have certain special characters; in most cases the onset and course of the condition could be correlated with emotional disturbance. The condition seems to merit recognition as a clinical entity: it may be described by the term "psychogenic rheumatism."

We are indebted to Dr. T. A. Munro for his co-operation and advice; to Dr. K. W. N. Palmer, of the Department of Physical Medicine at Guy's, for his assistance with the control patients; and to Professor Aubrey Lewis and Dr. J. L. F. Maine for helpful suggestions.

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A CASE OF RHEUMATOID ARTHRITIS SIMULATING PYOGENIC INFECTION

BY

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The rarity of high fever in rheumatoid arthritis may be judged from the fact that Bannatyne (1896) on one occasion recorded a temperature of 105° F. (40.6° C.). This observation was later quoted by Garrod (1907) and by Jones (1909) as still unrivalled. Modern authors confine themselves to the statement that the temperature may rise to 102–103° F. (38.9–39.4° C.) and that a slight pyrexia may persist for several weeks.

The highest leucocytosis recorded in an uncomplicated case appears to be the figure of 15,800 mentioned by Erving (1903). Most modern writers omit all reference to the possible occurrence of a marked leucocytosis, and Gibson (1948) declares that "an increase of over 12,000 leucocytes per c.mm. is rare."

The following case is more reminiscent of the disease as seen in children, when fever and general symptoms may be present for weeks or months before definite articular manifestations make their appearance and fever and leucocytosis may be so marked as to simulate a pyogenic infection or leukaemia.

Case Report

The patient, a clerk aged 26, had previously been healthy save for a succession of sore throats.

He was first seen at Southmead Hospital on Jan. 2, 1948, when he gave a history of having had a sore throat nine weeks previously, accompanied by fever and pains in many joints, which had not become swollen. Fever with profuse sweating had persisted, and a temperature chart which he produced showed an evening rise varying between 101 and 103° F. (38.3 and 39.4° C.) over the past two and a half weeks.

On examination he was seen to be thin and pale. His temperature was 101.2° F. (38.4° C.) and the skin warm and moist. The pulse (90–120) was accelerated in proportion to the fever, and the B.P. was 130/80. The only joint affected was the left elbow, which showed a 30-degrees limitation of extension. There was no local heat, swelling, or tenderness, though muscle spasm was pronounced. Examination of all other systems was entirely negative, and no nodules were found. There was a soft systolic murmur at the apex.

Three days after admission an effusion developed in the left knee, and the metacarpo-phalangeal joint of the right thumb also became painful. A blood count revealed a leucocytosis of 30,800 (neutrophils 88%, lymphocytes 8%, metamyelocytes 4%); Hb, 72%, red cells, 3,790,000. Two blood cultures were sterile, and agglutinations to *Salmonella typhi, S. paratyphi* A and B, and *Brucella abortus* were negative. Radiographs of the chest and left elbow were normal. No abnormality was found in the urine, although a trace of albumin appeared in several subsequent specimens. No malaria parasites were found in the blood. The Wassermann reaction and Paul–Bunnell test were negative, and intravenous pyelography revealed no abnormality.

On the evening of Jan. 7 the patient had a temperature of 103.6° F. (39.8° C.) and appeared critically ill. It was considered justifiable to employ chemotherapy empirically. "Sulphamezathine" was accordingly given in full doses for a week, to a total of 50 g. By the time the drug was discontinued he appeared much improved: the effusion in the left knee had subsided, the temperature had been subnormal for five days, and the leucocyte count had fallen to 8,700.

During the following week the temperature started to rise again, until on Jan. 22 it reached 102° F. (38.9° C.). The leucocyte count reached 15,000 and the E.S.R. was 35 mm. in the first hour. Two further blood cultures were negative. A radiograph of the spine and long bones showed no evidence of osteomyelitis or other bony disease. An evening temperature of 102° F. was maintained for 72 hours, then gradually subsided to normal, where it remained for nine days. At the end of this time the patient felt well and did not complain of joint pains. The leucocyte count of 17,800 nevertheless revealed that all was not well.

The temperature started to mount on Feb. 6, and by Feb. 19 the patient was again seriously ill, with a leucocytosis of 24,000. Penicillin was begun in a dosage of 30,000 units three-hourly, and as there was no response within four days this drug was supplemented by sulphamezathine in full doses for six days. For three days the temperature fell to a lower level, but on the fourth day he had a rigor and it rose to 105.2° F. (40.7° C.). On the next two days there were further rigors, and temperatures of 104 and 105.2° F. (40 and 40.7° C.) were recorded. Forty-eight hours later the patient was once again afebrile.

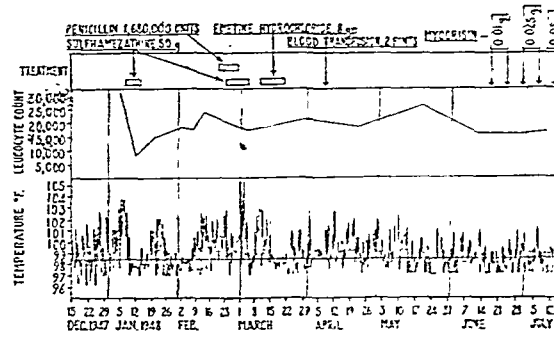
Further bouts of fever occurred during the next four months, and the temperature did not subside finally until the middle of July. During the first eighteen weeks in hospital the only constant physical sign was limitation of extension of the left elbow, with spasm and progressive wasting of the muscles above and below the affected joint. This and other joints were repeatedly *x*-rayed, with negative results until May 14, when periosteal changes were apparent around the neck of the left radius. Many joints were affected for short periods from an early stage in the course of the disease. At the end of February the left wrist and the proximal interphalangeal joints of the left hand became swollen and painful for a few days. Early in March there was pain on movement of the cervical spine, which persisted for about a fortnight. Later in the month both shoulders became painful for a week. In the middle of April both wrists were swollen and the proximal interphalangeal joints of the fingers were stiff for several days.

On May 17 more persistent changes appeared. The metacarpophalangeal joints of the left hand became swollen, red, and painful. At this time the leucocyte count rose to its second highest figure, 26,200. Ten days later the left wrist was inflamed and movement of the right wrist was found to be restricted. Thenceforward the typical deformity of the hands developed rapidly, and by the end of June radiological appearances characteristic of rheumatoid arthritis were apparent. None of the other joints, with the exception of the left elbow noted above, showed any radiological changes.

During the last week of February the patient complained of great soreness in the throat and pain on swallowing. The pharynx was injected, but no pathogens were isolated from the nose and throat swabs. Early in March definite hepatic tenderness became evident and there was an increase of urobilin in the urine. The van den Bergh reaction was negative, but the serum alkaline phosphatase was raised to 26.1 units. The serum albumin was 3.2 g. % and the serum globulin 4.1 g. %. In view of these observations, and bearing in mind that the patient had seen tropical service, amoebic hepatitis was considered. Emetine was tried empirically, 8 gr. (0.52 g.) of the hydrochloride being given over a period of ten days, but without benefit. In April one of the left axillary lymph glands became enlarged and was removed for biopsy. Non-specific inflammatory changes only were found.

Therapy and Progress

Sodium salicylate had been given for several weeks before admission and was administered again, without benefit, while the patient was in hospital. (For other therapeutic details, see Chart.) On July 29 he was transferred to the Royal National Hospital



Record of temperature, total leucocyte count, and treatment.

for Rheumatic Diseases, Bath, for further treatment. On admission his temperature was found to be 101.5° F. (38.6° C.) and for three weeks there was an evening rise of two or three degrees. He was given a transfusion of 2 pints (1.14 litres) of packed red cells. Other therapeutic measures included rest plasters for his hands at night, exercises in the pool, and mud-packs. Gold therapy was continued in the form of "auro-calcium," 20 mg. per week, rising later to 50 mg. At the end of November, when he was readmitted to Southmead Hospital for tonsillectomy, he looked remarkably well. His weight, which during April and May fell to 6 st. 12 lb. (42.6 kg.), had risen to 9 st. 9 lb. (60.5 kg.), and he had recovered a full head of hair, much of which had fallen out during his long illness. The only disability apparent was slight ulnar deviation of both wrists, with considerable limitation of movement in all directions. There was also periarticular thickening of the metacarpo-phalangeal and proximal interphalangeal joints of both hands, together with wasting of the intrinsic muscles. Radiographically, the carpus showed marked decalcification and narrowing of the joint spaces. All other joints (including the left elbow) showed a full range of painless movement.

Summary

A case of rheumatoid arthritis is described in which bouts of high fever occurred over a period of three months and of low-grade fever continued for a further four months before the diagnosis was evident. On two occasions a temperature of 105.2° F. (40.7° C.) was recorded after a rigor.

The highest leucocyte count was 30,800, recorded on admission; the next highest was 26,200 eighteen weeks later.

My thanks are due to Dr. G. D. Kersley for his help and for details of the patient's treatment and progress while under his care in the Royal National Hospital for Rheumatic Diseases, Bath; to Dr. D. H. Davies, under whose care the patient was admitted to Southmead Hospital, for advice and criticism; and to Dr. P. Phillips, the medical superintendent, for permission to publish.

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FIBROCYSTIC DISEASE OF THE PANCREAS*

BY

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[WITH PHOTOGRAVURE PLATE]

Although the American literature on this subject is now fairly extensive there have been few reports from this country. Doubtless many cases have gone unreported, but there is still a widespread belief that the disease is rare, and personal experience has shown that it is often misdiagnosed. The only large series described here is that of Bodian (1946), who reported 30 cases. Henderson (1945) recorded one case and MacGregor and Rhaney (1948) two cases in siblings. Previously, under the title of congenital steatorrhoea, Miller and Perkins (1920) and Cockayne (1933) each described one probable case of fibrocystic disease, and Clarke and Hadfield (1924) a proved case, for necropsy showed the pancreatic lesions which are now associated with this disease. It is unlikely that the case described by Garrod and Hurtley (1913) under the same title was one of fibrocystic disease, since Garrod (1920) subsequently reported that this patient was of normal development and activity at the age of 14 years.

Although the association of pancreatic disease and steatorrhoea had been known for over a century it was not until 1905 that Landsteiner described the pancreatic lesions now associated with fibrocystic disease. Passini (1919) first reported a case in which the association of the digestive disturbance and the pathological lesion of the pancreas was recognized. Parmelee (1935) described the cases of two patients with congenital steatorrhoea who died of bronchopneumonia, and in both of whom necropsy revealed cystic fibrosis in the pancreas; he had found in the literature only four cases with a similar history and post-mortem findings. Blackfan and Wolbach (1933) had, however, described six similar cases among 10 reported as cases of vitamin-A deficiency in infants, and Harper (1930) one case among two reported under the title of congenital steatorrhoea.

*Based on a thesis submitted to the University of Edinburgh for the degree of M.D., September, 1948.

Harper (1938) reported eight further cases under the same title, in five of which necropsy showed typical pancreatic lesions, and Blackfan and May (1938) described 35 cases with similar pancreatic lesions which in lesser degree they had observed in a further 200 cases; but they considered that it was not possible to determine accurately dependable diagnostic features in life in these cases. Fibrocystic disease of the pancreas was, however, becoming recognized with increasing frequency at necropsy; and, finally, Andersen (1938) showed that the disease was a definite and common clinical entity with a characteristic course and clinical history. She has since written extensively about the disease in all its aspects, and recently gave in this country a summary of her work (Andersen, 1949).

Case 1

This patient, a boy aged 10 (Fig. A), was first seen at the age of 8. Since birth his stools had been bulky, loose, pale, and offensive. Despite a good appetite and an adequate diet, he had never gained weight well. An irritative cough had been present since the age of 2 years, and had become worse and been accompanied by purulent sputum in the past nine months since an illness diagnosed as pertussis and bronchopneumonia. When 2 years old he was taken to another hospital, where coeliac disease was diagnosed. Dietary treatment for two years brought no improvement, and the diagnosis was altered to tabes mesenterica when his Mantoux reaction was found to be positive and calcified glands were seen in the abdomen at laparotomy performed on account of recurrent abdominal pain. He had had bronchopneumonia at 2 weeks and rectal prolapse at 6 months. His parents were not blood relations. One sibling aged 8 months is alive and well. The patient's weight was 44 lb. (19.96 kg.) (average, 57 lb.—25.85 kg.); height 48 in. (122 cm.) (average, 51 in.—130 cm.). His abdomen was prominent and his fingers were clubbed. Chest: percussion note hyperresonant; persistent crepitations in right lower and mid zones.



FIG. A.—Case 1 (on left) with normal boy of same age.

Investigations.—Duodenal juice contained no trypsin. Microscopical examinations of the stools revealed numerous fat globules and completely undigested muscle fibres; the fat content was 50%, of which 80% was split fat. Nitrogen excretion on a normal diet was 4.47 g. per day in faeces and 7.8 g. in urine. Blood counts showed no anaemia, but persistent polymorphonuclear leucocytosis. The predominant organism in the sputum was a penicillin-sensitive pneumococcus. Radiography of the chest showed emphysema with a generalized bronchitic appearance and parenchymal changes at the right base.

Progress and Treatment.—For 18 months he has been treated with a low-fat, high-protein, and high-carbohydrate diet and 30 g. of casein hydrolysate and 16 g. of pancreatin in the form of enteric-coated capsules and extra vitamins. He has gained only 4 lb. (1.81 kg.) in weight and 2½ in. (6.25 cm.) in height. At first his activity was greatly increased, but accesses of the pulmonary infection, although relieved by penicillin inhalations, have recently been occurring so often (about once a month) that his activity is now about the level maintained before specific therapy was started. Stools are now formed and not very offensive. On the same diet faecal nitrogen has been found to be diminished when pancreatin is given.

G. H. JENNINGS, J. L. HAMILTON-PATERSON, and F. O. MACCALLUM: FATAL CASE OF POLIOENCEPHALITIS DUE TO POLIOMYELITIS VIRUS



FIG. 1.—Normal anterior horn cell. H. & E. (× 1200.)

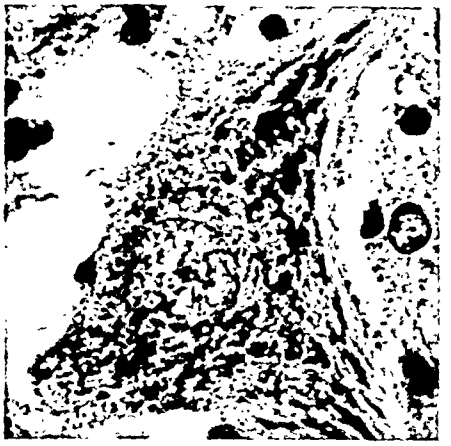


FIG. 2.—Anterior horn cell showing loss of nuclear membrane and nucleolus; partial granulation of tigroid substance. H. and E. (× 1200.)



FIG. 3.—Complete loss of nucleus and complete granulation of tigroid substance. H. and E. (× 1200.)

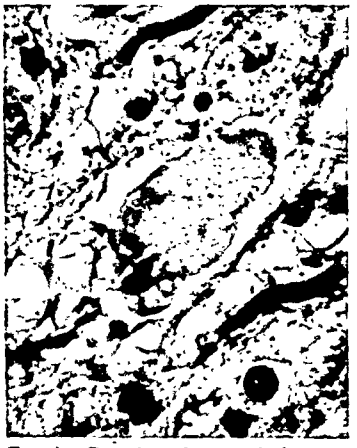


FIG. 4.—Complete chromatolysis, leaving a structureless eosinophil mass. H. and E. (× 1200.)

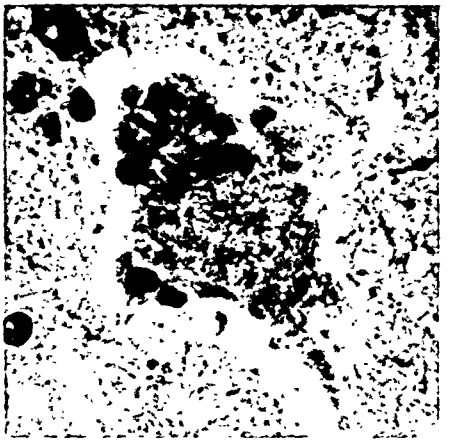


FIG. 5.—Commencing invasion of degenerated cell by histiocytes (monkey). H. and E. (× 1200.)



FIG. 6.—Degenerated neurone undergoing phagocytosis (monkey). H. and E. (× 1200.)

BERNARD SCHLESINGER: RHEUMATOID ARTHRITIS IN THE YOUNG



FIG. 1.—Normal bone-marrow section at necropsy.



FIG. 2.—Section of bone marrow from femur of Case 1. Hypocellular, with areas of necrobiosis.

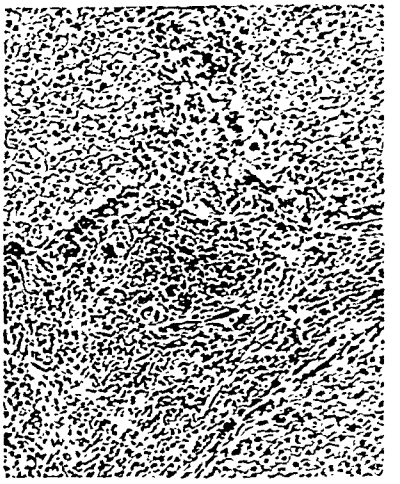


FIG. 3.—Section of liver of Case 11 showing perilobular fibrosis and infiltration of inflammatory cells.

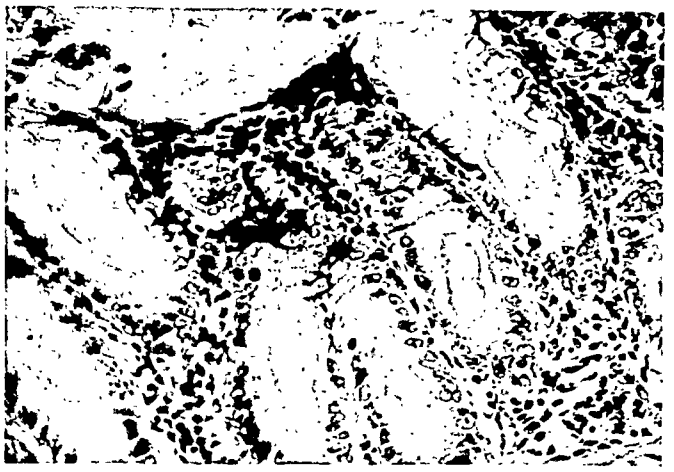


FIG. 1.—Appendix. Dilated glands filled with eosinophilic material, in places continuous with similar material filling the lumen. (× 190.)

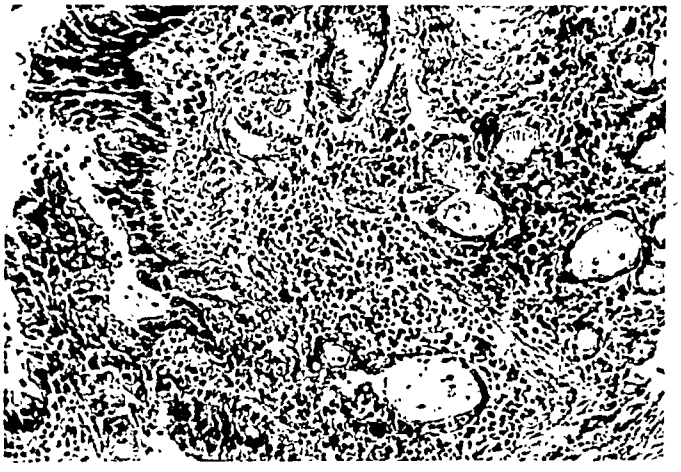


FIG. 2.—Bronchus showing dilated glands in wall. (× 105.)

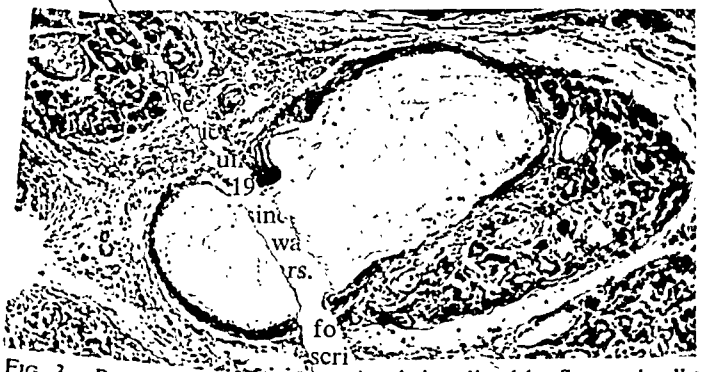


FIG. 3.—Pancreas. Grossly dil dis ated duct lined by flattened cells and filled with eosinophilic ssoc material, as are the smaller ducts. (lesio < 60.)

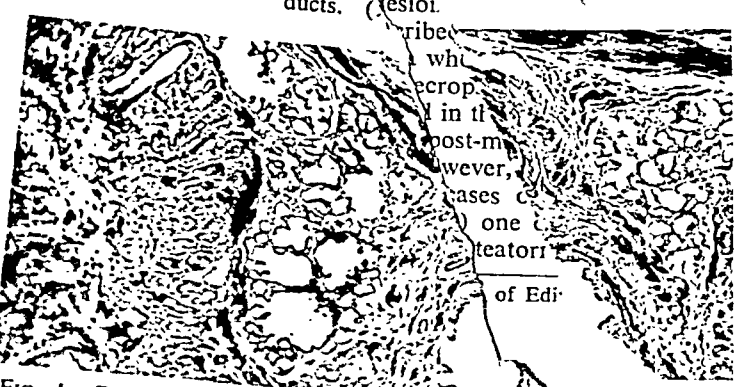


FIG. 4.—Duodenum showing dilated glands in wall. (× 90.)



FIG. 1.—Complete blockage of cisterna pontis with tuberculous granulation tissue. Hydrocephalus followed meningitis not treated with streptomycin. H. and E. (× 65.)



FIG. 2.—Complete blockage of cisterna pontis with tuberculous granulation tissue. Hydrocephalus followed meningitis treated with streptomycin. H. and E. (× 25.)

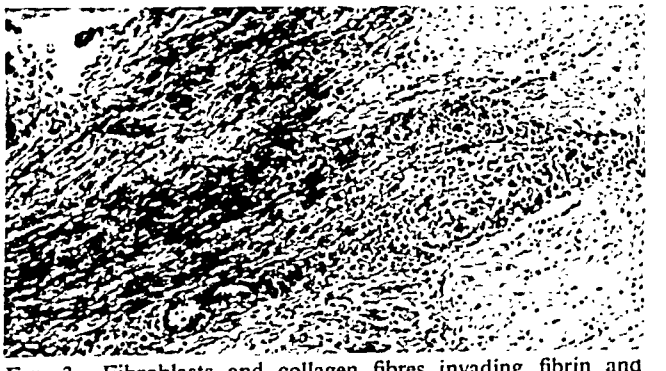


FIG. 3.—Fibroblasts and collagen fibres invading fibrin and tubercles within meningeal exudate. Hydrocephalus followed meningitis treated with streptomycin. H. and E. (× 65.)



FIG. 4.—Patent subarachnoid channel within cistern pontis. Tuberculo meningitis treat with streptomyci No hydrocephal H. and E. (× 4

the lumen of the vessel lies in the upper part of the photograph.

Case 2

A boy aged 2 years was admitted to hospital on Sept. 13, 948. Since the age of 2 months he had wheezed continually; diagnosis of asthma was made and never altered. One month efore admission he began to cough and lost weight and nergy. Rectal prolapse had occurred repeatedly in the past wo months. Despite a good appetite, he had never thrived, is weight at 8 months being 15¼ lb. (7 kg.) and at 1 year 8½ lb. (8.4 kg.) (birth weight was 7½ lb.—3.4 kg.). From the ge of 6 months or so his stools had been frequent and nformed, bulky, and very offensive. He was the third child. he eldest died of acute bronchitis at 11 weeks. The second, ged 5 years, is alive and well. A paternal aunt, who had ever thrived, died at 16 days.

On examination his temperature was normal, pulse 120, and espirations 32; he was dyspnoeic, with frequent paroxysmal oughing. His weight was 21 lb. (9.5 kg.) (average, 27 lb.—2.2 kg.); height, 30 in. (76 cm.) (average, 33 in.—83.5 cm.). hest: percussion note hyperresonant; rhonchi and crepitaions in all areas. The liver was palpable two fingerbreadths elow the costal margin in the nipple line.

Investigations.—Numerous fat globules and undigested nuscle fibres were found in the stools; the fat content was 0%. A laryngeal swab revealed *Staphylococcus aureus* sensiive to streptomycin only. Duodenal intubation was unsuccessul. Blood counts showed a progressive fall in haemoglobin o 75% on Oct. 28; there was a persistent polymorphonuclear eucocytosis up to 40,000 per c.mm. Radiographs of the chest howed increasing spread and confluence of bronchopneumonia n all areas of the lung fields.

Progress and Treatment.—Wheezing disappeared after two eeks, but despite the use of streptomycin, given by inhalation nd intramuscularly, the cough became more severe, crepitaons persisted in the lungs, and a swinging temperature soon eveloped and persisted. Cyanosis was present in the fortnight efore death on Nov. 19. His appetite had been good for x weeks, and on a low-fat diet with extra protein and 26 g. f casein hydrolysate and 8 g. of pancreatin (in the form of nteric-coated granules) daily his weight had risen to 22 lb. 9.98 kg.) but then fell progressively. His stools had continually een frequent, unformed, and very offensive. The liver had emained enlarged.

Post-mortem Report.—There was much mucopurulent naterial in the air passages, and in the lungs extensive ronchopneumonia with bronchiolectatic abscesses. The ancreas appeared normal macroscopically. The liver was nutmeg," and the appendix was thickened. Microscopically, he pancreatic ducts were considerably dilated and filled with osinophilic material, and there was much surrounding fibrosis; he lumen of the appendix was filled with eosinophilic material ontinuous with that in the dilated glands of the wall (Plate, ig. 1). Similar lesions were seen in the mucous glands of he trachea and bronchi (Fig. 2), the salivary glands, the uodenal wall, and the periurethral glands.

Case 3

A girl aged 2 years was first seen in January, 1947, at the ge of 21 months, with rectal prolapse, which was attributed o inadequate intake of vitamin D. Her weight was then 4 lb. (10.88 kg.). When next seen, a month later, she had eveloped a slight cough and had lost weight despite a good ppetite. She was admitted early in May, 1947, for correction f the prolapse, but was discharged five days later as she was nought to have pertussis. At home the cough became more evere, the weight-loss was accelerated, and she was readmitted t the end of May. Even in infancy her gain in weight had ever been satisfactory, although her appetite was so good hat she was fed three-hourly with amounts prescribed for our-hourly feeds. Her stools had always been bulky, pale, nd very offensive.

She was the fourth child of healthy unrelated parents. Her hree siblings had all died of bronchopneumonia before the ge of 6 months; none had thrived, and all had had very offensive stools. The maternal grandmother had lost five out of eight children in infancy from unknown causes. The paternal grandmother had lost six of 12 children in infancy—four at birth and two of pneumonia during the first year.

On May 22 her temperature was 101.6° F. (38.7° C.), respirations 64, pulse 128, weight 18¼ lb (8.28 kg.) (average, 24 lb.—10.88 kg.). She was wasted and dyspnoeic. Chest: Fine crepitations in all areas. The abdomen was protuberant. The liver was enlarged to the umbilicus. The spleen was not palpable.

Investigations.—The faecal fat amounted to 49%, 86% of it being split fat. Blood counts showed a progressive anaemia. Three attempts at duodenal intubation were unsuccessful. Mantoux, negative at 1 in 1,000. Serum proteins (June 25) were 7 g. %—albumin 2.8, globulin 4.2. Chest radiographs showed increasing bronchopneumonic changes.

Progress and Treatment.—Sulphamezathine and penicillin failed to control the respiratory infection. Cyanosis was only temporarily relieved by oxygen. The stools were frequent, unformed, and very offensive; appetite was never good, and weight fell progressively. Pancreatin given in the last three weeks had no appreciable effect. Peripheral oedema, unrelieved by blood transfusion and intravenous "casydrol," appeared four weeks before death, and petechiae terminally.

Post-mortem Report (July 22).—Much mucopus in the air passages. In the lungs marginal emphysema was present, with extensive bronchopneumonia and numerous bronchiectatic abscesses in practically all areas. The pancreas on section showed dilated ducts. The liver was large and pale. Microscopical examination showed gross dilatation of pancreatic ducts filled with eosinophilic material, much surrounding fibrosis, and almost complete disappearance of acinous tissue. There was bronchopneumonia with, in places, destruction of bronchial walls and dilated bronchial glands. The liver showed gross fatty degeneration.

Case 4

A girl aged 4 months was transferred on July 16, 1948, from another hospital, where she had been treated for six weeks for bronchopneumonia without improvement. Despite a good appetite she had never thrived, and her stools had always been frequent and offensive. At 3 months she developed pneumonia, which did not respond to treatment with sulphonamides and penicillin. She had three siblings alive and well. A maternal uncle, who had never thrived, died at 10 years of "consumption of the bowels."

On examination on July 16 the temperature was 99° F. (37.2° C.), respirations 48, weight 8 lb. 15 oz. (4 kg.) (expected weight, 12½ lb.—5.67 kg.). She was wasted; the abdomen was prominent. There was dyspnoea with frequent cough. Chest: percussion note impaired at left base; fine crepitations audible over the entire left chest.

Investigations.—Duodenal juice contained no trypsin. Faecal fat: (*a*) on skimmed milk 40%, (*b*) on half-cream milk with pancreatin 21% (96% split). A laryngeal swab contained predominantly a penicillin-sensitive *Staph. aureus*. Hb was 65%. Radiography of the chest showed left basal consolidation.

Progress and Treatment.—Penicillin was continued, but the respiratory trouble spread. Appetite was poor. Stools were always frequent, bulky, and very offensive. She died on Aug. 4.

Post-mortem Report.—The immediate cause of death was bronchopneumonia. The pancreas was smaller than normal, was nodular, and presented an increased resistance to section. Microscopically, typical changes were seen in the pancreas and salivary glands.

Case 5

A boy aged 4 months was admitted to hospital on Aug. 3, 1948. His appetite had always been good, but weight-gain had never been satisfactory (his best weight was 8 lb. (3.63 kg.) at three months). Stools had always been frequent but not noticeably offensive. A frequent dry cough had been present since birth.

On examination the temperature and respirations were normal and the weight 7 lb. 11 oz. (3.48 kg.) (expected weight,

12¼ lb.—5.55 kg.). Mediastinal shift to right with hyperresonant percussion note over left chest.

Investigations.—Three attempts at duodenal intubation failed. Faecal fat (on full-cream milk), 72% (50% split). Laryngeal swab revealed *Staph. aureus*. Blood counts showed a progressive anaemia.

Progress and Treatment.—Ten days after admission he developed a pulmonary infection which did not respond to penicillin. Appetite was very good, and on a skimmed-milk diet with pancreatin and hydrolysates weight increased slowly to 8 lb. 10 oz. (3.91 kg.). Stools were always bulky, frequent, and very offensive.

Post-mortem Report (Sept. 21).—The immediate cause of death was bronchopneumonia. The pancreas was normal externally, but dilated ducts were seen on section. Microscopically, typical changes were seen in the pancreas, salivary glands, and bronchial and intestinal walls.

Case 6

A girl aged 5 months, an only child, was admitted to hospital on Nov. 1, 1947, with right basal pneumonia. She had had a cough since birth, but weight-gain had been satisfactory, and she had reached 12¼ lb. (5.55 kg.) (expected weight, 12 lb. —5.44 kg.) when pneumonia developed two weeks before admission. Chemotherapy and antibiotics failed to control the respiratory infection, and although she ate well her weight fell. Stools were first noticed to be offensive two weeks after admission; the fat content was 40% (on half-cream milk feeds).

Post-mortem Report (Dec. 17).—The immediate cause of death was bronchopneumonia. The pancreas was smaller and more nodular than normal. On the surface of the liver were small nodules up to 2 mm. in diameter. Microscopically the pancreas showed the typical changes in an advanced stage (Fig. 3). In the liver the nodules were seen macroscopically to consist of cirrhotic areas in which were numerous bile ducts filled with eosinophilic material. Similar lesions to those in the pancreas were found in the salivary glands and in the duodenal wall (Fig. 4).

Case 7

A girl aged 16 months was transferred on July 30, 1948, from another hospital, where she had been treated for two months for coeliac disease without improvement. Weight-gain was never satisfactory, and from the age of 4 months her stools were bulky and offensive. This abnormality became more noticeable at 1 year. She had had bronchitis at 8 months.

On July 30 her weight was 15¼ lb. (6.92 kg.) (average, 22 lb. —9.98 kg.). She had a coeliac appearance. Her chest was normal. Duodenal juice showed tryptic activity in undiluted juice but not in a dilution of 1 in 10. Faecal fat: (*a*) on a normal diet, 60% (75% split; (*b*) on a low-fat diet with pancreatin, 15%. With specific dietary treatment she gained 3 lb. (1.36 kg.) in three weeks. Her stools were always unformed and offensive.

Discussion

The seven cases described were seen between June, 1947, and September, 1948. To ascertain the hospital incidence it is necessary to exclude Cases 4 and 5, which were transferred from other hospitals because of our known interest in fibrocystic disease; the remaining five cases occurred among 240 medical admissions to the children's ward—an incidence of 2%. Andersen (1938) found evidence of the disease in 3% of all necropsies on infants, and Bodian (1946) in 3.4% of 500 necropsies on children. The disease therefore is by no means uncommon. The failure to appreciate this prior to 1938 is undoubtedly due to the fact that bronchopneumonia, the usual cause of death, was taken to be an adequate cause and consequently the pancreas was not sectioned.

The evidence points to the disease being inherited (Andersen, 1949). In this series no other proved case has occurred in an affected family, but there is presumptive evidence of the disease in the family history of Case 3 and suggestive evidence in Case 2. The inheritance may be explained by incomplete dominance: Fisher (quoted by Cockayne, 1947) has shown that many dominant defects are gradually becoming recessive, this being brought about by the selection of genes which prevent a dominant condition becoming manifest when in the heterozygous state; moreover, a defect may behave in one family as a recessive and in another as a dominant.

The pancreatic lesions were formerly sometimes ascribed to dehydration, but Farber (1942) disproved this. Blackfan and Wolbach (1933) first advanced the hypothesis that the were caused by inspissation of viscid secretion in the ducts this was confirmed by Farber (1942), who reproduced the lesions in kittens by vagal stimulation. It remains to be seen if similar experiments will reproduce the lesion occurring in other organs also, and the cause of the abnormal secretion has yet to be determined.

Farber (1944) reported the finding of dilated glandular structures in both the respiratory and the intestinal tracts he concluded that the disease affected all mucus-secreting glands, the lesions being caused by inspissation of viscid secretion, and that it was the loss of normal mucus from the bronchial tree that was responsible for the susceptibility to pulmonary infections. Bodian (1946) also has stressed that this is a pluriglandular disease, as have Continental workers (Glanzmann, 1946; Riniker, 1946). Andersen (1949), however, while accepting Blackfan and Wolbach's explanation for the pancreatic lesions, considers that the pulmonary infection is conditioned by dietary deficiency, and that the lesions observed in the bronchial walls are secondary to infection. But this explanation does not suffice for the similar lesions found in other organs in which there is no infection; moreover, dogs in whom the pancreatic duct has been tied did not die from pulmonary infections (Ivy, 1936). The pathological findings in this series have again confirmed the pluriglandular nature of this disease, and there seems little doubt that Farber's hypothesis is correct.

Earlier observers (Parmelee, 1935; Harper, 1938) considered that a high percentage of neutral fat in the stool indicated pancreatic disease. Andersen (1945a), however has shown that faecal fat can be split in the colon and outside the body by bacterial action, and Fourman *et al.* (1948) consider that increased nitrogen excretion in the faeces is the most reliable test of pancreatic steatorrhoea. Fat analyses of three-day collections of stools, as carried out in these cases, will usually detect steatorrhoea (Fourman *et al.*, 1948), but the determination of split and unsplit fat is of no diagnostic value (May, 1947).

Andersen (1938) showed that cases fell into three main groups: (1) cases of meconium ileus which present within a few days of birth with intestinal obstruction; (2) cases which present in the first six months of life with respiratory infections—nutritional difficulty is also present (this is the largest group); (3) cases which present later with nutritional difficulty as instances of the coeliac syndrome or with rectal prolapse or with chronic respiratory infection. The typical history is of a poor gain in weight despite an adequate diet and an excellent appetite, dating from early infancy. The stools are frequent, unformed, bulky, and very offensive; these abnormalities are more often noticed by mothers who have previously borne normal children, and usually date from early infancy. Sooner or later respiratory infection supervenes and dominates the picture.

Although it is generally agreed (May, 1947; Andersen, 1949) that estimation of trypsin in the duodenal juice is necessary to establish the diagnosis, nevertheless it is

desirable to make a diagnosis on clinical evidence whenever possible, and experience has indicated that this can be done. In all the present cases the diagnosis was made clinically and was never disproved by subsequent examination of the duodenal juice or by necropsy. The clinical picture is highly characteristic, but it must be emphasized that an accurate history is essential, and close questioning may be required to obtain this, as noted by Miller and Perkins (1920).

The disease should be suspected in all cases of chronic nutritional difficulty and chronic respiratory infection in children, and specific questions asked about appetite, weight-gain, the character of the stools in regard to number, size, and smell, the exact date of onset of any abnormality noted, and the family history, especially of infantile deaths. In a number of cases the abnormality of the stools, while present from early infancy, becomes more obvious when solids are added to the diet or even later, and this overshadows the history. Cough may be present without signs of infection, and is then presumably due to efforts to expel viscid mucus from the bronchial tree. The clinician should himself examine the stools, for their offensive smell is characteristic. The typical history, associated with the clinical findings, enables a firm diagnosis to be made.

Sheldon (1948) considers that it is usually possible to distinguish coeliac from fibrocystic disease on clinical grounds alone. In typical cases, therefore, duodenal intubation is superfluous and should be reserved for cases in which the picture is not characteristic—e.g., Case 6. It is important to remember that in some children any chronic infection may produce steatorrhoea and that the association of bronchiectasis and steatorrhoea does not justify a diagnosis of fibrocystic disease without supporting evidence.

It is not only desirable but sometimes necessary to make a clinical diagnosis, since duodenal intubation has often been unsuccessful, and repeated attempts do not improve the condition of children already wasted. Moreover, the absence of trypsin from the duodenal juice is not pathognomonic of fibrocystic disease. Dr. G. M. Bull, to whom I am indebted for these particulars, has under his care two adults—brother and sister, aged 18 and 22 years respectively—who have suffered from steatorrhoea since early infancy. Recently duodenal intubation has shown a complete absence of trypsin in both, but there is no pulmonary infection. These patients are not suffering from fibrocystic disease as regarded generally. Their cases are, however, similar to the case reported by Garrod and Hurtley (1913). Either the underlying lesion may be a congenital stenosis of the main pancreatic duct or these cases may be analogous to that reported by Farber (1944) in which lesions typical of fibrocystic disease were found only in the lungs and liver; vice versa, there may be cases in which the pancreas is affected and not the lungs.

Treatment.—The diet used has been that recommended by Andersen (1949), but pancreatin has been more extensively employed than casein hydrolysates, since the latter are unpalatable and older children are loath to take them. It is unfortunate that hydrolysates are so unpleasant, since the evidence indicates that they are of more value than pancreatin (West *et al.*, 1946).

Results of Treatment and Prognosis.—Of the seven patients, five have died of bronchopneumonia and one of the survivors has extensive bronchiectasis. The prognosis therefore depends on the respiratory infection, and the failure of appropriate chemotherapeutic and antibiotic agents to control it has been most disappointing. Specific dietary treatment also has proved of limited value. Pancreatin does, however, seem to be of value in increasing the utilization of food, and this effect is especially noticeable in infants.

The number of cases reported here is small, but no evidence has been found to support Andersen's (1949) contention that appropriate chemotherapy, given early in the course of the respiratory infection, combined with specific dietary treatment, may result in the control of the infection. Personal experience of cases diagnosed before the onset of respiratory infections is limited, but Andersen's (1945b) evidence that most, when given specific therapy, do not contract chronic respiratory infections and develop normally is not fully convincing. In assessing the results of any therapeutic regime in this disease it is important to remember that the oldest proved case in the literature, aged 14½ years (Parmelee, 1935), was treated by a low-fat and high-protein diet only. Moreover, Cases 1 and 7 in this series showed that pulmonary infections in infancy do not invariably become chronic even without treatment. Also there are a few cases which, although they lack trypsin in their duodenal juice, do not develop pulmonary infections at all.

Since in the great majority of cases of bronchopneumonia in children a good response is obtained, the failure of chemotherapy to control the pulmonary infections in these cases suggests that unusual factors are involved. One unusual factor is the abnormality of the mucous glands of the air passages, and the treatment so far possible cannot be expected to influence this. The rational treatment would be to liquefy the mucus in the bronchial tree by some substance (e.g., hyaluronidase) aimed at restoring normal conditions in the respiratory system.

Summary

Seven cases of fibrocystic disease of the pancreas are described which occurred among 2% of routine admissions to a children's ward.

Inheritance by incomplete dominance is postulated.

The pathological findings have again confirmed that this disease affects mucus-secreting glands throughout the body.

The diagnosis can usually be made clinically provided an accurate history is obtained.

The results of treatment have been disappointing, since five of the patients have died of bronchopneumonia and one of the survivors has extensive bronchiectasis.

It is suggested that measures directed at liquefying the mucus in the bronchial tree might lead to more successful results than those generally at present obtained.

I wish to thank Dr. Reginald Lightwood for much helpful advice and criticism and for permission to publish these cases, except Case 5, for which I am indebted to Dr. Ursula James. I also wish to thank the staff of St. Mary's Hospital, Paddington, for carrying out the investigations; Mr. E. V. Willmott for the photomicrographs; and Mr. A. Evason for the clinical photograph.

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FATAL CASE OF POLIO-ENCEPHALITIS DUE TO POLIOMYELITIS VIRUS

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[WITH PHOTOGRAVURE PLATE]

The case of fatal polio-encephalitis described in detail below is reported because of its interesting clinical picture and because of the striking proof of the diagnosis by intracerebral inoculation in a monkey. The similarity of the lesions in the cord of the human victim to those in the monkey inoculated with a filtered saline extract from the child's brain and cord can easily be seen by reference to the illustrations.

Case Report

A well-developed child of 3½ years was admitted to Edgware General Hospital on Aug. 3, 1948. He had had pertussis at 1½ years, but had otherwise been well until he began to attend a nursery school one month before his admission. He was not happy at the school, slept irregularly at night, and was sleepy in the mornings. Three weeks before admission he had an illness of influenzal type lasting one day, during which he vomited and was febrile and drowsy. On July 31 he was said to have fallen from a swing, though apparently with no untoward effect. However, the next day he became drowsy and slept through much of it, would not eat, complained of abdominal pains, and vomited twice. During the night he awoke three times and complained of headache and pains in the back of the neck and in the legs. On Aug. 2 he still complained of the pains, and some weakness of the left side of the face developed, the face being drawn to the right. Although he was febrile and eager for fluids, he appeared to swallow with difficulty. He talked normally throughout the day. By evening he was generally stiff and showed a tendency to restlessness and twitching of the limbs. The bowels were constipated from that day to the end, and he again vomited once. On the day of admission he was not easy to rouse and would not speak; the restlessness and twitchings continued.

On admission he was very drowsy, toxic, and cyanosed. His temperature was 102° F. (38.9° C.), pulse 88, respiration 56. His tongue was moist but furred. The throat was not inflamed, but the tonsillar glands were palpable. There was pronounced stiffness of the neck and spine. Kernig's sign was not present and the legs were not stiff. His pupils were equal and reacted to light, though sluggish. The disks were normal. He had slight weakness of the left side of the face. No other apparent abnormality in cranial nerves was observed and no weakness was noted in the limbs. Tendon-jerks were absent in the left lower limb but brisk on the right side. Plantar response was extensor on the left side and indefinite on the right. No abnormality was noted in other systems.

Lumbar puncture showed clear fluid under normal pressure; total protein, 80 mg. per 100 ml.; Pandy +; white blood cells, 55 per c.mm (degenerate polymorphs 5%, lymphocytes 20%, large endothelials 75%); chlorides, 710 mg. per 100 ml.; no organisms seen; sterile on culture.

Overnight his condition had deteriorated rapidly, and when seen by one of us (G. H. J.) next morning (Aug. 4) he was almost completely unconscious. He was still toxic and cyanosed; respirations were stertorous, but the rate was only 22. His temperature was 98° F. (36.7° C.) and pulse 80. A tendency to show slight general convulsions was noted. The disks were normal, as were the pupils, apart from the persistent sluggish reaction to light. Neck stiffness was slight and Kernig's sign was negative. The face was now almost expressionless as a result of general weakness. The left side of the body, though still showing voluntary movement, appeared definitely weaker and more flaccid than the right. The tendon-jerks, though sluggish, were all elicited except the right ankle-jerk. The abdominal reflexes were all present. The left plantar response was still definitely extensor, but that on the right remained indefinite.

Lumbar puncture showed C.S.F. under very low pressure; no block; opalescent fluid; fibrin clot formed after 15 minutes; white blood cells, 195 per c.mm. (lymphocytes 86%, polymorphs 14%); red blood cells, 465 per c.mm.; normal sugar content; sterile on culture. A blood count showed: Hb, 90%; red cells, 5,090,000; white cells, 4,700 (polymorphs 68%, lymphocytes 28%, monocytes 4%.

A diagnosis of a neurotropic virus infection was made, and since the prodromal illness three weeks before admission was within the reported maximal incubation period of 35 days for the poliomyelitis virus it was considered that the case was possibly one of polio-encephalitis. The child's condition continued to deteriorate; the temperature became subnormal, the pulse rate increased to 120–136, and the respiration rate remained at 24–26. He died early on the following morning (Aug. 5) after many hours of complete unconsciousness.

Post-mortem Examination

This was performed five hours after death. The body was that of a normally developed male child.

Brain (1,350 g.).—Meninges normal. Surface of brain intensely congested. On section the cortex of the hemispheres was plum coloured, but showed no petechiae; white matter normal except for a few tiny petechial haemorrhages in the occipital lobes. The cerebellum, mid-brain, pons, and medulla were macroscopically normal.

Spinal Cord.—Macroscopically normal.

Skull.—Normal except for a small quantity of yellow glairy fluid in the right mastoid cavity. Films of this fluid showed occasional pus cells, and on culture a few colonies of *Bacterium coli* and *Streptococcus faecalis* were grown.

Comparison of Histological Lesions of Central Nervous System in the Case described and in the Inoculated Monkey

	Human	Monkey
Motor cortex, left	Congestion only	Early perivascular cuffing
" " right	—	Nil
Sensory cortex, left	—	Nil
" " right	—	Nil
Olfactory bulb	—	Nil
Basal nuclei	Few small areas of perivascular cuffing and very early neuronal changes	Perivascular cuffing and early neuronal degeneration
Brain stem		
Cervical cord ..	Marked perivascular cuffing. Slight cellular infiltration of anterior horns. Early neuronal degeneration	Marked perivascular cuffing. Cellular infiltration of grey matter most marked in anterior horns. All stages of neuronal degeneration including neuronophagia by histiocytic cells. The changes increase in severity, progressing from cervical to lumbar region
Thoracic cord ..	—	
Lumbar cord ..	Marked perivascular cuffing. Marked cellular infiltration of anterior horns, particularly on left side. Advanced neuronal degeneration	

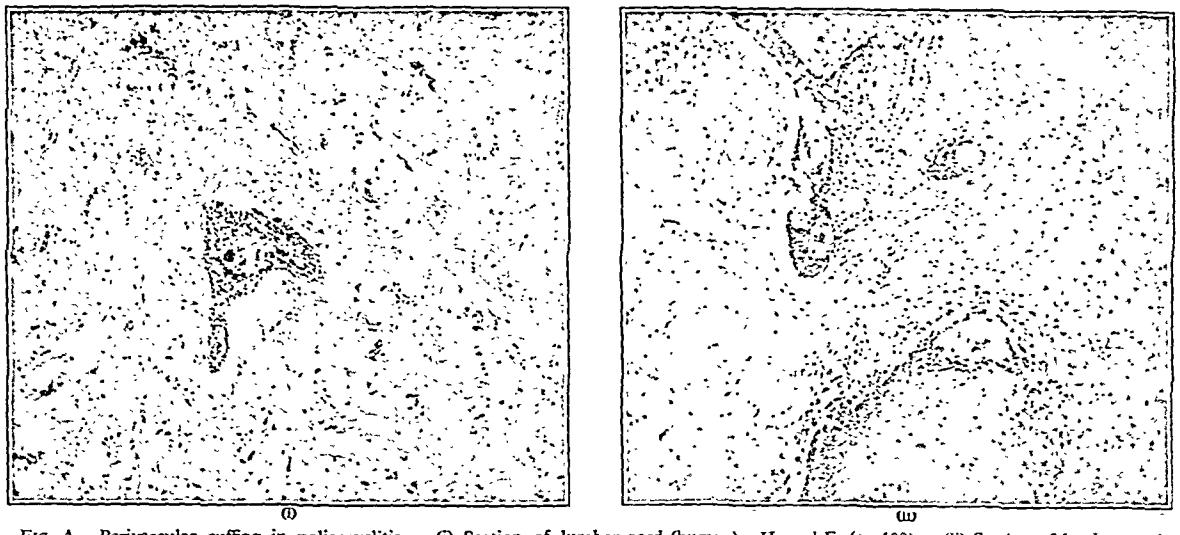


FIG. A.—Perivascular cuffing in poliomyelitis. (i) Section of lumbar cord (human). H. and E. (× 100). (ii) Section of lumbar cord (monkey). H. and E. (× 100).

The remaining organs were normal macroscopically and microscopically except for some fatty degeneration in the liver cells.

Various pieces of the nervous system were fixed in formol-saline for histological examination. Sections were stained with haematoxylin and eosin, Loyez's haematoxylin, and Mallory's phosphotungstic acid. The detailed changes noted in these tissues are shown in the accompanying Table and are compared with those of an inoculated rhesus monkey (see below) which had been similarly fixed and stained.

Animal Inoculation (Dr. F. O. MacCallum)

The diagnosis of poliomyelitis infection in this case was confirmed by animal inoculation. A suspension of pieces of cerebrum, mid-brain, and pons was prepared within a few hours of necropsy and inoculated intracerebrally and intranasally under ether anaesthesia into one monkey of the species *Cercopithecus aethiops sabaeus*. The monkey developed typical signs of poliomyelitis 13 days later and was killed with chloroform. Histological examination of the central nervous system revealed typical lesions of poliomyelitis.

A suspension of cord from this monkey was inoculated intracerebrally into a rhesus monkey, which also developed typical poliomyelitis eight days later; the microscopical lesions are well shown in Figs. A ii and B ii and in the Plate (Figs. 5 and 6). The original C.N.S. tissues of the patient were also inoculated intracerebrally into mice and guinea-pigs, with negative results.

Histological Findings

The histological changes in both the human and the monkey sections were basically the same and varied only in degree. The perivascular cuffing, neuronal degeneration, and cellular infiltration characteristic of poliomyelitis were all found in the spinal cord and brain-stem.

The neuronal degeneration (Plate, Figs. 1–6) showed itself as a loss of the nuclear membrane and of the oxyphil nucleolus (Fig. 2). Next the tigroid substance became granular or showed condensation at the side of the cell (Fig. 3). Eventually the nucleus and the tigroid substance completely disappeared, leaving a structureless eosinophil mass (Fig. 4). This was invaded by histiocytes (neuronophagia), which eventually removed it completely (Figs. 5 and 6). The cellular infiltration

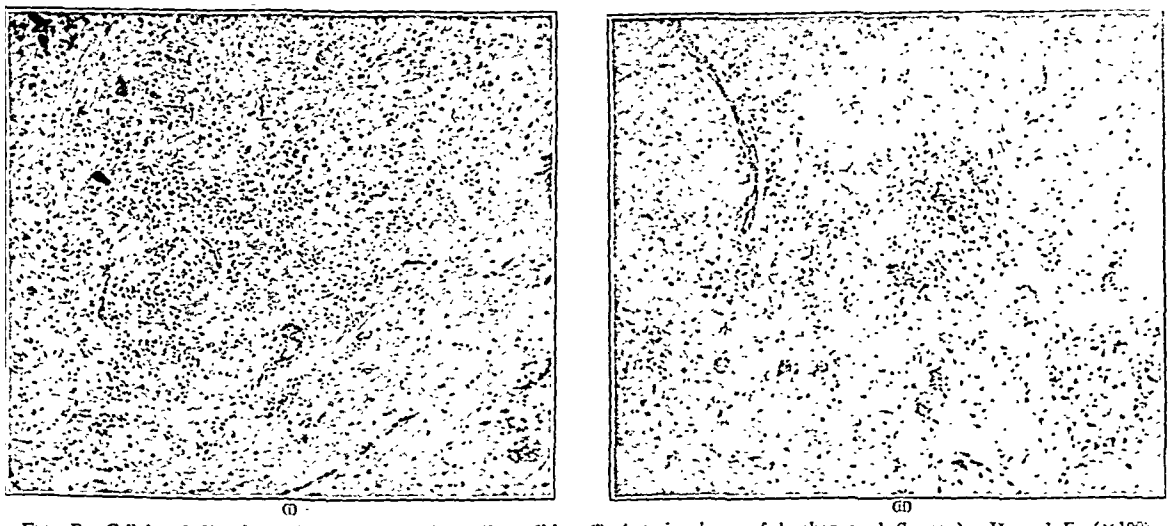


FIG. B.—Cellular infiltration of spinal cord in poliomyelitis. (i) Anterior horn of lumbar cord (human). H. and E. (×100) (ii) Anterior horn of lumbar cord (monkey). H. and E. (× 100).

of the grey matter (Figs. B i and B ii) showed the same cells as in the perivascular cuffs. No demyelination of the white matter was seen.

The perivascular cuffing (Figs. A i and A ii) consisted of an infiltration of the perivascular space with histiocytic cells and lymphocytes; very few polymorphonuclear cells were seen.

Discussion

This case of polio-encephalitis had several features of interest apart from the confirmation of the diagnosis by animal inoculation. First among them comes the encephalitic nature of the signs, the chief of these being coma and evidence of brain-stem involvement. Kelleher (1947) stated that in his experience 30% of the poliomyelitis cases seen in the first part of the 1947 epidemic were of the bulbar type; of these a few were drowsy, and one became comatose and died after being unconscious for less than 24 hours. This last case had pronounced cranial-nerve disturbances together with mid-brain and cerebellar involvement. Brewis and Neubauer (1948) described a probable case of polio-encephalitis which recovered after showing coma, fits, cerebellar signs, and spastic weakness. Laurent (1947) recounted two similar examples of encephalitis, one of which made a good recovery; the other died 16 hours after admission. Necropsy in the latter case showed only oedema in the cerebral cortex, but small areas of perivascular "cuffing" with mononuclear cells were seen throughout the brain-stem (bulb, pons, mid-brain, and basal ganglia).

These findings correspond to some extent with those in our case, in which the cortex was extremely congested but showed no other lesion. In this case perivascular cuffing was observed in the pons, particularly in its dorsal part below the floor of the fourth ventricle. In this area, too, were cells which showed peripheral concentration of Nissl's granules. Unfortunately, the medulla, cerebral peduncles, and basal ganglia were not examined, but it can be said that the changes in the pons were of a surprisingly mild order: that this was not due to the short history of the case can be seen from the intense motor-cell destruction in the spinal cord.

This sparing of the cortex has been recorded several times by investigators in the United States, including the Collective Committee investigating the New York epidemic of 1907. From their evidence and other evidence at his disposal Rothman (1931) was left in doubt about the reality of polio-encephalitis. In fact, Brown *et al.* (1948) concluded from their investigation of a large series of cases of the bulbar encephalitis type that the cerebral symptoms were in a large measure due to anoxaemia, although in a few cases focal cerebral lesions were found.

Scheinker (1947) also reported no cortical involvement, but Bodian (1947), in 24 necropsies on cases of poliomyelitis, found involvement in the motor cortex alone, usually of mild or moderate degree, in 20 instances. In this series the most severe lesions were found in the brain-stem, where the substantia nigra, the cerebellar roof nuclei, the vestibular nuclei, and the reticular formation were heavily involved. Bodian felt that stupor, disorientation, and coma resulted from these brain-stem lesions, which in some of his cases included focal softening. The series also showed almost consistent involvement of the fifth, seventh, tenth, and twelfth cranial-nerve nuclei, the seventh being slightly more involved than the others. In the cord the anterior horn cells were much more involved than those of the posterior and intermediate horn cells, and were sometimes wiped out over whole segments. These findings again correspond to those in our case.

Scheinker found a distribution of lesions in the C.N.S. comparable with those found by Bodian, the medulla, pons, mid-brain, and cerebellum all being markedly involved in his cases of poliomyelitis. He also described heavy perivascular cuffing in the substantia reticularis, in the floor of the fourth ventricle, in the periaqueductal region of the brain-stem, and in the substantia nigra. But in these regions rarely was there actual destruction of the nerve cells, and complete chromatolysis was the most advanced lesion found. Lesions in the corpus striatum, the globus pallidus, and in the hypothalamic nuclei were likewise of only moderate severity.

Scheinker found numerous foci of lymphocytes in the cranial nerves, particularly in the vagi, and also an especial concentration of cells around the vagal nuclei. Apropos of these findings he quoted the view of Sabin (1942) that the virus may spread up the vagi from the alimentary tract to the central nervous system. A simultaneous cellular inflammatory reaction, including multiplication of microglial cells and degeneration of nerve cells, was a feature of Scheinker's cases. The cellular reaction was most prominent in the medulla and mid-brain, and the cell degeneration was most pronounced in the anterior horn cells of the cord.

These main lesions of fatal poliomyelitis correspond to those in the fatal encephalitic type of case described by us. In the less severe cases which recover it is probable that the lesions are of simultaneous type and distribution but of less intensity. The extensor plantar responses in our case and the spastic paresis seen during recovery in their case by Brewis and Neubauer are evidence of a pyramidal involvement, an involvement which McAlpine (1947) has described as occurring, albeit uncommonly, in the spinal form of the disease. But it is a matter for comment that, apart from occasional motor-cortical lesions in Bodian's series, upper motor neurone lesions have not been a prominent feature to the histologist: not even pyramidal demyelination was seen in our case, and no cortical or pyramidal lesions were observed by Scheinker.

It is of course possible that the intense cortical congestion in the present case was responsible for depression of upper motor neurone function, and though cord oedema was thought of little consequence by Bodian it might be associated with the transitory Babinski responses seen in some of the spinal cases. The initial flaccidity which may be associated with these responses in some cases (e.g., that of Brewis and Neubauer) was attributed by Toomey (1940) to "cord shock," a state certainly more intangible than that of congestion or oedema. As Scheinker pointed out in describing the inflammatory response of the nervous tissues, the *whole* nervous system is invaded by the virus of poliomyelitis. It is therefore not improbable that where a pyramidal lesion occurs and recovers in a more protracted case of poliomyelitis there has been some degree of demyelination of the tracts. Such changes did not develop in our case, possibly because of its short course.

A final feature of interest is in the comparison of this case with a series of cases observed in the same district (Jennings, 1947) during the spring, summer, and autumn of 1946. These cases included eight with encephalitic symptoms (apathy, twitchings, severe drowsiness, and delirium); four with facial palsies and other cranial-nerve lesions as well as cerebral symptoms; and a number of cases, some with largely meningitic signs and symptoms, in which there were temporary Babinski responses. Although only one of these cases, and that at school, had proved contact with poliomyelitis, it now seems possible, in retrospect, that at least some of them were cases of poliomyelitis in which only the brain-stem and upper motor neurones appeared to

be involved. This likelihood was mentioned by MacAlpine 1947) after the 1947 period of poliomyelitis had included similar cases; our present case, though affording no proof, does give this concept further support.

Summary

A fatal case of infection by the virus of poliomyelitis has been described.

Although the case clinically showed a mainly encephalitic and brain-stem involvement the cerebral changes were merely those of cortical congestion, and the pons showed only a mild inflammatory reaction. The spinal cord, on the other hand, showed gross and widespread destruction of anterior horn cells. No really satisfactory histological explanation was forthcoming from either cord or brain to account for the definite clinical evidence of upper motor neurone involvement. Congestion, oedema, or very slight early changes in these neurones might be adduced as causes of the signs. Inoculation of the nervous tissues of this case in monkeys resulted in symptoms and histological lesions closely akin to those in the human subject.

This seemingly encephalitic case was thus proved to be due to an infection by poliomyelitis virus, and its features are compared briefly with those shown by possible atypical cases of the same infection seen in the same district two years previously.

Our thanks are due to Miss M. H. Shaw for the photomicrographs of the sections.

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FATAL CASE OF ACUTE ENCEPHALOMYELITIS DUE TO POLIOMYELITIS VIRUS

BY

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The number of instances in which poliomyelitis virus affects the fore-brain and brain-stem seems to vary in different epidemics. Reports dealing with the 1947 epidemic in this country indicated a higher proportion than usual of cerebral and bulbar lesions with or without spinal involvement (Kelleher, 1947; McAlpine *et al.*, 1947). The picture has been confused by the occurrence, just before the poliomyelitis outbreak of 1947, of minor and localized outbreaks of virus encephalomeningitis recorded by Jennings (1947) and Laurent (1947) and regarded by them as a disease or group of diseases in which no relation to poliomyelitis was probable. On the other hand both Critchley (1948) and McAlpine *et al.* (1947) believe that the virus responsible was probably identical with that of acute poliomyelitis.

Undoubtedly the lack of facilities for the isolation and identification of virus in this country has accentuated the confusion, and, whereas Toomey (1941) recognizes eight clinical types of poliomyelitis, doubts about the existence of types other than spinal and brain-stem are held by many authorities in this country—for example, Walshe (1947), who states: "It is probable, however, that only the spinal type and a few cases of brain-stem type really belong to this [poliomyelitis] infection." Baker and his colleagues (1947), in a comprehensive review in which the word "bulbar" has been used "with some degree of licence" to denote involvement of the entire brain-stem, including the medulla, pons, and mid-brain, present an acceptable classification of all forms of bulbar poliomyelitis. They include a "diffuse encephalitic" and a "focal encephalitic" group, and, in connexion with the latter, state that aphasic disorders have been reported rather infrequently. They quote one case of visual verbal agnosia from the literature.

The following record is a description of a case of acute polio-encephalomyelitis in which during life it was not possible to make a clear clinical distinction between poliomyelitis or other virus aetiology, but in which histological evidence and ultimately virus isolation established the aetiological agent.

Case Report

A man aged 25 with a record of excellent health was admitted to the Western Hospital on Oct. 12, 1947, with a history of illness which had begun six days earlier with a sense of fatigue and malaise, followed 48 hours later by headache and giddiness. On the following day (Oct. 9) he vomited once and, because of increasing malaise and the onset of giddiness, tremors, and blurring of vision, had to take to bed. On the fourth day after the onset feverishness and thirst were pronounced. He was restless and unable to sleep, and had difficulty in hearing. His condition rapidly worsened, until on Oct. 12 he was found by his relatives to be unable to move, to be generally rigid rather than weak or flaccid, and, though conscious, to be unable to speak.

On admission at 5 p.m. on the same day he had a temperature of 101° F. (38.3° C.) and a pulse rate of 82. He was conscious, and there was some cyanosis of the extremities. He was unable to speak. A fine tremor of the outstretched hands was noted. There was moderate neck rigidity and hamstring spasm. He moved his limbs very slowly. Movements were stiff, jerky, and apparently uncoordinated, and passive movements of the limbs further revealed the general rigidity and tonic spasm. The facial muscles were involved in the general hypertonicity, and commands were obeyed incompletely and with great difficulty and delay in execution. There was fine nystagmus in all directions but most pronounced to the right. Apart from a possible weakness of the left sternomastoid muscle there were no obvious cranial-nerve palsies. All tendon reflexes were present but depressed, and the abdominal reflexes were normal. There was a doubtful Babinski sign on the right; the left plantar reflex was flexor. The respiratory muscles were unaffected and the pharynx functioned. There was no retention of urine, but he was incontinent.

A few hours later the tendon reflexes in the right lower extremity were very sluggish, but apart from the dysfunction, which was apparently due to tonic spasm, there was still no apparent paresis or paralysis; the dysarthria might also be ascribed to tonic spasm, although possibly it may have been a true motor aphasia. Lumbar puncture showed a clear fluid containing 18 lymphocytes per c.mm. and 55 mg. of protein per 100 ml.; colloidal gold test, 0111210000; Wassermann reaction negative.

On the following day (Oct. 13) there was little change, but some weakness of the right lower extremity, with greatly diminished reflexes, was noted. Consciousness appeared to be clouding and ultimately all response to stimuli failed. The tonic rigidity persisted and a fine tremor of the upper lids was

noticeable and persistent. A cinematograph record of the facies exists (Ministry of Health, 1948). A consultant neurologist made a provisional diagnosis of acute disseminated encephalomyelitis. By the next day (Oct. 14) there was marked deterioration, with a rising temperature and a tendency to accumulation of buccal secretions, but still no respiratory muscle involvement. Death, apparently due to bulbar failure, occurred rather suddenly the same evening.

Necropsy on Oct. 15 revealed a little focal haemorrhagic bronchopneumonia in the congested lungs, cloudy swelling and congestion of the liver and kidneys, and oedema and congestion of the spleen (all confirmed microscopically). The heart was normal, the air passages were clear, the pancreas and stomach were congested, and the urinary bladder was dilated. There was moderate oedema and congestion of the somewhat swollen brain and spinal cord.

Microscopical examination showed very severe perivascular "cuffing," mainly with lymphocytoid cells, and foci of acute inflammation and degeneration of parenchyma, in places almost purulent, in the basal ganglia, mid-brain, pons, and medulla—most severe in the mid-brain. The cerebral cortex in the left prefrontal, right Rolandic, and left occipital regions showed only oedema and congestion. The third and fourth cervical, fourth and eighth thoracic, and second lumbar segments of the spinal cord showed inflammation and degeneration of the grey matter, especially of the anterior horns, in which a considerable number of neurones were destroyed, and to a smaller extent of the white matter.

The findings were characteristic of acute polio-encephalomyelitis (A.B.B.).

The histological report was submitted to the consulting neurologist (Dr. T. Rowland Hill), who remarked: "A case of fulminating polio-encephalomyelitis in which, before death, it was not possible to demonstrate involvement of lower brain-stem motor nuclei. There were signs of severe mid-brain lesions in that there were tonic fits of decerebrate rigidity and marked nystagmus. There was also a degree of flaccid weakness of the right lower extremity with markedly diminished reflexes. Bulbar palsy developed before death."

Specimens of the brain and cord were stored at the Virus Reference Laboratory, Colindale, in glycerol-saline for ten months at −10° C. A 10% suspension of cord and medulla was then inoculated intracerebrally into one rhesus monkey under ether anaesthesia. The monkey developed typical signs of poliomyelitis ten days later and was killed with chloroform. Histological examination of the central nervous system showed lesions pathognomonic of poliomyelitis (F.O.MacC.).

Summary

A case is recorded of acute encephalomyelitis of clinically undetermined aetiology, in which histological findings and virus isolation established the virus of poliomyelitis as the cause.

Our thanks are due to Dr. W. H. Bradley, of the Ministry of Health, for helpful suggestions.

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Hospital matrons and nurses from Belgium, Canada, Cyprus, Denmark, Egypt, Finland, France, Greece, Italy, the Netherlands, Norway, and the U.S.A. have recently attended a two weeks' course on nursing arranged by the British Council in Edinburgh. Sir Andrew Davidson, Chief Medical Officer of the Department of Health for Scotland, gave the opening lecture.

STREPTOMYCIN IN DEVELOPMENT OF HYDROCEPHALUS IN TUBERCULOUS MENINGITIS*

BY

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[WITH PHOTOGRAVURE PLATE]

Since the introduction of streptomycin in the treatment of tuberculous meningitis several reports of hydrocephalus have appeared. Flory and his co-workers (1947) describe a case of relapse of tuberculous meningitis after cessation of streptomycin treatment in which an internal hydrocephalus was discovered at necropsy. Baggenstoss *et al.* (1947) record two fatal cases of tuberculous meningitis treated with intramuscular and subcutaneous streptomycin in which occurred heavy exudate at the base of the brain and moderate internal hydrocephalus. Wright and Rees (1948) report three cases of severe hydrocephalus associated with thick basal exudate after treatment with intramuscular and intrathecal streptomycin for at least eight weeks. Smith *et al.* (1948) describe two fatal cases with gross hydrocephalus after intramuscular, intrathecal, and intraventricular streptomycin; in two subjects who survived, ventriculography before treatment revealed some dilatation of the ventricles. In all of these cases exudate in the basal cisternae was found to be most intense.

An M.R.C. report (1948) includes 46 instances of hydrocephalus among 53 necropsies on cases of tuberculous meningitis treated with streptomycin by various routes. These studies led me, whilst interested in experimental hydrocephalus, to investigate the histological changes in the basal meninges in a small series of cases of tuberculous meningitis with the object of finding out if the administration of streptomycin had modified the lesion in any way that might lead to hydrocephalus.

Materials and Methods

The leptomeninges from the undersurface of the pons were available for histological examination from eight cases of tuberculous meningitis; six of these were hydrocephalic, two were not. Seven had been treated with intramuscular and intrathecal streptomycin, with or without intraventricular streptomycin, for periods varying from 12 to 231 days, while only one (hydrocephalic) received no antibiotic treatment. Fig. A shows the dilatation of the anterior horns of the lateral ventricles in the frontal section of the brain of a case of tuberculous meningitis treated with streptomycin.



FIG. A.—Hydrocephalus in an infant following tuberculous meningitis treated with streptomycin.

The leptomeninges, with a piece of brain tissue, were cut out from the undersurface of the pons and fixed in 10%

*Part of a thesis submitted to the University of London for the Doctorate of Philosophy.

ırmol-saline ; the planes of section of the specimens were right angles to the long axis of the brain. These were owly dehydrated and embedded in paraffin, and thin sec- ons were stained with Ehrlich's acid haematoxylin and osin as well as with Weigert's iron haematoxylin and van ieson's stain.

Results

The basal subarachnoid space in all the hydrocephalic ases were completely blocked by a fibrinous exudate and ick tuberculous granulation tissue (Plate, Figs. 1 and 2). wo of the five treated cases showed some fibroblastic roliferation within the exudate, mainly directed against ie fibrinous elements but also partly encircling some inute tubercles (Fig. 3). The other three gave no evidence f organization, nor was there any obvious histological odification of the lesions by streptomycin when com- ared with the lesions from the untreated case.

In the two non-hydrocephalic cases, both of which had een treated with streptomycin, the subarachnoid channels ere patent in spite of the presence of meningitis (Fig. 4). he fibrinous exudate and the tubercles were there, but ey were much less prominent. The lesions did not appear have been essentially modified, nor was there any vidence of fibroblastic proliferation.

In three of the hydrocephalic cases the foramina of uschka were found to be patent from the outside, and n one case histological section through this region showed he lateral recesses, including the foramina, to be nobstructed by tuberculous lesions.

Discussion

Fibrosis of the tuberculous lesions is known to be a eneral response to streptomycin treatment both in miliary ubercles in man (Flory *et al.*, 1947 ; Baggenstoss *et al.*, 947 ; M.R.C. Report, 1948) and in experimental lesions n guinea-pigs (Feldman *et al.*, 1945). This naturally roused the suspicion that streptomycin, in the course of romotion of healing of tuberculous lesions in the meninges, night lead to fibrosis and adhesions, resulting in obstruc- ion of the circulation of cerebrospinal fluid and consequent ydrocephalus.

The fact that intrathecal streptomycin had been given n many of the reported cases of hydrocephalus strengthened he view that leptomeningeal adhesions after such treat- ent were responsible for the blockage. But in the present investigation only two of the five streptomycin-treated cases showed some fibroblastic proliferation in the basal lepto- meninges, and although this reaction did surround a few tubercles it seemed to be mainly directed along the fibrin threads in the exudate. Similarly, only one of the two hydrocephalic cases of Baggenstoss *et al.* (1947) and two of 46 hydrocephalic brains of the M.R.C. report (1948) showed any fibrosis in the meningeal exudate.

Further, Rich (1944) noted the presence of some degree of organization and repair in the meningeal lesions of the more protracted cases in pre-streptomycin days. Long ago Martin (1909) recorded scar tissue as replacing antecedent tuberculous lesions in the meninges in cases that had recovered from tuberculous meningitis, while Kramer and Stein (1931) also pointed out the tendency to fibrosis of the meningeal exudate in similar cases. These facts suggest that the formation of leptomeningeal adhesions has not always been responsible for the observed hydrocephalus, nor has it been especially brought about by treatment with streptomycin.

On the other hand, one of my cases of tuberculous meningitis which was not treated with streptomycin also showed the presence of an internal hydrocephalus. A search through the older literature suggests that tuberculous meningitis by itself has long been suspected of being associated with hydrocephalus (Barther and Rilliet, quoted by Burr and McCarthy, 1900 ; Dandy and Blackfan, 1914 ; Rich, 1944 ; Martin and Elkinton, 1947 ; Bucy, 1948). Further, it has been possible to produce internal hydro- cephalus in guinea-pigs after the introduction of *Myco- bacterium tuberculosis* through the cisterna magna (De, 1949). It may therefore be concluded that tuberculous meningitis alone can give rise to hydrocephalus, and the prominence given to the condition since the introduction of streptomycin treatment is no doubt due to more careful examination of the brain in such cases.

The hydrocephalus found in association with tuberculous meningitis has mostly been of the communicating type (Wright and Rees, 1948 ; Smith *et al.*, 1948 ; M.R.C. report, 1948). In some of the brains of my series the foramina of Luschka were shown from outside to be free from any obstruction. In one case histological section confirmed this naked-eye finding. These observations support the findings of previous workers that the hydrocephalus is of the communicating type. Moreover, in all the hydro- cephalic cases, treated and untreated, the wide subarach- noid space at the undersurface of the pons had been fully occupied by a fibrinous and caseous exudate with tuber- culous granulation tissue ; there appeared to be no room left for flow of any cerebrospinal fluid. On the other hand, the two non-hydrocephalic cases presented open sub- arachnoid passages in between the scanty exudate.

I have also found that the cisternal introduction of *M tuberculosis* in guinea-pigs is followed by hydrocephalus associated with partial blockage of the cisterna pontis with considerable cellular proliferation, but in the rat this change is very slight and there is no evidence of blockage or of hydrocephalus (De, 1949). These facts also suggest that internal hydrocephalus in tuberculous meningitis is due to and occurs with obstruction of the basal subarachnoid by the tuberculous exudate, independent of any streptomycin treatment.

It should be noted in passing that in most of the present cases with streptomycin treatment the tuberculous lesions elsewhere in the body have shown some modification in the form of increase of collagen, and in one case almost complete replacement by lymphocytes. But in spite of the intrathecal administration the meningeal lesions failed to respond. Of course, in the two non-hydrocephalic cases the basal exudate was less intense, but it is difficult to decide if this is an effect of streptomycin, especially in the absence of any essential change in the histology. It is interesting to recall that the M R.C. report (1948) recorded a similar finding in relation to the meningeal lesions where the fibrinous exudate around the lesions was suspected to shelter the bacilli from the effect of the antibiotic. Hinshaw and Feldman (1944), the originators of strepto- mycin therapy in tuberculosis, also realized that patho- logical characteristics of the local lesions can impose marked limitations in the treatment of clinical tuberculosis.

Conclusions

Tuberculous meningitis can give rise to an internal hydrocephalus associated with complete blockage of the cisterna pontis by tuberculous granulation tissue and a copious fibrinous exudate, but independent of the develop- ment of cisternal fibrosis. There is no convincing evidence that streptomycin increases the chance of this complication by stimulating the production of reparative tissue.

I wish to thank Professor G. R. Cameron, F.R.S., for his help in the preparation of this paper, and Mr. McDonald for the photomicrographs reproduced in the photogravure plate.

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Medical Memoranda

Paraffin-wax in the Male Bladder

The following case of a foreign body in the bladder, and the method of evacuating it, may be of interest.

CASE REPORT

One evening a young man, acting under an obsessive compulsive urge, fashioned a bougie, about 2½ in. (6.25 cm.) long by about ¼ in. (0.6 cm.) in diameter, out of candle droppings and passed it up his urethra, from whence it slipped into his bladder. The next morning he came to hospital complaining of pain and frequency and giving the above history. Cystoscopy showed the bougie, broken into three fragments, as three white rods floating in the water used for distending the bladder. A Braasch direct cystoscope was passed and efforts were made to grasp the fragments with a Bumpus specimen-taker. These efforts were unsuccessful, because the paraffin rods, floating at the top of the bladder, eluded capture by bobbing away. As the paraffin-wax from which this candle was made was capable of solution by liquid paraffin of medicinal quality of a specific gravity of 850 at a temperature of 120° F. (48.88° C.), it was decided to try dissolving the bougie. A piece of candle ¾ in. (1.9 cm.) long could be dissolved in 20 minutes, and it was hoped that solution of the bougie would be effected by washing out the bladder for an hour with the liquid paraffin at a temperature of 120° F. The bladder was accordingly filled with the specified liquid paraffin and emptied at two-minute intervals, 2 oz. (57 ml.) of the oil at 120° F. being used for each filling. The washings from the bladder undoubtedly contained fine particles of wax, but cystoscopy immediately afterwards showed no appreciable difference in the size of the rods. The possibility of melting them by using short-wave diathermy was inquired into, but as the elevation of temperature would not exceed 5° F. (2.8° C.) above blood heat the idea was abandoned.

In 1924 Wardill, of Newcastle, described a technique for cystoscopy using liquid paraffin as a medium instead of water. The wax from which the bougie was made sank in liquid paraffin of a specific gravity of 850, and by using liquid paraffin instead of water and thus having the fragments of the bougie lying on the trigone instead of floating near the fundus it was hoped that the Braasch cystoscope and Bumpus specimen-taker, so useful in the extraction of foreign bodies heavier than water—stones, etc.—might do the trick. However, we met with failure again, because air bubbles, which the bubble extractor of the Braasch cystoscope could not expel, prevented visualization and the bougies were not even glimpsed.

As a last resort, 4–5 oz. (114–132 ml.) of liquid paraffin of a specific gravity of 850 was instilled into the bladder and the patient was asked to void. It was hoped that this manœuvre, by bringing the fragments of the bougie more on a level with the internal urinary orifice, might effect their evacuation. At the first filling one fragment of the bougie came away, and at a subsequent filling, a couple of days later, the remaining fragments were voided. Doubtless the lubricating effect of the liquid paraffin played some small part in helping their expulsion. The above operations were carried out under penicillin-sulphonamide cover.

It is quite possible that the use of liquid paraffin of low specific gravity, as described above, may prove helpful in securing the evacuation of other lighter-than-water foreign bodies not too large to be voided. The method seems so innocuous that it is worth a trial, and information regarding such trials would be very welcome.

It is obvious that it would be simplicity itself to remove these fragments by cystotomy, but it seemed a pity to do this if it could be effected otherwise.

It is a pleasure to acknowledge help from Dr. R. Collis, Dr Norman Moore, Mr. Albert le Brocquy, of the Greenmount Oil Co., Dublin, Dr. Dacre Hamilton, of Dublin University Medical School, and Mr. Morris, of the Irish Electro-Medical Co.

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Histamine Desensitization in Ménière's Disease

The following case of moderately severe Ménière's disease responded so well to treatment by histamine desensitization that it is considered worth recording. This form of treatment in histamine-sensitive patients is most strongly recommended, as there is little doubt that it achieved success in this case. The result also supports the findings and experience of Miles Atkinson and others who have obtained success in the great majority of their cases.

CASE REPORT

The patient, a high-ranking officer in the Royal Air Force, was posted abroad in November, 1946, to take command of a very important air-training project. Shortly after his arrival I was called one night to see him, as he was suffering from a sudden attack of intense vertigo, with nausea and vomiting, tinnitus, and deafness.

I arrived to find him quite prostrate, with extreme pallor, and covered with clammy sweat. He was vomiting repeatedly and complained of pronounced giddiness except in the prone position. His pulse was very rapid and barely palpable. There appeared to be a momentary loss of consciousness. I could not detect nystagmus, though this sign was evident in subsequent attacks. The cardiovascular, respiratory, and central nervous systems were clinically normal and I could find no evidence of focal sepsis. Little doubt remained that this was a case of Ménière's disease—a diagnosis supported by his previous history.

His wife informed me that he had suffered two previous attacks in England, the first some months previously and the second shortly before he left the United Kingdom. He had been seen then by two specialists, both of whom had confirmed a diagnosis of Ménière's disease. He had been taking 2 gr. (0.13 g.) of phenobarbitone twice daily for several months and had been given the usual instructions regarding reduced salt and fluid intake. I prescribed bromides and hyoscine which gave some relief, but his attack continued practically throughout the night. He had completely recovered in 48 hours but stated that his hearing was still somewhat impaired and that tinnitus was troublesome. It was known that he had

been suffering from a high-tone deafness for many years, and the impairment of hearing was therefore not altogether related to Ménière's disease. Exactly a fortnight later I was again called out in the early hours and found him in a precisely similar attack, from which complete recovery occurred again within two days. The attacks continued at roughly two-weekly intervals, a total of six being recorded.

In January, 1947, some two months after his arrival overseas, when I had attended him in five attacks, I was faced with the problem of deciding whether this valuable officer could remain abroad or whether I should have to invalid him. He had been specially selected for this post because of his wide experience, and he was naturally most anxious to fulfil his mission. I discussed his case with several colleagues, including an E.N.T. consultant. As a result of these discussions and information obtained from current literature—e.g., Atkinson, M., *Proc. R. Soc. Med.*, 1946, 39, 807—a skin test was carried out in order to determine whether he was histamine-positive or histamine-negative. The test is fully described in the "Any Questions?" section of the *British Medical Journal* of May 10, 1947 (p. 666), and is of course an essential preliminary to treatment if histamine desensitization is contemplated. The patient proved to be a well-marked example of the histamine-sensitive group, and I decided that he might well benefit from a desensitizing course of histamine. This treatment is also described in the section of the *B.M.J.* quoted above.

The sixth attack since his arrival developed in the early stages of treatment, which was begun in January, 1947, but was notably less severe than those from which he had previously suffered. The course was completed in April, 1947, since when (apart from mild tinnitus), he has been in excellent health and completely free from further attacks. There has also been subjective improvement in his hearing. It should be mentioned here that he has had no phenobarbitone or other medication for the past 12 months.

As more than two years has elapsed since this treatment was first given, it is reasonable to assume that a cure has probably been effected; in any case, a remarkable response has been demonstrated to histamine desensitization. Several skin tests carried out since this time have shown a consistently negative reaction.

A point of interest is that the patient's flying category, which was reduced in 1946 to non-combatant flying (passenger only), has been restored to that of an active pilot category, and he has been able to carry on with an arduous and intricate task at a highly responsible level with the utmost confidence and efficiency.

I wish to thank the Director-General of R.A.F. Medical Services and the patient for permission to publish this case

SAVILLE PAUL, M.R.C.S., L.R.C.P.,
Principal Medical Officer, R.A.F., Southern Rhodesia.

Congenital Cyst of the Cystic Duct Containing Calculi

I have been unable to find a report of a cyst of the cystic duct; it may be of interest, therefore, to record a case that has been under my care recently.

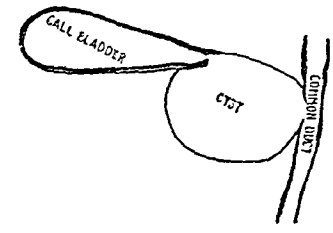
CASE HISTORY

A married woman aged 56 was referred to me on account of attacks of upper abdominal pain and vomiting for two years. During the attacks some tenderness had been elicited over the gall-bladder region. There had been no previous illness, but during this period she had had discomfort after eating, with flatulence, and had gained considerably in weight. There had never been any jaundice. The attacks of colic and vomiting had coincided, and the vomit was either green or brown. She had never been pregnant, and the menopause occurred at age 50.

The patient was very obese and thick-set, but otherwise quite healthy-looking. The tongue was clean, the pulse regular 108 a minute, and the blood pressure 110/65 mm. Hg. No physical signs were detected except some haemorrhoids. During chemical and radiographic investigations (during which the only abnormality noted was a group of five ring shadows medial to and a little below the shadow of a gall-bladder which emptied normally) the patient had two further attacks of colic, and after one of these I detected a definite tenderness below the right costal margin. In view of the severity of the attacks an exploration of the biliary passages was carried out.

Operation.—A general anaesthetic consisting of hexobarbitone, gas, oxygen, and ether by intubation was administered by Dr. E. S. M. Merry. A transverse incision was employed, but owing to the patient's obesity, the flatulence, and the high gall-bladder the incision had to be extended upwards through the rectus sheath to get the necessary exposure. The gall-bladder was partially enclosed in a tunnel of liver substance. Its fundus protruded through the anterior surface of the liver. The organ was distended with bile but did not look unhealthy; but medial to its neck a hard mass could be felt deeply buried in fat which also contained the common bile duct. On dissection of the mass the common bile duct was seen to be of normal size and free of calculi.

The hard mass was in the situation of the cystic duct and consisted of a thin-walled cyst packed tightly with calculi and biliary mud. On traction on the neck of the gall-bladder it was seen to be in continuity with the cyst (see Fig.). In an attempt to bring the parts nearer to the surface the gall-bladder was dissected from the liver, but immediately it was pulled on gently it tore away from the cyst, with which it communicated by a small aperture. This was enlarged and the contents of the cyst evacuated—



the mud by suction and five black pigment calculi the size of small peas by forceps. The walls of the cyst, which was the size of a hen's egg, were extremely thin and translucent. In view of the difficulty anticipated in removing it a tube was passed into the common duct through the cyst cavity and the size of the cyst reduced by plicating sutures. The gall-bladder bed was then peritonized and the wound closed.

Examination of the gall-bladder after its removal revealed cholesterosis and three calculi similar to those in the cyst itself. As the wall of the gall-bladder was at least of normal thickness and that of the cyst was thin, translucent, and devoid of fibrous tissue and muscle, I consider that the cyst was of congenital origin and not part of an hour-glass gall-bladder. There was no inflammation, and the symptoms seemed to have arisen mechanically when its fluid contents had been replaced by the mud and calculi. These appeared to fill its cavity, but the cholecystogram showed that a passage for bile still existed between the common duct and the gall-bladder through the cyst itself. No trace of a cystic duct was seen, and the opening from the cyst into the common duct was large enough to take a No. 10 catheter easily.

COMMENT

I believe that the absence of biliary mud from the gall-bladder and common duct and its presence in the cyst was due to the flow of bile carrying into the duodenum any that escaped into the common duct during attacks of colic, and that the weight of the cyst caused valve-like actions at its junctions with the common duct and gall-bladder.

I am indebted to Professor Paterson Ross for his helpful comments in presenting this case for publication.

DOUGLAS S. PRACY, F.R.C.S.Ed.,
Honorary Surgeon, Nuneaton General Hospital.

The *Manchester Guardian* (June 30) has reported that the Bath Education Committee has had to close the city's school dental service because of lack of professional staff. The result of this will be that 8,000 school-children will be deprived of regular dental inspection.

Reviews

DEVELOPMENT OF HOSPITALS

Hospital Trends and Developments 1940–1946. Edited by Arthur C. Bachmeyer, M.D., and Gerhard Hartman, Ph.D. (Pp. 819. $5.50 or £1 10s.) New York: The Commonwealth Fund. London: Geoffrey Cumberlege. 1948.

There are more than 160 contributors to this work; a few of them, including the late Lord Dawson and Sir Frederick Menzies, are British. It is a collection from the literature made to facilitate reference by those whose work is in this field—administrators, heads of departments, and students of hospital administration. Readers of the *Journal* will note with pleasure that Lord Dawson's contribution appeared originally as a leading article (May 9, 1942, p. 573), though its form here is taken from another source. Despite the unavoidable divergences from existing conditions due to its date, there could hardly be a more informative or more stimulating contribution for readers on this side of the Atlantic. There are approving commentaries upon the article by a number of leading authorities in the U.S.A. How necessary it is to think along similar lines there may be inferred from such a sentence as this, from J. S. Falk's contribution: " . . . In most urban areas and in nearly all rural areas poverty and lack of medical care go along together." All the articles upon current trends make it obvious that in the United States opinion is veering towards a plan like our own in almost every particular, and it looks as if President Truman's recommendation to Congress for a national service may find a great deal of informed support.

Turning the pages, one finds a contribution by J. A. Hamilton with headings such as these: Haphazard Location of Hospitals; Improper Construction; Poor Distribution of Skilled Personnel; Lack of Integration of Health Agencies; Lack of Trained Management; High Cost of Hospital Care; Lack of Co-ordinated Co-operation; Conduct of Regional Surveys; Establishment of Voluntary Regional Councils; Development of Group Practice; The Health Centre; and so on. They might have been taken direct from our surveys and the commentaries upon them. Article after article repeats their substance.

Part II of the book considers administrative problems. The American machinery differs from ours, and the discussion is in parts more theoretical and academic than is customary here.

Part III concerns departments. In the section on nursing there is to be found the sentence: " . . . It would seem economically sound for hospitals to consider using both professional and practical nurses." Despite the rather unkind and no doubt unintentional antithesis, it is notable that the distinction should be made between those to whom the doctors look for technical assistance and those to whom the patient looks for personal comfort, bodily and mental—a fundamental division of function, imperfectly realized. The bibliography does not include the reports on nursing produced here. The section on the operating theatre contains a chapter on electrical hazards which it would be opportune to study in this country. There is scarcely one article in this part from which it would not be possible to cull some illuminating remark.

Part IV deals with the finance, design, and servicing of hospitals; Part V with public health, health insurance, and regional planning.

The editors have done an excellent piece of work, and their book is a worthy successor to two already well known: *The Hospital in Modern Society*, and *Hospital Care in the United States*.

E. ROCK CARLING.

RHEUMATISM IN CHILDREN

Juvenile Rheumatism. By G. E. M. Scott, M.B.(Melb.), L.R.C.P.Ed., L.R.F.P.S.(Glasg.). (Pp. 163. £1 5s.) Melbourne: W. Ramsay (Surg.) Pty., Ltd. 1948.

In the present state of our knowledge of acute rheumatism information on the incidence, severity, and general clinical picture of this condition in different parts of the world is much to be desired. A monograph on the disease from Australia should thus be of considerable interest.

This handsomely produced book represents the clinical impressions of acute rheumatism in childhood formed by the author while an assistant medical officer in the Rheumatic Clinic of the Children's Hospital, Melbourne. The majority of the chapters consist almost entirely of a review of some of the current literature on the subject. Unfortunately, no new data are provided on the incidence, aetiology, or pathology, and the social aspects of the disease appear to be almost completely neglected. The chapters dealing with the clinical features are profusely illustrated with detailed reports of some of the 645 cases personally observed by the author. These confirm the already well-known fact that there is little difference in the clinical picture of acute rheumatism as seen in Australia from that observed in the northern hemisphere. Although it sets forth the author's personal views, the book unfortunately adds nothing to our knowledge of this baffling disease.

C. BRUCE PERRY.

DISEASES OF THE CHEST

A Practical Manual of Diseases of the Chest. By Maurice Davidson, M.A., M.D., F.R.C.P. Third edition. Oxford Medical Publications. (Pp. 670; 268 figures. £2 10s.) London: Geoffrey Cumberlege (Oxford University Press). 1948.

In the third edition of his well-known textbook Dr. Davidson has made a number of additions and revisions. Certain of the reproductions of radiographs have been replaced by more satisfactory ones. The basic plan of the book, however, remains unchanged. Its object is to present a readable and practical account of current practice in chest diseases. Case reports from the author's life-long experience are added in the text to illustrate practical points. There is at the end of each chapter an adequate list of references, both to more detailed textbooks on special subjects and to original papers.

Dr. Davidson's literary style is leisurely, and brings with it a reminder of more spacious days. The younger physician will find described here certain methods which he may think out-moded—for instance, the creosote chamber in bronchiectasis, and the use of atropine for pulmonary oedema. While the emphasis of the book is on practical aspects, space is not always allocated in accordance with the importance and frequency of diseases in practice; the section on asthma, for example, consists of only 22 pages out of the 660 which the volume contains. It is unfortunate that in the section on bronchiectasis the diagrams and nomenclature of bronchial anatomy published by Nelson in 1934 are reproduced, whereas in a note on the anatomy of the bronchial tree and in the section on bronchography, which has been revised with very helpful line-drawings to clarify the illustrative bronchograms, the later anatomical nomenclature of Foster-Carter and Hoyle is used.

These are minor criticisms. On the whole the book can be recommended as a reliable account of chest disease which will rarely fail to give the physician some indication of what to do when faced with practical clinical problems.

J. G. SCADDING.

MEDICINE IN THE SHETLANDS

A Shetland Parish Doctor. By Harry Pearson Taylor, J.P., M.B., C.M.(Aberd.). With foreword by T. E. Saxby, J.P., F.R.F.P.S., L.R.C.P.&S.Ed. (Pp. 136; illustrated. 10s. 6d.) Shetland: T. & J. Manson (Shetland News Office, Lerwick). 1948.

It was a lucky day for Shetland in June, 1890, when Dr. H. P. Taylor was appointed parish medical officer for the islands of Yell and Fetlar, for the job and the man fitted one another like hand and glove. One would hardly have expected it, for Taylor was born in Yorkshire, received his early education in Northumberland, and had nothing Scottish about him except his training at Aberdeen University. He had gone to the place as a locum to a sick man and had no intention of remaining,

but he spent the rest of his life there, rarely leaving the island. As he says, he fell in love with the place and never wished to leave it, in spite of temptations to do so. It certainly was not the salary which tempted him—£55 a year for Yell and £15 for Fetlar—with what he could pick up in the way of private practice among a mostly poor and hard-working population.

He had to tackle everything, generally single-handed, for his nearest medical neighbour was on another island and communications were often very difficult. But Taylor was essentially a handy man, and very bravely and ingeniously he dealt with many cases which in town life would have been sent to hospital. He had a flair for mechanics, which was sometimes exercised on the engines of ships coming to the island. He and his wife built a reflecting telescope from which they derived much pleasure.

Anyone who is inclined to patronize the "mere country doctor" would get a surprise if he read this book. There is not an atom of self-pity in it, but the long walks (at first all was done on foot or by means of a boat) in desperate weather over rough country must have been trying, and there was never any question of sending the case to another doctor. For 35 years Taylor was the doctor and friend of everybody on the two islands, and it is good to learn from a foreword by the publishers that he was appreciated and loved by everybody.

The doctors in the Highlands and Islands have always had a strenuous job—one which could appeal only to men who are country-lovers and "doctors by the grace of God." Taylor tells how much the coming of the Highland and Islands Medical Service meant to him and his colleagues in the improvement of their conditions.

There are many racy stories about the people and their customs, some of which disappeared during Dr. Taylor's time. I have no doubt the book will be treasured by many Shetlanders both resident and exiled. I sincerely hope it will have a wide circulation among people who have never seen Shetland but would like to know something about it and its people. They will be well rewarded by the tale of the life of a fine character. As for myself, the story left me with a regret that I never met Dr. Taylor. He was a credit to our profession.

The book is finely illustrated by pen-and-ink sketches and some colour plates, all the work of the author, who was evidently no mean artist.

ALFRED COX.

ABNORMAL PSYCHOLOGY

Abnormal Psychology. By James D. Page. (Pp. 441; 15 figures. $4.00 or £1.) New York and London: McGraw-Hill Book Company, Inc. 1947.

Here at last is a book properly proportioned to the needs of the doctor who sees patients outside a mental hospital, whether in general practice or in the wards and out-patient department of a general hospital. The psychoses are clearly and adequately described, but they do not dominate the book. More attention might have been paid to psychosomatic conditions and the visceral neuroses if this appeal to the profession outside the ranks of the specialist psychiatrist were to be fully met, but little complaint can be directed to either the matter or the manner of the book. It is clear, concise, and well balanced.

The author gives the impression of basing his statements throughout on a close and reasoned study of facts and figures, yet he has entirely avoided a dry statistical style. It is interesting to note how doctrines which twenty years ago seemed speculative and theoretical have stood the test of practical investigation and, at least in this book, appear as well-authenticated propositions in established psychopathology.

The opening chapters give a clear picture of the differences between normal and abnormal, of motivation and adjustment, mental mechanisms and symptoms, and the general causes of abnormal behaviour. In the rest of the book the sections on the psychoneuroses, alcohol, epilepsy, and crime are specially to be commended. The profession as a whole should do their best to read this excellent book—even surgeons would benefit by its perusal.

R. G. GORDON.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

Present Concepts of Rehabilitation in Tuberculosis. By N. C. Kiefer, M.D., M.P.H. (Pp. 398. $3.50.) New York: National Tuberculosis Association. 1948.

Schafer's Essentials of Histology. Edited by H. M. Carleton, M.A., B.Sc., D.Ph., and E. H. Leach, M.A., B.Sc. 15th ed. (Pp. 655. 25s.) London: Longmans, Green. 1949.

A Textbook of Midwifery. By W. Shaw, M.A., M.D., F.R.C.S., F.R.C.O.G. 3rd ed. (Pp. 649. 22s. 6d.) London: J. and A. Churchill. 1949.

Fundamentals of Body Mechanics and Conditioning. By M. Lee, B.S., LL.D., and M. M. Wagner, B.A., M.A. (Pp. 377. 22s. 6d.) London: W. B. Saunders. 1949.

Das EKG ABC: Eine Systematik zur Auswertung von Elektrokardiogrammen. By M. Waldhecker. (Pp. 114. M. 6.80.) Stuttgart: Georg Thieme. 1948.

Schattenseiten der Ulkuschirurgie. By P. Huber. (Pp. 91. Sch. 36.) Vienna: Wilhelm Maudrich. 1949.

Plastic Surgery of the Nose. By A. P. Seltzer, M.D., M.Sc., Sc.D., F.I.C.S., F.A.C.S. (Pp. 305. 72s.) London: J. B. Lippincott. 1949.

Surgery of the Hand. By S. Bunnell, M.D. 2nd ed. (Pp. 930. 100s.) London: J. B. Lippincott. 1948.

Campbell's Operative Orthopedics. Edited by J. S. Speed, M.D. Vols. 1 and 2. 2nd ed. (Pp. 1,643. 150s.) London: Henry Kimpton. 1949.

Die Ermittlung des Erregungsablaufs in Ungeschadigten und Geschadigten Herzen durch Analyse des Elektrokardiogramms und des Vektordiagramms. By L. Wendt. (Pp. 84. M. 12.50.) Berlin: Akademie. 1949.

Die Diät- und Insulinbehandlung der Zuckerkrankheit. By F. Depisch. 4th ed. (Pp. 176. No price.) Vienna: Springer. 1949.

Die Gonorrhoe des Mannes. By A. Wiedmann. (Pp. 163. Sch. 36.) Vienna: Wilhelm Maudrich. 1949.

Die Asthetik der Nase. By A. Berndorfer. (Pp. 87. Sch. 21.) Vienna: Wilhelm Maudrich. 1949.

Das Zwischenhirn. By W. R. Hess. (Pp. 187. 15 francs.) Basle: Benno Schwabe. 1949.

Studies in Physical Anthropology. Early Man in the Far East. Edited by W. W. Howells. (Pp. 157. $2.00.) Detroit: American Association of Physical Anthropologists. 1949.

Studi e Ricerche sulla Manna e Mannite Naturali. By D. Gigante. (Pp. 144. No price.) Rome: Istituto Poligrafico dello Stato Libreria. 1948.

Fortschritte der Tuberkulose-Forschung und -Behandlung. By H. Birkhauser. Vols. 1 and 2. (Pp. 446. 90.80 Swiss francs.) Basle: S. Karger. 1948.

Lehrbuch der Embryologie. By W. Brandt, M.D., Ph.D. (Pp. 648. 56 Swiss francs.) Basle: S. Karger. 1949.

Traitement Moderne des Brûlures. By J. Virenque and J. Sécail. (Pp. 62. No price.) Paris: Vigot. 1949.

Les Maladies Endocriniennes. By H. Curschmann. (Pp. 164. No price.) Paris: Vigot. 1949.

Topographische Anatomie. By O. Oertel. Revised by P. Glees. (Pp. 351. 28 Swiss francs.) Basle: S. Karger. 1949.

Your Child and You. By C. Hay-Shaw. (Pp. 157. 6s.) London: John Murray. 1949.

The Sulphonamides in General Practice. By E. D. Hoare, M.D. (Pp. 90. 5s.) London: Staples Press. 1949.

Hamlet and Oedipus. By E. Jones, M.D., F.R.C.P. (Pp. 160. 12s. 6d.) London: Victor Gollancz. 1949.

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THE GRADING OF SPECIALISTS

The results of the grading of specialists have caused great dissatisfaction in all parts of the country. Much of this dissatisfaction is due to the fact that the Assessment Committees in the various regions interpret their duties differently. Thus, in one region the criteria for grading are, to the outside observer, far stricter than those in an adjacent region. This inequality naturally causes sharp resentment and a feeling of injustice. As our correspondence columns show, some men blame the Ministry of Health for this, while others suggest that the B.M.A. or the Joint Committee should act to put matters right. It is therefore, in the first place, important to make it clear with whom the responsibility for grading lies.

In November, 1948, the Ministry of Health requested Boards of Governors and Regional Boards to set up Assessment Committees for the purpose of grading. An Assessment Committee consists of seven members: two general physicians, two general surgeons, one obstetrician, and two specialists in the branch of medicine practised by the doctor to be graded; of the two specialists one is to be nominated by the university in the region. The first five of these must have practised or be practising in the area of the Board. They are chosen for "their high professional standing and wide clinical experience and their knowledge of the Services of the area." The first point, then, is that the grading is done by the profession itself, not by the Ministry of Health, not by the Royal Colleges, and not by the B.M.A.

In its circular the Ministry of Health gave the Assessment Committees general guidance. It was stated that no general criterion of specialist status could be laid down: "a proper assessment can be arrived at only after a consideration by professional advisers of the *qualifications and experience* of each practitioner" (our italics). The circular made it clear that in many instances specialist status could be decided easily on the basis of academic qualifications backed up by experience and practice as a consultant. In the case, for example, of the general-practitioner specialist it was stressed that status could not depend solely on the possession of postgraduate qualifications: the determination of status "must take account of experience, which may of itself suffice to warrant acceptance as a specialist." It does not seem that the Ministry of Health could have given general guidance in any other terms. The guidance is based on the situation that exists. Any suggestion that grading should be done by some central mechanism would, we feel sure, be resented by the medical profession. Clearly the decision must lie in the hands of the men on the spot in the regions. That Assessment Committees in different regions will interpret their duties differently seems to be inevitable; it is equally inevitable that comparison of the results in adjacent regions will cause dissatisfaction. One way of removing dissatisfaction is to establish a system of appeal that will appear fair to the man who considers that he has not been properly graded. The appeal mechanism is now the Assessment Committee with two additional members appointed to it. The practitioner appearing before such an appeal committee may feel that it is weighted against him, and it would seem fair, therefore, if at least half of the members of the Appeal Committee were to come to the hearing of the case with unbiased minds.

There is much to be said for the suggestion that in the future it is the posts that should be graded. Only those men should be appointed to such posts who fulfil the necessary criteria; and if suitable candidates cannot be found such posts should not be filled. In this way we should be able to cut across the undesirable practice of some regions of attempting to fill specialist posts with men graded as senior hospital medical officers—an attempt to avoid responsibility for making proper payment for work done. One of the problems now is to find jobs for men of registrar status, men, that is to say, who have taken higher qualifications, have had experience as specialists, and who have been qualified for four or five years. As a result of the war it has not been possible for them to find their way gradually into specialist and consultant work, and it is a commonplace that when a hospital vacancy is advertised there is for any one post a large number of suitable applicants. This applies especially to posts for general physicians and general surgeons. It is therefore difficult to believe that, with the exception of a few specialties, there is such a dearth of suitable candidates as to excuse the financial subterfuge of trying to fill posts with senior hospital medical officers. One of the aims of the new hospital service is to see that there is available in all parts of the country adequate consultant and specialist skill. That there has been an undue concentration of such skill in large cities to which teaching schools are attached is admitted. The hospitals in the small towns have to a varying extent been staffed by men who would be unlikely to be appointed to the

staff of a teaching hospital. But these men, many of them coming under the designation of general-practitioner consultant, have secured the confidence of the local medical profession and the local community as surgeons and as consultant physicians. In time it may be assumed that when they retire their place will be taken by men and women who practise entirely as consultants or specialists, many of them, it may be hoped, recruited from outstanding general practitioners in the district. In the transitional period, which may last for years, it would be unjust to attempt to degrade such men from the positions they have hitherto held. In so far as they practise as consultants and specialists they should be remunerated as such.

It must be remembered that the Spens Committee emphasized that all specialists should be treated equally, those of outstanding ability to have their services recognized by Distinction Awards. The Ministry of Health circular made it plain that hard-and-fast criteria cannot be laid down for specialist status. What is needed is an exact definition of senior hospital medical officer. The B.M.A. is resisting all attempts to include under this category those judged on the basis of either qualification or experience to have specialist status. It is doing this by refusing to advertise in the *Journal* posts for S.H.M.O.s required to do specialist work. The Ministry of Health will not make new appointments in the grade of S.H.M.O. except within a field agreed with the Joint Committee. Nevertheless, there would seem to be a case for the grade of S.H.M.O. in mental hospitals, tuberculosis sanatoria, and fever hospitals. Could it be said, for example, that an assistant medical officer in an isolation hospital should be designated as specialist and be paid in the terms of the Spens Report? The same question may also be asked of men similarly placed in sanatoria and mental hospitals.

Government spokesmen have stressed the need for more specialists and consultants and for these to be distributed more evenly throughout the country, so that the public taking advantage of the National Health Service may have equal opportunities of obtaining specialist advice and skill. Yet young men with the necessary qualifications and experience are now finding it extremely difficult to get work to enable them adequately to support themselves and their families. Other men who have been doing such work to the satisfaction of their colleagues and the local community are being financially penalized by the decisions of Assessment Committees. This unsatisfactory situation presents a challenge both to the medical profession and to the Ministry of Health. If a solution of the problem is not soon found the public will have the right to ask why they are not being given the medical benefits promised them between 1945 and July 4, 1948.

NEW PROBLEMS OF RHEUMATISM

Study of the rheumatic diseases has been discouraging to both clinician and research worker because of the lack of pathological knowledge and the absence of proved methods of treatment, but the recent work by Kendall, Hench, Slocumb, and Polley at the Mayo Clinic, to which we have already referred,[1] has dramatically widened the field in the treatment of the rheumatic group of diseases. Those who have seen the results of the treatment of rheumatoid arthritis with "cortisone" have been left in no doubt about its efficacy. In the light of this recent American research many of the different types of rheumatic disease must be regarded from a new viewpoint, and in this issue of the *Journal* there are four papers on various aspects of the subject. Dr. Bernard Schlesinger points out the importance of studying rheumatoid arthritis in the young, in whom the condition appears, as Still's disease, in its most acute and uncomplicated form. In these cases the adenopathy, splenomegaly, and fever are more marked than in adults. If the suprarenal glands are at fault in this disease, as the new work suggests, it may be that in children the rest of the endocrine system reacts by over-production: in the case of the pituitary this might, for instance, account for the labial hirsuties and possibly other unexplained phenomena. There may also be a connexion between the pituitary and the incidence of leucopenia and, particularly, lymphopenia. It has been shown that the 11- and the 11-17-oxysteroids have some control over the lymphoid tissue, and the effect of ACTH (adrenocorticotropic hormone) can be measured by the drop in circulating eosinophils and lymphocytes.[2] As Schlesinger states, further research into the blood changes in this disease is required. In the twenty cases of Still's disease which he reports four developed jaundice, and in one of these the rheumatoid arthritis vanished. It will be recalled that the recognition by Hench of the fact that jaundice induced remissions in adult rheumatoid arthritis was one of the steps which led him to the final attack on the disease with cortisone.

Some physicians have considered that rheumatoid arthritis is a psychological disorder. The results of clinical tests with cortisone, during which any possible psychological effect was carefully eliminated by giving control substances for certain periods—with relapse in each instance—has disproved this theory. The fact that shock may precipitate the onset of this disease is significant in the light of Selye's[3] work on suprarenal exhaustion and the onset of "stress" diseases. How-

[1] *British Medical Journal*, 1949, 1, 812, and 2, 24.
[2] Forsham, P. H., Thorn, G. W., Prunty, F. T. G., and Hills, A. G., *J. clin. Endocrinol.* 1948, 8, 15.
[3] *Ann. Intern. Med.*, 1948, 29, 403.
[4] *Ibid.*, 1946, 24, 808.
[5] *Ann. rheum. Dis.*, 1949, 8, 90.

ever, though rheumatoid arthritis is not a psychological disorder, there is no doubt that in treating rheumatic diseases the clinician will encounter cases which can be described, in a term coined by Hench and Boland,[4] as psychogenic rheumatism. They reported that 16–18% of the patients in U.S. Service hospitals devoted to the treatment of rheumatic diseases were suffering from musculo-skeletal psychoneuroses. A careful study, with controls, of this condition is now reported by Drs. William Tegner, Desmond O'Neill, and Anna Kaldegg. They point out that in such cases the patients described their pain in unusual terms; it was widespread, and might be represented as "pain all over." The distribution of the physical findings, which were inconstant in site, did not correspond to any recognized physical disorder. These authors confirm the American view that analgesics have no effect on the symptoms, but differed in their findings that cold and damp affected both patients and controls equally. Now that psychogenic rheumatism is recognized as an entity, diagnosis should not be difficult, for the history is bizarre and the findings are unrelated to organic disease. It is important that the correct diagnosis should be made, because such patients do not require physiotherapy, which will only perpetuate their symptoms. Some method such as group psychotherapy might be tried.

Rheumatoid arthritis is of course the most crippling but not the most common form of rheumatic disease. The majority of patients attending the rheumatism department of a hospital come with conditions which can be classified under the heading of non-articular rheumatism or fibrositis. Many clinicians deride such a diagnosis, and workers in the U.S.A. tend to disregard it. But the fact remains, as any general practitioner will confirm, that this condition forms the bulk of "rheumatism." In a paper also published in this issue Dr. W. S. C. Copeman describes research work he has undertaken on the relation of fibro-fatty tissue to "rheumatic" syndromes. Certain important facts about the anatomy and physiology of this little-studied part of the body have come to light. The discovery of the fatty herniae and the oedematous changes found in the fatty tissue in certain sites should be considered in relation to the new knowledge about the connexion between the rheumatic group of diseases and the suprarenal cortex. Of the twenty-eight steroids so far isolated from the suprarenal cortex only six are known to be active, and of these desoxycorticosterone has been studied in more detail than the others, particularly in relation to Addison's disease. It is largely concerned with electrolyte balance, and in Addison's disease there is increased excretion of sodium and chlorides and retention of potassium. This may cause increased intracellular fluid tension. Copeman points out that in the dorsal and sacral fat-pads, and in similar pads round the knees and ankle where fibrositis occurs, this may be due to oedematous distension of fat owing to an upset of the water balance. He suggests there may be an endocrine cause, and the new work strengthens this concept.

Leading rheumatologists have for years insisted that diagnosis must be more accurate if progress is to be made in the treatment of rheumatic conditions. Hench[5] emphasized last year in a lecture given in this country the breadth and complexity of the work in this field, and he pointed out that there are about a hundred different types of arthritis and another hundred musculo-skeletal conditions called "rheumatism." In spite of the recent success of the Mayo Clinic workers with cortisone, many more careful studies, on the lines of those reported in this issue, must be made before the outstanding problems still presented by the rheumatic group of diseases can be solved.

MOSQUITO ERADICATION

The object of mosquito eradication is the total destruction of one or more species in a defined area within limited time, the area being chosen in such a way that reinvasion is unlikely, or can be easily avoided, and work can be stopped on attainment of the object. It is therefore in the nature of capital expenditure, in contrast to the normal recurring expenditure on mosquito control. Mosquito eradication originates from techniques developed by the Rockefeller Foundation as long ago as 1928 for the destruction of *Aëdes aegypti* in the control of yellow fever. The means then used were destruction of *Aëdes* larvae by normal methods, such as the application of larvicides and the removal of breeding-places, the establishment of a thorough checking system (using the search for adult *Aëdes* as an index of effective larval destruction), and the perfection of anti-larval measures where they were shown to be inadequate by the continued presence of even single adults. This system achieved such success against the essentially urban *Aëdes* in South America that it was rapidly extended over most of the continent, and now that mosquito has been eradicated from a large part of South and Central America.

The first application of this principle to anophelines was made in 1939, when it was found that *Anopheles gambiae*, the main malaria vector of tropical Africa, had

[1] Soper, F. L., and Wilson, D. Bruce, *Anopheles gambiae in Brazil*, 1930–1940, 1943, Rockefeller Foundation, New York.
[2] *Bull. World Hlth Org.*, 1948, 1, 309.
[3] *Trans. R. Soc. trop. Med. Hyg.*, 1949, 42, 393.
[4] *British Medical Journal*, 1949, 1, 767.
[5] Aziz, M., *Cyprus med. J.*, 1948, 1, 21.
[6] *Bull. ento. Res.*, 1947, 37, 399.
[7] *Malaria, Filariasis and Yellow Fever in British Guiana*, 1948. Medical Department, British Guiana.
[8] *Proceedings of the Fourth International Congress on Tropical Medicine and Malaria*, 1948, 1, 850.
[9] *Bull. World Hlth Org.*, 1948, 1, 213.

gained entry into Brazil, and after seven or eight years silent multiplication had started devastating epidemics of malaria in the country around Natal. An eradication scheme was begun by the Brazilian Government with the help of the Rockefeller Foundation.[1] It was based on the same principles—Paris green was used as a larvicide, and an elaborate checking system based on the search for adults was instituted. Within 22 months of starting this work total eradication had been achieved. Success was demonstrated by the only effective test—the cessation of all anti-larval work with the maintenance of the checking system over a period of at least one year. This scheme covered an area of roughly 5,000 sq. miles and cost $2,140,000. Though the cost was high, it was considered small in comparison with the damage *Anopheles gambiae* had been causing.

The second campaign against anophelines was carried out under almost identical conditions in Egypt during 1944–5. Overwhelming epidemics of malaria in 1942 and 1943 in the 300-km. stretch of the Nile valley south of Assiut proved to be due to *Anopheles gambiae* —a stranger to Egypt which had gained entry at some recent time. The eradication scheme was started in 1944 with the help of the Rockefeller Foundation and some of the workers from Brazil. Work began in July, and the last *Anopheles gambiae* was discovered in February, 1945. Anti-larval work was stopped six months later, and the invaded area successfully passed the test of freedom in the following year. The details of this campaign have been described by Shousha,[2] and those of a similar scheme in a small area of the Sudan by Lewis.[3] Neither of these authors gives the actual cost of the work, but it is understood that in Egypt it was high, of the same order as that in Brazil, while in the Sudan it was relatively low. These three campaigns had a marked similarity—all were against the same mosquito, which tends to choose readily discoverable breeding-places and was in each case foreign to the area and perhaps not well adapted to it, and no attempt was made to eradicate indigenous species. An even more important similarity was the fact that in Brazil and Egypt there was a feeling of impending national calamity which made the operation similar to a war campaign, to be backed with all national resources without limit.

In 1946 the Government of Cyprus decided to attempt the eradication of all species of anophelines in the island as a matter of normal policy. The campaign was referred to by Professor G. Macdonald in a letter which appeared in our correspondence columns last week. The island was more malarious than either Egypt or Brazil, and was infested by seven indigenous species of anophelines, three of which were known to carry malaria. Work was begun in the face of public apathy, or even opposition, each step having to be justified on its merits. The principles of control were the same as those in Egypt and Brazil, but a solution of D.D.T. in oil was substituted for Paris green as a larvicide and the work was carried out on a prearranged three-year schedule, the progress of which was described a few weeks ago in this *Journal* by Shelley and Aziz.[4] Some parts of the island have passed the final test of control—freedom despite cessation of anti-larval measures—but this test has yet to be applied to the areas which were treated between April, 1948, and April, 1949. It is understood that one or two positive records have recently been made, and more may be expected during the remainder of this year; but this should not undermine faith in the success of this more ambitious scheme, which has been carried out at a much lower cost—a sum not exceeding £310,000, or 14s. per head of the population. As with other territories, the risk of re-invasion has to be guarded against, and the fact that it has actually happened in the vicinity of the airport[5] during 1948 has made it clear that at the next revision of the International Conventions for Aerial Navigation some further provision for the disinsectization of aircraft must be made.

These schemes might be described as of the "old type," in that they do not necessarily make use of the newer methods of control. The new type, utilizing them as a matter of principle, was initiated in British Guiana, where Symes and Hadaway[6] carried out the experimental work; this was later enlarged by the Government into an executive scheme under the direction of Giglioli, who has since reported on its outcome.[7] Though the country is large, 90.5% of the 375,000 inhabitants are concentrated in a narrow waterlogged coastal strip infested by numerous mosquitoes, of which *A. darlingi* is the main malaria vector and *A. aquasalis* a minor one. No anti-larval measures have been used, entire reliance being placed on the use of D.D.T. residual indoor sprays at intervals of eight months. In the initial stages, when only a small proportion of houses were treated, no effect on breeding was seen, but when all houses came under treatment it was observed that control was so effective that the breeding of *A. darlingi* stopped, and this species is no longer present in the populated area. As this mosquito continues to exist in the neighbouring forest the risk of re-invasion is clearly great, and can be guarded against only by the continued treatment of the populated area. The annual cost of this work per head is $0.637. It has been brilliantly successful, but it must be remembered that conditions proved unusually favourable for a residual insecticide in that *A. darlingi* shelters exclusively in houses which are of a type peculiarly easy to treat.

In 1946 the Italian Health Commission, at the instigation of the U.N.R.R.A. Italian Mission, decided to attempt the eradication of all anophelines from Sardinia by the use of residual insecticides. This scheme has not yet been reported on officially. Conditions in Sardinia resemble those in Cyprus, except that the former is

larger. It is known that the attempt at eradication solely by residual insecticides has failed, and that the old methods of larval control as used in Cyprus have now been undertaken in addition to the new ones. It seems that success will probably be achieved, but at about 10 times the cost per head of the Cyprus work. (Press reports state that the governors of the two islands had an even-odds bet of 100 litres of wine on the results of their race. The odds on Cyprus should now lengthen.) A similar scheme has just been started in Mauritius, a highly malarious island which has had severe epidemics of malaria for the past 70 years and in which the disease is carried by *A. funestus*, with *A. gambiae* as a subsidiary vector. The intention of this scheme is to attempt eradication by the use of residual insecticides and to gain data applicable to other territories in the process; larvicides will be used as a supplement if there should be no early promise of success by the intended means. This work is now in its very early stages and has not yet been reported.

Eradication techniques excited much interest at the Fourth International Congresses on Tropical Medicine and Malaria in 1948, at which Soper[8] assessed their potentialities. It was clear that they are limited, there being no prospect of success against, for instance, a forest-haunting mosquito in Central Africa; but they have not yet been fully investigated, and the WHO Expert Committee on Malaria[9] has decided as a matter of research to foster an attempt at eradication of an indigenous anopheline from a mainland territory with no natural boundaries, creating artificial boundaries in their place. The relative values of eradication as a capital work and control by the newer methods as recurrent work have yet to be decided, but it can be said that the Cyprus scheme is a pioneer one in the development of eradication of indigenous species.

CONSULTANTS ADVISED TO SIGN

The Joint Committee on Monday of this week once more discussed with the officials of the Ministry of Health the question of arbitration. As a result of that meeting the Committee has decided to advise consultants and specialists to enter into permanent contracts. It was assured that no changes will be made in the terms and conditions of service without prior discussion in the medical section which is to be established as part of the Whitley machinery. The Ministry of Health agrees that remuneration is a subject on which there may be arbitration in the event of disagreement. The Whitley Councils, it should be clear, provide a mechanism for conciliation. If, for example, it is not possible to reach agreement on remuneration the matter can—save in exceptional circumstances—go to arbitration by common consent of the Minister of Health and of the medical profession. "Exceptional circumstances" means such events as a grave economic crisis. If only one of the parties is prepared to go to arbitration the matter can still be referred to a committee, to inquire into and report on the dispute, no doubt with recommendations.

It was made plain in the Committee Stage of the Amendment Bill that no party in the House of Commons will allow either side to compel arbitration. The Joint Committee may be congratulated on having secured from the Ministry agreement that remuneration is open to arbitration, and it is reasonable to assume that in the event of serious disagreement neither the Minister of Health nor the medical profession would in practice fail to seek the obvious and fair method of resolving a dispute—arbitration or a committee of inquiry. The Ministry of Health has agreed to delete from the opening paragraph of the contract the words "the Minister of Health." The Ministry, too, has agreed that patients admitted to private wards under Section 5 of the Act will pay professional fees in addition to maintenance charges, except where a public patient is admitted to a private bed for medical reasons.

In the light of the discussion in the Committee Stage of the Amendment Bill, which has been fully reported and commented on in this *Journal*, it is clear that substantial progress has been made. The question of arbitration affects other sections of the profession, notably general practitioners and those in the Public Health Service; no doubt they will now review their position.

POLIO-ENCEPHALITIS

There is at present an increase in the number of notifications of poliomyelitis. This is partly seasonal, but the figures indicate a greater rise than usual. With the increase in poliomyelitis, cases of encephalitis which must be attributed to the same virus are bound to occur. In the 1947 epidemic there was a higher proportion than usual of cerebral bulbar lesions with or without spinal involvement. When this happens during a poliomyelitis epidemic the diagnosis is easy, but at other times the aetiology can only be suspected. In 1947 Jennings[1] reported a small series of cases with encephalomeningitic symptoms which he believed were distinct from those of polio-encephalitis, and at the same time Laurent[2] described additional cases which he placed in the same unknown group. This view was criticized by McAlpine and his colleagues,[3] who concluded that in this country a brain-stem encephalitis, whether sporadic or occurring in small groups, is almost certainly due to the virus of poliomyelitis. Critchley[4] agreed with this opinion.

In this issue of the *Journal* case reports by Drs. G. H. Jennings, J. L. Hamilton-Paterson, and F. O. MacCallum, and by Drs. W. H. Kelleher, A. B. Bratton, and F. O. MacCallum, provide convincing proof of the identity of this type of encephalitis with poliomyelitis. This would probably have been decided some time ago if the necessary laboratory animals had been available: now that the wartime and immediate post-war scarcity is over and monkeys

[1] *Lancet*, 1947, 1, 471.
[2] *Proc. R. Soc. Med.*, 1947, 40, 927.
[3] *British Medical Journal*, 1947, 2, 1019
[4] *Medical Annual*, 1948, Bristol, p. 257.

can be used for research purposes, the identity of the causal agent can be established. Future puzzling cases of encephalitis can be investigated in the same fashion. The pathological pictures in the two cases described are very much alike and correspond closely to the American descriptions. Though the spinal signs may be very slight, the most severe lesions occur in the cervical and lumbar enlargements of the cord. The brain stem is affected to a lesser extent, and the cortex and subcortex show only congestion or oedema. In spite of the paucity of pathological findings the clinical signs are obvious—apathy, twitchings, severe drowsiness, delirium, and cranial nerve palsies. Death may be due to acute bulbar failure. Jennings and his colleagues comment that the pathologist finds little to support the clinical picture of pyramidal involvement. It is probable, however, that what are relatively crude techniques may reveal little change if the signs are transient or if the patient dies at an early stage of the disease. Gross, though temporary, change in function can occur in other conditions, such as the acute post-concussion state or the post-epileptic state, with nothing or very little indeed to be found by the pathologist. An interesting clinical feature of the encephalitic cases is nystagmus—a relatively common finding—and that wild type of eye movement associated with difficulty of fixation known as opsoclonia. This suggests strongly that the median longitudinal bundle is affected in the brain stem. When recovery takes place from the encephalitic type of disease it is usually complete. This is to be expected from the mild pathological changes. The fact that death is due to bulbar failure, often of the respiratory centre, suggests that if these patients can be kept alive in a mechanical respirator till the acute phase is over their chances of survival are good. If, however, there is a failure of the vasomotor centre and the cardiac centre, then it is very unlikely that any therapeutic measure will succeed.

THE CHEMISTRY OF INSULIN

Interest in the chemical structure of insulin has been stimulated by the recent work of Dodds and his colleagues on the action of enzymes on the hormone[1 2 3] and that of Sanger[4 5] on its oxidation. The successful preparation of active and serviceable pancreatic extracts by Banting and Best in 1921 and the crystallization of the hormone by Abel and his colleagues in 1926 paved the way for the chemical investigation of the molecule. The protein nature of insulin was soon established, and studies were begun on the size of the molecule and the nature of the groups responsible for the specific hypoglycaemic effect. Behind much of this work was the hope that it might lead to a clearer knowledge of the mode of action of the hormone and—perhaps even more important—might make possible a laboratory synthesis of some relatively simple "modified" or "substitute" insulin. From all these chemical studies much of real value has been learned, but a satisfactory simple substitute or a synthetic insulin has not yet been found.

There is no evidence as yet of the presence in insulin of any amino-acid or grouping not normally present in other proteins. In dilute solution at *p*H 7–7.5 it has a molecular weight of about 48,000.[6] Treatment of the hormone with a variety of chemical reagents has shown that the disulphide linkages and the phenolic hydroxyl and the primary amino-groups in insulin are necessary for its pharmacological action. From these and other chemical studies it can be concluded that the hypoglycaemic action of insulin is due not to certain prosthetic groups or to some as yet unknown amino-acid in the hormone but to a special spatial arrangement of the ordinary amino-acids. This does not exclude the possibility that the characteristic effect on carbohydrate metabolism might be due to the activity of some fraction of the molecule—i.e., by a "submolecule"—of insulin. Sanger[7] has suggested that the submolecule of insulin has a molecular weight of about 12,000 and that it consists of four peptide chains bound together by —S–S— linkages; two of these chains have terminal glycine and two have terminal phenylalanine groups. Oxidation of the disulphide cross-linkages of insulin by performic acid gives the separate polypeptide chains, and a start has been made with the work of locating the various amino-acids in these polypeptides.[4 5]

Professor Dodds and his colleagues selected insulin as specially suitable for a general study of protein structure and the action of proteolytic enzymes on the protein molecule. When pepsin acts on insulin at *p*H 2 fragments are produced which have an average chain length of about seven amino-acid residues and a mean molecular weight of about 3,000.[1 3] Purified trypsin, unlike ordinary preparations of trypsin, has only a slight hydrolytic and inactivating effect.[2] Chymotrypsin, however, removes small peptides from the insulin molecule, leaving a more massive "core," which has a molecular weight of about 4,000 and apparently consists of the slightly shortened insulin chains united by —S–S— linkages. Further information about the nature of this insulin core will be awaited with interest.

The chemistry and mode of action of insulin are being investigated by many other methods. Vesicant-treated insulin, prepared by the use of compounds resembling mustard gas and containing radioactive sulphur, has been studied by du Vigneaud and his colleagues,[8] and Woolley[9 10] has described the separation of various peptides from enzymically hydrolysed insulin. The important observations of Dr. and Mrs. Cori and their colleagues have opened another field for research. They have shown that the *in vitro* inhibition of hexokinase (an enzyme which catalyses the formation of glucose-6-phosphate from glucose in muscle, etc.) by certain freshly prepared anterior pituitary extracts is neutralized by the addition of insulin to the system.[11] It is certainly too early to give a structural formula to the "key" part of the insulin molecule, but research during the past few years has undoubtedly brought nearer this desirable achievement.

[1] Butler, J. A. V., Phillips, D. M. P., and Stephen, J. M. L., *Nature, Lond.*, 1948, 162, 418.
[2] *Biochem. J.*, 1948, 42, 116, and 1949, 44, 224.
[3] Ibid., 1948, 42, 122.
[4] *Nature, Lond.*, 1947, 160, 295, and 1948, 162, 491.
[5] *Biochem J.*, 1949, 43, 126.
[6] Gutfreund, H., *Biochem. J.*, 1948, 42, 156 and 544.
[7] Ibid., 1945, 39, 507.
[8] *J. Amer. chem. Soc.*, 1948, 70, 2547, 2551, and 2554.
[9] *J. biol. Chem.*, 1947, 171, 443.
[10] *Fed. Proc.*, 1948, 7, 200.
[11] See reviews by Young, F. G., *Science Progress*, 1948, 36, 13, and *Lancet*, 1948, 2, 955.

Sir Cecil Wakeley, K.B.E., C.B., F.R.C.S., F.R.A.C.S., F.A.C.S., was elected President of the Royal College of Surgeons of England on July 14, in succession to Lord Webb-Johnson, President since 1941.



FIG. 1.—Entering the decompressor.

HIGH FLYING AND DECOMPRESSION TREATMENT OF WHOOPING-COUGH

BY

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In 1927 an air pilot of Strasbourg took his child suffering from whooping-cough for a flight to a height of 10,000 feet (3,050 metres). The child's cough was said to have ceased dramatically after three days. Before the war Dr. W. Matter (1946), of Strasbourg, did much pioneer work on aeroplane flights for whooping-cough, and the practice became popular in many countries of Europe and to some extent in South America. As a result of this and of some work done in Switzerland (P. Lauener and E. Maeder, 1942) during the war, several conclusions were reached: (1) that the best results were obtained in the fifth and sixth weeks of the disease; (2) that several flights were no better than one; (3) that an altitude greater than 10,000 feet was rarely necessary; (4) that the extreme cold at this altitude was harmful to some patients, and that for this reason the closed plane was better than the open one.

Claims for the Treatment

In 1939 a controlled experiment in Berlin on 88 children treated by aeroplane flights and 33 children treated under similar atmospheric pressures in the decompression chamber yielded slightly superior results for the latter, and in addition none were made worse by the decompression treatment. The highest claims made for the treatment about the year 1945 were: approximately 30% cured—that is, cessation of paroxysms within four days; 30% improved—that is, marked diminution of the paroxysms within seven to 10 days; and 40% no change or worse after seven days. At the same time it was generally agreed that the beneficial effect of the treatment depended upon low barometric pressure and low oxygen tension in the alveolar air rather than upon the actual purity of the air breathed. These results were statistically open to considerable criticism owing to the absence of controlled studies and the difficulties of assessment of cure and improvement in out-patients.

In 1946 Baldry and Richou published their first report on 300 cases treated in a decompression chamber in Paris. Selected cases of all ages from 2 months to 40 years were treated, and of those followed up for 21 days (44% of the total) there were 22% of cures in four days, 51% "improved," and 4% whose paroxysms were aggravated for some days after the treatment. Up to 1948 Richou had treated some 6,000 cases in Paris. His published conclusions include the following principles: (1) that the results obtained were independent of age and weight; (2) that the best time for the treatment is after the third week of the disease, preferably the fourth, fifth, or sixth; (3) that repetition of the treatment does not increase the percentage of successes—that is, a good result is obtained with the first treatment or not at all; (4) that contra-indications for the treatment are fever, respiratory and cardiac complications, epistaxis and any haemorrhage, nasopharyngeal infections, ear infections, hernia, surgical emphysema, and malnutrition. The rarefied air-pressure is regarded as the chief factor in a beneficial result. How it acts is unknown. It has been suggested that it may lead to a relaxation of bronchial muscle, damping down of the cough reflex, or alteration of the bronchial mucosa in some unknown way.

The method has its severe critics. In 1948 Bergquist treated 45 children in Stockholm—20 by aeroplane at 11,000 feet (3,350 metres) for 45 minutes, and 25 at similar low pressure in a chamber for 45 minutes. He stated that an analysis of the course of the disease, the frequency of paroxysms and vomiting, duration of the disease, bacillary findings, and changes in the blood picture showed no significant difference, and in his opinion flying and low-pressure chambers were completely without value in treatment of whooping-cough.

It is clear that a critical assessment of the treatment is required, preferably in in-patients, with radiological and haematological observations before and after. This is not easy to arrange, and to a large extent it will probably be

FIG. 2.—Inside the decompression chamber. Note the observation windows for use of doctor and technician, the telephone, the thermometer, and oxygen masks (for use in emergency only).



necessary to conduct observations on out-patients. One point that has not been established is the effect of the treatment on the various degrees of pulmonary collapse which so often complicate cases of whooping-cough in the later stages of the disease and which may not be obvious on ordinary physical examination. It is certain, however, that if there are any accompanying acute symptoms such as fever or cyanosis, or any signs of acute bronchitis, the treatment is contraindicated.

Conclusions

The conclusion at present from the work done is that the treatment is not a cure for whooping-cough in its early stages or for complicated whooping-cough. Its object is to clear up the persistent cough and vomiting of the later stages (e.g., the fourth to seventh weeks) in otherwise uncomplicated cases. Its success has still to be confirmed, and, in any case, seems to be limited. Trials are now proceeding at Park Hospital, where a renovated ex-R.A.F. decompression chamber has recently come into use. Of the 32 cases so far treated at the hospital, reports have been received on 22. In four cases the coughing had virtually ceased within four days and no vomiting occurred after the treatment; three cases were markedly improved, with very little cough and no vomiting seven days after treatment; and in 15 cases there was gradual improvement or no change. In one of the "cured" cases a symptomless right-middle-lobe collapse had completely re-expanded within seven days.

Public transport should not be used for cases of whooping-cough during the infectious stage, which is generally held to include only the first five weeks from onset of the disease, even although cough, whoop, and vomiting continue beyond that time. Applications for treatment should normally be made by doctors to the Emergency Bed Service, 10, Old Jewry, E.C.2 (Tel., Monarch 3000).

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COMMONWEALTH AND EMPIRE TUBERCULOSIS CONFERENCE

PROBLEMS OF RESETTLEMENT

The main sessions of the second Commonwealth and Empire Health and Tuberculosis Conference were reported in the *Journal* of July 16 (p. 150). One of the closing sessions was devoted to psychological and social readaptation.

Dr. W. E. CHIESMAN (Medical Adviser to the Treasury) spoke of the difficulties which attended re-employment. In a group like the Civil Service such cases were numbered in hundreds. In 1948, with a working population of 300,000, there were between 500 and 600 primary and relapsed cases of tuberculosis. He had been surprised to find the difference of opinion which existed about the length of time for which a patient required treatment. Sometimes a man was discharged from hospital and told he could return to work almost immediately, while the man's own doctor recommended another six months' convalescence. The criteria of fitness to return to work needed clarification. Another point was that the returned patient might have a certain effect on his fellow workers. General propaganda had developed a fear of tuberculosis and an awareness of the disease, and it was natural that both employers and fellow-employees should desire reassurance. A satisfactory answer to these questions would clear up some of the main difficulties of rehabilitation. It was surely not unreasonable to employ persons whom the chest physician considered to be safe, but the follow-up ought to be improved by asking the patient to get an assurance from his doctor at regular intervals that he was not a potential danger to his associates. If there was a risk from tuberculous patients let it be assessed as accurately as possible, because the future policy for the re-employment of these people must depend upon striking a proper balance between what was good for the patient and what was safe for the community.

A number of industrialists and trade union leaders took part in the discussion on this subject. A description of work in a rheumatic unit was given by Dr. J. F. BACH (St. Stephen's Hospital, London), who said, incidentally, that he believed that happy and contented people did not develop rheumatoid arthritis. Chronic anxiety and shock immediately preceded the onset so often that he felt these must be trigger factors. In his clinic patients were selected for in-patient treatment according to the assessment of personality rather than according to the degree of joint deformity.

Dr. LEWIS MOORMAN (Oklahoma State Medical Association) discussed the psychology of the doctor–patient relationship in the readaptation to industry of sufferers from chronic disease. All good doctors who managed cases of tuberculosis became good psychologists and psychiatrists. A physician should always impress on his patient the importance of the partnership between patient and doctor in the difficult task of getting well.

Dr. TREVOR LLOYD DAVIES (Boots Pure Drug Company) said that the great difficulty about special centres for rehabilitation was that it was impossible to re-create the social relationship as it existed in normal industry. He realized that it was necessary to have these centres in order to get the patient back to industry, but at the very earliest opportunity the patient should return to normal industry. Something to the same effect was said by Miss OLWEN TAYLOR DAVIES, welfare liaison officer at Papworth Village Settlement. All the schemes developed under the Disabled Persons Employment Act, as well as voluntary schemes, she said, were satisfactory only in so far as they restored the individual to economic independence and a normal life. The segregation of unfit workers was not likely to lead to complete readaptation. Experience at Papworth had shown that the patients most easily lost their sense of inferiority when working with fit people.

Infected Milk

At the final session of the Conference Dr. EDITH SUMMERSKILL, M.P., Parliamentary Secretary to the Ministry of Food, said no Government could ignore the danger to the health of the community arising from infected milk. The ultimate objective was to secure that all milk sold for domestic consumption should be in closed containers, fitted with overlapping caps to prevent the contamination of the mouth of the bottle, and that the milk should be tuberculin-tested, pasteurized, or sterilized. Unfortunately, this new policy could not be applied immediately to the country as a whole because of insufficiency of pasteurizing and bottling plants. The makers of these plants were so inundated with orders that it would take a long time to complete them. It was therefore proposed to apply the restrictions first to groups of large urban areas, and then to extend them so far as practicable to rural areas. It was probable that some twelve months would elapse before any area would be specified for this purpose, but it was hoped to complete the specifying of all urban areas within five years and most, if not all, of the rural areas within ten years.

Mr. J. N. RITCHIE (Ministry of Agriculture and Fisheries) said that at the end of May last there were 39,997 attested herds, but progress was not equal throughout the country, and the greatest progress was not necessarily attained where the incidence was originally low. The number of cattle in tubercle-free herds (attested and T.T.) in Great Britain was approximately 1,780,000. The sale of tubercle-free milk to Milk Marketing Boards for the year ended March 31, 1948, was 354 million gallons, compared with 141.6 million gallons for the year ended March 31, 1943.

According to a report in the *News Chronicle* (July 1), the health committee of the Marylebone Metropolitan Borough Council has decided to press for revision of the exemption of Government departments and Crown properties from inspection by officers of a local authority. The medical officer of health is said to have been denied access to inspect staff canteens in Government departments.

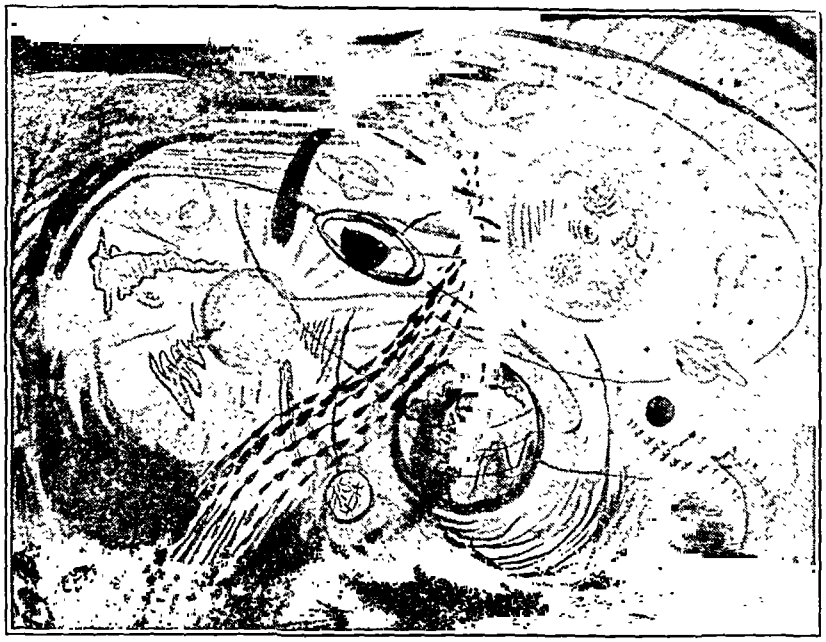


FIG. 1.—A schizophrenic patient's drawing of two universes—the real intermingling with the unreal. A typical expression of thought disturbance.

PSYCHIATRY AND ART

NETHERNE HOSPITAL EXHIBITION

For the last three years a number of patients at Netherne Psychiatric Hospital have been encouraged to paint pictures in the course of their treatment, and an exhibition of some of their productions was held at 1, Grosvenor Crescent, London, S.W.1, on July 11–16. Though nearly all the work was by people untrained in any of the arts, much of it was remarkable for the high quality of its aesthetic expression. Many of the paintings revealed vigour, imagination, and depth of feeling, and some of them were reminiscent of the products of surrealism.

A professional artist, Mr. E. J. Adamson, is attached to the hospital to help the patients overcome the difficulties of expressing themselves in an unfamiliar technique, but he leaves the choice of subjects and the actual painting entirely to the patients themselves. They paint how and what they like, but if one of them wants to know, for example, how to draw a man sitting down Mr. Adamson shows them on a separate piece of paper.

Discussing the pictures on July 14, Dr. E. Cunningham Dax, medical superintendent of the hospital, said he did not think they should use the term "art therapy." There were nearly as many "therapies" in psychiatric nomenclature as there were "phobias," and it brought only disrepute on their experimental methods of attacking psychiatric illness if they were labelled as curative without statistical evidence to support their claims. A better adjustment appeared to be made, however, when facilities were given for artistic expression rather than for some form of occupational diversion.

Painting might provide emotional release. He had seen many patients reflect their state of mind in their drawings, and apparently they felt all the better for it. The translation of emotions into paintings might give valuable information to the psychiatrist, and evidence of a patient's progress might be obtained from his paintings without ever having to discuss them. Painting might cut down the time required for psychotherapy, since some patients expressed themselves more easily on paper than in speech, and came more quickly to the interpretation in that way. Useful data might be accumulated in time on which to base the study of mental functions.

In reply to a question, he said that patients often did their most interesting work when their minds were disturbed.

FIG. 2.—Entitled "Housework," this is one of several hundred pictures drawn by a psychopathic girl who was stabilized through her work in the studio group. Since discharge she has worked for two years as a Land Girl, though previously she had never held a job for more than three weeks.

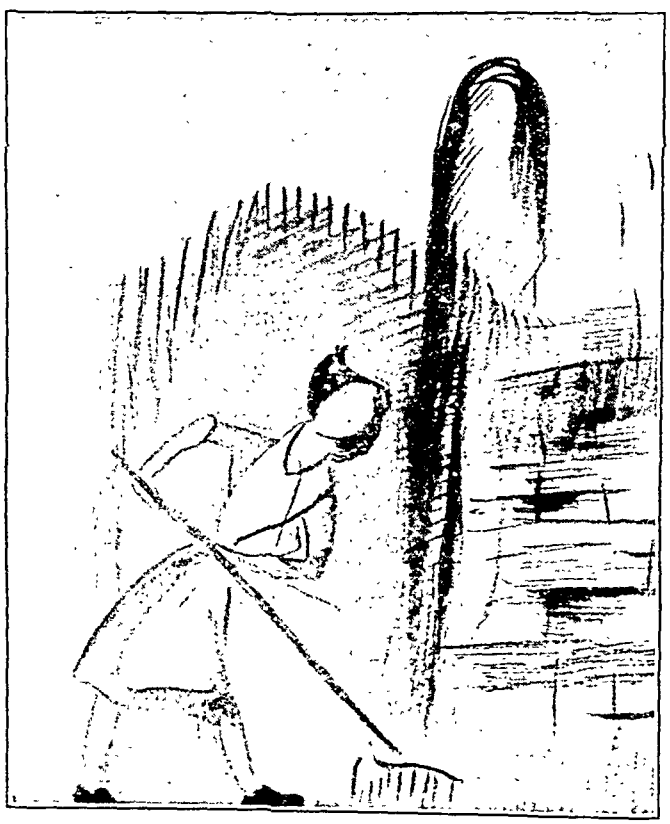
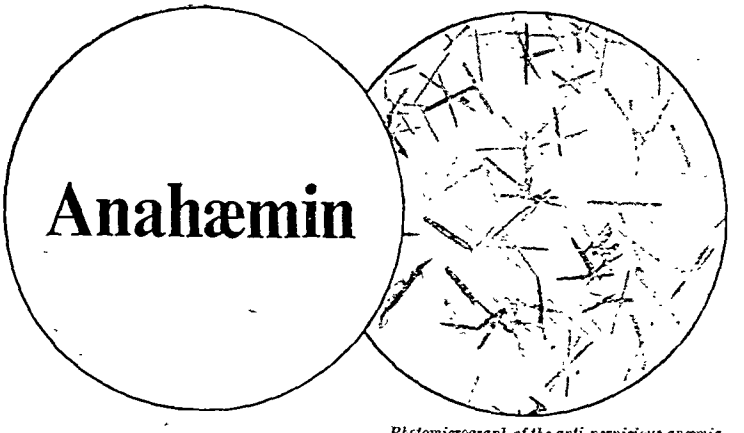


FIG. 3.—Entitled "The Lizard," this was painted by a woman with an anxiety state and some paranoid features. The patient was feeling like the lizard, which appears in the centre.



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* J. Pharm. Pharmacol., Jan. 1949, p.60

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MEDICAL DEPARTMENT

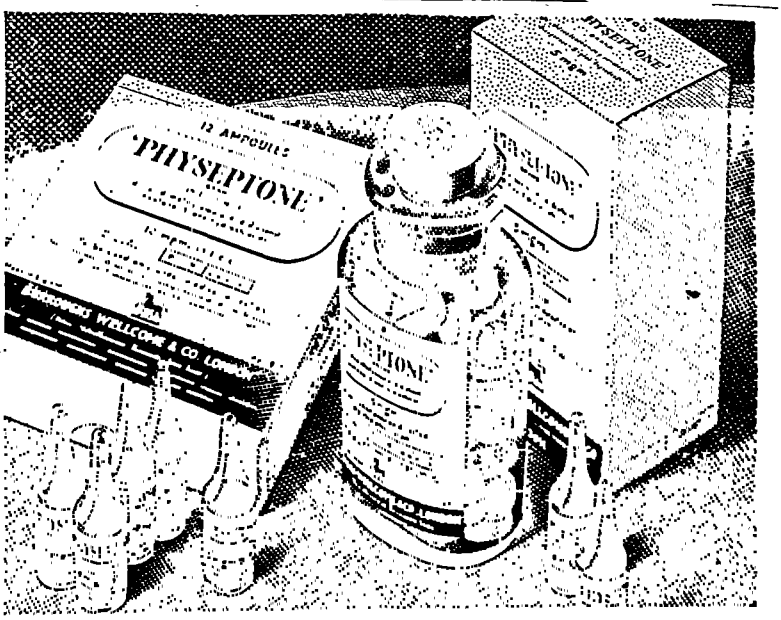
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THE ROCKEFELLER FOUNDATION

POPULATION PROBLEMS

The Rockefeller Foundation last year appropriated nearly 15 million dollars for public health projects, medical research, and studies in the natural and social sciences. The new president of the Foundation, Mr. Chester I. Barnard, who succeeded Mr. Raymond Fosdick, suggests in his latest annual review[1] that in future wider fields of study may be contemplated, including some of those hitherto regarded as the preserve of religion and philosophy. There is need, he says, for a reclassification of the problems of modern society, and especially those population problems which often underlie national, class, and racial conflicts. They lend themselves to generalization and oversimplification, with quack remedies as a natural consequence. The problems are complicated by wide differences in customs, rules of inheritance, moral ideas, and religious principles. It is customary to say that the world is over-populated: "About half the world's population," says this review, "is close to starvation, and another quarter suffers from malnutrition." But the world may not be over-populated if its peoples will co-operate in the economic use of natural resources and if productive capacity can be increased. The obstacles to what Mr. Barnard calls social engineering are human inertia and insufficiency of knowledge.

Research work in genetics, endocrinology, the physiology of reproduction, and sexual behaviour has already been supported by the Foundation. The studies of Kinsey and others have emphasized the biological maladjustment between the sexual drive and population needs. The bearing of this on morals, on the incidence of venereal diseases, on frustration, and on crime is evident. In the field of human behaviour the rapid changes introduced by modern technology raise many questions. Do these changes challenge the meaning and relevancy of ancient moral precepts? What is the bearing of endocrinology or pathology on the moral assessment of human conduct? What is the relevancy of the application of ancient codes of individual behaviour to modern corporate action? The Rockefeller Foundation is proposing an examination of the nature of the conflicts of ethical systems to-day in the light of modern changes. No doubt it will find that these subjects of inquiry are much more controversial than investigations concerned only with public health and medical science. But the Foundation is taking this course because it believes that there can be no satisfactory solution to the problems of our civilization which does not take into account the ideals and spiritual aspirations of men.

[1] *The Rockefeller Foundation.* 1949. New York.

WESTMINSTER MEDICAL SCHOOL

CENTENARY CELEBRATIONS

Westminster Medical School celebrated its centenary with a meeting of the staff and students held in Church House on July 13. The Earl of Athlone, Chancellor of the University of London, gave the opening address. The Dean of Westminster, Dr. Logan, Principal of London University, Lord Nathan, chairman of Westminster Hospital, and Dr. E. R. Boland, Dean of the Faculty of Medicine, London University, were among the guests. Also present were two former deans of the Medical School—Sir Ernest Rock Carling, who held office from 1909 to 1912, and Sir Adolphe Abrahams, who was dean from 1934 to 1943. Mr. H. M. Clowes, chairman of the Medical School Committee and Council, was in the chair.

Lord Athlone said that the formal connexion between Westminster Hospital and the Medical School dated only from 1849, but a medical school had existed as an offshoot of the hospital as early as 1834. He was glad to say that ties between the school and the hospital remained as close as ever, although the Medical School was part of the University of London and enjoyed a separate legal existence, with its own council and academic board. He disclosed that plans were already being considered for erecting new buildings and founding a preclinical school, although the present buildings were opened in Horseferry Road only 11 years ago. The support of the University was assured for this scheme of development.

There were at present 230 students, and the main difficulty was not to attract more undergraduates, as had been necessary in the days after the 1914–18 war, but to devise means of discriminating among hundreds of eligible and desirable applicants.

Sir Ernest Rock Carling spoke of the early history of the Medical School. He said that preclinical subjects were formerly taught, but were given up because the number of students was so small. He recalled that the Westminster Hospital was the first to build aseptic operating theatres in London, the first to make use of radium in treatment, and one of the first to employ an almoner. Sir Adolphe Abrahams discussed the advantages of the small school, where a greater number of men from other hospitals could be included in the staff.

Mr. G. H. Macnab, the present Dean, spoke of the future of the Westminster Hospital and Medical School, the difficulties in selecting students, and the pains taken by the authorities to choose the right men and women.

THE OSLER CLUB

The annual dinner of the Osler Club, held at the Royal College of Surgeons of England on July 12, celebrated this year both the centenary of the birth of Sir William Osler and its own coming-of-age. To mark the occasion several distinguished guests were invited, including their Excellencies the Chinese and Italian Ambassadors and the Austrian Minister, Dr. R. Gottlieb (representing the High Commissioner for Canada), Dr. A. S. Osborne, of the U.S. Public Health Service (representing the American Ambassador), Mr. Gilbert Frankau, Dr. Wu Lien Teh, the distinguished Chinese medical historian and organizer of the Plague Prevention Service in Manchuria, Dr. Lewis J. Moorman, editor of the *Journal of the Oklahoma State Medical Association*, and Mr. Geoffrey Cumberlege, of the Oxford University Press, which has made possible the publication of a volume of selected writings of Osler, to appear in 1950.

The chair was taken by Dr. A. White Franklin (an original member of the Osler Club), who outlined its future objects. During the dinner, speakers were introduced by Dr. W. R. Bett (another original member). The Chinese Ambassador spoke of Osler as an international physician, and the Italian Ambassador recalled Osler's visits to Italy both as medical man and as bibliophile. The Austrian Minister reminded his listeners that Osler had rounded off his medical education with a visit to Vienna.

After dinner the Oslerian Oration was delivered by Mr. Gilbert Frankau, who, although professing his ignorance of medicine, made an amusing and provocative comparison between the state of medical knowledge and public health in 1849 and the present day. He believed that the renaissance of medicine which had coincided with Osler's early years as a physician had contributed materially to his greatness, for he had taken advantage of the great opportunities open to him.

Dr. Moorman spoke of the reverence with which Osler was still regarded by American physicians, who, he claimed, knew him better than anyone else, for he had been with them longer than with the British. In Oklahoma, Dr. Moorman's home city, an Osler Society flourished, and an Osler building provided offices for a number of medical men. Dr. Moorman concluded by presenting several documents to add to the collection of Osleriana possessed by the Osler Club.

EPSOM COLLEGE

The Royal Medical Foundation of Epsom College announces that the following pensions, scholarships, and grants are now available:

A "Hadlow" Pension of £70 per annum for a medical practitioner or the widow of a medical man fully 60 years of age.

One or two St. Anne's Scholarships for girls attending Church of England schools. Candidates must be fully 9 years of

age and the orphan daughters of medical men who have been in independent practice in England or Wales for not less than five years. The value of each scholarship is dependent upon the means of the applicant and the locality and fees of the school selected.

Pensions for necessitous medical men fully 55 years of age, provided they have been registered for five years; for the widows of medical practitioners fully 60 years of age; and for the spinster daughters of medical practitioners of 55 years and upwards. (Awards are made as vacancies occur.)

Scholarships and grants for children of either sex, not necessarily orphans. Candidates must be of public-school age and in need of such help.

Grants from the Eastes Trust for the relief of registered members of the profession of any age, their widows and orphans, and for the educational assistance of their daughters or sons.

Full information and forms of application are available, on request, from the secretary, Epsom College, Surrey.

Preparations and Appliances

AN "OVERGLOVE" FOR INTRAUTERINE AND OTHER MANIPULATIONS

Dr. J. A. MOYSE, of Mitcham, writes: Access to the uterine cavity, even under the most favourable conditions, is always fraught with the risk of infection. For the practitioner who has to carry out an intrauterine manipulation I have designed what I call the "overglove," a rubber covering for the sterile glove used in cases of adherent placenta requiring manual removal.

The overglove is a retractable covering for the sterile "operating" gloved hand, designed to be carried over it into the potentially septic field of the lower genital tract. At the desired level the overglove is held back by the non-operating hand pulling on the cuff, so that the encased sterile glove can emerge from a suitably shaped slit. The edges of this slit are continued into flaps which are invaginated into the lumen of the overglove and there held between the sides of an appropriate pair of fingers. These flaps are everted as the slit retracts over the emerging sterile gloved hand, which is thus uncovered only in the field of its application. Not having come into contact with anything other than the inner surface of the overglove, the gloved hand must be at that moment in its original degree of asepsis.

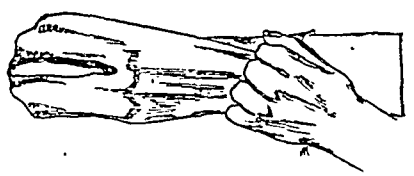


FIG. 1

This sequence of movements or manœuvres is shown in the accompanying sketches. Fig. 1 depicts the overglove more or less "in plan" but with the operating hand within it. The non-operating hand, grasping the cuff, is exerting sufficient pull to cause the overglove to retract. The slit is beginning to widen as its flapped edges are everted. Fig. 2 shows the sterile

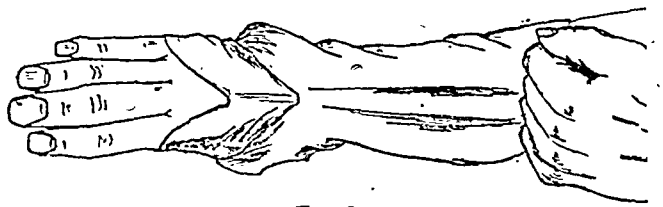


FIG. 2

gloved hand emerging from the stretched slit, the flaps of which closely invest it. Continued traction is maintained and the movement completed with the slit retracted to the wrist and the gloved hand fully outside the overglove.

The overglove is manufactured by Messrs. J. G. Franklin and Sons, Ltd., Colvestone Crescent, Dalston, London, E.8.

Correspondence

Ovarian Hilus Cells

SIR,—While the *Journal* of July 16 (containing our pap entitled "Association of Certain Ovarian Cells with End metrial Cancer") was being printed, our attention was draw to a paper by W. H. Sternberg in the *American Journal Pathology* for May, 1949 (25, 493), on the human ovarian hil cells. The author points out that there is little reference to t cells in the American literature, and we believe that Sternber paper is the first full description of the cells written in Englis He groups the cells, known to us as paraganglion cells, amor the hilus cells, although we feel that the cells we descri belong to a different type. Nevertheless, there is an accura description of the relation of some of the cells to the bloc sinuses and lymphatic spaces. We must emphasize, howeve the activity of these cells in cases of carcinoma of the end metrium, particularly in early cases.—We are, etc.,

WILFRED SHAW.
BURJOR DASTUR.

London, W.1.

Tuberculosis in Industry

SIR,—Having been one of those responsible for the repor of the Medical Research Committee of 1915 dealing wi the incidence of tuberculosis in the boot and shoe indust I am interested in the letters you have published from D Stephen Hall (June 11, p. 1049) and from Dr. S. Roodhou Gloyne (July 2, p. 31). Both writers, and, indeed, Drs. Ali Stewart and J. P. W. Hughes (May 28, p. 926), seem to ha overlooked that the subject received extended statistical stu in the Harben Lectures for 1924.[2]

Briefly, the mortality data there quoted indicate that (*a*) occ pations with no health risk experience low mortalities fro every cause of death; (*b*) occupations "infected" with tube culosis (e.g., the boot and shoe industry, tailoring, and printin experience a high mortality from tuberculosis, but lo mortalities from every other cause of death; (*c*) occupatio exposed to the silica dust hazard experience a high mortali from tuberculosis and from other diseases of the damag respiratory organs, such as bronchitis and pneumonia, b low mortalities from other causes; and (*d*) occupatio exposed to a general depressing agent, such as alcohol (e. barman), experience high mortalities from every cause of deat —I am, etc.,

E. L. COLLIS.

Lossiemouth, Moray.

REFERENCES

1 First Report of the Special Committee upon the Incidence of Phthisis in Relati to Occupations, 1915, London.
2 *J. State Med.*, 1925, 33, 150.

SIR,—I must thank Dr. S. Roodhouse Gloyne for h courteous reply (July 2, p. 31). On rereading my letter (June 1 p. 1049) I can detect some evidence of ill-humour, for whi I am sorry. This display of emotion arose because I fanci I saw in the "mistakes" of Drs. Alice Stewart and J. P. W Hughes symptoms of a habit common among those who ho the bacteriological concept of tuberculosis. They use langua which presupposes the truth of their concept, falsely equati "infection" with "disease," and they tend to regard a reproof of this habit as the objection of a pedant. Neverth less, the offence is rank and fundamental, and its repetitio acts as an irritant to those of us who think less highly of t part played by germs in the aetiology of "disease."—I am, et

STEPHEN HALL.

London, W.1.

Incontinentia Pigmenti

SIR,—I read with interest the article by Dr. W. L. Caln entitled "Congenital Hemiatrophy Associated with Other Co genital Defects" (July 9, p. 56). The history of that ca revealed that the child was born with a vesicular eruption the left leg and dorsum of both hands. There was also line

pigmentation over the anterior part of the trunk on the left side and over the lateral wall of the thorax. The vesicular eruption left scarring after healing. Furthermore, teeth anomalies developed, and in addition to these defects a congenital hemiatrophy was demonstrable.

The history of a vesicular eruption at birth with peculiar linear pigmentations, combined with other congenital defects, is characteristic of the condition known as incontinentia pigmenti (Bloch–Sulzberger[1]). I had the opportunity of diagnosing three such cases at the Hospital for Sick Children (Skin Dept.—Dr. R. T. Brain). These are going to be published soon. One of the cases was shown at the Dermatological Section of the Royal Society of Medicine by myself,[2] and I feel that Dr. Calnan's case belongs to the aforementioned syndrome and that the hemiatrophy is a new feature which was not described in the previous cases.

Less than twenty cases have so far been described since 1926, but I believe that many cases of incontinentia pigmenti pass undiagnosed.—I am, etc.,

London, W.C.2. H. HABER.

REFERENCES

1 Sulzberger, M. B., *Arch. Derm. Syph., Chicago*, 1938, 38, 57.
2 *Proc. R. Soc. Med.*, 1948, 41, 759.

Dysentery in South Persia

SIR,—I have read the article by Dr. Ian S. Stewart (April 16, p. 663) on this subject, and, while the classifications of the different types of bacillary dysentery may be of value, the article generally is not above criticism and I would beg space to make some comments and criticism on it.

In the first place it is hardly accurate to assume that the conditions as found in Abadan may apply to the rest of the province of Khuzistan or those other parts which go to make up the rest of South Persia. There is quite a difference between the conditions of life in, say, Ram Hormuz, a rural native town in the desert plain, and the conditions as found in the industrial area of Abadan lying on the Shatt-al-Arab delta. Secondly, the time interval of the experiment is far too short to justify the conclusions reached that a method of control has been found. Dysentery, like so many other infective diseases, is a seasonal condition and also varies in its intensity from year to year. It would be of interest to know the disease incidence in the previous and succeeding years.

Thirdly, the easy dismissal of amoebiasis, based on the laboratory findings alone, as a condition of importance is not one that many clinicians would make. This condition is notorious for its quiet, unobtrusive, yet sinister presence. Many cases of amoebiasis can only be diagnosed clinically and in their response to anti-amoebic treatment; many cases too seldom have dysenteric symptoms, and *Entamoeba histolytica* may never be found—especially is this so in the chronic form. It is noted also that the use of the sigmoidoscope as an aid to the ascertainment of cure is not mentioned.

My chief complaint is, however, on the assumption by the author that a means of control of bacillary dysentery has been described. This is far from being the case, and, if it is believed that the described method of treating those workers reporting sick with bacillary dysentery "will bring about a steady reduction in the incidence of the dysenteries," it is to be hoped that it is believed by a very small minority.

It is true that this single approach to the eradication of a disease has been the dream of others, as for example the dream that quinine would eradicate malaria, that "606" would eradicate syphilis, or that tryparsamide would eradicate sleeping sickness, but to imagine that the described method will control such an unhygienic condition as dysentery and in such an area as the Persian Gulf, where the sanitation and personal hygiene of the bulk of the people are of a very low standard, is surely wishful thinking at its maximum.

It may come as a surprise to Dr. Stewart and to others to learn that of the 30,000 workers mentioned in the experiment only 15% approximately are housed in anything like reasonable conditions, with modern sanitation, and of this 15% many have still to learn how to use the fittings supplied; most of the remaining 85% live in the congested townships of Abadan town and Ahmadabad, where it is not unusual to find up to six families of three or four persons each living in a single room. Some, indeed, have no living abode at all and sleep on the ground around the covered market-places or in doorways, or share a stable or garage with some animal or car.

While it is true that public lavatories are provided, any vacant space serves as a place where nature's calls may be answered—the local inhabitants not being at all fastidious—and the whole district is mostly polluted by faeces, and flies are legion. I would in all humbleness suggest that if control measures are being applied to control bacillary dysentery those measures suggested in an excellent chapter in that admirable book, *The Control of Common Fevers* (London, 1942), be used: or, where these more modern measures cannot be applied completely, at least the instructions laid down thousands of years ago and described in the book of *Deuteronomy* (xxiii. 13) be carried out. Chemotherapy may have a place in reducing the carrier rate, but nothing can replace the fundamentals of sanitation and personal hygiene in the control of dysentery.—I am, etc.,

Abadan, S. Persia. LAWRENCE G. BRUCE.

Pylorospasm and Uraemia

SIR,—In a study of the toxaemia of acute intestinal obstruction (1923) I used the subtitle "Vomiting as a Pathological Force": the case of pylorospasm reported in the *Journal* (July 2, p. 18) shows how justified was, and is, that opinion. The malaise of sea-sickness, due to an aberration of the blood-flow through the liver occurring before the vomiting begins, is made much worse with the repeated vomiting; and deaths have ensued from sea-sickness alone. The deaths following cholecystectomy, in which the kidneys may become gravely implicated, are to be ascribed to the post-operative vomiting, and only to that. The bad results following caesarean section for eclampsia formerly experienced were due mainly, or indeed solely, to the post-operative effect of the general anaesthesia. With modern methods of rendering the operative area insensitive, by which post-operative vomiting is eliminated (and of which in these cases spinal analgesia is the best), the picture is completely changed; so that we know that in eclampsia the most satisfactory procedure is to empty the uterus, to relieve the vascular disturbance induced by the progressive distension of the abdomen and magnified enormously by the convulsions (in which the abdominal musculature does not become flaccid—the abdomen is as hard as a board) as soon as possible. The day of hypothetical toxins causing pathological changes in all these cases is past.

The case of pylorospasm in an adult related by Dr. E. N. Russell supports this statement. Dr Russell expresses the opinion that in his case the cure of the gastric trouble resulted from the realization by the patient—a professional man, at the time about 30—that it was due to psychological causes: causes which, I presume, cannot be supposed to have acted by way of producing or of inducing the appearance of a toxin. In treatment, "antal" was peculiarly effective. Antal, we are told, consists of a mixture of atropine and of sodium bromide. Antal cannot be expected to operate by neutralizing a toxin. There was, then, no toxin: yet uraemia occurred. The output of urine varied from 14 to 70 ounces (400 ml.–2 litres) a day: and the blood urea showed considerable excursions—from 200 to 72 mg. per 100 ml. within five days. And the patient, now aged 60, is presumably alive and well. A preceding renal disturbance can be eliminated.

When one considers the structure of the kidney and the long and circuitous course of the tubules through which the urine percolates, it is not difficult to understand that with great contraction of the abdominal wall muscles, such as occurs with vomiting, there is obstruction to the flow of urine and, indeed, to the blood stream within the kidney. The same occurs with strenuous rowing. After a race, the urine of all eight men, each an athlete in perfect health, contained albumin; some of the urines contained blood, and some (I believe) casts (Collier). I have pointed out already that occlusion of the ureter with diuresis in play causes the kidney to become almost bloodless (Brodie); and that a continuous compression of the

kidney itself, such as occurs in concealed accidental haemorrhage, must produce the same result by occluding the Henle hair-pin corners and thrusting bodily the pyramids of the kidney into the renal pelvis, like a cork into a bottle (*British Medical Journal*, 1949, **1**, 584). In the case of repeated vomiting we have a series of compressions : these must present an explanation much more acceptable than the play of any toxin to the student of medicine conversant with the nature and effect of physical force.—I am, etc.,

Rugby. R. H. PARAMORE.

Necropsies and Tuberculous Infection

SIR,—With reference to your annotation (May 21, p. 907) on the above subject, it may be of interest to recall that Hermansson[1] reported as follows in 1939 :

"After examining the carcasses of tuberculous cattle, the meat inspectors washed their hands in sterile water. This was centrifuged, and the sediment injected into guinea-pigs. Eleven of the 15 inoculations produced tuberculosis in the guinea-pigs. . . . The rinse water from the towels used by the meat inspectors was injected into guinea-pigs, producing tuberculosis in every instance."

—I am, etc.,

London, W.C.1. G. P. WEST.

REFERENCE

1 *Skand. vet. tidskr.*, 1939, **29**, 926. Quotation from *Biol. Abstr.*, 1940, **14**, No. 1205.

Large Dose of Curare

SIR,—It is a well-acknowledged fact that patients vary markedly in their susceptibility to different anaesthetics (as indeed to drugs in general). I feel that the case reported below is worth recording, because of the abnormally large amount of curare required by the patient in a relatively short time.

The patient, a young man of 22 in the Merchant Navy, weighing 150 lb. (68 kg.), was to have a partial gastrectomy. There was a history of perforated gastric ulcer at the age of 16 years, with a further operation three weeks later for liver abscess. Unfortunately I have not been able to ascertain the amount of anaesthesia required on these occasions, though obviously curare would not have been used in those days. He was a teetotaller and smoked about ten cigarettes a day.

The anaesthetic technique used has been described elsewhere.[1] Sodium thiopentone (0.75 g.) and *d*-tubocurarine chloride (25 mg.) were required before visual intubation and packing of the throat could be satisfactorily accomplished. Notwithstanding this already significant dose of *d*-tubocurarine chloride, a further 10 mg. had to be given before the abdomen could be explored in comfort. Further maintenance doses were given throughout the operation, the respiration remaining regular and quite deep throughout. Shortly before closure a further dose of 5 mg. *d*-tubocurarine chloride had to be administered, in order to supplement the relaxation for closure of the peritoneum.

The duration of the operation was 90 minutes, during which time a total of 70 mg. of *d*-tubocurarine chloride and 2.5 g. of sodium thiopentone were given. At the termination of the operation "prostigmin" (5 mg.) and atropine (gr. 1/60=1 mg.) were administered, and the patient returned to the ward with good respiratory exchange and in satisfactory general condition. Convalescence was uneventful. All the injections were given through a Gordh needle, which was unquestionably in the vein.

The dose of *d*-tubocurarine chloride in this case was so much greater than any I have experienced or read of that I feel it will be of interest to all anaesthetists.—I am, etc.,

Manchester. M. SWERDLOW.

REFERENCE

1 Chadwick, T. H., and Swerdlow, M., *Anaesthesia*, 1949, **4**, 76.

Treatment of Retained Placenta

SIR,—In these days of synthetic medicine, diplomas, etc., it is refreshing to read some of the facts of life as expressed by those capable of using their powers of observation and confirming them by experience. Mr. W. G. Mills (June 18, p. 1098) puts in a nutshell the true position regarding retained placenta, and Sheehan, from a pathological standpoint, has confirmed that death occurring from this cause is due to shock. Every obstetrician of experience must have repeatedly observed the rapid onset of (often extremely severe) symptoms of shock in patients retaining the placenta with, or equally frequently without, any degree of haemorrhage, even in normal deliveries.

If ever the saying, "He who hesitates is lost," had apt application, retained placenta is the situation bar none. While textbooks still reiterate the two hours' wait after delivery, which must have originated in a generation of mothers very different in their resistance to shock from the present, one can only say from experience how often lives have been saved by making sure the placenta is removed definitely before two hours, and, all things being equal, the longer before the better. In my own domiciliary and hospital practice every midwife long since knows the rule—no placenta inside after one hour.

As to substances necessary for resuscitation (Dr. C. T. H. Whiteside (June 4, p. 1005) and others), in the exceptional cases when this is necessary, if haemorrhage is the cause blood holds the field, but many a life can be saved by either saline or plasma till this can be obtained, or with ancillary restorants.

I cannot agree with Mr. Mills that "the first time the hand is plunged into the uterus in search of the placenta is an awful experience," as that is the very thing which must not occur. Passing of the hand with the utmost gentleness, even over the already stretched perineum and thence through the cervix, is of the highest importance, and failure to recognize this all-important fact is in itself sufficient to precipitate already oncoming shock, even to a fatal issue. While bearing this in mind, it is possible manually to remove a placenta even without anaesthetic in a bad-risk subject, and the writer has more than once been under the necessity of so doing.

While Mr. Mills rightly stresses sterile gown and gloves, he will be fortunate if one night he will not have to be satisfied with thorough scrubbing-up, and hands and arms soaked in antiseptic up to the elbows. In the war years Dodd and others confirmed this as being satisfactory, and more than once I have had to prove its truth, and I have yet to see my first patient to be infected in this way.

I join with him in marvelling at the reluctance of the average practitioner to undertake this simple and relatively easy course out of an often otherwise desperate dilemma, where real terror can only be replaced by sheer joy for all concerned.—I am, etc.,

Altrincham, Cheshire. H. A. LOGAN.

Transfusion in Domiciliary Midwifery

SIR,—As one associated with the obstetrical "flying squads" in the Windsor area I should like to make the following points for consideration. Most emergency calls are made by practitioners because of collapse of their patients of such degree as to make it unwise for them to be transferred to hospital before preliminary resuscitation. The majority of these patients have been delivered of their infants, for cases of ante-partum haemorrhage can usually be sent to hospital by ambulance while their general condition is still satisfactory.

The causes of collapse after childbirth can usually be grouped under the headings : (1) traumatic (? obstetric) shock, without bleeding, and (2) shock following bleeding, with or without associated trauma. With regard to the former—often cases with retained placenta—one might suggest that attempts at manual expression should not be made unless the doctor is prepared to follow this manœuvre with manual removal if necessary. If not, it is better for the patient to be transferred to hospital with the placenta *in utero*, for repeated attempts at manual expression cause profound shock, especially when performed without anaesthetic. Cases of collapse in this group often respond satisfactorily to plasma alone.

If bleeding occurs during the third stage the above principles apply, but uterine massage and intravenous ergometrine can be used in emergency. It is true that the latter may make subsequent removal of the placenta a matter of greater difficulty, but this consideration should not prevent the use of a possibly life-saving measure.

Furthermore, may I make a plea for more frequent blood grouping and rhesus factor estimation during the antenatal period ? In this area these tests are done as a routine in all hospital and council antenatal clinics, and if the patient is given a copy of the report for her retention it may be invaluable in the event of an urgent blood transfusion being necessary at a later date. It is not possible for the "flying squad" to do



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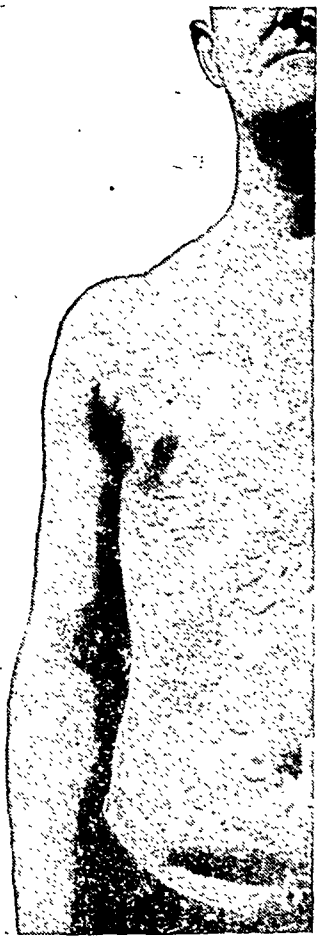
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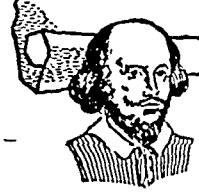
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more than a simple cross-match in an emergency, and owing to the shortage of rhesus-negative blood, at any rate in this area, the choice may lie between a plasma infusion or the use of rhesus-positive blood, and we have seen some serious complications through the use of the latter. When the rhesus factor is unknown and rhesus-negative blood is not quickly available I would advocate the use of plasma as a temporary measure pending full blood investigation, especially in a multigravida or patient who has had previous blood transfusion.—I am, etc.,

Windsor. F. H. FINLAISON.

Weight-reducing Diet

SIR,—Dr. H. L. Marriott's note (July 2, p. 18) on a causal relationship between the consumption of boiled potatoes and slimming will probably arouse lay interest. Some candidates for slimming, however, might conceivably prefer to follow the advice given to the late Mr. William Banting by the late Mr. Harvey, F.R.C.S., in 1864, and substitute wine and spirits for the drabness of milk and potatoes. The diets published by Mr. Banting and by Dr. Marriott are not greatly dissimilar in other respects.

The respective calorific values of Mr. Banting's daily alcoholic intake and Dr. Marriott's allowance of milk and potatoes are approximately the same, but, whereas a boiled potato is consistently and monotonously just a boiled potato in looks, odour, and taste, there is a wide and interesting selection of wines and spirits with their different vintages, colours, bouquets, palatabilities, and gusts satisfying to the veriest tyro who desires to lose weight pleasantly.

At the ripe age of 66 Mr. Banting lost 46 pounds (20.7 kg.) on his alcohol-positive, milk-and-potato negative diet, and enjoyed doing so. So much interest did Mr. Banting's simple weight-reducing diet (published and distributed free of charge) cause, that some eighty years ago *Punch* broke into verse with a poem that ended thus:

> "To avoid, if you wouldn't grow bigger and bigger,
> All bread, butter, sugar, milk, taters, and beer.
> Take a fresh lease of life and commence a new era
> Mr. Banting's advice makes one long to begin—
> Drink claret and sherry, good grog and Madeira,
> Take four meals a day and—grow gracefully thin."

The passage of almost a century does not appear to have brought about any marked improvement in the art of slimming, and perhaps the old Roman custom (employed to a certain extent in this country around 1824, when Sir Astley Cooper popularized John Hunter's (1772) and Dukes's (1822) modification of what is now Ryle's stomach tube) of eating a hearty meal, pressing on regardless (gastronomically), then vomiting immediately afterwards, had certain advantages.—I am, etc.,

London, W.1. J. DOUGLAS ROBERTSON.

SIR,—May I suggest the use of Dr. R. D. Lawrence's simple diabetic diet (unweighed) card, or a card on the same lines, for the dietetic treatment of obesity? This card, which shows all the common and many of the rarer foods under such headings as "Forbidden" or "Allowed" (more or less *ad lib.*), finally shows a certain number of foods that must be taken in known amounts. A modification of the card gives (*a*) forbidden foods, a group including sugar, cakes, and several other items; (*b*) allowed *ad lib.*—tea, coffee, water, and certain other drinks, saccharin, etc.,; (*c*) proteins and fats—here all one need do is say "Normal rations"; (*d*) carbohydrates—(1) a group which may be taken *ad lib.*, (2) a group which should be taken in normal amounts only, and finally (3) there is Dr. Lawrence's last group of several common food items, each called a portion and each being about 10 g. carbohydrate. This last group includes potato (size of hen's egg), bread, milk (a tea-cup), etc. The only item one need weigh (at first) is bread (⅔ oz. (18.8 g.) = one portion). If one allows the patient 14 portions per day he (or more often she) makes his (her) selection from this group. By the use of such a diet obese people can join fairly easily in the ordinary family meals. They should weigh themselves weekly, and should aim to lose an average of 2 lb. (0.9 kg.) per week; if not doing so after two or three weeks they can raise or reduce their number of portions slightly. It has been suggested that one item—nuts—not specially excluded on the diabetic diet card should be excluded in the treatment of obesity, but in general their cost will forbid them to most people.

The card is obtained from Mesrs. H. K. Lewis & Co., London.

In using Dr. Lawrence's diabetic card one must of course delete such paragraphs as relate peculiarly to diabetics—e.g., reference to insulin.—I am, etc.,

Middlesbrough. BASIL LONGBOTHAM.

SIR,—Dr. H. L. Marriott's weight-reducing diet (July 2, p. 18) allows as many potatoes as the patient likes, but no fat or cheese. A variation of this diet which is equally successful and pleasanter for the patient is to forbid potatoes but insist that all the ration of butter, margarine, cooking fat, and bacon is eaten, as well as all the cheese which can be procured. Patients should also be told they must eat four meals or snacks daily, and if they find that as a result of the diet they are sleeping badly or are having nightmares they should have their largest meal as late as possible at night.—I am, etc.,

London, W.1. FRANKLIN BICKNELL.

Teaching Pharmacology in India

SIR,—I was much impressed with the report of the Medical *Curriculum Committee* on "The Training of a Doctor." Especially was I pleased to read the remarks on the teaching of pharmacology and therapeutics.

Having devoted now over 30 years to the teaching of pharmacology, and being the author of a standard book on pharmacology, materia medica, and therapeutics, I always realized the defect in the present system, and you were good enough to publish in the *Journal* of Sept. 11, 1937 (p. 552), my views on the teaching of pharmacology. I stressed the importance of teaching pharmacology and therapeutics together and also the necessity of allotting clinical beds to the teacher of pharmacology.

Recently the Medical Council of India appointed a committee to revise the medical curriculum, and I have been appointed chairman of the Committee on Pharmacology and Therapeutics. Your report has been of great help to us. I have issued a questionary to get the viewpoints of those who are engaged or interested in the subject. I shall be grateful if you could help me in getting the views of those interested in the subject in your country.—I am, etc.,

B. N. GHOSH.

Tolerance to Adrenaline

SIR,—The following case illustrates acquisition of a very high degree of tolerance and resistance to adrenaline, followed by complete loss of same after the drug had been withheld for a short period.

The patient, a man aged 51, has had spasmodic asthma for four years. He suffers from recurrent bouts of what can best be described as chronic status asthmaticus. These bouts last about a month. Before coming under my care he was taught how to administer subcutaneous doses of adrenaline to himself. Though restricted as to what was a safe dosage, he was urged by the severity of his symptoms to adopt "kill or cure" methods. On one occasion he injected 180 minims (10.5 ml.) of adrenaline hydrochloride solution (1/1,000) as a single dose. He remembers no subjective symptoms. When the patient came under my care he was using large quantities of the drug in divided doses—i.e., 3–4 minims (0.18–0.24 ml.)—every minute until relief of symptoms, perhaps 1 oz. (28.4 ml.) in all during a bad night. The injections sometimes brought on an occipital headache.

After the last prolonged bout came to an end the drug was withheld for a month, and during this time there occurred a remarkable loss of tolerance. When next I had occasion to use the drug I was agreeably surprised to find that a 15-minim (0.9-ml.) dose was effective. This caused the systolic blood pressure to rise from 125 to 175 mm. Hg in six minutes, together with a small rise in the diastolic pressure and the pulse rate. The next day a larger amount was necessary to relieve his asthma. It caused a most violent reaction (agonizing throbbing headache, rigor, and tachycardia), and even a 15-minim dose on the following morning caused a similar headache.

Thus a patient who had once taken a single dose of 180 minims of adrenaline hydrochloride (1/1,000) without subjective ill effects became intolerant to a dose of 15 minims when the drug was withheld for a month. There was no question of the needle being in a vein.—I am, etc.,

Dublin. E. DESMOND FLOOD.

Exchange of Doctors with U.S.A.

SIR,—Before the war there were some schemes in action for the exchange of doctors between hospitals in this country and the U.S.A. There is now a more widespread desire by doctors in this country to visit the U.S.A. This may often be facilitated by arranging for a regular exchange of doctors between medical schools and hospitals in the two countries. There seems to be some fear that making such an arrangement for an American doctor to work in a hospital here infringes the Acts governing medical practice here. This is not the case, for by Section 8 of the Medical Practitioners and Pharmacists Act, 1947, Parliament has made provision for the admission to the *Medical Register* of Commonwealth and foreign practitioners temporarily in the employ of hospitals in this country.

If a hospital is prepared to offer a postgraduate post to a qualified practitioner who is not registered here, it is desirable both for him and for the hospital that he should have the status of a registered medical practitioner as the holder of that post, and Section 8 enables him to become temporarily registered here for that purpose.

The procedure for temporary registration under the section is quite simple, and it is only necessary to add that a practitioner who is not a British subject must, of course, as a first step obtain permission from the Home Office to enter and to remain in the U.K. in order to do postgraduate work.—I am, etc.,

London, S.E.1. RONALD MACKEITH.

POINTS FROM LETTERS

Palpation of the Pancreas

Dr. N. S. FRASER (St. John's, Newfoundland) writes: Is it possible to palpate the pancreas in disease? The normal pancreas is soft and could not possibly be felt through the abdominal wall, but a diseased gland, swollen and congested, will be firm to the touch and has only a flaccid, empty stomach over it. The transverse colon does not cover it. Then there is the abdominal wall with its tense rectus abdominis which is liable to contract if the hand is not gently applied. The inscriptiones tendinae are above and below the area to be palpated, and so do not interfere with the palpation. With concentrated attention, a warm hand flat on the abdomen, and light pressure, gradually increased, one can feel the whole gland if it is swollen with disease. Then, on pressure with one finger, the patient will wince and say it hurts. Such has been my finding in the diagnosis of subacute pancreatitis, beginning with a personal experience, and I would like an expression of opinion from others. The spleen cannot be felt until it is diseased, and the same can be said of the kidney; so why not the pancreas?

Herpes, Varicella, and Liver Extract

Dr. L. KILROE (Rochdale) writes: With reference to the letters by Drs. James Rooth and M. Mansour (July 9, p. 99), I saw cases of herpes coinciding with attacks of chicken-pox in 1940 and 1946. Both occurred in adult males (aged 45 and 47). The herpes, in one case intercostal and in the other frontal, appeared 5-7 days before the chicken-pox rash. Incidentally, the injection of 2 ml. of "anahaemin" in the second case on the appearance of the herpes did not appear to modify the course of either the herpes or the chicken-pox. The eruption in the intercostal case was the worst I have seen in a case of shingles. In over 40 years of practice I can only recall one other case of severe chicken-pox in an adult, again a male, aged 52. Herpes was not present. I have not yet seen a case of herpes with chicken-pox in a child.

Creeping Eruption

Dr. F. ADAM THOMSON (Ipoh, Malaya) writes: With reference to the medical memorandum by Dr. J. P. Caplan (March 5, p. 396), a number of these cases came under my care while practising in Northern Rhodesia. Infection as a rule seemed to date from a South African holiday. All responded to the vigorous local application of oil of chenopodium to the advancing end of the weal.

Obituary

BRIAN RAIT-SMITH, D.A., F.F.A. R.C.S.

Dr. Brian Rait-Smith, anaesthetist and demonstrator of anaesthetics to St. Bartholomew's Hospital, died at St. Albans on July 14, aged 45. He was educated at Jesus College, Cambridge, and St. Bartholomew's Hospital. He qualified in 1929. Within six months of entering the department of anaesthetics as a junior he was promoted to senior resident anaesthetist, an appointment he held until he joined the honorary staff in 1937. He took the D.A. in 1935, and this year was admitted F.F.A. R.C.S. He was particularly interested in the anaesthesia of neurosurgery and thoracic surgery. As a resident he played an important part in the pioneer work of chest surgery, and until his death gave anaesthetics for the increasingly difficult procedures undertaken by thoracic surgeons and neurosurgeons. He published work on anaesthesia for cardiac surgery, particularly that of the patent ductus arteriosus, and his article on anaesthesia in neurosurgery is shortly to appear in a textbook. He also wrote on obstetric anaesthesia, and his own observations on trichlorethylene and curare were reflected in papers from his department. Before he became whole-time anaesthetist to St. Bartholomew's at Hill End Hospital he was anaesthetist to the British Postgraduate Medical School, the Brompton Hospital, and Papworth Settlement, and he had been consulting anaesthetist to the L.C.C.

To the surgeons with whom he worked and his colleagues in the department Rait-Smith's skill was a greatly appreciated constant among the many variables of operative surgery. The difficult work he undertook is proof of the high standard of his anaesthesia. He had all the properties of a first-rate anaesthetist—ability, cool-headedness, sharp clinical judgment, and an enviable amount of common sense. That he was always cheerful and courteous and never allowed his temper to become ruffled was remarkable in one who spent his life in busy operating theatres. His residents became his firm friends within a few weeks of their appointment, and his help in their later careers can be witnessed to-day by a score of successful anaesthetists. A hard worker, he never resented a call to the theatres at Barts, however inconvenient the hour the request was made. There was no "side" about Rait-Smith. He hated affectation, and was as skilful in his deflation of a self-important surgeon as in his discreet encouragement of a young surgeon or anaesthetist. All this he managed despite the subarachnoid haemorrhage he had in 1942, the significance of which he knew well, and two major operations in the following five years. He was so full of zest for life in spite of his ill-health that his death is a shock to his friends, who will all extend their sympathy to his wife.

A memorial service will be held in the church of Saint Bartholomew-the-Less, on Tuesday, July 26, at 12.30 p.m.

Dr. CHARLES SALKELD, who died in Bournemouth on June 7 at the age of 81, was for many years in practice as an ear-nose-and-throat specialist in that town. He was educated at Manchester Grammar School and served his time as an engineer before taking up medicine. After graduating B.A. with honours in classics in 1891, he had a brilliant career at Durham University. He won the Gibb Scholarship in pathology, the Dickinson Scholarship, and the Charlton Scholarship in medicine, all in 1896. He graduated M.B., B.S. a year later. After 12 years

of general practice in Leeds Dr. Salkeld decided to specialize in ear, nose, and throat work, and he studied at the Central London Throat and Ear Hospital, where he became a clinical assistant. He started specialist practice in Bournemouth in 1913, but in 1915 joined the R.A.M.C., in which he served at home and overseas for four years. He then returned to Bournemouth, where he was appointed to the staff of the Cornelia and East Dorset Hospital, Poole, and later the Cottage and Children's Hospitals at Swanage. He also operated for many years at the Victoria Home for Crippled Children. Dr. Salkeld had recently retired from active practice following a severe illness. He had had an unusually broad education in engineering, classics, and medicine. His interests were wide, and his range of accurate knowledge was a byword with his family and friends. Apart from all this Charles Salkeld had a personality and appearance which inspired confidence and respect. He had a quiet, cheerful disposition, and when he spoke it was usually to give a well-considered opinion. Small talk and making conversation were not in his line; and he disliked social functions, at which he seldom appeared. He was unostentatious, never pompous, and completely genuine. His loss will be keenly felt by many friends, relatives, and colleagues. He leaves one son, who is in practice as an ear-nose-and-throat specialist in Bournemouth.

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LEGACIES TO HOSPITALS UNDER N.H.S.

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

A lady made her will on June 18, 1948, directing the executors to divide the residue of her estate into eight equal parts and to give one part to the Cancer Research Institute and another to the Royal Cancer Hospital.[1] At that time, and when she died on June 23, 1948, both were charities, but before the will was proved the National Health Service Act came into force, on July 5, 1948, and doubt arose whether the right to receive the share of the residue left to the Institute was vested in the Royal Cancer Hospital or in the Minister of Health. Was the executor required to apply the shares to the board of governors of this teaching hospital under Section 60 of the Act, or to the Ministry, or were they undisposed of? These questions were brought to the Chancery Division for solution by the Ministry of Health, counsel admitting that the Ministry confessed itself unable to understand the Act. The Ministry desired elucidation of the Act for its own convenience.[2]

Mr. Justice Harman said in his judgment that he had expected to find some guidance in the Act on the destination of legacies to hospitals. He had read the Act section by section with a bewilderment which finally ripened into despair when the conclusion was forced upon him—a conclusion from which he could see no escape—that by some mischance the Legislature had so framed the clauses of the Act as to leave charitable legacies of this kind outside it. The Act in that respect was, he said, almost a miracle of ineptitude.

The question could not go to arbitration, for it was a matter of law and not of fact. The interest which was left by the will was excluded from the category of endowments, nor was it a right acquired for the purpose of carrying on the business of the hospital. As the legatees had survived the testatrix, the legacies could not have lapsed.

The bequest must be dealt with by a scheme brought into court by the Attorney-General in the ordinary way. In discussing costs, he said that the difficulty had been caused by the astonishing ineptitude with which Part II of the Act was drawn, and he saw no reason why the charities which took the other shares of the residue should pay for the omissions of the Legislature. He did not think he ought to order the Minister to pay the costs, but he ordered that they should come out of the two shares over which the difficulty had arisen.

[1] *The Times*, May 12, 1949
[2] *Manchester Guardian*, May 12, 1949.

Medical Notes in Parliament

TUBERCULOSIS IN SCOTLAND

Estimates for the Department of Health for Scotland and the National Health Service, Scotland, were considered on July 6 in the Scottish Standing Committee.

Opening the debate, Mr. WALTER ELLIOT drew attention to recent figures for the incidence of pulmonary tuberculosis in Scotland. The factual inquiry which the Secretary of State for Scotland had set on foot had not yet indicated the nature of its report. Would it be available before the House rose for the summer?

Mr. WOODBURN said the report would not be available. Many facts had been elucidated, but if they were to be published as they stood at present they would be misleading and in some cases alarming.

Mr. ELLIOT said that in the absence of information exaggerated figures held the field. He hoped it would be possible to bring out an interim report and that some parallel figures could be secured for England and Wales. Figures which he himself had given to the Committee last year had indicated that the good figures for tuberculosis were in the South of England and that as one moved to the North the figures increased. This was not conclusive, however, because when one came to Aberdeen the figures suddenly improved. Dr. Harry Rae, the medical officer of health for Aberdeen, had pointed out in his report for 1947 that, although in Scotland as a whole the death rate for pulmonary tuberculosis was 66 per 100,000, in Aberdeen it was 35. In Scotland generally there had been increases both in the number of deaths and in notifications. The number of deaths was 2,717 in 1939; 2,932 in 1945; 3,231 in 1946; 3,739 in 1947; and 3,417 in 1948. Notifications were 7,317 in 1945; 7,627 in 1946; 7,984 in 1947; and 8,010 in 1948, which was the highest figure in Scotland for 30 years.

The figures for non-pulmonary tuberculosis were improving That reflected success in the long campaign against bovine tuberculosis. In 1945 they were 18, which was higher than pre-war; 15 in 1946; 14 in 1947; and in 1948 they were down to 9. In Scotland the number of patients in institutions had risen from 4,253 in 1945 to 4,462 in 1948. The waiting-list had gone up from 1,600 in 1945 to 2,500 to-day. Yet there were still in Scotland 572 beds which because of lack of staff could not be used. Dr. Harry Rae attributed part of the favourable position of Aberdeen to the fact that there were enough beds available there.

At the recent Harrogate conference a Glasgow doctor had spoken of a large increase in the waiting-list there and drew attention to an increase in the proportion of notifications among children under 15—in 1945 it was 9.3%, but in 1948 it was 18.4%. Glasgow used to have its own tuberculosis organization. Now the responsibility had moved to the Glasgow Regional Board. The National Association for the Prevention of Tuberculosis had advised regional hospital boards to set up a permanent tuberculosis committee. He did not know to what extent that advice had been carried out in Scotland.

A more extended use of B.C.G. vaccine might be of advantage and might help to stop the wastage of nurses in tuberculosis institutions, which rose as high as 65%. But isolation must always remain one of the main weapons for dealing with the white scourge. The number of active cases of tuberculosis on the waiting-list for houses in Glasgow was 437 in 1945 and in 1948 was 593. The Secretary of State must regard this as a matter of urgency. In some way or another the 500 beds which were empty in sanatoria should be brought into use. Vigorous campaigning by the Secretary of State would obtain an increase in the number of nurses for sanatoria.

Some post-war deficiency in nutrition was perhaps responsible for part of the increase. The intake of calories per head was less than it had been before the war. People in Glasgow, although badly housed, had before the war spent more money on food. Now they could not get more food than anyone else. It might be that somehow a more active tubercle infection had

reached the country. The great influx from the Continent, the influx of Poles, might have something to do with that.

Changes in Incidence

Mr. WOODBURN said the main increases had taken place in districts where the Poles had not been. The incidence of tuberculosis was very high in Southern Ireland, but there never had been a smaller importation from Southern Ireland than in the period when tuberculosis in Scotland had increased. The fall in deaths from non-pulmonary tuberculosis was from 705 to 426. Notifications of tuberculosis had gone up by a third compared with the five years before the war. But a comparison between notifications to-day and pre-war notifications had no value except to show that the medical profession was more alert to deal with the incipient disease. The number of notifications gave no indication of the reason for the increase in deaths.

Investigations by the Committee which he had set up had revealed how difficult it was to reach any sound conclusions. Deaths from pulmonary tuberculosis had been rising in Scotland but not in every place. The picture Mr. Elliot had given of children under 15 was not quite accurate; actually the number of cases had decreased slightly even when compared with the pre-war figures.

The situation could not be explained by any figures available at the present time. Because of this he thought it would be unwise to publish figures which might create speculation and alarm. In the worst places in Scotland the incidence was 110 per 100,000, and in the best places a little over 10 per 100,000. Congested living conditions still had a great deal to do with the spread of the disease, and therefore they should concentrate on segregation. So far as any distinction could be drawn it was between congested old towns and country areas, yet Ross and Cromarty was a bad area.

He had taken steps to get an additional 1,000 aluminium houses so as to free houses suitable for families where tuberculosis was present. The Department had also been able to make an additional 500 beds available since the beginning of 1948. It had put 50 more full-time nurses and 350 part-time nurses on to this work. Streptomycin was available in all cases where it was suitable for use. B.C.G. would shortly be available for use in Scotland for contacts. It was true that Scotland was still going backwards in regard to tuberculosis, and that tendency had not altered this year. The mystery was that they were not going backward in every place. The problem had been narrowed down, and the Committee under the National Health Services Council was pursuing this matter vigorously.

Mrs. CULLEN suggested that Mr. Woodburn should consider moving elsewhere aged and infirm persons who did not require trained nursing personnel. This would clear some wards so that the trained nurses could be used to greater advantage.

Commander HUTCHISON said a more extended use might be made of health visitors to keep cases of tuberculosis under observation. There were four mass radiography units in Scotland, and it would be helpful if there were more.

Mr. HUBBARD urged that a campaign should be started by the Government giving information to every individual about the causes of tuberculosis and the means of preventing its spread.

Position of Tuberculosis Officers

Mr. GALBRAITH urged Mr. Woodburn to ask the Committee to issue some sort of report at the earliest possible moment. He was doubtful whether patients would continue to get the best possible treatment if tuberculosis officers were classified as senior hospital officers and not as specialists. This fear had been expressed at the B.M.A. meeting at Harrogate. They needed to attract the most able doctors to the study of tuberculosis.

Mr. MATHERS said doctors with whom he had discussed the rise in the incidence of tuberculosis had suggested that the conditions of life of young people, and particularly young women, were important. In his constituency young people left home early in the morning to go to work by bus, had hurried meals, and were out dancing till midnight three, four, or five nights a week. As a result they became debilitated and an easy prey to tuberculosis. A great deal of the incidence could be prevented by instruction to people about the way they sapped their energy and reduced their resistance. The highest incidence of tuberculosis was between the ages of 15 and 25.

Replying to the debate, Mr. THOMAS FRASER said Mr. Woodburn was anxious that as much information as possible should be made available to health authorities and Members of Parliament as well as to the medical profession. The Committee which had been set up must conduct its researches thoroughly before reporting. It might be that there was a deficiency in diet, and the Committee would consider that. The diet of Scotland, however, was no different from that of England and Wales. The number of notifications in children under 15 had gone up a little, perhaps because of mass radiography, but the death rate of those under 15 was going down. They must not imagine that the position was improving in the whole of England and Wales. The town where figures had worsened most in the last 10 years was Jarrow. In 1938 Jarrow had 78 deaths from tuberculosis per 100,000 population. In 1947 the figure was 110. Glasgow was second in the list with 85 deaths in 1938 and 105 in 1947. Next came Dundee with 62 deaths per 100,000 in 1938 and 82 in 1947. The worsening was where poverty had been greatest in the last 20 years.

Concluding, he pointed out that the general health of Scotland was better than it ever had been before. The suggestion made by Mrs. Cullen that nurses now looking after old people should be made available for cases of tuberculosis was well worth making and had not been overlooked by the Secretary of State or by the hospital boards.

The Committee then adjourned.

General Medical Council

Sir HARTLEY SHAWCROSS moved on July 12 the Second Reading of the House of Commons (Indemnification of Certain Members) Bill. He explained that it dealt with a possible infringement of the laws relating to offices of profit under the Crown. These laws in the main were embodied in the Succession to the Crown Act of 1707 and were obscure. The view had been taken that to be held under the Crown an office did not necessarily have to be subject to any continuing control by the Crown in its exercise. Where there was any expectation of payment going beyond a fair reimbursement of expenses incurred, such payment would make the office one of profit. The attention of the Government had been drawn to the position of certain members who had been nominated by his Majesty as members of the General Medical Council. The King, on the advice of the Privy Council, nominated five members of the Council to hold office for a term not exceeding five years. Provision was made for the payment of fees to members, and in practice they were paid a sum of 5 guineas in respect of each attendance. They were not paid out of moneys provided by Parliament but out of moneys collected by the medical profession from registration fees. That the actual emoluments of an office were derived from sources other than public funds was not held by the Government to be a criterion of whether an office was one of profit under the Crown. During the present Parliament two Members of the House had been nominated to the Council on the advice of the Privy Council. Previously many members had sat on the General Medical Council without anyone suggesting that there might be an infringement of the Statute of 1707. Penalties against these members should now be statute barred and they were not included in the Bill.

The two members appointed in the lifetime of the present Parliament had been appointed and held their office in good faith on the basis of many precedents, but there was no doubt that they had been appointed to an office of profit under the Crown. Mr. John Hynd had never acted in the office, because before he took any part in the proceedings of the General Medical Council it occurred to him that there might be some question of impropriety in holding the office. The two Members concerned must vacate the appointments but ought not to be penalized for having held them, and this Bill sought to indemnify them. The Government did not seek to constitute the office into one not of profit, and did not propose to legislate to say this should not be an office which members must not hold. It would be the future policy that no member should be

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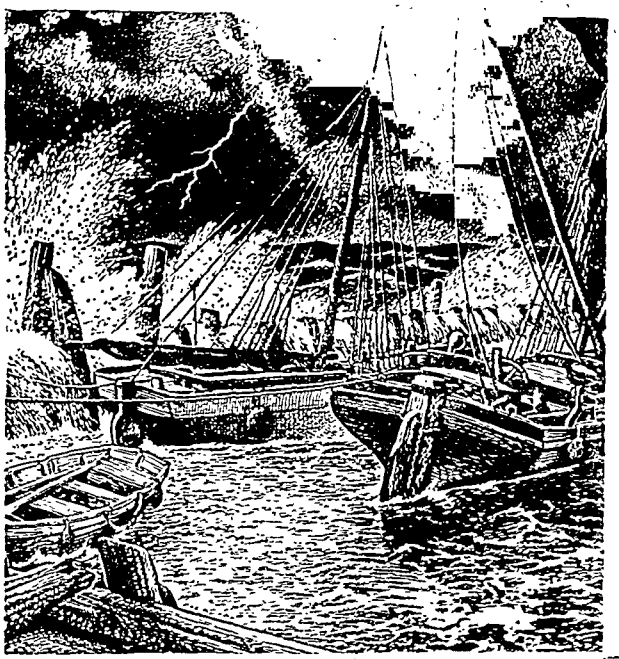
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qualified to hold the office. Sir Hartley went on to refer to a case of a different character in which another member was concerned and for which the Bill also proposed indemnification.

Mr. R. A. BUTLER said that, in view of the fact that under the rules of the General Medical Council fees and reasonable travelling expenses could be paid, there was no doubt that the case of the two members ought to be covered by a Bill such as that before the House. It was intolerable that members should be in a position where they might at any time unwittingly contravene the law.

The Bill was then read a second time without a division, passed through Committee without amendment, reported, and read a third time.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Sir Maurice Alan Cassidy, Physician-in-Ordinary to the King, has been elected an Honorary Fellow of Clare College

David Robertson Smith, M.B., B.Chir., has been elected to an Elmore Medical Research Studentship, from May 1.

In Congregation on June 21 the degree of M.D. was conferred on T. S. Hindle.

In Congregation on June 22 the degree of M.B. was conferred, by proxy, on J. Ff. Edwards.

UNIVERSITY OF GLASGOW

The following medical degrees were conferred on July 9:

M.D.—A. Allison, W. Chambers, W. W. Douglas, W. S. Linton, T. M. Paterson.

Ch.M.—J. Cuthbert, A. W. Kay.

M.B., Ch.B.—Kathleen M. Adams, Marion K. Aitken, A. G. Anderson, G. Anderson, I. N. O. Asinobi, H. B. M. Auld, Anne R. Austin, A. G. Baikie, M. McA. Baird, R. Bankier, G. I. Barrow, N. J. B. Bowie, A. H. Boyd, A. Brodie, I. D. Brown, T. Brown, J. Buchanan, Millicent E. Burns, R. K. Burt, A. H. P. Carswell, Mary S. Christian, J. H Cowie, I. D. Cullen, T. A. Cunningham, D. Davies, F. W. G. Deighton, D. A. T. Dick, J. F. Dick, Grace C. Dunbar, R. Erskine, J. Forsyth, J. Frame, P. G. Gaskell, R. M. Gibson, J. C. Gillespie, J. S. Gillespie, B. Green, R. Greenhill, A. J. Hale, A. M. Halliday, P. Hay, J. C. M. Henderson, G. P. Henry, W. F. Heslin, Elspeth C. Higgins, Margaret I. Hill, D. S. Hogg, D. W. G. Honeyman, R. McD. Hosie, Janet L. P. Hunter, S. W. Hind, Christina M. Jack, J. B. Johnson, D. G. Kay, Mary W. Kellock, A. E. D. Kennedy, A. S. L. Kennedy, J. Knox, A. Kyle, A. S. McC. Lamont, J. G. Leitch, S. G. Leitch, D. W. Leslie, G. H. Lowther, S. G. McAlpine, Sheena E. McCoshim, D. MacDonald, D. G. MacDonald, Sheila C. MacGregor, N. J. McKellar, J. V. McKenzie, Ruth B. McKenzie, D. McKirdy, J. R. Maclean, Ethel E. M. McLellan, Cynthia J. McPherson, W. McQuater, R. K. McRae, G. T. Mair, Maureen A. F. Malcolm, Hazel G. Mansell, Elizabeth L. Millar, T. M. Miller, A. T. Mitchell, J. N. S. Mitchell, J. J. E. D. Mitchell, J. Moodie, J. B. Morris, Sylvia Morris, T. P. O'Hea, H. W. J. Park, L. R. Parker, D. C. Pendrigh, A. J. E. Pollock, W. M. Prentice, J. R. Raeside, A. M. Reid, A. W. Reid, J. M. Reid, B. J. Reilly, A. A. Robertson, A. K. Ross, P. Roughead, J. R. Roy, T. S. Russell, T. C. Rutledge, Jessie L. Sharp, A. Silver, R. G. Sinclair, G. D. Smellie, C. McP. Smith, Joan E. Smith, W. D. Smith, Sheila W. Soote, R. H. Stewart, W. O. Stewart, D. S. Strachan, G. H. Swanson, Vera Taylor, Elizabeth D. M. J. Thomas, A. S. Watson, Sheila M. Whiteside, J. R. M. Wilson, R. B. Wilson, W. Wilson, G. B. Wylie, G L. Wylie, Mary W. Young.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following candidates have been approved at the examinations indicated:

M.D.—R. A. J. Holmes-Ievers, P. J. Mullaney.

M.B., B.Ch., B.A.O.—D. W. Beckett, W. G. T. Bell, F. G. O. Burrows, Dorothy J. Cartmill, C. G. H. Charlton, R. P. A. Coffey, R. S. Crone, W. P. C. Deely, E. W. Eppel, B. B. Fazackerley, T. G. Feeney, [1] [2]Audrey M. Franklin, [1]R. J. M. Fry, [2]Agnes C. Good, C. Harris, Wilhelmina Hutchinson, H. P. Isaacson, [1]Beatrice P. Karmel, S. M. Laird, [1]Thelma H. W. Morks, Sybil E. K. Oulton, [1] [2]Eleanor B. Outon, W. Pappenheim, L. R. Robinson, Kathleen C. Rogers, Eva Roith, C. F. Ross, [1]Stephanie Saville, [1]S. B. Sloan, M. D. M. Staunton, B. S. Telford, [2]W. D. H. Troughton, E. R. D. Williamson, Oonagh D. Wray, R. S Young.

M.B.—Reva Berstock, S. C. Blake, Evelyn Browne, Joan I. Buchanan, L. J. Clein, K. C. Finkel, R. C. Gray, O. H. Killen, E. B. McHugh, Sheilagh M. McHugh, J. C. McLean, W. D. McNaul, T. T. E. Michael, R. Nelson, J. P. Nixon, V. P. O'Sullivan-Quinn, Ruth M. Perrott, Frances E. Russell, R. N. Siberry, A. A. Sweeney, Annie M. G. Troughton, F. A. Walkey.

M.B., B.A.O.—Vyvyan I. K. Johnston.

B.Ch., B.A.O.—Mabel M. H. Hodgins, [2]B. A. McC. Thompson.

B.Ch.—W. D. H. Powell, Gwendoline G. L. Poots.

B.A.O.—D. L. Cowan, Marisa A. O'Keeffe.

[1]With second-class honours in medicine. [2]With second-class honours in surgery.

UNIVERSITY OF DURHAM

In Congregations held on July 1 and 2 the following medical degrees were conferred:

M.D.—H. M. Dixon, D. G. French, S. Josephs, F J. Prime, M. Walton, *C. A. H. Watts, *W. E. Hick, *C. Strang.

M.S.—James Watt.

M.B., B.S.—C. F. Anderson, J. A. Anderson, G. W. Bainbridge, Jean M. Bainbridge, S. M. Bell, G. S. Black, Sheila M. Bowerbank, F. W. B. Breakey, Hugh Brown, Eleanor J. Carmichael, Barbara W. Cooke, L. D. J. Coore, D. Coulthard, B. W. D. Crawford, Elizabeth Daley, H. Davison, H. D. Davison, Mary Dixon, Joyce Dodds, L. B. Fleming, Robina M. Forsyth, Vera M. Gallagher, Dorothy B. Gilmour, J. B. Glaholm, Pearl Goddard, H. Gossmann, Eve R. Halson, J. Harper, Maureen McG. Henderson, J. P. Hurley, J. E. M. Hutchinson, W. D. Kerr, E. G. Knox, G. E. Langley, Sheila Langley, L. J. Levene, Norma D. Lill, J. McCormack, J. R. McGregor, I. F. McNeill, Joan E. Maddison, J. S. Makepeace, R. W. Mayes, Ann Moffatt, Sylvia A. Moss, G. A. Nemeth, Muriel K. Nicol, P. G. F. Nixon, Ruth Parkinson, Dorothy A. Percy, A. B. Piper, Ann F. Pumphrey, Greta L. Reid, W. T. Richardson, Margaret W. Rodham, N. R. Rowell, C. M. Scott, Gillian E. Sladden, A. S. Todd, C. G. Tulloh, H. P. Tulloh, J. Turnbull, W. Turnbull, Constance N. Vernier, Elizabeth Wales, E. W. Walton, A. J. Watson, L. L. Williams, R. K. Epstein, *G. H. N. Bates, *J. M. H. Hopper, *Kathleen S. Reed, *Winifred J. Skinner.

In absentia.

UNIVERSITY OF LONDON

The following candidates at the London School of Hygiene and Tropical Medicine have been approved at the examination indicated:

ACADEMIC POSTGRADUATE DIPLOMA IN PUBLIC HEALTH.—A. O. Abushamma, René F. Barclay, S. Y. Bhagwat, *H. Binysh, J. F. E. Bloss, L. B. De Lanerolle, H. A. Dharamsey, J. E. G. Earle, L G. Eddey, T. P. Eddy, S. J. Evans, A. F Fowler, *A. W. Gilks, A. H. Griffith, R. F. Guymer, W. G. Harding, C H. Hoskyn, Esther Jackson, S. A. Jones, W. A. Karunaratne, M. S. Kataria, D. A. Kuruppu, M. G. Langdon, P. A. Lee, R. N. C. McCurdy, J. C. McDonald, T. C. Macdonald, J. J. McNair, J. R Mayers, Isobel S. Mowat, G. M. O'Donnell, C. E. Phillip, Isabella M. Pinkerton, J. St. C. Polson, R. H. Pratt, P. G Roads, C. L. E. H. Sharp, R. A. G. Smith, D. G. Snell, W. B Thorburn, P N Wilson.

*Awarded a mark of distinction.

UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examinations indicated:

M.D.—[1]J. Curry, B. H. Dawson, [2]T. B. S. Dick, [1]F. Howarth, [2]W. E. Kershaw, F. Latham, F. S. Mooney, [2]P. H. Renton, [2]E. P. Samuel, D. Sutton.

Ch.M.—R. H. Sewell.

FINAL M.B., Ch.B.—[3] [1]E. A. Allcock, [3] [1]Jean A. Lovatt, [2]W. J. Metcalfe, Mary A. Adlington, Anne R. Barlow, [1]Jessie M. Beard, T. B. Benson, K. Bloor, Margery F. Blumberg, F. Bottomley, Jean M. Breakell, N. C. Brown, K. D. Buckley, P. M. L. Burne, F. R. Calvert, [1]Betty Carruthers, C. Cohen, P. Cuff, R. D. Currie, S. Dobson, Audrey E. Draycott, P. D. Drinkwater, [4] [1]J. B. Eagles, G. Fildes, Edith H. Grundy, G. Hudson, A. G. Jackson, G. Kettlewell, Kathleen M. Lord, I. Macpherson, Lavinia M. Mallott, Marguerite Midgley, Barbara Oldham, F. W. Oliver, Christine M. Parish, Marjorie E. Petch, N. E. Quin, Regina Reif, Marjorie Rivers, A. D. Robinson, M. Sandler, Jeanette S. Shankland, D. P. Shepherd, Rosaleen E. Singer, I. A. Susman, R. M. Thomson, T. A. J. Thorp, Margaret R. Thoseby, Barbara J. Walker, Kathleen R. Walker, T. H. Whitaker, Olive C. Wilks, D. H. Yates. *Part I:* B. L. Alexander, D. Ashworth, R. D. Atherton, Constance M.

Bevan, G. Bills, Flora M. Bisset-Smith, S. M. Broman, P. Burgess, J. C. Canney, P. W. Carnie, Muriel D. Carr, G. Clarke, Barbara M. Couldwell, D. Davies, B. Didsbury, J. Ellis, E. J. Epstein, J. D. Evans, M. C. Flasher, M. Fox, G. Garrett, G. R. Gates, F. G. Hardman, J. K. Harris, T. V. A. Harry, B. Higgins, R. Hinchcliffe, J. T. W. Howe, G. Howitt, T. R. Hunter, J. E. Kench, W. Kerns, P. B. Lees, B. J. Leonard, M. A. Lerner, P. F. Lister, W. H. Lyle, Maria R. Mackay, B. E. Marks, A. W. Moule, J. T. Newton, A. S. Nicholas, G. W. H. Oldfield, Nancy Parkin, D. W. Preston, R. Price, G. V. Purnell, K. L. Purnell, M. B. Raby, Carolyn C. Rigby, Gertrude H. G. Robinson, J. Robinson, Dora M. J. Rosbotham, D. S. Rosenberg, Kathleen M. Rushton, R. Schofield, H. Selcon, Lorna J. Shankland, S. Shubert, A. Sippert, D. M. Somerville, S. Stead, G. Sullivan, Hazel W. Symon, C. F. H. Vickers, Margaret R. Walley, G. M. Watson, Sheila M. E. West, W. A. Whittaker, B. A. Wolfenden, D. Wolman, A. M. Womack.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—*Part I:* M. M. Lidgate, A. Model.

[1]Gold medal. [2]With commendation. [3]Second-class honours. [4]*Distinction in medicine.* [5]*Distinction in surgery.* [6]*Distinction in* hygiene and preventive medicine.

UNIVERSITY OF WALES

WELSH NATIONAL SCHOOL OF MEDICINE

On the recommendation of the Council of the Welsh National School of Medicine the trustees of the Mansel Talbot Endowment have appointed Fred Grundy, M.D., D.P.H., D.P.M., to the Mansel Talbot Chair of Preventive Medicine in the Welsh National School of Medicine. Dr. Grundy has been medical officer of health to the Borough of Luton since 1937.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examinations indicated:

M.D.—C. V. Donnelly, J. G. P. Jones, Edith M. McConnell, P. L. Robinson, W. Sircus, A. H. Williams.

MASTER OF RADIOLOGY.—*Part I:* J. Ainsworth, Constance M. Davis. *Part II:* J. F. Doherty, W. J. L. Francis, B. B. Harrison, W. Kulke, J. P. MacLaughlin, A. S. Whitehead, F. B. Wright.

M.B., Ch.B.—[1] [2]Brenda M. Heathcote, [1] [2]W. B. Jennett, [1] [2]J. C. Richardson. *Part III (Old Regulations):* Margaret Addison, D. U. Bloor, Rosemary J. Bolam, R. Bradshaw, K. W. Brewster, P. Burrows, Anthea M. Bushby, Jean O. R. Carmichael, Mary I. Charlesworth, Jean M. Collins, Beryl C. Davies, Catherine M. Durkin, W. Ellis, O. L. Evans, Shelagh J. Fair, G. H. Fletcher, R. I. Green, I. W. Griffith, Margaret E. Hall, D. B. Hargreaves, J. F. Hobson, W. M. Hunter, P. Hurst, [2]Margaret L. Johnson, J. L. Jones, R. E. Jones, R. H. Jones, Margaret Knox, Margaret A. Lees, Halina Z. Lewinska, D. H. Lloyd, Marcia McArthur, Audrey M. L. Owens, Ethel Owens, W. R. Parry, S Plumpton, Sheila M. Pope, Ursula C. Pope, J. N. Rimmer, R. K. Rimmer, Myfanwy R. H. Roberts, E. Rogansky, H. U. Shaw, Pauline R. Sullivan, J. C. Taylor, R. P. Watkins, D. L. Williams, J. A. Williams. *Passed in Separate Subjects:* D. J. Adams, Dorothy M. Broadhurst, and J. S. Endbinder (Surgery, Obstetrics and Gynaecology); Lily I. Chesham and C. Griffith (Medicine, Obstetrics and Gynaecology); A. J. Cunningham, Betsy E. Davies, E. J. J. Davies, and B. J. Maxwell (Medicine, Surgery).

DIPLOMA IN PUBLIC HEALTH.—D. J. Cusiter, Elinor M. Evans, S. Ghousuddin, K. G. Koshi, D. A. W. Nugent, G. P. Reed, H. D. Sutherland, W. F. Wille.

[1]With second-class honours. [2]With distinction in obstetrics and gynaecology.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a special meeting of the Council held at the College House on July 5 with the President, Sir William Gilliatt, in the chair, the Honorary Fellowship of the College was conferred on Sir Henry Dale, O.M., F.R.S., President of the Royal Society of Medicine, and on Professor J. E. Heyman, of Stockholm.

The following were admitted to the Fellowship of the College: H. L. Sheehan, D. F. Standing.

The following were admitted to the Membership of the College: G. C. Brentnall, J. H. Maloney, C. Mukherjee, E. I. Ostry, H. Renton, D. B. Stewart, E. G. Zacks.

The President formally presented the prize for an essay on "The Physiology of the Third Stage of Labour" to Dr. Jean R. C. Burton-Brown; the prize was shared equally with Dr. David Shaw, whose essay was on "The Management of the Third Stage of Labour."

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 2. [No. 26

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each Infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949					1948 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	23	3	15	3		42	5	15	3	—
Deaths		—	1				1	—		
Diphtheria	80	14	37	—	13	141	16	40	11	7
Deaths	—	—	—	1	—	2	1	—	—	—
Dysentery	49	3	61	—		69	9	39	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	—	—		1	—	—	—	—
Deaths		—					—			
Erysipelas			14	9	2			33	6	1
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				55					12	
Deaths	22	3	4	2	—	27	1	11	2	1
Measles*	6,984	714	180	276	137	8,987	690	120	132	65
Deaths†			—	1	—			—	—	1
Ophthalmia neonatorum	50	—	14	1	1	57	1	5	—	—
Deaths										
Paratyphoid fever	13	—	—	—		6	—	1(B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	376	19	5	1	8	359	9	4	5	—
Deaths (from influenza)‡	6	—	2	—	—	6	1	—	—	—
Pneumonia, primary			169	35				134	25	
Deaths	135	15		11	3	134	22		4	8
Polio-encephalitis, acute	1	—				2	—			
Deaths										
Poliomyelitis, acute	80	6	2	2	—	36	3	1	2	—
Deaths§	4	2				3	—			
Puerperal fever		—	10				2	9		—
Deaths										
Puerperal pyrexia‖	101	11	13	—	—	120	13	6	—	1
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,031	96	146	59	29	1,532	87	353	54	23
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—					—	—
Typhoid fever	4	2	—	2	1	6	—	—	3	—
Deaths	—	—	—	—		—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—					—	—
Whooping-cough*	2,260	110	52	89	74	2,907	223	18	69	16
Deaths	6	—	1	—	1	6	1	1	3	—
Deaths (0–1 year)	251	37	32	19	11	243	31	41	29	10
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,192	707	555	168	106	3,867	607	522	182	118
Annual death rate (per 1,000 persons living)			11·1	10·4				10·5	11·4	
Live births	7,618	1212	891	446	257	8,006	1275	971	455	253
Annual rate per 1,000 persons living			17·9	27·6				19·6	30·3	
Stillbirths	181	18	22			194	17	44		
Rate per 1,000 total births (including stillborn)			24					43		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales, Eire, and Northern Ireland

EPIDEMIOLOGICAL NOTES

Food Poisoning in Yorkshire

On July 2, 332 cases of food poisoning occurred among school-children at Settle, Yorkshire. *Salmonella typhi-murium* was isolated. The symptoms were fever, headache, prostration, bellyache, vomiting, and diarrhoea. In the mildest cases the symptoms were constitutional rather than related to the abdomen, and were attributed at first to the heat of the sun or in one case to teething. Most cases were mild to moderate, but, in the more severe, frequent stools were passed containing blood and mucus. There were no deaths. On June 30 Farm A, which supplied school milk, was short of the required quantity and bought some from Farm B. A cowman at Farm B had been ill with diarrhoea and vomiting during the week but had carried on with his work: it was hay-making time and everyone was very busy. The milk from Farm B was stored overnight in a refrigerator and distributed with milk from Farm A to schools in Settle Rural District on July 1. There were no cases in Skipton Rural District, which received unmixed milk from Farm A, and no cases on Farm A's milk round. There were three mild cases on Farm B's milk round and two moderately severe ones on the farm itself. *Salm. typhi-murium* was isolated from a case on Farm B, from a sample of the school milk supplied on July 1, from four out of six empty but unwashed milk bottles, and from the stools of selected cases among the school-children.

Poliomyelitis

An increase in the number of notifications of poliomyelitis has been reported for four consecutive weeks. The trend of this disease is one of increasing incidence until the autumn, and it seems likely that a large outbreak, such as was experienced in 1947, must be expected. The number of notifications for the 24th to 26th weeks were 31, 44, and 56 in 1947 compared with 35, 48, and 80 of this year.

During the week the largest returns were Cornwall, Camborne–Redruth U.D. 9; Yorkshire West Riding 9; Middlesex 8; London 6 (Lewisham 3); Lancashire 5; Devonshire 4; Oxfordshire 4; Essex 3; Hertfordshire, Hatfield R.D. 3; Gloucestershire 3. In Cornwall the disease has chiefly attacked young children, and three-quarters of the first 12 notifications were of children under 5.

Notifications in the week ended July 9 were poliomyelitis 73 (80), polio-encephalitis 4 (1). (Figures for the previous week are in parentheses.) Multiple cases (poliomyelitis and polio-encephalitis together) were reported from the following counties: London 6 (6), Cheshire 2 (2), Cornwall 5 (9), Devon 11 (4), Gloucestershire 3 (3), Hertfordshire 4 (3), Lancashire 5 (5), Middlesex 5 (9), Nottinghamshire 3 (0), Southampton 2 (1), Warwickshire 3 (1), Yorkshire West Riding 10 (9), Glamorgan 3 (1).

The general picture of incidence is very different from what it was at the corresponding period in 1947. In 1947 the early rise in incidence was chiefly in the more densely populated parts of central England, with additional foci in north-west Lancashire (Barrow) and in Tyneside. This year, although there has been some increase of incidence in the central parts, the chief increases have been in the west and south. Notifications in the West Riding of Yorkshire have risen to 10 (9), but otherwise the north has remained remarkably free from the disease. Another difference between 1949 and 1947 has been high attack rates in relatively small and isolated communities.

Discussion of Table

In *England and Wales* there was an increase in the number of notifications of measles 121, whooping-cough 79, acute pneumonia 42, and acute poliomyelitis 32; decreases were recorded for scarlet fever 106, paratyphoid fever 18, and dysentery 17.

The largest increases in the notifications of measles were Warwickshire 103 and London 101, and the largest decrease was Kent 193. The largest variations in the local returns of whooping-cough were increases in Lancashire 56 and Warwickshire 25 and a decrease in Suffolk 25. The only considerable rise in the number of notifications of scarlet fever was 20 in London, and the largest falls were Lancashire 34, Yorkshire West Riding 33, and Warwickshire 28. There was no great change in the local returns of diphtheria, but the disease was slightly more widespread, and four more counties reported a case than in the preceding week.

A further 9 cases of paratyphoid fever were notified in Durham; the number of notifications in the three preceding weeks were 26, 28, and 15. The only important centre of dysentery was Lancashire 22 (Liverpool C.B. 20).

In *Scotland* decreases were recorded in the number of notifications of measles 121 and scarlet fever 29, while increases were reported for dysentery 18 and diphtheria 13. The rise in incidence of diphtheria was spread throughout the country. The chief centres of dysentery were Glasgow 32, Edinburgh 10, and Midlothian county 5.

In *Eire* increases were reported in the number of notifications of measles 76 and diarrhoea and enteritis 16. The increased incidence of measles was general throughout the country except in Dublin C.B. The largest returns were Dublin C.B. 136, Kerry, Listowel R.D. 47, Cork C.B. 29, and Tipperary, Tipperary U.D. 21. An increase of 10 in the notifications of diarrhoea and enteritis occurred in Dublin C.B.

In *Northern Ireland* a decrease occurred in the number of notifications of measles 16 and scarlet fever 28, while an increase of 8 was recorded for diphtheria.

Week Ending July 9

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 946, whooping-cough 2,183, diphtheria 103, measles 5,571, acute pneumonia 346, cerebrospinal fever 39, acute poliomyelitis 73, dysentery 59, paratyphoid 32, and typhoid 5. Of the 477 cases of food poisoning 332 were notified in Yorkshire West Riding, Settle R.D. (see above).

Medical News

Leverhulme Research Fellowships

The advisory committee has recommended and the trustees of the Leverhulme Research Fellowships have approved the following awards for research tenable for periods up to two years: *Fellowship*, Dr. H. M. Woodman, chemotherapeutic treatment of filariasis in Southern Sudan. *Research Grants*, Dr. G. W. Harris, neural control of the pituitary gland: Dr. D. A. McDonald, the role of the hypothalamus and brain-stem in the regulation of the autonomic nervous system. Application forms and further information may be obtained from the secretary, Leverhulme Research Fellowships, 7, Bedford Row, London, W.C.1.

Hire Purchase Facilities

The Medical Sickness Finance Corporation, whose chairman is Sir Cecil Wakeley, has been incorporated as a private limited company to give hire purchase facilities to medical and dental practitioners wishing to buy cars and equipment. The corporation is a subsidiary of the Medical Sickness Annuity and Life Assurance Society, Ltd. Its address is 7, Cavendish Square, London, W.1.

Society of Medical Officers of Health

Dr. H. C. Maurice Williams, O.B.E., medical officer of health for Southampton, has been elected president of the Society of Medical Officers of Health for the year 1949–50.

Gift of Medical History Journal

Mrs. Josiah C. Trent, of Durham, North Carolina, U.S.A., has instituted an annual gift of 250 one-year subscriptions for the *Journal of the History of Medicine and Allied Sciences*. They will be allocated to all medical schools in the U.S.A. and Canada. Recipients are to be selected from among those in the graduating class who have shown an interest in the cultural aspects of medicine. The late Dr. Josiah C. Trent was a founder of the journal and a member of its board of editors. Recently the journal came under the official sponsorship of Yale University School of Medicine.

International Congress of Otolaryngology

The congress was opened by the Duchess of Kent on July 18 at the Great Hall, King's College, London. Thirty-nine countries were represented.

Tribute to Sir Gordon Gordon-Taylor

The April issue of the *British Journal of Surgery* is dedicated to Sir Gordon Gordon-Taylor, K.B.E., C.B., F.R.C.S., consulting surgeon to the Middlesex Hospital, and includes an appreciation of his work in the field of surgery since he entered the Middlesex Hospital as a student in 1898.

Actonian Prize

The managers of the Royal Institution have awarded the Actonian Prize of one hundred guineas for the year 1949 to Sir Alexander Fleming, F.R.S., for his paper published in 1945 entitled "Penicillin—Its Discovery, Development, and Uses in the Field of Medicine and Surgery." The prize has been awarded every seventh year since 1838 under a trust established in that year by the late Mrs. Hannah Acton.

Lecturing in Germany

Dr. G. M. Findlay, editor of *Abstracts of World Medicine*, is lecturing in Germany at the invitation of the Foreign Office on recent advances in knowledge of virus diseases.

Council for Welfare of Handicapped Persons

Lord Rushcliffe has resigned, owing to ill-health, the chairmanship of the Ministry of Health Advisory Council for the Welfare of Handicapped Persons. The Minister has appointed Mr. Edward Evans, M.P., formerly vice-chairman, in his place. The Minister has also appointed Alderman Mrs. L'Estrange Malone, chairman of the Welfare Committee of the London County Council, to be a member of the Advisory Council in place of Councillor Douglas Prichard, who has resigned.

Laboratory Examinations

The Ministry of Health states that laboratory examinations of pathological material relating to outbreaks or suspected outbreaks of infectious disease, other than those occurring in hospitals in which a pathologist is working, should be referred to the Public Health Laboratory Service where possible and not be undertaken in hospital laboratories. If the Public Health Laboratory Service is not available within a reasonable distance, these examinations should be undertaken by hospital laboratories and charged to hospital funds. Any information of epidemiological interest should be reported to the Public Health Laboratory Service and to the medical officer of health concerned. Examinations of specimens taken from material not of human origin should be undertaken by hospital laboratories only by arrangement with the Public Health Laboratory Service, the latter meeting the cost. Unless the hospital wishes, this arrangement need not apply to samples of water, milk, food, etc., supplied to the hospital for its own use. The Public Health Laboratory Service will not be responsible for the payment of fees to a pathologist in private practice except where he has been called in by arrangement with that service. The term "infectious diseases" excludes venereal diseases and tuberculosis in institutional cases. Examinations in these cases are normally a hospital responsibility and are undertaken by the Public Health Laboratory Service only by special arrangement.

COMING EVENTS

Veterinary Congress

The 14th International Veterinary Congress will be held on Aug. 8–13 at the Central Hall and Church House, Westminster. Subjects to be discussed include the control of bovine tuberculosis, *Brucella abortus* infection, and meat inspection. Information may be obtained from the National Veterinary Medical Association, 36, Gordon Square, London, W.C.1.

Air Medicine

The 20th Annual Convention of the Aero Medical Association will be held at the Hotel Statler, New York City, on Aug. 29–Sept. 1.

South African Medical Congress

The Medical Association of South Africa will hold its 37t medical congress and 16th annual scientific meeting at th University of Capetown, Rondebosch, on Sept. 19–24. Part culars may be obtained from the honorary organizing secretar 37th S.A. Medical Congress, Medical House, 35, Wale Stree Capetown.

International Society of Surgery

The thirteenth congress of the International Society Surgery will be held at New Orleans, Louisiana, U.S.A., fro Oct. 10 to 15 under the presidency of Professor G. Grey Turn (chairman of the British Executive Committee), when th following subjects will be discussed: "The Surgery and Path logy of the Pancreas, especially in Relation to its Endocrir Function," to be opened by Professor Ian Aird (London); "Th Surgery of the Parathyroid Glands," to be opened by D Paolucci (Rome); "The Surgery of the Suprarenal Glands," be opened by M. R. Fontaine (Strasbourg); "The Patholog and Surgery of the Pituitary Gland," to be opened by M. Pa Martin (Brussels); "The Treatment of Post-operative Thron bosis and its Sequelae," to be opened by Dr. A. Ochsner an Dr. de Bakey (New Orleans); "The Causes of Recurrence aft Operations on the Biliary Tract," to be opened by M. R. Dem (Vienna). Members who wish to take part in discussions a reminded that their names should be sent without delay Dr. Dejardin, Secretary-General, 141, Rue Belliard, Brussel Belgium. Members are individually responsible for makir their own travel arrangements, whether by the route outline in the official programme or otherwise.

SOCIETIES AND LECTURES

Tuesday

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Stree London, W.C., July 26, 11 a.m., "*Sociological Problems in Rel tion to V.D.*," by Dr. R. Lees.

Wednesday

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Stree London, W.C., July 27, 11 a.m., "*Psychological and Medico-leg Aspects of V.D.*," by Dr. W. N. Mascall.

Thursday

INSTITUTE OF UROLOGY.—At St. Paul's Hospital, Endell Stree London, W.C., July 28, 11 a.m., "*The Problem of Leucorrhoea*, by Dr. W. N. Mascall.

Friday

BIOCHEMICAL SOCIETY.—At Biochemistry Department, Universit College, Dundee, July 29, 11 a.m., 278th meeting. Papers will b read.

Saturday

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.—A Leicester, July 30. Presidential address.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Essex-Lopresti.—On July 11, 1949, at Birmingham, to Muriel (née Harrop M.B., B.S., D.R.C.O.G., wife of Mr. P. Essex-Lopresti, F.R.C.S., a sist for Timothy—Catherine.

Harper.—On July 5, 1949, at Swindon, to Dr. Marita Harper (née Shattock wife of Dr Eric Harper, a daughter.

McDonagh.—On July 10, 1949, to Dr. and Mrs. McDonagh, Stanley, Pert a daughter.

MARRIAGES

Brennan—Reed.—On June 18, 1949, at St. Marks, North Audley Stree London, W., Squadron Leader Terence N. N. Brennan, M.B., B.Ch., Mrs. Betty Reed, Cambridge, widow of the late Lieutenant E. J. Reed.

DEATHS

Brown.—On July 13, 1949, at Grosvenor Villa, Gullane, East Lothian, Robe Archibald Brown, M.B., Ch.B., Surgeon Captain R.N., retired.

Campbell.—On June 19, 1949, at Phoenix House, Sutton Oak, St. Helen Lancs, Donald Campbell, M.R.C.P., aged 66.

Carre-Smith.—On July 14, 1949, in London, Herbert Lovell Carre-Smit M.R.C.S., L.R.C.P., aged 80.

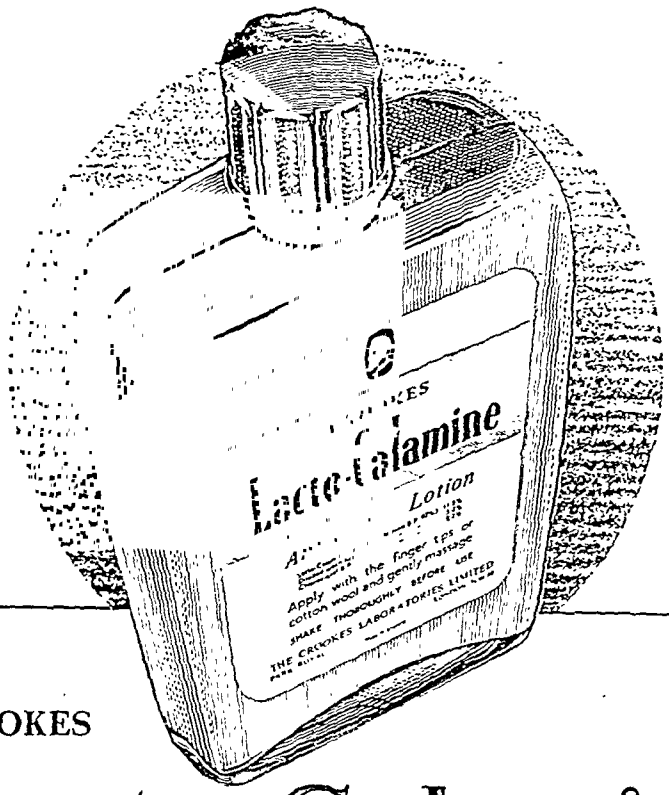
Collier.—On July 11, 1949, at Lancing, Sussex, William Arthur Collie L.R.C.P., L.R.C.S.Ed., aged 82.

Cooke.—On July 13, 1949, at 48, Kingston House, London, S.W., Sir Jam Douglas Cooke, F.R.C.S., aged 70.

Fisher.—On July 13, 1949, at Lynton, Cheltenham Road, Gloucester, Theodo Fisher, M.D., F.R.C.P., aged 86.

Gerrie.—On July 4, 1949 at Harrogate, John Gerrie, M.B., Ch.B., F.R.C.S.Ed of 2, Queen's Gardens, Aberdeen.

Gourlay.—On July 15, 1949, at Rathmore, Elgin, Frederick Gourlay, M.D., i his 82nd year.



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Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Vitamin C in Fresh Fruit

Q.—*Is there any evidence to support the view that the vitamin-C content of fresh fruit is mainly to be found just under the peel or skin or actually in it? Is it a fact that bananas and fresh strawberries contain negligible amounts of vitamin C?*

A.—There is experimental evidence that the vitamin C of apples is found mainly in the tissues underneath the skin. The vitamin-C content diminishes fairly rapidly from the skin inwards. The amount in the cuticle is not great, but much would be removed in peeling in the ordinary way. There is little experimental evidence about the vitamin-C content of different parts of the pear, which is poor in this substance. The question would not apply to fruits like the orange, or to soft fruits which are wholly edible. The vitamin-C content of apples varies widely from about 25 mg. per 100 g. for the Bramley Seedling to about 8 mg. or less for the Worcester Pearmain. The banana has about the same amount of vitamin C as apples of the latter type. Of native fruits the strawberry is one of the richest in vitamin C, with about 60 mg. per 100 g.—that is, second only to the blackcurrant, with about 200 mg. It is, on the average, superior to the orange, with about 50 mg.

Epidermophytosis

Q.—*What is the risk of contagion from epidermophytosis between the toes? The problem arises especially in connexion with children sharing bedrooms during summer holidays. Is the risk lessened as time passes? What is the treatment, and is any form of prophylaxis possible?*

A.—It should be mentioned that the majority of patients referred to dermatologists as suffering from epidermophytosis prove to have pompholyx of constitutional origin. Confirmation of diagnosis by microscopical examination and culture is desirable. Risk of contagion is great, especially through contact in bed. It is much reduced by parasiticidal measures, the wearing of protective socks in bed and of sandals about the house and bathroom, and the use of toilet powders containing 2% salicylic and boric acids in talcum between the toes by day. Reference may be made to questions in the *Journal* of June 5, 1948, p. 1120; Jan. 22, 1949, p. 164; and Feb. 19, 1949, p. 331, concerning other prophylactic measures. Modern treatment with fatty acids and their esters, such as undecylenic, propionic, and caprylic acids, is very effective. There are many suitable preparations on the market.

Complications of Treatment of Varicose Veins

Q.—*Could you give me any statistics relating to the incidence of pulmonary embolism and other potentially fatal complications following ligation and injection treatment of varicose veins? Is it customary to keep the patient in bed for any length of time after the operation, or is the modern method to allow active exercise immediately? Also are anticoagulants needed post-operatively?*

A.—Statistics on this point are not readily obtainable, but nevertheless deep femoral thrombosis and fatal pulmonary embolus do occur and are reported at coroners' inquests. Further causes of death are anaphylaxis and suppression of urine, which may be due to the injected solution. Violent haemorrhage from the slipping of a ligature may also be directly fatal or predispose to later embolism. Ambulation immediately after operation is imperative if deep thrombosis and embolism are to be avoided. Operation and injection should not be undertaken in those whose family and personal history reveals several repeated thromboses so easily provoked as to justify the diagnosis of thrombophilia. Intervention in these patients may cause death or disablement from venous thrombosis, or may be followed by arterial involvement with loss of a limb.

Anticoagulants are essential if deep thrombosis or embolism has occurred, starting with 45,000 units of heparin and 300 mg. of dicoumarol for two days and then continuing with amounts of dicoumarol adequate to increase the prothrombin time by 120%. When the clotting is under control, ambulation can be resumed.

Bram's Test for Hyperthyroidism

Q.—*What is Bram's test for hyperthyroidism, and how is it applied?*

A.—Bram's test for hyperthyroidism depends on his observation (*Med. Rec., N.Y.*, 1920, 98, 887) that 95% of thyrotoxic patients can tolerate large doses of quinine without evidence of cinchonism. In his book *Exophthalmic Goitre and its Medical Treatment* (London, Henry Kimpton, 1936) he suggests that the patient should be given 12 capsules, each containing 10 gr. (0.65 g.) of quinine hydrobromide or sulphate. The patient is instructed to take one of these capsules three times daily, and the non-appearance of symptoms of cinchonism within four days is considered as a positive reaction. Bram obtained a negative reaction in only 4.25% of thyrotoxic patients, and he believed that tolerance of quinine and basal metabolism run parallel.

Muscae Volitantes

Q.—*Is there any general or local treatment for muscae volitantes?*

A.—Muscae volitantes are generally of a septic, haemorrhagic, or degenerative origin. In the first two instances successful treatment of the cause will prevent further increase in the muscae. The elimination of muscae is a difficult matter. Potassium iodide by mouth is sometimes useful, and the muscae are much less obvious if glasses properly correcting the focus are worn. Subconjunctival injections of hypertonic saline, etc., seem to have no effect. In traumatic cases with a haemorrhagic origin aspiration of a moderate quantity of vitreous sometimes helps (50% of cases in the writer's experience). For the type due to degeneration of the vitreous no treatment is effective.

Intestinal Haemorrhages

Q.—*Within 12 months an unmarried female aged 24 has had three severe intestinal haemorrhages, which occurred without warning. There is no history of dyspepsia, nor has she any abdominal symptoms. No abnormality has been found on x ray or proctoscopy, or at laparotomy. She has suffered from a minor degree of spondylitis for the past 10 years. Can you suggest a diagnosis and treatment?*

A.—The most likely cause of severe intestinal haemorrhage in a woman of 24 is ulceration associated with a Meckel's diverticulum, but this presumably has been excluded by laparotomy. Other possibilities include hiatus hernia of the stomach—in these cases haematemesis would be more likely than melaena—and simple tumour of the small intestine; lipoma, fibroma, and leiomyoma can all cause recurrent haemorrhage and, if small, might be missed at laparotomy. Telangiectasia of the gut, if part of the familial haemorrhagic telangiectasia (Rendu-Osler-Weber disease), is likely to be associated with epistaxis.

Further investigation of this case should include a barium meal for small-intestinal pattern and to exclude hiatus hernia; gastroscopy; examination of stools for occult blood to see whether the bleeding persists; and, should massive haemorrhage occur again, a laparotomy at the time of bleeding so that the level of haemorrhage in the gut can be ascertained. The following references may be useful: Eads, J. T., 1946, *J. Amer. med. Ass.*, 131, 891; Kennedy, H. P., 1947, *New Engl. J. Med.*, 237, 180; Allison, T. D., and Babcock, J. R., 1948, *Ann. Surg.*, 127, 754; Baker, H. L., and Halley, H., 1946, *Ann. Surg.*, 123, 1067.

Valsalva Experiment

Q.—*Can you give the physiological explanation of the after-dinner trick whereby the victim is rendered temporarily unconscious by strong compression of his chest, held fully expanded in deep inspiration, by the interlocked encircling arms of the operator? I have seen this performed only once, when the victim became unconscious for a few seconds after compression for about half a minute. He gave a slight convulsive jerk before regaining consciousness, which was immediate and full. The pulse was slow, full, and regular, and there was no after-effect or ill feeling of any sort. I have found no record of tragedy, but I feel that this procedure must be potentially dangerous.*

A.—It is possible to render a victim unconscious by strong compression of the chest aided by his natural reaction, which consists of forced expiration against a closed glottis. This is the Valsalva experiment, and if carried out sufficiently vigorously it halts the circulation, the intrathoracic pressure being so greatly raised as to prevent cardiac filling. In such circumstances loss of consciousness must be associated with absence of the pulse. The procedure is unlikely to be dangerous in healthy subjects, for the circulation is fully restored immediately the individual is released.

Delirium Tremens

Q.—*What is the best treatment for delirium tremens?*

A.—It is perhaps best to tide the patient over with small doses of alcohol and intramuscular injections of paraldehyde in doses of 2 dr. (8 g.) repeated at four-hourly intervals if necessary. Any form of adequate sedation will relieve delirium.

Persistent Abdominal Sinus

Q.—*About a year ago a classical caesarean section was carried out in a woman of 22 with contracted pelvis due to spastic hemiplegia. The uterus was emptied and sutured with silk mattress sutures. The puerperium was uneventful except for a stitch abscess in the abdomen, which resolved after treatment by fomentations. The uterus involuted satisfactorily, though there is slight menorrhagia. After three months another abscess developed in one of the abdominal sutures and a piece of catgut was extruded; this was followed by a sinus which has persisted, and through which bleeding has occurred during the last three menstrual periods. Recently one of the uterine sutures was extruded through the sinus, which still persists and remains troublesome. What is the prognosis, and what further steps do you recommend?*

A.—This patient would appear to have either a uterine fistula or an endometrioma of the abdominal wall, or both. A spontaneous cure is now unlikely, and there is little to be said for continuing conservative measures. Any operation, however, should be conservative in nature and should aim at complete excision of the scar and sinus and the restoration of normal uterine function. Preliminary studies by means of radio-opaque media injected along the sinus track, and also into the uterine cavity through the cervix, would probably be helpful. The operation is likely to be difficult and should be carried out by an experienced gynaecologist.

NOTES AND COMMENTS

Dicoumarol and Prothrombin Level.—Dr. G. A. MATTHEWS (Hemel Hempstead, Herts) writes: I was surprised to see in "Any Questions?" (July 2, p. 38) an answer mentioning the use of Russell viper venom for measuring the prothrombin time of patients on dicoumarol therapy. It has been conclusively shown[1] that Russell viper venom, when used as a thromboplastin, does not measure the prothrombin content of plasma, and that the coagulation times obtained with this thromboplastin bear no recognizable relationship to the availability of prothrombin in a patient under treatment with dicoumarol. It follows from this that to attempt to control dicoumarol therapy by means of Russell viper venom as a thromboplastin can be positively dangerous, as several workers have discovered,[2 3] though the blame is often wrongly put on the use of dicoumarol. Dicoumarol therapy is a safe procedure when brain thromboplastin is used, as in Quick's one-stage technique of measuring prothrombin times, as has been shown in my laboratory during the past two years. I trust, Sir, that you will see that steps are taken to correct the dangerous advocacy of a discredited method of controlling dicoumarol therapy.

Dr. A. F. MOHUN (London, N.19) writes: There is now sufficient evidence available to justify the statement that the use of viper venom as a source of thromboplastin is fraught with danger to the patient, in that this reagent may on occasion fail to disclose that the prothrombin time is in fact approaching, or has already reached, a dangerous prolongation. Alternative reagents have hitherto consisted of saline extracts of acetone-dried human or rabbit tissue (usually brain). These are free from what has become known as the "viper venom effect." An even simpler form of extract has been devised by Dr. M. Toohey, of New End Hospital, Hampstead (personal communication). I understand that an account of this is in the press. Finally, I should like to express my personal opinion that your reply to the question would have performed a real service to clinicians and pathologists if it had confined itself solely to the statement that the control of dicoumarol therapy is achieved by aiming at keeping the patient's prothrombin time within the range of one and a half to two and a half times the normal control time, using the same reagents. It is still not sufficiently appreciated that "prothrombin indices" and "prothrombin percentages" are calculations whose only basis is the measurement of time. No advantage is gained by elaboration of the basic data. The calculating of "prothrombin percentages" implies that prothrombin is a chemical individual, and that saline dilutions of normal plasma truly imitate plasmas from patients receiving dicoumarol: neither of these implications can be substantiated—they are therefore not only unnecessary but possibly misleading. Although the chemistry of the prothrombin time reaction is obscure, the principles of the control of dicoumarol treatment are clear and well substantiated: Use a potent thromboplastin other than viper venom; measure the prothrombin time of the patient's plasma and that of a normal control plasma (both within three to four hours of removal of the blood); regulate the dosage of dicoumarol with the aim that the time ratio shall lie between one and a half and two and a half. The method of collection of the blood and the interpretation of the results call for personal collaboration between pathologist and clinician.

REFERENCES

1 Biggs, R., and Macfarlane, R. G. (1949). *J. clin. Path.*, **2**, 33.
2 Lempert, H. (1948). *British Medical Journal*, **1**, 125.
3 James, G. A. (1948). Ibid., **1**, 475.

Transient Giddiness.—Dr. DAVID COWAN (Johannesburg) writes: In "Any Questions?" (May 28, p. 968) a question was asked on the causes and treatment of momentary transient vertigo. A possible cause not mentioned in your answer, and one I have met with on several occasions, is that of cerumen in the ear, deep enough presumably to cause pressure on the tympanum. Syringing gives complete relief.

Corrections

The report of the meeting of the Section of Ophthalmology held on June 30, which appeared in our issue of July 9 (p. 92), incorrectly summarized Dr. Alice Carleton's views. The last sentence reporting her observations does not represent her opinion.

In the account of the combined meeting of the Sections of Obstetrics and Gynaecology and Dermatology held on June 30, which appeared in our issue of July 9 (p. 88), Dr. Elizabeth Hunt is incorrectly reported to have said that in her experience psychogenic causes of pruritus vulvae were rare. In fact she said that pruritus vulvae due solely to psychogenic causes was in her experience rare.

In the report (July 16, p. 165) of Dr. W. Pointon Dick's remarks during the discussion on tuberculosis and occupation at the meeting of the Section of Occupational Health it was stated: "In return visits it was found that the rate of new cases per 100 examined was reduced by a third." This should have read "reduced to a third."

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SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
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THE SECRETARY REPORTS

CONSULTANTS' CONTRACTS

The Joint Committee for Consultants and Specialists has made the following announcement:

The Joint Committee of the Royal Colleges, the Royal Scottish Corporations, and the Central Consultants and Specialists Committee has now completed its examination of the "Terms and Conditions of Service of Hospital Medical and Dental Staff (England and Wales)" in the light of the observations of its constituent bodies. As reported in the medical press a fortnight ago, the Joint Committee decided on July 5 to reopen discussions with the Ministry on three points—conciliation machinery and arbitration, facilities for private treatment in hospitals, and the remuneration of part-time clinical teachers.

After receiving the reply of the Ministry, the Joint Committee met representatives of the Ministry on July 18, when the following assurances were received:

1. Arbitration

The Ministry has agreed

(*a*) That no changes will be made in the terms and conditions of service without discussion in the appropriate part of the Whitley machinery, when established, and this will be established as soon as possible.

(*b*) That remuneration is a subject which is suitable for arbitration.

(*c*) That save in exceptional circumstances, and after the conciliation machinery of Whitley has been exhausted, issues of remuneration remaining in dispute will go either to arbitration or for inquiry and report by a committee.

(*d*) That the words "by the Minister of Health" will be deleted from the opening paragraph of the model contract, so that it would simply refer to the terms and conditions of service "determined from time to time."

2. Private Practice

The Ministry reiterated its previous assurances that it was not its intention to place difficulties in the way of private practice. It has agreed that patients admitted to private hospital beds under Section 5 of the Act will pay fees for professional attendance to part-time practitioners in addition to the maintenance charges, except where the patient is occupying accommodation under the proviso to section 5 (1)—i.e., on medical grounds.

The Ministry has agreed that individual practitioners are free to leave untouched or to delete from the whole-time contract any of the clauses which are enclosed in square brackets, including Clause 5 requiring attendance on patients occupying beds under Section 5 of the Act who have not made private arrangements under Section 5 (2).

3. Clinical Teachers

Assurances, shortly to be made public, have been received on the arrangements for the remuneration of clinical teachers.

The Joint Committee decided, with the assent of the Ministry, to continue negotiations on a number of outstanding points. It feels that it is now able to advise hospital staffs to enter into permanent contracts.

A word or two on the background. The Government accepted the Specialist Spens report. The Ministry of Health proceeded to translate the Spens recommendations into a detailed scheme of terms and conditions of service. The Ministry's first thoughts were expressed in a document which was submitted to the Joint Committee, in confidence, for its observations. The Joint Committee, after consulting its constituent bodies, put forward a number of criticisms and suggestions. A number of these were accepted by the Ministry.

The next phase was the submission by the Ministry to the Joint Committee of its second thoughts in the form of concrete proposals. The Joint Committee, having gathered up criticisms and comments from its constituent bodies, proceeded to discuss the proposals with the Ministry and to press for certain changes, some of which were made. The last phase was the issue by the Ministry of a revised document with an explanatory memorandum. The question now before the Joint Committee was what advice it should offer to consultants and specialists generally on the issue of the signing of contracts.

When the Joint Committee met on July 5 it had before it the comments of its constituent bodies on this point. It decided that it could not proceed to advise consultants to sign permanent contracts until further and satisfactory discussions had taken place with the Ministry on three points—conciliation and arbitration machinery, facilities for private practice, and the remuneration of part-time teachers.

The final meeting of the Joint Committee with the Ministry took place on Monday last, and the outcome of it is fully set out in the announcement of the Joint Committee with which this report opens.

Arbitration

The issue of arbitration has loomed large in recent discussions. Behind the profession's attitude has been a determination to avoid the position in which, disagreement having been reached between the Minister and the profession on the subject of remuneration, there was no escape from the Ministerial *ipse dixit* as to what the remuneration should be. There were doubts as to whether remuneration was in fact regarded by the Government as susceptible to arbitration. It has now been agreed by the Ministry that remuneration is an issue open to or suitable for arbitration. Subject to the words "save in exceptional circumstances" it is agreed that whenever the normal conciliation machinery has failed to provide agreement on an issue of remuneration the question should be referred to some external body for arbitration or inquiry. It may be agreed that it should go for settlement by arbitration, or it may go for special inquiry and report by a committee, the findings of which would be available to but not binding on the parties. While it is true that the Minister is not bound to accept the advice of a committee not empowered to arbitrate, it is equally true that the profession is not so bound either. Further, such a report has a moral force which neither side will find it easy to escape.

A good deal hangs on the meaning of the words "save in exceptional circumstances." It is understood that an example of such special circumstances is an economic crisis in which national considerations override all others.

Private Practice

The Joint Committee has pressed again and again that nothing should be done unfairly or unnecessarily to restrict the facilities for private practice. This is a question not so much of the

details of an Act or the items in the terms and conditions of service, but as to the spirit in which the service is administered. On two points the position has now become quite clear. The first is that when a patient enters a private ward, whether or no previous arrangements have been made for treatment, that patient assumes an obligation to pay for both accommodation and professional services except where the admission has been in effect that of a public patient entering private accommodation on clinical grounds. The Ministry accepted this interpretation of the position, which is more than can be said for some hospital management committees. Secondly, it was made clear that the individual consultant or specialist offered a contract is free to accept or not to accept the words enclosed in square brackets. A particular significance of this is that the whole-time officer is not to be required to agree to treat patients in private wards, although there will be circumstances in which, because there is no part-time officer to undertake the work, it is desirable that some special arrangement is reached with the whole-time officer.

Future Negotiations

The Joint Committee made clear to the Ministry—and the Ministry assented—that the detailed scrutiny of the terms and conditions of service and of the various features of the Service must continue, and representations will continue to be made on a number of outstanding points. Among them is the position of some medical superintendents. An important concession has been made by the Ministry in the mental hospital field to the effect that for practical purposes the mental hospital superintendent will be regarded as mainly engaged in clinical work and remunerated according to his clinical standing, without reduction because of time spent on administrative work. But the position of the medical superintendent engaged wholly or predominantly on administrative work remains unsatisfactory. Among other points which remain to be considered are the definition of the field to which the appointment of S.H.M.O. will in future be limited, the establishment of a central appeal machinery for grading, problems of registrars—including their grading, the application of the Spens standards to medical officers of regional hospital boards, mileage, subsistence allowances, and study leave. The Joint Committee will continue with this work.

MEDICAL SUPERINTENDENTS IN THE N.H.S.

THE SCOTTISH VIEW

Considerable opposition has been aroused among medical superintendents in England and Wales to the terms and conditions of service offered them by the Ministry of Health. The terms take no account of the fact that a medical superintendent has a medical qualification, since for the work of administration he is offered the same pay as a lay administrative officer would receive—with the small exception that his remuneration is not affected if he gives only a small proportion of his time to administrative duties. This scheme has been interpreted as an attempt by the Ministry to discourage medical men from undertaking administrative work, and contested on the grounds that it is wrong to pursue a policy such as this through the method of remuneration.

The medical superintendent has always played an important part in hospital administration in Scotland, and the profession there does not accept the view that he is an anachronism in the modern hospital. The Scottish Negotiating Committee (now dissolved) informed the Department of Health of its views, the substance of which is contained in a memorandum prepared by a special subcommittee and unanimously approved by the Central Consultants and Specialists Committee (Scotland).

The Department has invited the Scottish Joint Committee for Consultants and Specialists (whose composition is recorded at p. 55) to discuss what should be the appropriate salary scales for medical superintendents. The Department will now draft proposals which will be the basis of negotiation with the Scottish Joint Committee.

Two Systems of Administration

In discussing the problem in its memorandum the special subcommittee finds that two systems have evolved. They are sometimes referred to as the parallel and the hierarchical. In the parallel system the management body has a lay executive functionary and obtains its technical advice from a medical committee. In the hierarchical system the executive functionary is a medical man, and therefore qualified also as a technical adviser. In practice the two systems are not absolutely distinct, but they do in general represent two different concepts of managerial structure.

In Scotland the larger voluntary hospitals, with few exceptions, use the hierarchical system. A medically qualified man superintends the day-to-day running of the institution on behalf of the managing body. Through apprenticeship in the local authority service, or in other ways, he has added administrative experience to his basic medical training. Advocates of the parallel system argue that years of medical education are wasted when a doctor is appointed to an administrative post. The subcommittee cannot accept this argument, and suggests that its appeal probably derives from the complexity of the large modern hospital, which has tended to obscure its primary purpose to provide treatment for the sick.

It has been argued that suitable training in hospital administration can provide the necessary medical understanding for running a hospital, but the subcommittee finds this difficult to believe, since most of the important problems of hospital administration are essentially medical. Purely medical problems often arise which require decisions that only a medical man can properly make. Examples are decisions about the admission and discharge of patients, the distribution of patients between different parts of the hospital, and decisions on competing claims on medical matters from members of the hospital staff. This consideration applies both to physician superintendents and to purely administrative medical superintendents, and "it appears to us to be incontrovertible that such day-to-day decisions would require the authority of the executive head of the hospital."

The Lay Secretary

The subcommittee concedes the necessity of a lay secretary, suitably trained in administration, who would look after the book-keeping, accountancy, stores, and similar aspects of non-medical management, but such services should always be ancillary to the main purpose of institutions designed for treating sick people. The medical superintendent ought to be the chief executive officer of the hospital or group of hospitals, states the subcommittee. "We are satisfied that the balance of argument is strongly in favour of the continuance of the traditional Scottish system, and are convinced that to develop and encourage it is the policy of choice."

If men are to come forward as medical superintendents two conditions must be satisfied: first, the salary scale must be satisfactory and materially in excess of that applicable to lay secretaries; secondly, opportunity for training must be provided. The second provision would require the creation, where necessary, of appointments as deputy medical superintendents, and medical schools would have to start courses of training in medical administration. The subcommittee points out that Professor J. M. Mackintosh, Dean of the London School of Hygiene and Tropical Medicine, has for some time advocated the starting of such courses.

The Specialist Superintendent

The subcommittee finds it difficult to imagine how a special hospital, such as a tuberculosis sanatorium, an orthopaedic hospital, an infectious diseases hospital, or a mental hospital, can be run efficiently if the chief clinical specialist is not also the administrative and executive head. A lay secretary is still necessary in such hospitals, but his status should be inferior to that of the specialist superintendent, since the non-medical aspects of management are subsidiary and contributory to the treatment of the patients. If the duties of the specialist

superintendent, which are intimately related to the care and welfare of the patients, were made the responsibility of a lay secretary, he could carry them out only by continual reference to a member of the medical staff, who would in fact carry the responsibility and have his time occupied in the execution of these duties.

The subcommittee concludes that if the superior status of the specialist superintendent is to be ensured two conditions must be fulfilled: (1) The component of his salary in respect of his administrative duties must be at a substantially higher rate than that for secretaries; (2) the total salary of the specialist superintendent, who would usually work full-time and for much longer hours than his specialist colleagues scheduled for so many sessions per week, and be resident in the hospital, must not be lower than that of his specialist colleagues.

Government's Objective Wrong

Finally, the subcommittee comments on the Government's policy in the following words: "In the Government's proposed terms and conditions of service for hospital medical staff it is stated that the objective will be to reduce to a minimum the time to be given by medical staff to administrative duties. It is our opinion that, the number of doctors concerned in medical administration being small, no important benefit would accrue to the clinical side of the National Health Service if the numbers employed as medical superintendents declined, and that *per contra* the retention of the medical superintendent as the executive head of the hospital would bring to the Service greater advantages in efficient and smooth administration. Holding this opinion, we consider that the Government's objective, as stated, is not the right one. In any case we believe it to be both wrong in principle and unwise in practice to determine in this oblique fashion what should be determined directly and on merit—namely, the future of the medical superintendent."

HEALTH CENTRES

DISCUSSION AT ROYAL SANITARY INSTITUTE

"In principle the vast majority of doctors seem to favour work in a health centre. In practice they are concerned with several very real difficulties, some of which can only be satisfied by Government action." With these words Dr. J. A. Scott, Deputy M.O.H., London County Council, prefaced his discussion of general practitioners' problems in relation to health centres when he spoke at the Royal Sanitary Institute on July 13. The Minister had said that private practice could not be carried on in a health centre. That provoked the rejoinder that health centre practice should be rent free or the practitioner would still be under the obligation and expense of maintaining his private premises for a very small number of private cases. Most doctors went further and said that on those terms they would not join in health centre work. An example of private practice was the life insurance examination. Why should they not take place in health centres? The ancillary staff of a health centre was not paid to assist doctors in their private work, but it was difficult to see private work becoming substantial. He hoped that second thoughts would prevail at the Ministry.

Protection Against "Squatting"

The next question doctors asked, he said, was, "What kind of guarantee can you give me that a newcomer will not be allowed to 'squat' in the premises I vacate?" It was not unnatural that a doctor should remember the numbers of patients who had joined his list because they lived near him. Protection for a year or two by declaring the area closed to new medical entrants was requested, and the claim, whatever the difficulties in meeting it, was bound to evoke sympathy.

Consultant Sessions?

General practitioners with whom he had discussed the question of consultant facilities at the health centre did not attach much importance to them. Their views seemed to be that the modern specialist required a good deal of technical equipment, and even if he came to the health centre he would have to refer most of the cases back to himself at the hospital for further investigation. That was a tenable view, but it disappointed him. The general practitioner as a rule had no regular personal contact with the big general hospitals, and regular consultant sessions at the health centre seemed to offer a useful meeting-ground at which the benefits would be mutual.

Adaptation of Buildings

Mr. W. J. Durnford, Senior Architect to the London County Council, described the L.C.C. health centre at Woodberry Down and then discussed the adaptation of existing buildings to health centres. Large domestic buildings in good structural repair could be adapted quite successfully, but he doubted whether many suitable buildings existed. Experience proved that major adaptation absorbed much skilled labour, that production was slow and costly, and that the results were seldom satisfactory.

Facilities Available

Dr. A. Talbot Rogers, chairman of the B.M.A. Committee on Health Centres, said that the average urban centre should accommodate up to six doctors, each practitioner having his own waiting-, consulting-, and examination-rooms. Maternity and child-welfare and school medical services should be developed in co-operation with the general medical and dental services.

Consultation with specialists should normally be at hospital, where pathological and radiological services would be provided. Apart from a room for simple pathological tests and possibly provision for dental radiology, no arrangements for those diagnostic services needed to be made at the health centre. A dispensing service could be of great value and should be installed experimentally in some centres.

He agreed that to enable doctors to make the transition to health centre practice with the least risk and reluctance everything possible should be done to give them the help and assurances they required, even if that meant the right to attend some of their few remaining private patients at the centre, or protection against the occupation of vacated premises by a rival practitioner.

SCOTTISH JOINT COMMITTEE FOR CONSULTANTS AND SPECIALISTS

In agreement with the Central Joint Committee for Consultants and Specialists a Scottish Joint Committee has been set up to discuss with the Department of Health for Scotland matters specifically affecting the hospital services under the National Health Service (Scotland) Act. The committee is composed as follows:

Central Consultants and Specialists Committee (Scotland).—Mr. W. S. Mack, Dr. T. Murray Newton, Mr. I. Simson Hall, Dr. J. H. Wright.

Royal College of Obstetricians and Gynaecologists.—Mr. J. Hewitt.

Royal Faculty of Physicians and Surgeons of Glasgow.—Mr. A. B. Kerr, Dr. W. R. Snodgrass.

Royal College of Surgeons of Edinburgh.—Sir Henry Wade, Mr. F. E. Jardine.

Royal College of Physicians of Edinburgh.—Dr. J. D. S. Cameron, Dr. I. G. W. Hill.

Secretary.—Dr. E. R. C. Walker.

NATIONAL FORMULARY

The Ministry of Health states that assistants working with doctors in the National Health Service, even if the assistants themselves are not on the executive council's list, should be provided with copies of the *National Formulary*.

HOSPITAL SUPPLIES

CENTRAL PURCHASE

X-ray apparatus, films, and paper, laboratory equipment, streptomycin, orthopaedic appliances, and some other articles are already purchased for hospitals by the Ministry of Health. The Minister has now decided in the interests of economy and efficiency that central purchasing shall be extended and carried out wherever necessary. The Supplies Division will notify boards of governors and hospital management committees of the types of equipment and stores to be purchased in this way, and the Ministry invites these bodies to suggest particular classes of goods to be considered for early action.

RESEARCH AND MILITARY SERVICE

At a recent meeting the Committee of Reference passed a resolution reaffirming its opinion that a practitioner with a liability under the National Service Acts shall be discouraged from embarking on long, elaborate, or expensive research work, particularly if it will not enhance his particular value to the Forces. The resolution was sent to the Central Medical War Committee.

The Committee of Reference is under the aegis of the Minister of Health, and makes recommendations to him on the call-up of specialists in the London area for National Service, and also on their specialist grade in the Services. Of its 10 members, who are all medical men, four are nominated by the Royal College of Physicians, four by the Royal College of Surgeons, one by the Royal College of Obstetricians and Gynaecologists, and one by the London County Council.

POSTGRADUATE COURSES FOR G.P.s

The Edinburgh Postgraduate Board for Medicine is holding a fortnight's general refresher course which starts on Sept. 12. The course is intended primarily for demobilized medical officers (Class 2) and for general practitioners. Lecture-demonstrations will be given on a wide range of subjects, particularly on recent advances in treatment, and there will be clinical demonstrations and ward visits. The fee for those not claiming expenses from Government sources is 10 guineas. Applicants should write to the Director of Postgraduate Studies, Surgeons' Hall, Edinburgh, 8, those other than general practitioners giving particulars of their qualifications and post-graduate experience.

FILM COMMITTEE

Two silent colour films—"Caesarean Section," by Dr. K. V. Bailey, Manchester University, and "Congenital Abnormalities of the Urinary Tract," by Mr. T. L. Chapman, Glasgow—were shown at a meeting of the Film Committee in the Hastings Hall on June 17, with Dr. R. P. Liston in the chair. The committee decided to include both films in the B.M.A. Film Library, and a sound commentary is to be added to Dr. Bailey's film. A film for students—"Acute Inflammation," by Dr. P. Hansell, Westminster Hospital—was also shown.

COMPLIMENTARY DINNER

The Sheffield Division of the Association gave a complimentary dinner on April 14 to Dr. W. E. Dornan, who is chairman of the Medical Practices Committee. A large party entertained him, and the chairman, Dr. R. C. Burton, paid tribute to his excellent work as a Representative for several years, as a member of Council, and as a member of the Negotiating Committee. He expressed the thanks of his colleagues and the Division for Dr. Dornan's valuable services to the profession. Dr. Dornan acknowledged the help given him so generously, and was appreciative of the honour afforded him of being able to serve the profession.

It is hoped in future to arrange an annual dinner to which wives will be invited.

DENTISTS SAY NO

The British Dental Association has advised (*British Dental Journal Supplement*, July 15, p. 11) its members to refuse to sign any permanent contract in the Hospital Service at present. Members can accept renewal of their existing temporary contracts, but in doing so should make it clear that this is without prejudice to any permanent contract.

A letter from the association to the Ministry says that discussions must be reopened with the Ministry on various subjects. These include: "That the present differentiation between the remuneration of general medical practitioners and general dental practitioners employed in hospitals is completely unacceptable to the dental profession," and "That specific provision is essential to ensure that facilities for private treatment in hospital shall be maintained and developed throughout the country for those who desire it."

HEARD AT HEADQUARTERS

The Microphone Nuisance

Now that the congress season is upon us, can nothing be done to abate the nuisance of the microphone and amplifier? For three days at the recent Congress of Obstetrics and Gynaecology at Friends House every speaker was accompanied by an amplifier on a huge pedestal which he trundled about with him on the platform when he went to the lantern screen to expound his pictures or came to the footlights to put a point directly to his audience, and the microphone had to be readjusted in height for each successive speaker. Almost every speaker spoke into it as if it were a telephone receiver, and many clung to it as if they were shipwrecked and it was a raft. The result was a constant falsification and degradation of the voice, especially for those in the front of the auditorium, who lost a great deal of what was said. Yet in Friends House, or in the Westminster Central Hall, or even in the Great Hall at B.M.A. House, any speaker, by raising his voice a little, could make himself comfortably heard without this contrivance at all. It is said that the motor-car is depriving man of the use of his legs; the microphone and amplifier will soon be depriving him of audible and intelligible speech.

A Doctor's Bill in 1809

Turning over the pages of the *Gentleman's Magazine* for 1809 we came across a complaint against an apothecary—the predecessor of the general practitioner—on the ground that he had sent in a bill for £59 for attending a man and his wife for one year, the wife having had very little illness. This complaint was followed in the next issue by a voluminous and enthusiastic defence of the apothecary and of the profession in general. Was it fair, asked the writer, to say that an apothecary had charged £59 for a year's attendance on a married couple without relating the circumstances, the social position of the patients, the number of attendances, the nature of the illnesses, medical or surgical, and the distance—mileage in short—between the addresses? The writer went on to claim that the apothecary's was the most noble and disinterested profession in the country—witness their attendance at parish workhouses, where their scanty pittance often did not pay their expenses. And in further proof he cited their zeal in promoting vaccination, for "the success of vaccination has taken more from the pockets of apothecaries than the taxes incurred by fifty years of war."

The Status of Midwife

After all, in spite of Shakespeare, there is a great deal in a name. The term "maternity nurse" for a midwife workin with a doctor has led to misapprehension and some amount o feeling, and the Association in its comments on the report o the Working Party on Midwives recommends to the Centra Midwives Board that the use of the term shall be dropped. I urges that it should be appreciated that the midwife and th doctor are working together, and that this in no way relegate

the midwife to an inferior status. She is still a midwife and is working as such, and at any time may be called upon to act as such. That there is a confusion of ideas on this point was shown by the reception of Mr. Bevan's remarks at the recent meeting of the midwives. The two professions are not in competition.

Questions Answered

Pay in R.A.M.C.

Q.—*What is the pay of (1) a lieutenant, (2) a captain in the R.A.M.C.? What marriage allowance does he receive (a) if under 25 years, (b) if over 25 years? The rates of pay I want to know are those for a "conscript" officer doing his eighteen months—not a regular.*

A.—The rates of basic pay of lieutenants and captains, R.A.M.C. (both for National Service officers and others), are as follows:

Rank	*Daily Rate* £ s. d.
Lieutenant	1 2 0
Captain	1 8 0
Captain after 2 years as such	1 11 0
Captain after 4 years as such	1 14 0
Captain after 6 years as such	1 17 0

Specialists in the R.A.M.C. receive 4s. a day in addition.

Married National Service officers under the age of 25 years receive marriage allowance at 45s. a week; married National Service officers aged 25 and over receive marriage allowance at 12s. 6d. a day.

The rates of basic pay and marriage allowances are the same for corresponding ranks in all three Services.

Regular and short-service officers receive the same rates of basic pay as the above, but are entitled to larger marriage allowances: 3s. a day more if living in quarters, and 6s. a day more otherwise.

Holidays for Assistants

Q.—*In these modern days all workers get a stated number of holidays in the year, and it is compulsory for the employers to give these free days. I should like to know if the position is otherwise when the employer is a doctor and the employee an assistant doctor.*

A.—There is no statutory holiday period for an assistant. Holiday arrangements are normally made by mutual agreement between the principal and assistant, and in some cases the position may be covered in the assistantship agreement.

Fees for Dental Anaesthetics

Q.—*I had been giving dental gases for a dentist who is in the national scheme. When the dentists' earnings over £4,800 per annum were halved, however, on the next occasion when I gave gases he gave me a cheque for one-half of the fee's value for anaesthetics as laid down in the handbook. Is his action in keeping half the fees legal and ethical? When asked to give gases for a dentist who has his own machine and provides the cylinders of gas for it, am I now liable for payment for the gas used?*

A.—The fees for dental anaesthetics are laid down in the General Dental Services Fees Regulations, 1948, S.I. No. 1297, and are as follows:

Administration of general anaesthetic—fee per visit in connexion with the extraction of:

1–3 teeth	10s. 0d.
4–11 ,,	£1 0s. 0d.
12–19 ,,	£1 10s. 6d.
20 teeth or over	£2 0s. 0d.

It is for the dentist to claim the fee from the executive council and pass it on to the general practitioner who administers the anaesthetic.

Representatives of the dental profession claim that they should be entitled to withhold a proportion of the fee to offset expenses incurred in the provision of anaesthetic apparatus and gas, etc., and discussions are now in progress on this particular point. Normally the dentist and the doctor mutually arrange whether or not such a deduction shall be made, and definite arrangements are entered into before the extractions take place.

There is no official authority for the anaesthetic fee to be halved on account of the recent cut in the remuneration of dentists.

Sight Tests

Q.—*Several young men wearing perfectly suitable glasses have recently demanded a "sight test" for no other reason than their having been told that they should be tested every two years. This idea seems to be promulgated by certain opticians. Under the new scheme are they in order in actively encouraging by post-card reminders, etc., these repeated tests?*

A.—Except where a person is unable, or unwilling on conscientious grounds, to do so, he may obtain a sight test for *the first time* through the Supplementary Ophthalmic Service only upon a recommendation from a general practitioner. Thereafter he is entitled to go direct to an ophthalmic medical practitioner or ophthalmic optician for a further sight test at any time.

Apart from the display of a notice at his premises it is an infringement of the regulations for an optician to advertise either directly or by implication that his name is included in the list of an Ophthalmic Services Committee or that he provides or is authorized to provide services under the Act

Obstetric Emergency

Q.—*I have sent patients to hospital after attending them at delivery—e.g., for removal of retained placenta. As I am not on the staff of the local hospital I do not attend them during the puerperium, although I perform a post-natal examination at about six weeks after delivery, including pelvic examination. In such cases the local authority has refused me payment for attendance at the confinement on the grounds that the confinement was not completed by me and that I did not attend the patient during the puerperium. Is the authority correct in its interpretation of the regulations for Northern Ireland?*

A.—A similar inquiry was put to the Ministry of Health some months ago, and executive councils were informed that the full fee should be paid where a general practitioner is attending the patient and himself decides after labour has started that the patient ought to be removed to hospital on account of an obstetric emergency. There is no reason to suppose that the same ruling would not apply in Northern Ireland.

Wife Employed by Partnership

Q.—*(a) If I pay my wife for help in the conduct of my practice, must I stamp a card for her? (b) What is the maximum amount I can pay her without income-tax deductions under P.A.Y.E.?*

A.—(*a*) A doctor working single-handed who employs his wife in the conduct of his practice is not required to stamp a card for her under the National Insurance Act. If she is employed by a partnership, her husband being one of the partners, she is an employed person, for whom contributions must be made. (*b*) The maximum amount payable without P.A.Y.E. deductions is £3 a week.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

Correspondence

Venereology as a Specialty

SIR,—Liverpool has a population of 795,900. Being a seaport, the unnumbered multitude of seafaring men who visit the city each year would justify one in estimating the population at at least one million. Most large industrial cities have a high incidence of venereal disease which is endemic, but a port is a nodal point on which a constant influx of V.D. converges and from which V.D. is disseminated both inland and overseas. It is not surprising, then, that the V.D. treatment centres in Liverpool deal with very large numbers of patients annually. The number of fresh attendances at the Seamen's Dispensary alone in 1947 and 1948 was over 5,000 each year, both venereal and non-venereal. Over 60,000 fresh cases have been seen at this clinic since 1931.

The diagnosis and treatment of V.D. in Liverpool is undertaken by a consultant venereologist who is director of the clinics concerned, is adviser to the Liverpool Regional Hospital Board, and is employed on a part-time basis; by three whole-time venereologists (one female and two male); and by half a dozen part-time venereologists.

Your readers will be surprised to learn that the professional assessment committee of the regional board has seen fit to accord the status of full consultant to one of this team only. All three whole-timers are to be offered contracts as senior hospital medical officers. Their years of experience in V.D. are 27 (6 in Liverpool), 15 (14 in Liverpool), and 11 (2 in Liverpool) respectively. Birkenhead, with a population of 134,160, has one whole-time venereologist of 11 years' standing. He too is to be S.H.M.O.

It might be assumed that the professional assessment committee considers the standard of venereology on Merseyside to be too low to warrant any recommendations other than those already made. This view would be refuted by all with an intimate knowledge of the clinics concerned.

To account for the downgrading of venereologists on Merseyside and possibly elsewhere there springs more readily to mind an idea which would cause such men as John Hunter, Ricord, Fournier, Jonathan Hutchinson, Ehrlich, Neisser, and a great many more who devoted much of their lives to the study of syphilis and gonorrhoea to turn in their graves. It is that venereology should not be regarded as a specialty in its own right.

There would appear to be a prevalent notion that the immediate and only sequel to the diagnosis of syphilis or gonorrhoea in whatever stage is the prescription of large doses of penicillin; that most of the venereologist's work is that of a technician applying this technique in routine fashion; and that any tyro can manage a clinic for the care of such patients who are not prepared to be fleeced for the sake of absolute secrecy. Such a conception is commonplace in the minds of medical men who overlook the fact that it was more than the convenience of patients which prompted the Government to set up special clinics for the treatment of these special diseases in 1917. These clinics were inaugurated on account of the completely unsatisfactory treatment undertaken privately by too many practitioners whose chief interest lay elsewhere. By law these clinics have to be run by special doctors, though it is readily admitted by venereologists that the standard required is quite inadequate for the designation of specialist. Also overlooked is the fact that in spite of routine work the venereologist as such is an integral part of medicine in that he is needed to rectify, where possible, the ravages of V.D. in patients who have previously been maltreated by "penicillin punchers" who, with fatuous optimism, see no further than the visible lesion.

One may be forgiven, while beset with professional scorn, for suggesting that much of a dermatologist's work is the routine diagnosis and treatment of scabies; that the anaesthetist can leave many cases to inexperienced house-men; that the obstetrician depends for his livelihood upon the successful supervision of a normal physiological function; that most of the psychiatrist's patients leave his consulting-room with the label "chronic unspecified anxiety state"; and that the radiologist's interpretation of a photograph is often less hazardous than the venereologist's interpretation of conflicting and doubtful serological tests. Indeed, every specialist performs much routine. It is the unusual and difficult which justifies his existence.

So it is with the venereologist. It is not the diagnosis of gonorrhoea and the prescription of penicillin to which he devotes his study, nor the recognition of a primary chancre and the discovery of the *Spirochaeta pallida*. It is rather the management of all forms of metastatic gonorrhoea and late syphilis. It is not knowing when and with what to start treatment, but when to stop and when to continue. It is knowing how to advise on the safety of marriage and how to avert disruption of marriage, for no other diseases have such dire repercussions on family life. It is the intelligent interpretation of serological tests and cerebrospinal-fluid findings and the recognition and treatment of drug sensitivity and intolerance. It is an appreciation of the epidemiology and social implications of V.D. The venereologist is one who not only plays a large part in preventive medicine by the proper use of drugs and by the organization of intensive follow-up of defaulters and contacts in co-operation with the invaluable services of welfare workers, he is also one whose specialty encroaches on the domain of all the other specialties. He seemingly has to trespass, and herein lies much of his trouble.

General physicians, cardiologists, neurologists, surgeons, obstetricians and gynaecologists, paediatricians, ophthalmologists, oto-rhino-laryngologists, and psychiatrists—all see the venereologist as one who might interfere. Yet none has not benefited from the teaching of venereologists and none has been unable to say of a patient, "A pity he was not in the hands of a competent venereologist many years ago."

If all other regional boards adopt the same attitude as the Liverpool Board it means that the only goal for a venereologist is to be an adviser to a board, of which there are but 14 in England. Had the object of its decision been to guarantee a constant supply of cardiovascular and neurosyphilis cases, etc., for the teaching of disease manifestations which might reasonably be made to become medical curiosities, it could not have chosen a better method than one which will ensure that none but the mentally backward take up venereology. Fair prospects would be too remote.

Is it not as rational to make a special study of the spirochaete, which can invade any tissue of the human body, as to make a special study of some region of human anatomy which can be invaded by many organisms other than the spirochaete? Moreover, is not venereology a vocation which many medical men would not follow even if tempted with a merit award in lieu of danger money?

One can only look westward with envy to the U.S.A., where venereologists receive their just acclaim and the Government, realizing the effect of V.D. on the national economy in peace as well as in war, votes $1,000,000 annually to its research.

The Lock Hospital appears to be like a ship in the process of being torpedoed. Are the captains to take to the lifeboats and the crew to go down with her?—I am, etc.,

ARTHUR S. WIGFIELD.

Liverpool.

Public Health Service Appointments

SIR,—The executive committee of the Medical Women's Federation seeks this opportunity to express its support of the action of the British Medical Association in imposing a ban on posts in the Public Health Service which are being advertised in the lay press at lower salary rates than the B.M.A. recommendations for permanent scales of remuneration for medical officers in the Public Health Service, the ban to be in force until such time as local authorities are prepared to begin negotiations on salary scales.

The struggle for equal pay for medical men and women in the Public Health Service was a long one, and the Federation would like once more to acknowledge the loyal support of the British Medical Association at that time. In the long run the battle was won largely because, with very few exceptions, medical women refused to apply for the posts blacklisted because of the lower salary offered to women, and in this way they

strengthened the hands of the negotiators. This was at a time of considerable unemployment in the profession, when to refrain from accepting an underpaid post was frequently a serious financial sacrifice.

As regards the present issue, there is often temptation for an applicant to argue the needs of his or her particular circumstances which they feel make a claim for sympathetic understanding. To such applicants we would like to say that they are both jeopardizing the issue for the profession as a whole and are in danger of placing themselves in an unhappy position and an inferior status with their colleagues both inside the Public Health Service and outside it. The Federation begs any such would-be applicants, no matter what the circumstances may be, to try to see the matter in all its bearings. We suggest that this wider professional approach to their individual problem will lead them to add their support to that of colleagues who are loyally observing the ban—and thus hasten the day when negotiations will be begun.

Should any medical woman still not be clear as to why it has been necessary to impose this ban, she is urged to write to the British Medical Association or to the Medical Women's Federation.—I am, etc.,

GERTRUDE HERZFELD,
President,
Medical Women's Federation.

Tavistock House North,
Tavistock Square, London, W.C.1.

Grading of Hospital Staff

SIR,—I am instructed by the general meeting of the Liverpool Regional Hospitals Medical Association held on July 11 to send you the following resolution:

"This meeting regrets that, in spite of cases of up-grading, there are many anomalies still existing both with regard to groups and to individuals. We are particularly concerned about the two specialties venereology and tuberculosis, in which the grading has been almost uniformly that of senior hospital medical officer. We feel that low grading will inevitably have a depressing effect on efficiency in the future, since recruitment will fall in quality.

"Some of the individual grading seems to us so unjust that we feel that it is essential that fresh consideration to individual appeals should be given forthwith.

"We therefore heartily support the British Medical Association's claim for the setting up of regional appeal committees before which the appellant will have the right to appear in person and be represented."

—I am, etc.,

V. COTTON CORNWALL,
Hon. Secretary,
Liverpool Regional Hospitals Medical Association.

Inducement Payments

SIR,—Like a good many other doctors with small rural practices in Scotland I have had my application for an inducement payment turned down by the Secretary of State for Scotland. I have reason to believe that my application was favourably recommended by the local medical committee and by the executive council in this area.

I think that it is worth bringing this matter to your notice. The way the economy axe has struck first at the smaller practices with the smaller incomes is surely an indication to the whole profession of what the official attitude is likely to be towards a general financial betterment.—I am, etc.,

D. N. B. MORRISON.

Braemar, Aberdeenshire.

School Medical Officers

SIR,—It is with alarm that one reads the report of the Annual Representative Meeting (*Supplement*, July 2, p. 12) dealing with the position of school medical officers.

The tone of such remarks of the supporters of the motion as, "The local health departments . . . seemed determined to establish themselves by all possible means," and later, "The ever-growing number of people examining other people's children . . . all patients *belonging* to other doctors," bodes ill for the development of the co-operation which one had rightly hoped to see resulting from recent enactments, and which will be essential for the progress of our medical services in the future. The motion means that the G.P is assuming the form of "veto" over the actions of his colleague in the school medical service in some cases.

Let us foster co-operation; let the traffic of information pass freely in such directions as are necessary for the working of our medical team; and let us not forget that the well-being of the patient is of greater importance than our own prestige and pseudo-ethics.—I am, etc.,

H. GRAY.

Baildon, Yorks.

The Association War Memorial

SIR,—From the report on the debate at the A.R.M. (*Supplement*, July 2, p. 26) some points of general interest have been omitted. Dr. Dain, in moving the report, told the meeting that 879 members (105 civilians) had been killed by enemy action. I, speaking in support of the Harrow amendment, asked Dr. Dain if it were known how many dependants there were of those killed, and he replied that the number was not known. Later Dr. Dain said that the Medical War Relief Fund still had £19,000 and that there were no applicants.

These facts were not generally known, either by representatives or throughout the Divisions. I hope that Council will find out as far as it can the number of needy dependants and let that number be known, as well as the sum of money which it thinks would be necessary to provide for them as they might reasonably have hoped to be provided for. Then I am certain that all members, including those in Divisions which instructed their representatives to support the Harrow amendment, will swiftly and generously respond to an appeal for funds.

If the event proves that dependants are being adequately cared for, the £10,000 for the fountain will also be quickly forthcoming. As I said at Harrogate, this represents the trifling sum of 3s. 4d. per member, but I fear (I hope I am wrong) that even this will not be speedily subscribed unless the position of the dependants is made clear. We are not against a visible war memorial (many of those speaking in support of Harrow's amendment made this point), but we feel that it would be wrong to spend money on any form of visible memorial if there are dependants of those killed by enemy action requiring assistance.

If Council will tell us all the facts there need be no doubts of the generosity of the profession.—I am, etc.,

JOHN WILKIE.

Lancaster.

Free Drugs for Private Patients

SIR,—It is inevitable that in the abbreviations from *Hansard* that appear in the *B.M.J.* some points should be missed. May I quote certain passages more fully, as they show a surprising admission by the Minister of Health?

As you state (*Journal*, July 16, p. 184), Mr. Richard Law moved an amendment to enable those treated by private practitioners to receive the advantages of the Act so far as pharmaceutical services were concerned. During the discussion Dr. Segal (Member for Preston), in hoping that Mr. Bevan would set his face against the amendment, said, "A tremendous concession has been made by the Minister in permitting full scope of private practice to exist alongside the National Health Service. That being so, it is more than ungenerous of the Opposition to expect the Minister to go to the length of actually subsidizing private practice, because that is what it amounts to. I hold the view that if my rt. hon. friend was tempted to give way to the Opposition on this amendment he would be sabotaging the whole of the National Health Service scheme."

I am not interested in the view of a doctor or any other person who says that a tiny modicum of freedom, unavoidably granted, is a tremendous concession. And I would have agreed with you, Sir, that this opinion was not worth quoting if it had not, a little later, drawn a remarkable confession from the Minister when he said, "We now have this 4% [of the population outside the Service]. I do not take exception to it, but I say that, if we made the concession asked for to-day, that 4% would grow very rapidly indeed, and before very long—my hon. friend the Member for Preston was right—this would prove to be the biggest piece of sabotage of the Health Service which could possibly have been conceived."

To lull the uneasy mind of the public and to make it more difficult for the profession to stay out, the Minister said last year that any part of the Service was available to anyone, to use or not as they chose. Since then he has gone back on his word with one quibble after another, and now he states that his Act depends for its success on millions being forced to use it against their will.

Here at last we have the truth. *It will out.* Even Mr. Bevan cannot hide it indefinitely.—I am, etc.,

London, N.W.1. R. HALE-WHITE.

SIR,—The question of free drugs for private patients has once more been brought before the Representative Body and once more it has been agreed by an overwhelming majority that they should be entitled to them.

We are informed that an amendment will be put before Parliament to secure this end. Presumably that amendment will be put by the Opposition, since Mr. Bevan has declared that by withholding such benefits he hopes that 100% of the population will eventually choose State medicine. The opponents of such an amendment will doubtless declare that there are insuperable administrative difficulties. The only administrative difficulties that one can see are those concerned with controlling prescribing by doctors, and this to me appears to present no special difficulties.

All doctors already in the Service could accept Forms E.C.1 overprinted with a large P, signifying that the patient wished pharmaceutical services only. Such a doctor would have x patients for whom he received a capitation fee and $x + p$ for whom he prescribed. On this latter figure his prescribing costs could be averaged. Likewise, a doctor outside the Service could apply to the executive council for admission to a "P" list for prescribing only, and here again his costs could be averaged. The latter doctor could not, of course, be fined by deducting a sum from his State remuneration for over-prescribing, since he would have no such remuneration, but if any penalty was required then removal from the "P" list could be threatened.

The system I have outlined does not imply that we approve of such fines, but it would not add any more administrative burdens or difficulties at executive-council levels than if those "P" patients came on State capitation lists.—I am, etc.,

Malvern, Worcs. G. JAMIESON MEIKLE.

*** An amendment on this subject was defeated when the Standing Committee debated the Amending Bill during its third and fourth sittings on July 5 and 6.—ED., *B.M.J.*

Clearing House

SIR,—I have just received a circular letter from my M.O.H. quoting a directive from the Ministry. This states that, "should the doctor attending the patient deem that an oxygen tent, or oxygen therapy equipment, is necessary, he must consult a specialist from a local hospital. If, after consultation, it is still found necessary to order the equipment then the ordering becomes the responsibility of the hospital."

This directive seems to be remarkable both in its implications and in its grossly offensive wording. Is it really the intention of the Minister to downgrade the G.P. to the level of a medical orderly?

There is an increasing tendency to regard the G.P. mainly as a clearing house, and the loss of confidence in his ability fostered by this can only damage the profession as a whole in addition to destroying the clinical interests of the practitioner. Moreover, this denigration of the G.P., who alone is in a position to know the patient as an individual within his own environment and not just as a series of dissociated systems, would seem to run counter to all modern medical thought.

There is an increasing feeling of frustration among practitioners, and if they are now to find their professional interests stifled at every turn by regulations of this nature then it would seem incumbent to inform young aspirants to general practice of their future status. If the best men then turn aside it will not matter; they will not be needed.—I am, etc.,

London, N.W.9. N. C. MOND.

POINTS FROM LETTERS

Waste

Dr. G. C. PETHER (Hadley Wood, Herts) writes: In a recent lett to *The Times* Sir Lionel Whitby has provided further evidence, such were still needed, that the State is less moral than its citizer Such was indeed evident, to those who would see and listen, lor before the Health Act. If this be agreed, then the ethical claims the political Left are seen for what they are—pretentious, insoler and false in every sense. . . . It has been pointed out that ar further advances in social services can only come from increas wealth and productivity. A Minister of the Crown stated some tir ago that exports do not matter. But without exports, visible ar invisible, where are the health services? If I understand him arig Dr. Ffrangcon Roberts stressed the necessity of cutting our co according to our cloth. I know a factory employing 3,000 men which the contributions of the firm for social insurance amount £30,000 a year. Such is a direct charge on manufacture, by whi we live. So it would seem that the health services can only surviv can only be financially supported on an adequate scale, if waste ruthlessly eliminated and the Government learns to keep its word.

Electronic Medicine

Dr. M. H. K. KANE (London, S.E.21) writes: Why all this fu and bother about the salaries of consultants, specialist general-practitioner specialists, general practitioners, and nurses Is it not only too clear that in a few years we will all replaced by appropriately specialized electronic brains, which w be installed in suitable batteries at our teaching hospital general hospitals, cottage hospitals, and health centres? Tl only factor lacking in this arrangement will be human unde standing, and in view of the well-known infallibility of mode mechanical aids to diagnosis this is really almost unnecessary. Tl whole troublesome profession will thus be neatly and convenient eliminated, with immense saving to the Government of worry ar expense. Large sums will be released for the provision mechanical appliances and supports for the industrial populatio whose welfare, longevity, and productivity will thus be immeasurab increased. Let us therefore relinquish our futile and undignifie endeavours to hold back the sacred waters of progress.

B.M.A. LIBRARY

The following books have been added to the Library:

Leitner, S. J.: Bone Marrow Biopsy. English translation revise and edited by C. J. C. Britton and E. Neumark. 1949.
Licht, S. (Editor): Occupational Therapy Source Book. 1948.
Lloyd, B. (Editor): Science in Films. 1948.
Lonsdale, K.: Crystals and *X*-Rays. 1949.
Lyons, W. R., and Woodhall, B.: Atlas of Peripheral Nerve Injurie 1949.
Mace, D. R.: Marriage Counselling. 1948.
Marshall, M. S.: Applied Medical Bacteriology. 1947.
Martin, R., and Sureau, B.: Traitement Moderne des Méningite Purulentes Aiguës. 1948.
Matthews, F. B.: Mental Health Services. 1948.
Meleney, F. L.: Treatise on Surgical Infections. 1948.
Modern Practice in Psychological Medicine, 1949: edited by J. F Rees. 1949.
Monrad-Krohn, G. H.: Clinical Examination of the Nervous Systen Ninth edition. 1948.
Murray, J. B.: Some Common Psychosomatic Manifestations. 194
Nimalasuria, A.: Dietetics. 1948.
Ogilvie, Sir H., and Thomson, W. A. R.: Early Recognition o Disease. 1949.
Ponder, E.: Hemolysis and Related Phenomena. 1948.
Riddell, V.: Carcinoma of the Breast: a Hunterian Lecture. 194
Robertson, J. K.: Radiology Physics. Second edition. 1948.
Seegers, W. H., and Sharp, E. A.: Hemostatic Agents. 1948.
Shaw, W.: Textbook of Midwifery. Third edition. 1949.
Sleeman, C. (Editor): Trial of Gozawa Sadaichi and Nine Other (War Crimes Trials Series). 1948.
Smith, Sir S., and Fiddes, F. S.: Forensic Medicine. Ninth edition 1949.
Todd, J. W.: Rational Medicine. 1949.
Valentine, C. W.: Intelligence Tests for Children. Third edition 1948.
Van der Werff, J. T.: Biological Reactions Caused by Electri Currents and by *X*-Rays. 1948.
Warfield, F.: There's No Need to Shout. 1949.
Warkentin, J., and Lange, J. D.: Physician's Handbook. Fifth edition. 1948.
Weber, F. P.: Rare Diseases and Some Debatable Subjects. Secon edition. 1948.
Weinberger, B. W.: An Introduction to the History of Dentistry 2 volumes. 1948.
Wiles, P.: Essentials of Orthopaedics. 1949.
Wiprud, T.: Business Side of Medical Practice. Second edition 1949.

H.M. Forces Appointments

ROYAL NAVY

Surgeon Rear Admiral J. A. Maxwell, C.V.O., C.B.E., K.H.S., has been placed on the Retired List.

Surgeon Commander T. L. J. Barry has been placed on the Retired List.

Surgeon Commanders W. A. Hopkins, O.B.E., and T. B. Lynagh to be Surgeon Captains.

Acting Interim Surgeon Commanders D. A. Hovenden, E. B. Bradbury, E. D. Caldwell, H. G. Silvester, O.B.E., and J. L. S. Steele-Perkins to be Surgeon Commanders.

Acting Surgeon Lieutenant-Commanders A. J. Gaskell and J. Glass to be Surgeon Lieutenant-Commanders.

ROYAL NAVAL VOLUNTEER RESERVE

Surgeon Lieutenant-Commander R. G. Reid, V.R.D., to be Surgeon Commander.

Surgeon Lieutenant-Commanders D. Rice and F. J. Curtis have been removed from the Active List.

Surgeon Lieutenants D. R. Tipping, E. J. King, A. W. Hagger, D. H. M. Titcombe, and J. J. Ennitt to be Surgeon Lieutenant-Commanders.

ROYAL AUSTRALIAN NAVY

Surgeon Lieutenant-Commanders J. E. Hughes and M. J. L. Stening, R.A.N.R., to be Surgeon Commanders, R.A.N.R.

ROYAL NEW ZEALAND NAVY

Surgeon Commander E. S. McPhail, V.R.D., K.H.P., to be Surgeon Captain.

ARMY

Colonels E. M. Townsend, M.C., and D. T. M. Large, late R.A.M.C., have retired on retired pay and have been granted the honorary rank of Brigadier.

Colonel D. H. Murray, late R.A.M.C., having attained the age for retirement, is retained on the Active List supernumerary to Establishment.

Colonels W. W. S. Sharpe and F. McKibbin, O.B.E., late R.A.M.C., have retired on retired pay.

Lieutenant-Colonel T. F. M. Woods, O.B.E., from R.A.M.C., to be Colonel.

ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel G. F. Harrison, M.B.E., has retired on retired pay on account of disability.

Major (War Substantive Lieutenant-Colonel) J. A. MacDougall, O.B.E., to be Lieutenant-Colonel.

Majors A. C. Cox, O.B.E., and A. Gleave to be Lieutenant-Colonels.

Major J. Walsh has been placed on the half-pay list on account of disability.

Captain (War Substantive Major) T. W. Carrick to be Major.

Short Service Commission, Specialist.—Captain (War Substantive Major) J. B. Headley Blythe has retired on account of disability and has been granted the honorary rank of Major.

Short Service Commission.—Captain S. J. Nathan to be Major (substituted for the notification in a *Supplement* to the *London Gazette* dated April 22). Captain J. P. Mitchell has retired and has been granted the honorary rank of Major.

Short Service Commission (Type "B").—Colonel R. H. Robinson, T.D., from T.A., to be Lieutenant-Colonel. Major H. Shield, from T.A., to be Major. (Substituted for the notification in a *Supplement* to the *London Gazette* dated April 26.) Captains J. Totten, W. S. Angus, and A. A. Grace to be Majors.

REGULAR ARMY RESERVE OF OFFICERS

ROYAL ARMY MEDICAL CORPS

Colonels H. G. Monteith, D.S.O., O.B.E., and E. V. Whitby, late R.A.M.C., having exceeded the age limit for liability to recall, have ceased to belong to the Reserve of Officers.

Lieutenant-Colonels (Honorary Colonels) G. K. Maurice, D.S.O., M.C., H. F. Panton, D.S.O., M.C., and J. F. W. Sandison, O.B.E., M.C., having exceeded the age limit for liability to recall, have ceased to belong to the Reserve of Officers, retaining the honorary rank of Colonel

Lieutenant-Colonels J. A. Clark, M.B.E., P. C. Field, and R. H. Leigh, M.C., having exceeded the age limit for liability to recall, have ceased to belong to the Reserve of Officers.

Lieutenant-Colonel D. H. Waldron, O.B.E., from I.M.S., to be Lieutenant-Colonel.

Major (Honorary Brigadier) R. H. Lucas, C.B.E., M.C., having exceeded the age limit for liability to recall, has ceased to belong to the Reserve of Officers, retaining the honorary rank of Brigadier.

Majors (Honorary Colonels) J. H. Baird, E. Catford, O.B.E., W. B. Stevenson, and H. J. G. Wells, having exceeded the age limit for liability to recall, have ceased to belong to the Reserve of Officers, retaining the honorary rank of Colonel.

Majors (Honorary Lieutenant-Colonels) C. M. C. Byrne, O.B.E., W. Mc. M. Chesney, M.C., W. E. K. Coles, C. R. Dugeon, O.B.E., M.C., W. V. Fawkner-Corbett, O. D. Jarvis, O.B.E., D. J. H. Jones, W. J. A. Laird, and R. B. Myles, O.B.E., having exceeded the age limit for liability to recall, have ceased to belong to the Reserve of Officers, retaining the honorary rank of Lieutenant-Colonel.

Majors E. H. W. Elkington, D. G. Evans, H. G. Hobson, O.B.E., M.C., D. C. Ogilvie, M.C., T. V. Oldham, D. W. Pailthorpe, M.C., and J. C. Preston, having exceeded the age limit for liability to recall, have ceased to belong to the Reserve of Officers.

Captain (Honorary Lieutenant-Colonel) P. L. C. Carrier, having exceeded the age limit of liability to recall, has ceased to belong to the Reserve of Officers, retaining the honorary rank of Lieutenant-Colonel.

War Substantive Majors V. St. G. Vaughan, W. M. Walsh, and A. J. Daldell-Ward, from Emergency Commissions, to be Majors, and have been granted the honorary rank of Lieutenant-Colonel.

Major S. J. Nathan, from Short Service Commission, to be Major.

Majors T. K. White, W. C. Templeton, J. J. Barton, and O. Walker, from I.M.S., to be Majors.

Captain (War Substantive Major) H. Mowschenson, from Emergency Commission, to be Major, and has been granted the honorary rank of Lieutenant-Colonel.

Captain T. W. Gillespie, from Supplementary Reserve of Officers, to be Major, and has been granted the honorary rank of Colonel.

Captains W. G. Sutcliffe, O.B.E., R. P. Smyth, O.B.E., G. R. McNab, J. W. Crofton, T. G. Faulkner-Hudson, G. F. Wright, H. A. Magnus, A. E. Francis, R. S. Handley, and W. A. Oliver, M.B.E., from Supplementary Reserve of Officers, to be Majors, and have been granted the honorary rank of Lieutenant-Colonel.

Captains W. R. Cunningham, J. B. McCallum, S. T. Irwin, J. J. T. Morrison, O. C. Dobson, J. Devine, M.C., H. I. C. Maclean, R. A. Binning, H. V. Corbett, D. W. Ashcroft, E. R. Danste, E. Carew-Shaw, W. D. B. Pettigrew, P. E. Cresswell, J. Mason, M.B.E., G. A. Fowler, M. H. Hughes, P. B. Barker, I. P. J. Macnaughten, E. H. W. Lyle, W. G. France, J. P. Bostock, J. W. S. H. Lindahl, W. Mackenzie, A. M. Murray, R. A. Tennent, M.B.E., I. C. Thomson, R. R. Gordon, M.C., and F. J. Hebbert, from Supplementary Reserve of Officers, to be Majors.

Captain R. Mowbray, from Supplementary Reserve of Officers, to be Captain, and has been granted the honorary rank of Major.

War Substantive Captains A. T. Wallace and J. G. Dumoulin, from Emergency Commissions, to be Captains, and have been granted the honorary rank of Major.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

Colonel J. P. J. Jenkins, O.B.E., T.D., has been appointed Honorary Colonel.

Lieutenant-Colonel W. A. Jackman, T.D., having exceeded the age limit for retention, has retired and has been granted the honorary rank of Colonel.

Lieutenant-Colonel J. P. McGreehin, M.C., having exceeded the age limit for retention, has retired, retaining the rank of Lieutenant-Colonel.

Lieutenant-Colonel R. H. Robinson, T.D., to be Colonel.

Major (Acting Lieutenant-Colonel) C. D Evans, O.B.E., Reserve of Officers, has relinquished his commission

Major (Acting Lieutenant-Colonel) J. P. Raban, T.D., has relinquished his commission on account of disability and has been granted the honorary rank of Colonel.

Major (War Substantive Lieutenant-Colonel) W. H. D. Patterson, T.D., to be acting Colonel.

Majors C. W. Dudley, T.D., P. Hickey, T.D., D. S. Jones, A. H. Macklin, O.B.E., M.C., T.D., A. S. Pern, O.B.E., T.D., R. O. Townend, T.D., E. Walsh, T.D., and H. S. Ward, O.B.E., T.D., having exceeded the age limit, have retired and have been granted the honorary rank of Colonel.

Majors W. E. A. Buchanan, T.D., T. L. Clark, T.D., P. Hayes, T.D., G. E. Lindsay, C. F. Mayne, O.B.E., G. Sparrow, M.C., T.D., and J. W. Wayte, M.C., T.D., having exceeded the age limit, have retired and have been granted the honorary rank of Lieutenant-Colonel.

Majors A. Willcox and G. M. R. Duffus, M.B.E., have been granted the acting rank of Lieutenant-Colonel.

Majors S. B. Faulkner, R. W. Gemmell, T.D., J. C. C. Howe, F. J. Lidderdale, M.C., I. H. Lloyd-Williams, M.C., J. E. McCartney, W. H. Milligan, O. F. W. Robinson, T.D., E. G. Snaith, T.D., G. T. Symons, A. J. Will, and C. N. Vaisey, T.D., having exceeded the age limit, have retired.

Major R. B. Quinn has relinquished his commission on account of disability.

Major A. R. Edwards, from R.A., T.A., Reserve of Officers, to be Major.

Captain J. Beattie, having exceeded the age limit, has retired and has been granted the honorary rank of Colonel.

Captain F. C. O'Mara, having exceeded the age limit, has retired and has been granted the honorary rank of Major.

Captain (acting Colonel) J. Donovan has relinquished the acting rank of Colonel.

Captains (Acting Lieutenant-Colonels) J. D. Wade and E. H. Evans to be Majors, retaining the acting rank of Lieutenant-Colonel.

Captain (acting Lieutenant-Colonel) S. Glaser has relinquished his commission on account of disability and has been granted the honorary rank of Lieutenant-Colonel.

Captains (acting Majors) J. D. Wade, J. Macrae, T. M. Park, and E. H. Evans have been granted the acting rank of Lieutenant-Colonel.

Captains W. H. Wolstenholme, O.B.E., T.D., R. Mowbray, and R. G. W. Ollerenshaw to be Majors, and have been granted the acting rank of Lieutenant-Colonel.

Captains (acting Majors) M. N. S. Duncan and P. G. McGrath to be Majors.

Captains H. F. T. Macfetridge, D.S.O., E. V. Bevan, A. W. Forrest, A. C. C. Burn, E. Parry, J. S. H. Wade, H. H. Kenshole, D.S.O., T.D., L. H. Allan, D. B. McVittie, A. V. Griffiths, C. S. M. Hutson, T. C. MacInnes, P. G. Seed, M.B.E., G. Bourne, and L. W. Lauste, M.B.E., to be Majors.

Lieutenant L. J. Haydon to be Major, and has been granted the acting rank of Colonel.

Lieutenant L. Fletcher, O.B.E., to be Captain, and has been granted the acting rank of Colonel.

Association Notices

B.M.A. LECTURES

Every Branch and Division may have one B.M.A. Lecture a year. The lecturer, who is chosen by the Branch or Division, is an authority on his particular subject. He is invited from the Central Office and receives an honorarium and his expenses. Branch and Divisional secretaries making up their programmes for the forthcoming year are invited to send requests to Headquarters for B.M.A. lectures. The application should be on a special form obtainable from Headquarters denoting the name of the lecturer, the subject, and choice of dates.

SIR CHARLES HASTINGS CLINICAL PRIZE

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of 50 guineas, is again open for competition. The following are the regulations governing the award:

1. The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research, and record in general practice; it includes a money award of the value of 50 guineas.
2. Any member of the Association who is engaged in general practice is eligible to compete for the prize.
3. The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not be omitted when it bears directly on their results, their interpretations, and their conclusions.
4. Essays, or whatever form the candidate desires his work to take, must be sent to the British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1949. The prize will be awarded at the Annual General Meeting of the Association to be held in 1950.
5. No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. A prizewinner in any year is not eligible for a second award of the prize.
6. If any question arises in reference to the eligibility of the candidate or the admissibility of his or her essay the decision of the Council on any such point shall be final.
7. Preliminary notice of entry for this competition is required, and a form of application can be obtained from the Secretary.
8. Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.
9. The writer of the essay to whom the prize is awarded may, on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate Section of the Annual Meeting of the Association.
10. Inquiries relative to the prize should be addressed to the Secretary.

NATHANIEL BISHOP HARMAN PRIZE

The Council of the British Medical Association is prepared to consider the award of the Nathaniel Bishop Harman Prize in the year 1950. The value of the prize is approximately £100. The purpose of the prize is the promotion of systematic observation and research among consultant members of the staffs of hospitals who are not attached to recognized medical schools. It will be awarded for the best essay submitted in open competition. The work submitted must include personal observations and experiences collected by the candidate in the course of his practice. A high order of excellence will be required. No study or essay that has been previously published in the medical press or elsewhere will be considered eligible for the prize.

Any registered medical practitioner who is a consultant member of the staff of a hospital in Great Britain or N. Ireland and is not attached to a recognized medical school is eligible to compete. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay the decision of the Council shall be final.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1950 but will be offered again the year next following this decision, and in this event the money value of the prize on the occasion in question shall be such proportion of the accumulated income as the Council shall determine.

The writer of the prize-winning essay may be required to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate section of the Annual Meeting of the Association. Each essay must be typewritten or printed in the English language, and must be distinguished by a title and a motto. The essay must not bear the name of the writer, which should be sent with the essay in a sealed envelope bearing only the motto on the outside.

Essays must be forwarded to reach the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, not later than March 31, 1950. The title of the proposed essay and the motto should also be notified in writing to the Secretary by Dec. 1, 1949, and a form for this purpose can be obtained from the Secretary. The prize will be awarded at the Annual Meeting of the Association to be held in 1950. Inquiries relative to the prize should be addressed to the Secretary.

PRIZES FOR MEDICAL STUDENTS, 1950

The Council of the British Medical Association is prepared to consider the award in 1950 of prizes to medical students for essays submitted in open competition.

The subject of the essays shall be "Clinical Teaching in Relation to the Practice of Medicine."

The purpose of these prizes is the promotion of systematic observation among medical students. In awarding the prizes due regard will be given to evidence of personal observation. No study or essay that has previously appeared in the medical press or elsewhere will be considered eligible for a prize. Any medical student who is a registered member of a medical school in Great Britain or Northern Ireland at the time of submission of the essay is eligible to compete for a prize.

If any question arises in reference as to the eligibility of a candidate or the admissibility of his or her essay, the decision of the Council of the British Medical Association shall be final. In determining the number and the value of the prizes to be awarded the Council will take into consideration the number of essays received. Should the Council decide that no essay entered is of sufficient merit, no awards will be made.

Each essay must be typewritten or legibly written in the English language, on one side of the paper only, must be unsigned, and must be accompanied by a form of application which can be obtained from the undersigned. Essays must be forwarded so as to reach the Secretary of the British Medical Association not later than Dec. 31, 1949. Inquiries relative to the prizes should be addressed to the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1.

CHARLES HILL,
Secretary.

Diary of Central Meetings

JULY

26	Tues.	Proprietary Medicines Committee, 2 p.m.
27	Wed.	Committee on the Postgraduate Education of General Practitioners, 2 p.m.
28	Thurs.	General Medical Services Committee, 11 a.m.
28	Thurs.	Publishing Subcommittee, 11 a.m. (adjournment from July 14).
28	Thurs.	Committee on Psychiatry and the Law, 2 p.m.
29	Fri.	Public Health Committee, 2 p.m.

Branch and Division Meetings to be Held

NORTH OF ENGLAND BRANCH.—At Brancepeth Golf Club (five miles west of Durham City), Thursday, July 28, 12.30 p.m., annual meeting.

BRITISH MEDICAL JOURNAL

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PROBLEMS OF AGEING AND CHRONIC SICKNESS*

BY

A. P. THOMSON, M.C., M.D., F.R.C.P.

Professor of Therapeutics, University of Birmingham; Physician, United Hospitals, Birmingham

The Problem

In the short span of 150 years the progress of medicine has been chiefly responsible for two distinct problems of population in Western Europe. In Great Britain, for instance, during the first part of that period the reduction of infant mortality and the control of infectious disease led to a rapid and embarrassing increase in the number of youthful inhabitants—from about nine millions in 1801 to forty millions at the close of the nineteenth century. Decline of the birth rate and emigration checked the increase, but the astonishing advance of curative medicine in the past 50 years has so prolonged the average duration of life that the total population is to-day larger by ten millions, and of the fifty millions in this country now no fewer than seven millions are over 60 years of age. As it is inevitable that in the immediate future the proportion of the aged will increase, and that the survival of individuals with chronic maladies will be greater, the urgency of the problem of the proper provision for the chronic sick and aged needs no emphasis. It has not indeed been neglected. Within the past two years this College (1948) and the British Medical Association (1947, 1948) have published reports from special committees on the care and treatment of the elderly and infirm, and in addition there have been a number of papers from individuals whose work lies mainly in this field. The relevant literature is interesting and abounds with suggestions for reform. There is a general demand for better classification of the patients and for their segregation, like with like, in appropriate institutions; the need for special housing for the old is emphasized, and a plea is made for the establishment of yet another medical specialty in the shape of geriatrics.

When I sought, however, for some factual and statistical analysis of the patients now in the institutions and for precise information about how they got there and why they stayed so long I often sought in vain, though Affleck (1947) in his psychiatric approach to the problem included some valuable figures, to which I will refer later. Lack of dispassionate statistical analysis is a weakness in these reports, and as there is nothing in the literature from the hospitals for the aged and chronic sick that compares, for instance, with Sheldon's (1948) account of the condition of the old people living in ordinary homes in Wolverhampton I decided to undertake an independent investigation; in addition it seemed probable that conditions would vary in different parts of the country.

The Position in the Midlands

In the Birmingham Hospital Region, which includes five counties with a population of 4.2 millions, there are 50 institutions concerned with the reception of the aged and chronic sick. Their variety is remarkable; most of them are small and understaffed, with old and dingy buildings and poor equipment. Some are parts of acute general hospitals; none have been well designed for their present use, and the concern expressed by the Nuffield Surveyors for the fate of their patients was amply justified. Most of these institutions have other functions, of which the most important is the accommodation of poor and homeless people who, though not sick, are in general unable to fend for themselves.

The number of beds available (apart from those for the insane and simply destitute) in these 50 institutions is 5,780, and of these no fewer than 2,400 are contained in five large establishments in densely populated areas. For comparison the total available for general medical and surgical use in the acute hospitals is only 5,960, but in addition there are about 1,000 beds for the same purpose in the teaching hospital. Briefly, of every 100 beds for general medicine and surgery in the region at least 45 are reserved for the chronic sick. This large proportion was to me surprising.

Dr. Richard Padley, of the University Department of Medical Statistics and Statistical Officer to the Regional Board, to whom I am indebted for these figures, also made an estimate of the staff employed in caring for the chronic sick (excluding medical and laboratory services), and found at the end of 1948 that 3,650 persons were so engaged. In other words 100 chronic beds required on average a whole-time staff of 61, made up as follows: trained nurses, 4; assistant or other nurses, 21; domestic workers, 22; laundry, 4; maintenance, 5; administration, 5. These are serious figures; with an ageing population it is obvious that the staffs necessary for institutions of this kind may soon become a serious drain on the national reserve of man-power.

The field to be explored was so extensive and the problems were to me so novel and perplexing that it seemed

*The first of two Lumleian Lectures delivered before the Royal College of Physicians of London on April 5 and 7.

impossible to investigate all the institutions closely, and I decided to concentrate attention on the largest—the Western Road Infirmary in Birmingham—and to be content with occasional visits to others.

First Impressions of Western Road

My most vivid impression of the chronic wards of this hospital is of an atmosphere of profound apathy. The patients seldom spoke to each other; they rarely moved, and although there was a library service and newspapers were provided it was exceptional to see one reading. At first we thought that this unnatural calm was a consequence of discipline imposed in preparation for our visits, but we were assured it was not so and that there was nothing unusual in it. Even when we were hours together in a ward and examined in turn every patient in it the prepotent sense of still foreboding and quiet resignation endured.

Contact with the patients was not difficult; histories of their social background and infirmities were mostly accurate and readily given, but what made them remarkable was the conspicuous absence of emotional overtones as they recounted them. There was no bewailing of their fate, no clamant sense of grievance, and they spoke of life's adventure with the detachment of a disembodied observer rather than with the passion of a participant. One old lady told us a strange story of many years of colourful life breeding and breaking ponies in the Welsh Marches, of visits to country fairs to sell them, of strange adventures in wild country, and of independent freedom rarely to be attained in England now. An accident crippled her and she had been long in bed. Her face was immobile as she spoke; the glory and the zest had departed; she was interested mainly in her tea, which was a little late. Food, indeed, was their major interest; it was astonishing how much they ate. Nearly all of them were well nourished, and most of them were stout. The wards came momentarily to life at meal-times.

Apathy prevailed also in the large rooms for those who were able to dress and move about: they sat listlessly and in silence; the men smoked as long as their tobacco lasted. In these rooms there was a striking difference between the sexes: the women were much more careful of their personal appearance; they were cleaner, their clothes were neater, and they were more readily responsive when addressed. Nearly all the women had capacious bags in which they collected a strange and pathetic assortment of trifles of little value—fragments of food, bits of cloth, and empty boxes. Both rooms emptied several minutes before a meal, and long queues were formed at the doors of the dining-hall, in which there was strict segregation of the sexes; even the married couples did not sit together, and they rarely expressed any wish to do so.

We were warned that the prevailing calm was sometimes broken by outbursts of petulant misbehaviour which were commonly the result of childish jealousy, resentment, or misdemeanour. Pilfering was common and led to trouble. The manner of the theft was often ingenious and astute. One man coveted the pipe that belonged to another who also had half a crown. The pilferer, although almost incapable of movement, got up one night and stole the half-crown. A little later he bought the pipe with the money he had stolen from its owner. The men who were up and about had another interest besides food—they gambled. Nearly every morning there was an hour of feverish activity in which they studied the racing information and arranged their bets for the day. The results they heard on the radio. Football pools were not neglected. Officially their financial resources were limited to five shillings weekly allowed to them out of their old age pensions, but a few earned small sums in addition by doing odd jobs. They had considerable freedom, and when fit enough and in the humour they went into the city on social occasions; not rarely they were drunk on their return. Some of the more adroit deposited their old age pension books with friends outside the institution and managed to retain the whole sum by drawing it when they went visiting. One old woman had defeated the regulations of authority in this manner for over two years; she had glorious "blinds" on the proceeds and was a source of considerable trouble. In the acute wards the atmosphere was like that of an ordinary general hospital. Most of the patients had been admitted from their homes but a short time before; they were interested, and still hopeful of recovery sufficient to allow them to gather up the threads of their customary way of life. It was here alone that we saw any evidence of anxiety; in the chronic wards there was the apathetic indifference I have described and in others there was frank psychosis, but in none of these was anxiety prominent.

The records of the patients in the wards for the deteriorated showed that many of them had passed from the acute block to the chronic beds, where later they had developed incontinence or other unpleasant antisocial habits which led to their transfer to this final refuge. Whether the process of decay is inevitable or whether it is caused or accelerated by the apathy surrounding the chronic beds is a matter worthy of consideration.

Medical Treatment

The medical treatment in Western Road Hospital was surprisingly good, although there were only five whole-time medical officers, including the medical superintendent, to care for 1,000 bedridden patients, and they had in addition many other responsibilities—a large venereal department, 150 patients who were up and about but unfit to return to their homes, and 300 inmates, including provision for maternity, under the control of the Social Welfare Committee set up by the National Assistance Act. My registrars made frequent visits, took histories, and made clinical examinations of the standard usual in a teaching hospital, and each week the staff of the infirmary, my registrars, and I spent a long afternoon together in the wards comparing the result of our separate observations. It was rarely necessary to change a diagnosis or possible to modify treatment. A considerable amount of laboratory and radiological investigation had been done in the departments of the Dudley Road Hospital close by.

The individual case records were, it is true, brief and to the uninitiated almost incomprehensible, and they were, unfortunately, unsuitable for exact analysis.

In this connexion I have used the words "medical treatment" in their narrowest sense to signify the therapeutic use of rest and drugs, because in the infirmaries no other form of treatment is generally possible. In Western Road no masseuse had worked for years; there was a room reserved for physiotherapy, but on the door of it was the notice "Do not enter," and within was a heap of electrical apparatus apparently in good order. Rehabilitation could not be attempted, because there was no staff and all the day rooms were full of beds; there was no occupational or diversional therapy, but a few women patients knitted and did needlework. I never saw a man engage in any spontaneous activity in the wards.

Nursing

Of the nursing in Western Road Infirmary I find it difficult to speak with due restraint. When we began our survey the patients were roughly classified thus:

	Males	Females	Total
Group 1: Bedridden	393	550	943
Group 2: Allowed up but unfit for transfer to homes without nursing care	67	73	140
	460	*623*	*1,083*
The number of incontinent patients among those confined to bed	162	295	457

In addition there was a small maternity ward and a considerable venereal-disease department.

The number of full-time nurses was 181; there were besides 90 half-time nurses, and if they be reckoned as the equivalent of 45 the total available was 226. Only 14 of these were State-registered; the remainder were either assistant nurses or in training.

These figures were given to us before we went into the wards, and I was prepared for an unpleasant experience: it seemed certain that we would find bedsores, dirty beds with the inevitable foul smell, and general untidiness and lack of cleanliness.

The truth was the exact reverse. The wards were clean, the beds were impeccably made (indeed, as we found later when studying consequent deformities of the feet, they were too well made and too firmly tucked in), there was no smell or untidiness. We were quite ruthless and perhaps a little rude in our first inspection; we pulled down bedclothes here and there looking for bedsores and dirty beds and found none. There were only nine bedsores in the whole institution, and these were in cases of gross organic nervous disease in the last stages.

Two nurses were on duty in wards containing 70 patients, of whom 30 were incontinent; they never stopped working—they did not come to speak to the doctor of the ward or to the matron unless they were sent for; quietly and efficiently they went on with their job. In the incontinent cases the backs "were done" every four hours day and night.

The equipment of the wards was lamentable; basins with running water were few and far between, the sluice-rooms were mainly archaic, though here and there a bed-pan washer had been installed; there were no pulleys over the beds; the baths were of the ordinary domestic type—the bedridden were wheeled to them once a week and laboriously lifted in and still more laboriously lifted out. Many of the women patients could not do their own hair, and yet it was tidy and obviously tended regularly by the staff. At night one assistant nurse was in charge of the 70 beds; to turn a helpless patient she had to fetch a nurse from another ward and render her the same service in return. The relations between the staff and the patients were good; in our later clinical examinations we heard frequent spontaneous tributes to the kindness of the nurses, and we were surprised at the extent of their knowledge of the social background and personal predilections of the patients.

Conditions such as these are by no means exceptional. In many institutions in the Birmingham Region they are much worse; in few are they as good. For instance, at Exhall Hospital, in Coventry, there were only two resident nurses for 274 patients of the same sort; at night there were often not enough to allow one to each ward of 50 beds, and "runners" were employed to call nurses when and where they were most needed. Yet the work was done; we found the wards clean and the patients well tended and without bedsores. In the smaller hospitals classification of the patients was impossible, and we saw babies and young children in beds side by side with senile dements.

In their quiet endurance and their efficiency, as in their triumph over discouraging circumstances and lack of proper equipment, the nurses recalled the virtues of their fathers in the rank and file of the county regiments who held the trenches in Flanders in the campaign of 1914–18 and saved Europe. Certainly by their work they have delivered the hospitals of this country from chaos, for if the infirmaries fail the work of the general hospitals will be speedily stifled by the accumulation of cases of chronic sickness in their wards.

Rivers of ink have already flowed into the sterile sands of controversy about the nursing problem and I do not wish to add to them. I confine myself to the statement that the work of nursing in the hospitals of this country is most inequitably distributed; that a disproportionately heavy burden is borne by the staffs of the institutions for the chronic sick; that, despite neglect and poor equipment, the most heavily burdened have done their work efficiently and humanely, and their triumph owes little to theoretical instruction, academic distinction, or flowers and shampoo-rooms in the nurses' homes.

These simple facts should be considered by those whose duty it is to shape the future of nursing. Kindness, courage, practical resource, and patient endurance of the routine of daily work are qualities more valuable in nurses than a superficial knowledge of the intricacies of anatomy and physiology. It may be that the pursuit of a high average of academic attainment for State-registered nurses is a mistake. It might be better to select a small number for intensive training for positions of responsibility as sisters, matrons, and administrators and to rely more on character and practical work in the wards as the test for registration for the great majority. Unless some change is made it is certain that for many years defects of primary education will exclude a large number of excellent and intelligent nurses from the ranks of the registered. In any event the condition of the sick in the infirmaries demonstrates the foolishness of the contention that the measure of the efficiency of the nursing staff is the average duration of the stay of the patients in hospital.

The recently published Report of the Working Party on the Recruitment and Training of Nurses is not a distinguished document, but paragraph 247 deserves notice for its almost incredible stupidity. It runs: "It is clear that for some time to come, owing to the shortage of trained staff, it will be essential to continue to use the services at least of those assistant nurses now recognized and employed. Such evidence as we have been able to obtain points to the fact that useful service can be rendered in the nursing of mental and tubercular patients and probably also of fever patients and the chronic sick by persons who are not fully trained nurses." For many years four out of five nurses responsible for the care of the chronic sick have not been fully trained. I have paid my tribute to their skilful and devoted work and hope they will not be distressed by this slighting reference in the report.

Tentative Conclusions Based on Pilot Survey

Our preliminary survey was undertaken to discover whether improvement in the staffing and equipment and the application of the standards of investigation and

RELATIVE AGE DISTRIBUTIONS OF PATIENTS IN WESTERN ROAD INFIRMARY

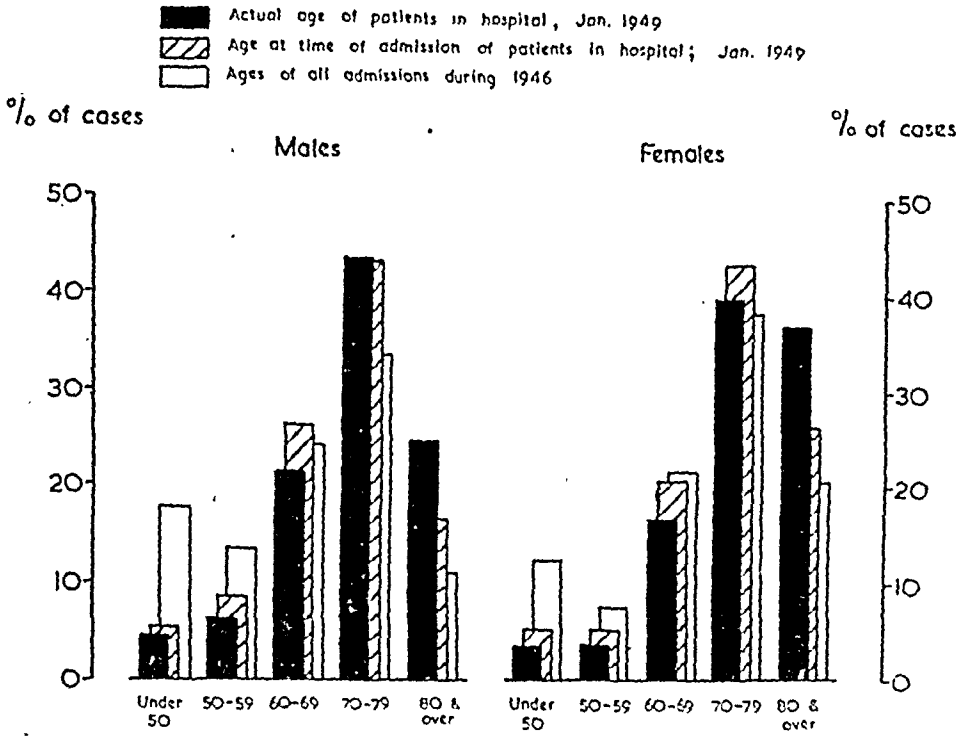


CHART 1

treatment of a good general hospital would be likely to ameliorate the condition of the chronic patients to such a degree that they would be able to return to their own homes. We were soon convinced that improvement of that extent is quite impossible for the great majority, although a number might be made fit enough for transfer to institutions in which a more active and congenial life is possible than in a hospital for the chronic sick.

The reasons for that discouraging conclusion are three. First, nearly all the patients are the victims of pathological conditions which are either degenerative or genetic in their origin and beyond the scope of therapeutics in its present stage of development. Secondly, long confinement to bed without occupational or diversional therapy, without massage and passive movement in hospitals so grossly understaffed that independent activity of any kind has been discouraged for fear of accident, has led to rapid deterioration in the shape of contractures, deformities of the feet, and the development of incontinence. Thirdly, and probably the most important, is the subtle disintegration of human personality that is so common in these patients. Many literally do not wish to leave the beds in which they have lain so long; several refused admission to my wards in the General Hospital for the reason that if they were cured they might be compelled to leave the infirmary and resume the struggle of life alone. Like T. S. Eliot's women in the Cathedral at Canterbury, they did not wish anything to happen: they wished to be left to perish quietly. We had to comfort others by telling them that we had no intention or desire to discharge them before they would consent to give a history or co-operate in examination. Whether the establishment of homes in which a certain amount of nursing and domestic help is provided would encourage many of these patients to leave the infirmaries willingly is a matter to be decided by trial. I am not very hopeful of the result of such an experiment. I feel that most of the inmates in the chronic wards must be regarded as a sad inheritance from a long period of neglect—like many of the deteriorated patients in the mental hospitals—and that the opportunity for effective treatment has long since been lost.

At this stage it was clearly necessary to check the accuracy of our impressions by reference to statistical control. My colleague, Professor T. McKeown, of the Department of Social Medicine, with one of his senior lecturers, Dr. C. R. Lowe, came to our help and devised record forms suitable for mechanical sorting and analysis. The students of the University of Birmingham made us a grant of £1,000 to pay the cost of the investigation. At a later date Birmingham Regional Hospital Board, at the suggestion of the Hospital Management Committee at Stoke-on-Trent, sanctioned a similar survey in the Potteries, and soon we hope to arrange another in the rural peace of Herefordshire. The final figures will be published independently from the Department of Social Medicine, but by the kindness of Dr. Lowe I am able to present the results of a pilot survey, based on a preliminary analysis of the records of 714 patients—318 male and 396 female.

Age, Mobility, and Mental Condition

The mean age of the males is 74 years and of the females 76; 92% of the males and 95% of the females are 60 years and over; 70% of the males and 71% of the females are over 70 years; and 27% of the males and 37% of the females are 80 or over (Chart 1). The largest ten-yearly group for men is from 70 to 79 years and for women from 75 to 84; both these groups are 43% of the respective totals. Clearly the outstanding characteristic of the patients in this infirmary is advanced age.

Of the 714 patients 394 were completely bedridden (49% of the males and 60% of the females); of the remaining 320 only 56 men and 13 women were fit enough to venture out of doors.

At the time of the survey we judged that all but 5% of the bedridden were beyond hope of rehabilitation, but unfortunately it was impossible to determine accurately what their condition had been at the time of admission. We believe that their complete disablement has been in some measure due to continued rest in bed and to a large degree has been aggravated by it, because later we found suggestive evidence that a considerable proportion of the patients had been admitted from their homes simply as a consequence of some domestic upheaval and not on account of deterioration of their condition.

Sixty-three per cent. of the men and 52% of the women were reported to be "occupied" in the sense that they would occasionally read, write, knit, or help in the ward. My own observation, already recorded, suggests that this estimate is excessive. In Affleck's survey at Leeds he included 788 patients in five separate and much smaller hospitals; their age distribution and rough clinical classification corresponded well with ours, but the proportion of bedridden was much lower (in Leeds 33.9% of the males

and 41.7% of the females). Affleck does not give any figures of the nursing staff available, and it may be that the difference between the two groups was due to greater activity in Leeds than was possible in the wards at Birmingham.

Mentally we classified 32% of the males and 39% of the females as abnormal and in so doing ignored senile forgetfulness, irritability, and other minor manifestations of elderly decrepitude; we considered 25% of all the patients certifiably insane. These figures are in exact agreement with Affleck's estimate of 37.3%, and give further support to the explanation suggested by Lewis (1946) of the difference between the first admissions to English and American mental hospitals of patients over 65 years of age. The difference is not in the incidence of psychosis but in the method of dealing with it. In England a large proportion of these cases are cared for in the hospitals for the chronic sick, and in America they are in the mental hospitals. In England many patients thus escape the statistical analysis of the Board of Control.

Affleck believes that the vast majority of the mental disorders among the chronic sick are organic in basis, although he admits the possibility of the importance of functional elements derived from hopelessness and lack of interest. The reason for his belief is the undoubted fact that in nearly all these cases it is easy to elicit evidence of somatic disease such as arteriosclerosis, cerebral thrombosis, and cardiac insufficiency. On the other hand, in ordinary clinical practice cases of that type are common with no evidence whatever of mental failure.

I confess that I am left with the uneasy suspicion that much of the psychiatric disorder in the institutions for the chronic sick may be the result of their apathy and routine; no dogmatic statement, and indeed no opinion, is justified at the present time. What is needed is a systematic study of the mental and physical condition of the patients at the time of their admission to the infirmaries and of their subsequent progress. Such study has hitherto been impossible because the institutions for the aged and chronic sick have been neglected by both physicians and psychiatrists and because their staffs have been too small and too overburdened with routine work to undertake it.

Marital Status

Of the men 58% are widowers, and of the women no less than 73% are widows. Both these figures are significantly higher than those for similar age groups in the general population of Birmingham. The proportion of the unmarried in the infirmary is also higher than outside. The result is conveniently illustrated in Chart 2, which shows that, if a man or woman is married and the mate survives, the risk of ending his or her days in an infirmary is considerably reduced—a conclusion that may bring comfort to those who worry about the social institution of marriage. In Leeds only 34.5% of the men were widowers and 59.3% of the women widows.

Duration of Stay

The mean duration of stay for males was 34 months and for females 37 months (the range in both sexes from 0 to 18½ years); 26% of the men and 28% of the women had been in the infirmary for more than three years; 71% of the women and 62% of the men had been there for a year or more. These figures do not represent the work of the infirmary accurately; they leave an impression of a slow drift to inevitable death over a period of many months, and this is far from the truth. During 1948, for instance,

MARITAL STATUS (Patients 65 years and over) compared with 1939 National Registration, Birmingham.

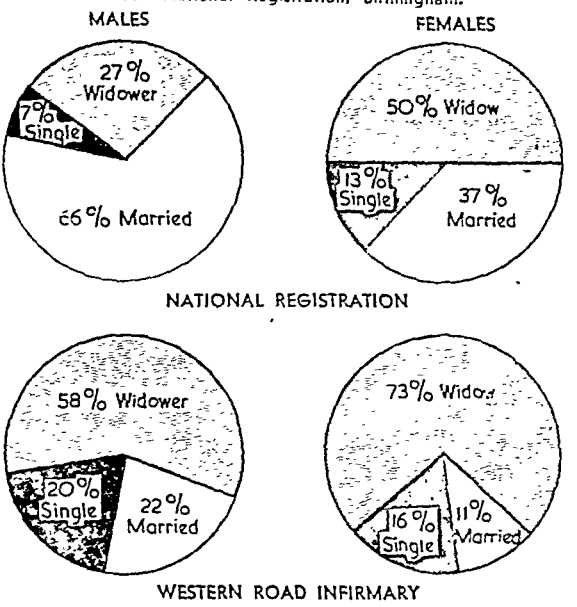


CHART 2

there were 958 deaths in the institution; of these 656 (68%) occurred within 100 days of admission and no fewer than 548 (57%) within 50 days; only 12% of those that died had been in Western Road for two years or more. Clearly an important part of the work was the treatment of acute illness in old people, and we decided to investigate this aspect of the problem more closely by reviewing the subsequent history of every patient admitted during one year. Mr. Broad, the clerk in charge of the records at the infirmary, who had already supplied us with the figures relating to the deaths in 1948, undertook the formidable task of preparing a summary of the case histories of 2,478 patients admitted between Jan. 1 and Dec. 31, 1946 (Tables I and II and Chart 3), and Dr. Padley has provided me with the following analysis:

TABLE I.—*Admissions, Western Road Infirmary, 1946*

Age	Males	Females	Total
Under 50	260 (17·7%)	124 (12·3%)	384 (15·5%)
50–59	199 (13·5%)	75 (7·4%)	274 (11·1%)
60–69	357 (24·3%)	218 (21·6%)	575 (23·2%)
70–79	493 (33·5%)	384 (38·1%)	877 (35·4%)
80–	161 (11%)	207 (20·5%)	368 (14·9%)
Total	1,470	1,008	2,478

TABLE II.—*Fate of Patients Admitted in 1946. Period of Follow-up 26 Months*

	Males	Females	Total
Died:			
In less than 4 months	437 (29·7%)	355 (35·2%)	792 (32%)
In 4 to 26 months ..	115 (7·8%)	82 (8·1%)	197 (7·9%)
Discharged:			
In less than 4 months	784 (53·3%)	385 (38·1%)	1,169 (47·1%)
In 4 to 26 months ..	93 (6·3%)	103 (10·2%)	196 (7·9%)
Survived	41 (2·8%)	83 (8·2%)	124 (5%)
Total	1,470	1,008	2,478

Months are lunar months of 28 days.

The fallacies attending conclusions drawn from a survey of patients within a short period of time are at once apparent, because large numbers of chronic patients will

accumulate over years and distort the picture of the work done. More detailed analysis yielded some interesting results: (1) Men are admitted to the infirmary at an earlier age than women; only 44% of male admissions are 70 years or over, whereas 58% of the females are of that age group. (2) No less than 32% of all admissions died within four lunar months and in the same period 47.1% had been discharged. (3) In 26 months a further 15.8% of the patients either died or were discharged (7.9% in each group). (5) Only 5% of the total admissions survived 26 months or more, and in this group the proportional survival of women was three times greater than that of the men (8.2% as against 2.8%). To adopt a simile suggested by Lancelot Hogben—the patients entering an infirmary are like a crowd of old people passing slowly through a gate into a long avenue. Within four months more than three-quarters have left the avenue either by death or by return to their homes. In two years 19 out of 20 have gone and only a few remain passing through the shade: these stragglers may long survive, and their accumulated numbers at a given moment of time give a false impression of the true condition of life within the grove.

TABLE III

	Western Road, Birmingham	Orsett Lodge, Essex
Total admissions in one year	2,478	1,430
Aged 60 years and over ..	1,820 (74%)	780 (55%)
Under 60 years	658 (26%)	650 (45%)

TABLE IV

	Western Road, Birmingham	Orsett Lodge, Essex
Total admissions	1,820	780
Died	902 (49%)	296 (38%)
Discharged	807 (44%)	284 (37%)

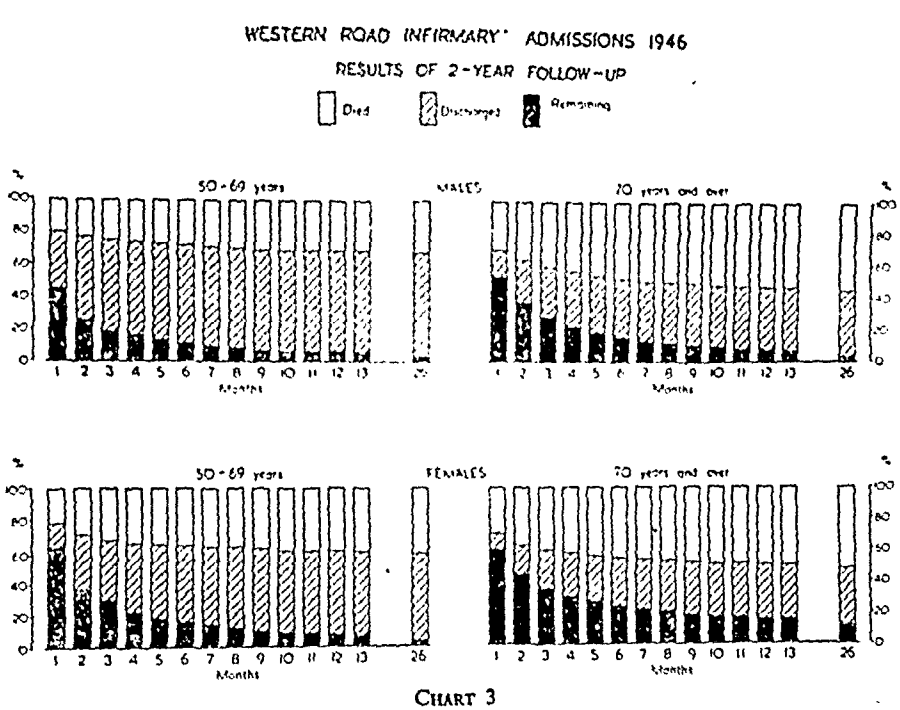


CHART 3

A hospital for the chronic sick is a bad description of Western Road Infirmary, and I suspect for many others. Most of the patients admitted are acutely ill, and their treatment is undertaken in an institution without a laboratory or radiological department and with a staff so small that it is remarkable that the treatment and the nursing were as good as we found them to be. It is true that the clinical and laboratory staff at Dudley Road Hospital, close by, had given all the help that lay in their power, but it would not be candid to pretend that the arrangements were satisfactory. The taking of a radiograph involved a journey of half a mile, and many of the patients were unfit for such adventure; in any event the radiological department was too small for the needs of the acute hospital and desperately overworked. The difficulties of laboratory investigation by messenger and transport of specimens need no elaboration.

I have compared Dr. Nagley's results at Western Road with Mr. Cosin's (1948) at Orsett Lodge Hospital, in Essex. At Western Road the number of admissions was greater than at Orsett and the proportion of older patients was also larger (see Table III). Cosin does not deal with the fate of the patients under 60, and a comparison of those over that age gave the result shown in Table IV. It seems likely that the greater proportion of deaths at Western Road was due to the greater age of the patients. What is surprising is that the ratio of discharges to admissions in this age group was also larger in Birmingham, because at Orsett there was an active department of physiotherapy and there was none at Western Road. The inference is that the discharge of an elderly patient from an infirmary depends more on the condition of his home than it does on the attention of a masseuse.

Prelude to Admission

No less than 77% of all the patients were admitted direct from their own homes; not more than 18% had passed through a general hospital, and of this number one-sixth had passed through the general hospital in a technical sense only — that is, they had been sent on to the infirmary from casualty and out-patient departments and had not been in the wards. In brief, six out of seven patients had been admitted to this understaffed and ill-equipped institution without adequate investigation or treatment. To the credit of the general practitioners of Birmingham it should be recorded that in more than one-half of the patients admitted to the infirmary under the age of 60 years some form of laboratory or other investigation had first been undertaken in the difficult circumstances of their own homes. The figures are in striking contrast with those from Leeds, where it is stated nearly all had been thoroughly examined in hospital.

A study was made of the medical and nursing attention required by individual patients at the date of admission, and it was found that in 33% all that was needed was a visit from a doctor once a month; this group had no skilled nursing of any kind at home, and it was clear that the only reason for their entrance to the infirmary was some sort of domestic catastrophe such as the death of a spouse or friend or illness of the person who had previously cared for them. These cases are entirely a social problem; for the most part they needed only help in their houses or untrained attention to their physical disability. The estimate of 33% is a conservative one; when there was any doubt about a particular case it was excluded from the group. It was clear that many of these patients had

deteriorated in the infirmary—a consequence, we believe, of the prevailing apathy and of prolonged rest in bed. That so large a proportion as one-third of all the patients had been admitted without disability sufficient to require admission on medical grounds lends support to the suggestion of Brooke (1949) that social services organized by the hospital to care for the elderly in their homes might save many of them from the last dreary journey through an infirmary to a squalid tomb.

Investigations at Highbury, a home for 270 old people in Birmingham under the administration of the local authority, warranted the same conclusion. In this institution the mean age of the patients was 78, higher than it was in the infirmary, and they were living a much more active and pleasant life at a weekly cost of less than half that of an infirmary bed. Had this home not existed we were satisfied that a very large proportion of its inmates would have required accommodation in an infirmary. There is some dispute about the proper size of such homes, and the National Corporation for the Care of Old People favours small ones for 25 to 30 residents. The master and matron of Highbury were convinced, on the other hand, that in large cities homes for old people should ideally have about 400 beds, and that most of these should be in small separate rooms, some with two beds for married couples.

When I asked whether the provision of separate rooms would not make the cost of domestic service prohibitive they replied that, on the contrary, it would solve the problem, because nearly all the old people would keep their own room spotlessly clean without help, but many of them resented cleaning part of a dormitory. Their main arguments in support of their preference for the large home were that the old people of the cities liked the atmosphere and bustle of a crowd, that communal entertainment in the shape of films, discussions, and stage shows was much more easily and better organized than in the small homes, and that the feeding would be better and more economically done.

Attitude to Leaving the Infirmary

One-third of all the patients were unwilling to leave the infirmary in any circumstances; as I have already said, the mere suggestion that they might be made well enough to do so distressed them seriously, and we found that this frame of mind was directly related to the duration of their stay in the institution. Thus, within the first three months of their admission 65% of the men and 71% of the women are eager to return home, but after four years the figures fall to 45% of the men and 28% of the women, and I am sure that the fall would be even greater if the patients were actually confronted with the opportunity of leaving. In part this reluctance to leave is due to the disintegration of their homes, for we found that more than half (57%) of all patients had no home of any kind to which they could go if they were discharged. Of the 270 patients with a home available to them less than a half (44%) could expect any form of help in the house, and more than one-half (56%) would either be compelled to live entirely alone or in a house deserted during working hours.

It is significant that during the first three months of their stay 71% of the males and 51% of the females have a home to which they would be welcome on their return; thereafter the home and family background progressively recedes and after four years only 24% of the males and 13% of the females have any sort of home available to them. Manifestly the cohesion of the homes of the elderly is fragile: absence for more than three months is sufficient to damage it; in four years more than three out of four of their homes have vanished. Two problems emerge clearly from this analysis: the first is concerned with the maintenance of the elderly home, and the second is that of provision of adequate treatment and social help for the old when they fall sick.

Factors Affecting the Cohesion of the Home

Psychologists and social anthropologists agree that the forces which promote cohesion in a group are derived from fundamental instincts modified by habit and custom and, to a very slight degree, by rational considerations. The instincts are of two kinds—the self-regarding and the group-maintaining: the first are the instincts of self-protection, sustenance, and assertion, and the second those of mating, nursing, and the herd. At the most primitive level these instincts were satisfied by the organization of society in family groups, but the passion and pugnacity inseparable from mating led to the institution of exogamy to avoid the internecine strife that ensued from sexual selection within the family. Exogamy established the tribe as the social unit; conquest and enslavement of the conquered made the nation. The discipline of law with the habits and customs that it implies maintains the cohesion of a people so long as the makers of the law are wise enough to see that its system does not conflict unduly with the fundamental instincts that lead to the development of society or with its interests.

It is the opinion of many with long experience of the work in institutions for the chronic sick and aged that the sense of family unity and responsibility is weakening, and that people in this country are less interested than they were in the fate of their elderly and disabled relatives. We are also told that parents to-day are not as willing to sacrifice personal comfort and pleasure in the interests of their children, and that many children at the age of puberty or soon after lose all sense of responsibility and affection for their family.

Accurate estimation of the value of evidence of this kind is difficult, because it emanates from those whose work constantly brings them face to face with the tragedy of the broken home and their judgments may be unduly melancholy. Sheldon's (1948) report on the old people of Wolverhampton shows how ardently the flame of family affection may burn despite discouraging circumstances, and suggests that the evidence should be accepted with caution. It would be unwise, however, to neglect it, for it comes from many sources and its volume is increasing.

The loosening of the ties of English family life and the rapid increase of divorce attracted serious attention in 1918 at the end of the first world war and have become more pronounced during the past 30 years, especially in the period of the second campaign.

Disruption of a family by conscription and long terms of separation inevitably diminished cohesion; so did unemployment and the application of the means tests in the uneasy period of truce. During the industrial depression many a father found his dignity and authority as the main support of a family replaced by a sense of ignominious dependence on the earnings of children, who sometimes resented the burden of the maintenance of their parents' home.

The deplorable condition of houses and their overcrowding made the position of sick and disabled members of a family increasingly difficult, and the burden of their care in restricted accommodation seemed intolerable. Many social workers regard this factor as the predominant one, and it is often pressed in argument by those who seek a bed in an institution for a dependent relative. It cannot,

however, be alone responsible for the increased demands on the infirmaries, because, first, the overcrowding of houses is less than it was 50 years ago, when the average size of families was larger, and, secondly, applications for institutional provision often come from those who cannot reasonably claim that their housing accommodation is unsatisfactory. It is difficult, too, to induce families to take back their relatives when new houses are available to them. Clearly there is now less reluctance to seek the aid of public assistance in solving the problems of family life. The administration of the infirmaries has become more sympathetic and humane, the horror of the Victorian union is no longer so deterrent, but it is also possible that slackening of the moral fibre of the family and a demand for material comfort and amenity outweigh the claims of natural affection.

A shorter working week for men has encouraged the employment of women in industry; homes therefore have less attention at a time when they are difficult to run. For the same reason domestic service is almost unobtainable and local authorities are unable to recruit "home helps" to care for the sick and aged in their houses.

It may well be, therefore, that the weakening of family cohesion which so many observers claim to have detected is in part a result of the trend of recent legislation. As a contribution to the study of this social problem we investigated the frequency of visiting at the infirmary, with the following result. Eighty-two per cent. of the men and 79% of the women are visited at least once a week for the first three months of their stay; thereafter the frequency of visits declines steadily, but it is not until four years have elapsed that the total of weekly visits falls to 40% for the men and 46% for the women.

Irrespective of the duration of stay of the whole sample of 714 patients, no less than 52% of the males and 68% of the females are visited by friends or relatives once a week; only 48 men (15%) and 28 women (7%) are never visited. The remainder were visited at intervals greater than a week.

In view of the depressing environment of the infirmary, of the unpleasant nature of many of the disabilities in the patients, and of the difficulties of travel, these figures show that even if natural affection has declined, as some believe, it is still a potent influence in the social life and conduct of the English. Curran *et al.* (1946) reached the same conclusion in Glasgow, and it must never be forgotten that at least 95% of the aged never go into an institution: with the help of their families and friends, or more rarely alone, they struggle on to the end.

Indisputably necessary as it was to do something to improve the material standard of life of the people, it must always be remembered that it is possible to do too much. Freedom from tyranny, from poverty and want, from the fear of unemployment, and from the hopeless despair of unattended and persistent sickness is no doubt desirable, but whether it is good to achieve it without effort on the part of the individual or his family—to have it, as it were, "laid on" by the State—is questionable, and the matter is more commonly decided by an appeal to sentiment or self-interest than by reason.

The instincts of self-protection, sustenance, and assertion imply struggle to satisfy them, and if society makes the struggle unnecessary the vitality and survival value of its individual members will diminish. Similarly, the power of the group-maintaining instincts will suffer if the provision of a home, the training of children, and the care of its disabled members are no longer the ambition of a family but the duty of a local or central authority.

In these debatable matters a decision requiring high qualities of statesmanship is necessary before new plans are made to deal with the problems of the chronic sick and infirm. The problem is simple. Shall they become the responsibility of society in large institutions or should we encourage their friends and their families to care for them whenever possible?

In the interest of social cohesion psychology and anthropology favour the second course, and so does ethics, and, while it has been the constant aim of religion and morals to extend the affections of the individual beyond the range of his personal and group relations, both agree that such extension must be based on a lively sense of responsibility for the weaker members of the family and on service to them. Aesthetics in days of realism is often confused with sentiment, but there is a beauty and a value in personal service to a crippled friend or relative that no hospital can rival. Claims of expediency and economy may be vulgar, but they are insistent, and the fact that care of the sick and disabled in their homes is cheaper than in institutions is worth emphasis.

For all these reasons, and to avert the distressing disintegration of human personality that is so common in patients who lie for years in an infirmary, it would be wiser to endeavour to preserve the sense of family responsibility and to encourage people to tend their own sick and guard the aged.

That does not mean that families should be expected to bear the whole burden. Society must help them, and the problem really hinges on the type and extent of assistance to be provided. Institutions will always be necessary, but the aim should be to reduce the demand for them, and the measures to be adopted must not conflict with the claims of human instinct or with the principles of ethics, morals, and religion.

(A list of references will appear at the end of the second lecture, which will be published in our next issue.)

A memorandum prepared by the Minister of Health's Standing Advisory Committee on Cancer and Radiotherapy and endorsed by the Central Health Services Council has just been issued for the general guidance of regional boards and boards of governors. The memorandum suggests that no recognition should be accorded to "cancer" as a specialty in itself. To secure full efficiency a cancer service should provide a single organization to serve a population of the order of two million to four million. The area served should normally, but need not necessarily, be coterminous with that of a regional hospital board. Each cancer service should have a co-ordinating committee, appointed jointly by the regional hospital board and board of governors, concerned with the allocation of work to hospitals, records, follow-up, transfer of patients, provision of equipment, and other matters. It should include representatives of the university and medical school, and should have the advice of local health authorities and of a professional and scientific subcommittee including representatives of the universities and the appropriate medical school, medical officers of health, and general practitioners. Facilities for preliminary consultation should be established at an adequate number of recognized peripheral hospitals, which should be visited regularly by specialists for consultation with the general practitioner and local staff to assist in preliminary diagnosis and for follow-up. Similar facilities should exist in all units of the organization. The co-ordinating committee should advise on the selection from among the physicians, surgeons, radiotherapists, and other specialists on the staff of hospitals in the area of those who are to form the headquarters staff of the cancer service. Treatment by radiotherapy should be under the control of specialists engaged solely in that work.

EFFECT OF LOW TEMPERATURES ON THE BITTNER VIRUS OF MOUSE CARCINOMA

BY

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In the *British Medical Journal* of March 26 (p. 511) appeared an Imperial Cancer Research Fund lecture by Professor W. E. Gye dealing with the propagation of mouse sarcomas by means of frozen and dried tumour tissue. The experiments described make it clear that by refrigeration and subsequent drying at a low temperature the tumour cells can be killed and an active agent liberated which is capable of starting tumours afresh, and which, judging from those of its properties so far known, is viral in nature. This holds good for both chemically induced and spontaneous sarcoma in mice, so that we can regard the virus as the continuing cause of sarcoma (i.e., the agent which is responsible for the continuing cell division), while the chemical in those tumours apparently started by it acts as the inciting cause, allowing of, or producing, the change in the virus from the latent to the active form.

This sequence of events can be closely paralleled by what is already known to be true of mammary adenocarcinoma in mice. Bittner and his co-workers in the United States have shown that these tumours have for their continuing cause a virus (the Bittner milk factor), but that this virus requires a chemical inciter (oestrin) before it can change from the latent to the active form and produce a cancer. This virus, of which the active form can be seen in the tumours with the electron microscope (Porter and Thompson, 1948) is present in the milk of lactating female mice in the latent form and enters the bodies of the young mice as they suckle, especially if the milk is drawn into the respiratory passages (Begg, 1949). Here it circulates throughout the life of the mouse, reaching every organ which has a blood supply (Woolley, Law, and Little, 1941), but because of its high tissue specificity it is capable of producing tumours only in mammary cells and then only in the long-continued presence of oestrin.

In the male mouse, mammary tubules, imperfectly developed and without secreting acini, are present over large areas of the subcutaneous tissue, but even in high cancer strains male mice do not develop mammary cancer unless they are subjected to prolonged treatment with oestrin, when tumours occur as in the females—i.e., the virus changes from the latent to the active form. Hitherto no method of obtaining the active form of the virus outside the body or apart from living tumour cells has been discovered. That obtained free in milk is naturally in the latent form and is carcinogenic only after long-continued action of oestrin.

In the present experiments, however, it has been shown that by freezing mammary carcinoma tissue at −79° C. for long periods the tumour cells are killed and the Bittner virus liberated in its active form. It is then capable of initiating new tumours in male mice without oestrin as readily as in female mice, but only when injected into mammary tissue, thus demonstrating its selective infectivity. That these tumours produced with refrigerated tissue are not transplants but are true new infections is also demonstrated by the fact that there is an increase in the percentage of tumours obtained the longer (within limits) the tissue is frozen. This suggests the slow liberation of the active virus and also perhaps the denaturing of an inhibitory substance by cold. Such inhibitory substances have already been demonstrated in the Shope papilloma and carcinoma of rabbits and in sarcomas of chickens. The present experiments were done with both sporadic mammary cancers of inbred mice and with the "63" carcinoma (Bashford's adenocarcinoma) of the hybrid M.R.C.–Hunt strain. Roughly equal numbers of males and females were used.

1. Experiments with Frozen Carcinoma Tissue Inoculated Subcutaneously in Male and Female Mice

The technique followed was that worked out in the Imperial Cancer Research Laboratory for the transmission of sarcomas. The tumour tissue was removed aseptically from the freshly killed mouse and minced finely in a Craigie mincer (Craigie, 1949). This alone should reduce its transmissibility, since mechanical disintegration of carcinomas was shown by Jensen in 1903 to reduce transplantability. It was then diluted with an equal volume of 5.3% dextrose solution in most cases and drawn up into a 5-ml. syringe, from which it was run into sterile ampoules (1 ml. in each). These were sealed, cooled rapidly to −79° C. by immersion in a solution of solid CO_2 in "cellosolve" (ethylene glycol monoethyl ether, B.D.H.), and stored in a "deep freeze" storage cabinet kept at −79° C. From this one ampoule at a time was removed as required. The contents were just thawed and, as soon as fluid, were drawn up in a small syringe and inoculated subcutaneously in the right mammary region of mice of the same strain as the tumour. The average dose was 0.05 to 0.1 ml. per mouse, which represents 0.025 to 0.05 ml. of tumour mince. It was noticed that the frozen tissue underwent a physical change, becoming more homogeneous, softer, and slightly sticky on prolonged freezing. This change also occurs in long-frozen sarcoma tissue.

The mice were then examined at intervals of three to four days and the time of definite appearance of tumours noted. Although the mice all came from high cancer lines they were used before they were old enough to develop sporadic tumours, and in all cases the tumours obtained were at the site of inoculation. It is to be remembered that when carcinomas are obtained in male mice known to carry the Bittner virus, by painting with oestrin, the tumours appear in a haphazard distribution and not at the site of painting.

Table I shows that 239 mice were inoculated and 154 tumours obtained. Tumours were obtained with equal ease in male and female mice, and the occasional omission of dextrose seemed to make no difference. The time of appearance of the tumours was related to their rate of growth; rapidly growing tumours appearing often within 10 days, and slowly growing ones being delayed from seven to 12 weeks. The stable "63" tumour appeared fairly constantly at four weeks, some mice in each batch showing it a little later or earlier than this.

If these figures are examined statistically it becomes apparent that there is a slight increase in virulence the longer the tissue is frozen. Thus, if the experiments are broken up into groups the percentages of "takes" shown in Table II are obtained. This is consistent with the gradual freeing of virus particles from an inhibitory substance, protein in nature, by continuing cold, and is not suggestive of survival of intact tumour cells. The arguments against cell survival on freezing to −79° C. in the case of sarcoma tissue have already been stated in other papers (Gye, Begg, Mann, and Craigie, 1949), but

TABLE I.—*Frozen Carcinoma Inoculated Subcutaneously*

No. of Expt.	Strain	Tumour	Diluent	Time Frozen		Inoculated	Tumours	Time of appearanc
M77	MRC/H	63	Dextrose	15 min.	1	6	3	4 weeks
M78	R III	Sporadic	"	15 "		6	3	4 "
M70	MRC/H	63	None	15 "		6	3	3 "
M60A	"	"	Dextrose	1 hour	2	6	1	3 "
M65	"	"	"	1 "		6	4	4–5 weeks
M60A	"	"	"	3 hours	3	6	1	3–4 "
M65	"	"	"	3 "		6*	1	5 "
M60A	"	"	"	6 "	4	6	4	4–6 "
M65	"	"	"	6 "		6	4	5 "
M65	"	"	"	9 "		6	3	5 "
M60A	"	"	"	12 "	5	6	1	4 "
M65	"	"	"	12 "		6	2	5 "
M60A	"	"	"	24 "		6	0*	—
M65	"	"	"	24 "		6	3	4 weeks
G3A	R III	Sporadic	"	24 "	6	5	5	11 days
G3B	"	"	"	24 "		5	5	10 "
G3B	"	"	"	24 "		6	6	11 "
M53	S/A	"	None	24 "		4	4	4 weeks
M60A	MRC/H	63	Dextrose	2 days		6	5	4–6 "
M65	"	"	"	2 "	7	6	2	3–4 "
G3C	R III	Sporadic	Dext.-cysteine	2 "		6	6	3–4 "
G3D	"	"	Dextrose	2 "		6	6	3 "
M65	MRC/H	63	"	4 "		6	2	3–6 "
M65	"	"	"	7 "	8	6	4	2–6 "
M53	S/A	Sporadic	None	7 "		8	7	4 "
G3E	R III	"	Dextrose	12 "	9	6	5	3 "
G3F	"	"	Dext.-cysteine	12 "		6	6	3 "
M53	S/A	"	None	14 "	10	8	7	5 "
M65	MRC/H	63	"	14 "		6	0†	—
M57	S/A	Sporadic	"	21 "		4	4	2 weeks
M72	MRC/H	63	Dext. added on thawing	26 "	11	3	0†	—
M57	S/A	Sporadic	None	28 "		4	4	3 weeks
M57	S/A	"	"	35 "		4	4	3 "
M74	MRC/H	63	Dext. added on thawing	37 "	12	3	1	4 "
M57	S/A	Sporadic	None	42 "		4	4	3 "
M59	MRC/H	63	"	55 "		6	3	2 "
M86	R III	Sporadic	Dextrose	82 "		3	3	1 week
G25	MRC/H	63	"	97 "	13	3	2	13 days
M90	R III	Sporadic	"	99 "		3	2	9 "
G21	C3H	"	"	113 "		3	2	2 weeks
M58	"	"	"	118 "		6	3	7 "
M63	"	"	"	119 "	14	3	3	7 "
M64	S/A	"	"	121 "		3	2	12 "
G8A	R III	"	"	138 "		6	6	2–3 "
G8B	"	"	"	138 "	15	4	5‡	2–3 "
M90	S/A	"	None	182 "		3	3	9 days

* Technical error. † ? error. ‡ Two inoculations in one mouse.

statistical proof by numbers of successful inoculations is not so readily obtained in the case of the sarcomas, since the phenomenon of selective infectivity is not shown by them (see later), and tumours are obtained in practically 100% after freezing for any time after 15 minutes.

TABLE II

Time Frozen	No. Inoculated	No. of Tumours	Successes
15 minutes to 12 hours	72	30	41%
24 hours to 7 days ..	76	55	72%
12 to 182 days ..	91	69	75%

By application of the χ^2 test to the figures in Table I it appears that there is an enhancement of the effect of cold up to 48 hours, but this is less marked later. In these calculations the three experiments with entirely negative results have been omitted, because it is very likely that they were due to a technical error (probably thawing to too high a temperature or leaving too long after thawing before inoculating). In making calculations the readings have been arranged in 15 groups, as shown by the brackets in Table I. The value of χ^2 for the first seven readings is 12.145 with 6 degrees of freedom, which is greater than the value of χ^2 for which P is 6%. The value of χ^2 for the remaining eight readings is 2.444 with 7 degrees of freedom, which is less than the value of χ^2 for which P is 95%. This is compatible with an increase in virulence during the first 48 hours—i.e., during the death of the cells—and a stabilization later. It must be realized that the experiments were not designed for statistical analysis, and no claim is made that the statistical approach offers final proof of the increase in virulence. It does, however, afford ancillary confirmation, and suggests a rational design for future experiments. The calculations are shown in Table III.

TABLE III

No. of Reading	Total	Observed o	Expected e	$\frac{(o-e)^2}{e}$	
1	18	9	10·62	0·247	
2	12	5	7·08	0·611	
3	12	2	7·08	3·644	χ^2 = 12·14
4	12	8	7·08	0·119	with 6 degree
5	18	6	10·62	2·009	of freedom
6	26	23	15·34	3·861	
7	24	19	14·16	1·654	
8	20	13	15·92	0·555	
9	12	11	9·55	0·220	
10	8	7	6·37	0·062	χ^2 = 2·44
11	8	8	6·37	0·417	with 7 degree
12	17	12	13·53	0·173	of freedom
13	12	9	9·55	0·031	
14	12	8	9·55	0·251	
15	14	14	11·14	0·735	

My thanks are due to Mr. Richard Gye for these calculations.

II. Experiments in Selective Infectivity

If inbred strains of mice are used tumour tissue can be successfully grafted in both subcutaneous and intraperitoneal sites. The new tumours are simply clumps of cells of the original mouse growing in the tissues of the new host. If, however, the active form of the Bittner virus has been obtained free from living mouse cells it seems highly probable that only cells of mammary tissue can be infected, and that connective-tissue cells cannot respond to it. Since it is well known that the mammary tissue of the mouse is very widespread, and that sporadic tumours can arise almost anywhere on the surface of the

TABLE IV.—*Frozen Carcinoma Inoculated Intraperitoneally*

No. of Expt.	Strain	Tumour	Diluent	Time Frozen	Inoculated	Tumours (Intraperitoneal)	Tumours in Abdominal Wall
M60A	MRC/H	63	Dextrose	1 hour	6	1	None
"	"	"	"	3 hours	6	None	None
"	"	"	"	6 "	6	None	1
"	"	"	"	12 "	6	None	None
"	"	"	"	24 "	6	None	None
M53	S/A	Sporadic	None	24 "	4	None	None
M60A	MRC/H	63	Dextrose	2 days	6	None	None
M53	S/A	Sporadic	None	7 "	8	None	None
"	"	"	"	14 "	8	None	None
M57	"	"	"	21 "	4	None	1
"	"	"	"	28 "	4	None	None
"	"	"	"	35 "	4	None	None
"	"	"	"	42 "	4	None	None
M59	MRC/H	63	"	55 "	6	None	1
M58	C3H	Sporadic	Dextrose	118 "	5	2	1
M63	"	"	"	119 "	3	None	2
G8C	R III	"	"	138 "	6	None	None

body, subcutaneous inoculation of active virus can never offer evidence for or against selective infectivity.

On the other hand, sporadic mammary cancer never arises inside the peritoneum, and yet successful intraperitoneal grafts of living tumour tissue can be easily obtained. If, therefore, frozen tumour tissue, which as we have seen readily produces subcutaneous mammary cancers, were inoculated intraperitoneally it should produce tumours if it contained living cells, and should not do so if it contained only active virus. In the experiments shown in Table IV it is obvious (by comparison with Table I) that a qualitative difference in results exists between subcutaneous and intraperitoneal inoculation of refrigerated mammary tumour. The number of failures is too high to be accounted for by any explanation other than the absence of mammary tissue in the site chosen.

The technique of intraperitoneal inoculation is difficult because of the ease with which a few cells from the surface may be carried into the deeper tissues by the needle and also because of the difficulty of avoiding contamination of the abdominal wall and subcutaneous tissues by the material in the needle during its withdrawal. This can be demonstrated in various ways. For example, the inoculum can be mixed with powdered charcoal and its position thus be rendered visible. Small particles of carbon are often found in the abdominal wall at the site of puncture. Again, microscopical examination of subcutaneous and intraperitoneal tumour grafts often reveals the presence of hair follicles which have been forced in by the grafting-needle. A further source of error is a slightly lateral inoculation. Unless the skin and the abdominal wall are pierced exactly in the midline there is always the risk of a mammary tubule being involved in the puncture.

In spite of these obvious sources of error it will be seen that out of 92 inoculations 83 were negative, and of the nine cases in which tumours were obtained six were in the abdominal wall at the site of inoculation and projected as masses of growth on both its superficial and its deep surface. These cases therefore prove nothing, since it is probable that the needle came in contact with a mammary tubule in its passage through the wall. In three of the cases intraperitoneal tumours were found apparently unconnected with any structure, but it is not possible to be certain that they were not originally attached to the parietal peritoneum at the site of needle puncture. In any case a failure to obtain growths in 90% of the intraperitoneal experiments as against a success in 75% of subcutaneous inoculations (where the chances of the virus encountering a mammary tubule are high but not even there 100%) is strongly in favour of selective infectivity of the virus as against cell survival.

Further evidence in this connexion is offered by the behaviour of refrigerated sarcoma tissue on subcutaneous and intraperitoneal inoculation. In both situations the percentage of "takes" is equally high, which suggests a qualitative difference between the carcinoma and the sarcoma virus, the one being adapted to mammary cells only, the other to connective-tissue cells, and therefore able to produce tumours in practically any situation.

Conclusions

The active form of the Bittner factor can be obtained by freezing mammary tumours at −79° C.

The activity of the refrigerated tissue increases rapidly in the first 48 hours and more slowly later.

The refrigerated tissue possesses selective infectivity for mammary tissue, thus differing qualitatively from living tumour cells, which can be grafted in any situation.

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EFFECT OF REPEATED FREEZING AND THAWING ON MOUSE CARCINOMA TISSUE

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From the experiments described in the preceding paper (p. 251) we know that storage of minced mouse carcinoma at −79° C. for long periods does not destroy, but rather enhances, the power of such tissue to start carcinomas afresh when injected into mammary tissue. From those experiments it has been concluded that such "deep freeze" storage kills the cells and renders the Bittner virus available in its active form. The present series of experiments demonstrates that while practically all carcinomas yield active material after one period of freezing (be it for 15 minutes or six months) it is not so easy to produce tumours from material which has been frozen, thawed, and refrozen. In this respect the Bittner milk virus shows itself less thermostable than the sarcoma virus, which will stand repeated freezing and thawing.

TABLE A.—*Activity Only to First Thawing*

No. of Expt.	Tumour	1st Freeze and Thaw				2nd Freeze and Thaw				3rd Freeze and Thaw				4th Freeze and Thaw			
		Time Frozen	Inoculated	Tumours	Time of Appearance	Time Frozen	Inoculated	Tumours	Time of Appearance	Time Frozen	Inoculated	Tumours	Time of Appearance	Time Frozen	Inoculated	Tumours	Time of Appearance
M170	63 carcinoma ..	15 min.	6	3	3 weeks	15 min.	6	0	—	15 min.	6	0	—	15 min.	6	0	—
M177	" " ..	15 "	6	3	4 "	15 "	6	0	—	15 "	6	0	—	15 "	6	0	—
M196	" " ..	50 days	6	0	—	30 "	6	0	—								
M198	" " ..	94 "	6	0	—	25 "	6	0	—								
M178	R III sporadic ..	15 min.	6	6	5–6 weeks	15 "	6	0	—	15 "	6	0	—				
M190	R III sporadic derived from material frozen 138 days	99 days	3	3	4–5 "	15 "	Not tested			15 "	Not tested			15 "	6	0	—
M190	Strong A sporadic..	182 "	3	3	2 "	15 "	Not tested			15 "	Not tested			15 "	6	0	—
M91	R III sporadic treated with distilled water and dextrose	15 "	6	6	4 "	30 "	6	0	—								
M102	Strong A sporadic ..	15 min.	6	2	7–10 "	15 "	6	0	—	15 "	6	0	—				
M102	" " " ..	19 days	6	2	6–7 "	15 "	6	0	—	15 "	6	0	—				

These facts were first pointed out in 1930 by Cramer,* who showed that, while a mince of the cells of mouse sarcoma 37S could be frozen in CO_2 snow, thawed, and refrozen four times in succession without much loss of activity, the "63" carcinoma was always rendered completely inactive by four such freezings. He also showed that diminution of activity occurred even in sarcoma tissue if, after freezing, the tissue was warmed up in an incubator. From this and other experiments he concluded that a thermolabile agent (stable at low temperatures) might exist in sarcomata after the cells were killed by freezing. He also pointed out that if such an agent existed also in carcinomata its presence could not be proved or disproved by failure of frozen material to produce a tumour, since the carcinoma-producing agent would be tissue-specific and could at best give rise to tumours only when in contact with mammary cells. If it were also extremely thermolabile the odds would be that repeated thawings would render it practically harmless.

At the time of Cramer's work the only carcinomas readily available for study were tumours which had been grafted from mouse to mouse for many years. Now that we have a large number of sporadic carcinomas of the R III and Strong A strains, each of them showing slight individual differences of growth rate, though all of them are associated with the "milk factor," it seems of interest to study this problem afresh. A variety of sporadic R III and Strong A tumours were tested as well as the old strain, No. 63. While Cramer's results with "63" were entirely confirmed it was found that several, though not all, of the virulent sporadic tumours would stand a succession of changes of temperature from 2° to −79° C. and back again two or three times.

Out of 24 experiments, 22 of which showed activity of the tumour agent after a single freezing, 14 showed activity after further freezing and thawing. In 13† cases tumours were produced after a second thawing, in eight also after a third thawing. In no case did a tumour inactive after the second thawing produce a tumour after the third. In no case did a "63" tumour show activity after more than one freezing and thawing. The length of time of the first freezing made no difference to the number of tumours obtained, though they appeared earlier the longer the initial freezing. This is to be expected from the enhancement of virulence by long freezing shown in the preceding paper.

It is therefore to be concluded that the active agent of mouse mammary cancer suffers progressive deterioration on repeated freezing and thawing, but that individual tumours differ in this respect, some being completely inactivated by a second thawing, others rendered progressively less active.

Technique

Each tumour was minced in a Craigie mincer. It was diluted with a small amount of saline; glucose was not

*Cramer, W. "On the Possibility of Transmitting Mammalian Neoplasms Without the Intervention of Living Cells." Ninth Scientific Report of the Imperial Cancer Research Fund, p. 21, 1930.

†In one experiment the mice died of intercurrent infection before tumours could have appeared.

TABLE B.—*Activity to Second or Third Thawing*

No. of Expt.	Tumour	1st Freeze and Thaw				2nd Freeze and Thaw				3rd Freeze and Thaw			
		Time Frozen	Inoculated	Tumours	Time of Appearance	Time Frozen	Inoculated	Tumours	Time of Appearance	Time Frozen	Inoculated	Tumours	Time of Appearance
M91	Strong A sporadic M82	33 days	6	6	2–3 weeks	30 min.	6	6	4–5 weeks				
M91	R III sporadic from material frozen 138 days	112 "	4	4	1–2 "	30 "	6	5	2 "				
M96	As M91	125 "	6	6	2 "	30 "	6	5	2 "				
M98	R III sporadic treated with dist. water and glucose	29 "	6	6	4 "	25 "	6	2	5–6 "				
M100	R III sporadic ..	15 min.	6	6	3–4 "	15 "	Died of injection			15 min.	6	4	4 weeks
M100	" " ..	21 days	6	6	2–3 "	15 "	6	6	3 weeks	15 "	6	5	4 "
M103	Strong A sporadic ..	15 min.	6	6	3–4 "	15 "	6	6	6–7 "	15 "	6	6	7–8 "
M103	" " " ..	17 days	6	6	3–4 "	15 "	6	6	4–5 "	15 "	6	4	6–7 "
M107	R III sporadic treated with distilled water	15 min.	5	5	2 "	1 hour	6	5	3 "	20 "	6	4	4 "
M107	" "	20 days	6	6	1 week	15 min.	6	6	2–3 "	15 "	6	6	3 "
M109	Strong A sporadic ..	15 min.	6	6	4–5 weeks	15 "	6	6	6–7 "	15 "	?	?	
M109	" " " ..	10 days	6	6	1–2 "	15 "	6	5	4 "	15 "	6	2	4 "
M110	" " " ..	15 min.	6	6	4 "	15 "	6	1	5 "	15 "	6	1	6 "
M110	" " " ..	10 days	6	6	3 "	15 "	6	1	5 "	15 "	6	5	7 "

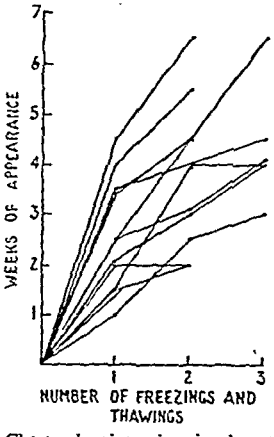


Chart showing rise in latent period at successive freezings.

added. It was sealed in ampoules containing 0.5 ml. each. These were frozen in a solution of CO_2 snow in "cellosolve" (ethylene glycol monoethyl ether, B.D.H.) to −79° C. for varying periods (from 15 minutes to 182 days). Each ampoule was then thawed, sometimes by immersion in water at 2° C., sometimes by holding in the hand. (No difference was noticed between the two methods.) If it was to be tested it was opened, the contents drawn up into a syringe, and 0.05–0.1 ml. (as in Cramer's original experiment) injected into the right mammary region of each mouse. Equal numbers of male and female mice were used, all younger than the cancer age. As stated in the preceding paper, sex is immaterial provided the injection is made in the nipple line. If the mince was to be refrozen it was dropped (after an interval of approximately five to six minutes) again into the cellosolve. Freezings other than the first were for 15 minutes to one hour. Tables A and B show the variations in the experiments and the results.

It is interesting to note that the appearance of those tumours which show infectivity after two or even three thawings is delayed with each successive thawing. Table B also demonstrates the slight heightening of activity when the same tumour is frozen for some days instead of for 15 minutes. The Chart demonstrates graphically the rise in the latent period for each tumour at successive freezings. It is therefore obvious that some activity is lost each time the tissue is thawed.

Conclusions

Repeated freezing and thawing of mouse mammary carcinoma tissue reduces its infective activity.

The apparent difference between the behaviour of sarcoma and carcinoma on repeated freezing and thawing is a quantitative and not a qualitative one.

PROPAGATION OF MOUSE CARCINOMA BY DRIED TUMOUR TISSUE

BY

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The propagation of mouse sarcoma, both chemically induced and sporadic, by means of tumour tissue frozen to −79° C., thawed, and then dried *in vacuo* at −15° C. has been demonstrated by Professor Gye (1949). That investigation revealed the presence of an agent, other than a living sarcoma cell, which has the properties of a virus. Since the spontaneous mammary cancers of the Strong A and R III strains of mice are known to be caused by the Bittner virus, it appeared to us desirable to try to propagate mammary cancer by the same method. The difficulties are, however, theoretically greater in the case of carcinoma than in sarcoma.

In the first place, although we know that the virus is liberated in its active form by prolonged freezing of the minced tumour, we also know that it is tissue-specific and must therefore be brought into intimate contact with mammary tissue. We know that in its active form it can infect male mammary tissue as easily as female if injected in the nipple line. But this tissue specificity in itself leads to a lower percentage of tumours in carcinoma than in sarcoma, since in the case of the sarcoma mutant of the virus any and every subcutaneous connective-tissue cell is susceptible to infection, and connective tissues are, moreover, everywhere easily accessible to an active sarcoma virus.

In the second place, experiments with serial freezing and thawing have shown that the Bittner virus is extremely thermolabile, and that many tumours will not withstand a second freezing and thawing. Since the method of drying sarcoma tissue described by Gye, Begg, Mann, and Craigie (1949) involves freezing the minced tumour in an ampoule, thawing it, transferring it to the drying-flask, and refreezing it at the beginning of the drying process, it is likely that only a few carcinomas (such as M103 and M107, described in the preceding paper at page 253) will yield active dried material by this method. We know certainly that such tumours as "63" and M91 (in the previous paper) will not withstand drying by this method. We also ascertained this

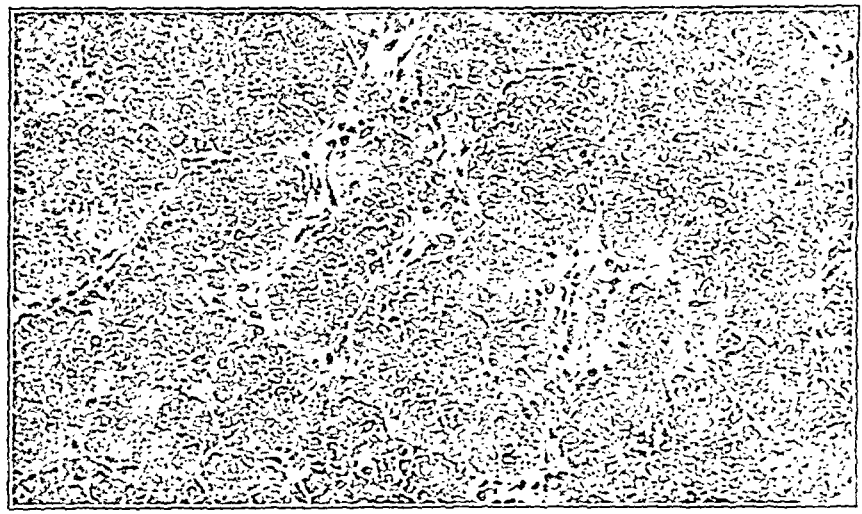


FIG. 1.—Section through the R III sporadic mammary tumour used in Experiment III (see Table).

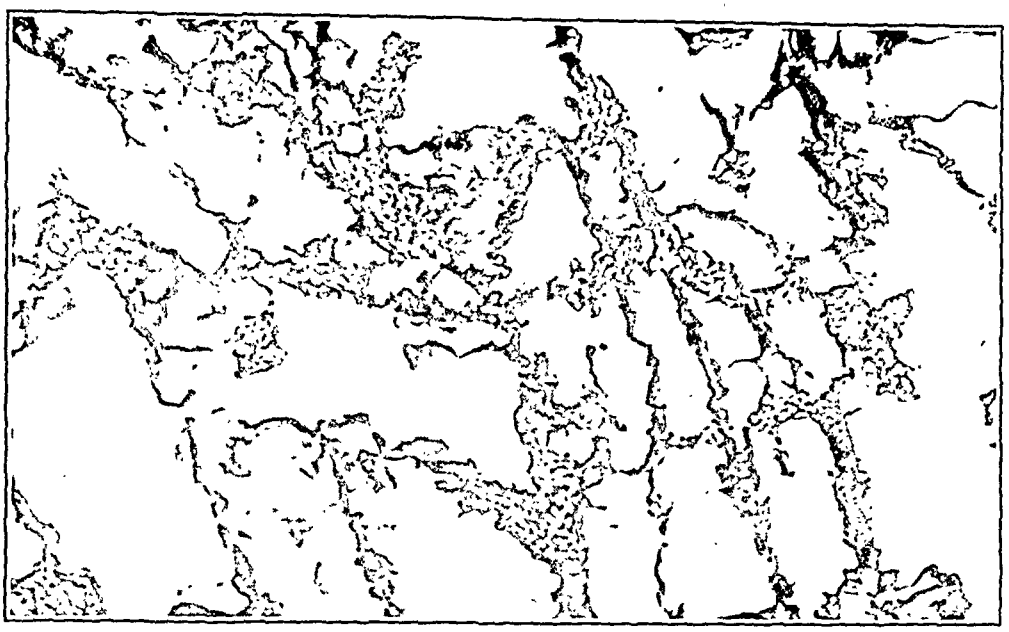


FIG. 2.—Section through the mince of the tumour shown in Fig. 1, after drying. No cellular structure is seen.

experimentally by drying "63," two C3H, and two Strong A sporadic tumours by this method. These gave uniformly negative results.

A method was therefore required which would obviate the need for thawing the material before transferring to the drying-flask. This has been done in two ways; first, by grinding up the frozen material to powder in a mortar embedded in CO_2 snow, dropping the powder into the drying-flask, also cooled below freezing-point, and sticking it to the bottom of the flask with a small amount of ice-cold 5% glucose solution, which immediately solidifies. This is necessary, since the material to be dried must be in close contact with the bottom of the drying-flask. The second and easier way is to freeze the tumour mince in the flask in which it is to be dried. For this method a tubular container was used in place of the Erlenmeyer type of flask usually employed. This made storage at −79° easier, and all that was required was to take the tube from the "deep freeze" and attach it at once to the drying apparatus. This method has the slight disadvantage that material cannot be removed from the flask for test for activity after freezing but before drying. This is easy when the first method is used.

Either method, however, gives successful results. We have succeeded in six consecutive experiments, using six different sporadic mammary cancers, in obtaining tumours from dried material in both male and female mice. The tumours appear in the nipple line at the site of injection in from four to 10 weeks. All the mice were young and well under the cancer age. Photomicrographs of sections of R III sporadic mammary tumour used and of the tumour produced by inoculation of the dried material are reproduced in Figs. 1, 2, and 3. The Table shows the results.

Technical Details

1. *Preparing the Tumours for Freezing.*—The mouse is killed with coal gas. The tumour is dissected out aseptically, a small piece fixed in Bouin's solution, the rest minced in a sterile Craigie mincer and diluted with an equal volume of 5.3% dextrose solution. If it is to be stored in ampoules, 0.5–1 ml. is placed in each by means of a syringe with a wide-bore needle. The ampoules are then frozen rapidly to −79° C. and stored in solid CO_2 for the desired time. If storage in the drying-tube is desired 1 ml. of the mince is run into the tube and by manipulation over crushed CO_2 "dry ice" is made to freeze in a thin layer spread over the sides and bottom of the tube. The tube is then stored as above.

2. *Drying.*—The frozen ampoule is removed from the storage cabinet, cracked open, and the solid mass extracted into a sterile mortar embedded in CO_2 snow. All the instruments used are sterile and chilled by keeping in test-tubes embedded in CO_2 snow. The solid mass is ground in the mortar and most of it tipped into the cold drying-flask, which stands in a vacuum jar of "cellosolve" at −15° C. Ice-cold 5% glucose solution is dropped with a pipette on to the powdered mass in the flask. This solidifies and sticks it to the bottom of the flask. The drying is then started (see Craigie (1949) for details of the apparatus). The residual moiety of the frozen material left in the mortar is now



FIG. 3.—*Section through the tumour produced by inoculation of the dried material into the breast tissue of a 6-weeks-old R III mouse.*

Production of Mammary Cancer with Tissue Frozen and Dried without Thawing

No. of Expt.	Tumour	Time Frozen Before Drying	No. Inoculated	Tumours Obtained	Sex	Time of Appearance	Control: Frozen Only	
							Inoculated	Tumours
82	Mixture of 3 sporadic strong A tumours	3 weeks	6	3	1 F., 2 M.	5 weeks	3	1
82	"	4 "	6	3	2 F., 1 M.	4 "	3	2
97	"	56 days	6	2	2 F.	7 "	3	3
99	R III tumour from tumour which had been frozen 138 days and then inoculated	131 "	6	2	1 F., 1 M.	10 "	3	3
106	Strong A tumour from tumour frozen 14 days	24 "	6	2	2 M.	8 "	3	3
111	R III sporadic	5 "	6	1	1 F.	5 "	Not done	

thawed and inoculated into three mice of the appropriate strain as a control for the activity of the frozen tissue.

3. *Inoculation of Dried Material.*—When the drying is complete a small portion of the dry material is dropped into xylol and embedded direct for microscopical examination (no dehydration is of course necessary). The rest is wetted by running into the flask 2–3 ml. of a 1 in 500–1,000 neutral solution of cysteine. This produces an even emulsion, 0.05 to 0.1 ml. of which is then injected in the nipple line of each of six mice (three male and three female) of the appropriate strain. Attempts were made to improve the results by adding 33% rabbit serum saline to the cysteine and by the use of embryo extract. The latter is definitely harmful and the former of no greater value than cysteine alone, which is therefore recommended.

It must be repeated that avoidance of thawing at any time before drying is complete is essential. Experiment 82 was repeated without taking this precaution and using material known to be active, and no tumours were obtained from the dried material.

Conclusions

The active form of the Bittner virus obtained from mouse mammary cancer by freezing can be successfully dried *in vacuo* provided no thawing occurs before the material is dry.

Active dried mouse mammary cancer produces tumours in both male and female mice when injected into breast tissue.

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The annual report of the National Council of Social Service (1947–8) clearly shows how independent organizations can still make a helpful contribution to public welfare by working in collaboration with the developing statutory services and, even more important, by undertaking research work in new fields. The British delegation played a notable part at the International Conference of Social Work at Atlantic City in 1948. In the same year the National Council organized with great success an International Youth Conference in London, and delegates from 25 countries took part. The activities of the Council's associated groups have also continued to expand. The National Old People's Welfare Committee, for instance, has established 17 county committees and 235 local committees. The National Assistance Act has increased the need for co-operation between voluntary agencies and Government departments. In the words of the report, "The problem is so large and increases so rapidly that it requires the combined efforts of both statutory and voluntary agencies to meet the needs. . . . The stage is set therefore for a concerted effort over the whole country for the welfare of the older members of the community." A revised and enlarged edition of the handbook *Old People's Welfare* is to be published this year.

URETHRITIS, GONOCOCCAL AND NON-SPECIFIC, TREATED BY AUREOMYCIN

BY

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The treatment of non-specific urethritis has up to the present been unsatisfactory. Sulphonamides combined with urethral irrigation have in some cases been effective, but penicillin has proved of little value. Streptomycin has been shown to be successful in certain cases (Pulaski, 1947; Kane and Foley, 1947; Willcox, 1949); it is also known to be active against pleuropneumonia-like organisms both in animals and in man—a point of some interest, since there is evidence to suggest that this group of organisms may sometimes be associated with the distressing and by no means uncommon complaint of non-specific urethritis.

In the present communication the effects of "aureomycin" in non-specific urethritis are described. Pleuropneumonia-like organisms were obtained from the urethra in certain of these cases.

Aureomycin hydrochloride, dispensed in the form of capsules each containing 250 mg., can readily be given by mouth (Duggar, 1948), and oral administration is in fact probably more satisfactory than injection. Aureomycin is known to be effective against various rickettsial infections, brucellosis (Spink *et al.*, 1948; Galpine, 1949), staphylococcal and pneumococcal infections, and atypical pneumonia. Certain organisms infecting the urinary tract, such as *Aerogenes aerobacter* and *Streptococcus faecalis*, are susceptible, but *Proteus vulgaris* and *Pseudomonas pyocyanea* are resistant. Collins *et al.* (1948) and Finland *et al.* (1948) found that gonorrhoea was influenced: of 66 cases given an average of 1.3 g. over a period of 1.2 days 49 were cured, 11 were considered doubtful successes, and six were failures. Two cases of non-specific urethritis, both of which had resisted repeated courses of penicillin, sulphonamides, and streptomycin, were also successfully treated: in one, organisms of the pleuropneumonia-like group were present in the urethra before treatment. This patient was given 9 g. of aureomycin by mouth in six days: he was symptomatically improved within three days, and cultures were negative. The other patient, of whom no bacteriological details are given, received 11 g. in five days. He rapidly became asymptomatic.

Non-specific Urethritis

Four cases of non-specific urethritis were treated with aureomycin. In addition to the routine investigations undertaken in the clinic, special examinations were made both before and after treatment for the presence of pleuropneumonia-like organisms.

Case 1.—An unmarried white man aged 27 attended the clinic with a profuse purulent urethral discharge and slight dysuria of five days' duration. No gonococci were seen in the smear and no trichomonads or spirochaetes by dark-field examination. Urethral cultures revealed *Staphylococcus aureus* and diphtheroids, and pleuropneumonia-like organisms were found in smears stained with Giemsa and on culture in media containing a high proportion of serum. The urine was hazy in the first glass, and there were fullness and tenderness of the prostate, but the blood Wassermann, Kahn, and gonococcal complement-fixation tests were all negative. Treatment was deliberately withheld for two days, after which the consort was examined. She had no urethritis or cervicitis but a slight vaginitis. Coliforms were obtained on culture, and local treatment with acetarsol was prescribed.

Aureomycin in 250-mg. capsules was then administered orally to the man until a total of 2,000 mg. had been given over 60 hours. The discharge disappeared by the second day of treatment, but there was some headache and diarrhoea on the last day. When seen two days after the completion of treatment the urethral smear was free from pus, as was the prostatic bead. Ordinary urethral cultures grew only diphtheroids and *Staph. albus*, and a special examination revealed no pleuropneumonia-like organisms. The patient remained free from discharge, with a clear urine and a normal prostatic bead, while 8, 22, and 29 days later prostatic cultures grew only staphylococci.

Case 2.—A white man aged 39 who had been married for one month complained of a slight pain in the groin and a urethral discharge of five days' duration. The urethral smear revealed pus, and the urine was hazy in the first glass. The Wassermann, Kahn, and gonococcal complement-fixation tests of the blood were negative. The wife was examined, but there was no evidence of urethritis, cervicitis, or vaginitis. Her cultures showed *Staph. albus* and diphtheroids only.

Between Jan. 31 and March 14 the husband was seen on eight occasions and was given in succession 20 g. of sulphadiazine over five days, two single intramuscular injections of 300,000 units of procaine penicillin, a course of "mandamine" (two tablets four times daily for seven days), and a hexamine mixture for one week. At the end of this time the discharge was as profuse as ever and the urine was smoky, with threads in the first glass. The urethral smear showed an abundance of pus, and the culture grew *Staph. albus* and diphtheroids. Pleuropneumonia-like organisms were isolated in culture and were seen in smears stained with Giemsa. No spirochaetes or trichomonads were found by dark-field examination, and the serum tests were repeated and still found to be negative. He was given four capsules of aureomycin (1,000 g.), which were taken at intervals during 24 hours. When seen five days later there was a little urethral moisture containing a very few pus cells and the urine was quite clear, although a few threads were present. Culture of the urethra continued to show *Staph. albus*, but examinations for pleuropneumonia-like organisms were now negative. No other treatment was given and no discharge was apparent; the urine remained clear and the prostatic bead free from pus (although prostatic culture continued to show *Staph. albus*, diphtheroids, and occasionally coliforms) 10, 19, 24, 40, and 60 days after treatment. Frequent unprotected intercourse with the wife was resumed without trouble.

Case 3.—An unmarried white man aged 28 had a purulent discharge without dysuria for one week. There had been repeated exposures to one girl. The urethral smear showed an abundance of pus but no gonococci, and no trichomonads or spirochaetes were found by dark-field examination. Urethral culture grew *Staph. albus*, and pleuropneumonia-like organisms were recovered from the urethra. The consort was examined and showed no urethritis or cervicitis but a slight vaginitis. Cultures showed coliforms, diphtheroids, and *Staph. albus*. She was treated with acetarsol locally. The man was given four capsules of aureomycin within 24 hours, and when seen the following day his urethra was dry and his urine, which formerly had been hazy in the first glass, was now clear. The prostatic secretion was free from pus and the prostatic culture still grew *Staph. albus*, but no pleuropneumonia-like organisms could be recovered. When seen one week later there was a slight relapse, there being a scanty purulent discharge of one day's duration. Fresh exposure was denied. The urethral smear revealed only a moderate amount of pus cells, and, though the urine was very hazy, it cleared on the addition of a considerable amount of acetic acid, to leave a slight haziness in the first glass. The Wassermann, Kahn, and gonococcal complement-fixation serum tests were negative. He was again treated with aureomycin, being given four capsules (1,000 mg.) in 24 hours. When seen 2, 7, and 14 days later there was no discharge, and the urine was again quite clear and the prostatic bead free from pus. *Staph. albus* was grown both at the time of the relapse and again after re-treatment. A further search for pleuropneumonia-like organisms before and after the relapse was negative, and 40 days later the patient had no further symptoms.

Case 4.—An unmarried white man aged 19 had a mucopurulent urethral discharge with slight dysuria for one week. There had been an exposure in Lisbon two and a half weeks before the onset. The urethral smear and culture revealed no gonococci, but he had taken 2 g. of sulphathiazole during the previous two days. No trichomonads or spirochaetes were found by dark-field examination, and the Wassermann, Kahn, and gonococcal complement-fixation tests of the blood were negative. The urine was hazy in the first glass. He was given four capsules of aureomycin (1,000 mg.) over 24 hours, but when seen two days later the condition was unchanged. Urethral cultures from this case showed only *Staph. albus*, and pleuropneumonia-like organisms were not recovered by culture or seen in smears stained with Giemsa.

Gonorrhoea

For comparison two cases of gonorrhoea were treated.

Case 1.—An unmarried white man was first seen on Jan. 1, 1949, complaining of a urethral discharge of one week's duration and a swollen right testicle since October, 1948. The purulent urethral discharge contained an abundance of gonococci, and he was treated with a single intramuscular injection of 300,000 units of procaine penicillin. The discharge rapidly abated and the epididymitis subsided, but unfortunately his consort could not be persuaded to attend. On Jan. 21 he again showed a purulent urethral discharge containing gonococci, although he denied re-exposure. The apparent relapse was treated with a single injection of 600,000 units of procaine penicillin, to which he responded, and he was quite well when seen 7, 30, and 36 days after treatment. On March 5, following exposure one week before to the same girl, he came once more with a purulent urethral discharge containing gonococci. The urine was hazy in two glasses, and the Wassermann, Kahn, and gonococcal complement-fixation tests of the blood were negative. His consort was secured and found to be suffering from gonorrhoea, which was treated.

The man was given eight 250-mg. capsules of aureomycin hydrochloride orally over 52 hours. When seen 48 hours after the onset of treatment, and before its completion, the discharge had completely gone and the urine was absolutely clear. An absence of discharge, a clear urine, and a freedom from pus in the prostatic smear, together with a negative culture for gonococci, were found at 7, 14, 35, 42, and 49 days after treatment.

Case 2.—An unmarried white man aged 28 attended the clinic with a purulent urethral discharge and slight dysuria of four days' duration. There was also a small, slightly tender right inguinal lymph node, and there had been a contact with a stranger ten days before. Gonococci were found without difficulty in the smear and were confirmed by culture. The urine was markedly hazy in the first glass, and the Wassermann, Kahn, and gonococcal complement-fixation serum tests were negative. He

was given four capsules of aureomycin in divided doses over 20 hours (1,000 mg.). When seen two days later the discharge had gone and the urine was completely clear apart from some threads in the first glass; the inguinal adenitis had entirely subsided. The urethral smear showed no pus cells, and the culture was negative for gonococci. He did not trouble to attend again until the 26th day, when he had no discharge, his urine was clear, and his prostatic secretion was free from pus.

Discussion

The results here recorded confirm those from America, and suggest that aureomycin is a satisfactory treatment both for gonococcal urethritis and for non-specific urethritis, pleuropneumonia-like organisms disappearing rapidly from the urethral discharge.

Aureomycin has also been shown to be effective in lymphogranuloma venereum (Wright *et al.*, 1948a, 1948b) and in granuloma inguinale (Greenblatt *et al.*, 1948). In addition O'Leary *et al.* (1948) have reported that doses of 40 to 50 g. of aureomycin rapidly cleared up the clinical symptoms in two cases of syphilis with early secondary lesions: serological reactions were unaffected. This antibiotic therefore seems capable of influencing all the common venereal infections.

Summary and Conclusions

Two cases of gonococcal and four cases of non-specific urethritis have been treated by oral aureomycin. One of the gonococcal cases and one of the non-specific cases received 2,000 mg. and the remainder 1,000 mg. over 24–60 hours.

Both the gonococcal cases responded, as did three of those with non-specific urethritis. Although one of the latter relapsed, it reacted favourably to further treatment. There was one failure.

In addition to the routine tests special examinations were made for pleuropneumonia-like organisms in patients with non-specific urethritis. These organisms were recovered before treatment in three cases and after treatment in none.

Our thanks are due to Professor G. A. H. Buttle, O.B.E., in whose laboratories in the Department of Pharmacology, School of Pharmacy, the special bacteriological investigations were carried out. One of us (G.M.F.) wishes to thank the Medical Research Council for a grant towards laboratory expenses.

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The effect of vaccination during pregnancy on the incidence of malformations has been studied by Greenberg and his colleagues (*Paediatrics*, 1949, **3**, 456). More than 5,000,000 people were vaccinated following the outbreak of smallpox in New York early in 1947. Among these were 4,172 women in the first three months of pregnancy. They gave birth to 68 children with malformations, an incidence of 1.63%. A control non-vaccinated group of 2,186 women in the same period of pregnancy gave birth to 30 malformed infants, an incidence of 1.37%. These studies have shown that vaccination of women in the first three months of pregnancy does not appear to have any deleterious effect on the developing embryo.

NEUROLOGICAL COMPLICATIONS OF MUMPS

BY

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AND

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Hamilton (1781) first recorded cerebral manifestations associated with mumps; since then the subject, without becoming properly crystallized, has commanded medical interest as a comparative rarity.

Dopter (1910) reported that 9.8% of 1,705 cases of mumps showed meningeal symptoms, but admitted that "real" meningitis might be very rare. When Acker (1913) studied details of 30 fatal cases of cerebral mumps he considered that true meningo-encephalitis had been present. During and after the 1914–18 war French and American physicians described meningo-encephalitis complicating mumps, and details of isolated cases continue to appear in medical journals.

Coe (1945) agreed with Paddock (1932) that clinical meningitis accompanied mumps in from 0.15 to 0.5% of cases. Frankland (1941), in discussing a mumps epidemic involving 234 cases, put the occurrence of meningitis as high as 30% and reckoned that meningeal symptoms in contact cases of mumps could be presumed to be due to mumps infection. Five of Frankland's cases gave a meningeal reaction in the cerebrospinal fluid. Another epidemic of mumps, among men of the New Zealand Expeditionary Force in Japan, was noted by Laurence and McGavin (1948), who considered that out of 208 cases 60 had symptoms suggestive of meningeal involvement and six had definite meningo-encephalitis.

Ford (1937) has collected information demonstrating the widespread neurological lesions which may be expected in mumps, lesions involving almost any part of the central nervous system.

While it is generally agreed that the cerebral symptoms usually occur after the ordinary signs of mumps have shown themselves, Colomb and Mary-Mercier (1912), Bedingfield (1927), and Frankland (1941) described cases with neurological signs before there was any suspicion of mumps. Also, Howard (1919) and Frankland (1941) reported cases in which meningo-encephalitis occurred during a mumps epidemic and suggested that these were cases of mumps with the neurological signs as the only clinical manifestations.

Dopter (1910), Frankland (1941), and Lightwood (1946) tend to hold that the virus of mumps can be primarily neurotropic, and this view is given tentative authority by Harries and Mitman (1947) on experimental evidence. Similarly, Box (1946) ascribes the virus with possible neurotropic qualities.

In reviewing this considerable literature and remembering that individual cases of mumps meningo-encephalitis are still reported in some detail from time to time, we feel that a group of 14 cases occurring in a restricted area and during a short period of time merits attention.

The Present Series

With one exception all the cases developed in the Bristol area in May (1 case), June (3 cases), July (3 cases),

TABLE I

Case No.	Sex	Age	Day of Disease on Admission	History: Headache	Parotitis	Orchitis	Vomiting	Delirium	Drowsiness	Shivering	Paralysis	Admission Findings: Meningitis Symptoms	Parotitis	Orchitis	Abdominal Pain	Vomiting	Frontal Headache	Pain in Back	Nystagmus	W.B.C. 1,000/c.mm.	Polymorphs %	Lymphocytes %	Monocytes %	Eosinophils %	Basophils %	Progress of Disease: Day of Disease Temp. Settled	Day of Disease Dev. Orchitis	Day of Disease Lost Nuchal Rigidity	Day of Disease Dev. Parotitis	Day of Disease Dev. Meningitis	Days in Hospital	State on Discharge	Remarks
1	M	19	2	+	−	−	+	+	+	+	−	+	−	−	+	+	+	+	+	6·5	73	22	4	1	−	10	9	9	3	1	22	Well	Submaxillary mump
2	M	29	6	+	−	−	+	+	+	+	−	+	−	−	+	+	+	+	+	8·7	69	25	6	−	−	9	2	9	1	5	15	"	—
3	M	15	2	+	−	−	+	+	+	+	−	+	−	−	+	+	+	+	+	6·7	72	22	3	2	1	5	−	6	2	3	13	"	—
4	M	9	2	+	−	−	+	+	+	+	−	+	−	−	+	+	+	+	+	8·7	76	23	1	−	−	5	−	9	3	1	11	"	—
5	M	4	6	+	−	−	+	+	+	+	−	+	−	−	+	+	+	+	+	9·1	65	26	7	1	1	9	−	13	1	6	16	"	Submaxillary mump
6	M	26	2	+	−	−	+	+	+	+	−	+	−	−	+	+	+	+	+	6·8	70	25	4	−	1	11	7	9	3	1	22	"	—
7	F	18	2	+	−	−	+	+	+	+	−	+	−	−	+	+	+	+	+	7·9	66	23	8	1	1	7	−	8	1	3	15	"	—
8	M	25	5	+	−	−	+	+	+	+	−	+	−	−	+	+	+	+	+	10	75	20	4	−	1	8	5	11	1	5	16	"	—
9	F	22	2	+	−	−	+	+	+	+	−	+	−	−	+	+	+	+	+	6·1	63	31	2	1	3	11	−	13	3	4	16	"	—
10	M	8	14	+	−	−	+	+	+	+	−	+	−	−	+	+	+	+	+	7·3	66	27	7	−	−	16	−	17	6	12	13	"	Ext. rectus paralysis
11	F	34	7	+	−	−	+	+	+	+	−	+	−	−	+	+	+	+	+	—	—	—	—	—	—	11	−	−	2	7	10	"	Ext. rectus paralysis
12	F	6	1	+	−	−	+	+	+	+	−	+	−	−	+	+	+	+	+	9·7	50	34	7	9	1	13	−	−	7	1	14	"	Paresis of legs
13	M	14	2	+	−	−	+	+	+	+	−	+	−	−	+	+	+	+	+	—	—	—	—	—	—	—	−	−	6	3	16	"	Facial palsy
14	M	15	2	+	−	−	+	+	+	+	−	+	−	−	+	+	+	+	+	8	55	32	6	4	3	4	−	5	4	1	16	"	—

August (6 cases), and September, 1948 (1 case). During the same period 23 cases of anterior poliomyelitis were admitted to hospital—more than during the general epidemic period of 1947. Otherwise there was no marked prevalence of virus infections. It was noted that 18 out of 48 cases of known anterior poliomyelitis had long previously had mumps.

Since mumps is not notifiable and cases are not usually admitted to hospital, it is impossible to compute the total number of cases in the area during the time that we received these 14 cases, but hearsay evidence did not suggest even a moderate mumps epidemic. Table I gives details of the cases.

It will be seen that Cases 1, 4, 6, 12, 13, and 14 had signs of involvement of the central nervous system before there was any other indication of mumps. All the patients appeared to be alarmingly ill on admission, and the majority entered hospital under a quite justifiable diagnosis of meningitis. Four cases showed paralysis, and nystagmus was a common feature. Pyrexia on admission was constantly in the region of 102° F. (38.9° C.). Bradycardia, reported as common by French writers, was not noted. Severe frontal headache was a distinctive feature. All the patients were discharged well and without sequelae. Table II gives details of cerebrospinal fluids on admission.

In all cases the fluid pressure was raised and the general picture was that noted in other types of virus encephalitis.

The emphasis laid by Frankland (1941) on the occurrence of a purely lymphocytic reaction was not sustained; in fact, the polymorphonuclear percentages were welcomed in differentiating some of the cases from benign lymphocytic meningitis; but these polymorphonuclear findings made the differential diagnosis from tuberculous meningitis more difficult, and in view of the necessity for early treatment of this condition with streptomycin the problem is important. The recent emphasis on the lowering of the cerebrospinal fluid sugar concentration in tuberculous meningitis should be a valuable differentiating point, for the sugar concentration in mumps meningitis is not low. It is worth noting that two of our cases were admitted as cases of tuberculous meningitis for streptomycin treatment.

TABLE II

Case No.	Globulin (+ = Increase)	Sugar (+ = Present)	Protein, mg./100 ml.	Chlorides, mg./100 ml.	Cells per c.mm.	Polymorphs %	Lymphocytes %	Monocytes %	Organisms	Culture	Day of Disease Lumbar Puncture Performed
1	+	+	60	730	110	3	97	—	—	—	2
2	+	+	35	725	100	8	92	—	—	—	7
3	+	+	80	720	380	14	85	1	—	—	3
4	+	+	45	735	84	6	90	4	—	—	2
5	+	+	95	700	1,050	7	92	1	—	—	6
6	+	+	85	730	213	10	90	—	—	—	2
7	+	+	35	730	110	8	92	—	—	—	6
8	+	+	40	740	45	10	90	—	—	—	8
9	+	+	35	720	25	—	100	—	—	—	4
10	+	+	60	710	800	30	63	7	—	—	15
11	+	+	45	625	390	5	95	—	—	—	7
12	+	+	—	760	150	42	58	—	—	—	4
13	+	+	20	760	113	5	95	—	—	—	5
14	+	+	75	750	940	17	80	3	—	—	2

Most of the cases of mumps meningitis give a history of previous contact with a case of mumps, which is not always inquired about. It is of interest to note that Case 7 was that of a nurse who came in contact with Case 11 and might well have had the same strain of virus. A further contact with this nurse was a surgeon working in the same hospital, who also developed a severe meningitic reaction, coming on nine days before the appearance of orchitis. As this surgeon refused lumbar puncture we are unable to include him in this series. It does seem that this strain of virus was highly neurotropic.

These three cases bear some resemblance to the cases of mumps meningitis in twin brothers quoted by Paddock (1932). These two brothers developed typical severe meningitis with increased cellular responses in the cerebrospinal fluid, but neither case showed any parotitis. Three sisters in the same family, however, showed the typical parotid symptoms found in mumps. It would seem, therefore, that the virus can have a predilection for the nervous tissue in certain people, but it more usually reacts on the parotid.

Comment

Although it has been suggested that a cerebrospinal reaction exists in cases of orthodox mumps, and Lavergne *et al.* (1938) have even shown many instances of a cerebrospinal fluid pleocytosis in asymptomatic contacts of mumps, most commonly during the last three days of the incubation period, yet a grouping of 14 cases, such as put forward in this article, suggests the presence of an organism more than usually neurotropic. It might also suggest a population more than usually susceptible to a neurotropic virus, and this might have some bearing on the unusual prevalence of poliomyelitis during the same period.

Donohue (1941) has described perivascular demyelinization, similar to that seen in other cases of post-infective encephalitis, when he reported the pathology of a case of fulminating mumps meningo-encephalitis. Gordon (1927) experimentally produced mumps encephalomyelitis in a monkey (*M. cynomolgus*), and noted a cerebrospinal fluid reaction similar to that seen in the cases described here. He also described histological parotitis at necropsy in four cases of encephalitis lethargica (Gordon, 1913). Armstrong *et al.* (1936) similarly demonstrated the virus of choriomeningitis in the testes of experimentally infected monkeys.

There are authenticated cases of orchitis (Humphries, 1947) and pancreatitis (Box, 1946) as the only signs of mumps. We may therefore be but guessing at the tissue predilections of virus organisms. It may well happen that cases loosely described as aseptic meningitis may in reality be mumps meningo-encephalitis. If, however, after study of the other manifold manifestations of mumps it is considered that this virus infection is generalized and apt to influence any tissue—even the foetus *in utero* (Humphries, 1947)—then it is quite understandable that the central nervous system can at times be affected too, and possibly in preponderance. Thus it would no longer be necessary to postulate a neurotropic virus but rather one which settles where it will, and, depending on the speed of immunity production, the salivary glands, central nervous system, pancreas, ovaries, testicles, or pericardium may one or all produce clinical signs of virus inflammation.

Summary

The literature concerning the central nervous system manifestations of mumps is reviewed.

Fourteen cases of mumps meningo-encephalitis are presented, six of which occurred before other signs of mumps developed.

The place of the neurological signs of mumps in the picture of the disease is discussed, and it is suggested that, being a general infection, central nervous types of the disease are apt to occur more by accident than because the virus is necessarily essentially neurotropic.

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LEUCOCYTE COUNTS IN THE PREVENTION OF DRUG AGRANULOCYTOSIS

BY

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Himsworth (1948) stated that he and Morgans (1947) had come to the conclusion that frequent blood counts for the early detection of agranulocytosis during treatment with thiouracil are worse than useless, because agranulocytosis develops like a bolt from the blue, and a normal count may impart a quite unjustifiable sense of security. This has long been known in the case of the sulphonamides, but the evidence has been generally disregarded, and leucocyte counts for purposes of prophylaxis are still considered desirable. Roberts (1948) and Hendry (1948) have drawn attention to the greatly increased demands being made on clinical pathological departments of hospitals, and leucocyte counts, requested under the mistaken impression of their value in the prevention of agranulocytosis, constitute an unnecessary and wasteful part of such demands.

I drew attention to the failure of serial leucocyte counts during sulphanilamide administration either to give warning of an impending agranulocytosis or to prevent a fatal outcome (Young, 1937). Later I collected evidence supporting this observation (Young, 1944). On the other hand, Britton and Howkins (1938) carried out leucocyte counts during 14 days of sulphonamide treatment in 50 patients, and found that the polymorphs fell during treatment in 46% of cases—in 10% to fewer than 2,000 per c.mm—but they did not observe agranulocytosis. Also Bigler *et al.* (1938) carried out counts in 33 persons during short courses of sulphonamide treatment, and concluded that sulphonamides seemed to cause depression of white blood cells even to a point at which leucopenia developed, but agranulocytosis did not occur with this depression.

It might be anticipated that leucocyte counts would be useful in the prophylaxis of agranulocytosis in two ways: (1) in preventing the occurrence of agranulocytosis, and (2) in reducing case mortality through earlier diagnosis.

Influence of Counts on the Occurrence of Agranulocytosis

It has been assumed that the detection of a drop in the leucocyte count to a leucopenic level during treatment would enable agranulocytosis to be averted by stopping administration at this stage, and it has been claimed that this has been achieved (Hohmann, 1938). Plum (1937), by administering amidopyrine to patients who had recovered from agranulocytosis due to the same drug, showed that the changes in the marrow are well established before the peripheral blood gives any warning, and that, although administration of the drug was stopped long before this warning in the blood, agranulocytosis followed. His experiments, and other evidence (Shecket and Price, 1939: Agranat *et al.*, 1939: Filler, 1941), indicate that when a leucopenia is due to an imminent agranulocytosis the latter will follow whether the drug is stopped or not. If a rise in granulocytes occurs immediately after administration ceases the condition merely represents the mild leucopenia which occurs in about 50% of persons, as demonstrated by Britton and Howkins (1938) and Bigler *et al.* (1938) with sulphonamides.

That such a leucopenia does not proceed to agranulocytosis is readily demonstrated by continuing the administration of the drug. Such a test case is the following, in which thiouracil was given for the treatment of thyrotoxicosis.

Before treatment was started the blood showed a polymorph count of 3,000 per c.mm. in a total leucocyte count of 5,600. After 14 days' treatment the count had fallen to 1,480 polymorphs in a total count of 3,900. At this stage, instead of suspending treatment, the dose of thiouracil was doubled. Four days later the counts were the same, the polymorphs being 1,587 and the total leucocytes 4,100. At the end of a further six days' treatment the polymorph count had risen to 3,538 and the total leucocytes to 6,100, restoration to the pre-treatment level having ensued in spite of the continued administration of the higher dosage.

If such a leucopenia is to be used as an indication for stopping treatment it not only seems to be an unreliable indicator but may be so misleading that it results in patients being deprived unnecessarily of the benefits of treatment.

Filler's (1941) case strikingly demonstrated the failure of leucocyte counts in the prevention of agranulocytosis. The case was one of staphylococcal septicaemia treated with sulphamethylthiazole. After the blood culture had become sterile, pyrexia was still present and drowsiness was noted for the first time. There was no leucopenia at this period, but owing to the suggestion of toxicity the drug was stopped. Six days later polymorphs had completely disappeared from the peripheral blood, so that, although treatment had ceased before there was any warning leucopenia, agranulocytosis was not prevented.

Influence of Leucocyte Counts on Mortality

Although leucocyte counts are generally misleading as indicators of impending agranulocytosis, it might be anticipated that serial counts, by bringing about cessation of the offending drug at the earliest possible moment, would lower mortality in comparison with cases in which no counts were made.

To test this assumption the available data relating to 74 cases of sulphonamide agranulocytosis were extracted from the literature and are presented in the Table.

Table Showing Leucocyte Counts and Mortality

No. of Counts:	0	1–14	1–3	4–14
No. of recovered cases	14	19	14	5
No. of fatal cases	16	25	16	9
Case mortality per cent	53	57	53	64
Observed difference per cent.	4		11	
2 × standard error of difference	23·5		32	
Significance of difference	Nil		Nil	

Two comparisons are made: first, between cases having no counts and those having one or more; secondly, between those having one to three counts and those having more than three. The latter are rather few in number, but in no group was any significant difference in case mortality demonstrated. While the data may not be sufficient to establish the absence of any influence of leucocyte counts on case mortality, they show that the assumption generally made that they will do so is not justified on the available evidence, at least in regard to the sulphonamides. Individual cases illustrate how completely they can fail. In one of my own cases (Young, 1937) treatment was stopped on the day after a count which showed no drop in polymorphs, so that even if a reduction had been demonstrated on the following day the drug would not have been stopped sooner, yet the patient died. In the case of Shecket and Price (1939) five counts in the six days preceding agranulocytosis failed to avert a fatal outcome, although the drug was stopped when the leucocytes fell from 12,500 to 8,500 per c.mm. Morgan and Detweiler (1939) described a case in which 14 counts were made during 19 days' treatment, but again death occurred. Other cases providing similar evidence are among those enumerated in the table, references to which, with individual data, are given by Young (1944).

Discussion

The evidence, both experimental and clinical, indicates that in drug agranulocytosis the condition is inaugurated in the bone marrow some time before granulopenia occurs in the peripheral blood, and the information given by the latter is too late for prophylactic purposes. Plum's (1937) experiments with amidopyrine showed that the formation of granulocytes ceased at its earliest stage, but that the marrow granulocytes already formed continued to develop and so sustained the numbers in the peripheral blood for some days after the condition had been established in the marrow.

The bone-marrow changes found in sulphonamide agranulocytosis have been variously described as absence, reduction, maturation arrest, and aplasia of neutrophil granular cells, but the term "maturation arrest" is not justified, as it has been based only on single examinations which cannot show whether the picture is static or changing. As indicated above, Plum showed that there was no maturation arrest in amidopyrine agranulocytosis.

Rubinstein (1944) made serial marrow examinations in a case of thiouracil agranulocytosis during recovery. He showed that the return to normal of the marrow preceded that of the peripheral blood, the polymorphs in the latter reaching the pre-treatment level some time between the sixth and nineteenth days after the marrow count was normal. These observations again indicate a considerable time lag between the marrow and the peripheral blood, and agree with Plum's findings with amidopyrine that marrow examination gave earlier information than did the blood.

Beck (1933) recorded that the myeloid bone marrow in agranulocytosis might be aplastic, normal, or hyperplastic, and this variability in the marrow findings has caused some confusion regarding the basis of the condition. A type of agranulocytosis occurs which is probably due to cell destruction rather than failure to produce granulocytes, but, so far as is known, this type does not seem to be produced by drugs. The finding of numerous granulocytes in the bone marrow has been reported in cases due to various drugs, including at least one due to sulphonamides (Rosenthal and Vogel, 1939). It is probably significant that this sulphonamide case was the only one to recover among those in which the marrow was examined in the series studied by Young (1944), the others all showing various degrees of aplasia.

From an examination of available data (Dameshek, 1944; Young, 1944) it seems likely that the variations reported in the marrow in drug agranulocytosis generally are due to variations in the state of marrow recovery at the time of examination. The marrow has most often been examined post mortem, and, death being as a rule due to bacterial invasion and not directly to the state of the marrow, all stages of recovery in granulocyte production may be present at the time of death. A single examination of the marrow may therefore be misleading in regard to the nature of the condition, which, when due to drugs, usually appears to be aplastic in type.

Instead of leucocyte counts during treatment with thiouracil, Himsworth *et al.* (1947) recommend that every patient should be told that if he develops a sore throat

or fever he must discontinue the drug and report to his doctor. The same procedure might be applied in the prolonged sulphonamide administration employed in rheumatism prophylaxis. For other cases of sulphonamide administration, limitation of the period of treatment to a week or ten days is probably the best method of prophylaxis, and seems to have almost eliminated agranulocytosis due to this group of drugs. Amidopyrine agranulocytosis is readily avoided, as this drug is unnecessary and should no longer be used.

Summary

No evidence has been found that serial leucocyte counts during the administration of agranulocytosis-producing drugs either prevent agranulocytosis or reduce case mortality.

The reason for this failure is found in the bone marrow, where the condition can become fully established before the peripheral blood gives any warning.

Reliance on leucocyte counts is undesirable, as they may give rise to a misguided sense of security which may prevent the adoption of more useful measures.

Leucocyte counts for purposes of prophylaxis also constitute a waste of time in clinical pathological departments of hospitals, and may mislead clinicians into stopping the administration prematurely, so unnecessarily depriving patients of the benefits of treatment.

Other methods of dealing with drug agranulocytosis are briefly mentioned.

I am indebted to Dr. J. K. Rennie for clinical data. Much of the material in this article is taken from a thesis accepted by the University of Edinburgh for the degree of M.D.

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Information about the hospital services in the United States is summarized in a report published in the *Journal of the American Medical Association* (May 7, 1949, p. 23). The present bed capacity is 1,423,520, and the average daily number of patients occupying hospital beds during 1948 was 1,217,154. Between 16 and 17 million patients were admitted to hospital during the year. The greatest increase in service compared with past years was in the general hospitals. The average daily number of patients in mental hospitals was 664,399: thus nearly 55% of the occupied hospital beds were utilized for psychiatric care. The tuberculosis hospitals contained about 5% of the total hospital load. The average length of stay in general hospitals fell from 11.4 days in 1947 to 10.5 in 1948. There are now 807 hospitals approved for the training of interns and 1,140 for the training of resident physicians. The accredited schools of nursing education, which total 1,163, enrolled 100,174 student nurses in 1948.

TORSION OF NORMAL FALLOPIAN TUBE

BY

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Torsion of the normal Fallopian tube when first encountered strikes one as being rare enough to warrant a little excitement. On looking at the tube and its mesentery during operative work in the abdomen it is hardly conceivable that the tube itself should undergo torsion without involving the neighbouring structure of the ovary: with its broad pedicle it would seem impossible that it could so twist on itself as to give rise to urgent symptoms.

Case Report

A 2-para aged 24 was admitted to the maternity unit of the Ayrshire Central Hospital on Dec. 7, 1947. The elder child was 2½ years and the younger 8 months. The family history showed nothing of importance. The husband was alive and well. The patient had been feeding the baby until three weeks before admission to hospital. She stopped on account of an attack of pain in the left iliac fossa and slight uterine bleeding. This was the first sign of uterine bleeding since the birth of the baby, and she was sent to hospital by her doctor as a case of threatened abortion or of subinvolution.

On admission the temperature was 99° F. (37.2° C.), pulse 124, respirations 20, B.P. 120/80 mm. Hg; blood Rh-negative; O(iv); W.R., negative; urine, N.A.D.; chest, heart, and lungs, N.A.D. On vaginal examination a small tender mass was felt behind the uterus, which was slightly enlarged, retroverted, and tender.

After admission there was no further uterine bleeding, so the differential diagnosis rested between ectopic gestation and an inflammatory condition of the tubes. During the next three days there was a slight rise in temperature, and a course of penicillin of 1,000,000 units was given. An Aschheim–Zondek test, which had been taken on admission, was now shown to be negative, and as the patient's temperature had settled she was examined under general anaesthesia. The previous findings were confirmed and the provisional diagnosis of tubal mole made.

Operation.—On Dec. 16 the abdomen was opened through a Pfannenstiel incision. A small mass surrounded by adhesions was found in the pouch of Douglas. When the adhesions were freed the mass was found to be the left tube with three clockwise twists in it. It was removed, leaving the ovary untouched, and the stump was buried in the broad ligament. Appendicectomy was performed and the abdomen closed. The patient was ambulatory by the third day and was discharged from hospital on Dec. 27, 11 days after the operation.

The specimen would at first suggest an atypical tubal pregnancy which had undergone torsion. Section showed no evidence of pregnancy, and microscopically no cells suggestive of decidua or chorionic elements could be found. This, after consideration of the patient's symptoms and history in retrospect, supported the diagnosis of simple torsion of the tube.

Discussion

The standard midwifery textbooks make no mention of this entity, but after reviewing some of the literature it was perceived that it was not really rare. Bland-Sutton (1890) reported the first case, and since then many others have been published. In the majority there has been a history of a diseased condition of the tube—hydrosalpinx, etc. Darner (1926) states torsion of the undiseased tube is less common, particularly in the virgin. French authors, in particular Regad (1933a, 1933b), have referred to a syndrome,

as they consider the condition to be common enough to be regarded as a clinical entity in the virgin. This is of course understandable. In married women there is a greater difficulty in assessing the normality of the tubes, particularly after pregnancy, and this was borne out in my case, in which the woman's last pregnancy occurred only seven months before. She had never menstruated since then and had been feeding the baby, which of course is no bar to pregnancy or pelvic infection.

Shute (1932) wrote an extensive paper on this condition, dealing with all theories of causation and its distribution in the various age groups and types of cases encountered. He found that 80% of cases occurred during the genital activity of women and the remaining 20% during puberty: 68% of the former were on the right side and in 62% the torsion was clockwise. It has been extremely difficult to separate the cases associated with tubal disease from those in the normal tube, as only 8% of specimens had had histological examinations, although one must presume that the 20% arising before puberty occurred in a normal tube. In those not associated with disease there would seem to be some connexion with the initiation of menstruation, and Davies (1925) and McEachern (1934) each cited a case similar to mine. It must be assumed that the bleeding occurring in my case was that of a commencing period.

Blum and Sayre (1937) mentioned the prevalent theories: (1) Haemodynamic (Payr), the idea being that the pulsations of the blood vessels in the mesentery of the tube can in some way initiate the torsion; (2) Sellheim's suggestion that the movements of the body and abdominal wall could be transmitted and this would initiate the torsion. This second theory is understandable when applied to a large ovarian cyst which is in contact with the abdominal wall, for any sudden violent, irregular movement of the abdominal muscles might then start a movement of the cyst to right or left, but it would hardly seem applicable to the tube, which is lying deep in the pelvis.

Anatomical malformations and physiological peristalsis are much more likely to initiate a twist. It has been suggested that drugs such as apiol may also initiate such excessive peristalsis as to start torsion. Once a twist has occurred it is easy to understand the consequent interference with circulation and the indrawing of the fimbriae which occur in acute salpingitis and ectopic pregnancy. This results in the extravasation of blood into the tube, with the formation of a small pedunculated mass which may undergo further torsion.

Such a sequence of events will give rise to all the clinical symptoms seen in the case reported, and suggests the erroneous diagnosis of ectopic pregnancy or salpingitis.

Unless this occurs in the pubescent girl it is, to my mind, impossible to recognize a definite syndrome which will identify torsion of the normal Fallopian tube, particularly as it must be assumed that the latter cases are virginal and difficult to examine. The urgency for operation in these cases is not great; cases have been described in which the distal portion of the tube has actually been amputated by the torsion and a free tubal mass has been removed some considerable time—even years—after what must have been the original crisis.

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AN OUTBREAK OF FOOD-POISONING IN BROMYARD DISTRICT

BY

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On Friday, Nov. 5, 1948, a number of people left Bromyard by coach to attend the evening performance of a play in Birmingham. They arrived early, and 14 persons, so far as is known, entered a near-by restaurant and had a meal consisting of cold beef sandwiches and coffee or alcoholic refreshment. The beef in the sandwiches was described by different patients as being "undercooked," "overcooked," "dark-looking, stringy, and tough."

Of these 14 persons, 11 were taken ill on Nov. 6 and one on the 7th, the incubation period varying from 16 to 36 hours. The presenting symptoms were malaise, lassitude, severe frontal headache, aching in the limbs and back, fever, shivering, abdominal pains, diarrhoea, and in some cases nausea and vomiting. One patient collapsed while attending a memorial service on Nov. 6. Photophobia and tenderness of the eyeballs were complained of by four patients, and one patient stated that he had had puffiness round the eyes.

The severity of the attack varied considerably: from headache and abdominal discomfort, with mild pyrexia only, to complete incapacitation with pyrexia of 102–104° F. (38.9–40° C.) at the onset, associated with extreme diarrhoea and blood in the stools. The duration of the attack extended over a period of two to three days in the mildest case; whereas in the most severe cases, although the acute phase of the illness had passed off within seven days, residual lassitude, anorexia, and minor recurrences of the headache and abdominal symptoms persisted for two to three weeks.

Two of the persons who ate the beef sandwiches suffered only from slight headache and malaise on the following day. A specimen of faeces from one of these persons gave a negative result on culture; no specimen could be obtained from the other person. It is of interest to note that, of those persons who took alcoholic refreshment, these were the only people who had *two* glasses of either gin or sherry with their sandwiches.

Investigations in Bromyard.—Specimens of faeces obtained from the 12 persons who were taken ill yielded salmonellae on culture, which were later identified as *Salmonella bovis morbificans.*

Investigation at the Restaurant, Birmingham.—(*a*) Bacteriological examination of specimens of faeces from the eight members of the staff at the restaurant showed that four persons were excreting *Salm. bovis morbificans.* Two of these four had not been ill, while the other two had had symptoms of enteritis after Nov. 5. (*b*) Bacteriological examination of rat droppings in the restaurant revealed the presence of *Salm. bovis morbificans.* (*c*) Bacteriological examination of the rat-poison which was being used in the restaurant showed the presence of *Salm. enteritidis* (Gaertner).

Discussion

These findings indicate that in all probability there was an epidemic of gastro-enteritis due to *Salm. bovis morbificans* affecting the rodent population in the vicinity of the restaurant at Birmingham, and that unprotected food had been contaminated by the infected rodents. The beef had

been cooked and served hot for lunch, then left on an open dish in the basement kitchen for eight hours before being served as sandwiches to the Bromyard party. It is presumed that the contamination occurred during this interval. Although the rat-poison used in the restaurant was not the vehicle for the spread of the infection, the risks incurred by using such a poison are obvious; and, in view of the fact that methods of food production and storage in hotels, restaurants, and cafés are seldom satisfactory, the continued use of such poisons in these places is a danger to the public health and should be prohibited.

The patients affected in the outbreak were treated symptomatically for the first week of the infection. Thereafter they were all given a course of sulphaguanidine, the dosage varying from 3 to 4 g. by mouth four-hourly by day for four days. Of the 12 patients thus treated, four complained of symptoms of intolerance, and the dosage was accordingly reduced, and in one case the course was terminated. Specimens of stools were taken from each of the affected persons until three consecutive negative specimens had been obtained, the patient then being considered free from infection. These specimens were taken twice a week for the first four weeks and thereafter once a week.

On account of the irregular intervals between the collection of specimens of stools and the small numbers involved, no relation of statistical significance can be shown between the duration of the infective period and the sex of the person affected. It is of interest, however, to note that the average period of duration of infection (i.e., the time from the onset of clinical symptoms to the date when the first of the three consecutive negative stools was obtained) was 24.4 days for the seven men affected and 47.6 days for the five women. The figures are as follows:

Period of Duration of Infection

Males	Females
23 days	39 days
20 ,,	44 ,,
30 ,,	67 ,,
23 ,,	30 ,,
20 ,,	58 ,,
32 ,,	
23 ,,	
Mean, 24·4 days	Mean, 47·6 days

If from these figures are subtracted those relating to the persons who did not receive a full course of sulphaguanidine, then the mean periods of duration of infection are: males, 26.2 days; females, 54.7 days. Thus it seems unlikely that the period of infection was influenced by the sulphaguanidine.

The five female patients and one of the male patients prepared food for consumption in their households. These persons were given instruction in personal hygiene and care in the handling of food. It is satisfactory to note that no secondary cases resulted from this outbreak.

Summary

A brief description is given of an outbreak of food-poisoning in Bromyard district due to infection with *Salm. bovis morbificans*.

Investigations revealed that the infection originated from the consumption of beef sandwiches in a Birmingham restaurant, and that the sandwiches were probably contaminated by infected rodents.

The danger of using rat-poisons incorporating salmonella organisms, especially in food premises, is noted.

The duration of infection in the female patients was approximately twice that in the males.

The evidence from this outbreak suggests that infection with *Salm. bovis morbificans* does not respond to sulphaguanidine therapy.

I would like to express my appreciation of the co-operation and help given by the staff of the Public Health Department and the City Laboratory at Birmingham, and the staff of the Public Health Laboratory at Hereford.

Medical Memoranda

A Case of Undulant Fever Treated by Chloramphenicol

The treatment of undulant fever has until recently been unreliable and unsatisfactory. Methods advocated have included the joint use of sulphonamides and blood transfusion (Holmes and Hughes, 1948; further recommended by Romer, 1949), and the use of "aureomycin" (Galpine, 1949); whilst the American Department of Clinical Investigation of Messrs. Parke, Davis, and Co. claim that six patients with active brucella infection responded rapidly within an average of 2–4 days to oral administration of chloramphenicol ("chloromycetin"; Parke, Davis, and Co., Technical Reference No. 1183, p. 2). This claim was so striking that one of us (T.V.C.) decided to attempt treatment of the next case of acute undulant fever met with in this area, where the infection is not uncommon. Compared with the larger towns and cities, the volume of milk consumed in this district not heat-treated is considerable, and contagious abortion in cattle is widespread.

The case of undulant fever described below responded immediately to oral administration of chloramphenicol The results seem so good that the method deserves a wider trial. No serious complication was encountered.

CASE REPORT

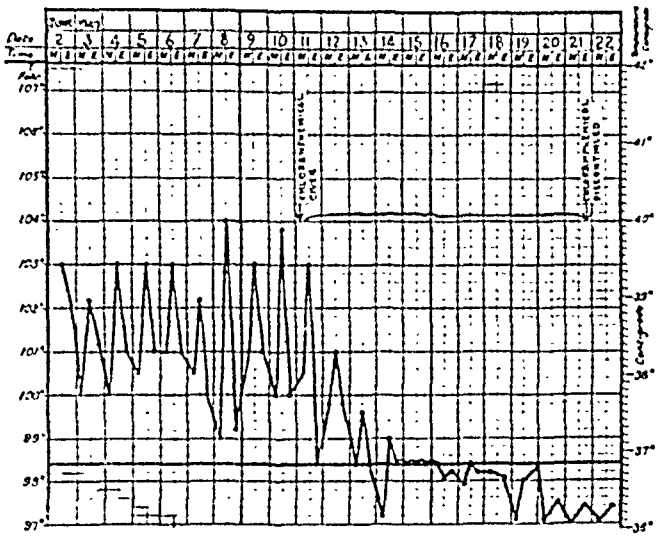
The patient, a man aged 50, was first seen on June 2, 1949; he gave a history of having felt vaguely unwell for the past three to four weeks. Two days previously his afternoon temperature was 103° F. (39.4° C.). The main symptoms were lassitude, sweating, anorexia, constipation, insomnia, pains in bones of back and limbs, and retro-ocular headache. The symptoms were worse in the afternoons No special physical signs were elicited. (The patient had lived in India for many years, but had been at home and healthy since 1947.) During the next seven days his temperature varied between 100° and 104° F. (37.8° and 40° C.), being usually highest in the afternoon. No localizing symptoms or signs developed.

On June 8 blood was taken for the Widal test, and gave a positive reaction up to 1 in 5,000 against *Brucella abortus* and *Br. melitensis* 1 in 1,250, trace 1 in 2,500. There were also reactions to *Salmonella typhi* H 1 in 125, *S. paratyphi* AH 1 in 50, trace 1 in 125, *S. paratyphi* BH 1 in 125, and N'S Composite Salm. 1 in 125, explained by multiple T.A.B. inoculations in the past. The Vi test was negative. A blood count taken at the same time revealed: haemoglobin, 80% (11.84 g.); red cells, 4,300,000; colour index, 0.93; leucocytes, 5,600 (neutrophil polymorphs 68%, monocytes 7.5%, lymphocytes 24.5%); reticulocytes, 1%.

Blood cultures taken on June 11 failed to yield any positive results, although development of brucella was encouraged by employing liver-infusion media and incubation in a jar containing 5–10% carbon dioxide. Blood-film tests excluded malarial infection.

At this point it was decided that the evidence warranted a trial of chloramphenicol. Treatment was therefore started on June 11. The initial dose was 5 g. (approximately 60 mg. per kg. of body weight), followed up by 0.25 g. every three hours for seven days after the temperature had settled (see Chart)—

total, 27 g. by mouth. Within 24 hours of starting treatment there was definite subjective improvement, which was maintained. The temperature had settled by the fourth day, and has remained normal up to the present time (July 22). On the first two nights the patient showed mild urticarial skin lesions, and for a few hours there was severe pain in the splenic area, but the spleen did not become palpable. The patient is heavily



Temperature chart of the case.

built, and a moderate enlargement of the spleen could easily go undetected. He also had an unpleasant taste in the mouth after taking the drug, particularly if the 0.25-g. dose was exceeded. We had given instructions that if, in error, a dose were missed during the night the succeeding dose should be increased in compensation. At the end of treatment the patient was easily tired, but otherwise he felt well. Convalescence proceeded uneventfully, and he now seems fit.

COMMENT

This case is described because the treatment seems free from risk and can be carried out at the patient's home, whereas any method employing blood transfusion implies admission to hospital and exposure to the hazards of transfusion. We appreciate that our diagnosis is based on a reasonable supposition (agglutination reaction) rather than on the absolute proof which would be given by a positive blood culture. It is known, however, that in only a small proportion of cases of undulant fever due to *Brucella abortus*, estimated at 10-20% (Topley and Wilson, 1945), can a bacteriaemia be demonstrated. Inspection of the temperature chart shows a fall in temperature exactly coincident with the administration of chloramphenicol. At the present time this method of treatment is not cheap, as 27 g. of the substance costs £30 12s., less 33⅓% discount to institutions, plus £6 16s. 1½d. purchase tax—a net total of £27 4s. 1½d. The makers inform us that negotiations are proceeding to eliminate purchase tax—an imposition which seems illogical, especially if distribution of the amounts available is restricted to definite prescriptions and specific infections.

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T. V. COOPER, M.B., B.S.,
Pathologist for the County of Dorset and to the West Dorset Group Hospital Management Committee

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Sensitivity to Codeine

The following case is recorded because of the rarity of reactions to codeine in spite of its common use and because of the resemblance of the rash to that of scarlet fever.

CASE REPORT

The patient, a woman aged 24 suffering from pulmonary tuberculosis, stated that one night she had been given two "veganin" tablets (containing ¼ gr. (22 mg.) of codeine phosphate) for headache. Next morning she developed an irritation of the whole body and later in the day "a red rash" appeared. On the following day the rash had faded and the irritation had subsided. She also stated that a similar reaction had followed a single dose of 1 dr. (4 g.) of syrup of codeine phosphate (codeine content, 16.2 mg.).

In order to demonstrate the specificity of the reaction, and to study the rash, several months later she was given a test dose of ¼ gr. (32.5 mg.) of codeine phosphate at midday. At 5 p.m. she developed irritation of the neck and chest, which rapidly involved the whole trunk and limbs. The irritation was followed by a macular rash, which soon coalesced to give a scarlatiniform appearance. The rash was most prominent on the front of the chest, the abdomen, and lower limbs, but the pruritus was not confined to the area involved by the rash. Both the rash and the irritation were less marked the next day, and during the following day both had disappeared; the irritation, however, remained some hours after the rash had gone.

At no time was there any lesion in the mouth, the patient felt well, and there was no febrile disturbance. Slight desquamation occurred over the lower face only. A blood count at the height of the reaction showed 259 eosinophils per c.mm.

COMMENT

In spite of its widespread use very few cases of sensitivity to codeine have been recorded. Indeed, Seidmann (1943) says that his is the tenth case to be reported.

Scheer and Keil (1934) reviewed the literature and added a further case following 1 gr. (65 mg.) of codeine phosphate. They point out that antibodies cannot be demonstrated by the direct Prausnitz-Küstner method, since codeine itself normally produces an erythemato-urticarial reaction with pseudopod formation when injected intradermally. Using a modified P.-K. technique (serum locally and codeine by mouth), they were unable to demonstrate antibodies in the serum. Scheer and Keil describe the original appearance of the rash as follicular, later taking on a generalized erythematous appearance by coalescence of the broad zone of erythema surrounding the individual follicles. They produced a positive skin-patch reaction with codeine phosphate solution (1 gr. to the ounce), while a similar test with a solution of morphine sulphate was negative, indicating a specific hypersensitivity to codeine, which is all the more significant since the latter differs from morphine only in having a methyl group.

The constant feature of the recorded cases is the pruritus followed by an erythematous rash, the early phase of which may present as macular or follicular. Usually there are no symptoms apart from the irritation. In Seidmann's case, however, weakness, fatigue, headache, nausea, and redness of the mouth and throat occurred a few hours after ingestion of 15 mg. of codeine phosphate. There was an eosinophilia of 1,080 per c.mm—a finding also recorded by Dittrich (1926). Desquamation has been reported in a few of the cases.

G. K. MACKENZIE, M.B., Ch.B.

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Reviews

FORENSIC MEDICINE

Médecine légale judiciaire. By C. Simonin. Second edition. (Pp. 819; 313 figures; paper cover, 1,100 francs; bound, 1,300 francs.) Paris: Librairie Maloine. 1947.

Psykopatibegreppets bankrutt (Bankruptcy of the Concept of Psychopathy). *By Bo Gerle. (Pp. 43; paper cover, 3 kronen; in* Swedish.) Lund: Gleerupska Univ.-Bokhandeln. 1947.

The contacts of law and medicine are now so many and various that forensic medicine has split up into a group of specialties, each calling for special training and experience. It is therefore far from easy for one author to cover the whole field; this is the task assumed by Professor Simonin, of Strasbourg, and he has performed it remarkably well. His book is the first of two volumes, and consists of massive chapters on medicine and justice and the medico-legal aspects of injury, sex, poisons, death, identification, and psychiatry; these are the topics covered by the term "*judiciaire*," social medicine and medical ethics being reserved for discussion in the second volume.

The first chapter contains an excellent sketch of the history of criminology and valuable discussions on juvenile delinquency and malingering. The section on injuries includes comment on cruelty to children, the assessment of disability, and post-traumatic disorders. The chapter on sex deals fully with the whole subject, including perversions, sterilization, abortion, marriage, pregnancy, and paternity. Much information about industrial toxicology is found in the article on poisons; those on death, identification, and psychiatry follow the usual lines.

The handling of so vast a subject might excusably have been purely technical, but the approach is, in fact, philosophical, and Professor Simonin does not conceal his strong moral convictions.

The outstanding features of the work are the author's constant preoccupation with the prevention of crime, and the excellence of the clinical descriptions which abound throughout the book and could be read with pleasure and profit by any medical man. The volume will be useful to a wide variety of specialists, and teachers of forensic medicine outside France will find in it ideas worth incorporating in their own courses of instruction. Reference to any topic is unusually easy because of a good index, a detailed table of contents, the division of the text by many cross-headings, and the free use of small type for matters of detail. The text is elucidated by many drawings, the work of the artists E. Huber and A. Collinet.

Dr. Bo Gerle is a *Dozent* in forensic psychiatry in Lund University and head of the forensic department of St. Lars Sjukhus, a large mental hospital near Lund. His book, a revised and enlarged version of a course of lectures attended by doctors, lawyers, and humanists, discusses the origin and development of the concept of psychopathy, the "psychiatry without psychopathy" of Sjöbring, and the consequences of a modified conception of psychopathy.

The first half of the book is a historical and critical study of the term psychopathy, whose current meaning is "non-intellectual deficiencies making the social adjustment of an individual difficult or impossible." The development of the concept is traced from Pinel's *manie sans délire* and Esquirol's monomania, through Platner's *amentia occulta*, Pritchard's moral insanity, and corresponding ideas of many later students, including Kraepelin, Lombroso, Freud, and Henderson and Gillespie. The conclusion drawn is that the concept of psychopathy includes a variety of unrelated conditions, which Gerle distinguishes, on the basis of Sjöbring's theories, as hypophrenia (post-infective tiredness and apathy), schizophrenia, and ixophrenia (an epileptoid state). The remainder of the book is a discussion of the legal, therapeutic, and educational implications of these concepts. It remains to be seen whether these ideas will be any more durable than their predecessors, and it is important, as the author says, to approach each patient as an individual.

Gerle stoutly defends the unity of personality and the view that a highly developed intellect may be powerless to control serious affective deficiency. This at once raises the question of criminal responsibility and challenges current legal opinion; the question merits full discussion in a separate paper, and Gerle is obviously well qualified to write it. He concludes with a plea for more thorough training in psychiatry for medical students to enable them, as doctors, to deal competently with the various types of psychical abnormality.

Gerle has a limpid style, and if he chose to write in English he would have a wide circle of readers, both medical and legal. Readers of his book would have been assisted by the use of cross-headings and the addition of a summary of the chief conclusions.

RAYMOND WHITEHEAD.

PHYSIOLOGY OF FLYING

Aviation Medicine in its Preventive Aspects. By John F. Fulton, O.B.E., M.D., D.Sc. (Pp. 174; illustrated. 12s. 6d.) London: Geoffrey Cumberlege (Oxford University Press). 1948.

This is a historical survey of the more important researches and developments in altitude or decompression sickness, the physiological problems of pressurized aircraft cabins, the effects of acceleration on man, and safety in flight. It concentrates on the period 1939 to 1946. Experiments to secure impartial data on the respiratory and circulatory changes which occur during acclimatization to the lowered partial pressure of oxygen at altitudes between 23,000 to 29,000 feet (7,000 to 9,000 m.) are described in some detail. This investigation, named "Operation Everest," was carried out at the United States Naval Air Station in Pensacola, Florida. For this purpose four young adults lived for five weeks in a low-pressure chamber fitted with an air-lock, so that observers could enter to make observations and take appropriate samples without being subjected to anoxia. The results showed that acclimatization consists of a series of integrated adaptations to restore the oxygen pressure of the tissues to the normal sea-level value.

Researches in decompression sickness are reviewed, from Leonard Hill's work on caisson sickness in divers in 1912 to those in connexion with aviation, especially during the various phases of the recent war. There is a good description of bubble formation in the blood and tissues of animals and man in relation to "bends," and of such underlying factors as gas tension, hydrostatic pressure, surface tension, and gas nuclei. The practical results of these researches are outlined. The technique is given of the pre-selection test to assess suitability for high altitude operations, and is followed by an account of the prevention or mitigation of "bends" by pre-oxygenation to displace dissolved nitrogen before ascent and by limitation of muscular movements during flight to lessen the formation of bubbles in the blood vessels.

The main physiological problems discussed in connexion with pressurized aircraft concern ventilation and explosive decompression. Little information is given as regards the former, but the section on explosive decompression is reasonably full and valuable. Reference is made to the experiment which proved that no perceptible harm is caused to a fit man by explosive decompression, provided an adequate supply of oxygen is immediately available or a rapid descent made to non-oxygen-requiring altitudes. Survival times for explosive decompression at various altitudes up to 75,000 feet (22,500 m.) are given, as well as the time of useful consciousness without oxygen. These figures have proved of great value to aircraft designers and engineers, who have to provide for emergencies while avoiding weight penalties in the form of unnecessary equipment.

The section on the effects of acceleration is limited to a consideration of centrifugal forces which occur in aerobatics. Due reference is made to the R.A.F. researches, begun in 1939, in an aircraft fitted up as a flying laboratory, with a cine-camera to record the effects of high acceleration under

conditions of aerial combat, the results of which enabled suitable countermeasures to be devised. Then follows a description of centrifugal machines used by the Canadians, Australians, and Americans, on which much fundamental research was done. The results obtained added considerably to our knowledge of the effects of centrifugal forces on man, and culminated in the development of anti-gravity suits, both of the hydraulic and air-pressure types. It is claimed that these suits did much to give Allied fighter pilots ascendancy over the enemy.

The final chapter discusses briefly the problems of safety in flight, including a study of the effects of forces of deceleration on man as demonstrated in aircraft crashes and non-fatal suicidal leaps. The design of aircraft to provide increased safety is considered, and the practical value of seat belts, safety harness, stressing of seats, backward-facing seats, and "ditching drill" are assessed.

H. E. WHITTINGHAM.

A DIGEST OF GYNAECOLOGY

A Pocket Gynaecology. By S. G. Clayton, M.D., M.S., F.R.C.S., M.R.C.O.G. (Pp. 111. 7s. 6d.) London: J. and A. Churchill, Ltd. 1948.

This is the age of digests. As members of the general public we persuade ourselves that we have no time for serious reading and too often turn to the small monthly magazine that feeds us with tasty morsels from current literature. As doctors we receive the weekly journals but too often do not trouble to read them. If we are specialists we view with dismay the monthly publications that pile up on our desks, and frequently console ourselves with the thought that a year book, a survey, or an abstract journal will soon come to hand to spare us the effort of reading the literature as it is intended to be read. If this is our weakness we cannot criticize the harassed medical student in his struggle to keep abreast of the ever-increasing medical curriculum, or deny him the help that a condensed textbook may give. But in both cases the danger is the same. Is the summary or review to be used as a genuine refresher or is it to be the means of escape from serious reading—the pander to laziness?

These thoughts are aroused by Dr. Clayton's book. As a condensed account of gynaecology this is an excellent production, and the considerable amount of up-to-date information presented in small space reflects much credit on the author and publishers alike. But whether the medical student will benefit by turning from his well-known textbook to a new "cram" book during his period of final revision is a matter on which I, for one, have serious doubt.

The usual gynaecological subjects are set out in orthodox fashion in 109 small pages of text. Anatomy, physiology, embryology, and pathology all receive due notice. The two final chapters deserve special attention—one is on gynaecological symptoms and the other on special gynaecological treatment, including a brief account of drugs and endocrine preparations, of *x* rays and radium, of gynaecological operations, and even of contraception. A few necessary illustrations are included.

The preface states that there is "economy of words." This is certainly true, even to the extent of the omission of verbs from many sentences. The text is generally well corrected; but there are a few slips, such as an obvious error of spelling on page 3 and the occasional use of a singular verb with a plural subject. In criticism of the subject matter it may be questioned whether it is not misleading to speak of "slight fever" as being a symptom experienced by normal women during menstruation. Condylomata acuminata are not necessarily gonococcal in origin, nor do they appear "after a few days." Stilboestrol in doses as large as 5 mg. daily is fairly certain to cause nausea and depression in a post-menopausal woman. These are minor criticisms in an otherwise excellent, if very condensed, presentation of orthodox gynaecological teaching. The book is exactly what it claims to be: it is a pocket gynaecology, and a remarkably good one at that.

J. CHASSAR MOIR.

GUIDE TO TREATMENT

Obstetrics and Gynaecology. By Beatrice M. Willmott Dobbie, M.A., M.B., F.R.C.S., D.M.R.E. (Pp. 358; 23 illustrations. 20s.) London: H. K. Lewis and Co. 1948.

Textbooks of obstetrics and gynaecology abound in British medical literature; it may be asked, therefore, whether there is a place for further works on this subject. Miss Dobbie's new book does not attempt to cover the same ground as the usual textbooks, but rather to provide a simple guide to practical treatment. It is addressed primarily to the general practitioner, and fulfils admirably the needs of the busy doctor who requires a handy work of reference or who wishes to refresh and bring up to date his knowledge. Simplicity of expression and sound common sense, the keynotes of this book, make it thoroughly readable.

The general layout of the work is good, and the advice it contains is generally excellent. Criticism is thus confined to a few details. The dose of ergometrine by intravenous injection should not exceed 0.25 mg., and 0.125 mg. is often sufficient. Administration of 0.5 mg., as recommended, is likely to cause symptoms. Contradictory advice is given concerning the treatment of cervicitis. In the chapter on post-natal care (p. 205) it is stated that cauterization can be carried out in the out-patient department, while cauterization under anaesthesia is recommended in the section on gynaecology (p. 292). Most cases of cervicitis can in fact be treated as out-patients, thus obviating the need for hospitalization or general anaesthesia. The section on the toxaemias of pregnancy is sketchy and inadequate. More precise advice is needed on the normal level of blood pressure, and a great deal more detail should have been included on the management of cases of essential hypertension in pregnancy and of pre-eclamptic toxaemia. The illustrations are adequate, though some appear unfinished in comparison with those appearing in other books.

The psychological aspects of obstetrics and gynaecology are not neglected, and the sections "Telling the Patient" are especially important. Miss Dobbie shows her wide experience in this book, which, though containing little new or original, fulfils the purposes for which it is intended and will thus prove a valuable addition to current medical literature.

JOSEPHINE BARNES.

SURGICAL SUMMARY

Handbook of Surgery. By Eric C. Mekie, M.B., Ch.B., F.R.C.S.Ed., F.I.C.S., and Ian MacKenzie, M.B.E., M.B., Ch.B., F.R.C.S.Ed. With foreword by the late Sir John Fraser, Bart. Second edition. (Pp. 764; illustrated. £1.) Edinburgh: E. and S. Livingstone. 1949.

A second edition of this book (which first appeared in 1936) has Mr. Ian MacKenzie, now of Newcastle-upon-Tyne, as joint author. There has been considerable revision, but, although there are 764 pages, perhaps rather many for a handbook, there are only 29 figures. These are good, but so much text unrelieved by diagrams or figures is inclined to make reading dull, and the criticism of the first edition remains—that more line drawings interspersed through the print would add considerably to the attraction of this otherwise excellent student's guide. Fig. 11, p. 308, is inaccurate in view of recent knowledge of root distribution, and I could find no mention of either the costo-clavicular or scalenus syndromes, each of which is of frequent occurrence, whereas arthrogryposis multiplex congenita (p. 594) is less common so far as the student is concerned. There is an account of cervical rib in which it is stated that Hudson (no initials, no reference) showed that the vessels and nerves can be compressed between the free end of a cervical rib and the anterior scalene muscle, and that the radial pulse is diminished on the affected side but becomes normal in volume when the arm is elevated above the shoulder (p. 212). This is not in accord with our experience, which is the reverse. The statement on page 299 that the majority of intradural extramedullary spinal tumours are meningiomas is not accurate, as the neurinoma is commoner.

These are minor criticisms of what is essentially a sound text in which for the most part the matter is well balanced.

The book may be described as an excellent summary of the teaching of the Scottish school of surgery and a sound guide for the student of the subject. Like most post-war articles the price has increased, in this case from 12s. 6d. to £1.

LAMBERT ROGERS.

ADOLESCENCE

Adolescence. Its Social Psychology. By C. M. Fleming, M.A., Ed.B., Ph.D., F.B.Ps.S. The International Library of Sociology and Social Reconstruction. (Pp. 261. 16s.) London: Routledge and Kegan Paul 1948.

This is an important and valuable book. It sums up recent research on the physiology and psychology of adolescence, as well as its educational and social aspects. This recent work has tended to upset several preconceived ideas, most of them dating from Stanley Hall's generalizations, which have been too readily accepted both by teachers and psychologists.

The book points out the wide variations of the normal personality and stresses the importance of the individual's fundamental needs. Considerable attention has in the past been placed on innate dispositions and instincts, and considerable variations in the strength of these in different individuals has been postulated. A more practical attitude may be to think more in terms of the needs of the individual, founded no doubt on the relative frustration and gratification of instincts. The author points out how the failure to find gratification of the needs in one generation may be reflected in the behaviour of the next, and how difficulty of adjustment and social misbehaviour may thus follow through several generations.

Delinquency is an expression of distress, and this distress is due to failure to achieve the fundamental needs, which are listed as love, security, new experience, recognition, acceptance, respect, and success. The dignity and individuality of the child must be recognized and respected. Growth, both mental and physical, is not a smooth process, and may be influenced by environmental factors operating at any particular time even more than by innate capacities. If this is so, it is not easy for educationists to answer the questions about which they would so much like to be definite—namely, what are the difficulties and therefore the requirements of any group of children at different stages of their development? How can future success in different activities be predicted from present performances? In other words, a cross-sectional observation, such as an intelligence test at a particular age, is not so reliable in foretelling the future development of the child as many people would like to believe. Ultimate capacity may be more influenced by limitations of experience, both social and educational, than by innate ability. The way all sorts of types of young men and women have learnt and adapted themselves to quite unfamiliar trades in the relatively short period given to training for modern technical warfare illustrates this. Young people require not only intellectual food but the influence of the right sort of group of their peers, as well as guidance by those more experienced than themselves in formulating a philosophy of life which should be a map of how they may live.

Vocational guidance is of little use if founded on single interviews, but it should be based on long-term observation of the young person. Means must therefore be found to obtain and record such observation by several persons if our youth are to be helped as they deserve. Doctors, teachers, sociologists, and psychologists will all find much in Dr. Fleming's book to stimulate thought. Presented as it is, without prejudice or bias, it is to be highly recommended.

R. G. GORDON.

Review of Dentistry for State Board Examinations, by Vincent R. Trapozzano, D.D.S., F.A.D.P. (pp. 661; 32s. 6d.; London: W. B. Saunders Co.), is a book in which dental surgery becomes a series of quick questions and snappy answers. It may possibly be useful to the student preparing for a *viva voce* examination, provided that the examiner asks the correct questions, or may even be more useful to the examiner to provide him with questions that he should ask and the reply that he should automatically be given.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

Coronary Artery Disease. By E. P. Boas, M.D. (Pp. 399. No price.) London: H. K. Lewis. 1949.

The Principles of Scientific Research. By P. Freedman, B.Sc., M.I.E.E., F.I.E.S. (Pp. 222. 15s.) London: Macdonald. 1949.

Ectopic Pregnancy. By K. M. Masani, M.D.Lond., F.R.C.S.Eng. (Pp. 165. 12s.) Bombay: The Popular Book Depot. 1949.

Testing School Children. By W. Stephenson, M.A., M.Sc., Ph.D. (Pp. 127. 12s. 6d.) London: Longmans, Green and Co. 1949.

A Primer of Electrocardiography. By G. E. Burch, M.D., F.A.C.P., and T. Winsor, M.D., F.A.C.P. 2nd ed. (Pp. 245. 22s. 6d.) London: Henry Kimpton. 1949.

The Common Form of Joint Dysfunction. By W. Kaufman, Ph.D., M.D. (Pp. 208. No price.) Brattleboro, Vermont, U.S.A.: E. L. Hildreth. 1949.

Neurosurgical Pathology. By I. M. Scheinker, M.D. (Pp. 370. 45s.) Oxford: Blackwell Scientific Publications. 1948.

Diseases of the Liver, Gallbladder, and Bile Ducts. By S. S. Lichtman, M.D., F.A.C.P. 2nd ed. (Pp. 1,135. 50s.) London: Henry Kimpton. 1949.

International Congress on Mental Health, London, 1948. Edited by J. C. Flugel, D.Sc. (3 vols. £2 10s.) London: H. K. Lewis. 1949.

A Short Practice of Surgery. By H. Bailey, F.R.C.S., and R. J. McNeill Love, F.R.C.S. Part 5. 8th ed. (Pp. 1,050. 32s. 6d. (set).) London: H. K. Lewis. 1949.

Cunningham's Manual of Practical Anatomy. Edited by J. C. Brash, M.C., M.A., M.D., F.R.C.S.Ed., F.R.S.Ed. Vol. 3. 11th ed. (Pp. 513. 21s.) London: Oxford University Press. 1948.

Bodily Reactions and Examination of Systems of Therapeutics. By K. L. Dafiari, B.A.Cal., B.L.Cal., D.Litt. (Pp. 235. 6 rupees 8 annas.) Bombay: Hind Kitabs. 1949.

An Outline of Psycho-Analysis. By Sigmund Freud. Translated by J. Strachey. (Pp. 84. 8s. 6d.) London: The Hogarth Press. Institute of Psycho-Analysis. 1949.

Three Essays on the Theory of Sexuality. By S. Freud. (Pp. 133. 10s. 6d.) London: Imago Publishing Company. 1949.

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A VIRUS IN MOUSE CANCERS?

In March of this year Professor Gye reported in a lecture[1] that he and his colleagues of the Imperial Cancer Research Fund had succeeded in transmitting mouse sarcomata by means of tissues which had been frozen and dried. The importance of such a finding could not be doubted. Until then there had been an apparently complete contrast between the bulk of mammalian tumours having no obvious continuing cause and a few growths, particularly fowl sarcomata, in which was *evident the activity of a virus as a continuing cause of* the malignancy. Professor Gye's report gave reason to believe that now, in mammalian growths also, was to be found a virus-like neoplastic agent. He made quite clear his belief that in the dried and even in the frozen tissues no surviving intact cell could be held responsible for the malignant activity.

This report caused much comment, discussion, and criticism. Scientists are perforce a race of sceptics, and a discovery as important as this was not likely to be accepted generally until it had been confirmed by others and until the interpretation was beyond doubt. Many have therefore awaited with eagerness the full technical details which will permit others to confirm—or refute—the claims made. The foundation of all the work consists of Dr. James Craigie's improved devices, especially those for finely mincing and for drying tumours; a description of these is still in the press. Meanwhile, we publish to-day three very important papers by Miss Ida Mann; these make it clear that the new techniques will give results not only with mouse sarcomata but with adenocarcinomata also. They go far to answer the questions we raised in discussing this matter in March.[2]

It is now plain that it is not just a few mouse tumours which can be transmitted by means of frozen or dried tissue, and that a principle is concerned applying equally to epithelial and to connective-tissue growths. Miss Mann's results also shed light on what is potentially the most controversial question of all: is it certain that these violently treated tumours do not still contain some living cells? Until this point is proved all is in doubt. Some pathologists will find it impossible to believe that a complicated mammalian cell can survive thorough drying; and the histological evidence supports their doubts. Others will wonder if such survival may not after all be possible, particularly as the alternative is the abandonment of all orthodox views on the causation of cancer. Discussion could go on indefinitely in the realms of metaphysics and histology. Fortunately there seem to be ways of by-passing this obstacle.

A tumour virus causing sarcomata would be expected to infect wherever in the body it was introduced; it would find susceptible connective-tissue cells everywhere. But one causing carcinomata would be epitheliotropic and could hardly do so unless placed in juxtaposition to the right kind of epithelial cell. One can expect therefore to be able with epithelial growths to distinguish clearly between the results of transplanting an odd surviving cell and infecting cells anew with an active agent. A graft might grow anywhere; new infection could occur only where suitable epithelial cells were present. Where we are concerned with an agent believed to cause mammary tumours in mice we are, however, up against a difficulty, for mammary tissue exists almost everywhere in the mouse's subcutaneous tissue; there are rudiments even in male mice. So it is not surprising that frozen or dried mammary tissue is effective wherever it is introduced subcutaneously in mice of either sex. Cell grafts of the adenocarcinomata, however, will grow in the peritoneal cavity, where there are no mammary cells. Miss Mann's results show that the frozen adenocarcinomata, which grow readily in the subcutaneous tissues, fail to grow on intraperitoneal injection, or do so rarely and in circumstances where the carrying in of a few mammary cells on the needle cannot be excluded. There is thus an apparent qualitative difference between the results of propagation with cell grafts and with frozen tumour. Proof derived from this type of experiment might easily be made more convincing. Quantitative tests with serial dilutions of live cell suspensions on the one hand, and of dried or frozen tumour on the other, introduced (*a*) subcutaneously and (*b*) intraperitoneally, might bring out the fundamental distinction in behaviour even more clearly. Better still, experiments with carcinomata other than mammary ones should yield decisive answers. If it is proved that the successful transmission with dried or frozen tumour tissue depends on something other than a surviving tumour cell it is a reasonable working hypothesis, on the analogy of the fowl tumours, that the active agent is a virus. The agent seems, however, to be a very labile one; so it may not be easy to apply the necessary tests to determine whether it can be justly placed in that category.

Some of Miss Mann's experiments were with spontaneous mouse cancers in which Bittner's milk factor—

[1] *British Medical Journal*, 1949, 1, 511.
[2] Ibid., 1949, 1, 531.

or virus—is concerned. Here is at first sight a discrepancy. If these growths are "caused by a virus," how comes it that the Bittner milk factor produces them only after months and only in the presence of suitable hormonal activity, while the frozen cancer tissue is effective within days or weeks and in mice of either sex? Why is the milk factor relatively stable and the activity of the frozen tumour highly labile? It is suggested—but the thesis is not elaborated at all—that the virus can exist in two forms, one latent and presumably stable and the other active but labile. It is further suggested that the effect of oestrogen in male mice carrying the Bittner virus is to precipitate a change from the latent to the active form. These are interesting speculations, but the workers in the Imperial Cancer Research Fund will be wise not to try to move too fast. They have made an important advance, but the ground gained will need consolidating. Most pathologists have for years turned either a blind eye on the virus theory of cancer or at best a suspicious and wary one. Every item in the "newer knowledge" will have to be proved to the hilt, every step will have to be repeatable in other laboratories, every deduction shown to be inevitable. There is every hope that in the end the results will constitute one of the brightest chapters in cancer research.

BACTERIAL FOOD-POISONING

During the last ten years there has been a great increase in the number of recognized outbreaks of bacterial food-poisoning in this country. Improved diagnosis no doubt partly accounts for this, but much of the increase is real, and during the war years was associated with the introduction of communal feeding, often supervised by workers with little knowledge of food hygiene. It is important to distinguish the "infection" and the "toxin" types of food-poisoning. In the infection type the patient has ingested living organisms, usually of the salmonella but sometimes of the dysentery group. After an incubation period of 6 to 40 hours the illness begins suddenly with severe headache, vomiting, diarrhoea, and abdominal pain. There is commonly some rise of temperature. Patients usually feel ill for about a week; in debilitated subjects the infection may prove fatal. In the toxin type, which is most often due to *Staph pyogenes*, enterotoxin has been preformed in the food and consequently takes rapid effect—the incubation period being half to four hours. The illness is more severe but of shorter duration than the infection type, so that the symptoms are over within 24 hours. Food-poisoning caused by enterotoxin rarely proves fatal. Other organisms, such as *Proteus*, *Bact. coli*, and streptococci of *viridans* type, have with less certainty been suspected to cause food-poisoning.

The salmonellae most frequently responsible for food-poisoning are *Salm. typhi-murium* and *Salm. enteritidis*, formerly known as the aertrycke and Gaertner bacilli. They are both natural pathogens of rats and mice, whose excreta may thus contaminate food, and they are not uncommon in duck eggs. *Salm. enteritidis* is also a constituent of certain "rat viruses" used for the destruction of rodents. A report by Dr. M. J. Pleydell in this issue of the *Journal* shows how the contamination of food in a restaurant by infected rodents can cause an outbreak of food-poisoning. Other hosts of these organisms, of which there is a large number of named species, are pigs and cattle. Pork and beef may thus come under suspicion, and milk may sometimes contain *Salm. dublin*, which is the cause of a disease of cows. During the war food-poisoning was often traced to imported dried eggs, in which many new salmonella species were introduced into this country. In a recent issue of the *Journal* (July 16, p. 186) an outbreak of food-poisoning at a London hospital was described. *Salm. typhi-murium* was isolated from a number of those attacked, and there was little doubt that the vehicle of infection was a pudding made with duck eggs. Chronic human carriers are rare, but infection can arise from a temporary excreter who may have few or no symptoms. In another recently reported outbreak of food-poisoning among schoolchildren in Yorkshire (July 23, p. 239) milk supplied to the schools concerned was found to contain *Salm. typhi-murium*. A cowman at a farm supplying milk to the schools had been ill with diarrhoea and vomiting just before the outbreak, but had carried on with his work. In the infection type of food-poisoning the laboratory may help by identifying the organism in the faeces or vomit of the victim and in the suspected food, and by tracing the source and path of infection. The first duty of the investigator is therefore to secure any remains of the suspected meal before they can be discarded.

Food may be contaminated with staphylococci transferred by the fingers from the nose of food-handlers or from infected cuts or septic lesions. There is a high nasal carrier rate of coagulase-positive staphylococci in the general population. Not all of these organisms can produce enterotoxin, for the presence of which there is no good laboratory test other than those requiring a human volunteer, but the bacteriologist can help by finding whether the food contains large or small numbers of staphylococci and by identifying their serological and bacteriophage type with that of the organisms found in the food-handlers and possibly in the victims. There is a significant association of one particular type, 6/47 IIIc, with food-poisoning outbreaks. It must be

remembered that the enterotoxin is heat-resistant and that bacteriological examination of the offending food and of specimens from the patients may therefore give negative results.

The foods commonly associated with food-poisoning are those which are handled during preparation and in which bacterial multiplication can take place. They include brawn, meat pastes, pressed beef, gravies and sauces, cream and custard fillings, and ice-cream. The taste and appearance of the food may be unaltered. A factor in most outbreaks is the keeping of food at some stage in a place which is insufficiently cool. In this way, for example, organisms in reconstituted dried egg readily multiplied to a dangerous concentration overnight at warm-room temperature. The general measures for prevention of these outbreaks are clear. Some of them, such as rodent control, the hygiene of slaughter-houses, and the adequate cooking of such foods as duck eggs, have already been indicated. Food should be prepared and served by clean workers, cleanly clad. They should be trained to report even trivial diarrhoea, cuts, and septic lesions, and they should have satisfactory hand-washing facilities. Manual handling of food should be reduced to a minimum; food wrappings and covers used where possible, and foods kept cool between the stages of preparation and during storage. Not least important is the hygiene of the kitchen: apart from its construction, the lighting, ventilation, proofing against flies and vermin, and facilities for the cleansing of utensils should all be of a high standard. By the intelligent application of common-sense principles it should be possible to minimize at least one menace of the warmer weather.

P.R.C.S. AND P.R.C.O.G.

Lord Webb-Johnson, as we announced in last week's *Journal*, has been succeeded as President of the Royal College of Surgeons by Sir Cecil P. G. Wakeley, and thus brings to an end a memorable period of office. As Sir Alfred Webb-Johnson he was elected P.R.C.S. in 1941, a year before the publication of the Beveridge Report, which, among other things, led up to the introduction of the National Health Service last year. Lord Webb-Johnson guided the affairs of the College of Surgeons during the greater part of the war, but, in spite of the difficulties inseparable from the time, he planned wisely and well, building up the College to a height of efficiency and enterprise not witnessed before. Departments were established and professorships endowed for anatomy and pathology; in the College laboratories practical teaching was made available for postgraduate students seeking higher qualifications; a research chair in ophthalmology was instituted; and under the new charter faculties in dental surgery and in anaesthetics have been established in the College. Under Lord Webb-Johnson the Royal College of Surgeons has become not only an international centre for teaching and research but also a social centre where Fellows and Members may meet each other at lunch and dinner. In a time of stress and controversy he held firm, in the face of much opposition, to what he believed to be for the good of his College and of the medical profession. His successor, Sir Cecil Wakeley, has a hard task to follow in office a man who has achieved so much. Those who know Sir Cecil Wakeley in his combined capacity as surgeon and editor will wish him success in the distinguished position he now holds.

Professor Hilda Lloyd has been elected President of the Royal College of Obstetricians and Gynaecologists in succession to Sir William Gilliatt. She is the seventh President of the Royal College, which was founded in September, 1929, as the British College of Obstetricians and Gynaecologists, and she is the first woman to hold that office. Mr. William Gilliatt (as he then was) took office in September, 1946. He was knighted in the Birthday Honours in 1948, and in November of that year attended Princess Elizabeth when her son was born. Professor Hilda Lloyd is professor of obstetrics and gynaecology in the University of Birmingham.

The burden of office in these days falls heavily upon the Presidents of the Royal Colleges; indeed, to be President is now almost a full-time occupation. Those who govern the destinies of the Colleges may well see fit to devolve more responsibility on to permanent officials, so that the President may have more opportunity to carry on his professional work.

THE AETIOLOGY OF CONGENITAL MALFORMATIONS

The statistical significance of foetal malformation as a frequent cause of stillbirths and neonatal deaths has been known for a long time and is easily demonstrated. Recently the possible causes of malformations have been studied with increasing intensity. The importance of the subject in preventive medicine can be judged from Malpas's[1] finding that either anencephaly, hydrocephaly, spina bifida, or mongolism was present in 1% of all infants born at the Liverpool Maternity Hospital. The influence of heredity in these conditions is very difficult to determine, though studies on familial cases have been made by Schade,[2] Penrose,[3] and Murphy.[4] Experimental and clinical evidence about the environmental factors which are associated with the development of malformations is, however, rapidly accumulating. Working in the field already investigated by Warkany, who induced malformations in the offspring by restricting the diets of the mothers, Gillman and his colleagues[5] have reported that malformed offspring are regularly produced if female rats are saturated with trypan blue injected before pregnancy begins and during its early stages. Injections were given at regular 14-day intervals, and it was found that when an injection fell on the eighth day of pregnancy or thereabouts more than half the offspring were

1 *J. Obstet. Gynaec. Brit. Emp.*, 1937, 44, 434.
2 *Erbarzt.*, 1939, 7, 116.
3 *Ann. Eugen. Camb.*, 1946, 13, 73.
4 *Congenital Malformations*, 1947, Philadelphia.
5 *S. Afr. J. med. Sci.*, 1948, 13, 47.
6 *Amer. J. med. Sci.*, 1947, 214, 605.
7 *Proc. Soc. exp. Biol., N.Y.*, 1947, 66, 608.
8 *Acta opthal., Kbh.*, 1947, 25, 353.
9 *Nord. Med.*, 1948, 37, 409.
10 *Arch. Dis. Childh.*, 1948, 23, 237.
11 *Amer. J. Dis. Child.*, 1947, 74, 147.

malformed. The commonest conditions were hydrocephaly and spina bifida.

These writers consider that, since the dye does not enter the foetus, the effect is analogous to that produced by virus infections (such as rubella) and is due to disordered maternal metabolism. This interpretation would seem to agree with the views expressed by Gruenwald,[6] who suggests that foetal changes may be secondary to the toxic effects of rubella in the mother. On the other hand, Hamburger and Habel[7] infected chick eggs with influenza virus and found that this impaired the growth of the embryos and caused microcephaly. Similar injection of mumps virus increased the liability of the chicks to develop malformations which otherwise occurred spontaneously in the stock animals. This work tends to support the views of Bardram and Broendstrup,[8] who examined eight children with eye disease (cataract or retinal degeneration) whose mothers had had rubella in the first two months of pregnancy. The pathology of virus infection in the developing embryo would scarcely be expected to follow the same pattern as infection in the adult.

A perplexing feature of all these investigations is the variety of malformations apparently due to the same cause as well as the variety of causes leading to similar end-results, though in the case of maternal rubella the picture is becoming clearer. Grouping together all kinds of foetal defects, Grönvall and Selander[9] found four or five cases of maternal rubella and five cases of maternal mumps among 354 mothers of malformed infants. They estimated that these numbers, though small, were far in excess of the expected numbers of maternal infections of this kind based on a large random series of births in Sweden. Retinal degeneration and deafness were found in the children of the mothers who had had rubella, and mongolism and defects of the nervous system in the children of the mothers who had had mumps. Landtman[10] compared the maternal histories of 73 malformed offspring with a control group. He found that acute infectious disease had occurred during the first three months of pregnancy in 12 (16%) of the mothers of the malformed children, but in only three (1.5%) of the mothers of 200 normal children in the control group. Influenza was the commonest infection, and the associated abnormalities ranged from spina bifida to congenital heart disease and naevus. The greater liability of older mothers to bear malformed children, many times previously observed, was confirmed. This is particularly noticeable for mongolism. Ingalls[11] has commented upon it and suggested that the causes of mongolism are multiple: he includes many pathological uterine conditions and intercurrent infections as aetiological factors.

It seems now to be accepted that maternal illness, especially when due to virus infection, occurring in the early months of pregnancy, may frequently be a contributory cause of foetal malformation and occasionally the whole cause. There are also genetical causes less easily controlled. The results of recent work on this subject, previously considered one of the most intractable problems in medicine, are encouraging. But the modes of action of abnormal genes and abnormal environments on the developing embryo are extremely obscure, and there is sometimes a tendency to lose sight of the ordinary scientific aim of finding specific causes for given effects.

PORTAL HYPERTENSION

Since surgeons have developed the technique of venous anastomosis the outlook for the sufferer from portal hypertension has improved. Without operation the patient with liver cirrhosis has only a 50% chance of surviving a year after the first haematemesis,[1] and for patients with Banti's syndrome the prospects are also gloomy. Until a few years ago surgery could do little for these patients, for Morison's operation of omentopexy did not increase the survival time.[2] Since 1945, however, through the development of the vitallium-tube technique of Blakemore and Lord and the improvements in suture anastomosis developed by Gross and Blalock, it has been possible to make a junction between the portal and systemic venous systems, with consequent relief of the portal hypertension.

Several series of cases are now available for analysis, the largest being that of Blakemore,[3] who has followed the progress of 58 patients for up to three and a half years after operation. The principal indication for a venous anastomosis is persistent and protracted haematemesis from oesophageal varices, which, according to Linton and his colleagues,[4] can and should be demonstrated by barium swallow in nearly all cases. These authors have found that the injection of sclerosing agents into the varices does not stop or prevent bleeding, one of their patients having been treated thus 15 times without benefit. Splenectomy, too, is not a reliable treatment in portal hypertension,[5] except in cases of thrombosis limited to the splenic vein, and a number of patients with Banti's syndrome have required subsequent venous anastomosis because of continued haematemesis. If the patient is unfit to withstand the bigger operation, ligation of the splenic artery, which is followed by atrophy of the spleen, is reported to have given good results.[6] Those with most experience[1 4] are agreed that splenectomy alone should not be done in cases of Banti's syndrome if there is evidence of portal hypertension, since the chances of successfully anastomosing the splenic and renal veins at a later date are thereby greatly reduced, and anastomoses using smaller veins, such as the inferior mesenteric, have given disappointing results.

Linton and his co-workers[4] state that any surgeon who performs splenectomy in Banti's syndrome should be prepared to make a spleno-renal vein shunt at the same time. This is the type of anastomosis now usually performed. It is preferred to the portacaval shunt because the latter is more difficult, and sometimes impossible, to perform, and it is more dangerous to important structures such as the hepatic artery and the common bile duct. Removal of the spleen is desirable, since this reduces the portal circulation by 30 to 40%. Furthermore, there is evidence from experimental work that complete diversion of the portal blood away from the liver leads to slight functional and structural derangements in that organ. Of the spleno-renal anastomoses, that now preferred is a sutured junction between the end of the splenic and the side of the left

1 Blakemore, A. H., *Gastroenterology*, 1948, 11, 488.
2 Cates, H. B., *Arch. intern. Med.*, 1943, 71, 183.
3 *Ann. Surg.*, 1948, 128, 825.
4 *Surg. Gynec. Obstet.*, 1948, 87, 129.
5 Learmonth, J. R., and Macpherson, A. I. S., *Lancet*, 1948, 2, 882.
6 Everson, T. C., and Cole, W. H., *Arch. Surg.*, 1948, 56, 153.
7 Johns, T. N. P., *Surg. Gynec. Obstet.*, 1947, 84, 939.
8 Lord, J. W., Jr., *Surgery*, 1948, 23, 550.

renal vein. This has the merit of preserving the left kidney, and the anastomosis remains patent in experimental animals much more often than does end-to-end anastomosis by suture.[7] Vitallium-tube anastomoses are even more liable to become thrombosed and are no longer used in this operation by their originators.[1,8]

The choice of cases suitable for operation is important if the mortality rate is not to be excessive, and the degree of liver damage appears to be the principle criterion, apart from general considerations. In Linton's series the operative mortality was 71% in the cases with cirrhosis of the liver, but those without liver damage all survived. One point of practical importance is that the severely damaged liver does not appear to metabolize sodium citrate, and after a large transfusion of citrated blood the power of coagulation may be lost. One patient received no less than 48 pints (25 litres) of blood—mostly his own removed from the abdomen by suction—and did not survive. However, Blakemore had only three deaths in 39 cases with liver cirrhosis—all three had severely damaged livers—and it seems that the operation in patients with cirrhosis is not unduly hazardous, especially if cyclopropane is used as the anaesthetic, provided the serum albumin is not too low and the alkaline phosphatase not too high.

On completion of the anastomosis the portal pressure falls from up to 500 or more millimetres of saline to about 200 mm., and the subsequent progress of most of the patients has been very satisfactory, with a notable freedom from further haematemeses and a great improvement in the general health. There can be no doubt that the surgical relief of portal hypertension is an important development which has greatly improved the immediate outlook for sufferers from this disorder. Whether or not the anastomosis remains patent and the improvement is maintained indefinitely will be known as time passes, but certainly relief for up to four years is a great advance on previous treatments and holds out much hope of permanent benefit.

PERTUSSIS AND MENTAL DEFICIENCY

In the aetiology of mental deficiency heredity is not the only important factor. Injury or infection of the brain can produce irreversible damage, and many cases of mental defect are due to birth injuries, especially in premature babies. The possibility that the common infectious diseases of childhood may in some cases interfere with normal mental development has recently been considered, and Levy and Parry[1] have provided some evidence to support the hypothesis that an attack of whooping-cough may cause mental deterioration. They investigated a group of 1,000 children admitted to a special school for intellectually retarded children in Washington, with a view to determining whether an attack of whooping-cough at any age might have been the sole factor responsible for a child's backwardness. The records of these 1,000 children showed that 350 had a history of whooping-cough before admission. A questionary was sent to the parents or guardians, but replies were obtained only in 213 cases, and of these 85 had to be excluded because either the attack of pertussis was denied or insufficient information was given. After a careful study of all the relevant factors the authors concluded that in 20 (15.6%) of the 128 children there was a definite causal relationship between the attack of whooping-cough and the intellectual retardation that followed. The age of attack was important; the number of children whose mental retardation was attributed solely to whooping-cough was 14 (29.2%) of the 48 children who had the disease before they were 2 years old, 5 (14.3%) of the 35 children attacked between ages of 2 and 5, and only 1 (2.2%) of the 45 children attacked after 5 years of age. The conclusion that an attack of whooping-cough can lead to serious mental deterioration seems to be justified. The children studied had intelligence quotients of 70 or less, and border-line cases were not included. It is therefore possible that whooping-cough may be a cause of dullness among the general population of children.

[1] *Amer. J. ment. Defic.*, 1948, **52**, 217.

SWIMMING-POOLS AND RESPIRATORY DISEASE

Among the conditions said to be transmitted on occasions by swimming-bath water are sinus and respiratory infections, enteric fever, skin diseases, Weil's disease, and some of the virus infections of childhood. As Suckling[1] has pointed out, the danger has probably been exaggerated, and it is likely that in many cases, especially in bathers whose vitality has perhaps been lowered by prolonged immersion, the disease is transmitted by more direct forms of contact. It is generally agreed that the risk is greater in the case of sinus, eye, and ear infections, and with respiratory diseases, than with intestinal infections. In this connexion a recent report by Gallagher[2] is of interest. The author, who is physician to a boys' boarding school in Massachusetts, noted the incidence of respiratory disease in the boys during the first eight weeks of seven successive years—this being the season when such disease was most prevalent. The school had an indoor chlorinated swimming-pool, and the boys were grouped as regular swimmers, occasional swimmers, and non-swimmers; the observations refer mainly to the first and last groups. The non-swimmers were not necessarily unable to swim, but were boys who chose to go in for some other form of sport. Variable factors in the two groups made assessment of the findings difficult, and figures from any one year might clearly have been misleading, but certain observations taken from the series as a whole are perhaps significant. The average number of admissions to the school hospital on account of respiratory illness was about 14% greater for the regular swimmers than for the other groups. Acute sinusitis was twice as common, and colds and acute pharyngitis slightly more common, in the regular swimmers than in the non-swimmers, but there was no constant difference in the incidence of influenza, streptococcal throat infections, or otitis media. In one year in which the numbers of cases were sufficient to make comparison worth while the number of cases of measles was 33% greater, in proportion to the size of the group, among the regular swimmers than among the non-swimmers. Similarly in another year there were six times as many cases of mumps among the swimmers as among the non-swimmers. The

[1] *The Examination of Water and Water Supplies*, Thresh, Beale and Suckling (5th ed. by Suckling, E. V.), 1943, London.
New Engl. J. Med., 1948, **238**, 899.

inference is that after the occurrence of the first case of measles or mumps in the swimming group the risk of spread is greater than among the non-swimmers. A further observation was that over the whole period the non-swimmers had on the average 14% fewer days in hospital because of respiratory illness. Gallagher's conclusion is that with careful control and reasonable precautions the benefits of a swimming-pool outweigh any possible risk of spreading infection.

MEPACRINE DERMATITIS

In 1943 Peterkin and Hair[1] observed an eruption of the skin in soldiers serving in North Africa, and they saw a similar condition later in Italy; they believed this to be caused by mepacrine, and American dermatologists were of the same opinion. At about the same time a similar dermatosis was observed among soldiers taking mepacrine in the New Guinea–North Solomons area, and later in the Philippines, Australia, and India.[2-8] Pruritus was severe in most patients, but constitutional symptoms were usually absent. An acute onset, with generalized erythema, was followed by the development of chronic lesions. Nisbet[9] found a chronic symmetrical eczematoid eruption in 80% of the cases he saw, the commonest sites being the ears, eyelids, periorbital region, the backs of the hands and feet, and those areas most often affected in seborrhoeic dermatitis. In 12% of the cases pigmented flat or hypertrophic lichenoid lesions developed, with patchy alopecia. This type of eruption was more widespread than that of ordinary lichen planus. Lesions resembling lichen planus, leucoplakia, or syphilitic mucous patches appeared on the tongue and mucous membranes of the mouth. Dystrophy of the nails resembled psoriasis or fungous infection: a case in which this sign was prominent was reported recently in this *Journal* by Dr. G. H. V. Clarke (July 9, p. 58). Exfoliative dermatitis was sometimes a primary reaction, or it might follow the eczematoid or lichenoid eruptions; it was similar to that caused by the organic arsenicals and was occasionally fatal. A resemblance to Riehl's melanosis was noted by Sulzberger[10]—lichenoid, pigmentary, atrophic, telangiectatic, and poikiloderma-like changes being present in both. This observation is of interest, because Riehl's melanosis appeared in Vienna after the 1914–18 war[11] and acridine derivatives were among the suspected causes.[12] Other diseases which may resemble mepacrine dermatitis are lupus erythematosus, psoriasis, pityriasis rosea, and seborrhoeic eczema.

The incidence of mepacrine dermatitis among troops was difficult to assess. In the Pacific zone Williams[7] found 0.5 cases per 1,000 in a New Zealand division and Alden and Frank[8] 0.6 per 1,000 in American troops. Pillsbury and Livingood,[13] however, thought it probable that "at least 1% of all persons in hot, humid, tropical overseas areas who took quinacrine hydrochloride in suppressive dosage over a period of at least six months acquired some type of cutaneous reaction."

It is now agreed that the ingestion of 0.1 g. or more daily of mepacrine for several months was the cause of this condition. Inder Singh,[14] who has recently described the occurrence of mepacrine dermatitis in labourers in India, considers, like Nisbet, that the accumulation of mepacrine in the skin depends on the dose and the rates of absorption and of excretion. Thus lesions recur after a latent period of one or more weeks when mepacrine is again given to patients who have recovered. Similarly, larger doses of mepacrine may produce lesions in patients previously unaffected. Several authors have noted a seasonal incidence, and Singh agrees that mepacrine dermatitis is more common during the hotter and more humid months. This may be due to diminished urinary output of mepacrine and perhaps to a combination of profuse sweating and the deposition in the skin of an insoluble form of mepacrine. The treatment of the condition is to hasten elimination of the drug by a large fluid intake and the administration of acid salts.

COARCTATION OF THE AORTA

An unusual study of coarctation of the aorta has been made by Newman,[1] who has examined the histories of 20 patients who served in the recent war and three in the 1914–18 war. These patients, all men, were examined on enlistment, but coarctation was not diagnosed until later, generally after years of very strenuous activity. Most of them were of good or even powerful physique. It would be interesting to know how many men were rejected by medical boards for coarctation, since 20 cases among the huge population which the armed Services represented would make coarctation a much rarer defect than it is believed to be. How the correct diagnosis eventually came to be made, whether from symptoms or from signs found on routine examination, is not entirely clear, but it would appear that in a number of the men the discovery was made from the appearance of rib notching in a radiograph of the chest. This was present in 16 or 17 of the 23 cases. In one in which there was no notching the aortic knob was prominent and high—a finding which shows that the characteristic radiographic signs in the chest cannot be relied upon. Hypertension in the arms (usually greater in the right arm) was an almost constant sign, though in one subject the reading was only 144/90. An important observation was that cardiac enlargement, which was usual, bore no relation to the height of the blood pressure. When recorded, the arterial pressure was always less in the leg than in the arm, and in many of the cases the femoral pulse was absent. The other most frequent signs were a systolic murmur over the praecordium (sometimes also heard over the back) and a collateral circulation over the chest. Of the 20 men who served in the last war, three have died—one from rupture of the aorta, one while being operated upon for the coarctation, and one from subacute bacterial endocarditis. The three cases of the 1914–18 war were known to have survived an average of 24 years before death or the onset of very severe symptoms.

[1] *Brit. Heart J.*, 1948, 10, 150

[1] *Brit. J. Derm. Syph.*, 1946, 58, 263.
[2] Bagby, J. W., *Arch. Derm. Syph., Chicago*, 1945, 52, 1.
[3] Nisbet, T. W., ibid., 1945, 52, 221.
[4] Wilson, D. J., ibid., 1946, 54, 377.
[5] Bazemore, J. M., Johnson, H. H., Swanson, E. R., and Hayman, J. M., ibid., 1946, 54, 308.
[6] Butler, M. G., ibid., 1947, 55, 535.
[7] Williams, W., *British Medical Journal*, 1947, 2, 901.
[8] Alden, H. S., and Frank, L. J., *Arch. Derm. Syph., Chicago*, 1947, 56, 13.
[9] *J. Amer. med. Ass.*, 1947, 134, 446.
[10] *Arch. Derm. Syph., Chicago*, 1947, 56, 23.
[11] *Wien klin. Wschr.*, 1917, 30, 780.
[12] Nelson, L. M., *Arch. Derm. Syph., Chicago.*, 1947, 55, 12.
[13] Ibid., 1947, 55, 441.
[14] *Brit. J. Derm. Syph.*, 1948, 60, 90.

INTERNATIONAL CONGRESS OF OTOLARYNGOLOGY

LONDON MEETING

The fourth International Congress of Otolaryngology was held at King's College, London, last week. The assembly was attended by 725 members and 72 scientific associates, all medical men practising the specialty, and some forty countries were represented. The Congress was opened on July 18 by H.R.H. THE DUCHESS OF KENT, who said that so large a gathering, representative of so many nations, was evidence of advancing knowledge and of the increasing importance attached by physicians and research workers to a subject which bore directly on the lives of all. Her Royal Highness was welcomed by Mr. V. E. NEGUS, the president of the Congress, and thanks were expressed to her by Mr. F. C. W. CAPPS, the general secretary.

In 1928 the first International Congress was held at Copenhagen, under the presidency of Professor Schmiegelow, who died during the past year. The second was held at Madrid in 1932 and the third in Berlin in 1936, under the presidencies of Professors Tapia and von Eicken respectively. The fourth would have been held in Amsterdam in 1940 had the war not intervened.

A full programme was arranged for the London Congress. About 150 papers were presented, most of which were discussed in four sessions sitting simultaneously. There were three general discussions, the first on antibiotics and chemotherapy in the treatment of nasal sinusitis and its complications, which was opened by Sir Alexander Fleming and Sir Lionel Whitby. The second was on the treatment of aural vertigo, and the third was concerned with non-malignant strictures of the thoracic oesophagus and their treatment. In addition there was an almost continuous programme of films, by which many of the American and Continental visitors demonstrated their operative techniques. Visits to hospitals and clinics were arranged, and receptions were given by H.M. Government, the London County Council, the Royal College of Surgeons, the Royal Society of Medicine, and the British Medical Association. After their strenuous week in London the visitors separated for meetings in Oxford, Cambridge, and Edinburgh.

Treatment of Aural Vertigo

About twenty speakers took part in a discussion on aural vertigo, which was opened by Professor F. R. NAGER (Zurich). He said that the pathogenesis of the condition was still largely unknown, and several diseases probably contributed to it. The theory of allergy had been rejected in many quarters. Professor C. NYLEN (Uppsala) gave a survey of 180 cases seen between 1944 and 1948, the majority of which were treated conservatively during the critical period by confinement to bed, a special diet (which included extra vitamins), and restriction of fluids. About 70% of the cases treated in this way recovered or improved considerably. Operative treatment had been undertaken in only a few cases; in five the vestibular nerve had been cut.

Dr. W. J. MCNALLY (Montreal) reviewed a series of 200 cases seen over ten years. It was not easy, he said, to make a diagnosis of aural vertigo, and the triad of dizziness, deafness, and tinnitus was present in only about half the cases. It was significant that in about 50 of these patients there was definite evidence of advanced cardiovascular disease. He felt that cardiovascular disease and disease of the central nervous system might play an important part in the aetiology of this condition. A history of allergy was given in about 50 of the cases. In aural vertigo there were long remissions, and in this series the longest, up to four years, had been found in patients who had received no treatment at all. Treatment had been confined to sedation in some cases, but at best this produced only a temporary result. About half the patients were placed on a modified salt-free diet and given potassium chloride. About 30 had histamine, in most cases administered subcutaneously, and in about half of these relief from dizziness was obtained. Histamine brought about an improvement in hearing also. Nicotinic acid had proved useful, and about three-quarters of the patients so treated showed signs of improvement. Nine cases were treated surgically (by eighth nerve section), of which five were cured. He felt that surgery should be rigidly restricted to carefully selected cases.

Dr. J. A. SULLIVAN (Toronto) also urged severe restriction of surgical intervention. The fenestration operation had in his experience made the condition worse, and he had been obliged to subject the patient to further intervention later. Dr. E. P. FOWLER (New York), who suggested that the term "otic vertigo" was more appropriate and less confusing than "aural vertigo," gave an account of eight patients with either bilateral or very severe symptoms who had refused operation and were treated with streptomycin. One of the cases had a further severe attack one year after treatment, but the others had so far done well. The effect of small doses of streptomycin on the vestibular cells was good and free from deleterious effects. Dr. C. A. HAMBERGER (Stockholm) gave an account of the chemical changes in the vestibular ganglion in guinea-pigs after administration of streptomycin. The effect of the streptomycin appeared to be selectively linked to the eighth nerve.

Other speakers in this discussion were Professor Y. MEURMAN (Helsinki), Professor G. PORTMANN (Bordeaux), Mr. T. E. CAWTHORNE (London), Dr. C. A. AMESUR (Bombay), Mr. GARNETT PASSE (London), Dr. J. M. TATO (Buenos Aires), Dr. H. M. GOODYEAR (Cincinnati), and Dr. D. E. WODEK (Tel Aviv). Dr. Wodek described the treatment of aural vertigo by a new drug called scopanin, which was manufactured from the root of the mandragora. He said that it had proved useful and without side-effects, and was effective also in air- and sea-sickness.

Changes in Aural Surgery

The fenestration operation was the sole topic of discussion at one session, at which Dr. J. A. SULLIVAN (Toronto) gave the results of ten years' experience, and Professor M. SOURDILLE (Strasbourg) demonstrated his surgical technique.

Mr. T. E. CAWTHORNE (London) said that the last few years had witnessed a great change in the type of surgery performed by otologists. The surgery of suppuration was diminishing rapidly, while non-suppurative surgery was expanding at an almost equally rapid rate. It was therefore important to consider the new techniques that non-suppurative surgery demanded. Changes in aural surgery had been accompanied by extensive alterations in technique and management. Until the present century it was considered that any approach to the bony boundaries of the labyrinth rendered it extremely vulnerable to infection, and as a result operations were generally, and not without justification, viewed with disfavour. The greatest advance in aural surgery had been the demonstration that non-suppurative conditions of the temporal bone could be operated on without subsequent infection, provided the general rules of aseptic surgery were observed.

Non-suppurative surgery of the temporal bone demanded for its proper performance a brilliantly lighted field, for the parts to be operated on were small and delicate. In the past many surgeons had been handicapped by inadequate illumination for their task. Another important development was magnification, some degree of which was necessary in such surgery. With a bright beam of light reflected by a mirror, and the use of a microscope, many things were shown which might otherwise escape detection. But the full benefits of illumination and magnification could not be obtained if the field was obscured by blood. Any anaesthetic which caused congestion was to be avoided. Local bleeding must be controlled by diathermy. For many of his finer instruments the otologist was indebted to his ophthalmic and dental colleagues. In the fenestration operation, for instance, fine dental instruments were needed to clean the edge of the fenestra. The margin of error in many of these operations was small, and no one should undertake them without adequate training on the cadaver. The sphere of the otologist had been enlarged. He was now able to restore equilibrium to the unbalanced and even give hearing to the deaf.

Antibiotics in Nasal Sinusitis

A discussion on antibiotics and chemotherapy in the treatment of nasal sinusitis and its complications was introduced by Sir ALEXANDER FLEMING, who referred to the role of penicillin and other antibiotics in this connexion. Twenty speakers from more than a dozen countries participated in the discussion. Sir LIONEL WHITBY said it might be asked whether the sulphonamides had any place in the treatment of nasal sinusitis now that antibiotics had come into use. He would answer yes for two reasons: one, the availability of these products, and the other, the fact that the sulphonamides had a significant action on Gram-negative bacteria. But if sulphonamides were to be used in nasal sinusitis it was important to bear certain principles in mind, because the use of these drugs was not without risk, whereas with penicillin there was no risk at all. The most useful action of the sulphonamides was probably prophylactic; this was particularly true in tonsillar and nasal infections. They had a useful place in the early stages of acute infections, but in chronic infections they were disappointing unless free drainage was established. On occasion they might be successful where penicillin failed.

Sir ALEXANDER FLEMING said that he was told by his ear, nose, and throat colleagues that penicillin had made a considerable difference in the treatment of nasal sinusitis and its complications. This was only to be expected from the fact that nearly all infections of this class were due to organisms which were sensitive to penicillin. In such cases the treatment resolved itself into the introduction of penicillin so as to ensure that it reached the infecting organisms and remained in contact for a sufficient time to destroy them. Perhaps the most important advances in penicillin therapy had been those designed to prolong the action of penicillin injections, especially by delaying excretion. Systemic administration of penicillin was easy; it was very different with local administration. Here the surgeon had to bring the drug into contact with all the infecting organisms, and this might be difficult or impossible. Sir Alexander concluded by remarking that under present circumstances patients would often be treated with these selective drugs without bacteriological control. When the surgeon was treating sinusitis he was not merely combating a word ending in "-itis": he was in conflict with a definite infection, and he was at a serious disadvantage if he knew nothing of the organism involved.

Dr. H. P. SCHENCK (Philadelphia) said that the value of the antibiotics and sulphonamides had inevitably been depreciated by errors in the hands of the inexperienced. Although the mistakes of insufficient dosage, administration at an improper rate and for an inadequate interval, or use against non-susceptible organisms had come to be generally recognized, other pitfalls remained. He condemned in particular the use of aerosols in the treatment of most forms of sinusitis. It was inconceivable that such mists could penetrate diseased sinuses which were closed by an oedematous mucosa or by tenacious secretions. Such aerosols undoubtedly had value in the nasal passages themselves, but they were unable to enter the sinus cavities in sufficient concentrations to be therapeutically effective. The fallacy of attempting to influence the fluid level in the maxillary sinus by the use of antibiotic aerosols alone was obvious. Removal of obstructions to drainage and ventilation, shrinkage of turbinal tissue, and sometimes displacement irrigation continued to be necessary in addition to chemotherapy if a successful result was to be achieved.

Non-malignant Strictures of Oesophagus

Another general discussion was on non-malignant strictures of the thoracic oesophagus and their treatment. Before calling upon Dr. Gabriel Tucker, of Philadelphia, to open the discussion, Mr. V. E. NEGUS, president of the Congress, said that in the treatment of some of these oesophageal conditions in this country great benefit had been obtained from Dr. Tucker's dilating bag—a bag with three layers which collapsed to a small size and could be used with the oesophagoscope. He had found it extremely useful. For its introduction, in certain cases, it was an advantage if the centre was perforated so that it could be introduced along a guide. It was sometimes wrongly described in this country as the Negus bag. He always took occasion to correct that description and to assign the credit where it belonged—to Dr. Tucker.

Dr. GABRIEL TUCKER recounted his observations on a series of cases, seen in a period of 25 years, with special reference to diagnosis and treatment. These included 36 cases of short oesophagus, 63 of stricture caused by caustic burns—alkalis, acids, and other corrosives—and a smaller number due to other trauma or of congenital origin. He showed a film to illustrate his procedure of continuous string retrograde dilatation in the patient with a gastrostomy.

Dr. CHEVALIER L. JACKSON (Philadelphia) said that the prevention of caustic burns of the oesophagus had been the subject of campaigns in the United States. Many years ago Chevalier Jackson, senior, had been active in promoting committees which caused various States to introduce legislation on the labelling and sale of substances which produced such burns. Now a Federal Act had been passed to the same effect, and the incidence of these accidents had been greatly reduced. In simple stenosis due to burns, dilatation with oesophageal bougies was generally sufficient. In multiple strictures, however, and even in single strictures in children the retrograde dilatation method of Tucker was considered to be safer and more efficient. If the stricture was of longer than a year's duration it might not be possible to re-establish the passage by endoscopic methods, but he believed that in cases with less than a year's history the passage could be re-established under fluoroscope guidance, even though the patient was not able to swallow well.

Dr. P. H. HOLINGER (Chicago) said that in the dilatation treatment of stricture caused by caustics his practice was to use mercury-filled bougies. Indwelling tubes had been abandoned because of the tendency to post-cricoid ulceration. A new problem was presented by post-surgical stricture following section of the oesophagus for carcinoma or for benign lesions, which sometimes substituted a benign nodular type of stenosis for a smooth cicatricial type. Another group comprised children with tracheal stricture associated with atresia or stenosis of the oesophagus. Professor ODD OPHEIM gave an analysis of the treatment of burns of the oesophagus in two hospitals in Oslo during a five-year period. In all, 132 patients had been observed, of whom 81 were children under 3. Four patients presented negligible corrosive marks in the oesophagus, or none at all, and these received no treatment. The other cases were fairly equally divided between those showing distinct but not deep-seated corrosion and those with major corrosive injuries. In these latter cases an indwelling tube was introduced and left in for at least eight weeks It was removed only for the necessary changes. Of 39 patients followed up in the first of these groups, 31 were found to be symptom-free, seven had marked, though not severe, swallowing difficulties, and one had died. In the group of major corrosive injuries, 28 out of the 39 whom it was possible to follow up were symptom-free, seven had swallowing difficulties, and three had died. Treatment had been singularly free from complications.

Dr. L. H. CLERF (Philadelphia) said that in most of his cases retrograde bouginage had been carried out. In cases in which gastrostomy had been done he had used the indwelling tube, placing it in position under fluoroscopic guidance and securing it with a thread above and a thread through the gastrostomy opening. Care must be taken that the thread was not behind the cricoid. Dr. F. T. LAND showed a series of cases from the Western Infirmary, Glasgow, of lesions of the lower third of the oesophagus. The presenting symptom was pain in three cases, dysphagia in ten, and pain and dysphagia together in 16. The lesions were twice as common in females as in males, and five of the cases of dysphagia occurred in pregnancy, all among older women (aged 36 to 42).

Other speakers from France, Finland, Austria, Holland, and Italy took part in this discussion.

Differential Diagnosis of Aural Vertigo

Mr. C. S. HALLPIKE (London) gave a paper on the pathology of aural vertigo. He mentioned three varieties of aural vertigo: (1) Ménière's disease, or idiopathic endolymphatic hydrops; (2) vestibular neuromatosis; and (3) positional vertigo. Ménière's disease affected chiefly patients aged 40–60. The

first attack of vertigo was unaccompanied by any history of head injury. Distortion of hearing was a common complaint, and tests of cochlear function showed considerable deafness. In the active phases of the disease loss of intelligibility in hearing was out of all proportion to pure tone audiometric loss. He emphasized the importance of changes in Corti's organ. Vestibular neuromatosis affected younger patients than did Ménière's disease, and was not uncommon between the ages of 20 and 30. The onset of symptoms was frequently connected with some infective illness. Unlike Ménière's disease, the symptoms might include transient "black-outs," and the condition persisted between the attacks as a feeling of lack of balance. A fair proportion of these patients were found to have oro-nasal infection. In positional vertigo the onset of symptoms might again date from an infective illness or head injury. Many cases showed evidence of focal infection in the territory of the ear, nose, and throat. Localized tenderness in the occipital region was noticed.

Dr. MILES ANDERSON (New York) discussed the evidence for vitamin deficiency as the basic disturbance in Ménière's syndrome. He had found that patients with this syndrome who were histamine-negative had severe deficiencies in nicotinic acid, while in the histamine-positive group the majority were severely deficient in riboflavin. Patients responded to treatment by means of vitamins, first with the fraction that was deficient and afterwards with the other fractions. The vaso-constrictor group responded to nicotinic acid and the vaso-dilator group to riboflavin.

Colds and Catarrh

Neurogenic factors in the common cold was the subject of a paper by Dr. E. P. FOWLER (New York). In the common cold of all types an emotional factor was very likely to be the precipitating one. It arose from a state of imbalance. He mentioned the well-known "courtship cold," the "honeymoon cold," and the catarrh of pregnancy. It was very common for a cold to develop on examination day or on a day of domestic upheaval, evidently due to changes in the nasal mucosa arising from an emotional cause. It was generally accepted that the common cold was due primarily to a virus infection, but the preparation of the "soil" must not be overlooked. If workers in certain dusty occupations and those in contact with infections were excluded, he believed that a large number of colds were of a neurogenic type, due to overaction of the sympathetic. Physostigmine or a similar drug was indicated instead of the usual sulphadiazine or penicillin. The outstanding prophylactic was emotional equilibrium.

Adenoids in the adult as the cause of chronic nasopharyngeal infection were mentioned by Dr. B. M. KULLY (Los Angeles). He considered that hypertrophy of the adenoids commonly persisted into adult life and was responsible for many catarrhs, low-grade fevers, and unexplained headaches. In 140 necropsies eight specimens were found of hyperplastic adenoids of infantile type in persons over 70 years of age. He was left with a feeling that adenoids were a primary factor in the causation of the common cold, and that the removal of adenoid tissue in the adult was one of the best means of diminishing the incidence of colds and their complications. He mentioned a number of persons whose hearing had greatly improved after the naso-pharynx was cleared by fulguration with high frequency, followed by irradiation.

Mr. O. POPPER (Johannesburg) brought forward the subject of the restoration of hearing in the "chronic ear." He said that there had been a spate of literature on this subject. If the character of infective deafness were analysed the elements which made up the pattern of the "chronic ear" would be found to include the obliteration of the round window by granulations or other proliferations, and the removal of the stapes from the oval window, causing disequilibrium. The first objective must be an unrestricted sound path. The "chronic ear" person, who did not even remember when he heard last, was sometimes inclined to write off his hearing. That the hearing could be restored by operative measures did not seem to have occurred to him or to his doctor, but the elimination of obstructive elements might restore it without any other operative procedure. Mr. Popper urged that the operation for the restoration of hearing was not an anatomical dissection and should not be too radical.

Dr. TAGE KJAER (Copenhagen) discussed bronchostenosis of inflammatory origin. He said that this was no uncommon condition. It could be divided into (1) acute and subacute catarrh with submucous swelling, and (2) a stenosis in which changes extended through the whole bronchial wall, with a tumour-like appearance in some cases. He analysed a series of 30 cases seen in Copenhagen, and gave particulars of their treatment.

Treatment of Acute Mastoiditis

Mr. J. I. MUNRO BLACK (Newcastle-upon-Tyne) gave an account of the treatment of acute mastoiditis in children by penicillin. Injections were continued until the swelling of the tympanic membrane had completely disappeared. The time necessary for this to take place was from four to fourteen days. In the majority of cases acute mastoiditis could be treated by penicillin injections alone, with perhaps incision of an abscess. Parents could be reassured that no immediate operation was required and that it was unlikely that surgery would be necessary at all. He thought that cases with otorrhoea did best with this form of treatment, and that this method should be brought to the knowledge of general practitioners. They should use penicillin early in the treatment of acute suppurative otitis media, with the object of preventing the formation of an abscess. This advice had been more welcome since procaine penicillin had become available, making possible one injection a day instead of four.

The operation of transmeatal attico-antrotomy was described by Mr. A. TUMARKIN (Liverpool). He said he had brought the operation to the attention of the Section of Otology of the Royal Society of Medicine two years ago. It had been criticized on the ground that it gave a restricted approach, but he found it had proved completely adequate in the majority of cases and he had never had to abandon an operation because the access was not sufficient. It was a logical procedure. It did not sacrifice the ossicular chain or disturb the normal tissues. The haemorrhage could be controlled. It was not an easy operation, but in hands possessed of reasonable skill it presented no special difficulty. He had now done 500 cases with no deaths and no major catastrophes. There were no instances of facial palsy. After-treatment must be carried out with care. He did not recommend the transmeatal approach in acute infections, nor when complications were present, but he had found it adequate for all "cold" surgery and he now used it for fenestration. The method permitted the surgeon to alter the operation in accordance with the pathological conditions he encountered. In days gone by operations were done to save life; to-day they should be done to save hearing also. Professor G. CORNELLI (Milan) read a paper on the transmeatal approach to the tympanic cavity.

Dr. A. J. CRACOVANER (New York) introduced the subject of bronchoscopy in the treatment of diseases of the lung. At one time this method was employed only for the removal of foreign bodies, but it was now used in many lung conditions. In lung abscess bronchoscopy should always be performed to determine the cause and exact location of the suppuration and to plan the necessary treatment. Bronchoscopic aspiration had been known to assist in the healing of an acute abscess. It was well to bronchoscope every case of bronchiectasis and every patient who had a thick exudate in the bronchus for any unreasonable time. In tuberculosis it was thought not so long ago that bronchoscopy was contraindicated, but this idea no longer held good. Certain definite indications called for bronchoscopy—for example, a patient with positive sputum but no other signs of tuberculosis. In cases of asthma which were not relieved by the accepted methods of treatment it should be borne in mind that the condition might be the result of bronchial obstruction. Dr. Cracovaner added that surgeons and anaesthetists were now using bronchoscopy, but it was only the specialist in this technique who could advance it and discover its possibilities.

Techniques of Examination

A demonstration of a simplified technique for direct laryngoscopy was given by Dr. SAM ROBERTS (Kansas City). He employed a special head block which ensured the head being

in the optimum position. The curve of the block held the head firmly and did away with the services of a trained assistant. Interest was also shown in a demonstration by Professor A. TRIMARCHI (Bergamo) of an apparatus which permitted the inspection of the larynx life-size or enlarged. Dr. P. H. HOLINGER (Chicago) showed his skill in endoscopic photography. His technique resulted in admirable pictures of the larynx and bronchus one-quarter of an inch (0.6 cm.) in diameter and capable of considerable enlargement.

A series of films by Dr. L. H. CLERF (Philadelphia), which included photographs of the normal larynx during respiration, phonation, and cough, attracted considerable attention. He also showed photographs illustrating unilateral and bilateral laryngeal paralysis following thyroidectomy, the technique of the modified King operation for mobilization and lateral fixation of the vocal cords, and the appearance of the larynx before and after operation. Another film, by the Edison Bell Telephone Company, showed the vocal cords in "slow motion," recorded on film at a speed of 4,000 frames per second. Perhaps the most remarkable of the films was by Dr. H. G. Kobrak (Chicago), who, by using optical magnification combined with stroboscopic illumination, had recorded the vibrations of the ear in response to sound stimulation. The film showed drum vibrations, movements of the ossicular chain, and vibrations of the round window membrane. The movements in disease were also shown, correlated with distorted acoustic signals recorded simultaneously on a sound track.

The presentation of 150 papers with only 15 minutes allowed for each gave a sense of haste to the proceedings, although discussion had generally to be entreated rather than curtailed in the intervals set aside for the purpose. Only a few of the speakers can be mentioned in a summarized account. Several papers on the surgical treatment of cancer of the larynx and the oesophagus were presented, also a number on the conservation of hearing and hearing-aids and on vocal cord paralysis.

Mention should be made of the exhibition illustrating the history of otolaryngology, which was arranged by Dr. Douglas Guthrie and Lieutenant-Colonel W. A. D. Drummond. It included a number of instruments designed by Morell Mackenzie, the manuscript of his work on malformations of the oesophagus, and his book *Frederick the Noble*, the story of the illness of the Emperor. The exhibits were from the collection of Dr. Irwin Moore and the Wellcome Historical Medical Museum. Other collections were of books, letters, and instruments associated with Sir StClair Thomson and with Lord Lister.

The delegates from overseas, who numbered some 450, expressed their appreciation of the arrangements for the Congress and of the kindness of their British hosts. During the course of the Congress the King, as Patron, sent a message expressing his good wishes for its success.

THE OFFICIAL BANQUET

The banquet in connexion with the Fourth International Congress of Otolaryngology was held at the Dorchester Hotel last week with the president, Mr. V. E. Negus, in the chair. There was a very large attendance of members of the Congress and their wives and guests. After the loyal toasts had been honoured, Sir Henry Dale, O.M., proposed the health of the Congress in a speech the keynote of which was international co-operation in medicine and science. There were, Sir Henry Dale said, forty different nationalities represented at the Congress. The King was the Patron of the Congress and the Duchess of Kent had opened it. "All London is eager to welcome you." Sir Henry pleaded that international science should be kept free from national prejudices. Science was one of man's intellectual activities which were universal. Sir Humphry Davy, he said, was during the Napoleonic wars received with courtesy by the Academy of Sciences in Paris, and it was in Paris in 1907 that Charles Richet made an impassioned appeal at the Congress of Physiology for abolishing barriers in the world of science. Sir Henry, recalling that Sir John Pringle had started the idea of the Red Cross, suggested that the symbol of the Red Cross should be kept flying over medical activities of all kinds.

In response Mr. Negus referred to the friendships which were established at congresses of this kind outside the halls in which scientific discussions were held. He paid tribute to Sir Henry Dale as one who personified the acme of science allied to medicine. Mr. Negus referred in particular to distinguished oto-rhino-laryngologists who had graced congresses in previous years—Professor Schmiegelow, of Copenhagen, Sir StClair Thomson, and Professor de Kleyn, of Amsterdam. Lord Webb-Johnson, to whom Sir Henry Dale had paid tribute for his work for the Royal College of Surgeons and in wider fields, proposed the toast "Oto-rhino-laryngology." He, too, referred to the need for international friendship and co-operation in science and medicine. The names of great surgeons had been associated with otology and of physicians with laryngology. He referred to the support given to the specialty by the Royal College of Surgeons. In response Dr. LeRoy A. Schall, of Boston, praised the action of the president of the Royal College of Surgeons in raising the prestige of the specialty of oto-rhino-laryngology. In proposing the health of the guests Mr. F. C. W. Capps, the general secretary of the Congress, said that between four hundred and five hundred members had come from overseas at great cost and trouble to themselves. This made the people in this country proud to hold the Congress in London. On behalf of the guests there were responses from Professor le Maitre, of France, and Dr. N. Rh. Blegvad, of Denmark, who entertained the diners by putting a viking's helmet on his head and a beard round his chin to illustrate what previous invaders of England had looked like.

UNICEF IN YUGOSLAVIA

The programme of work carried out in Yugoslavia by Unicef (United Nations International Children's Emergency Fund) was explained at a press conference at United Nations office in London. The cost of the programme so far has been ten million dollars, of which 60% has been spent on food. As many as 600,000 children, as well as expectant and nursing mothers, have been cared for. One of Unicef's principles has been to encourage communal meals at schools, partly because this is the most economical way of handling the food, and also because it is hoped that once a system of school feeding is established it will be made permanent. Unicef in Yugoslavia, as in other countries, is operating a programme of B.C.G. vaccination against tuberculosis. When this is completed it is thought that one and a half million children will have been vaccinated. An area of central Bosnia has suffered from an outbreak of syphilis not transmitted sexually. In some mountain villages the incidence among children was said by one American venereologist to be as high as 50%, and the children have passed the disease on to their parents. Procaine penicillin was being used in combating this outbreak.

D.D.T. was being used against malaria and fly-borne diseases. The previous work of Unrra in Yugoslavia and other countries had done a great deal to bring down the incidence of malaria, and it was said that for the first time since the second Punic war (218 B.C.) Italy had no deaths from this disease last year. This is attributed to D.D.T.

The organization also provided milk-processing machinery for the manufacture of powdered milk and for pasteurization. There was a shortage of milk, which was greatest in the mountains on the Dalmatian coast, but it was hoped to supply at least a minimum of clean, dried milk for use in every part of the country and at all times of the year.

Mr. Forrester, the agent of Unicef, who presided at the conference, said that in Europe four and a half million children were being given milk regularly every day by the organization. The continued need for the use of powdered milk since the end of the war had placed a strain on the manufacturing capacity. Opposition to communal feeding had been experienced from parents, who felt that what was provided in the home was good enough, but that opposition was breaking down. Another effect of Unicef work was upon labour productivity, for venereal



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In sizes from 55-95 mm for convenient prescription wherever in the opinion of the physician, the combination of a chemical contraceptive and a secondary occlusive device is indicated.

LITERATURE ON REQUEST

ORTHO

Ortho Pharmaceutical Limited

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PRESSURE DRESSING FOR A SCALD

AUGUST 22nd, 1947. Scalded at work. Next day attended hospital with a large blister of inner aspect R. ankle (Fig. 1)

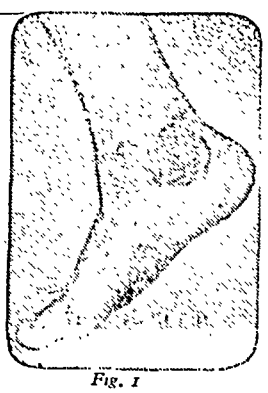


Fig. 1

Treatment. Scalded area dressed with Jelonet (tulle gras), Viscopaste bandage applied from toes to knee. Pressure pad of cotton-wool applied over scalded area. The whole leg firmly bandaged with Elastocrepe, with especially firm pressure over the scalded area. (Fig. 2).

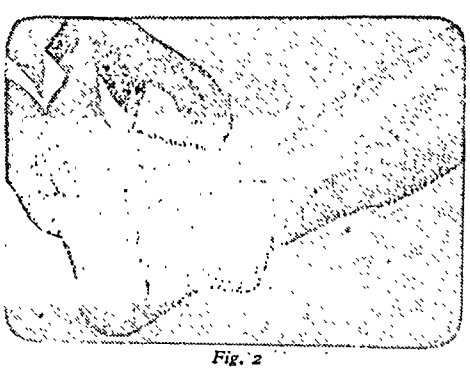


Fig. 2

7th October, 1947. When bandages were removed, wound soundly healed. (Fig. 3).

Comment. Firm pressure dressing afforded *immediate* comfort, permitting ambulatory treatment and continuation at work.

These details and illustrations are of an actual case. T. J. Smith & Nephew, Ltd., of Hull, manufacturers of Elastoplast, Elastocrepe, Jelonet and Viscopaste, publish this instance—typical of many—in which their products have been used with success.

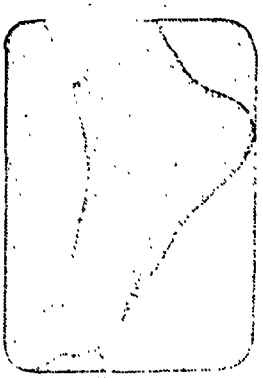


Fig. 3

carcinoma of the uterine cervix, the five-year survival figures (25% of all cases treated) are the same for patients who had serial biopsies as for those who did not. From St. Mark's Hospital it is reported that biopsy has proved a reliable aid to diagnosis in rectal cancer. The procedure should be more generally employed, especially in cases where the clinical diagnosis is uncertain.

This document, although it is a collection of reports which often overlap, contains many interesting facts and figures. For example, there is the observation from St. Bartholomew's Hospital that the incidence of uterine cancer among Jewish women is lower than among non-Jewish. This is more remarkable because Jewish women seem to be particularly subject to conditions (early marriage and child-bearing and, in some communities, low economic status) which in other people appear to increase the liability to this form of cancer. The report not only records work which has been done but poses many new problems. This in itself is a stimulus to further investigation.

ORDER OF ST. JOHN OF JERUSALEM

The *London Gazette* has announced the following promotions in, and appointments to, the Venerable Order of the Hospital of St. John of Jerusalem:

As Commanders (Brothers): Air Marshal P. C. Livingston, C.B., C.B.E., A.F.C., F.R.C.S., Sir Reginald Watson Watson-Jones, F.R.C.S., Air Vice-Marshal F. J. Murphy, C.B.E., M.B., D.P.H., K.H.S., Surgeon Rear-Admiral J. A. Maxwell, C.V.O., C.B.E., M.B., F.R.C.S. *As Officers (Brothers):* Lieutenant-Colonel K. G. W. Saunders, O.B.E., F.R.C.S., Major J. R. Hamerton, R.A.M.C., T.A., Surgeon Rear-Admirals O. D. Brownfield, C.B., O.B.E., M.B., K.H.P., and K. A. I. MacKenzie, Surgeon Captain D. Duncan, O.B.E., M.D., D.P.H., R.N., Wing Commander R. L. Soper, M.R.C.S., L.R.C.P., Drs. A. P. Gorham, R. A. P. Gray, W. J. Vickers, J. McCausland, A. Critien, O.B.E., F. J. H. Crawford, W. G. Evans, A. G. Smith, and W. E. Hutchinson, Mr. J. A. E. M. Hadley, M.B., F.R.C.S. *As Associate Officers (Brothers):* Lieutenant-Colonels A. S. Garewal, M.B., and B. S. Nat, M.D., F.R.C.S., Drs. K. V. Adalja, M.B.E., and Shin Lok Shang. *As Officers (Sisters):* Dr. Mary A. C. Ainscow and Lady Elizabeth M. Wakeley, M.B. *As Serving Brothers:* Surgeon Commanders J. L. S. Coulter, D.S.C., M.R.C.S., L.R.C.P., and W. V. Beach, F.R.C.S., R.N., Drs. A. McK. Fleming, M.C., J. J. Giraldi, O.B.E., F. H. P. Wills, J. D. McVean, G. N. Stathers, D. A. Brigg, F. C. Miller, G. I. Griffiths, J. G. Macqueen, W. G. Smith, E. J. Williams, and P. W. Rice. *As Associate Serving Brothers:* Drs. M. I. Chaudhri and M. D. Gautama. *As Serving Sister:* Dr. Eleanor D. Blunt.

Nova et Vetera

THE MIRACLES OF GEORGE FOX

George Fox's "Book of Miracles." Edited with an introduction and notes by Henry J. Cadbury. With foreword by Rufus M. Jones. (Pp. 162; illustrated. 21s.) Cambridge: The University Press. 1948.

This book is a reconstruction from the *Catalogue of all Papers and Books written by George Fox* of the 150 miracles performed by him and recorded in his *Book of Miracles*—a book which was never published and has since been lost. The *Catalogue* cites only the first and last few words of the account of each miracle, but Mr. Cadbury by patient and extensive research has identified many of the sufferers who were thus treated and the nature of their cures. The book was not issued with Fox's *Journals* because of the accusations harmful to Quakerism which might have been caused by it. In 1656 a critic wrote of the Quakers: "They pretend to learn modesty from the example of Christ, who forbad the reporting of many of his miracles to the world; but they make no little use of them among their seduced ones to confirm them thereby in their delusions, and it is not unlikely would make them more publick to the world were it not that they feared to be found liars if they should do so." George Fox's miracles do not appear to be more surprising than the medical cures recounted by contemporary orthodox physicians; sometimes they arose from the provision of spiritual consolation, now and again by the use of physical remedies. Disciples of Dick Read will find in this book an early account of painless childbirth. On Sept. 9, 1657, Thomas Salthouse wrote, "This day I came about 30 miles to Walter Clements' house who is at liberty and well. And this very hour, being about the seventh hour at night, is Walter Clements' wife delivered of a daughter by the mighty power of the Lord. Before she travailed she brought forth to the astonishment of the heathen that cannot believe and to the praise and honour of Him that hath taken away the curse. . . ."

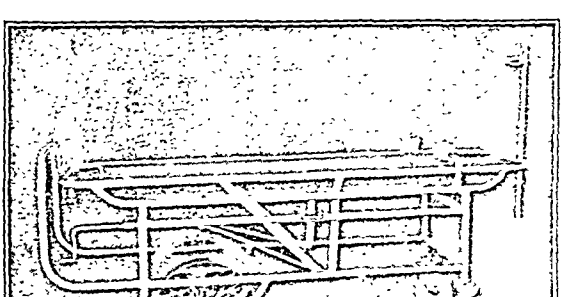
"A miracle," said a character in Bernard Shaw's *St. Joan*, "is an event which creates faith." This definition reversed supplies the modern explanation of the miracle, itself created by faith. The miracles of George Fox are the minor seventeenth-century decorations of a remarkable personality whose spiritual odyssey is set out in his *Journal*. The book under review is of no more than antiquarian interest, but the *Journal* is one of the great English autobiographies.

D. V. HUBBLE.

Preparations and Appliances

TILTING TROLLEY FOR CONVEYING PATIENTS TO AND FROM OPERATING THEATRE

Mr. MICHAEL C. OLDFIELD, F.R.C.S., honorary assistant surgeon, Leeds General Infirmary, writes: Many of the trolleys used to convey patients to and from the operating theatre are unnecessarily primitive. Patients are often roused from their "premedication slumber" by the rude jolting they receive on the way to the theatre. After an operation under spinal analgesia, or if the patient is suffering from shock, it is a great advantage to be able to convey him to the ward with his feet raised and his head down. The trolley here illustrated has given satisfaction on these and other points. It is made of 1¼-in. (3.3-cm.) welded steel, the thrusting part consisting of



1¼ × ¼ in. (3.3 × 0.6 cm.) mild steel. At the rear end it has two fixed pneumatic-tyred wheels, and at the front end two spring-loaded castors, ensuring freedom from jolt and providing ease in steering. The tray is of 16 G. aluminium and is "dished" to the depth of 2¼ in. (5.6 cm.). A pole serves to carry the transfusion or infusion bottle, which is held in position by a stainless-steel clip. This pole is telescopic, so that its height can be adjusted when a patient has to be taken through a doorway or into a lift; and it can be fitted at either end of the trolley for leg or arm transfusion. The mechanism for tilting is stable and also adjustable, and when the tilt is in use adequately padded shoulder supports prevent the patient from sliding head first off the trolley. When the patient is lifted on to the trolley and when a tilt is not being used the shoulder rests can be turned away over the sides of the trolley.

The trolley is made by Messrs. Siddall and Hilton, Ltd., Sowerby Bridge, Yorkshire.

Correspondence

Caesarean Section

SIR,—There is no doubt that the paper read by Mr. C. McIntosh Marshall at the twelfth British Congress of Obstetrics and Gynaecology (reported in your issue of July 16, p. 147) on this subject was an excellent one, and that his results were magnificent. But unfortunately the modern caesarean section combined with penicillin and the sulphonamides makes it all appear too easy. In skilled hands there should be practically no mortality: in unskilled, the mortality will be high, and the unskilled will attempt it. That is why I suggested, not cynically, that normal labour would be an excellent subject for discussion at some future Congress.

The difficulty of knowing whether a case of slight disproportion or inertia will terminate with a live birth is great, and this knowledge can be obtained only by constant attendance in labour wards where the course of labour can be watched. Marshall made it clear that he did not advocate mass caesarean section, but I still feel that the *furor operativus* is being instilled too much in the minds of the young obstetrician.—I am, etc.,

Dublin. BETHEL SOLOMONS.

Peptic Ulcer and Smoking

SIR,—Your report (July 9, p. 78) of the discussion on peptic ulcer in the joint meeting of the Sections of Medicine and Surgery at Harrogate quotes me as saying that controlled American experiments[1] showed the importance of nicotine in ulcer production. This is not quite accurate. These experiments give a formal statistical proof, based on an adequately designed trial, of the importance of nicotine in preventing healing and in producing relapses, and my own experience confirms this. Curiously enough, the available evidence, for what it is worth, is rather against tobacco being responsible for the first development of an ulcer.

There is no proof that prolonged or repeated functional disturbances of digestion such as are produced by worry or nicotine lead to peptic ulcers. On the contrary, ulcers often form suddenly in persons with previously good digestions, while if a man manages to go six months with a bad digestion without getting an ulcer he can probably go six years or indefinitely without getting one. With a quiescent ulcer, however, the situation is different. Functional disturbances of digestion, whether due to worry, depression, irritative aperients, unwise mixtures of food or alcohol, or tobacco, can all lead to acute inflammation of the ulcer with an increase in size and an exacerbation of symptoms.

Blunderbuss prohibitions, like blunderbuss prescribing, are particularly objectionable in the management of patients with peptic ulcer; in these, extensive treatment carried on for several years is far more important than intensive treatment over a few weeks. Cutting tobacco consumption down from 15 cigarettes a day to three or four rarely makes much difference. In fact it may make an irritable, tense patient rather worse. It is better to warn the patient that he will be asked to stop smoking completely unless the ulcer is radiologically healed within a few months, but that he will be allowed to start again if complete abstinence does not cure him in a further six months.

If complete abstinence from tobacco does lead to an ulcer healing after all other measures have failed, it is probably unwise for the patient ever to start smoking again. It is one of the most dramatic things which one sees in medicine, when the patient who has refused to give up smoking for several years and whose weight has fluctuated between 9 and 10 stone (56.7–63 kg.) gives abstinence a trial, puts on 20 lb. (9 kg.) in weight within a few months, and at last loses his ulcer crater.—I am, etc.,

London, E.1. DENYS A. JENNINGS.

REFERENCE

[1] Batterman, R. C., and Ehrenfeld, I., *Gastroenterology*, 1949, 12, 575.

Syringes

SIR,—Dr. A. G. Rickard's account (July 16, p. 135) of a hospital syringe service prompts me to describe a similar service in general practice which we have now been running for two years. We are a partnership of four doctors, and, while we may have initiated the idea, the credit for experimenting with types of syringes and various packings and for maintaining the service must go to Mr. C. R. Stoffer, M.P.S. The pathology department of Chelmsford Hospital willingly carried out many bacteriological investigations.

While a few 10-ml. syringes are available for special purposes, we have found that a 2-ml. Record syringe with ceramic piston ("laminex") covers most of our daily needs, and three sizes of needles are provided, 12, 15, and 20. With the needle attached, this syringe is fitted into a good quality test-tube (5 in. × ⅝ in. = 12.5 cm. × 1.6 cm.) up to the flange—a close fit being ensured with a half-inch (1.26-cm.) cuff of cellulose wadding. The whole is now put into a cylindrical aluminium container, similar to those in use before the war for the dispatch of throat swabs. A plug of cotton-wool at top and bottom prevents rattling. These containers were specially made for the purpose. After sterilization the doctor has immediately available a complete, dry, sterile syringe, easily and safely carried about in bag or pocket.

Syringes are sterilized in batches in a Maw's "sterotherm," an electrical hot-air oven, at 160° C. for one hour, and remain in the oven for a further half-hour during cooling. It is stated that the variation in temperature in different parts of this oven is never more than ± 2° C. Syringes were contaminated with bacilli and spores, sterilized, and then sent for investigation on many occasions before the method was accepted as being completely efficient. Care must be taken to place the cylinders needle upwards in the sterilizer or they may drop off as a result of the varying rates of expansion of the metals.

Packing and sterilization are done by the pharmacist, but after use the syringes are returned to the surgery and our receptionist carries out a simple cleansing process. Syringes are dismantled and washed in hot water. Syringes used for injecting oily substances are first cleansed in a little ether. Each syringe is then washed out in industrial spirit and completely dried—a strip of one-inch (2.5-cm.) bandage and a glass rod easily dries the inside of the barrel. Care is taken to replace the right piston in the right barrel. Replaced in the cylinder, they are transferred to the pharmacist. We have had no trouble with syringe markings; syringes over one year old are still quite clearly marked.

On an average we use about 20 syringes each day, and a stock of 80 provides an ample supply of sterile syringes. Breakages are due to (*a*) accident, and (*b*) failure to return syringes promptly for cleansing, when the piston is found to have stuck and forcible attempts to free it result in a broken barrel. We have had no casualties from the sterilization process.

With the steady increase in injection therapy the provision of a sterile syringe is a daily problem for the general practitioner. The cost of apparatus and the time and work involved in the process is probably more than the single practitioner can stand, but by combining into small groups they can themselves, or with the co-operation of their local pharmacist, institute a service similar to the one described above, and save a great deal of time on their rounds and in their consulting-rooms.—I am, etc.,

Witham, Essex. T. G. BENJAMIN.

SIR,—I am glad that Dr. A. G. Rickards (July 16, p. 135) has stated many of the requirements for a good syringe. The type of syringe with metal plunger which is in common use in this country is certainly a horribly inefficient affair, and it is amazing that it survives. I am surprised, however, that he makes no reference to the type of needle fitting. Of the two generally used, the Record and Luer, the Luer is larger and far more efficient at making an absolutely air-tight joint. In a procedure such as exchange transfusion in an infant, where a syringe and two-way taps are involved, an apparatus

ade up with Record fittings is almost never air-tight, whereas ith Luer fittings this is easily attained.

The second advantage of the Luer fitting is that the stouter ozzle makes it possible for an all-glass syringe to be strong ough to stand up to routine use, and I have had to discard w syringes for chipped or broken nozzles. The glass nozzle a distinct help in venipuncture, since a trace of aspirated ood is visible.

I would make a plea that there should be a gradual change er to the Luer fitting for all apparatus. This would also ake British and American apparatus interchangeable, since is fitting has long been standard in the U.S.A. The standard pe of syringe should therefore be all-glass, with Luer fitting id (except in the smallest sizes) with eccentric nozzle.—am, etc.,

Cambridge. DOUGLAS GAIRDNER.

Ovarian Hilus Cells

SIR,—It would seem probable that the cells described in e ovary by Mr. Wilfred Shaw and Dr. Burjor Dastur (July 16, 113) are the same as those which have recently been described W. H. Sternberg (*Amer. J. Path.*, 1949, 25, 493) under the ame "ovarian hilus cells." According to Sternberg, these lls are likely to be found in all ovaries if enough sections e cut. They resemble the Leydig cells of the testicle, and eir cytology varies. In size they are usually 14 to 25 μ in ameter, and in shape they may resemble fibroblasts, may be ongated, polygonal, or oval, or may be multinucleated. They ay contain fat vacuoles, lipochrome pigment, or crystalloids Reinke. They are found in clusters of various sizes, usually the neighbourhood of vessels and nerves. They probably roduce androgens, and cases with masculinization associated ith hyperplasia and tumours of these cells are described.—am, etc.,

Hull. A. J. SHILLITOE.

*** In a letter published in last week's *Journal* (p. 230) Mr. Wilfred Shaw and Dr. Burjor Dastur stated, "We believe that ternberg's paper is the first full description of the cells written English."—ED., *B.M.J.*

The Lock Hospital

SIR,—It would be regrettable if the threatened closure of the ock Hospital were carried into effect. The venereal diseases, or the treatment of which the hospital was originally founded id which work it has done uncommonly well for so many ears, are still with us—even in greater numbers than before ie late war. There is need for more knowledge of these iseases among practitioners, so that we should increase rather an reduce the number of hospitals and clinics at which such nowledge can be acquired.

The late Sir William Osler in his famous Lettsomiam Oration eported in the *Journal*, 1917, 1, 694) at the Medical Society London in 1917 on "The Campaign against Venereal isease," said, "Venereal disease is and remains the despair the statistician. Trustworthy data are not forthcoming. ven in death a stigma is associated with it, and the returns are erywhere but under the special caption of the disease itself." o-day, more than 30 years after Osler made this indictment, s statements are substantially true. To my knowledge several en whose children had been treated in my clinic for con-nital syphilis died from syphilitic cardiovascular disease, yet e word syphilis appeared nowhere in the death records. ecently a former patient of mine consulted a cardiologist hom he misled by denying that he had ever suffered from nereal disease, though actually I had previously treated him id his wife and children for syphilis. Instances such as these rve to show that enlightenment of the public and, one may ld too, of the profession is very necessary, and the more ntres we have for instruction in and the treatment of venereal seases the better for the community.

It might be said that such hospitals and centres are becoming ndundant owing to improvements in the methods of treatment. his may prove to be an illusion, for some of us can remember ow, with the introduction of "606," it was hoped that a single large dose—the *therapia sterilisans magna* of Ehrlich—would cure a case of syphilis. We subsequently learnt otherwise. It will take 10 years, possible 20 or even 30 years, before we can say with any degree of certainty that penicillin can cure human acquired or congenital syphilis or that it can with certainty prevent the antenatal infection of the infant. Meanwhile the patients need to be kept under observation, and in my opinion there is no better institution than the Lock Hospital for the humane, painstaking, and altogether efficient treatment of the venereal-disease patient and for the dissemination of knowledge concerning these diseases. Syphilis is a much more serious and killing disease than is realized at the present day, and I would exhort the authorities to think again before deciding upon the closure of the "Lock" to venereal diseases.—I am, etc.,

London, N.12. DAVID NABARRO.

Aetiology of Infantile Enteritis

SIR,—Your leading article (July 16, p. 141) draws attention to the fact that serologically identical strains of *Bact. coli* have now been found in a number of different outbreaks of infantile gastro-enteritis. It is important to stress that in these series, as in the original series reported by Bray[1] in 1945 and by Bray and Beavan[2] in 1948, there has been a high percentage of serious cases and, compared with many previous writers, a much less definite association with parenteral *infection*.

My own feeling is that we are at last establishing one common type of severe infantile gastro-enteritis as a disease *sui generis*. This is supported by the fact that we have found identical agglutinable strains in a high percentage of some 60 severe cases which have been admitted in the past year to two hospitals at Chester and Central Wirral. In two instances epidemics of 6 cases have followed the unwitting introduction of an infant infected with an identical strain among infants suffering from other conditions than enteritis.

I feel that there is now sufficient evidence to enable us to institute certain prophylactic measures I would suggest that all infants admitted to institutions should have their stools examined for these strains, and that they should be separated as potentially infected until this is done. It would also seem to be a wise precaution to examine the stools of all pregnant women before delivery, and nursing staffs in maternity departments and sick infants' wards.—I am, etc.,

Chester. T. E. D. BEAVAN.

REFERENCES

1 *J. Path. Bact.*, 1945, 57, 239
2 Ibid., 1948, 60, 395.

Tuberculous Empyema

SIR,—I should like to add a note to the quotation from my paper on pleurisy with effusion during pneumothorax therapy (*Amer. Rev. Tuberc.*, 1948, 57, 598) reported in a leading article in the *Journal* of July 2 (p. 23). The quotation was taken from the conclusions reported at the end of the paper. It should be noted that 90% of the twenty-one empyemata developed slowly from serous effusions and did not rapidly follow the rupture of a tension cavity into the pleural space.

Empyemata developing from serous effusions can frequently be controlled by repeated aspirations, but those following cavity rupture can rarely be treated medically with success. Thoracoplasty, if possible, should be undertaken much earlier in the latter type, but an expectant attitude will in the former type spare some patients the necessity of having major surgical treatment, the underlying disease in the lung having become quiescent following the temporary collapse. Salkin and Cadden (*J. thorac. Surg.*, 1941, 11, 109) reported that 50 of 225 empyemata were controlled by repeated aspirations.

I should like nothing I have said in my original article to influence anyone to revert to the disastrous practice of using thoracoplasty so late in treatment that it was, in fact, a desperate terminal remedy. Andersen (July 2, p. 6) expresses a similar view in his paper.—I am, etc.,

Abergele, N. Wales. JOHN B. MORRISON.

Rheumatoid Arthritis as a Psychological Disorder

SIR,—In your leading article (July 23, p. 221) entitled "New Problems in Rheumatism" you state, "Some physicians have considered that rheumatoid arthritis is a psychological disorder. The results of clinical tests with cortisone, during which any possible psychological effect was carefully eliminated by giving control substances for certain periods—with relapse in each instance—has disproved this theory."

Such a statement is surely somewhat facile and likely to be misleading, for it takes an altogether too superficial view of the psychogenesis of disease. The effectiveness of cortisone in rheumatoid arthritis in fact goes some way in support of the work of Selye[1] and the evidence of others he compounded in his conception of the "general adaptation syndrome." In this work he recognizes the potentiality of emotional stress at least as one of the causes of the syndrome.—I am, etc.,

J. W. PAULLEY.

London, W.14.

REFERENCE

1 *J. clin. Endocrinol.*, 1946, 6, 117.

Concussion and Hypertension

SIR,—My remarks in the discussion on head injuries were inadequately reported in the summary of the Proceedings of the Sections of Surgery and Neurology and Psychiatry at the Annual Meeting of the B.M.A. at Harrogate (July 16, p. 164). A short résumé of what I said is as follows. Eighty-three per cent of severe cases of post-concussional syndrome examined had a blood pressure higher than the standard of their age. Seventy-eight per cent of 33 men submitted to the CO_2 inhalation test proved to be hyper-reactors. The hypertension develops several weeks or months after the trauma, and appears to be a permanent sign, with a tendency to increase. The hypertension is neurogenic and is probably caused by a lesion of the hypothalamus or the medulla oblongata. Since the symptoms of the post-concussional syndrome and of hypertension are similar, it is likely that headache, giddiness, etc., after concussion are caused frequently by hypertension. The therapy should therefore be directed towards combating the latter. Hypertension and hyper-reactivity are often the only objective signs of the post-concussional syndrome, and have, therefore, a diagnostic and prognostic value.

In contrast to the hypertension, which is a late sequel, I found that the increased permeability of the blood–brain barrier, as shown by the fuchsin and fluorescein tests, is manifest only in the acute stage of concussion.—I am, etc.,

D. ENGEL.

Lytham St. Annes, Lancs.

Influenzal Meningitis Treated by Penicillin

SIR,—Influenzal meningitis being comparatively common, and streptomycin not being readily available, the demonstration of its successful treatment with penicillin is of great importance. The article by Drs. Frances Braid and R. B. Meyer (July 2, p. 11) prompts me to report this case, which was very severe and recovered completely following penicillin treatment.

An infant, 7 months old, had been ill for three weeks before admission to hospital (refusing food, feverishness, loss of weight). Two weeks before admission weakness of left arm and leg, twitchings of face, and repeated vomiting occurred. She was treated with sulphathiazole by her own doctor and sent to hospital on Dec. 7, 1948. She was then listless, but resented examination. There was no obvious neck rigidity. The anterior fontanelle was tense and bulging, and the cranial sutures were separated widely. Temperature was 100° F. (37.8° C.). Lumbar puncture showed purulent fluid with numerous *H. influenzae*.

Some streptomycin was then available, and it was used as follows: intrathecally, 50 mg. on the first day and 25 mg. on subsequent days; intramuscularly 20 mg. per lb. (0.45 kg.) of body weight daily. On second, third, and fourth day of treatment the spinal fluid was sterile. On the fifth day the fluid contained many *H. influenzae* with well-marked pleomorphism. At this stage it was assumed that the organism had become resistant to streptomycin (actually it was later found that the *H. influenzae*, which was of a Pitman type B, was sensitive to streptomycin and also to penicillin in concentration of 20 i.u. per ml.). Penicillin treatment was started with 40,000 units daily intrathecally and 120,000 units intramuscularly 3-hourly. Sulphadiazine (1 g. 4-hourly) was also given. The spinal fluid became sterile after 24 hours and remained so. After nine days the intrathecal treatment (which was mainly done by puncture of the lateral ventricles) was discontinued, and several spinal-fluid samples remained sterile. Systemic treatment was discontinued on the 19th day of treatment. By this time the child was very well and eating and behaving normally. The hydrocephalus, which had been very marked, was hardly apparent.

She has been seen regularly for five months and seems perfectly normal, and even advanced, for her age. She is now 13 months old, can walk fairly well, understands many words, and seems very bright and intelligent.

—I am, etc.,

E. T. BASSADONE.

London, S.E.10.

The Children Act

SIR,—Belatedly, and with great astonishment, I learn that under the Children Act, 1948, responsibility for the needs of children deprived of normal home life is vested in the Home Office, and that local authorities are to set up *ad hoc* committees and appoint children's officers. Britain used to lead the world in hygiene, but if the care of children, and especially those in question, is not the prime concern of the health authorities, then my conception of health and hygiene, including mental hygiene, must be wide astray. The Home Office certainly has an alluring title.—I am, etc.,

JOHN DALE,
Medical Officer of Health.

Melbourne.

The Triumphs of Psychotherapy

SIR,—I have just read the paragraph (July 2, p. 37) dealing with the most inspiring service held in Canterbury Cathedral on June 25, at which I was privileged to be present. One hesitates to question the pronouncement of a president of one of the Royal Colleges, but I feel that Lord Moran's statement, that when physicians had tried to follow the workings of the mind and its many aberrations he could tell of no comparable triumph as had been shown in dealing with disease of the body, cannot go unchallenged.

It is true that psychiatry is a young science and that there are many schools of psychological thought. But surely the very striking successes resulting from carefully arranged electric convulsion treatment and insulin-shock therapy in various forms of neuroses and psychoses, and more recently the benefit derived from prefrontal leucotomy in wisely selected cases, are veritable triumphs in the psychiatric realm. It would be very instructive to know what Lord Moran had in mind when he made this rather pessimistic statement. One does feel that considerable advances in psychotherapy will take place in the fairly near future, and that the outlook is not as black as the learned President has suggested in what was a very masterly address that should be very carefully pondered by all thoughtful people.—I am, etc.,

J. B. GURNEY SMITH.

Epsom, Surrey.

POINTS FROM LETTERS

The Medical Directory

The editor of the *Medical Directory* writes: To maintain the accuracy of our annual volume we rely upon the return of our schedule, which has been posted to each member of the medical profession. Should the schedule have been lost or mislaid we will gladly forward a duplicate upon request. The full names of the doctor should be sent for identification.

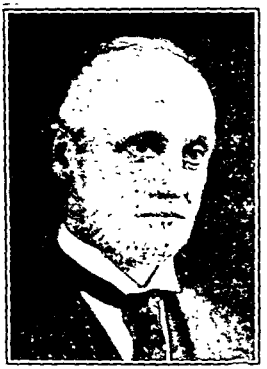
Prefrontal Leucotomy Incision

Dr. A. P. BERTWISTLE (Birmingham) writes: Why is the incision for prefrontal leucotomy made vertically? Nothing could be more obvious, particularly when bilateral. A somewhat longer incision made along the creases of the forehead would hardly be noticed, especially as part would be through the scalp. The superficial temporal artery could easily be drawn aside or ligated. That important landmark, the coronal suture, would be easier to find. The temporal muscle would, of course, be split in the line of its fibres. . . .

Obituary

RICHARD WALTER MARSDEN, M.D., F.R.C.P., D.P.H.

Dr. R. W. Marsden died at his home in Manchester on July 10 at the age of 81. He qualified with the Conjoint Diploma at Manchester University in 1891, taking the degree of M.B., Ch.B. a year later, after a distinguished undergraduate career, and proceeded M.D. in 1896. He took the D.P.H. in 1898. His ambition was to practise as a consultant, and he soon established a considerable reputation for his clinical acumen, especially in diseases of the chest. During this early period he became medical superintendent of the Monsall Hospital for Infectious Diseases, and university lecturer in that subject. Those who attended his classes speak of him as a dramatic teacher. Later he was appointed university lecturer in tuberculosis, and an honorary physician at Ancoats Hospital, Manchester.



In 1906 he became medical officer and in 1927 medical superintendent of Crumpsall Hospital, Manchester, and there he did his most important life's work. His association with this hospital began in 1892 as resident medical officer, and he could recall vividly the state of affairs in a poor-law hospital at that time, a story that illustrated the progress made in hospital work during the last half-century. In describing the history of Crumpsall Hospital from 1906 until he retired in 1933, Dr. Marsden modestly gave most of the credit to others, but those who knew him and his work for the hospital realized how much his foresight and strength of character did to raise it from a nineteenth-century poor-law hospital to a busy general hospital of high status and a first-class training school for nurses. He will long be remembered there with affection and esteem.

He was a good administrator, never afraid to face awkward problems, and he detested humbug. But first and foremost he was a physician of outstanding merit who relied on accurate clinical observation. Generations of residents who came under his wing have cause to remember his kindly but thorough tuition, not unmixed with admonition, and his capacity for seeing the whole as well as its parts. Crumpsall Hospital under his guidance gained a high reputation not only for the care of patients but as an excellent place for young doctors to learn medicine before going into practice. His election as F.R.C.P. in 1929 was a well-earned distinction, and one not commonly given at that time to medical superintendents of municipal hospitals. He came out of retirement in 1940 to take charge of a hospital in Macclesfield, and carried on this work until 1946.

Throughout his professional career Dr. Marsden was a most active member of the local learned societies, and in 1928 was president of the Manchester Medical Society, of which he was a trustee at the time of his death. A member of the B.M.A. since 1895, he was honorary secretary of the Section of Diseases of Children at the Annual Meeting of the Association at Manchester in 1902. In his younger days he was a good athlete, being specially proficient at gymnastics and swimming, and in later years a keen golfer.

Manchester medicine has lost a memorable and much-loved figure. He is survived by his three sons, all members of the medical profession, and by his second wife. His first wife, the mother of his family, died in 1936.

DOUGLAS EDWARD FINLAY, M.B., B.S.

Dr. Douglas Edward Finlay died at his home in Gloucester on July 10 after a long period of ill-health. He received his medical education at St. Mary's Hospital, London, and qualified in 1902, taking the London degree in 1905. After being house-surgeon at the Gloucestershire Royal Infirmary, he joined its honorary staff as assistant physician and settled in private practice in Gloucester. He was appointed honorary physician in 1913 and senior honorary physician in 1924, which position he held for 22 years until 1946, and was also visiting physician to the Gloucester City General Hospital. During the war of 1914–18 he served in France as a Territorial with the rank of major, and was mentioned in dispatches.

A member of the B.M.A. since 1903, he was honorary secretary of the Gloucestershire Branch from 1908 to 1916, and during that period played a notable part in the controversies over the National Health Insurance Act. He was president of his Branch in 1920, served for two periods on the Council (1912–14 and 1925–31), and was on the Journal Committee from 1925 to 1927; he was a representative from 1919 to 1924. Finlay had many interests outside his profession. As a member of the Gloucester City Council and, later, as mayor in 1926–7, alderman, and justice of the peace, he rendered much public service. His special interest in education was shown by his many years of work as chairman of the education committee, chairman of the United Schools' Governors, a lecturer to the Gloucestershire College of Domestic Science, and an examiner for the General Nursing Council. He also took an active interest in a number of learned societies, and was a Fellow of the Royal Geographical Society, the Royal Archaeological Society, and the Royal Society of Arts. Many and diverse pursuits engaged his enthusiasm, and he contributed to each a knowledge and sagacity which commanded respect.

As a physician Finlay was outstanding and had those inborn qualities of mind which make the great clinician. He loved medicine, reading extensively and pondering on its problems, and contributed to this *Journal* several notes on cases of unusual interest. To present him with a clinical problem was to be welcomed as a kindred spirit. His reputation as a consultant was high. In grave crises his presence imparted, to doctor and patient alike, a calm confidence which was remarkable. Yet it cannot be said that he devoted himself arduously to the practice of medicine. Often he was busy with political, educational, and other interests. It seemed as if all these activities, as well as the practice of medicine, were to him so many hobbies to be followed in turn as his mood dictated. But once a problem was presented to him, Finlay's friendly response, immediate interest, and readiness to help were completely disarming. He was a colleague truly loved.

He is survived by three daughters and two sons, to whom great sympathy will be extended.

The British Red Cross Society has issued its Annual Report for 1948. It gives a full account of the Society's activities during the year at home and abroad, and is obtainable (price 2s 6d.) from the Society at 14, Grosvenor Crescent, London S.W.1.

Medico-Legal

THE HAIGH TRIAL

MEDICAL EVIDENCE

[FROM OUR CORRESPONDENT]

At Lewes Assizes, before Mr. Justice Humphreys, on July 18 and 19, the trial took place of John George Haigh on a charge of murdering on Feb. 18 Mrs. Olivia Durand-Deacon, of Onslow Court Hotel, South Kensington. The Attorney-General (Sir Hartley Shawcross, K.C., M.P.), Mr. Eric Neve, K.C., and Mr. Gerald Howard appeared on behalf of the prosecution, and Sir David Maxwell Fyfe, K.C., M.P., Mr. G. F. R. Morris, and Mr. David Neve on behalf of the defence. The prisoner pleaded "Not guilty," but later this plea was amended to "Guilty of the acts charged, but insane at the time they were committed." Nearly 30 witnesses were called for the prosecution, and only one—a psychiatrist—for the defence. The circumstances of the murder and the disposal of the body of the victim have been given in such detail in the public press that it is unnecessary to repeat them here, and this report is confined to the evidence of the medical witnesses. After the two-day hearing the jury took only 14 minutes to arrive at a verdict of "Guilty," and the prisoner was sentenced to death.

Medical Evidence for the Prosecution

Dr. C. Keith Simpson, pathologist, Guy's Hospital, and lecturer in forensic medicine, University of London, said that on March 1 he had visited premises at Crawley known as Giles Yard, and on the wall of a workshop belonging to Hurstlea Products Limited he noticed, between two windows, a group of finely spattered blood-stains. Soil was lifted from the yard to a depth of about 3 in. over a considerable area, and a quantity of soil amounting to 575 lb. or thereabouts was taken away; it was later shown to him at New Scotland Yard by Chief Inspector Mahon. On March 2, 3, and 4 this was examined by him in the presence of Dr. Holden, director of the Metropolitan Police Laboratory, and in it were found, among other articles, intact upper and lower dentures and various human remains, including gall-stones and bony parts. Asked whether, from his examination, he concluded that a human body had been dissolved in sulphuric acid, Dr. Keith Simpson replied, "Yes, they represented part of one human body."

The Attorney-General: Was there anything to indicate that more than one body had been dissolved?—No, I found nothing.

Was there any indication at all of the sex?—Yes, one of the bones of the hip having sex characteristics was still partly preserved and was plainly, in my view, female.

Was there anything to indicate the probable age of the female whose body had been so destroyed?—I came to the conclusion that such as remained of the better-preserved bones were fragile and showed senile changes. I should say, I think, that the bones were those of an elderly woman—but no further; not more closely.

Asked if the remains gave any indication of the cause of death, witness replied "No," neither was any natural disease detected. There was no doubt that immersion of a body in concentrated sulphuric acid would in certain circumstances result in destruction of that body as indicated by the remains which had been found. Plastic substances, such as the handbag and dentures, would resist erosion, as would body fats and, for instance, gall-stones.

He formed the view that the blood splashes found on the wall could have got there if a person standing on the bench between the two windows had been shot through the head from behind. A pad of cotton-wool could be used to limit the flow of blood from the entry and exit holes of the bullet.

There was no cross-examination.

Miss Helen Patricia Mayo, dental surgeon, of New Cavendish Street, London, identified the dentures found at Crawley as having been supplied by her to Mrs. Durand-Deacon, a patient of hers, in 1947. Asked if she was certain of that, she replied, "I could describe them from my notes before I saw them." They had certain peculiarities which established their ownership beyond doubt.

Dr. Henry Holden, director of the Metropolitan Police Laboratory, New Scotland Yard, said that on Feb. 28 he had received from Inspector Symes a fur coat and a bag; the sleeves of the coat were patched and from the bag there had been recovered portions of fibre which had come from the coat.

Having produced sundry other exhibits, the witness said that he had received from Dr. Keith Simpson half a gall-stone. There was human blood on the gas-mask case and rubber apron already produced; these stains were associated with odd fibres of beech wood. A partly corroded rod which had been produced was also of beech wood, the fibres of which might have been deposited on the apron. There were also human blood scrapings on the apron. Comparatively recent small, but obvious, blood-stains were found on the blue shirt produced. The various constituent parts of the handbag produced, in his opinion, had formed one bag which had been immersed in sulphuric acid; the stitches had rotted and the bag had fallen to pieces. The gall-stone was human, having given a reaction to human protein. A small patch of human blood had been found at the junction of the collar, on the back of the neck of the fur coat.

Shown a penknife, and asked if there had been any considerable quantity of blood on it, the witness replied, "No, the merest traces, but they were human." It was not possible to tell the age of the person from whom the blood had come.

Dr. George Edgar Turfitt, deputy director of the Metropolitan Police Laboratory, said that on March 1 he received from Det. Insp. Symes a revolver which was in proper working order: on the inside of the barrel there was a quantity of unburned powder which, together with the fact that there were no signs of corrosion of the barrel, suggested that the weapon had been fired within the last week. He was also shown eight cartridges of a type which could have been used in such a weapon—an Enfield revolver. Other exhibits were identified and stated to have been attacked by concentrated sulphuric acid. A mackintosh and rubber apron contained a residue of sulphuric acid and animal fat, and acid residue was found on a pair of woollen gloves and a wooden rod. With Dr. Holden he had examined a quantity of earth, which he had subsequently taken away for further analysis and had found to contain, speaking generally, sulphuric acid, a high percentage of animal fat, and a certain amount of calcium and phosphate. On March 7 he had received from Dr. Holden a gall-stone which on examination proved to be "a typical gall-stone of the cholesterol type—a soft gall-stone."

Medical Evidence for the Defence

The only witness called for the defence was Dr. Henry Yellowlees, of Harley Street, physician for mental diseases, St. Thomas's Hospital, consulting psychiatrist to the British Expeditionary Force during the war. He was examined by Sir David Maxwell Fyfe.

Dealing with the accused's mental state, the witness said his first impression had been that he had very obviously what was called "a paranoid constitution." There had been no doubt about that after the first interview.

Asked upon what formative factors such a constitution depended, the witness said it was generally held to result partly from heredity and partly—perhaps even more—from environment—especially the early upbringing, home atmosphere, and experiences. In most adolescents the condition declared itself about the ages of 16 or 17, except in most unusual cases. In practical relation to paranoia, it was an essential preliminary of all the paranoid insanities. You could not suffer from any member of the group under the general description of paranoid insanities without being the possessor of a paranoid constitution—or temperament, as some people preferred to call it—which was the only soil, so far as was known, in which paranoia could develop and flourish.

Sir David: Would you deal therefore first with the medical evidence of the possession by the accused of a paranoid constitution? Would you describe that evidence as being scanty, considerable, or abundant? A. As regards the possession of the constitution, I would say the evidence was abundant and puts it beyond any question.

Q. And I think there are two lines upon which you approach that. What are those? A. The history of the patient, which I have

mentioned, and also, of course, his demeanour under examination and the many symptoms that he may show.

Q. Taking the first of those, the history: do you find here in the history what you consider to be the breeding-ground of paranoid constitution? A. Yes, the history as I have it is a most characteristic breeding-ground for the development of this constitution.

After a legal discussion upon the admissibility of evidence as to the prisoner's early home life being given by this witness, Sir David asked Dr. Yellowlees what, in his opinion, had been the religious atmosphere and surroundings of the prisoner's youth; to which the witness replied:

"I should say, sir, in view of what has been said, that every point was not actually mentioned to me by the accused; I have taken certain points which he mentioned to Dr. Matheson, and I presumed that he would mention them to me. Everything he did say to me agrees with what he said to Dr. Matheson."

Asked to confine himself, so far as possible, broadly to the information obtained from the prisoner, the witness said:

"He made it clear to me, from what he said, that he was brought up in a fanatically religious atmosphere, and he told me that newspapers and radio were forbidden in his parents' house, that friends and neighbours were excluded, and that the wrath and vengeance of God were held over his head as the punishment for every trifling misdemeanour. That, in summary, is what he told me about his home atmosphere. He told me also that his mother was greatly given to studying dreams in a future-telling sense and believed that the future could be told by them, and he told me that books upon these subjects were very readily available to him although newspapers and wireless were not."

Q. What opinion did you form as to the mental stability where you get, on the one hand, that extremely exclusive religious background and, on the other hand, this harping on and stressing the influence of dreams? Did you think that showed a heredity of mental stability, or the contrary.? A. I think any household with that atmosphere is bound to be the very reverse of stable, and in this matter of heredity it is believed and said that this is the only thing which really is transmitted—namely, a mental instability. There is no obvious thing or disease that you have got that is transmitted; it is the mental instability.

Q. I suppose that, of course, one has to distinguish heredity and early environment. That early environment must have an accumulative effect on the heredity? A. Of course, the two things are interwoven; they cannot help being.

Asked if he attached importance to the absence of friends in relation to the paranoid constitution, the witness said he attached great importance to it and would attach even more to it if it were shown that that had been carried into school-days. A great authority, the late Dr. Percy Smith, had said in a famous address, "The solitary schoolboy is the potential paranoic," a view with which he heartily agreed.

"If you have a youth of inherited nervous instability," he said, "brought up in a solitary atmosphere and with the fear that unseen and punishing powers are all around him, he tends to run away from them in the only way he can—namely, into a world of, in the first place, fantasy and fairy-tale. He will not face his difficulties fairly, and he becomes progressively less able to do so. At first he merely thinks of some clever way round, of some clever way of avoiding punishment, and if it develops further, and if there is no clever way round, he goes into himself, into a world of fantasy, and makes an imaginary solution for himself, and comes to believe in it."

Q. By coming to believe in it, does that mean he blinds himself to the practical solutions and concentrates on the fantastic solution in his own mind? A. Yes, I should not have said "believe"; he blinds himself as far as he can.

Q. From the history he has given you, do you find illustrations of the formative action in bringing about a paranoid constitution? A. Yes.

Asked if he attached importance to the change of surroundings experienced by the prisoner when, from the age of 10 to 16, he exchanged the atmosphere of the Plymouth Brethren for that of Wakefield Cathedral, the witness said:

"Yes, great importance. Here was this youth, a boy, under a form of worship in which he did not believe himself, and of which he was frightened, and he is plunged into the opposite extreme—a form of worship where ritual and mysticism hold a very much more prominent place; and by entering into that he avoids the conflict between his beliefs that he has got in his early religion and his developing mind. . . ."

Sir David said that Haigh had been a chorister at Wakefield Cathedral and subsequently, at the age of 17 or 18, assistant organist, which the witness said he had accepted as general history, not obtained from the prisoner. The witness understood that at that time the atmosphere of the cathedral was very "High Church." Taking into account the very circumscribed and harsh surroundings from which Haigh had started, the change to surroundings of that kind would have appeared to the prisoner an ideal way of escape; the prisoner might not put it in that way, but that would be the effect, and it would be harmful to the extent of encouraging the tendency to avoid reality.

Asked if Haigh had given him an account of his dreams during that period, Dr. Yellowlees said (referring to his notes by permission of the Judge) that Haigh had told him that at that time he had experienced a recurring dream which he called "The dream of the bleeding Christ," and in that dream he had said that he could see either the head, or sometimes the whole body, of Christ on the cross with blood pouring from his wounds. All along it had been the question of blood that troubled him; he had said that at that time he had been unable to understand why Christ had been left to die slowly upon the cross and had not been killed at once.

The witness accepted from Sir David that that dream had stopped at about the age of 16 and had recurred once—when he had been in Brixton prison awaiting trial—but did not know that of his own knowledge. In his experience, such dreams were invariably associated with a very large amount of waking fantasy and day-dreaming.

Asked if a person in the course of forming a paranoid constitution was secretive, the witness said that was very important; they were almost invariably secretive up to a certain stage; it was the beginning of an entirely private and almost mystic life which they treasured because it was apart from the cruel world. If one had the confidence of such a person—which was not easy—at a fairly early stage—as was indeed the case in ordinary life—the person could be induced to unburden himself, after which he often went to the other extreme and became very voluble, verbose, and garrulous. It depended upon the two persons concerned and upon the stage of the disorder.

Asked whether, as the disorder formed and the subject became more and more wrapped up in his own fantastic and personal solution to life, he formed the view, generally, that he was much cleverer than and really on a different level from ordinary people with whom he mixed, Dr. Yellowlees replied: "Yes, that is the natural point. He can only preserve his self-esteem and conceal from himself the fact that life is too much for him by making these fantastic solutions and saying, just like every person who withdraws from life, 'Look what a clever solution I have made! Oh, the cleverness of me!'"

That being the first stage, the paranoid constitution upon which was erected the foundation of the structure of the mental disorder or aberration known as paranoia, Sir David asked whether there was much or little evidence of the second stage. Dr. Yellowlees said that before answering that question he would like to deal with one or two points further concerning the paranoid constitution. A person so affected had to live two lives at once; he had, so far as he could, to keep up the appearance of being clever and to avoid his "psychological bluff" being called. "You therefore find such people," he added, "though in no way obviously insane, to be extremely vain and very conceited, very fond of showing off and taking a delight in scoring off their fellow-creatures. A large number of the false-pretences people and the confidence tricksters have got a paranoid constitution. . . . It is an abnormality but it is in no sense a disease of the mind, and it is important to remember that the constitutional paranoid has got to keep his end up with regard to the society in which he lives."

In reply to Sir David, the witness agreed that one of the greatest authorities on paranoia was Professor Tanzi, of Florence, with whom the witness had been in contact and with whose work he was acquainted. The professor's book on mental diseases, which contained a chapter on parancia, was a classic.

Sir David: I want to get it clear, Dr. Yellowlees, that paranoia is a recognized and discussed mental aberration and, if I may say so without offence, not something that you have created for this case. One wants to be quite blunt about these matters because the impression might exist. A. I am very glad you said so, sir.

Q. Dealing with that, in your view has the acute paranoid constitution, that abnormal personality that you have described, developed into the disorder known as paranoia? That is what I want you to address yourself to. A. The answer is "Yes," but—

Q. Could we just pause there for a moment, because I want to get it quite clear, if I may, in your words. I told my Lord and the jury yesterday that paranoia was a complete and permanent alteration of the entire personality which overwhelms the mental outlook, character, and conduct. Was I correct in saying that? A. You were correct, sir, but it would need, I think, some clarification.

Q. Well, will you clarify it, because counsel is apt to paint with a broad brush and I do not want there to be any mistake about it. A. I think the only essential qualification is you should say a completely well established paranoia, because paranoia, whatever else it is, is an extremely progressive disorder. You cannot say that it begins on this day and ends on that one.

Q. I quite appreciate that, Dr. Yellowlees. Putting in the word "completely"— A. Well established.

Q. "Well established paranoia." Would you say that I had put it correctly as a complete and permanent alteration of the personality overwhelming the mental outlook, character, and conduct? A. Yes, I think that is correct.

The witness said that after his second interview with the prisoner he had on the spot thought of the book which Sir David had mentioned and he had procured it, although he had not read it for 30 years, and he had found that the statements made in the book, which was regarded as a classic, and the matters which he had himself elicited had seemed so startlingly in harmony that he had felt it his duty to say so. The point where a man with the paranoid constitution developed into a paranoic was terribly difficult to make plain; there were varieties of paranoia, and the most important one for his purpose happened to be one of the most rare and terrible of the whole group.

"The word is sometimes used loosely among medical men," he added, "but if you ask a medical man what he means by a pure paranoia he will understand that you are talking about a condition of which this Professor Tanzi's is the classic description, and a very rare condition. It is technically called—I am sorry about this—one of the egocentric paranoias, and it is called 'ambitious' or sometimes 'mystical,' and the point at which it develops, so far as it can be a point, is when the patient's fantasy world becomes really his psychological home, where it becomes more real to him than his real world, and when his fantastic solution and his idea of personal cleverness passes all bounds and he regards himself as nearly as possible omnipotent. All his other activities, his work, his sexual activities, and so forth, are ignored and the energy that ought to go into them is turned into building up this fantastic life. Usually he does not get to the length—except in a very long-standing case—of regarding himself as a god, although I have met patients who did. Usually he stops short of that and regards himself as in mystical communion with some force or principle or outside power which guides him. I believe that the process has begun in this case. I cannot tell you how far it has gone."

Asked for his reasons for considering that the patient had passed from the "constitutional" stage into that form of insanity, from the medical point of view, Dr. Yellowlees said that was a difficult matter to deal with, because one of the very important grounds for his opinion was his lifelong experience and familiarity with patients of that kind, but there was first his conviction that the prisoner had a paranoid constitution in a high degree; then came a series of points which had a very cumulative effect taken together: to begin with, there was the very strong indication of a progressive development of a system of mystical ideas expressed with intelligence and lucidity but ever less related to the morals of ordinary society and ever more associated with reference to some vague force or principle under whose guidance he acted.

Sir David: Would you tell us what he gave as the first actual conscious revelation? A. He stated to me that his first conscious revelation took place towards the close of the period at Wakefield when he was 16 or 17, he said, and he was divinely guided to interpret a verse in the Old Testament as an instruction to drink his own urine, and it is a matter of fact that I understand he has consistently followed that instruction to this day, and he was certainly doing it when I saw him.

Q. Just pausing there for a moment, is it an accepted characteristic of paranoia that paranoics do follow what are well-known customs among primitive and savage tribes without knowing that they are following primitive customs? A. That is true. I should not have associated it with this particular act, because it is not altogether uncommon among mentally unstable and peculiar persons, but it may well be as you say, and it certainly is a fact that paranoics in general are really, though they do not know it, throw-backs; they are following the customs of primitive and savage peoples.

Mr. Justice Humphreys: They are what?

Sir David: "Throw-backs" was the word he used, my lord.

The witness: Atavisms. Would you quote Profession Tanzi in support of what I have just said about atavisms, to show it is not my own invention?

Sir David: Well, I think my learned friend has a copy of Tanzi and he can check on it in any way, but I think it will be enough for us if you say that that view is supported by Professor Tanzi and it is one of the characteristics that he points out, and you agree with that. A. That is so.

Q. Would you go now to the second of those points which you are emphasizing? A. Then he says that the second revelation was marked by the appearance—I think it was in 1944 or 1945—of what I call the "Tree Dream" which he described to me three or four times, always in the very same way.

Asked by Mr. Justice Humphreys to describe the dream, Dr. Yellowlees said:

"He said that it started after a motor-car accident. That may or may not have any importance: I do not know. The point is that he says that in that accident a lot of blood from a scalp wound ran into his mouth and revived his ideas about blood. I have no comment to make on that. The dream that he describes is that he goes out into a forest and sees before him an entire forest of crucifixes. These gradually turn into trees, and the trees, which have branches stretching out at right angles, appear to be dripping with dew or with rain. As he gets nearer he sees that it is blood that is dripping from the trees and not water. One of the trees then gradually assumes the shape of a man who holds a bowl or cup beneath one of the dripping trees and collects the blood which comes from it. As this happens he sees the tree get paler in colour and he himself feels that he is losing strength. Then the man in the dream, when the cup is full, approaches him and offers it to him and invites him to drink it. At first he says he is unable to move towards the man, and the man recedes and he cannot get to him; and the dream ends.

"He then tells me that this dream may be repeated for some nights in succession—once he said six or seven nights, and then again I think he said four or five—and during the time when the dream is recurring he is uneasy, distrait, able to do his daily functions all right, but not really at ease. He says that after this his killings occur and after them—after one or two of them, I think that is what he said; I am not sure—he dreams again the same dream, but this time the man does not recede from him and he is able to drink the blood."

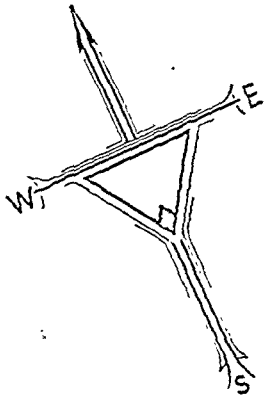
Sir David: Did he tell you whether the dreams caused, in his waking hours, a desire for human blood? A. Yes. He was not very clear about that, but he simply said he was very uneasy and felt he must do something—and that was all he said to me.

Sir David asked whether the two factors to which the witness had attached importance—the drinking of the urine and the dreams which had been described—were an end of the fantasy or was there a further fantasy which defied description as to the working of that type of mind. Dr. Yellowlees replied that it had been shown that such statements were simply attempts to express what could not possibly be put into words. Even in the telling of a dream it was not always easy to be precise, and when dealing with these mystical fantasies it was impossible.

Asked whether there was complete absence of the sex element in the accused's conduct, he said there was a complete absence of any interest or activity in sex. That in itself was an abnormal thing.

Q. This was not a case dependent, then, on the sort of Viennese psychology that everything was related to sex? A. No, it had nothing to do with that. The absence of a sex element was important, because it was a very great abnormality of some kind that a physically healthy

for children everywhere



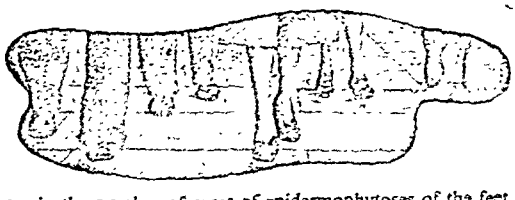
The problem of the run-down, debilitated child is shared by medical men throughout the world . . . and the universal answer is a tonic at once restorative, formative and protective. Syrup Minadex is such a tonic, combining three distinct therapeutic groups—iron, copper and manganese for their haemopoietic properties; the glycerophosphates of calcium, sodium and potassium, traditional nerve restoratives; and vitamins A and D to promote the growth of healthy tissues. These ingredients are combined in a delicious orange-flavoured syrup, making Minadex acceptable to the most fastidious palate in the warmest climate.

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THE INTRAVAGINAL TAMPON IN MENSTRUAL HYGIENE

An important clinical study

Significant facts obtained by the close observation of 25 parous and nonparous women

In view of the increasing use of the intravaginal tampon for the absorption of the menstrual flow, the following important study was undertaken to determine whether or not this method of sanitary control is safe and not prejudicial to health.

Twenty-five women—parous and nonparous—were selected and were under daily institutional observation during two successive catamenial periods. Ranging in age from twenty-one to forty-five, some had previously used tampons, others had not.

The following summary indicates clearly the findings of the study.

Reprinted from the Medical Record, U.S.A. for May, 1942

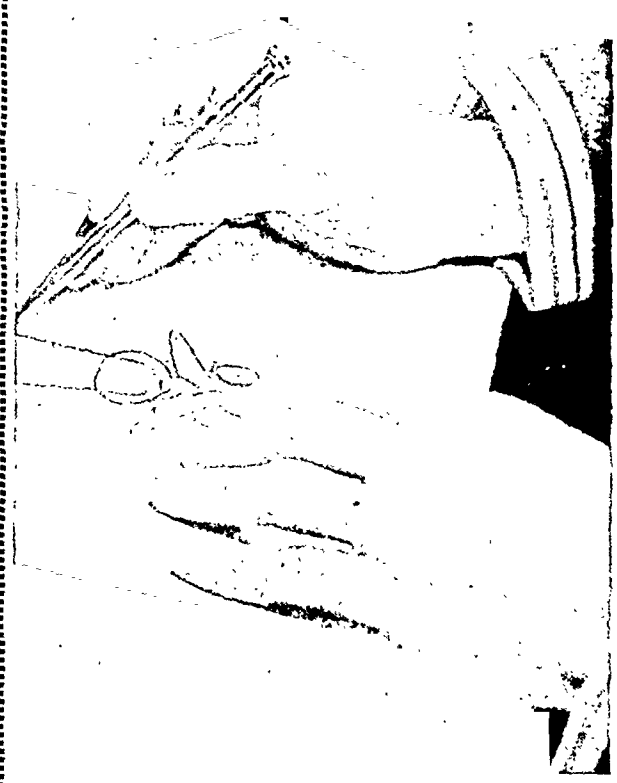
1. In not a single instance was there any evidence of local irritation brought about by the use of the tampons.
2. No uterine cramps, suggestive of block of the uterine flow or damming back into the tubes were reported in any case of this series.
3. No bladder irritation was reported.
4. The average number of tampons used in a period was ten.
5. In cases in which a cervical erosion was present, neither the amount of bleeding nor the character of the erosion was altered by the use of the tampons.
6. There was no appreciable difference in the bacterial flora of the vagina and cervix, as determined by smear and culture, before menstruation and after the use of the tampons during the menstrual period.
7. There was no appreciable difference in the pH of the vaginal or cervical secretions before menstruation and after the use of the tampons during the period.
8. Absolute comfort and complete absorption of the flow was obtained by the proper correlation of the size of the tampon with the length and calibre of the vagina.
9. *The evidence is conclusive that the tampon method of menstrual hygiene is safe, comfortable and not prejudicial to health.*

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HANDS AND THE MAN . . . NO. 7



Mr. . . . . ,

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young man, who did not seem to be at all scrupulous in his actions, should have no interest whatever in sex and sexual activity. It also happened to be stated in authoritative works that that was a thing found in paranoics, who sublimated their sexual energies into that self-worship and mystical fantasies.

Asked what differentiation the accused had made between his killings and his ordinary acts of dishonesty, the witness replied that the accused had been quite normal on that subject. As to his previous convictions (all for dishonesty), he had said that the third was not proper. The first two he admitted, and had said that he had to live like anybody else; having good enough wits and rather better than his neighbours, he really had to do the best he could. He really did it to get the artistic joy of a good job. He had said he was like an artist painting a picture when he had successfully hoodwinked his fellow creatures, which was typical of an early paranoic constitution and showed the conceit and vanity which were also to be observed in petty tricksters.

Questions by the Judge

In reply to his Lordship, the witness made it clear that none of the accused's previous convictions were for any form of violence; all were concerned with dishonesty. The killings were treated entirely differently by the accused in his statements. He had objected very much to the word "murder"—"It was, I think, almost the only sign of touchiness that he showed," he added. The prisoner had not minded their being described as "killings." He had said he had no special interest in rights or wrongs or in the laws of the country or in his victims, because "This is his destiny." He had said he had a destiny to perform—and believed it. The prisoner believed that the killings were the third revelation and—although he was not yet clear about it—he thought they might have to do with eternal life, but he did not know how. He was the instrument of an outside power. Before the killings he had had no particular plan; in one case he had said he had not known until a minute before that he was going to kill the victim. On the other hand, he had stated that after the killing he had taken every possible precaution to avoid detection because he knew perfectly well that murder was punishable by law and, like any other sensible man, he was anxious to avoid it.

Mr. Justice Humphreys: If I have got this right, Dr. Yellowlees, he told you he took steps to avoid detection afterwards because he knew quite well that to kill a person was a crime. A. Yes, my Lord; I think he used the phrase "punishable by law."

Q. Very well. A. And he added that of course it did not apply to him.

Q. What did not apply? A. What I have just said—that murder, being punishable by law, did not apply to him.

Q. I do not quite follow. Did he suggest that he was not amenable to the law. A. Certainly, my Lord.

Q. Why was he not amenable to law? A. Because he says that he is working under guidance and in harmony with some vital principle.

Q. And he thought if he said that everybody else would believe it? A. I would not say that, my Lord. The one thing he is not is a malingerer.

Sir David: Did he appear to you to believe? A. He appeared to believe it absolutely.

Mr. Justice Humphreys: He thinks he ought not to be punished? A. That is so.

Q. Does he really think he will not be punished, that if he is caught stealing or killing, or anything else, that he will not be punished? A. I asked him that, my Lord, and what he said was, "I am awaiting trial with complete equanimity. I am in the position of Jesus Christ before Pontius Pilate, and the only thing I have to say, if I do say anything, would be"—and he quotes, "There can be no power against me unless it were given him from above."

Sir David suggested that it was not uncommon for a murderer to show callous indifference and asked what the witness considered *unique* in the case. Dr. Yellowlees replied:

"I think the absolutely careless, cheerful, bland, almost friendly indifference of the accused to the crimes which he freely admits having committed is unique in my experience."

Asked whether he believed that accused had really had the "tree" dream, the witness replied that he thought the accused may have been exaggerating the effect that it had upon him because, as he had said, the paranoic person was very lucid and intelligent and lived in two worlds at once and here they were clashing; further, he did not think it possible that Haigh could have invented the dream.

Asked for his views on the accused's claim to have "tapped his victims and drunk their blood," the witness said he thought it was pretty certain that Haigh had tasted it; he did not know whether he had drunk it or not, and from a medical viewpoint it was not important, since blood had run through all his fantasies from childhood like a *motif* and was the core of the paranoic structure which he believed Haigh had erected.

He agreed, having seen many papers and statements written by the prisoner, that Haigh's writings were consistent with his being in a state of paranoia.

The witness said he was not prepared to pass an opinion on the legal test as to whether Haigh knew that what he was doing was wrong. The prisoner had gone "over the borderline" from possessing a paranoid constitution to being in a state of paranoia, but as to the extent to which that had occurred witness could not speak with the same definiteness.

Asked what contact and opportunities for observation would be necessary for a psychiatrist before he could properly answer that question as to the legal test, the witness said:

"I appreciate the importance of the question and I should like to make it clear why I am not prepared to answer it. Very few forms of insanity are amenable to the question which the law requires, because nowadays we do not regard insanity in terms of intellectual power or reasoning ability—medical people do not, I mean. I am here as an expert on medicine and therefore it will not be fair for me to give any opinion in words, in terms, that do not mean anything to me in this particular case. In other words, my view would be as good as anybody else's."

The question having been repeated, the witness said: "I do not think any psychiatrist could answer, or attempt to answer, that question unless he had lived with such a patient—a paranoic patient—for years."

Q. And therefore you prefer to give no answer to it? A. I give no answer.

Cross-examined by the Attorney-General

Cross-examined by the Attorney-General, the witness agreed that Haigh was a person on whose word it would be totally unsafe to rely; he denied that he had relied on it as the main basis of his opinion in this case.

Q. What objective signs of insanity are there in the prisoner? A. I think I should have to repeat all my evidence to say that

Later the witness said that there were no "objective signs of insanity"; that was one of the oldest fallacies. He relied in the main on his lifelong experience of such cases and his observation of a cumulative series of symptoms, such as verbosity, egocentricity, inability to speak the truth, absence of any shadow of remorse, stories of dreams. Paranoia was the most difficult of all mental disorders to simulate. "I may be wrong, but I do not think I would have been hoodwinked." He was not relying on any one factor. The dreams were not the main reason for his opinion, although he attached great importance to them.

Sir Hartley suggested that, although Haigh had been constantly under observation, during the time he had been in prison he had only been seen to drink his urine on one occasion, when he had publicly demonstrated that he was able to do it. The witness said that, as a result of consultations with Dr. Matheson, he was quite satisfied that it was a fact that the prisoner did have that habit, although there was no other evidence of it.

Sir Hartley: Dr. Yellowlees, you know, of course, from the prisoner's statements in this case that he is a man who, in connexion with these various murders, has practised an elaborate system of forgery and false pretences in order to possess himself of his victim's property. A. I do not know "in order to possess them"; that is not a question for me. But he has done so, I believe.

Q. Well, with the result that he possessed himself of his victim's property. A. Yes.

Q. You know that from the statements that have been read out and to which you have no doubt had access earlier. A. Yes.

Q. You have mentioned his previous convictions: you know, do you not, that those convictions were for false pretences? A. Yes.

Q. In the first case for conspiracy to defraud, aiding and abetting forgery, and uttering and obtaining money by false documents, and

obtaining money by false pretences with six similar cases taken into account? A. Yes.

Q. Do you know that on the second occasion when there were seven similar cases, the charge was attempting to obtain money by false pretences and obtaining bankers' cheques by false pretences? A. Yes.

Q. You realize that in the past he has attempted, and sometimes been successful in deceiving others? A. Yes.

Q. You think it quite impossible that he might have deceived you about these dreams? A. It depends on what subject.

Q. And the other symptoms? A. I am sorry, sir, I do not see the relation between his previous convictions to whether I believe his story about dreams.

Q. Well, you see what I am putting to you, doctor? A. Not quite.

Q. I will put it to you frankly: it is that this man has been inventing a defence and has been deceiving you in regard to these symptoms upon which you have relied for your evidence that he is a paranoic. A. Well, I would say, sir, that there is no evidence either way conclusive; my opinion is just my opinion, which I have come to in good faith and which I am bound to tell, and I do not think I am likely to be deceived on this subject, but it may well be.

Q. You may well be deceived? A. Undoubtedly.

Q. You have not relied on anything, apart from your examination of the prisoner and his statements to you, as showing that he is a paranoic? A. Yes, I think I said that I relied, or I was confirmed by the startling similarity between his behaviour and the classic account of this disease.

Witness agreed he had seen the statement by Haigh's father, and, asked if it had assisted him in coming to a conclusion, he said he could not really remember that it had; he did not think it was possible for him to explain the various grounds upon which he had come to a medical diagnosis of the case, although he would try his best to do so. He had not the least recollection of the details of the father's statement.

After some discussion as to the legal admissibility of the evidence (the terms of the statement being finally excluded), the witness was handed a copy. He did not think the father's opinion would be very valuable.

Mr. Justice Humphreys: You would not suggest that the fact that the parents belonged to the sect described as Plymouth Brethren is any evidence of hereditary insanity? A. I never spoke of hereditary insanity; I took great care not to.

Q. You talked about hereditary conditions. A. I talked about hereditary instability, and I think that the fanatically religious sects show in that very fact evidence of instability. There happens to be a classic book on the subject called *Father and Son*, by Edmund Gosse.

The Attorney-General asked if the witness had ever heard or read of a case where the drinking of blood had been an indication of insanity or a motive for murder, and the witness replied, "No, I have not."

Q. Did you ever ask the prisoner how much he had realized in pounds, shillings, and pence from the murders of the Hendersons and the McSwanns, to which he confessed? A. No, I did not regard that as my province.

Q. But were you not considering it as part of your province to discover the motives for these offences, whether it was a motive which lay in the field of insanity or a motive which belonged to a mere mercenary field? A. That, I think, was quite obvious from the first interview with him—that there was no question of motive in the popular sense at all.

In his opinion it was not a matter of importance whether or not the prisoner had gained financially from his killings.

He agreed that the prisoner elaborated the accounts of his dreams from time to time. He thought he had heard from Dr. Matheson that the prisoner had not mentioned the dreams when he had been at Lewes jail previously. He thought the prisoner could not help dramatizing everything.

Q. Did you ask whether the urge to drink blood which came to him in these dreams immediately preceded the commission of the crime or would there be a long interval in between? A. All he told me, as I gave in evidence, was that he had a dream for four or five or six nights and that during that time he would be a little abstracted or distrait at large.

Q. Would the commission of one murder satisfy the urge that these dreams created in him? A. No, it is quite incredible that it should.

Q. You mean that he might want to murder a number of people because of the same dream or series of dreams? A. Yes, or because of the same delusional system in which he might certainly want to murder a number of people.

Q. Because of the same dream? A. I do not like to use the words "because of"; that is where we differ.

Q. Because of the same urge to drink blood following the dream? A. Following upon the dream I think it is certain that he would commit further acts of violence.

The witness further said, in reply to the Attorney-General, that paranoia was a profound mental disease. The Attorney-General quoted from Professor Tanzi's book, at p. 746, that "Paranoia is not a true disease but an intellectual anomaly." The witness replied that this was simply a matter of words. Sufferers from mental diseases, if they did not recover, passed into a state of mental enfeeblement called dementia, which was shown by alterations in the brain as an organ. The exception was paranoia. A man could be a profound paranoic for fifty years and upon death the examination of his brain would reveal no changes or alterations whatever. For that reason many purists in mental medicine declined to call it a mental disease; it was not a disease of the brain in that sense.

Asked whether, in ordinary everyday language, he would call Haigh a lunatic, Dr. Yellowlees replied that among doctors he would.

Q. I quote: "Paranoia is to be regarded as a simple developmental anomaly, the product of a passionate temperament and a methodical and pedantic mind." You do not agree with that? A. I do not agree with any sentence taken out of its context and applied to somebody thirty years after the writer is dead; but in general I agree entirely with the views expressed in that chapter, and indeed it was I, as I have told you, who discovered how important it was and brought the book here.

The Attorney-General further quoted: "The paranoic is an anomalous being, but he is not a lunatic in the common sense of the term." The witness said that that was expressed in the terminology of 40 years ago; it was written in general and had no application whatever to our present conception of diseases or to this particular case.

In reply to a suggestion that by reason of mental disease a man must be presumed not to know the nature and quality of his act and that it was wrong, the witness said that, for the reasons he had already given, he had no opinion to offer on that. The word "know" was one which, as an expert, he would not use; it would not be fair. He agreed that he had given evidence in many cases of alleged insanity before, and in reply to the suggestion that he had not previously had difficulty in saying whether or not in his view a prisoner had known that what he was doing was wrong, he said he thought that was so. He did not agree that in this case the prisoner, by reason of the elaborate preparations he had made, must have known that he was doing wrong; if that had been so he would not have dreamed of coming to the court to give evidence. He agreed that the prisoner must have procured the sulphuric acid in order to destroy the body. That was presumably because he wished to avoid detection as he did not wish to be punished. The prisoner certainly knew that murder was punishable by law as a general principle.

Asked if it was his opinion that the prisoner thought he was acting in obedience to something on a higher level, the witness replied, "That is what he says, yes." He was not satisfied that the prisoner realized that the law of this country was binding upon him; he was not satisfied that he had not known it was wrong. The word "know" was very difficult.

The judge suggested the substitution of the word "believe" for "know," and the witness agreed that it would thus be easier to answer the question; he thought it was very doubtful whether the prisoner had such belief. He thought the prisoner imagined he was acting under the guidance of a higher power, but he did not know. These questions of knowledge of right and wrong had very little to do with persons in the condition in which he believed the prisoner to be; it was the most difficult of all disorders to describe satisfactorily in a legal way.

The Attorney-General: I am not asking you whether the man decided, in obedience to a higher power, to do what he realized was wrong; I am asking you to look at the facts and tell the jury whether there is any doubt that he must have known that, according to English law, he was preparing to do, and subsequently did, something which was wrong. A. I will say "Yes" if you say "punishable by law."

Q. "Punishable by law" and therefore wrong by the law of this country. A. Yes, I think he knew that

Re-examination

In re-examination the witness said he had never before given evidence in a case of pure paranoia; it was because of the difficulties arising out of pure paranoia that he was not prepared to answer the question as to whether the accused knew that what he was doing was wrong.

Sir David quoted the following passage from Professor Tanzi's book:

"Instead of believing himself to be surrounded by treacherous and hostile spirits, the paranoic with delusions of ambition is comforted by the presence of fetishes of guardian angels who, through supernatural means, are maintained in close relation with him."

That was precisely the same sort of relationship with an external force which the witness had described in his evidence.

Sir David quoted again, from p. 724:

"The paranoic delusion, on the contrary, is not a symptom, it is a mode of thought, an opinion which, however much it may be marred by preconceptions, has its roots in a special structure of the mind, in the paranoic constitution. It is the fantastic product of an egocentric but lucid spirit, which abandons itself without restraint to the mysticism of primitive man"—

a view with which the witness agreed entirely.

He agreed again that Dr. Matheson had given him every possible assistance; he had seen Dr. Matheson's own case history and had no reason whatever to doubt the facts contained therein, which in fact confirmed his own views.

The Attorney-General did not call evidence in rebuttal.

The judge, in his summing-up, outlined to the jury the principles of the M'Naghten Rules; he advised them that no jury was ever expected to decide whether or not a man was sane. That was entirely a matter for the medical authorities.

In this case the somewhat unusual course had been adopted of not calling any evidence at all as to the state of mind of the man and of asking no questions at all of any of the witnesses called for the prosecution as to whether he had exhibited any peculiarities which would make anybody think that he was not a perfectly sane and ordinary person. The defence had been content to say, "We are calling an expert upon insanity and diseases of the mind who has formed an opinion."

"Well, members of the jury," the judge continued, "if I were to say to you that you ought to follow the opinion of Dr. Yellowlees that would be, in terms, telling you to find a verdict of guilty in this case, because there is no doubt that Dr. Yellowlees, although it was very much against his will, was in the end forced to say, 'I cannot doubt that this man did know what he was doing.' He has said so in terms."

The jury retired, and subsequently brought in a verdict of "Guilty," and Haigh was sentenced to death.

Medical Notes in Parliament

Cancer and Tuberculosis Statistics

Mr. BEVAN circulated on July 14 the totals of deaths in England and Wales from cancer and tuberculosis, as follows:

Year	Deaths	
	Cancer	Tuberculosis
1920	42,420	41,439
1925	50,433	39,342
1930	56,204	34,821
1935	62,602	28,489
1940	68,922	28,144
1945	74,291	23,955
1948*	79,537	21,984

* Provisional

Grading of Hospital Staff

Mr. J. V. COLLINS on July 14 invited Mr. Bevan to define the qualifications of a senior hospital medical officer and the minimum qualifications of a consultant under the National Health Service.

Mr. BEVAN replied: "I should not presume to do so. Each individual case needs judging on its merits, by local professional committees suited to the task." He added that he had not the least intention of interfering with these committees. He could do no more than leave the matter to the members of the profession concerned. This was the first time that grading had been done, and therefore there could be no "demoting" from a superior to an inferior grade. There was a review of the initial decision, and arrangements had been made to establish machinery for the purpose.

Free Clothes for Patients

Mr. BEVAN was asked on July 14 by Mr. HAYDN DAVIES to what extent his practice was to provide free clothes for hospital patients. He replied that he had told hospitals, in effect, to go on doing what had already been proper hospital practice before the Health Service, which was to lend clothing to patients who could not provide it for themselves or get it from any other agency and to let them keep it on discharge when inquiries had made it clear that they could not otherwise get it. As in the past, this provision would normally only be required for long-stay ambulance cases without resources. Mr. Bevan deprecated the "grave misrepresentations" which certain newspapers had made in this matter.

Diphtheria Immunization

Mr. BEVAN stated on July 14 that doctors who certified deaths as due to diphtheria were not under an obligation to state whether the victims had been immunized. He explained that since diphtheria was a notifiable disease medical officers of health knew of fatal cases and could usually tell from the local authority's immunization records whether a child who died from diphtheria had been immunized.

Claim to Cure Mastitis

Sir WILLIAM Y. DARLING on July 12 asked the Secretary of State for Scotland why a registered medical practitioner who claimed to have a cure for mastitis and had made offers to his Department was not allowed to demonstrate this cure without submitting in advance information which might prejudice a fair examination of the claim.

Mr. WOODBURN replied that the medical practitioner referred to was free to demonstrate his alleged cure for mastitis, but it could not receive official backing until it had been thoroughly tested by impartial scientific experts. For that purpose details and method of treatment required to be disclosed. He could not accept the suggestion that disclosure of that information in advance might prejudice a fair examination of the claim.

Compound E

On July 12 Mr. A. R. BLACKBURN asked, in view of the evidence as to the efficacy of compound E in the treatment of rheumatic diseases, what steps were being taken through the Medical Research Council or other bodies to ensure the production of this drug on a large scale at the earliest possible date.

Mr. HERBERT MORRISON answered that research aimed at finding effective new substances akin to compound E was in active progress under the Medical Research Council. All these compounds were exceptionally difficult to make, and early success was not to be expected. Large-scale production of compound E itself was a matter for commercial laboratories rather than the Council, but again the difficulty of synthesis must hamper speed. American manufacturers of the compound had intimated that it was unlikely to be generally available for use by doctors even in the United States for several years at least.

Pulheems

Mr. D. RENTON asked on July 12 which medical categories qualified soldiers for service at Hong Kong.

Mr. E. SHINWELL said the fitness of soldiers for service overseas was assessed under the Pulheems system of medical classification, which had replaced the former medical categories.

Universities and Colleges

UNIVERSITY OF ST. ANDREWS

J. M. S. Manson received the degree of M.D. (with commendation) at the Graduation Ceremony held on June 30.

UNIVERSITY OF LONDON

The title of Professor Emeritus of Anatomy in the University has been conferred on Professor John Kirk, M.B., Ch.B., F.R.C.S.Ed., on his retirement from the S. A. Courtauld Chair of Anatomy at Middlesex Hospital Medical School which he has held since 1937.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a meeting of the Council of the College held on July 14, Sir Cecil Wakeley was elected President in succession to Lord Webb-Johnson. Sir Harry Platt and Professor Ernest Finch were elected Vice-presidents.

Mr. Digby Chamberlain, Sir Stanford Cade, and Mr. A. Dickson Wright were admitted as Members of the Council.

Professor D. E. Derry, of Cairo, was admitted to the Fellowship, having been elected as a medical practitioner of 20 years' standing.

Professors and Lecturers for the ensuing year were appointed as follows:

Sir Henry Wade was appointed Thomas Vicary Lecturer.

Lord Webb-Johnson was re-elected as the representative of the College on the governing body of the British Postgraduate Medical Federation.

Diplomas of Fellowship were granted to *Manibhai Ashabhai Patel* and to Himadri Kumar Sarkar.

Dr. T. J. Gilmartin, Dr. Alan Cogswell, Dr. T. T. P. Murphy, and Dr. W. D. Arnison were elected Fellows of the Faculty of Anaesthetists.

Diplomas in Psychological Medicine and in Laryngology and Otology were granted jointly with the Royal College of Physicians of London to the following successful candidates:

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—Y. I. Al-Kadi, G. H. L. Bullmore, R. L. Buttle, T. Elmahi, M. Engler, M. B. Feldman, W. N. L. Haynes, S. K. Jetley, D. H. Jones, D. T. Maclay, J. C. Marfatia, J. R. Mathers, D. L. Murti Rao, C. M. Vaillant, W. S. Watson.

DIPLOMA IN LARYNGOLOGY AND OTOLOGY.—B. S. Alderson, S. W. Allinson, N. C. Banerjee, H. A. Beagley, R. D. Bell, D. L. Chadwick, S. L. Citron, G. A. Dalton, W. V. Doyle-Kelly, C. N. d'E. Eastes, L. Fisch, T. B. Gupta, E. W. R. Hackett, J. T. M. C. Jenkins, T. Manickam, A. Mares, S. R. Mawson, M. J. Maxwell, M. F. A. O'Connor, M. L. O'Mara, J. T. Rossouw, C. C. D. Shute, Noreen M. Simpson, J. N. S. Taylor, J. D. Thompson.

The following hospitals were recognized under paragraph 23 of the *F.R.C.S.* regulations: Fulham Hospital (junior surgical registrar, first and second house-surgeons); Wanstead Hospital (Resident surgical officer and house-surgeon); Royal Salop Infirmary, Shrewsbury (second house-surgeon at Copthorne Hospital).

Hunterian Professors.—Mr. R. I. Harris, one lecture on spondylolisthesis; Mr. C. F. M. Saint, one lecture on stomatodaeal ruminations, clinical and non-clinical; Dr. S. A. Henry, one lecture on cutaneous cancer in relation to occupation; Mr. D. J. Browne, one lecture on congenital deformities of the urethra, vagina, and anus; Mr. J. B. Oldham, one lecture on renal denervation; Mr. J. E. Piercy, one lecture on factors contributing to safety in surgery of the thyroid; Mr. J. E. A. O'Connell, one lecture on a review of 500 surgically treated cases of lumbar intervertebral disk protrusion, with special reference to the late results of operation; Mr. H. F. Moseley, one lecture on ruptures of the rotator cuff; Mr. H. L. M. Roualle, one lecture on malignant disease of thyroid gland; Mr. E. M. Evans, one lecture on fractures of the radius and ulna; Dr. Ruth E. M. Bowden, one lecture on factors influencing functional recovery of peripheral nerve injuries; Mr. R. S. Murley, one lecture on post-operative venous thrombosis and embolism; Mr. M. R. Ewing, one lecture on villous tumours of the rectum; Mr. E. M. Nanson, one lecture on the respiratory responses to operative trauma.

Arris and Gale Lecturers.—Mr. D. F. E. Nash, one lecture on surgical aspects of renal damage in childhood: assessment, salvage, and aftermath; Dr. F. D. Stephens, one lecture on the diagnosis and management of Hirschsprung's disease; Mr. E. S. R. Hughes, one lecture on the development of the mammary gland.

Erasmus Wilson Demonstrators.—Mr. C. E. Shattock, two demonstrations; Mr. P. H. Mitchiner, two demonstrations; Mr. L. W. Proger, two demonstrations.

Arnott Demonstrators.—Mr. R. J. Last, three demonstrations; Dr. F. S. Gorrill, three demonstrations.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ending July 9. [No. 27

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each Infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	39	4	15	1	—	24	1	20	1	—
Deaths	—		—				—	—		
Diphtheria	103	27	26	3	5	150	19	39	19	4
Deaths	1	1	—	—	—	3	—	—	—	—
Dysentery	59	10	27	1	—	56	5	34	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	9	2	1	—	—	—	—	—	—	—
Deaths	—						—			
Erysipelas			14	5	1			23	8	4
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				55					40	
Deaths	37	2	4	—	3	34	2	7	1	—
Measles*	5,571	523	122	228	117	8,837	585	83	71	53
Deaths†			—	1	—			1	—	2
Ophthalmia neonatorum	29	3	6	—	—	37	6	13	—	—
Deaths										
Paratyphoid fever	32	2	2(B)	—	—	6	—	1(B)	—	—
Deaths	1	—	—	1	—	—	—	—	—	—
Pneumonia, influenzal	346	13	4	2	5	340	15	7	5	4
Deaths (from influenza)‡	6	2	—	—	1	3	—	1	—	—
Pneumonia, primary			130	23				108	28	
Deaths	115	12		3	5	116	13		3	4
Polio-encephalitis, acute	4	1				2	1			
Deaths										
Poliomyelitis, acute	73	5	6	1	—	23	3	2	1	—
Deaths§	6	—				2	—			
Puerperal fever		—	16				—	9		—
Deaths										
Puerperal pyrexia‖	103	9	7	1	—	84	6	3	—	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	946	66	130	53	29	1,658	89	297	42	33
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	5	2	—	6	—	5	1	—	3	1
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	2,183	92	34	73	88	3,075	259	17	88	7
Deaths	6	—	—	—	—	4	—	—	1	—
Deaths (0–1 year)	239	22	30	13	18	231	22	33	13	11
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,910	590	496	172	121	4,001	605	515	141	101
Annual death rate (per 1,000 persons living)			9·9	10·7				10·4	8·8	
Live births	7,690	1225	986	482	248	8,317	1328	1069	356	280
Annual rate per 1,000 persons living			19·8	29·9				21·6	22·3	
Stillbirths	185	26	34			205	29	23		
Rate per 1,000 total births (including stillborn)			33					21		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

The number of notifications in the week ended July 16 was: poliomyelitis 112 (73), polio-encephalitis 5 (4). (Figures for the previous week are in parentheses.) Thus the rise in incidence, which was temporarily arrested last week, has set in again. Cases were widely distributed, but except for two in the Wigton R.D. in Cumberland there were none north of the West Riding. Only one case was reported in the eastern counties.

Multiple cases (poliomyelitis and polio-encephalitis together) were reported from the following counties: London 13 (6), Berkshire 2 (0), Cheshire 3 (2), Cornwall 4 (5), Cumberland 2 (0), Devon 9 (11), Essex 3 (1), Gloucester 6 (3), Hertford 2 (4), Lancaster 7 (5), Leicester 2 (1), Middlesex 11 (5), Southampton 14 (2), Surrey 4 (1), Sussex 2 (1), Warwick 2 (3), Yorks West Riding 19 (10), Glamorgan 4 (3).

The rise so far this year is closely commensurate with the upward trend which occurred during July two years ago. In the corresponding week of 1947 an "unprecedented prevalence" was forecast. Although once again an unusually high incidence is to be expected, there is a definite possibility that the curve of notifications will flatten out. Up to the present the large centres of population are not seriously involved.

Poliomyelitis Film

A 60-minute film entitled "Polio: Diagnosis and Management," produced by the Crown Film Unit in 1948 for the Ministry of Health, is now available. It is suitable for general-practitioner audiences and could be seen with advantage by nurses, physiotherapists, and public health staffs. The film is obtainable in 35- and 16-mm. sizes on loan from the Central Film Library, Imperial Institute, South Kensington, for showing to professional audiences if the organizer has his own projector; otherwise it can be shown on the C.O.I. mobile film units, by application to the regional film officer of the C.O.I., to professional audiences who can provide a properly blacked-out hall.

Prevalence and Tonsillectomy

In the memorandum on poliomyelitis by medical officers of the Ministry of Health (*British Medical Journal*, July 26, 1947) the following statement was made: "There is, however, overwhelming evidence that a recent tonsillectomy increases the risk of a child contracting poliomyelitis, particularly of the bulbar type. Prevalence of poliomyelitis in an area should therefore be an indication for the postponement of operations on the nose and throat whenever possible." The subject was discussed at the B.M.A. meeting in 1948 (*British Medical Journal*, July 17, 1948, p. 151) and the evidence was summarized by Glover (*Monthly Bulletin of the Ministry of Health*, 1948, 7, 150).

Clearly the decision whether a particular child should be operated on at a particular time and place is one for the surgeon performing the operation. This decision depends on balancing the probable benefit to the child against the probable risks of the operation. Both the benefits which may follow the operation and the danger of the child's developing bulbar poliomyelitis are to a great extent imponderable.

It has been established by many studies in the U.S.A. that when multiple paralytic cases are occurring in an area virus is widespread and the carrier rate is high, but there is no practicable routine way of detecting healthy carriers of virus. The medical officer of health of the area in which a child lives has up-to-date information on the incidence of poliomyelitis in his area, and the surgeon should take the local prevalence of poliomyelitis into account when considering the desirability of operating. Information on the incidence will continue to be reported in these columns.

Poliomyelitis in New York

Dr. Harry S. Mustard, Health Commissioner of New York City, has announced that the number of cases of acute poliomyelitis reported to the Health Department since the beginning of the year is well above the average for the last 20 years, but it is still too early to determine whether this will be a bad year (*New York Times*, July 15). In the first fortnight of July, 64 cases were reported. There were 12 cases in June, 3 in May, 1 in March, and 1 in January.

Discussion of Table

In *England and Wales* a decrease occurred in the number of notifications of measles 1,413, scarlet fever 85, whooping-cough 77, acute pneumonia 30; while increases were reported for diphtheria 23, paratyphoid fever 19, cerebrospinal fever 16, and dysentery 10.

The largest decreases in the notifications of measles were London 191, Warwickshire 158, Gloucestershire 99, and Surrey 88. The only large variation in the local trends of scarlet fever was a decrease of 30 in London notifications. Fluctuations occurred in the local returns of whooping-cough; the largest were decreases in Lancashire 66 and Surrey 31, and a rise of 52 in Durham. There was an increase in the notifications of diphtheria in London from 14 to 27 (Bermondsey 17), and an increase also of 12 cases in Liverpool C.B.

The only large return for paratyphoid fever was Lancashire 20 (Liverpool C.B. 16). The chief centres of dysentery were Lancashire with 23 notifications (Liverpool C.B. 18) and London with 10.

Nine cases of acute encephalitis lethargica were notified during the week, the largest return during recent years. Six of the 9 cases were notified in Cambridgeshire (Chesterton R.D.).

The greatest numbers of notifications of food-poisoning were in Yorkshire West Riding (Settle R.D.) 332 and the City of London 44.

The notifications of acute poliomyelitis were 7 fewer than in the preceding week. The largest returns were those of Devonshire 10 (Okehampton R.D. 5, Exeter C.B. 2, Northam U.D. 2); Yorkshire West Riding 10 (Dewsbury C.B. 2, Leeds C.B. 2, Batley M.B. 2, Colne Valley U.D. 2); London 5 (Wandsworth 2); Middlesex 5 (Hornsey M.B. 2); Cornwall (Camborne-Redruth U.D.) 5; Hertfordshire 4 (Hatfield R.D. 2); Lancashire 4 (Liverpool C.B. 2, Darwen M.B. 2); Glamorganshire 3; Gloucestershire 3 (Bristol C.B. 2); Nottinghamshire 3 (Basford R.D. 2).

In *Scotland* infectious diseases were less prevalent, and the fall in the number of notifications included measles 58, acute primary pneumonia 39, dysentery 34, whooping-cough 18, scarlet fever 16, diphtheria 11.

In *Eire* decreases were recorded in the number of notifications of measles 48, whooping-cough 16, primary pneumonia 15. The largest decreases in measles were Dublin C.B. 34 and Kerry (Listowel R.D.) 28. An outbreak of 10 cases of scarlet fever was notified in Tipperary (Tipperary U.D.).

In *Northern Ireland* decreases were reported in the number of notifications of measles 20 and diphtheria 8. The fall in measles was contributed by counties Antrim and Armagh.

Week Ending July 16

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,043, whooping-cough 2,184, diphtheria 104, measles 5,376, acute pneumonia 330, cerebrospinal fever 17, acute poliomyelitis 112, dysentery 68, paratyphoid fever 50, typhoid fever 6.

Medical News

Osler Centenary Celebrations at Oxford

To mark the centenary of the birth of Sir William Osler the Oxford Division of the British Medical Association arranged a medical meeting and a dinner on July 12. It was appropriate both that the principal celebration took place in Oxford and that it was sponsored by the Association, for it was at the annual meeting at Oxford in 1904 that Osler decided to accept the regius chair at Oxford. The medical meeting was held at the Sir William Dunn School of Pathology, where Lieutenant-General Sir William MacArthur spoke to a large gathering on: "Of the Smallpox: a Review in the Osler Tradition." Sir William was followed by Professor Sir Henry Cohen, whose talk on "Subacute Bacterial Endocarditis" included an account of the part which Osler had played in the recognition of the condition. The commemorative dinner, at which over 200 were present,

was held at Christ Church, the principal speakers being Professor J. A. Ryle, Sir Hugh Cairns, and Professor A. D. Gardner. Dr. Peyton Rous, of the Rockefeller Institute, replied on behalf of a large number of distinguished guests. Great credit is due to the organizing committee and its secretary, Dr. C. W. M. Whitty, for the excellent arrangements made for the occasion.

Osler Club's Visit to Oxford

On Saturday, July 16, as part of the centenary celebrations, members of the Osler Club made a pilgrimage to places in Oxford associated with their "patron saint." After a visit to the collection of Robert Burton's books reassembled by Osler, the party lunched in hall at Christ Church with Professor A. D. Gardner, the Regius Professor of Medicine. In the early afternoon, through the courtesy of the librarian of the Radcliffe Science Library, the very interesting exhibition, arranged with the assistance of Dr. A. H. T. Robb-Smith and Dr. H. M. Sinclair, was inspected, and afterwards the party visited Osler's room in the Radcliffe Museum. Following a tour of 13, Norham Gardens, the warden, Miss Fairburn, provided tea in the drawing-room which Osler had added to the house. The day was concluded by breaking the return journey at Ewelme and visiting the charming old almshouse of which Sir William Osler was, in common with regius professors since Stuart times, *ex-officio* master, but in which he was the first to take a great interest. The beautiful little St. Mary's Church, which adjoins the almshouse and contains the memorial tablet to Osler and his family, is suffering from the ravages of the death-watch beetle; it would be appropriate in this centenary year if admirers of Osler expressed their respect for him by sending to the vicar of St. Mary's a contribution towards the cost of restoration.

Royal Institute of Public Health and Hygiene

The Harben Medal was presented to Lord Boyd-Orr, F.R.S., and the Smith Award to Dr. M. T. Morgan at a meeting of the Royal Institute of Public Health and Hygiene on July 21.

Industrial Health Services Inquiry

The committee set up by the Prime Minister, under the chairmanship of Judge E. T. Dale, to examine the relationship between the National Health Service and the industrial health services which make a call on medical man-power (June 11, p. 1056) met in London on July 22. Various bodies will be invited to give evidence.

Studying Medical Education

Dr. Anistas Shahine, dean of the faculty of medicine in the Syrian University, Damascus, is visiting Britain under the auspices of the British Council. After attending the Fourth International Congress of Otolaryngology held in London on July 18–22, he is studying the British system of medical education. Dr. Shahine qualified from the Syrian University in 1924 and later studied in Paris, specializing in diseases of the ear, nose, and throat. He joined that department of the Syrian University and was appointed professor in 1943, becoming dean of the faculty of medicine this year.

Hospitals Contributory Schemes

The British Hospitals Contributory Schemes Association (1948) held a general meeting on July 15, and accepted in principle a draft constitution prepared by its provisional executive committee. Mr. Henry Lesser was elected president, Mr. W. G. Nevin honorary treasurer, and Mr. John Dodd honorary secretary. During the year ending June 30, 1949, twenty-five contributory schemes had collected £1,738,340. The members of the scheme and their dependants are entitled to various benefits supplementary to those of the National Health Service. Figures are not available for at least twelve other schemes. Ten schemes collected £193,642 for charitable purposes such as hospital amenity funds, medical research, and medical charities. The association operates a clearing house, by agreement with the Treasury, for the receipt and distribution among the various schemes of contributions deducted from Civil Service salaries. The clearing house is handling about £30,000 a year.

Health Service Expounded

A pamphlet entitled *The National Health Service* has been prepared by the Ministry of Health and the Central Office of Information (H.M.S.O., price 6d.) describing the purpose of the National Health Service and how it is administered. It is intended for anyone at home or abroad interested in the Service, "and for those who are workers in the Service, without whose understanding and whole-hearted effort it could not succeed." It gives a fairly objective account of the general-practitioner and hospital services available, and, though enthusiastic about the effects of the Service, does not shirk mentioning the deficiencies that exist at present. Readers are warned in parenthesis that a private patient "must also pay to have his prescription made up at the chemist's—because the medicine cannot be regarded as separable from the doctor's advice and treatment." It admits that "the public has still to learn how to use the new facilities properly and economically," and adds: "Those who are actually running the Service have to get used to new conditions and changing needs."

WHO Sanitation Measures

A project costing $1,000,000 to improve sanitation throughout the world has been adopted by the Programmes Committee of WHO. Fifteen teams will give demonstrations on housing, town planning, and rural hygiene. The committee has also approved sanitary regulations to replace the various sanitary conventions adopted between 1903 and 1944. The guiding principle is the active suppression of epidemic disease wherever it appears.

Health Centres in London

The Health Committee of the London County Council is proposing that the Council shall acquire a site of about two acres at Southend Lane, Lewisham, for the purpose of a health centre. This will serve an extensive health service area and include two neighbourhood units which will contain ultimately a population of about 14,000 to 15,000, including the inhabitants of the Council's Bellingham and Flower House estates. The building will probably not be started for another five or seven years. It is also proposed to proceed forthwith to acquire certain sites in Walmer Road and Threshers Place, Kensington, for the erection of a comprehensive health centre. Both at Lewisham and Kensington it will probably be necessary to exercise powers of compulsory purchase, and permission under the Town and Country Planning (Development by Local Planning Authorities) Regulations, 1948, will be required.

Heberden Society

The Heberden Society held its annual meeting at Oxford on July 15 and 16, when the Heberden Round was taken at the Radcliffe Infirmary by Dr. Sidney Truelove in the absence of Professor L. J. Witts. Seven cases were presented for discussion by Dr. Truelove and members of Professor Witts's unit. They included a case of sclerodactyly and oesophageal stricture, on whom oesophagectomy had been performed. The pathology was discussed by Dr. Robb-Smith with the aid of slides. Other cases presented were: rheumatoid arthritis with Sjögren's syndrome; neuritis of the deep branch of the ulnar nerve, occupational in origin; ankylosing spondylitis with involvement of the peripheral joints resembling rheumatoid arthritis; hypertrophic pulmonary osteo-arthropathy, which was suggested to be pachyderma and pachyperiostitis; idiopathic steatorrhoea, which presented as anaemia and subsequently developed osteomalacia; and chronic hepatitis of nine years' duration with gross oedema and ascites and a subsequent remission following omentopexy four years ago. Dr. W. S. C. Copeman was in the chair, and Professor A. D. Gardner, regius professor of medicine, welcomed members of the society. On the previous evening a dinner was held in Magdalen College, with Dr. E. M. Buzzard acting as host to the members.

COMING EVENTS

Edinburgh Lectures

A series of open lectures has been arranged by the Edinburgh Postgraduate Board for Medicine in connexion with the post-graduate course in the medical sciences which commenced on July 4. The lectures, which are being delivered in the anatomy lecture theatre of Edinburgh University, began on July 11, when Sir James R. Learmonth discussed thrombosis; on July 18 Professor G. W. Pickering, the physiology of hypertension; and on July 28 Sir Lionel Whitby, the present position regarding leukaemia. Details of the remaining lectures will be published in the diary column of the *Journal* week by week. All students and graduates are invited to attend.

Congress of Military Medicine

The 12th International Congress of Military Medicine and Pharmacy will be held in Mexico on Oct. 23–29. It will be followed by a conference of the International Office of Military Medicine Documentation on Nov. 6–8 at Havana, Cuba. Information may be obtained from the General Secretary of the Comité International de Médecine et de Pharmacie Militaires, 79, Rue Saint-Laurent, Liége, Belgium.

SOCIETIES AND LECTURES

Tuesday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At Anatomy Lecture Theatre, Edinburgh University, Aug. 2, 4.30 p.m., "*The Principle of Venous Pressure Reduction in the Treatment of Heart Failure*," by Professor J. McMichael.

APPOINTMENTS

Mr. D. Roy McCullagh, Ph.D., has been appointed director of the Sterling-Winthrop Institute's biochemistry laboratories, New York.

Mr. McCullagh has recently been carrying out research in endocrinology. He graduated with the degree of B.Sc. at the University of Manitoba, Canada, and in 1929 obtained the degree of Ph.D. at Cambridge University, where he studied under Sir Frederick Gowland Hopkins, Dr. T. S. Hele, and Professor J. B. S. Haldane.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Seward.—On July 10, 1949, to Margaret Mary (née Vaughan), wife of F. W. R. Seward, M.R.C.S., L.R.C.P., a daughter—Suzanne Margaret Linda.

Sherry.—On July 10, 1949, to Kathleen Robinson, F.R.C.S., wife of Dr. Vincent F. Sherry, a daughter.

MARRIAGES

Westlake—Whitton.—On June 29, 1949, at Alyth, Perthshire, Ernest Keith Westlake, M.B., B.Chir., to Nora Whitton.

DEATHS

Bell.—On July 21, 1949, Douglas Bell, M.B., D.P.H., of Cliffe House, Skelmanthorpe, Huddersfield, Yorks, aged 66.

Crossley.—On July 20, 1949, Leonard Crossley, M.D., of Highfield, Winsley, Bradford-on-Avon, Wilts.

Dalrymple.—On July 17, 1949, at 13, Southfield Road, Bude, Cornwall, Joseph Dalrymple, C.M.G., O.B.E., L.R.C.P.&S.Ed., L.R.F.P.S.Glas., Colonel R.A.M.C., retired, aged 80.

Davies.—On July 19, 1949, at Southsea, John Phillip Henry Davies, M.B., B.Ch., D.P.H., of Elgin, Llanishen, Cardiff.

Fletcher-Jones.—On July 11, 1949, at Chester, Arthur Fletcher-Jones, L.R.C.P.&S.Ed., L.R.F.P.S.Glas., aged 75.

Jackson.—On July 11, 1949, in hospital, Violet Jackson (née Conway), M.B., Ch.B., D.R.C.O.G., of 408, Street Lane, Leeds, 7.

Jones.—On July 11, 1949, at Beaconsfield, Bucks, Lawrence Jones, M.S., F.R.C.S.

Kelly.—On July 19, 1949, at Strathview, Friar's Lane, Lanark, Joseph Owen Kelly, F.R.C.S.Ed.

MacGregor.—On July 18, 1949, at Craigmount, Peebles, Scotland, Angus Vallance MacGregor, M.D., late of West Hartlepool, aged 82.

Marsden.—On July 10, 1949, at 25, Rathen Road, Withington, Manchester, 20, Richard Walter Marsden, M.D., B.Sc., F.R.C.P., D.P.H., aged 81.

Rait-Smith.—On July 14, 1949, at Hill End Hospital, St. Albans, Herts, Brian Rait-Smith, M.R.C.S., L.R.C.P., D.A., F.F.A.

Robertson.—On July 21, 1949, at Farbills, Fort Augustus, John Joseph Robertson, M.B., Ch.B., of 38, Highburgh Road, Glasgow, W.

Shackel.—On July 14, 1949, George Arthur Shackel, M.R.C.S., L.R.C.P., of Erleigh, Mayfield, Sussex, aged 87.

Stewart.—On July 16, 1949, at Burst Garth, 2, Dallam Road, Shipley, Yorks, William Craig Stewart, M.B., Ch.B., F.R.C.S.Ed.

Sutter.—On July 9, 1949, at 44, Burges Road, Thorpe Bay, Essex, Robert Ross Sutter, M.D., late of Warboys, Hunts.

Walton.—Recently, Donald Walton, L.M.S.S.A., of Astule House, Oxford Road, Macclesfield, Cheshire.

Wilson.—On July 18, 1949, at Normanton, Charles Haddon Wilson, M.B., Ch.B.

Woodman.—On July 20, 1949 at 272, Battle Road, Hollington, St. Leonards-on-Sea, William Edwin Woodman, M.D., aged 94.

Wight.—On June 22, 1949, at 7, Dundas Avenue, Dudley, Worcs, George Douglas Wight, M.B., Ch.B., D.P.H.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Green Staining of Teeth

Q.—*What is the cause of green staining of the teeth? Can this affect the permanent as well as the deciduous teeth, and is any treatment possible?*

A.—The most common form of green stain affecting teeth is of extrinsic type on the outside of the teeth and it can be removed. It is usually seen on the gingival third of the facial surface of the maxillary anterior teeth in children. The causation is not certain, but it is thought to be due to the action of chromogenic bacteria and is as a rule associated with poor oral hygiene. Intrinsic staining is far more rare, and is usually due to bile pigments carried to the pulp, from which they probably enter the dentinal tubules. Copper amalgam, which is occasionally used for filling deciduous teeth, will sometimes give rise to a greenish stain which permeates the teeth. Staining of the deciduous teeth appears to be more common than that of permanent teeth, although involvement of the latter has been recorded, and John Hunter (*Works*, ed. J. F. Pamer, 1835, 2, 19) refers to the effect of jaundice on adult teeth. The treatment of the extrinsic type is simple and consists in scaling and polishing.

Intrinsic staining, if of the deciduous teeth, can be left. If, however, it is present in the permanent dentition, a difficult problem arises, since the introduction of bleaching agents necessitates entry into the pulp canal, the teeth thereby being devitalized. This procedure threatens the life of the teeth and gives rise to the risk of subsequent apical abscesses, etc. Severe staining of the anterior teeth is probably best dealt with by cutting down the tooth to a peg, leaving the pulp alive, and cementing a porcelain or acrylic resin crown over the peg. Reports of cases of green staining of the teeth have been made by the following: Craig, *British Medical Journal*, 1925, 1, 453; Ellis, *Proc. roy. Soc. Med.*, 1938, 31, 767; Boyle and Dinnerman, *Amer. J. Orthodont.*, 1941, 27, 377; Thursfield, *Proc. roy. Soc. Med.*, 1912, 5, Sect. Clin. Med., 148; and Langmead, ibid., 147.

Treatment by Tridione

Q.—*May I have some information about the use of tridione in petit mal and pyknolepsy? (1) How long should a patient be kept in hospital at the beginning of treatment? (2) How often are leucocyte counts necessary? (3) What are the toxic effects, and at what period of the treatment are they likely to arise? (4) Has treatment to be continued indefinitely?*

A.—(1) There is no need in the ordinary way to have a patient in hospital when starting treatment with tridione. (2) White blood-cell counts may be done once a fortnight for the first two months and then once a month, the frequency being reduced as time goes on. Attention should be paid to the actual number of polymorphonuclear leucocytes, and any counts below 4,000 per c.mm. should call for care. (3) Possible toxic effects, which are generally not so bad as the literature might suggest, include agranulocytosis, aplastic anaemia, and episodic hiccup; apart from the changes in the blood, these occur very early. (4) Treatment usually has to be continued indefinitely.

Hypertensive Blood Donors

Q.—*I understand that blood from patients suffering from hyperpiesis is not always suitable for transfusion purposes. Is this correct, and, if so, why? I should also like to know whether it is dangerous to bleed these patients?*

A.—There is no risk to the recipient when blood from a hypertensive subject is transfused. There is little risk to a benign hypertensive donor in relatively good health; but when degenerative vascular changes have set in there is some danger

of a stroke should the blood-letting result in syncope. Patients with angina run a similar risk of cardiac infarction in the event of syncope.

Threatened Abortion

Q.—*A young primigravida three months pregnant has had a moderate blood loss lasting four days, but the haemorrhage has now stopped. What are the chances that the foetus is alive, and how long can it be left with safety if it is not?*

A.—S. Bender found that in about 10% of all cases diagnosed clinically as of threatened abortion the foetus was dead at the time of investigation (*British Medical Journal*, 1948, 1, 683). In the case in question, however, if there has not been any recurrence of bleeding or any discharge since the original haemorrhage, there is considerably more than a 90% chance that the foetus is still alive. There is no reliable method of making an immediate diagnosis, but estimation of the urinary pregnanediol or a biological pregnancy test, if carried out now and repeated again in a few weeks, might help. There is no harm in adopting a "wait and see" policy; indeed, that is the only way to make sure of the diagnosis. Provided there is no intervention, there is practically no risk to the patient even if the products of a missed abortion are retained for many months. Occasionally, however, minor upsets, such as general malaise and skin rashes, presumably due to absorption of products of degeneration, are seen.

Post-herpetic Pain

Q.—*A man aged 66 had a severe attack of herpes zoster of the right frontal region 15 months ago. The whole frontal region remains hypersensitive to touch, heat, and cold, while a severe neuralgia similar to the pain of the acute herpes still occurs. The patient is also blind in the eye opposite to the herpes, following corneal ulceration, and he has limited vision in the other eye. What further treatment is advised, apart from the continued use of analgesic drugs? Would nerve injection with alcohol interfere with the remaining vision?*

A.—It appears that the eye on the same side as the herpes has already suffered damage. Since nerve injection sometimes causes keratitis in a normal eye, the use of this method of producing analgesia might have grave consequences. The relief of pain in such cases is always a difficult problem and one not always capable of solution. The pain may persist for many years. Deep *x*-ray therapy has been tried with some success, but the mainstay of treatment is the use of analgesic drops.

Ulcerative Colitis

Q.—*A woman aged 35 has suffered periodically for three years from attacks of vomiting and blood-stained diarrhoea. Bacteriological examination is repeatedly negative, and the diagnosis is apparently non-specific ulcerative colitis. Recently the condition responded rapidly to phthalylsulphathiazole, but on stopping the drug there seems to be a tendency to relapse. (1) How long will it be safe to continue with this drug? (2) Could the intestinal flora be kept more nearly normal by giving, say, lactose after stopping phthalylsulphathiazole? (3) Is penicillin likely to be of use? (4) If the case proves resistant, would retention enemata be of any avail?*

A.—It is not uncommon to find that phthalylsulphathiazole controls the diarrhoea of ulcerative colitis, and at times a course of treatment may initiate a remission. Unhappily, relapse immediately the drug is withdrawn is frequent. When this treatment was originally introduced a dosage of 0.2 g. per kilo of body weight four-hourly for four weeks was recommended. The part played by the bacterial flora of the bowel is uncertain; there is no evidence that ulcerative colitis is primarily a microbic infection, and thus no reason to suppose that a change in the bowel organisms would benefit the patient. At one time an emulsion of *Lactobacillus acidophilus* was often prescribed with the aim of altering the bacterial flora, but it had no noticeable effect on the course of the disease. Penicillin may control secondary bacterial invasion of the ulcerated colon; the importance of this process is hard to assess, and the effects of the drug are not impressive. Retention enemata of 7 to 10 g. of phthalylsulphathiazole in 200 ml. of water or mucilage have been employed and are often useful.

NOTES AND COMMENTS

Unilateral Flush after Food.—Dr. THEODORE JAMES (Boston, Mass.) writes: In 1945, under this heading, you published a question I put to you (*British Medical Journal*, 1945, 1, 687). This drew two interesting comments from Dr. F. Parkes Weber (p. 758) and Dr. A. D. McDwyer (p. 794). It might be of interest, therefore, to record, because of the rarity of the phenomenon, two more almost identical cases which came within the ambit of my experience within less than three months last year. The first was a boy of 10 who was seen with the chief complaint of poliomyelitis. The story of unilateral flushing of the face after food was volunteered by his mother during the taking of the history. This had first been noticed in very early childhood, was becoming less frequent, and more often than not required spices to provoke it. The boy himself could guarantee dill pickle to produce it when other agents failed. Sweating was not in evidence. The second case was a little girl of 2 who was presented by her mother for repair of her cleft palate, and as an afterthought requested that something be done about a unilateral flushing of the face which recurred regularly with or after meals, and had been doing so for some time. In neither of these two cases were there any associated subjective symptoms, and in all three the manifestation was on the left side of the face. Not even suggestive evidence of previous local pathology was forthcoming.

Dicoumarol and Prothrombin Level.—Drs. ROSEMARY BIGGS and R. G. MACFARLANE write from the Pathological Department of the Radcliffe Infirmary (Oxford): Under "Any Questions?" (July 2, p. 38) you print a reply to a correspondent who is interested in the control of dicoumarol therapy. In this, Russell viper venom is recommended as thromboplastin for the estimation of prothrombin by the one-stage technique. We feel that the particular correspondent, and any others who may read this reply, should know that the use of the venom, with or without lecithin as a substitute for brain, may give most misleading results. Higher values for the "percentage of prothrombin" may be obtained with venom than when brain is used as thromboplastin. Lempert[1] has drawn attention to this danger in your columns, and we have since then been informed of several cases in which disastrous overdosage of dicoumarin was encouraged by an apparently safe level of prothrombin as estimated with venom. These and other experiences have prompted investigation of the difference between Russell viper venom and brain (Wilson,[2] Biggs and Macfarlane,[3] Mawson[4]). These investigations have all shown the danger of this modification of Quick's one-stage technique. We feel that venom, with or without lecithin, should not be used for any routine estimation of prothrombin and that it is particularly undesirable when used for the control of such a dangerous drug as dicoumarol.

REFERENCES

1 *British Medical Journal*, 1948, 1, 125.
2 Wilson, S. J., *Proc. Soc. exp. Biol., N.Y.*, 1947, 66, 126.
3 *J. clin. Path.*, 1949, 2, 33.
4 *J. Lab. clin. Med.*, 1949, 34, 458.

Drs. K. P. BALL and H. O. HUGHES, writing from the Central Middlesex Hospital (London, N.W.), also refer to the work quoted above by Drs. Biggs and Macfarlane. They continue: We too have found that Russell viper venom is a most insensitive thromboplastin in the estimation of dicoumarol hypoprothrombinaemia using Witts and Hobson's technique. Serious haemorrhages are liable to occur with little increase in the prothrombin time. Since changing to Quick's method, using brain extract as thromboplastin, significant spontaneous haemorrhages have fallen from 10.4% to 1.5%. No serious haemorrhage has occurred when the plasma prothrombin content exceeded 10%. The use of Russell viper venom inevitably leads sooner or later to serious dicoumarol haemorrhages, and as a result a valuable drug is blamed.

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SUPPLEMENT TO THE
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THE SECRETARY REPORTS

GENERAL MEDICAL SERVICES

Discussions between the General Medical Services Committee and the Ministry of Health, which go steadily on, have yielded in recent months a number of useful concessions. For example, a practitioner in attendance on a pregnant woman is now entitled, in the eleventh week before the expected date of confinement, to give a single certificate to cover the rest of the pregnancy and the puerperium. An ordinary weekly certificate will be required for cash benefit purposes prior to the beginning of the eleven-weeks period, but the new certificate will ease the burden of certification for the greater part of the last three months of pregnancy.

Again, there is to be an improvement in the lay-out of the prescription form and in the binding of these forms. Under the heading "Specially Expensive Drugs" ethisterone is to be added to the list of drugs for which a dispensing doctor may receive additional payment if he supplies it.

Another point of interest to the general practitioner is the decision to allow a six-months period of grace after the return of a communication through the dead-letter office before a person's name is removed from the doctor's list. The effect is to give a six-months "reprieve" during which inquiries may be completed as to the person's whereabouts and the necessity or otherwise of removing his name from the medical list.

Terms of Service for Hospital Staffs

The announcement by the Joint Committee published in these columns last week contained a statement the significance of which some may have missed. It was to the effect that the Ministry had agreed that, wherever a patient entered a private ward, that patient would become liable for the payment of professional fees to part-time practitioners, in addition to the maintenance charges, except where the patient is occupying accommodation under the proviso to Section 5 (1) of the Act—i.e., where a public patient is admitted or transferred to private accommodation for clinical reasons. This should bring to an end the procedure which is being followed in some hospitals. For example, in some cases the hospital authorities have gone to some pains to remind the patient entering a private ward that he could have gone into a public ward free of cost under the Service. A typical form is as follows:

I have read the conditions of admission to pay-bed accommodation at the above hospital as set out overleaf and agree to pay the appropriate charges as stated below.

SECTION 4 Accommodation	.. ..	Not yet available
SECTION 5 (1)	(*a*) Single Ward	£1 9s. 0d. per day
	(*b*) 2 Bedded Ward	£1 6s. 7d. per day
	(*c*) 3 or more Beds	£1 4s. 2d. per day
SECTION 5 (2)	(*a*) Single Ward	£1 4s. 3d. per day
	(*b*) 2 Bedded Ward	£1 2s. 3d. per day
	(*c*) 3 or more Beds	£1 0s. 3d. per day

In this category, you will be responsible for paying the doctor's fee up to a maximum of 75 guineas.

I wish to occupy a pay-bed under section.....at a cost of .....per day.

Signature.....
Date.....
Witness.....

Note.—Under the National Health Service Act, 1946, the Minister of Health allows certain accommodation in hospitals to be set aside as pay-bed accommodation. The regulations provide:

1. *Section* 4.—Accommodation where patients pay an *inclusive* daily charge of a few shillings for the privilege of occupying a single or small private ward of two or more beds.

2. *Section* 5 (1).—The patient pays the full maintenance charge plus an amount to cover the services of the visiting medical staff. No private arrangements with the doctor are made under this heading. Options are set out overleaf, and you are advised to read them carefully and sign where appropriate and ask for a copy of the agreement for retention.

3. *Section* 5 (2).—The patient pays the maintenance cost (excluding cost of medical attention), but pays the doctor a private fee not exceeding 75 guineas. In this section you make private arrangements with the doctor regarding your medical treatment in hospitals.

On another form which patients are asked to sign on admission to a pay-bed the following statement appears:

I understand that I am entitled to free treatment at the general hospital under the National Health Service, but notwithstanding this I still desire to be admitted to the pay-bed wing on the conditions set out in the form of application for admission.

In another case the form for application for admission to the private wards is headed:

These wards are intended for the use of persons who cannot afford the fees and charges of a private nursing-home, but are able to pay for their maintenance in hospital and limited professional charges

The medical certificate accompanying the application is in the following terms:

I certify that.....is suffering from .....
and is in my opinion a fit and proper person to be received as a patient in the paying wards of the.....Hospital, in accordance with the note at the head of this form.

After announcing that the minimum payment for maintenance shall be the charge for one week, the form continues:

Where there is any doubt about the financial position of an applicant for admission an inquiry shall be conducted by the board of management as to the eligibility of the applicant

This new statement by the Ministry establishes firmly what we have always assumed to be the case—that the patient who elects to enter a private ward is responsible for the payment of professional fees.

In the announcement by the Joint Committee last week it was also stated that the Ministry had agreed that individual practitioners are free to leave untouched or to delete from the whole-time contract any of the clauses which are enclosed in square brackets. The question has been raised whether similar considerations will apply to the part-time contract. In principle the same considerations will apply to the part-time contract, but it will be appreciated that in most cases the clauses enclosed in square brackets will be fundamental to the part-time contract.

The Council

The Organization Committee is already beginning to look at some of the important issues of organization discussed at the Representative Meeting at Harrogate. At its next meeting it will discuss yet again the controversial issue of the composition and mode of election of the Council under the instruction of the Representative Body to think again on matters of detail. Certain important points of principle arising from the decision of the Harrogate meeting to increase the number of directly elected members will be considered by the Council at its first meeting in the autumn. These having been settled, the organization Committee will then proceed to work out a detailed plan for submission to the Council at its meeting early in the New Year.

DISPENSING DOCTORS

PRICING OF PRESCRIPTIONS

To reduce the heavy burden on pricing offices the Minister of Health has decided, in agreement with the B.M.A., that dispensing doctors paid on the basis of the Drug Tariff instead of by capitation fee for supplying drugs and appliances should endorse and sort their prescriptions in the same way as chemists do before surrendering them for pricing. Doctors will continue to send in their prescriptions quarterly, but will sort them for each month separately.

Endorsement and Sorting

Endorsement.—All forms bearing prescriptions for dangerous drugs are to be indelibly endorsed "D.D.A." in the top right-hand corner. Prescriptions for which "special" fees are claimed are to be endorsed "dispensed extemporaneously." Since fees for mixtures are now related to the number of doses, doctors should clearly indicate on the prescription the number of doses, the size of each dose, and the total quantity dispensed.

Sorting.—The prescriptions are to be sorted into two bundles, "S" and "A." Bundle "S" contains forms of prescriptions endorsed "D.D.A.," forms bearing "special" fee prescriptions, and forms bearing prescriptions of net ingredient cost of 5s. and over. Bundle "A" consists of prescriptions of net ingredient cost of under 5s.

Forms in bundle "A" are to be tied up in packets of 100 prescriptions, the packets being tied together in one bundle. Where the month's prescriptions exceed 2,000 or 5,000 they should be tied in packets of 200 or 500 respectively. The odd number of prescriptions left over are to be tied in a separate packet and their number shown on the packet. Bundles should be submitted with bundle "S" on top of bundle "A."

Counting.—The number of (*a*) forms and (*b*) prescriptions on these forms must be indicated in both of the bundles in which prescriptions have been sorted.

Labelling.—The two bundles bear a label showing: (*a*) the letter "S" or "A"; (*b*) the number of forms; (*c*) the number of prescriptions; (*d*) the doctor's name and address.

Invoice and Claim for Payment.—Doctors should enter on the invoice Form E.C.34 Part A the number of forms and prescriptions in each bundle, together with the grand total of forms and prescriptions for the month. They should enter on the claim for payment Form E.C.34 the total number of prescriptions for which advance payment is claimed.

Forms E.C.38 and E.C.34 Part A should be placed in that order above the two bundles and the whole tied in one parcel.

Surrender of Prescriptions.—At the end of each quarter the doctor should send the three parcels for the three months to the superintendent of the Pricing Bureau, whose address is obtainable from executive councils. The first parcel should be sent immediately after the end of September for the quarter July, August, September.

Pricing of Prescriptions

These arrangements operate from July 1. The following will be priced in full: All prescriptions (*a*) with a net ingredient cost of 5s. and over, (*b*) carrying "special" fees as indicated in the Drug Tariff, Part II 4, (*c*) carrying "D.D.A." fees, and all forms containing two or more prescriptions one of which falls within classes (*a*), (*b*), or (*c*).

At least 20% of the remaining prescriptions will be priced in full, and the balance will be paid for on the average cost of that 20%.

CONFLICT IN AUSTRALIA

The Federal Council of the B.M.A. in Australia filed a writ on July 25 in the High Court challenging the constitutional validity of the Government's free medicine scheme (*The Times*, July 25). On that date amendments to the Pharmaceutical Benefits Act became operative. They compel doctors to use State forms for prescribing free medicine.

THE NURSES BILL

Two deputations, one from the B.M.A. and the other from the Royal College of Nursing, met an all-party group of Members of the House of Commons on July 25 to discuss the Nurses Bill. That Bill has passed the Lords. The B.M.A. representatives were the following members of the Association's Special Committee on Nursing: Dr. H. Guy Dain, Dr. E. B. Brooke, Mr. A. Staveley Gough, Miss G. E. Collingwood, and Miss M. M. Edwards.

CONSERVATIVE PARTY'S POLICY

The Conservative Party has restated its policy in a pamphlet entitled "The Right Road for Britain." It states that a Conservative Government would strengthen the position of the family doctor by restoring his freedom to practise anywhere, and would give further security to doctors with small lists, particularly those in rural areas, by offering a weighted capitation fee. The Conservatives would allow private patients to obtain drugs free of charge.

They would give first place in the hospital service to reopening beds and improving the conditions for nursing staff, and they would place on all hospitals within the Service a statutory duty to admit acutely sick patients, subject to proper safeguards. A Conservative Government would reconsider whether hospitals associated with religious bodies and other voluntary organizations should remain independent if they wish to stay out of the scheme, but in general the former voluntary hospitals would be retained in the Service.

EXAMINING T.A. RECRUITS

REVISION OF SPECIALISTS' FEES

The War Office has now agreed that for the time being fees of £2 12s. 6d. and £3 5s. for one and two cases respectively will be paid to civilian specialists for examining Territorial Army recruits. Sessional fees for more than two examinations will be paid at the rate hitherto prevailing—i.e., £4 4s. for a session of 1½–2½ hours, and £2 12s. 6d. for a session of less than 1½ hours.

CERTIFICATES OF INCAPACITY GIVEN IN O.P. DEPARTMENTS

Clinics and out-patient departments of hospitals may now give certificates of incapacity to patients attending them. This has been decided by the Ministers of Health and National Insurance after consultation with the B.M.A. Formerly out-patients were often referred back to their general practitioners to obtain these certificates. That procedure put the patient's practitioner in a difficult position, since the hospital, not himself, is responsible for the treatment.

RELEASE OF MEDICAL OFFICERS FROM H.M. FORCES

The Central Medical War Committee has been notified of the following arrangements for the release of medical officers from H.M. Forces during the third quarter of 1949.

Royal Navy.—July: Group 108. August: Groups 109 and 110. September: Groups 111, 112, 113, and 114.

R.A.M.C.—June 28–July 10: Group 112. July 11–23: Group 113. July 24–Aug. 5: Group 114. Aug. 6–17: Group 115. Aug. 18–28: Group 116. Aug. 29–Sept. 8: Group 117. Sept. 9–19: Group 118. Sept. 20–27: Group 119. Sept. 28–Oct. 5: Group 120.

Royal Air Force.—July: Group 108. August: Group 110. September: Groups 112 and 114.

CONSULTANTS' MEETING

THE PERMANENT CONTRACTS

The Central Consultants and Specialists Committee met at B.M.A. House on July 20. Mr. R. L. Newell was in the chair. He told the meeting that the Joint Committee had been disturbed by the economic threat contained in the last paragraph of the letter from Sir William Douglas, of the Ministry of Health, to Sir Lionel Whitby (*Supplement*, July 16, p. 47). Sir Lionel Whitby had told the Ministry in strong terms the Joint Committee's opinion of this threat.

The Joint Committee had been advised that there was a legal distinction between the authority of Parliament and the power of a Minister. As to arbitration, the infallibility of a Minister had no place in English law. The Joint Committee had asked the Ministry for permanent machinery to be set up for the negotiation of terms of service, including remuneration. It should take the form of a medical section of the Whitley machinery. There should be agreement between the Ministry and the profession on the range of subjects that came within this machinery, and remuneration should be one of them. Discussing pay-beds, the Joint Committee had told the Ministry that it was disturbed at the Minister's apparent intention to reduce the possibilities of private practice. It had strongly objected to the words in the form of contract for whole-time officers that required them to treat private patients. The assurances received by the Joint Committee from the Ministry would be published forthwith (see *Supplement*, July 23, p. 53). Mr. Newell reported that the Joint Committee felt it essential to remain in being to take up many points that in themselves did not affect the main issue of signing or not signing the contracts.

After a long discussion the chairman moved that the committee endorse the last two sentences of the Joint Committee's statement: "The Joint Committee decided, with the assent of the Ministry, to continue negotiations on a number of outstanding points. It feels that it is now able to advise hospital staffs to enter into permanent contracts." The motion was carried by 20 votes to 6.

Representation of Registrars

A deputation of three registrars led by Dr. A. B. Backus was admitted to state a case before the committee on the representation of registrars through the machinery for representation of consultants. Dr. Backus said that there were regional associations of registrars in ten regions, and a national committee had been formed. He asked for representation of registrars on the Central Consultants and Specialists Committee and also on the regional committees. There were a number of reasons why registrars wanted this. They had not been able to obtain information about matters that affected them, particularly about grading and establishment. They sought co-ordination of problems in the hospital milieu. It would help to ensure continuity from the trainee group to the consultant group, and would help the presentation of problems peculiar to registrars. There was great financial pressure on registrars, and at present these men were far older than had been envisaged in the Spens Report. They might be forced to sign contracts before they wished to. They were seeking group structure within the B.M.A.

After the deputation had withdrawn, their case was discussed. Dr. Rowland Hill suggested that the registrars should be so organized that they were not compelled to become members of the B.M.A. Mr. Kindersley said that a sub-order of the consultants' organization should be formed for registrars. It could be discussed by a joint committee of the Central Committee and the registrars. He reminded the meeting that the Central Committee had incorporated the Hospital Committee, and therefore had the duty of representing registrars. Mr. Dickson Wright said that registrars were out of place in a consultants' committee. A recommendation of the committee's executive committee was then put to the meeting and carried —namely, that, pending further discussion on matters of detail, the representation of registrars on the regional and Central Consultants and Specialists Committees be approved in principle. A further motion was carried to the effect that there should be two registrars' representatives on the regional committees. The committee agreed to recommend to Council that a Registrars Group within the B.M.A. should be formed, and it agreed that there should be two representatives on the Central Committee—one of the Group and one from one of the regional committees.

Fighting Fund

Presenting the report of the executive committee, Dr. Rowland Hill discussed the question of a fighting fund for consultants. There were two issues for the committee to decide. First, did the consultants want to have a fund, and, secondly, did they want to have their own fund or contribute to the Guild. He advocated that deductions should be made from their pay and put into their own fund.

The committee agreed that the consultants should form their own fund. Dr. Ross Smith emphasized that there should be representatives of the consultants as such on the board of trustees of the Guild.

The executive committee will work out the details.

Appeal from Grading

The committee received a report that the Ministry has not yet accepted the Joint Committee's representations for the establishment of independent machinery. The committee decided that machinery for further appeal was necessary, and that the appeal should be heard by people other than those who have already reviewed the case.

REPORT ON MIDWIVES

COMMENTS OF B.M.A.

The Council of the British Medical Association has issued its comments on the Report of the Working Party on Midwives (A summary of the report appeared in the *Journal* of Jan. 29 p. 191.)

The Association supports many of the recommendations of the working party, but feels that there is no acute crisis in the midwifery profession. In discussing the professional relationship of midwife and doctor, the Association emphasizes that it should be made clear to both that they form a team; they have a complementary function, and neither alone can give a complete service. The report seems unsound in speaking of the midwife as a practitioner of *normal* midwifery—just as it would be unwise to call a doctor a practitioner of *abnormal* midwifery. Where doctor and midwife are working together the midwife is in no way relegated to an inferior status

A feeling of "competition" between the two professions which is tending to grow up is fostered by recommendations which attempt to define or divide up the spheres of activity of either. Clarification is necessary, and the responsible administrative bodies at all levels should clear up the misapprehension.

The Association recommends that the Central Midwives Board should drop the use of the term "maternity nurse" for a midwife working with a doctor.

The maternity services should be under continuous review by the Central Midwives Board in conjunction with the Ministry of Health.

A Maternity Services Committee should be set up, which the report recommends, but not at the regional level suggested by the report. The Association feels that these committees should cover small areas. They should contain adequate representation of all concerned in the maternity service.

Training of Midwives

Pupil midwives should be recruited only from State-registered nurses. This conflicts with the report's statement that "provided her training is suitable there is no inherent reason why a midwife should also be an S.R.N."

The report states that the midwife must have a thorough knowledge of nursing techniques. The Association considers that she must also be fully trained to work in loyal partnership with the medical profession, and her qualifications and training must be such as to command the respect of both doctors and laity. The training of non-State-registered nursing staff as pupil

midwives gives far more trouble than is justified by the results. The Association is averse to introducing obstetrics too early into a course of general nursing. The report advocated four weeks' obstetric training early in the course, but experience shows that many women dislike obstetrics at their first experience, and its inclusion early in the curriculum may hinder recruitment.

Questions Answered

Payment of Expenses

Q.—*Before July 5, 1948, I was a full-time radiologist of a voluntary hospital receiving a salary and a share of fees in respect of private practice carried out in the hospital. My contract with the hospital provided for the payment of my expenses for attendance at clinical meetings. Since July 5, 1948, I have continued my clinical visits for six months, but in December, 1948, I was informed by the regional board through their deputy administrative medical officer that payment of such expenses was a matter of discussion with the Ministry. At a later date my basic salary was increased as an interim measure, and I was informed that in view of this any expenses claimed under my former contract would no longer be allowed. In actual fact no expenses have been paid since July 5. Is it your opinion that I can press this claim?*

A.—Although it is true that whole-time salaried hospital officers were transferred on the appointed day without a new contract and on the same terms as previously, this was an interim arrangement pending the settlement of permanent terms and conditions of service. In the meantime the Ministry has effected changes in individual circumstances—e.g., as in the case of car expenses—to bring them into line with the general pattern. The permanent terms will be applied retrospectively, and therefore it would serve no purpose to press for certain payments which might not be allowable under the final terms. The Ministry's proposals regarding study leave (which includes leave to attend conferences and scientific meetings) are set out in the terms (*Supplement*, June 11, p. 314).

Permission for Partnership

Q.—*Can I take a neighbouring practitioner into partnership without reference to the local medical committee? If I do take him into partnership, and if I retire in four to five years, can he automatically take my practice—again without reference to the committee? We are both in the Health Service.*

A.—If the neighbouring practitioner is already on the list it is not necessary for permission to be obtained from the local executive council in order that he may join you in partnership. If the practitioner is not on the list the consent of the Medical Practices Committee for inclusion on the list is necessary before he can join you in partnership. Should you retire in four or five years your partner would have no automatic right to your practice. The executive council will take into account a retiring principal's views as to his successor, but it is for the council to decide what advice it will give to the Medical Practices Committee as to the filling of the vacancy.

Residence and Place of Practice

Q.—*Are there any Health Service regulations limiting the distance at which a general practitioner may reside from his surgery, there being a full-time caretaker at the surgery?*

A.—Yes, a practitioner may not carry on practice elsewhere than at his place of residence or at a health centre, except upon conditions which appear to the local executive council, or on appeal to the Minister, to be such as to enable his obligations under his terms of service, and in particular his obligation to visit his patients, to be adequately carried out. A practitioner is required to attend and treat at the places, on the days, and at the hours to be arranged to the satisfaction of the council.

Private Certificates for Workmen

Q.—(*a*) *Can the doctor charge for issuing to workmen private certificates for their employers or private insurance clubs as regards the workmen's ability or inability to follow their employment?*

(*b*) *Are there any special arrangements in this respect for workpeople working under the Coal Board?*

A.—(*a*) Yes. A doctor can charge a fee for private certificates for incapacity for work. During the war a special form of certificate was issued by the Ministry of Labour and National Insurance (E.D. 652) on which appears the statement that a fee is payable.

(*b*) In some areas collieries and other firms use a special form of certificate. Doctors may be asked to co-operate by using these forms, but they are under no obligation to do so.

Retrospective Terms

Q.—*In March, 1948, I took my Diploma in Medical Radiodiagnosis. Having been a registrar (supernumerary) at a hospital, and knowing them to be short of staff, I offered my services. I was offered, and accepted, the post of assistant radiologist, locumtenent, and took up my duties on June 1, 1948. I still hold the appointment. I now understand that my status has been assessed and that I will fall into one of the "trainee specialist" groups. Referring to para. 5 (a) in "The Proposed Terms and Conditions of Service of Hospital Medical and Dental Staff," can I not claim payment on such a scale from July 5, 1948, and until the termination of my present appointment?*

A.—In its Explanatory Memorandum on the terms of service for hospital medical staff (*Supplement*, June 11, p. 321) the Ministry of Health indicated that it was the intention that, so far as possible, the terms should apply retrospectively to the appointed day. It is reasonable to assume, therefore, that the questioner would be remunerated in respect of the appointment which he has held since the appointed day and as from that date in accordance with his grading.

HEARD AT HEADQUARTERS

Big Agenda

The old Insurance Acts Committee, which generally had more to do than any other Headquarters committee, managed as a rule to get through its business in an afternoon. The General Medical Services Committee, which is its successor, and represents the general practice side of the National Health Service, is finding it necessary to have all-day meetings, so great is the pressure of business and so manifold the questions which arise. At their meeting the other day the members had eleven documents before them. The shortest must have run to a couple of thousand words, and the agenda contained 48 items. The committee sat at its task from 11 a.m. to 6 p.m. It was hoped, in the absence of any emergency development, to have a summer recess, with the next meeting in September, but on looking at its programme the committee found it necessary to meet again at the end of July. The chairmanship of such a committee is on the way to becoming a whole-time job. The same is true of the Consultants and Specialists Committee, which needs a day for its meetings.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

Correspondence

Whole-time Hospital Medical Officers

SIR,—We are writing, one a whole-time hospital medical officer and the other a general practitioner, in the hope of stimulating among doctors but a fragment of the mutual loyalty among dockers.

Now we learn of the blatant unfairness with which whole-time hospital medical officers are to be dealt, as revealed recently by the Ministry of Health in the terms and conditions of service of hospital medical and dental officers (*Supplement*, June 11, p. 314). Para. 5 of this document discloses that for part-time medical officers each so-called notional half-day of up to 3½ hours, in which is included time travelling to the hospital, will count for one-eleventh of the appropriate full-time salary. For 31½ hours worked and travelled, a maximum of 9½ elevenths will be paid. In addition, they can earn up to 800 guineas annually for domiciliary consultations (about 4 weekly), which whole-time officers will perform unpaid (para. 8).

Nowhere does this document define the limit of whole-time officers' hours of work, though, with Civil Service devotion, other obligations and restrictions are enumerated, but, by analogy to the part-time scales, a full-time week of eleven half-days should be 38½ hours. In fact, all full-time medical officers do far longer hours than this with one or more 24-hour spells of duty each week and regular week-end duties of 48 hours tied to the hospital and away from their families.

It reflects on the lack of solidarity in the profession and on the quality of its negotiators that such shabby discrimination against those who bear the burden of the hospital services is tolerated for a moment, that the hourly rate of pay for whole-time officers should be so very much less than for part-time colleagues, and that their hours of work be unrestricted, without pay for overtime and night and week-end duty. It is surely reasonable to demand parity of treatment for whole- and part-time medical officers, especially in face of the Minister's wish to attract the best people to whole-time service.

It is also strange indeed that, the swindle of the senior hospital medical officer status having been permitted, his *maximum* salary as an acknowledged specialist should, without protest, be £28 per annum less than the income Mr. Bevan hopes the average dentist will have after 52% is deducted for expenses.

Whole-time hospital staffs still have an opportunity to attend *en bloc* their local B.M.A. Branches, where there are numbers of frustrated general practitioners awaiting any sign of encouragement and concerted action. An alliance in only a few Branches could turn the machinery of the B.M.A. towards doing something urgently for these two groups and challenge the Ministry to maintain the N.H.S. without them if their grievances are not met.

The alternative is to go on swallowing the betterment factor, the 4d. a week per head encouraging the minimum attention as economically advantageous, for the G.P. no paid holiday or sickness locums, the mileage scandals and whatever next may come, as well as the bitterness of watching the local oculist test his patients' eyes and the dentist fill a tooth for as much as he earns looking after the patient for the whole year. —We are, etc.,

HAROLD BOURNE.
E. B. ALLEN.

Virginia Water, Surrey.

Tuberculosis Group

SIR,—Now that formation of a Tuberculosis Group has been sanctioned by Council, it is to be hoped that the inaugural meeting will be held as early as possible. This group can be of great value to doctors working in the tuberculosis field if the committee is really representative of all regions and of all sections, including registrars.

I hope that the inaugural meeting agree with this view, and that a strong committee will be elected.—I am, etc.,

V. COTTON CORNWALL.

Liverpool.

Dental Anaesthetics

SIR,—I should like to draw attention to the position of payments for dental anaesthetics.

We are paid for extractions of up to three teeth only 10s., independently of what kind the anaesthetic is. I am asked in the majority of cases to administer "pentothal." One gramme of pentothal costs 3s. 6d., so we are left with 6s. 6d. for a full anaesthetic involving often a mileage of over two miles and at least one hour's time.

Disregarding the responsibility involved and the skill required, the payment is much lower than that of an unskilled labourer. My dental colleagues inform me that many doctors are not prepared to give anaesthetics unless in sessions, and are principally reluctant to give intravenous anaesthesia. No wonder! —I am, etc.,

H. MARGULIES.

London, N.W.2.

Grading of Hospital Staff

SIR,—Many letters recently published show the very real dissatisfaction that exists regarding the creation of senior hospital medical officers. Surgeons, physicians, and anaesthetists, many of whom have higher degrees, years of experience, recognition by their colleagues as specialists, and are on the staff of recognized hospitals, are being relegated to this status. Ability seems to have no bearing upon the matter. Their great sin is that they participate in general practice.

One point has not been made clear, and it is that the S.H.M.O. was suggested by our representatives and offered to the Minister, who readily accepted it as a convenient method of "cheese-paring." So the blame rests this time not so much upon the Minister but upon those colleagues of ours whom we delegated to watch over our interests. Surely a matter of such importance should have been put to the profession as a whole, which could then have decided in true democratic fashion. If the machinery of the B.M.A. is impotent to right this wrong, then resignation from the employment of the regional hospital board is our most effective weapon.—I am, etc.,

GUY STEELE-PERKINS.

Exeter.

Rate of Payment

SIR,—Surely the answer to Mr. Donald M. O'Connor's letter (*Supplement*, July 9, p. 46) and to the appended comment by the Secretary of the Association is that, as soon as our lists have been cleared, we should press for fixed universal payments and for the abolition of the central pool. Let us all have fixed capitation fees, mileage, and temporary resident fees. This would mean an end of the pool, that bottomless pit from which everything seems to be frittered away before it reaches the practitioner. Then at least we should know where we stand from one quarter to the next.

This should require no magic financial jugglery to budget for. We already have fixed fees for maternity work, and the dentists, opticians, and pharmacists have fixed payments for items of service. It should be far easier to anticipate the sum likely to be involved in our case than in any of these other cases.—I am, etc.,

D. R. MACDONALD.

Inverness.

General-practitioner Consultants

SIR,—I am sorry that Mr. Richard de Soldenhoff (*Supplement*, July 16, p. 51) formed the opinion that Dr. T. N. Rudd and I had deliberately left out the fact that G.P. consultants are paid for their State services, and that he seemed to feel that a concealed desire to retain monetary advantages was a strong motive behind our attempt to put the case for those who practise medicine as we do. We thought that everyone would know that payment was being made for our State services and felt sure that, had he not been a whole-time specialist, he would have realized only too well that loss of private practice has, almost everywhere, far outweighed any income that is now received from State sources.

I am sorry, too, that he considers our arguments specious, and I would like to take this opportunity to try to assure

him that it was a very genuine effort on our part to put the case for a way of life and a method of service to which we are devoted and in which we whole-heartedly believe. We do not wish to be involved in any invidious arguments about relative efficiency, but we believe that, in the straightforward cases in which we endeavour to give our best, the relative advantage of a possible loss of a slight degree of efficiency is far more than balanced by the increased human handling, born of close contact and personal acquaintance.

With regard to his strong point about efficiency: perhaps it will suffice to say that no treatment is undertaken unless we feel quite sure the experience available to us makes us competent to perform it efficiently; otherwise it is readily passed on to other hospitals and specialists more expert in those cases than ourselves. This the G.P. consultant has to do to safeguard his local reputation.

I trust he and others in the profession will think again before damning to eventual extinction a section of his profession which he admits has rendered valuable and irreplaceable service, and will allow us a chance to make our full and honest contribution to personal medical service.—I am, etc.,

Tiverton, Devon. GEORGE LOWE.

His Own Doctor

SIR,—The ruling that doctors may not prescribe for themselves under the N.H.S. is a type of restriction which will only embitter the profession still more against the Service. It is a petty and unnecessary regulation, which suggests either that we are no longer to be regarded as professional men and women of integrity with a sense of responsibility or that most of us are potential drug addicts.

It has always been the custom for us to treat ourselves for all ordinary ailments, only calling on our colleagues for those that are more serious or when we feel that the responsibility would be shared or lifted. After all, if there is evidence that we have over-prescribed, the Minister has a remedy. This is a fatuous ruling which should be resisted on principle.

Are we expected still further to subsidize the Service—as if we had not done enough already—by buying our own remedies, or are we to put notices outside our waiting-room doors: "Surgery closed—Doctor has gone to his own doctor to obtain a prescription for a bottle of linctus"?—I am, etc.,

London, S.W.19. A. D. BELILIOS.

H.M. Forces Appointments

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

Captains F. W. Newby-Good, E. J. Ewell, G. V. Cole, A. M. Stalker, and J. D. Finnegan have been granted the acting rank of Major.

Lieutenants G. A. Bell, R. Semple, S. R. F. Whittaker, C. T. A. Burgess, O.B.E., J. P. Mitchell, P. M. Davies, F. C. Garrow, and R. W. Biagi to be Captains, and have been granted the acting rank of Major.

J. F. Philip to be Lieutenant, and has been granted the acting rank of Major.

REGULAR ARMY: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

Captains C. W. G. Cough and I. B. Sen Gupta have relinquished their commissions and have been granted the honorary rank of Major.

War Substantive Captains J. W. Doupe, T. R. Morley, G. H. Henry, and A. G. Richards have relinquished their commissions and have been granted the honorary rank of Major.

COLONIAL MEDICAL SERVICE

The following appointments have been announced: W. R. G. Thomas, M.B., Medical Officer, Tanganyika; J. Goodey, M.R.C.S., Medical Officer, Specialist (Temporary), Jamaica; Miss E. W. Smith, M.B., D.M.R.E., Radiologist, Barbados General Hospital; R. S. Johnston, M.B., D.T.M.&H., D.P.H., J. C. Milne, M.B., D.T.M.&H., D.P.H., and C. H. Williams, M.B., D.T.M.&H., D.P.H., Superscale Medical Officers, Grade A, Federation of Malaya; R. E. Anderson, M.B., D.T.M.&H., D.P.H., H. Scrimgeour, M.B., D.T.M.&H., and T. F. Strang, M.B., Superscale Medical Officers, Grade B, Federation of Malaya; C. E. Bevan, M.R.C.S., D.T.M.&H., Medical Officer Specialist (Tuberculosis), Cyprus; A. C. E. Cole, M.D., M.R.C.P., D.T.M.&H., Medical Specialist, Tanganyika; J. W. Field, M.D., Director of the Institute of Medical Research, Federation of Malaya; R. B. Heisch, M.B., Senior Pathologist, Kenya; J. F. MacDonald, F.R.C.S., Senior Specialist (Surgical), Northern Rhodesia; D. J. M. Mackenzie, M.B., Director of Medical Services, Nyasaland; J. Taylor, M.B., D.T.M.&H., D.P.H., Medical Officer of Health, Fiji; E. M. McLean, M.D., Medical Officer, Grade B, Trinidad; L. A. H. McShine, M.B., Medical Officer, Grade A, Trinidad; M. S. Sindhu, F.R.C.S., Medical Officer, Aden.

Association Notices

AREAS OF HOLLAND AND LINCOLN DIVISIONS

Notice is hereby given by the Council to all concerned that it is proposed to transfer the following areas from the Lincoln to the Holland Division:

Urban District of Skegness.

That part of the R.D. of Spilsby comprising the Civil Parishes of Wainfleet all Saints, Friskney, Stickney, Croft, New Leake, Eastville.

Any member affected by this proposal and objecting thereto is requested to write to the Secretary of the Association by Aug. 27, 1949, stating the objection and the ground therefor.

CHARLES HILL,
Secretary.

ADJUSTMENT OF AREAS OF CORNWALL AND PLYMOUTH DIVISIONS

Notice is hereby given by the Council of the following proposal made by the Plymouth Division:

That the Urban Districts of Torpoint, Looe, and Callington, the Municipal Boroughs of Saltash and Liskeard, and the Rural Districts of St. Germans, Calstock, Liskeard, and Launceston be transferred from the Cornwall Division to the Plymouth Division.

Any member or Division affected by the proposed changes and objecting thereto should write to the Secretary of the Association by Aug. 30, 1949, stating the objection and the grounds therefor.

CHARLES HILL,
Secretary.

Meetings of Branches and Divisions

BOLTON DIVISION

The annual general meeting of the Bolton Division resolved to circularize all practitioners in the area about the B.M.A. policy concerning Public Health Service:

"The Association has made repeated attempts during recent months to open negotiations on permanent scales of remuneration for medical officers in the Public Health Service. Owing to the unwillingness of local authorities to begin discussions under the machinery recommended by the Government for this purpose, the Council is not prepared to accept local authority advertisements for publication in the *British Medical Journal* unless the salaries offered are in conformity with the Association's own proposals.

"It is believed that some local authorities contemplate approaching general practitioners to undertake extra part-time duties and thus cover the work normally falling within the province of a whole-time medical officer. A strong appeal is made on behalf of the Council of the Branch to general practitioners to decline such offers.

"Inherent in this dispute with the local authorities is the question of compulsory arbitration, an issue of crucial importance to the general practitioner as well as to the public health medical officer. If every member of the profession co-operates by declining to apply for, or to accept, any appointment of the kind referred to in this note, the day when negotiations can be opened will be appreciably hastened."

SURREY BRANCH

The following officers were elected at the annual general meeting on June 22. President: Dr. L. J. Barford. President-elect: Dr. S. A. Forbes. Vice-presidents: Dr. R. R. Powell and Mr. R. M. Savege. Hon. secretary and treasurer: Dr. J. W. Starkey. Hon. auditor: Dr. H. R. Cran. Public health representatives: Dr. K. A. Soutar and Dr. S. L. Wright.

Correction

In our report of the Roman Catholic service held at Harrogate on June 30 (*Supplement*, July 9, p. 41) we incorrectly said that the address was given by the Bishop of Leeds. In fact it was given by the Reverend H. P. Hennelly.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 6 1949

TUBERCULOSIS: CERTAIN UNEXPLAINED MORTALITY FIGURES*

BY

The Right Hon. WALTER ELLIOT, *M.C.*, F.R.C.P., F.R.S., M.P.

I want here to deal with a subject which necessarily involves statistical tables and the scrutiny of certain factors of incidence of disease. I am well aware of the desirability of the very greatest and closest attention to these things in detail and for the most meticulous accuracy. Therefore I am afraid that on this occasion I must add the letters with which we are not unfamiliar in the scrutiny of accounts—E. and O.E.—"errors and omissions excepted." You must in fact take this more as a general survey than as a very close scientific examination—all the more so since the factors with which I am dealing are not anywhere fully explained, and are not at the moment the subject of any consensus of scientific opinion. I draw attention to the trends; the conclusions to be drawn are admittedly extremely hypothetical. I wish to discuss the figures representing a certain unexplained mortality in tuberculosis, particularly pulmonary tuberculosis, in the northern half of Great Britain, and more particularly in Scotland. Scotland is a very convenient statistical unit from many points of view; it is a smaller and more manageable country, and its figures are sometimes published ahead of the corresponding figures for England.

Tuberculosis Rates

Tuberculosis rates are, it is agreed, among the most important indices of the state of the public health. I think it will be agreed that the steady fall in tuberculosis mortality in the United Kingdom has been a notable feature of public health figures for many years. The rates for pulmonary and for non-pulmonary tuberculosis each have their special significance. For my purpose it is desirable to examine them separately, where possible, although the combined rates have also, of course, great importance.

Just to run over the background picture. The death rate for pulmonary tuberculosis per 1,000 of the estimated population was, in 1851, for England and Wales, 2.78. In the next 45 years it fell to almost exactly half: it was 1.34 in 1897 and 1.31 in 1898. The fall continued. By 1910 the rate had dropped to 1.02 and by 1920 to 0.87, in spite of the war. The fall still continued; in 1930 it was 0.72; in 1938, before the outbreak of the last war, it was 0.52. These figures follow the recognized course, a course which finds a general parallel in many other countries, even in those greatly ravaged by war and suffering in consequence from various degrees of malnutrition and overcrowding.

There was a short and slight rise of the figures in England and Wales in the early war years, but the rise was neither alarming nor continued. The unexplained figures to which I should like to draw attention are those for Scotland. The curves in the two countries for many years followed the same general course. The death rate per 1,000 for pulmonary tuberculosis in England and Wales was, for example, 0.72 in 1931. In Scotland it was 0.62. In 1938, when, as I have said, the rate in England and Wales was 0.52, the rate in Scotland was also 0.52; that is to say, the falling rate in England had gone faster than in Scotland, and the two were at the same point. The rate in Scotland, however, reacted to 0.63 in 1941, and continued at 0.62 for 1942, 1943, and 1944. This was all the more strange since the destruction of houses owing to aerial bombardment was very much greater in England than in Scotland, and the regular crowding together of the population by night in air-raid shelters, which was such a feature in London during the blitz, had no parallel in Scotland. The Ministry of Health viewed with very great apprehension the result of those enormous numbers of people herding together at night, and sleeping in crowded shelters, out of their homes, during the war years.

Increase of Pulmonary Tuberculosis in Scotland

In 1945, at the end of the war, the Scottish pulmonary tuberculosis rate declined to 60 per estimated 100,000. It appeared to be about to follow the decline which was taking place in England, but this was not borne out by events. The estimated rate for 1947 rose to 66 per 100,000, and this figure was repeated in 1948. No figure so high has been recorded in Scotland for 20 years.

These figures do not seem to be due to any statistical fallacy. Notifications may be, and are, subject to changes due to greater accuracy in diagnosis and to the extensive use of *x*-ray surveys. In an *x*-ray survey among the students of one large city in Scotland, of the total examined—3,465—the rate of significant tuberculosis detected was: for females, 1.95 per 1,000, and for males 2 per 1,000. A statement issued by the Ministry of Health in March, 1949 (*British Medical Journal*, 1949, 1, 493), said that by June 30, 1948, about 2,500,000 persons had been examined by mass radiography. The number of cases in which clinical diagnosis of active tuberculosis was subsequently made was approximately 9,564, or between 3 and 4 per 1,000 of all persons examined. It is not more than one would expect. The post-war notifications cannot be exactly compared with those of the pre-war years; but I think the post-war notifications can quite justly be compared with each other, and, taken in conjunction with the actual deaths, they present this feature of a rise in pulmonary tuberculosis in which Scotland is exceptional.

In 1945 the notifications in Scotland, which pre-war had been 4,700, rose to 7,300. As I say, a certain proportion of that has to be discounted owing to greater accuracy in diagnosis, but not all of it. In 1946 the notifications

*Presidential address to the Royal Institute of Public Health and Hygiene given on Thursday, May 26.

were 7,627; in 1947, 7,984; and in 1948, 8,208. The deaths follow a similar curve. The deaths from pulmonary tuberculosis in Scotland—and that is as near a watertight statistical figure as you can get, for people are not certified as having died from pulmonary tuberculosis unless there is a fairly strong certainty that that is the cause of death—in 1945 were 2,932; in 1946, 3,231; in 1947, 3,390; and in 1948, 3,417. It is clear, therefore, that the upward trend of notifications is followed to a certain extent by an upward trend of deaths. In 1948, as I have pointed out, the figures are the highest yet; and the 1948 figures are important because they refer to a year with an exceptionally mild winter, as against the exceptionally severe one of 1946–7, which might reasonably have been expected to produce a rise in pulmonary disease of all kinds. The curves are shown in Fig. 1. The figures for respiratory and non-respiratory tuberculosis move quite reasonably until 1939. Then there is a startling rise in notifications of cases of respiratory tuberculosis, and the curve runs on to a plateau. There is no sign whatever of a movement downward. The mortality rate for respiratory tuberculosis follows the notification rate upwards at a short distance.

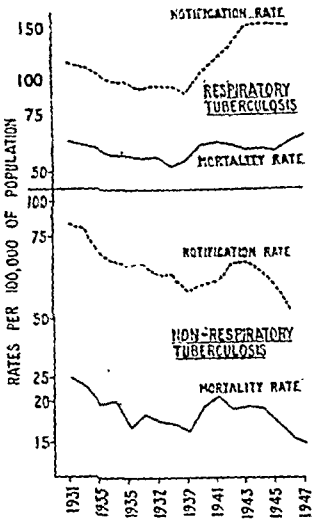


FIG. 1.—Notification and mortality rates of respiratory tuberculosis compared with those of non-respiratory tuberculosis in Scotland.

In contrast to the pulmonary tuberculosis rate, the non-pulmonary tuberculosis rate shows a drop both in number of notifications and mortality. It seems as though after a period of time the curve were resuming its normal shape. I need not remind you of the intense campaign being waged for the purification of milk. It will be seen, therefore, why I decided that it was more advantageous to examine those two curves separately, not combining the curve for the pulmonary cases with that for the non-pulmonary. In that way there will be no misleading conclusions.

Decline in England and Wales

The interesting thing is that this rise is not parallel in the general statistics south of the Border. In England and Wales the notifications of pulmonary tuberculosis were: in 1945, 42,100; 1946, 42,100 (I am leaving out the last two digits); 1947, 43,100; 1948, 43,900, a slight rise. These figures are only to be compared with each other; it is not so useful to compare closely the figures for England with those for Scotland, because the details are different. On the other hand, the deaths were: in 1945, 20,013; 1946, 19,365; 1947, 20,156; 1948, 19,089. It is clear that something quite different is happening in the two countries, and the really interesting question is. Does it stop at the Cheviots, at the artificial political frontier, or not? A striking difference would not be expected between Newcastle and Galashiels and between Lancashire and Lanarkshire.

At this point it is interesting to note that the Scottish figures are high amongst European countries, whilst the English figures are low. We are dealing here not merely with a rise but with a rise in a country with a high tuberculosis figure. In England we are dealing with a fall in a country with a low tuberculosis figure. The most recent death rates from all forms of tuberculosis per 1,000 are as follows: Denmark, in 1946, 32; New Zealand, in 1945, 38; United States, in 1945, 40; Sweden, in 1946, 51; England and Wales, in 1946, 55; Belgium, 66; Switzerland, 76; Scotland, 79; France, 81; Northern Ireland, 83. It will be seen that even in 1946 there was a wide gap between the rate in Scotland (79) and the rate in England and Wales (55). A breakdown of these figures amongst the Scottish towns shows a very high figure in the great industrial centre of Glasgow, and to a smaller extent in Dundee, while Edinburgh is lower, and Aberdeen, surprisingly enough, is lower still. The industrial County of Lanarkshire follows Glasgow. Caithness and Orkney follow Aberdeen. In 1946 the death rate per 100,000 for all forms of tuberculosis was: in Aberdeen 46, in Edinburgh 76, in Dundee 87, and in Glasgow 132. This compares with figures of 42 for New York, 44 for Copenhagen, 51 for Amsterdam, 56 for Stockholm, 78 for Paris, and 110 for Madrid. The rate for Glasgow was a long way above the rate for Madrid.

I have set out here, by courtesy of the Department of Health for Scotland (to whom I am also indebted for the graphs of Fig. 1), the run of the curve as you might have expected it and the run of the curve as it is actually working out (Fig. 2). The curve plotted out from 1931

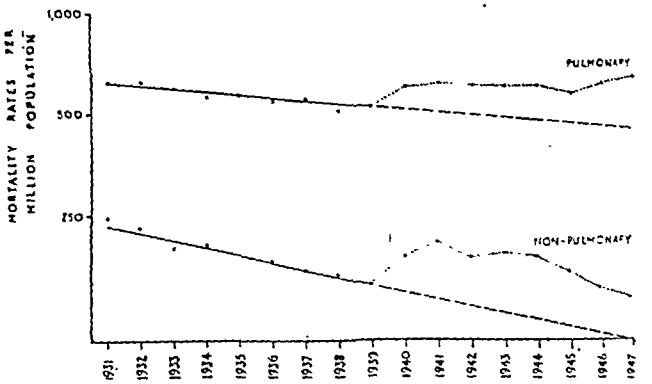


FIG. 2.—Graph showing mortality rates of tuberculosis in Scotland, together with expected curve from 1939–47.

is projected (broken line) on to 1947, with the figures on either side of the line up to this rise of which I have been speaking. The projected line shows how the figures ought to have gone; the dotted line shows how they actually went. The non-pulmonary curve, according to the latest figures, has a trend satisfactorily downwards along the projection, but the pulmonary curve has a trend upwards, away from the projected line.

"Slope to the North"

To come to the next point of which I spoke, the question of the English figures, can we draw any conclusions from an analysis of the figures in England? I believe it is true to say that a "slope to the north" can be discerned. The rate for all forms of tuberculosis in 1946 was 66 in Birmingham, 79 in Manchester, 89 in Liverpool, and 92 in Newcastle. I think it is clear, therefore, that a certain masking of the trends in England is taking place, owing to the averaging of the north and south. It is still more interesting that in the northern areas the rates have tended to rise and this at a time when the overall rate in England and Wales has continued to fall. As I have said, it would be very queer if completely different trends were shown in Lancashire as against Lanarkshire. The deaths per 100,000 from pulmonary tuberculosis in Lancashire were 70.9 in

1945, 75.1 in 1946, and 76.1 in 1947. The same trend shows in the West Riding of Yorkshire, a county with a great population which can give one a reasonably reliable statistical figure. It is a lower rate, but lately it has moved upwards. That is all the more interesting, since the West Riding figures for the last 50 years or so have been below the average of England and Wales. They are at present tending to rise. The rate was 54.9 in 1945, 53.7 in 1946, and 58.8 in 1947. For Durham County the figures are: 43.0 in 1945, 41.4 in 1946, and 47.4 in 1947.

I do not wish to lay too much emphasis on this trend, because I have not the 1948 figures for those counties, and all these figures may still be distorted by the incidence of the very long and severe winter. In Scotland, as we saw, they have been able to cross the bridge and to give figures for the following year, when the winter was mild. I would therefore not lay too much stress on the rise that occurred in the three northern English counties mentioned. On the other hand, it is true that even in those severe winters this rise did not take place in other areas. It did not take place in Northern Ireland, though the figures there are high, nor in the City of Belfast: nor has it taken place to the same extent in either the cities or the counties of Wales.

Of course in Northern Ireland we are dealing with smaller figures, but there the actual deaths from pulmonary tuberculosis were 799 in 1945, 849 in 1946, and 761 in 1947; and in Belfast 328 in 1945, 343 in 1946, and 281 in 1947. It also is rather odd that the rise did not show itself in the cities or the counties of Wales. In a very great industrial centre such as South Wales roughly the same trend would be expected as is found in Liverpool and in Glasgow. In Glamorgan County the actual deaths were 416 in 1945, 432 in 1946, and 432 in 1947; in Cardiff the actual deaths were 178 in 1945, 164 in 1946, and 161 in 1947. We all know the fallacy of small numbers either in death rates or in any other form of statistical analysis. I do not wish to stress these figures, but it certainly would not be true to say that in them you can detect a rise.

Causes of Upward Trend

Now it is very difficult to see what factors can have changed adversely in the industrial North which have not changed in industrial Wales or in industrial Southern England. What is affecting Glasgow which is not affecting Birmingham and Cardiff? The factor, whatever it is, seems to be associated elsewhere at least with industrialism. The rise in Scotland is mostly in Glasgow and Lanarkshire. The upward trend in Northern England is shown in the industrial counties of Durham, Lancashire, and the West Riding. It is not shown in the neighbouring more-agricultural counties of Northumberland and Cumberland. On the other hand, no rise at all is shown in Sheffield or Leeds. The housing conditions in the northern towns in general have been worse than those in the south, yet one might say that the deterioration, if anything, was greater in Birmingham, Manchester, and, of course, London, all of which suffered wide destruction of houses from air bombardment.

There is another factor which might have to be examined —not so much a deterioration as an equalization. The rationing system has tended to level out any differences in consumption of food and fuel. I think it is probable that, pre-war, there was a greater consumption of food and fuel as one moved northwards. At any rate, the housing was worse, and in general the rents were lower and the surplus available for food was greater. It is possible that the ironing out of these things has increased the impact of climate and housing, and that that is at least partly responsible for the figures I am mentioning.

As you know, the Secretary of State for Scotland has actually instituted an inquiry into the Scottish position. The committee in question has not yet reported, and I think that its first report will be mainly of a factual nature. So far as I know, this committee has not yet arrived at any explanation. And so the fascinating picture is before you of a detective story half read. We do not know the criminal. It is up to us to exercise our intelligence. The field is open; anyone may gain great fame and reputation by solving the puzzle. It is a very remarkable thing in the history of public health that one of the major diseases, one which has been under such careful examination for so many years and has been so closely surveyed in every way, is at present subject to a movement that is entirely unexplained by those who have either the responsibility of dealing with it or the responsibility of giving advice upon it. From the administrative point of view this problem has, naturally, to me the very highest fascination.

Non-respiratory Tuberculosis

I promised to mention the non-respiratory curve. That curve has moved down, as one would expect, I think, *parallel with the "cleaning up of the herds."* It was, however, puzzling to us in Scotland that our figures remained above those of England, although the cleaning up of the herds has gone much farther in Scotland than in England. That story, however, so far has a happy ending, because the most recent figures of 1948 show that the curve has come down with a run and is only just above that for England. The non-respiratory mortality rate, which in England and Wales was 10 in 1945, 8 in 1946, and 8 in 1947, left us with an unexplained problem in Scotland, where it was 18 in 1945, 15 in 1946, and 14 in 1947. However, the 1948 figure comes down with a run to 9, so it looks as if wisdom were being justified of her children there. But that simply means that that curve is doing what one would expect—it is following a recognized course, the campaign is producing results.

Conclusion

To summarize, the fascinating curve is the one which is not doing what we expect, which is moving the other way—the campaign is not producing results. A doubly interesting point is that in England, where the combination of the various parts of the island is producing a general curve, it would appear, breaking it down more closely, that the curve is not similar in all parts of the Kingdom. Wild speculations may be made; they are as likely to be right, or at any rate to form as reasonable a point of departure, as any other at the moment. One speculation is that there may have been an introduction of a more active strain of infection into Scotland in the considerable Polish migration that took place in the early days of the war. It may not be so; but, at any rate, there certainly was a mass movement to our country of a population which in its own country is highly susceptible to tuberculosis and has a high tuberculosis rate—a population which afterwards was intermingled very intensively with the Scottish people. That may be an entirely erroneous line of inquiry. But when you are faced with an unexplained set of facts you must consider all the likely and all the unlikely explanations. It is possible that the unlikely explanations are quite as right as the likely explanations. Here, then, is a fascinating problem of public health to which no solution has yet been found. I commend it as an example of how to-day it is still possible to find unexplained problems, and of how it may be possible, by the use of intelligence and by industry, for any investigator to find an explanation of facts which so far have baffled everyone.

PROBLEMS OF AGEING AND CHRONIC SICKNESS*

BY

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In my first lecture I recalled impressions gathered from a general review of several infirmaries and presented a more detailed analysis of the patients of one large institution. Before I discuss the clinical material as a whole I propose to describe some conditions that deserve more attention than they have hitherto received. They fall into four groups: (1) Extreme contractures developing without apparent lesions in either the nervous or the locomotor system. (2) Some peculiar conditions of the feet. (3) Unusual phenomena in the late stages of vascular hemiplegia. (4) Incontinence.

Contractures

The contractures to which I would draw attention are usually found in very old people who have been long in bed. The posture is one of extreme flexion; the knees are drawn up to the abdomen, the heels touch the buttocks, the arms are held close to the sides, with the elbows bent so that the hands are close to the mouth, and the chin rests on the chest. The wrists and fingers and sometimes one elbow are freely movable; when feeding, either hand is used to stuff food into the mouth without the help of spoon or fork. The attitude recalls that of the intrauterine foetus. Such patients are difficult to examine. Left to themselves they pull the bedclothes over their faces and lie motionless for hours. In all that we have examined we have found the plantar responses flexor, but it was hardly possible to be certain of the tendon reflexes. Rough testing of sensation showed no gross change, but vibration sense was absent. Attempts to straighten the limbs were obviously painful.

There was no history of arthritis or any detectable abnormality in the joints. A few of these old people talked freely and sensibly when they were roused, but they certainly preferred to be left alone. Invariably they were totally incontinent.

We speculated much about the cause of this condition, which I had never encountered before; it may be that there is some degeneration in the central nervous system that accounts for it, but the extraordinary agility of the fingers of both hands in manipulating food makes that explanation improbable. Eventually we came to the conclusion that the very old adopt a position of flexion in bed in order to conserve heat; for the same reason they pull the bedclothes over their heads and rebreathe their expired air. In the course of time the immobile muscles are fixed in one position. It is likely that regular massage and passive movement would prevent this horrible and distressing distortion. If, as is common in cases of arthritis, the contracture of the legs is not symmetrical and one thigh rests across the other, extraordinary atrophy of the soft tissues occurs at the place of pressure, so that the femur may be felt almost immediately beneath the skin on the medial aspect of the thighs. The tissues adjacent to the place of contact seem to be moulded round the opposite limb.

*The second of two Lumleian Lectures delivered at the Royal College of Physicians of London on April 5 and 7. Lecture I was published in last week's issue.

The Feet

The deplorable condition of the feet of the aged poor is notorious. On admission to the infirmaries many patients have deformities not only of the toes and feet but also of the nails which must have made walking painful. In some the nails grow to such an extent that they are bent over by the shoe and bury themselves in the soft tissues on the under side of the toe. Relief of this distress by rest in bed leads some of them to avoid activity, and soon they become permanently bedridden. We have no doubt that the deformities are increased, and in a few cases caused, by the pressure of bedclothes tightly tucked in. In many patients lying supine we found the terminal phalangeal joints flexed with the skin shiny from the pressure of the sheet; the great toe later is inclined outwards, usually on the dorsal aspect of the foot in the position of extreme hallux valgus, but sometimes it is pressed under the other toes and comes to lie on the ball of the foot so that when the patient tries to stand the weight is borne on it.

As an example to show how so simple a deformity may wreck an individual life I recite this simple history.

A woman aged 58, in active work in a factory in 1940, fell and broke her humerus. She was admitted to hospital; there was some difficulty with the fracture and she lay in bed for two months. She then got up, but complained that walking was painful and was put back to bed. As she persisted in her complaints she was transferred to the infirmary, where she lay for over seven years. She was the picture of health, and her only disability was that the big toe lay transversely under the ball of the foot. Treatment was refused, because she did not wish to leave the institution in which she had been treated so kindly.

Steps have now been taken to supply simple "cradles" to all the beds.

Hemiplegia

The common consequence of a vascular lesion involving the internal capsule is familiar: spastic paralysis in extension of the leg on the opposite side; adduction of the arm at the shoulder, flexion of the elbow, and sometimes extreme flexion of the wrist and fingers with rotation of the forearm. In a few the flexion of the fingers is sufficient to cause the nails to make deep grooves in the palms of the hands. We were surprised to find in a number of patients some years after the original stroke that the posture of the limbs varied from the usual pattern. In some there was gross flexion of the affected leg with the knee drawn up to the belly, and the arm might be either extended or flexed at the elbow. At first we thought that the variation was the result of another stroke, but we could obtain no history suggestive of an episode of that kind: several experienced nurses assured us that the postural pattern of the affected side of the body slowly and almost imperceptibly changed in the course of years, and some considered that the flexion deformity of the leg could be prevented by massage, movement, and daily traction. We examined a number of these anomalous cases in great detail; there were no demonstrable sensory changes, and the departure from the usual pattern could not be related either to spontaneous activity after the stroke or to any form of physical treatment or position in which the patient had been nursed. It is of course conceivable that these irregular postures developed as a result either of slowly progressive thrombosis around the original lesion or of independent vascular occlusions in other situations which we failed to trace. If the observations of the nurses about the slow insidious course of the change in posture are correct (and I have no reason to doubt them) there is an

obvious need for careful study of the morbid nervous anatomy of these cases.

We noticed, too, in a few cases some difference between the texture of the skin on the paralysed and unaffected legs, and we propose to investigate this by biopsy to see whether inactivity of a limb leads to demonstrable structural change in the skin.

Incontinence of Urine

Incontinence in the aged and chronic sick is the most serious of all the problems in the day-by-day management of an infirmary. The burden that it places on the nursing staff needs no emphasis. I remind you only that no fewer than 457 were always or occasionally incontinent out of a total of 943 bedridden patients when we began our survey. The cost in laundry and in the wear and tear of bed linen is formidable. Preliminary analysis shows that a large proportion developed incontinence after admission to the institution and confinement to bed for varying periods. Of the 714 patients included in the survey 252 were incontinent—79 males (25%), 173 females (44%). The proportion is smaller than the one given to us on our first visit because our figures exclude some of the occasional and accidental offenders. Of the 252 cases 97 were certainly incontinent on admission, but no fewer than 108 lost control of the bladder while in the infirmary; in 47 cases the date of the onset was unknown.

In only one-quarter of all the incontinent cases was it possible to find a physical condition that might reasonably be considered to be the cause of it, but no investigation worthy of the name has been possible. An important result of our analysis of this symptom was the fact that in these patients incontinence in either sex was not a consequence of age; there was very little difference in the incidence in the ten-year groups 60 to 69, 70 to 79, and over 80.

In the Leeds survey the proportion of incontinent patients was much smaller (males 8.5%, females 10.5%). I have already suggested that the better condition of Affleck's cases may have been due to greater activity in the wards.

There was general agreement that incontinence could not be avoided by "screening" rounds even at very short intervals; patients might be left with bed-pans for ten minutes without result and the beds would be soiled within a few minutes of their removal. We tried the effect of acetylcholine derivatives to produce a result while the bed-pan was in position, but the experiment failed and the patients resented the injections. It had been noticed that if bedridden patients were encouraged to get up and move about with help from the nurses the incontinence often ceased, but the labour of getting them out of bed and caring for them when up was greater than that of cleaning them every four hours and was too much for the small staff.

The reverse was also true: a few clean bedridden patients became incontinent when they were removed from bed—especially if the adventure was undertaken against their wishes—and it was clear that evacuation of the bladder and bowel was with several of them a sort of protest against the disturbance of their peace.

These facts suggest that much incontinence in infirmaries is due to psychological disorder induced to some extent by institutional routine, although it may also be aggravated by infection and local pathological changes. The patients do not seem at all distressed by it, and this supports the view that the mental factor (the lack of conscious inhibition) is more important than the overactivity of the bladder mechanism that Wilson (1948) found by cystometric methods.

Psychologists have expressed the opinion that incontinence in the senile is a form of regression to the anoral eroticism of infancy. It may be so. I lack the training and ability to explore the unconscious motivation of the incontinent who were brought to my notice. The analysis must, I think, be difficult.

Of one thing I feel confident—that the burden of incontinence will not be reduced until it is possible to ensure greater activity and more effective treatment to the senile and chronic sick than is now possible with the restricted staffs of the infirmaries.

The Clinical Material

The patients of a large infirmary are a rich mine of clinical material for teaching and investigation. Strange phenomena of human pathology abound, and one of my registrars, after a happy afternoon with cases of hereditary cerebellar ataxia, Huntington's chorea, and paraplegia due to localized Paget's disease of the spine, remarked that the place was a censor's paradise. The simile is fair, but lacks precision; his recent struggle for the membership of this College had perhaps clouded his judgment of the appropriate paradise for censors.

Our original intention was a clinical classification of the patients based on accurate diagnosis, but, apart from the inherent difficulty of the extent and variety of the material, we were confronted with so many individuals who showed evidence of numerous distinct and serious pathological processes in one body at one time that we found it impossible to classify them even by "systems." This was true in at least half the cases, and in the remainder a single diagnosis was often not more than approximately accurate because in achieving it the psychological condition, the blood pressure, and the state of the arteries might be conveniently ignored. We eventually decided to classify the patients according to the condition which seemed most disabling at the time of survey. Thus, in Table V, "cardiac conditions" include only cases of gross cardiac failure and not those with symptoms of cardiac insufficiency. Chronic bronchitis with heart failure was classed as cardiac; advanced arthritic changes with hemiplegia were counted as arthritis, and severe hemiplegia with moderate arthritis was reckoned as cerebral thrombosis, and so on. In the senile groups were the extraordinary contractures that have already been described. The final result, for the reasons that I have given, is of dubious value. The large numbers of cases with multiple pathology led me to heretical criticism of the theory of the single diagnosis.

TABLE V.—*Diagnostic Category of Most Disabling Condition at Time of Survey*

Chief Disability	Males				Females			
	No. of Cases	% of Total	Mean Age (Years)	Mean Stay (Months)	No. of Cases	% of Total	Mean Age (Years)	Mean Stay (Months)
Cerebral thrombosis	73	23	72	23	61	16	73	37
Senility	43	14	79	47	67	17	83	39
Cardiac conditions	29	9	73	23	46	12	77	33
Chronic bronchitis	27	8	76	28	33	8	75	42
Arthritis	20	6	74	44	53	13	75	45
Result of fractures	16	5	75	44	16	4	78	27
Nervous disease	15	5	60	70	5	1	61	44
Dementia	14	4	76	17	33	8	82	31
Cancer	13	4	73	7	12	3	73	10
Parkinsonism	12	4	62	47	13	3	64	50
Tuberculosis	3	1	66	28	2	1	51	8
Prostatic disease	11	3	77	35				
Other diagnosis	21	7	72	39	41	10	72	45
No diagnosis	21	7	74	31	14	4	67	23
Total	318	100	74	34	396	100	76	37

The Theory of the Single Diagnosis

This dogma of the single diagnosis holds almost undisputed sway in English medical teaching. It is founded on the simple faith that if we are clever enough and thorough in our investigation of a clinical case we will eventually be able to show that all the symptoms and all the physical signs are the result of a single process of disease. The appropriate label may then be affixed, honour is satisfied, and the dogmatic are content. I do not think I exaggerate. On all sides I hear the warning, "Don't diagnose two diseases simultaneously." Those about to give classes search diligently for good teaching material, by which they mean cases which permit the plausible demonstration of the validity of the theory: clinical examinations are conducted to test (among other things) ability in this exercise.

I can find no specific account of the origin of the theory: I suspect that, like Topsy, "it just growed" in the nineteenth century under the stimulus of the triumphs of exact science and with the development of morbid anatomy, the discovery of micro-organisms and the consequences of their invasion, and particularly, perhaps, with the elucidation of certain obscure syndromes and their constant association with gross lesions in particular organs. Consider, for instance, Addison's disease of the suprarenals—its strange and perplexing symptoms and signs and the splendid demonstration that they were hardly ever found in a patient without manifest destruction of one or both of two small glands.

The discovery of the bacillus of tuberculosis, the definition of the architecture of the basic lesion, and its natural history showed that many very dissimilar clinical conditions were in truth the result of a single pathological process. Before this advance had been made it was difficult to believe that there could be a unity linking chronic phthisis in the adult with tuberculous meningitis in the infant, although a few physicians with prophetic insight had suspected it. The proof that the pale spirochaete was the cause of all the varied lesions of syphilis and especially of general paralysis and tabes, had a like influence, and it is unnecessary to multiply examples.

The human mind longs for order, and soon the theory of the single diagnosis was born and waxed mighty. And indeed it served a very useful purpose, for adherence to it undoubtedly led to more careful examination and more accurate classification of clinical syndromes. Pragmatically the theory was justified; it worked. Later it was buttressed—as useful theories are often buttressed—by somewhat dubious argument. A hypothesis of independence was introduced (I do not know whence) which stated simply that, as in human beings serious disease apart from epidemics was a rare event, it was inherently improbable that two serious processes of disease would coexist in the same person. But this argument neglects important facts.

First, a person who is already the victim of one serious disease is often as a direct result more prone to develop another. Consider, for example, the high incidence of cancer in the post-cricoid region in patients who have suffered long from an iron-deficiency anaemia, or the frequency of arterial degeneration in the diabetic. Textbooks recognize the coexistence of serious diseases, but in deference to the theory of the single diagnosis they call one of them a complication of the other.

Secondly, a disease which in a healthy man is but a trivial affair may in those already subject to a serious malady assume lethal significance. A sore throat in a strong young man is unpleasant; in the victim of chronic nephritis it is something worse.

Thirdly, the longer a man lives the more likely is he to bear scars and disabilities of previous indiscretions and random attacks of disease which may in part be balanced by the acquisition of "immunological wisdom" by his tissues. The response to fresh disease or injury in the sick and aged will therefore paint a clinical picture confused and complicated by differing contributions from many sources, and the assessment of the relative importance of the separate contributions is the particular task of the clinician rather than the construction of a single diagnosis to account for them all.

As I have already said, the application of the theory of single diagnosis, which has given the familiar working world of doctors the fallacious appearance of a multitude of separate and unrelated disease processes, has produced results of the greatest practical value—not only in the recognition of disease and the discovery of effective treatment of its immediate cause, but also by the accumulation of knowledge which enables us to prevent or restrict the operation of those causes. At a certain stage in the training of students, too, dogmatic teaching has its worth. The theory is therefore not lightly to be set aside as a working hypothesis; in acute illness occurring in the young or previously healthy a single diagnosis is likely to be justified, but in the aged and chronic sick it is rarely relevant

The Problem of Ageing

Senescence implies a series of changes most of which commonly but not invariably occur in an individual who has lived through a period of chronological time. In man the changes are familiar: the skin is pale, often yellowish, wrinkled, and inelastic. On the backs of the hands purpura is common and there is patchy pigmentation of brownish hue. The hair is white and often sparse, the back is bowed, the limbs are sometimes tremulous, and the teeth are lost. Movement is slow and often clumsy. There is a tendency to fall, and, as Sheldon has shown, the fears of accident may be so great that they dominate the life of the old person. Muscular effort entails distress, especially with breathing. Sleep is short and easily disturbed, though drowsiness is frequent. Vision fails and deafness is common. Sexual desire wanes and infertility in females is absolute and in males possible.

Observation of others and, more rarely, contemplation of ourselves acquaints us with certain more subtle changes in personality—the conservatism and intolerance of change, a slightly contemptuous indifference to popular opinion and fashion, the loss of memory for recent events, and the difficulty in recalling names. All these things, with the physical changes, are accepted as natural, inevitable, and irreversible with the grim resignation that proclaims that an old dog can't learn new tricks.

It is reasonably certain that ability to learn declines in the human species soon after growth ceases, but my colleague, Professor M. V. C. Jeffreys, of the Department of Education, tells me that no work has been done in this country that justifies any opinion about that quality in those over 50 years of age. In America preliminary investigation suggests that considerable capacity to acquire new knowledge and skill may be retained until late in life, and that judgment and experience may compensate in large measure for the slowness of the learning—an opinion that I can describe as comforting.

Foulds and Raven (1948), on the other hand, were satisfied that the capacity to form comparisons and to reason

by analogy diminished slowly after the age of 25. They did not investigate persons over 60 years of age, but said that if the rate of decline in later life remained the same as in maturity it would follow that by the age of 80 the average individual's ability to grasp fresh ideas and adopt new methods would be no greater than that of a child of 8. Eysenck (1945) had already produced evidence in support of that grim conclusion. Freud, too, at one time discouraged psychological analysis in patients above 50 "because old people are no longer educable." We may readily concede that mature experience is likely to prove an infertile soil for the cultivation of psycho-analytical concepts and reserve a hope that, for that reason alone, it may not be incapable of wisdom and greater knowledge.

With respect to the physical changes, belief that the disabilities of age are the result of a natural and inherent process in human life is based on the frequency with which they occur and the simple fact that no man has yet escaped death. The belief is also sustained by the common observation that longevity is often a familial characteristic and by the experimental evidence that modification or removal of one gene in Drosophila will materially affect the life duration of the resulting stock.

For several reasons, however, it is possible to maintain speculative doubt whether the changes of senescence are wholly inherent and inevitable in the course of life.

First, there is considerable variability in the time of onset of the disabilities of age not only in individuals of the same family but also in different peoples. Senescence occurs earlier, for instance, in tropical races than in those of the temperate zones. This suggests (but does not prove) that the effects of external environment, the incidence of infection, accident, malnutrition, or indiscreet excess may play a larger part in the development of senescence than has previously been suspected.

Second is the fact that in certain forms of life ageing does not occur. Insects die almost invariably without showing any signs of the wear and tear accepted as the usual prelude to natural death in the human being; a possible exception is the worker bee—the indomitable woman of the hive who is said to show a loss of hair and some fragmentation of the wings before she dies—but this is not certain.

Third is the strange irregularity of the distribution of changes attributed to age—the tissues of the body are not affected equally. In the vertebrates, including man, as Carrel has pointed out, these changes occur first in what may be termed the closed systems and the plasma, in the teeth, in the joints (arthritis deformans) and particularly the vertebral articulations, in the amount and distribution of fat, and in the arteries long before there is any detectable alteration in the organs. Are we to assume that tissues age independently of each other, or is it possible that these early changes in the closed systems are the result of metabolic or other disturbances conditioned from without?

Fourth is the riddle of marine life. Bidder (1925, 1932) has maintained that in natural conditions the growth of fish is unlimited by time and that they do not become senescent or infertile. They die by random chance, or "parental" deaths occur, as in the male salmon. Established knowledge is small and the matter highly debatable.

These mysteries have more than intellectual interest; in view of the changing age structure of human populations they are among the most urgent of our problems. In the present state of knowledge, it seems to me, senescence must be regarded as the product of two components or groups of factors: (1) effects produced in an individual by processes inseparable from life as an organism over a period of time; and (2) random effects of changes in environment, disease, famine, surfeit, and activity. Age and death are phenomena resulting from the variable interaction of the two.

Influence of External Conditions on Ageing

There is no satisfactory definition of ageing. Minot (1908) measured vitality in terms of growth; not the mere rate of growth but the specific rate—that is, the ability of living tissue to reproduce itself at the same speed as that at which it was itself formed. If that criterion be accepted the vitality of tissues declines soon after the fertilization of the ovum; at first reproduction is unrestricted in geometrical progression—from the zygote to 2, 4, 8, 16 cells—but as not more than between 300 and 400 cellular reproductions are likely in the whole nine months of gestation the rate must soon decline. In other words, man has aged considerably before he is born, and continues to age rapidly in youth and more slowly as life advances.

In a study of the shape of the human form as a function of time my colleague, Professor P. B. Medawar (1943), reached a parallel conclusion—that the rate of change falls off progressively from the fifth month of foetal life to maturity. In a review (Medawar, 1942) of the biological mechanisms controlling growth he recorded the opinion that it is likely that there is a non-diffusible protein in the intercellular fluids of adults that discourages the inception of free growth.

Minot's ideas raised the problem whether changes in the rate of growth might alter the vitality and survival of organisms. Early experiments in mice led to the belief that a high rate of growth was associated with increased longevity, but the result was dubious because the possible influence of genetic differences had been ignored. Study of the brook trout, indeed, suggested that the relation of rates of growth to longevity might be inverse, and Saxton (1945) investigated the matter afresh in rats carefully selected to avoid genetic difference. He found that, if the rate of growth were reduced by feeding them on a diet properly balanced in respect of all the known essentials but of smaller calorie value than the rats would normally consume, the longevity of the experimental animals was increased by no less than 100% when compared with that of a similar group on unrestricted diets. This remarkable increase was noted in both specific and potential longevity, in the mean age of survival of the group, and in the duration of the life of the individuals.

The application of such diets to rats at maturity undoubtedly prolonged their lives, and this experimental result strengthens the appeal for moderation that the empirical wisdom of physicians has so often addressed to the middle-aged.

That I should not be charged with the wish to impose moderate hunger as a condition of the discipline of well-conducted nurseries I think it prudent to say that in my judgment Saxton's general conclusion, that retardation of growth in rats by restriction of calories significantly increased their life span and reduced the development of inflammatory, neoplastic, and degenerative diseases, is of only theoretical interest until we learn the fate of successive generations of animals bred in such conditions. His work is none the less important, because it shows that longevity in rats may be increased to a surprising degree by a simple change in diet.

The Evidence from Botany

There is great variation in the life span and life cycle of different plants, and both the span and the cycle may be greatly modified by artificial culture. Monocarpic plants mature seeds but once and die. Why they die is unknown: it may be from starvation due to exhaustion of available food by seed production or the result of some poison

elaborated in the process. Nevertheless the life of monocarpic plants may be indefinitely prolonged by modifying their environment in such a way that growth continues without the formation of flowers and seeds.

Gardeners long believed that vegetative reproduction soon led to degeneration and that sexual propagation was in some way necessary to rejuvenation. But it now seems probable that the degeneration was in fact due to virus diseases, which only exceptionally are transmitted through seeds. In perennial plants there is no certain morphological evidence of senescence in succeeding years, though the temporary organs such as leaves and fruits show obvious cycles ending in senescence and death. The conclusion is that suitable modifications of external conditions may enormously prolong the period of growth and survival of plants and seeds.

Tissue Culture

There is now no doubt that the life and reproduction of most cells may be prolonged by artificial culture beyond the limit of the natural span of the organism from which they are taken, although some of them, like those of the nervous system and the muscles, soon become incapable of reproduction. It has been noticed, too, that cultures from an aged tissue, though slow in starting, will grow as well as those from a young one and that the growth is favoured by the introduction of tissue fluids from a young animal of the same species. The interesting problem arises whether the ageing of tissues may be a consequence of some humoral change in the organism.

These fundamental questions in the present state of knowledge have little immediate relevance to the urgent problem of the infirmaries, but I mention them to show that the study of the aged and their disabilities may be something more than an exercise in clinical taxonomy and worthy of the attention of physicians.

Our work in Birmingham is in a preliminary stage; we have found in apparently healthy old men a curious alteration in the pattern of the chemistry of the blood—the sodium and the chloride are reduced, there is delayed response to hypoglycaemia due to intravenous insulin, the storage of vitamin C is defective, and there is a diminished excretion of 17-ketosteroids. These changes suggest a deficiency in the adrenal cortex, but there is no increase in the blood potassium or any clinical evidence of Addison's disease. Injections of testosterone restore the pattern of the blood chemistry to the accepted normal and the patients gain several pounds in weight and profess that they feel better. Clinical physicians have exceptional opportunities in this field, for to them alone will come the cases of sudden and premature senescence which may be expected to afford material suitable for exact investigation. All of us are familiar with the rapid ageing of healthy individuals submitted to the strain of injury, bereavement, fatigue, and illness, but the biological processes underlying the manifest change are rarely studied—the condition is accepted as "natural." And yet in these cases the phenomena of age are sometimes reversible. In this connexion I cite a published case (Thomson, 1938) illustrating the sudden appearance of senility after an accident.

> In April, 1937, a healthy virile man aged 55 had his hand crushed in a machine and suffered much pain. In three months he was completely bald and withered; his weight fell from 10 to 8¼ st. (63.5 to 54 kg.) and his friends did not recognize him. Sexual desire almost disappeared, and he shaved only once a week instead of daily. His hair slowly grew again and was white; his skin was wrinkled and inelastic. There was no change in the external genitalia, but the pubic hair was scanty. No evidence of disease was found after investigation in the out-patient department, and he refused admission. I saw him at intervals for several months and he improved slowly without treatment. Two years later his hair was brown and thick, he regained his normal weight and lost all trace of senility; sexual desire had returned, and he had to shave every day.

Similar changes are to be observed in women who suffer ischaemic necrosis of the pituitary as a consequence of severe haemorrhage or infection at parturition, and I have twice seen the sudden development of senile changes in cases of the so-called Lorain infantilism. For more than twenty years I have had under observation a dwarf, now 36 years old, who suffers from epilepsy but has no other symptoms or evidence of illness. Recently he has shown signs of sudden ageing, mainly in the wrinkling and loss of elasticity of the skin. Soon, I believe, as happened in the other two cases, he will be a typical example of the progeria of Hastings Gilford.

Summary and Conclusion

The Clinical Aspect

My purpose when I set out on this inquiry was simply the discharge of what seemed a disagreeable duty—the discovery of the best means of improving the state of the institutions for the aged and chronic sick in the Birmingham region. I now believe that the problem is one which intimately concerns the whole of clinical medicine and yet has been almost entirely neglected.

To restore the study of the aged and the chronic sick to the common stream of medical activity seems to me the paramount necessity, and the first step must be the establishment of wards in general hospitals and particularly in teaching hospitals for this purpose. Some assert that it is necessary to develop yet another specialty in the shape of geriatrics. I do not share that opinion. The problems of the aged and infirm are so varied that narrow specialism is unlikely to be profitable. Medicine to-day is too fissiparous; it breeds too many specialties. It is my view that this field is properly the domain of that under-privileged class the general physicians, and that by cultivating it they may contribute to the integration and generality of knowledge for which the Harveian Orator pleaded lately and so eloquently.

The virtual exclusion of the aged and the chronic sick from the wards of teaching hospitals is responsible for serious defects in the training of medical students. In general practice the care of such patients constitutes a considerable proportion of the work, and the fact that the newly qualified embark on it relatively untrained is a reproach to clinical teaching. In excuse it is urged that the pressure of the waiting-lists has prohibited the admission of these patients, and in the past that has been true. The difficulty is not insoluble.

In the Birmingham Region we estimate that the waiting-list of general medical and surgical cases is about 14,000. Of these, 60% are cases of hernia, piles, varicose veins, and prolapse. My belief is that the provision of a few recovery hospitals to which clean surgical cases of this sort could be removed within a few days of operation would end the problem of the waiting-list and permit the establishment not only of wards reserved for the aged and chronic sick but also of provision for specialized services.

In the wards for the aged in general hospitals the duration of stay should rarely exceed three months. Our analysis has shown that the critical period in which the fate of the elderly is determined is about 100 days—that is, whether they die or become fixed in an infirmary bed for years or return home. In a general hospital that period would not only enable a proper decision to be taken about the best provision for the individual but it would permit

research and dispose of the scandal of admission to the infirmaries without adequate investigation—the position at present in six out of seven admissions to the Western Road institution. In Hereford County Hospital and in the Manor Hospital at Walsall in Staffordshire we found in the course of our survey wards reserved for the reception of all patients above the age of 65 irrespective of the cause that led to their admission, and we had no doubt that the treatment and disposal of the chronic sick was better done as the result of it. Finally, there is no doubt that a necessary prelude to real improvement in the chronic institutions is regular visiting for teaching, investigation, and review by physicians in active charge of general hospital beds.

Social Aspect

A summary of our pilot survey justifies the following conclusions:

1. The outstanding characteristic of the patients is advanced age, but the mean age of the patients in the infirmary is less than that in the Highbury Home for old people, where the inmates live actively and pleasantly and at less cost to the community.

2. Of the bedridden patients in Western Road Infirmary, who form the overwhelming majority, in only a minute fraction (5%) is there any hope of rehabilitation. Disintegration of personality in the apathy of institutional routine, the development of incontinence, the contractures and deformities produced by long inactivity in bed, the lack of adequate treatment by physical methods, and the dissolution of homes are to a great extent responsible for this disaster.

3. Reform should be directed towards the prevention of complete disability in the senile. In the strictly realistic order of their possible achievement I suggest the following:

(*a*) The restoration of the care of the aged and chronic sick to the common stream of medical activity in the way that has already been described. Thomson and Curran (1948) have shown that the treatment of the old in general hospitals often leads to speedy recovery.

(*b*) Measures to maintain the cohesion of the homes of the elderly: the provision of medical and social services from the hospital as at Carshalton, the encouragement of a sense of family responsibility by training a member of it in the care of the invalid and perhaps by payment for the work done, and occasional admission of the invalid to an institution to allow holidays to those normally in charge.

(*c*) The provision of hostels, special housing, or accommodation for the aged in which central services and some form of domestic help is available. There is no need for uniformity or central control in this direction: local conditions and individual circumstances are infinitely varied. In an analysis of a sample of applications for help directed to the Welfare Department of the Birmingham Council for old people Miss J. E. McCrindell found that the vast majority came from independent old people who found that the battle of life was becoming too much for them and needed help at home. The sample was composed as follows: women 79% (widows 52%, spinsters 27%), men 16% (widowers or bachelors), and married couples 5%. Many of these will be on the waiting-lists of infirmaries unless some help is given soon.

(*d*) Industry should be encouraged to examine the conditions of the elderly in employment to discover whether adjustment is possible to prolong the useful working life of individuals beyond the customary age of retirement. A remarkable example of initiative in this direction is a special shop at Lucas's factory in Birmingham, which I was privileged to see. In this department were collected about 50 men and women, most of whom had given several years' service to the firm and then failed to keep pace with the rate of production of their fellows. In the majority the reason for the failure was premature senescence, but occasionally there was a specific physical disability. Instead of discharging them the firm established this department where they did light work in special conditions. When I ventured to say that the enterprise seemed to be an admirable example of enlightened altruism I was promptly told not to confuse sensibility with sense: the shop had been costed and it paid.

The Problem in Relation to Evolution

It has been somewhat slickly said that what happens to individuals beyond the age of reproduction is of small importance to the race; that their fate is simply not on the agenda of evolution. It is conceivable that senescence and death soon after the term of fertility may have been genetically determined in the long struggle for survival, because in primitive conditions a race composed of the young and vigorous would undoubtedly triumph over another with a large contingent of the elderly. But human evolution is no longer determined solely by a struggle with the natural forces of the environment or by combat decided by mere physical fitness. The unique quality of mind and the development of a literary tradition are new and potent factors in directing human progress, and it may be that the wisdom of the old, less perturbed by sexual and other passion, has a greater part to play than is commonly believed. Twenty-five years have passed since George Bernard Shaw first propounded the gospel of the Brothers Barnabas in the second part of his metabiological pentateuch, *Back to Methuselah*. The brothers had become convinced that the confusion of civilization in Western Europe was due mainly to the childishness of statesmen, and that final catastrophe could not be avoided unless the span of human life were prolonged so that government might be entrusted to individuals with 200 years of training and experience instead of immature striplings in the sixties. We may justly be dubious of the biological mechanisms postulated by the Barnabas brothers and yet retain some sympathy with their doctrine that wisdom and experience in high places have some advantage over the brightness of puerility. That idea has helped me in this contribution to the study of the problems of the aged.

The Management Committee of the Western Road Infirmary made this inquiry possible, and I am particularly indebted to the Chairman of the Hospital Group, Mr. Vernon Grosvenor. Dr. Charmian Elkes, Dr. S. E. Hallisey, and Dr. P. M. Meynell did the exhausting work for the statistical survey with the help of two trained social workers, Miss Honor Pringle and Mrs. Leaver. My three registrars, Graham Marson, Lewis Arundell, and J. M. Winn, were of great help. Dr. L. Nagley, the medical superintendent, and Miss M. Thomas, the matron, of the Infirmary put their wide experience and great knowledge generously at my disposal.

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THE RETURN TO WORK OF ELDERLY MALE HOSPITAL IN-PATIENTS

BY

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The following study was undertaken to find out to what extent male patients aged 50–64 admitted to the general medical and surgical wards of a teaching hospital were subsequently able to return to work. Three groups were selected for study:

(A) All those admitted to medical firm A's beds between Nov. 1, 1946, and Oct. 31, 1947. 102 patients.

(B) All those admitted to medical firm B's beds between Jan. 1, 1947, and Feb. 16, 1948. 100 patients.

(C) All those admitted to the wards of a general surgeon between Oct. 1, 1946, and Feb. 10, 1947, and between June 1 and Nov. 1, 1947. 100 patients.

Method

The aim was to follow up 100 patients in each of the three groups. A date was chosen which would give an average follow-up interval of six months after discharge from hospital. No case was followed up sooner than three months or later than eighteen months after discharge. The names of patients were taken seriatim from the hospital admission list until the number required had been obtained. A circular letter was sent to each patient asking if and when he had returned to work and whether he had gone back to his old job or to a new one. He was invited to call at the hospital if he required any further help from the social service department. Patients who failed to answer or to provide the information required were visited by the almoner. Half the patients replied satisfactorily to the inquiry, about one-third were visited at home, and the remainder came up to see the almoner at hospital. Those who had died either in hospital or after discharge were included in the study to provide a complete picture.

The age distribution of the three groups is shown in Table I. About one-third of each group fell in each quinquennium. The fate of the patients in the three groups after admission to hospital is shown in Table II.

TABLE I.—*Age Distribution of the Three Groups*

Group	50–54	55-59	60–64	Total
A. Medical	38	35	29	102
B. Medical	32	32	36	100
C. Surgical	36	36	28	100
All groups	106	103	93	302

TABLE II.—*The Fate of the Patients*

Group	Total Admitted	Died in Hospital or Between Discharge from Hospital and Follow-up	Not Back at Work	Returned to Light Work	Returned to Old or Similar Work	Untraced
A. Medical	102	47	14	8	29	4
B. Medical ..	100	30	16	9	38	7
Total medical	202	77 (38·1%)	30 (14·9%)	17 (8·4%)	67 (33·1%)	11 (5·5%)
C. Surgical	100	15	13	6	59	7

The Medical Cases

Of the medical cases, 38.1% died in hospital or after discharge, 14.9% did not recover sufficiently to resume work, 8.4% were able to return to "light" work, 33.1% resumed their previous employment, and 5.5% were untraced. The results were less good in group A mainly because this group contained more cases of coronary disease (13) than group B (6) and fewer cases of peptic ulcer (8 compared with 23).

Return to Work in Relation to Diagnosis.—There was naturally a close relation between the patient's ability to return to work and the nature of the illness from which he suffered. Table III shows the numbers returning to work

TABLE III.—*Diagnosis and Fate of the 202 Medical In-patients Aged 50–64*

Diagnosis	No.	Died in Hospital or After Discharge	Not Returned to Work	Returned to Light Work	Returned to Old or Similar Job	Untraced
Pulmonary infections (excluding tuberculosis) ..	44	11	6	3	22	2
Peptic ulcer ..	31	2	4	3	19	3
Cancer	23	20	2	1		
Coronary artery disease ..	19	12		4	3	
Essential hypertension ..	14	5	4	3	1	1
Nephritis ..	10	7	1		2	
Pulmonary tuberculosis ..	6	3	2	1		
Cerebrovascular accident ..	4	4				
Attempted suicide	4	1	2		1	
Psychoneurosis ..	4		1		3	
Rheumatic heart	2	1				1
Toxic goitre ..	2	1	1			
Tertiary syphilis	2	1			1	
Pernicious anaemia	2		1		1	
Miscellaneous .. (single cases)	35	9	6	2	14	4
Total ..	202	77	30	17	67	11

in the different diagnostic categories in groups A and B. Half the 44 cases of pulmonary infections (excluding tuberculosis), 19 of the 31 cases of peptic ulcer, three of the 19 cases of coronary disease, two of the 10 cases of nephritis, and one of the 14 cases of essential hypertension were able to return to their old jobs. None of the 23 cases of cancer or the four cases of cerebrovascular disease got back to full work, although one cancer patient returned to light work.

Failure to Return to Work.—Of the 30 patients who did not return to work, one was fit for work but was unable to find suitable employment. The other 29 patients were medically unfit. Of these 29, one had been transferred to the local infirmary, one to a mental hospital, and one was awaiting admission to a sanatorium. Six patients had given up work because of their illness before the exacerbation which led to their admission to hospital.

The most important reason why these 29 patients failed to return to work was that the illnesses from which they suffered were chronic or progressive and their course could not in most cases be reversed or arrested by admission to hospital. As Brown and Carling (1945), in a more general study of the social aspects of hospital medical cases, wrote: "For the majority of the patients the stay in hospital was merely an episode, sometimes a relatively brief episode, in a protracted period of disability and treatment." A secondary reason why some patients failed to return to work was that their usual occupation was too strenuous for all but the physically fit.

The three chief industries in Sheffield and its neighbourhood are steel-making, coal-mining, and the manufacture

of edged tools and cutlery. Much of the work in these industries is arduous and involves considerable muscular effort and exposure to various dusts or great variations in temperature. Furnacemen, foundry workers, metal-grinders, and coal-miners experience mortality rates for bronchitis and pneumonia considerably in excess of that for the general population (Registrar-General, 1938). It is not easy for the elderly Sheffield workman who has been employed in the steel or coal-mining industry and who has been partially disabled by a serious medical illness to find suitable alternative work.

Return to Light Work.—Seventeen of the medical patients were able to return to less arduous work than their usual occupation. The diagnosis, previous work, and "light" work obtained in this group are shown in Table IV. It was in

TABLE IV.—*The 17 Medical Patients who Obtained Less Arduous Work*

Age	Diagnosis	Previous Work	Light Work
51	Fibroid, pul. tub., and silicosis	Furnaceman	Light labouring work at old firm
58	Duodenal ulcer	Handling sheet steel on heavy press	Light labouring work at old firm
55	Pneumonia and bronchiectasis	Furnaceman	Painting at old firm
54	Osteoarthritis and emphysema	Steel tester in coal mine	Registered as disabled person. Obtained light work at colliery surface
51	Coronary thrombosis	Government inspector. Much travelling	Sedentary clerical work
64	Arteriosclerosis	Labourer at furnace	Sweeper-up at old firm
51	Diabetes mellitus	Insurance agent. Became unemployed because of illness	New clerical job
54	Essential hypertension	Silver-spinner	Light turner at old firm, sitting down; 9 a.m.-4 p.m., 5-day week
51	Bronchitis and emphysema	Coal-face worker	Surface job at former colliery
59	Duodenal ulcer and pulmonary tuberculosis	Forgeman	Lighter job in timber yard at old firm
59	Essential hypertension	Tram driver	Watchman in tram shed
55	Coronary thrombosis	Insurance traveller	Works timekeeper
60	Bronchial carcinoma	Cutler	Same works, lighter job, 6-hour day
50	Coronary thrombosis	Gas worker	Light labourer, same works
50	Coronary thrombosis	Furnaceman	Light labourer, same works
51	Arteriosclerosis	City policeman	Given lighter duties
62	Essential hypertension	Silver hammerer	Old job, but only 6 hours a day

this group that the almoner was most often able to help the patient in his return to work. The following case histories are illustrative:

A furnaceman, aged 51. Fibroid tuberculosis and silicosis. Unable to do previous work because of breathlessness. Was registered as a disabled person at the Ministry of Labour, and the almoner approached his employer, who eventually found him light labouring work in the steel works.

A silver-spinner, aged 54. Essential hypertension. Could not return to his old job, at which he earned £8 10s. a week, as he was unable to stand for any length of time owing to dizziness and fatigue. He was registered as a disabled person, and the almoner wrote to his employers, who were very co-operative and allowed him to return as a light turner. He was able to sit down to this work, and worked from 9 a.m. to 4 p.m. for five days a week at a wage of £4.

An insurance agent, aged 51. Diabetes mellitus. He was unemployed when the follow-up letter was sent. He was then registered as a disabled person and found temporary clerical work. The disablement rehabilitation officer promised to fit him into a better position as soon as one became vacant, and he was later found permanent employment as a clerk in the Ministry of National Insurance.

Return to Full Work.—Sixty-seven of the 202 medical patients were able to return to their previous employment. It is, however, probable that some of these patients—for example, those who had been admitted to hospital for coronary disease, nephritis, or chronic respiratory disease, and who managed to return to their old jobs—would not be capable of the same occupational effort as before or remain much longer at work.

Bronchitis, Bronchiectasis, and the Pneumonias.—Non-tuberculous pulmonary infections constituted the commonest cause of morbidity in the medical group. The 44 cases under this heading included 15 diagnosed as pneumonia or lobar pneumonia, 13 of bronchitis and emphysema, eight of bronchiectasis, five of bronchopneumonia, two of lung abscess, and one of empyema. In a survey of illness in general practice (Pemberton, 1949) "bronchitis" was found to be the commonest complaint diagnosed by a group of Sheffield general practitioners. It accounted for 11% of the 4,814 diagnoses, and in men the frequency steadily increased through working life. The group of illnesses which includes *bronchitis, bronchiectasis, and the pneumonias constitute* an extremely important cause of morbidity and mortality in elderly men. The aetiology of these conditions is imperfectly understood and in consequence their prevention hardly attempted. There is, however, a high mortality from these conditions in certain occupations which are common in Sheffield, as has been mentioned above, and this may to some extent account for their predominance in the present series.

The Surgical Cases

Table II shows that 15 of the 100 surgical patients died in hospital or after discharge, 13 failed to get back to work, six obtained "light" work, and 59 went back to their previous employment. Seven were untraced. Table V shows the fate of the surgical cases in relation to diagnosis

TABLE V.—*Diagnosis and Fate of the 100 Male Surgical Patients Aged 50–64*

Diagnosis	All Cases	Died in Hospital or After Discharge	Not Returned to Work	Returned to Light Work	Returned to Old or Similar Job	Untraced
Hernia ..	33	1	2	1	26	3
Peptic ulcer ..	11	2	3	1	5	
Cancer ..	8	5			1	2
Abscesses ..	6			1	5	
Haemorrhoids ..	5		2		3	
Enlarged prostate	4	1			3	
Cholecystitis and gall-stones ..	4		1	1		1
Vesical calculi	3	1			1	1
Fracture	3				2	
Intestinal obstruction	3		1	1	1	
Hydrocele ..	2				2	
Appendicitis ..	2		1		1	
Anal fistula ..	2		1		1	
Bronchiectasis ..	1	1				
Pneumonia ..	1	1				
Renal calculus ..	1	1				
Perinephric abscess	1	1				
Miscellaneous ..	10	1	1	1	7	
Total ..	100	15	13	6	59	7

Return to Previous Employment.—The surgical patients who were able to return to their previous employment included 26 of the 33 cases operated on for hernia, five of the 11 cases of peptic ulcer, and one of the eight cases of malignant disease. The last-named was a patient with sarcoma of the mesentery who for a time returned to his work as an inspector in the R.S.P.C.A. The high proportion of men operated on for hernia who returned to their old work emphasizes the value of this operation for maintaining and often increasing working capacity. Two of the 15 deaths occurred from medical illnesses—one from pneumonia and one from bronchiectasis—and six of the 13 patients who failed to get back to work were prevented from doing so by illnesses which either were non-surgical or were non-surgical throughout most of their course.

These were two cases of pulmonary tuberculosis, two of peptic ulcer, and two of cardiovascular disease.

Age and Return to Previous Employment.—As might be expected, there was a falling off with advancing age in the proportion of patients returning to their previous employment. In the medical cases there was a sharp drop between the 50–54 and 55–59 age groups: in the surgical cases the drop did not occur until the 60–64 period.

Discussion

The figures which have been given indicate that the majority of these elderly male medical and surgical patients either became fit enough to return to their old jobs or died. There remained two intermediate groups: those who did not become fit enough to return to work (15% of the medical and 13% of the surgical cases), and those who, while not becoming fit enough to resume their old work, were able to undertake less arduous employment (8.5% of the medical and 6% of the surgical cases). In these latter cases the almoner was often able to help by communicating with the previous employer or the labour exchange or a different employer, and explaining the needs and capacity of the patient. It was an advantage if the patient was registered as a disabled person so that he could be included in the legal quota of disabled persons in the factory concerned.

It was difficult to obtain a suitable job for the partially disabled man under a different employer. Usually there was no suitable work or the employer did not want the responsibility of taking on an elderly unfit man. Moreover, the patient usually preferred to return to the occupational environment which he knew and where he was known. He had perhaps spent twenty or thirty years there and could therefore expect sympathetic consideration. Employers in the Sheffield industries have usually, in our experience, taken their disabled employees back and found them less exacting work, although in many cases, owing to the small proportion of light jobs in these industries, it might mean that a workman became almost a "passenger." Of the 17 medical and six surgical patients who obtained lighter work after their discharge from hospital, 18 were taken back by their previous employers.

Beck, Gardner, and Witts (1947), reviewing the social service required for an unselected series of male and female medical in-patients, found that 10% needed assistance in changing their employment and, as we have done, that registration under the Disabled Persons Act and the use of the disablement rehabilitation officer were of value in finding patients suitable employment.

Ministry of Labour Retraining and Rehabilitation Centres and Remploy factories may help to solve the problem of the partially disabled elderly man. This type of patient, however, is unlikely to learn a new craft easily, and his physical condition may seriously deteriorate even before retraining is complete. Industrial rehabilitation for elderly medical patients does not yet appear to have been much developed. Usually, however, it is not a question of only retraining muscles which have become weak and inapt from disuse or of re-creating the desire to work but of employing a man at a much lower level of occupational effort. For this, the Remploy factory seems to offer the best solution. Here, the disabled man can be employed on a permanent basis and the work arranged to suit his capacity.

It is to be hoped that employers of labour on a large scale, whether in State or privately owned industries, will extend still further arrangements for re-employing their elderly partially disabled employees. Such arrangements might include retraining schemes within an industry, "protected" workshops, shorter hours of work, slower rates of output, and the provision of part-time employment. There are sometimes departments in a factory which because of the nature of the work done could be largely manned by the elderly and less fit. The report on old people published by the Nuffield Foundation (1947) emphasized the value to industry in wartime of the skill and reliability of workmen retained after pensionable age in light but skilled work. We have seen, for example, two old men of 85 and 83 who had been employed at the same silversmiths in Sheffield all their working lives, engaged on repairing silver ware. It is of course not so easy to provide these conditions in heavy industry, where the rate of premature disablement is already high.

Summary and Conclusions

An unselected series of 202 medical and 100 surgical male in-patients aged 50–64 were followed up for an average of six months after discharge from hospital to see to what extent they were able to return to their previous employment.

Thirty-three per cent. of the medical and 59% of the surgical patients were found to have resumed their previous work. Ability to return to previous employment was most closely related to the type of illness and to a lesser extent to the work normally undertaken.

Eight per cent. of the medical and 6% of the surgical patients were able to return to light work.

The social service required to help elderly men who are partially disabled by chronic or progressive illness to find suitable work and the industrial problems involved are discussed.

Thirty-eight per cent. of the medical and 15% of the surgical patients had died in hospital or before the follow-up.

It is clearly worth while on humane grounds, and also because of the need to conserve the nation's labour force, to arrange suitable working conditions for men who are partially disabled by medical or surgical illness years before the normal end of their working lives. At the same time attention should be given to the probability that some of these disabling illnesses—amongst the cases of chronic respiratory disease, for example—might have been prevented if the patient's working conditions had been healthier from the start.

Our thanks are due to Professor C. H. Stuart-Harris, Dr. T. E Gumpert, and Mr. H. Blacow Yates for permission to investigate their cases, to Professor Stuart-Harris for helpful advice and criticism, and to Miss B. I. Richardson for assistance in the preparation of this paper.

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The Minister of Health is considering proposals to extend the range of gases and fumes included in the list of "noxious and offensive gases" which are controlled by the provisions of the Alkali, etc., Works Regulations Act, 1906. A draft order has been prepared adding to the list volatile organic sulphur compounds, and fumes containing carbonaceous particles from black production works and fluorine. The order also adds black production works, fluorine works, and acid sludge works to the list of scheduled works liable for registration under the Act, and it extends the range of processes carried out in sulphuric acid works, bisulphite works, and cement production works the carrying out of which renders the works liable for registration under the Act. The draft order is being circulated to interested organizations with a request that any observations should be submitted to the Ministry before July 23, and a public inquiry will be held before the order is confirmed.

BRONCHO-PULMONARY SEGMENTS OF THE LUNG AND THEIR TERMINOLOGY

BY

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As there has been some controversy concerning the entity of the segments of the lung we will consider these before dealing with the terminology. The bronchial tree varies in each mammalian species, so we may, by referring to comparative anatomy, gain enlightenment concerning the significance of the various homologues found. The term "broncho-pulmonary segment" is applied to a branch of the stem of a lobe of a lung which has on it secondary branches with masses of lung tissues called secondary lobules. A broncho-pulmonary segment with its secondary lobules is surrounded by connective tissue derived from the visceral pleura, which sends further prolongations separating lobules and penetrating the lung tissue as interstitial connective tissue. The broncho-pulmonary segments form areas that are, in the words of Ewart (1889), who first described them, "kept in isolation as regards their air supply and form separate respiratory districts." From pathological data it is noted that infection in them may pass towards the periphery or pleura, but only gross pathology such as tuberculosis or malignancy can break through their boundaries to invade the neighbouring segments.

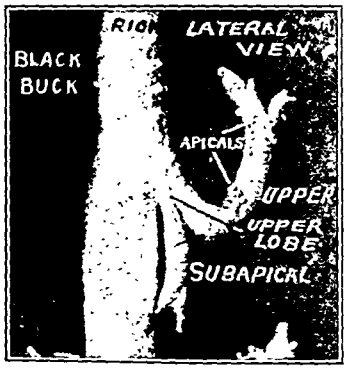


FIG. 1.—Lateral view of right upper lobe of cast of bronchial tree of black buck.

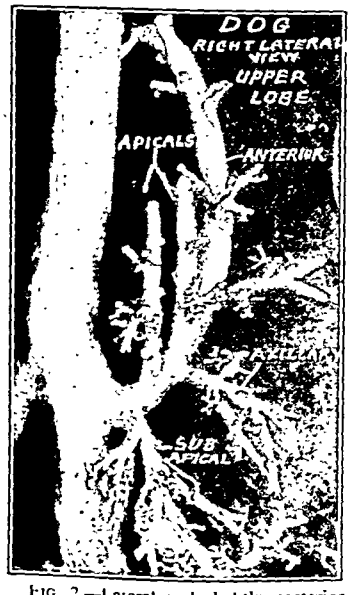


FIG. 2.—Lateral and slightly posterior view of cast of right upper lobe of bronchial tree of dog.

Willis (1676) was apparently acquainted with comparative anatomy when he drew the diagram of a lobar bronchus and its branches. It is corroborated by that of Huntington (1898) showing an embryonic mammalian lung. This type with many lobar branches is seen in some mammals, such as the pig and the wallaroo, but one of the earliest mammals or monotremes, the platypus, has an upper lobe closely resembling that of the human. In one of the herbivora, the black buck (Fig. 1), we find a simple type of the upper-lobe stem that divides into two trunks—the subapical below and an upper one. This division can be traced in all the mammals we have dissected. On the upper or cephalad aspect of the upper trunk of the black buck may be seen two obvious homologues of the apicals. In the dog (Fig. 2) two well-marked apicals come off this trunk. Intermediate between them, but on the lateral aspect, is a well-marked axillary branch that supplies an area between the anterior, or continuation of the upper trunk, and the subapical.

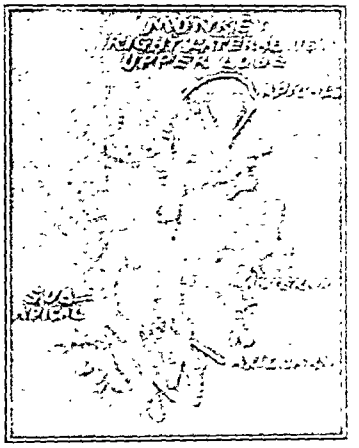


FIG. 3.—Pruned cast of right upper lobe of bronchial tree of monkey.

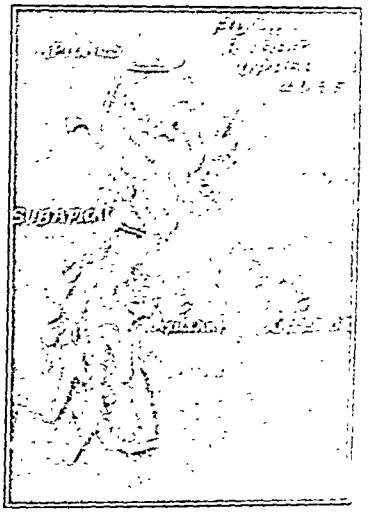


FIG. 4.—Anterior view of cast of right upper lobe of bronchial tree of human.

The Upper Lobe

If the apicals are granted segmental status a simple classification must be accorded to the axillary. In a monkey (Fig. 3) the two apicals are fused into one segmental bronchus. The axillary is well marked, whilst the remainder of the upper trunk, taking a ventral or an anterior direction, continues on as the anterior. We show a cast of the upper lobe of a human (Fig. 4), but it is only a confirmation of the diagram of Aeby (1880), which has never been challenged. In it there is practical coequality of the axillary and the anterior.

With progress in the gradation of the mammals the upper trunk shows, first, branches that fuse and serve the apical portion of the lobe. Then the axillary segment appears. After it is given off the upper trunk continues on as the anterior segment. Thus we see that, in accordance with adaptation, branches of a lobar bronchial stem, in conformity with the diagram of Willis, may disappear or fuse with another or may become aggrandized to form a separate segment. The axillary in the higher mammals becomes progressively enlarged and serves the area between the subapical dorsally and the anterior in front. The axillary is

readily accessible to bronchoscopy, can be filled separately with "lipiodol," and is a recognized site of lung abscess. On a lateral view of a radiograph it overlies the bifurcation of the trachea. The attempt to incorporate it with the anterior segment ignores anatomical and clinical accuracy and does not lead to clarification.

The Lower Lobe

In the lower lobe a controversy centres round the question whether the subapical has a separate entity or should be regarded as part of the posterior basal. Starting from the proximal end in the human there are given off in succession the apical, the cardiac on the right side, the anterior basal one or two, the axillary basal, and the posterior basal, which is the continuation of the lobar stem (Fig. 5). The relative

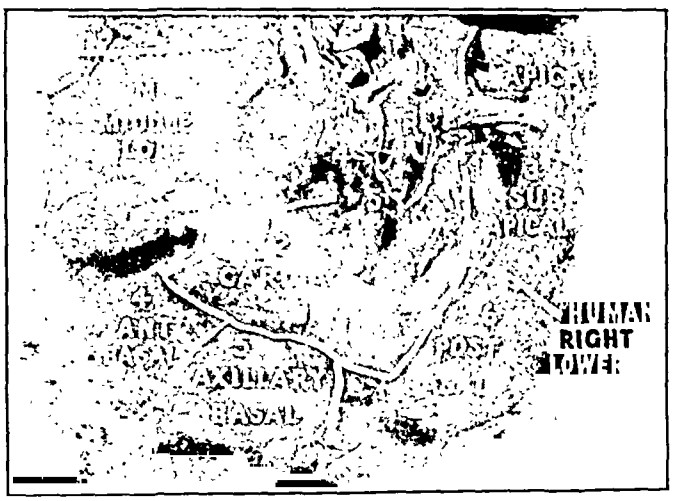


FIG. 5.—The human right lower lobe.

position of these is constant. In various positions from below the apical to above the final major division, where the axillary basal is given off, there may be found one to three segmental orifices distributed to the subapical segment which serve the lung between the apical above and the posterior basal below. Their distribution may be mediastinal, posterior, and lateral.

At times, particularly on the right side, the segmental orifice of a subapical may be as large as the apical segmental bronchus. It may be absent on the right side or on the left side, but it is present, however, as a substantial segment with an orifice often as large as the anterior basal in all the mammals we have dissected. Frequently on the left side in the human the proximal part of the subapical segmental bronchus is overlain by the apical above and the posterior basal below. Hence on inflation it has simply a lateral distribution.

Some contributors persist in showing the subapical of the lower lobe as part of the posterior basal—this in spite of the classical work of the first masters of bronchial anatomy, Aeby and Ewart, and the constant findings in the mammals that we have dissected. In his diagram, in which the bronchial tree is shaded to demonstrate his belief that it divides monopodially, Aeby shows the subapical definitely as a separate branch of the lower lobe of the bronchial stem, which latter eventually ends as the posterior basal. Consequently the last branch given off from the bronchial tree before it continues as the posterior basal is that of the axillary basal. A subapical branch must come off above this point to be classified as a broncho-pulmonary segment. Comparative and human anatomy definitely show this to be true. It is not possible to see how a subapical can be considered part of the posterior basal.

Preparation of Lungs for Inflation

We once more reiterate that the most satisfactory way of demonstrating the broncho-pulmonary segments is by the Moolten (1935) method of fixing the lungs. When the lungs are fully distended *in vacuo* the air sacs are fixed in that condition. On inflation the segments may be delineated just as in a map. If a lung is simply fixed in formalin the air sacs, in contraction, are filled with fluid and debris, and inflation may cause an artificial emphysema, masking the definite boundaries. We have given up using casts for the demonstration of the segments to students, as they are not easily recognized guides to the peripheral distribution. We have found it practically impossible to get any useful results from demonstration of fresh lungs in the necropsy room: they will develop artificial emphysema on inflation when apparently just fully expanded.

Moreover, when the bronchial stem in a fresh specimen is opened, the lung collapses in its full length and recognition of the various segmental orifices is very difficult to those not well experienced. Turning over a fresh lung and holding the collapsed slippery mass in an endeavour to demonstrate the segmental delineation by inflation is worth a trial by any investigator, as it will convince him of its uselessness for accurate delineation. The Moolten apparatus is cheap and easily constructed. Specimens prepared by this method will last for years without losing their segmental delineation. The method of preparation has already been described (Hardie-Neil and Gilmour, 1946).

Terminology

The terminology of the bronchial tree was discussed at the two meetings of the Oto-laryngological Section of the Pan-Pacific Surgical Congress in Honolulu in September, 1948. The consensus of opinion was that although the entity of the axillary segment of the upper lobe was definitely accepted its name could be replaced by the term "lateral" in conformity with modern anatomical terminology. Similarly the middle lobe main divisions could be termed "lateral" and "anterior." The name "apical of the lower lobe" is a convenient and localizing one in topography. Ewart described this segment as the bronchus dorsalis, but divides it into two branches—one the apical, and the other supplying the rest of the segment. As the term "dorsal" would apply to the apical, subapical, and posterior basal segments by position, it should be discarded. The term "apical" is more localizing, and anatomically corresponds with the apical of the upper lobe. The separate entity of the subapical segment of the lower lobe was recognized, and among the basal segments the axillary basal could be termed the lateral basal in accordance with modern terminology. We now suggest the following terminology of the broncho-pulmonary segments.

Upper lobe : apical, lateral, anterior, subapical.

Middle lobe : Anterior, lateral.

Lower lobe : apical, subapical, cardiac, anterior basal, lateral basal, posterior basal.

The anatomy of the broncho-pulmonary segments, and particularly of their vascular supply, has in recent years received such detailed consideration in connexion with pulmonary segmental resection as to add to that knowledge which has been the basis of the splendid life-saving advances made in recent years in the surgery of the lung.

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Illustrations from the References may be seen in the reprint from the *New Zealand Medical Journal*, 1946, 45, 20, a copy of which is in the B.M.A. Library.

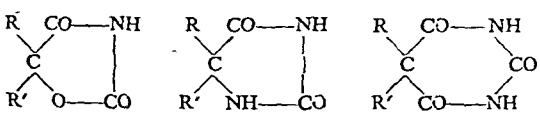
"TRIDIONE*" IN THE TREATMENT OF EPILEPSY

BY

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The oxazolidine diones, of which tridione is one, are structurally related both to the hydantoins and to the barbiturates. Another member of the series, dipropyloxazolidine dione, had been used some years ago (Luton *et al.*, 1941) as a hypnotic and anaesthetic, and when tridione was synthesized by Spielmann in 1944 it was originally



Oxazolidine diones Hydantoins Barbiturates

tried as a sedative and analgesic. However, in experimentally induced convulsions in animals it was found to be more effective as an anticonvulsant than either barbiturates or hydantoins (Everett and Richards, 1944). This observation, combined with the drug's low toxicity, recommended it for the treatment of epilepsy in man, and it has now been in clinical use for some three years.

The first report of its results was given by Lennox (1945), who noted that it was often dramatically effective in the petit-mal epilepsies, but that its expected anticonvulsant action as shown by the control of grand-mal seizures was not pronounced: on the contrary, it appeared occasionally to aggravate these. This view has been largely confirmed by subsequent workers (Richards and Perlstein, 1946: Perlstein and Andelman, 1946; Butter, 1948). Its value in psychomotor attacks also seems slight, though De Jong (1946) has claimed on rather slender evidence that, combined with other drugs, it is also effective in controlling these seizures. After two and a half years' experience of its use in 245 patients Davis and Lennox (1947) write of its "unique and almost specific effect in the control of the petit-mal epilepsies." This is a high claim for the treatment of a condition notoriously difficult to control, and may prove over-optimistic. Nevertheless all experience seems to agree that in many cases of petit mal tridione produces a striking amelioration.

Although the drug's toxicity in animal experiments was low, minor toxic effects in man are common. They were discussed in detail by Lennox (1947). He found complaints of a mild photophobia or "glare" effect—so that objects appeared as with a halo when viewed in bright light—the most common. This occurred in about one-third of all patients. Acneiform, morbiliform, and urticarial rashes were also noted, though they were usually transient. Indigestion and nausea might occur. Other occasional symptoms were drowsiness, ataxia, and irritability. Similar effects were reported in this country by Butter (1948). None of these symptoms was a serious hindrance to the continued use of the drug. However, there have also been reports of more severe toxic effects. These are of two main sorts—a reduction of blood-forming activity leading either to agranulocytosis or to aplastic anaemia, and an inflammatory skin reaction which may proceed to exfoliative dermatitis.

Fatal anaemia, or granulocytopenia, has been recorded in four cases from the United States (Harrison *et al.*, 1946; Mackay and Gottstein, 1946; Lennox, 1947), but at least one of these was taking "mesantoin" as well as tridione, so that the latter may not have been the responsible agent. In this country also two cases have been reported (Braithwaite, 1948; Forster *et al.*, 1949). Similar blood dyscrasias which responded to treatment have been reported in four other cases (Greaves, 1946; Briggs and Emery, 1949); while Kerrin (1948) detailed a case in which an urticarial rash led on to a fatal exfoliative dermatitis, and Butter (1948) mentioned a similar case which recovered. Barnett *et al.* (1948) and Briggs and Emery (1949) also record two cases with a nephrotic syndrome, one of which was fatal. These reported figures—eight fatalities and a further six severe reactions—must be considered in the light of Nattrass's (1949) quoted estimate of 10,000 cases that have had tridione treatment. In this context the toxicity of the drug cannot be viewed as very high, and Briggs and Emery must have been particularly unlucky in their experience of four severe reactions in a total of ten patients treated.

Apart from the above effects, Lennox also found that in half the cases of grand mal these fits were made worse.

The drug has not been extensively used in this country, owing partly to difficulties of supply and partly to its reputation for toxicity, which seems to have been exaggerated. Only three series, of 23, 10, and 9 cases respectively (Butter, 1948; Briggs and Emery, 1949; Nattrass, 1949), have so far been recorded. In this paper the results of the treatment of 50 patients are given.

Present Investigation

Case Material.—Patients were selected in the main because other forms of treatment had failed to control or reduce their attacks. Nineteen were males and 31 females, and their ages ranged from 4 to 62 years. Treatment was continued for periods varying from 2 to 18 months. Some form of the "petit-mal triad"* was present in 46 cases: 22 had only petit-mal epilepsies: the other 24 had grand-mal attacks as well. Six of these had proved local brain lesions as the probable basis of their attacks. Of the remaining four patients, three had grand mal only, and one a unilateral tremor-rigidity syndrome due to birth injury.

Dosage.—Dosage varied from 0.3 to 1.8 g. of tridione a day, which represented one to six capsules of 0.3 g. each. With adults the initial dose was usually one capsule three

*"Tridione" is Abbott Laboratories' trade name for 3,5,5-trimethyloxazolidine-2,4-dione. It has become established in the literature as the clinical name for this chemical substance and is therefore used here.

*This nomenclature was introduced by Lennox and Gibbs, and includes "classical" petit mal, myoclonic jerks, and akinetic or inhibitory epilepsy. The grouping seems justified on both clinical and electroencephalographic grounds, and is now accepted, with qualifications, both in this country and in America.

times a day, which would be scaled up or down in the light of their response. With children under 10, two capsules were used initially, and for those under 5, one. Once a marked beneficial effect was obtained the dose was usually reduced by stages to the minimum needed to maintain improvement. This was generally two or three capsules a day. Few patients who did not respond to three or four capsules a day would do so with larger doses, though in one case in which the smaller dose had produced no noticeable effect at all doubling the dose from three to six capsules a day produced a dramatic improvement in 48 hours. In some cases improvement was maintained even when the drug was stopped. For this reason the effect of omitting it was tried in all cases which still maintained improvement with only one or two capsules a day.

Results

Results were judged by comparing the average number of fits per week before and after treatment. Evidence of this was always obtained from an outside observer as well as the patient. It will be seen from Table I that five of the 22 pure petit-mal cases had their attacks completely

TABLE I.—*Cases with Petit-mal Triad Only*

Case	Age	Type of Attacks	Length of Treatment (Months)	Effect on Attacks
1	16	Pm., In.	6	Reduced to ½
2	8	Pm.	4	,, ,, ½
3	17	Pm.	15	Reduced to ½ (variable)
4	9	Pm.	10	Abolished
5	18	Pm.	8	Reduced to 1/10
6	10	Pm.	18	,, ,, 1/10
7	9	Pm., In.	15	Abolished
8	24	Pm.	4	Reduced to ½
9	11	Pm.	4	,, ,, ½
10	13	Pm.	15	,, ,, ½
11	15	Pm.	15	Abolished
12	9	Pm., Myo.	6	,,
13	13	Pm.	16	Reduced to ½
14	12	Pm.	4	*No effect*
15	9	Pm.	4	Reduced to ½ (transient)
16	13	Pm., Myo.	12	Abolished
17	8	Pm.	6	Reduced to ½
18	16	Pm.	6	,, ,, ½
19	11	Pm., In.	3	,, ,, ½
20	4	Pm.	2	,, ,, ½
21	18	Pm.	3	,, ,, ½
22	33	Pm.	10	,, ,, 1/10

Pm. = Petit mal. In. = inhibitory epilepsy. Myo. = myoclonic jerks

abolished for the period of observation. In a further 11 cases attacks were reduced in frequency to a quarter or less. Another five showed slighter degrees of improvement, which in one case lasted only six weeks. In only one case was there no effect.

The assessment of the cases with mixed grand mal and petit mal is more difficult (see Table II). However, in 15 of them the petit-mal element was abolished or greatly reduced, and in a further five cases it was somewhat reduced. In four it was unaffected. The effect on the grand mal was hard to judge, as these attacks were usually much less frequent than the petit mal. A noticeable reduction of frequency occurred in five cases; in nine it appeared unchanged; and in ten it increased in frequency, or the fits became more severe, status epilepticus occurring in one case. Reviewing the whole 46 cases from the point of view of petit-mal attacks, 31 showed abolition of attacks or great improvement, 10 showed some improvement, and 5 showed no change; none were worse.

Of the six cases with focal brain lesions the petit mal was unaffected in three. In one, with a frontal glioma, attacks were reduced in frequency from three or four a day to two or three a month. In another, with a right temporal angioma, the petit mal was abolished for five weeks; then a severe status epilepticus occurred and tridione was abandoned. In a third case, with a calcified lesion in the left temporal region, inhibitory or petit-mal attacks were greatly reduced. The drug was stopped in nine cases: in three because improvement was maintained

TABLE II.—*Cases with Grand Mal and Petit-mal*

Case	Age	Type of Attack	Length of Treatment (Months)	Effect on Attacks
23	28	Gm., Pm.	3	Pm. no effect. Gm. increased
24	42	Gm., In.	8	In. abolished. Gm. increased
25	4½	Gm., Pm.	4	Both abolished for 2/12, then Gm. increased
26	34	Gm., Myo.	5	*No effect on either*
27	10	Gm., Pm.	>2	Both reduced to ½
28	29	Gm., Pm.	4	Pm. reduced to ½. Gm. unchanged
29	16	Gm., Pm.	12	Pm. reduced to 1/10. Gm. unchanged
30	12	Gm., Pm.	7	Pm. abolished. Gm. improved
31	18	Gm., Pm.	16	Pm. reduced to ½. Gm. increased
32	20	Gm., Pm.	12	Pm. no effect. Gm. improved
33	29	Gm., Pm.	14	Pm. abolished. Gm. increased
34	22	Gm., Pm.	4	Pm. reduced to 1/10. Gm. improved
35	19	Gm., Pm.	15	Pm. reduced to ½. Gm. improved
36	23	Gm., Pm.	14	Pm. reduced to ½. Gm. increased
37	23	Gm., Pm.	10	Pm. reduced to ½. Gm. variable
38	14	Gm., Pm.	8	Pm. reduced to 1/10. Gm. increased
39	15	Gm., Pm.	4	Pm. reduced to 1/10. Gm. unchanged
40	12	Gm., Pm.	6	Pm. reduced to ½. Gm. increased
41	24	Gm., In.	3	In. abolished. Gm. improved
42	31	Gm., In.	5	In. reduced to ½. Gm. unchanged
43	18	Gm., Pm.	4	Pm. reduced to 1/10. Gm. increased
44	26	Gm., In.	3	In. no effect. Gm. increased
45	33	Gm., Pm.	2	Pm. reduced to ½. Gm. unchanged
46	31	Gm., Pm.	5	Pm. reduced to 1/10. Gm. unchanged

Gm. = Grand mal. In. = inhibitory epilepsy. Pm. = petit mal. Myo. = myoclonic jerks

without it; in two because the effect on petit mal was transient or negligible; in three because grand mal was increased; and in one because of marked irritability and conduct disorder.

Of the three cases of grand mal only, one, a post-traumatic epilepsy from closed head injury, was completely free from fits for a period of over a year. She had been given tridione as both hydantoins and phenobarbitone had failed to reduce the number of her attacks. The other two had been wrongly diagnosed as akinetic attacks before the account of a trained observer made it clear that they were in fact mild grand mal. In neither case was the frequency of the fits affected. The patient with tremor-rigidity syndrome was given tridione for its supposed antispastic effect, but no objective change in his condition was noted after three months' treatment.

In general the results of this regime were shown within a week or ten days of its start. Often within 48 hours a reduction of attacks was remarked on. After three weeks' treatment with an effective dose, further changes in the petit-mal epilepsy were not usually seen, though an increase in grand mal, if it occurred, commonly did so after this time.

If seizures were abolished or much reduced for over three weeks it was usual to start lessening the dose of tridione. In most cases it was possible to do so without any relapse, though occasionally reduction by even one capsule a day caused increase of fits. In three cases the drug was stopped entirely after three to six months of treatment, and all three remained free from attacks for periods of two to four months. On the other hand, in some cases in which the drug was omitted inadvertently attacks recurred or became more frequent within three to four days. Moreover, in two cases omission of the drug because clinical response seemed slight produced an unexpected increase in petit-mal attacks, which were again reduced when it was restarted.

Two cases, one with grand mal only and one with myoclonic jerks and grand mal, showed an interesting

change in their attacks within ten days of starting tridione. Both noted a lengthening of the period of aura, in each case an epigastric one, so that they were able to sit or lie down before their grand-mal attacks developed, whereas previously they had had only the most momentary warning. They appreciated this change considerably, though in neither case was there any reduction in the frequency of attacks.

Illustrative Cases

The regime of treatment and the problems involved are illustrated in the following brief case histories.

Case 16: Petit Mal and Myoclonic Attacks Abolished by Tridione.—A boy aged 13 had had typical petit-mal attacks and occasional myoclonic jerks of the right arm and shoulder since the age of 4½. There was no personal history of grand mal or any family history of epilepsy. Attacks averaged 10 a day, but on bad days he might have 20 or 30. They were unaffected by 4½ gr. (0.29 g.) of phenobarbitone a day, which was making him sleepy. He was given 0.3 g. of tridione t.d.s and 1 gr. (65 mg.) of phenobarbitone b.d. After three days the attacks were much less frequent, and after a week they were abolished. They have been absent now for over a year, except when he omitted the tridione for periods of five and eight days. On each occasion the attacks recurred in 48 hours. He is now stabilized on 0.3 g. of tridione b.d.

Case 5: Petit Mal Controlled by Tridione. Grand Mal Occurred for First Time · Controlled by Hydantoin.—A youth aged 18 had had petit-mal attacks since the age of 7. There was no personal history of grand mal. One sister had petit mal. Attacks averaged one or two a day and were controlled for some years with 1 gr. of phenobarbitone b.d. At the age of 16 attacks recurred, and 1 gr. of phenobarbitone t.d.s. had no effect. He was given 0.3 g. of tridione t.d.s with 1 gr. of phenobarbitone b.d. The attacks ceased after 48 hours. The phenobarbitone was gradually reduced during six weeks. Occasional petit-mal attacks recurred three months later, averaging one in four or five weeks. Five months later he had his first grand-mal attack. He had three further attacks in the next 10 days. Then 1½ gr. (0.1 g.) of hydantoin b.d. was added to his tridione. No further grand-mal attack occurred for the next four months. Two petit-mal attacks occurred during this time. He is now regularly taking 0.3 g. of tridione t.d.s. and 1½ gr. of hydantoin b.d.

Case 14: Petit Mal Unaffected by Tridione; Grand Mal Developed.—A girl aged 12 had had petit-mal attacks since the age of 10. There was no history of grand-mal attacks, and the family history was negative. The frequency of attacks was 12 daily, and they were reduced in number for a few months by 2 gr. (0.13 g.) of phenobarbitone a day. This effect soon wore off. She was given 0.3 g. of tridione t.d.s. together with the phenobarbitone, but this was without effect. In one month dosage was increased to 0.3 g. of tridione five times a day. There was no effect in a further month. At this time the first grand-mal attack was reported, and 0.3 g. of tridione t.d.s. with 1½ gr. of phenytoin sodium ("epanutin") was given for two months. There were no further grand-mal attacks, but the petit mal was unabated. Electroencephalography in this case showed runs of typical wave-and-spike activity.

Electroencephalographic Changes

A detailed description of these will be given elsewhere. Here it is worth noting that clinical improvement did not always go hand in hand with decreased abnormality in E.E.G. records; nor was the occurrence of wave-and-spike or "petit-mal variant" patterns in a record essential for clinical or E.E.G. improvement to occur. Though the majority of those showing good clinical response did in fact show wave-and-spike activity, some cases without this improved markedly, and at least one case with a clear-cut wave and spike showed no clinical response to the drug.

Toxic and Other Incidental Effects

Blood changes are potentially the most dangerous and deserve special consideration. Reports of fatal blood changes have been mentioned above. They appear to be fairly sudden in onset and rapid in progress. In some of them both diagnosis and treatment seemed somewhat delayed. They may occur at any time within a few weeks to ten months of the start of treatment. As with other toxic blood dyscrasias, their earlier manifestations are probably general symptoms of sore throat, malaise, listlessness, etc. Their possible occurrence demands that patients on tridione should be under medical supervision, and unexplained general symptoms require an immediate check on the blood. They are, however, rare, and a more common effect noted by Davis and Lennox was a slow downward drift of the absolute neutrophil count, sometimes with a rise in number of lymphocytes or a transient eosinophilia. The change was reversed by omitting the drug.

In 36 of the cases in this series full blood counts were done at the start of treatment, thereafter fortnightly for the first six weeks, and then at intervals of four to six weeks. In 10 others the counts were done initially and at monthly intervals. In four the counts were more sporadic. In 26 cases treated for six months or more two showed a sudden marked reduction of total granulocytes in their monthly counts. Both returned to normal—one within 14 days and the other within four days of the abnormal count. In the latter case it was considered possible that the apparent reduction was due to a technical error. In six others a slow but irregular reduction of granulocytes was noted, but in none did the absolute neutrophil count fall to the 1,600 considered dangerous by Lennox. In four a moderate leucocytosis occurred, but at periods varying from one to 10 months after the onset of treatment, so that there was probably no causal link. In two an eosinophilia of over 5% was noted. No significant change in haemoglobin or red cells was seen.

The urine was tested, for albumin and sugar only, in 18 cases during the first three months of treatment. Albuminuria was found in one case. This was absent three weeks later, though the treatment had been continued.

Apart from the aggravation of grand-mal attacks considered above, other toxic effects, though annoying to patients, were medically trivial. Seventeen cases suffered from "glare." For this the wearing of sun-glasses during bright weather sufficed to allay any discomfort. Ten had rashes—eight acneiform, one macular, and one urticarial. In the latter two cases the drug was omitted for three weeks, as these rashes may sometimes herald more severe toxic reactions. The acne seemed purely an aesthetic disadvantage, though at times a serious one. In young women especially it proved a handicap to continued treatment, which had sometimes to be omitted temporarily. The rash would then clear, to return, though often less intensely, when the drug was restarted. Four patients had an irritability severe enough to affect their social relations. Three noted drowsiness and slight ataxia, and in one of them this persisted for some months. Three had prolonged bouts of hiccup during the first three months. None complained of indigestion, though two had nausea or vomiting at the onset. None of these complaints required more than a temporary cessation of the drug. It is a distinct advantage that its sudden complete cessation had no tendency to cause status epilepticus in patients with grand mal—a danger which always has to be borne in mind with barbiturates and hydantoins.

The obverse of these minor ill-effects should also be mentioned. In many cases patients or their relatives spontaneously remarked on an increased sense of well-being, an improved performance at school, or improvement in social behaviour in the home. One intelligent patient gave a vivid description of the increase in self-confidence when he no longer had to fear the sudden interruption of what he was saying or doing by an attack.

Discussion and Conclusions

There can be little doubt that tridione is a valuable remedy in the treatment of petit-mal epilepsy. At present it is used mainly in those cases in which phenobarbitone and the other better-established drugs have failed. In the future, it, or one of its less toxic related compounds such as dimethylethyloxazolidine dione, already in use in America, will probably be the drug of first choice. Its possible toxicity, especially to the blood, is a handicap, but as case material accumulates this will be seen to be a slighter risk than it appears at present. For the moment it should be used with circumspection, regular medical supervision and a routine monthly blood count being essential. As its use increases, a more serious disadvantage may be its aggravation or provocation of grand-mal attacks. For this the addition of some effective anticonvulsant will be required. Phenobarbitone may be useful here, but in this series the hydantoinates proved more valuable for combined therapy.

In the ten cases in which tridione seemed to activate grand mal this tendency was controlled in six by the addition of hydantoinates; and with these two drugs together three patients were rendered free from all fits for the first time for some years. Such a combination requires especial care in watching for blood dyscrasias, as both components are known to produce this effect. In practice, 17 of the above patients have been on this regime for periods up to 14 months, and so far no untoward results have been seen.

Short-term assessment of treatment in epilepsy is always apt to be misleading, because the frequency of the seizures tends to vary naturally, often for no apparent reason. Nevertheless, the first results of tridione therapy are striking enough to justify hope for the future.

Perhaps the most interesting question that arises out of this drug's marked selective effect on petit mal is that of its mode of action. Some valuable information on this point is provided by the findings of Grey Walter (1949 —personal communication). In patients who showed myoclonic jerks which could be fired off by photic stimulation, provided the frequency of the light-flash on the retina was exactly right, he found that administering tridione in a given case changed the frequency at which the light-flash would elicit the jerk. At first it appeared as if the light-stimulated response had been abolished; that the drug had "cured" this artificially stimulated epilepsy. But further stimulation with the light-flash at a changed frequency again produced the myoclonus, and it would seem that tridione had only altered the setting of the complex reflex pathway subserving the response.

In certain patients, at present few in number, the occurrence of clinical petit-mal seizures has been reported following intermittent stimulation of the retina by some incidental occurrence during their day's work (Cobb, 1947). In these cases any curative effect of tridione must work in a similar way to that demonstrated by Walter. If we consider that the central mechanism for firing off petit mal can be stimulated by other than photic afferent impulses—from exteroceptive and possible enteroceptive sources—then changing the rate of stimulus necessary to fire the mechanism would still provide a basis for clinical cure. There are many features in the clinical course of petit mal which would lend support to the view that incoming stimuli of various sorts help to precipitate the attacks.

Moreover, Jasper and Droogleever-Fortuyn's (1947) production in animals of generalized wave-and-spike cortical electrical patterns by stimulation of the internal laminar region of the thalamus also suggests the importance of the afferent system. Should these findings be applicable to human petit mal, then we must envisage the electrical changes in the cortex and the changes in consciousness that constitute the seizure as being activated from the thalamus. What causes the thalamus to fire in this way is still a matter for further experiment and speculation. But in interfering with the thalamo-cortical mechanism of the seizure tridione can presumably act at cortical or thalamic level or at both.

The findings from clinical use of the drug would suggest that some action at any rate is at cortical level. The "glare" phenomena support such a site, as does the change produced only in the aura phase of the two cases of grand-mal attacks. Moreover, the effect on seizures occurring in the three patients with known focal cortical lesions point the same way. If this is so, then the continued use of tridione may enliven clinical routine by the incidental light it sheds on cortical function as well as by its therapeutic success.

Summary

A review of 50 cases treated with tridione is given—22 had one of the petit-mal epilepsies only, 24 had mixed grand and petit mal, three had grand mal only, and one had a unilateral tremor-rigidity syndrome.

In 31 cases the petit-mal attacks were abolished or markedly lessened, in 10 they were reduced, and in five unaffected. Grand mal was reduced in five cases, unchanged in 9, and aggravated in 10, in one of which status epilepticus occurred.

Evidence of serious though transient toxic effects on the blood was shown in two cases. Other toxic effects included "glare," rashes, irritability, hiccup, drowsiness, and ataxia. Except for the first two, these were usually slight or transient.

The drug was discontinued in eight cases because it was ineffective or too provocative of grand mal, in three because improvement was maintained without it, and in one because of pronounced irritability.

The combined use of tridione and sodium diphenyl hydantoinate for the mixed epilepsies, and the possible mode of action of the former drug on the genesis of petit-mal seizures, is discussed.

Addendum

Since writing this paper an additional five cases have been treated with tridione for periods of three weeks to three months. In three cases petit mal attacks were reduced to one-quarter or less of their previous frequency: in two there was little or no effect. Of the 37 cases from the original series who were continuing tridione, four have now ceased to take it. Three of these cases have maintained their improvement for one to three months. Blood changes have occurred in a further two cases—in one there was a sudden drop in the absolute neutrophil count, which was reversed within three days by withdrawal of the drug; the other showed a slow reduction of neutrophils to 1,400. In this case the total leucocyte count at first rose, owing to a simultaneous increase in lymphocytes. This emphasizes the importance of a differential count.

My thanks are due to Dr. W. Ritchie Russell for facilities for carrying out these trials. Messrs. British Schering, Ltd., kindly provided samples of trimethyloxazolidine dione at the start of this work.

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THE USE OF "TRIDIONE" IN PETIT MAL

BY

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"Tridione" was first used at Chalfont Colony for Epileptics in October, 1947. The following is a summary of the cases treated with this drug in the following year, with our conclusions.

As we knew little of the possible toxic effects of tridione the trial was limited to 50 cases, but we feel that these were sufficient to assess the efficacy of the drug. The patients were chosen at random; some suffered from petit mal alone and some from petit mal with grand mal. All cases of petit mal were diagnosed solely on clinical grounds. As tridione is effective only when petit-mal attacks are associated with a cortical dysrythmia of the wave-and-spike type, it is probable that some of the failures were due to the fact that the patients had a dysrhythmia of a different type. (Electroencephalographs were not available.) The ages of the patients ranged from 10 to 68, and they were mostly females.

Dosage

Each patient began treatment with one capsule (0.03 g.) thrice daily; the dose was to be increased to six capsules daily if no benefit was produced. In only three cases was it necessary to administer the maximum amount. Initially, tridione was given to all cases, whether they suffered from petit mal alone or in combination with grand mal, but it was soon realized that tridione does not control grand mal. Moreover, certain cases who had previously only suffered from petit mal began severe grand-mal attacks when given tridione alone. Two cases went into status epilepticus (with subsequent recovery). We agree with Lennox (1947) when he states that he does not regard the term "anti-convulsant" as correct when applied to tridione in its use in epilepsy. An anti-convulsant such as phenobarbitone and/or epanutin is now given in conjunction with tridione to all cases.

Duration of Treatment

Anxiety about the possible toxic effects of tridione led to withdrawal of the drug too soon in some of the early cases. The continued administration of tridione with an anti-convulsant might have led to improvement in these cases, and we are at present treating some of them in this way. We have so far completely withdrawn the drug in only one patient (quoted below), who has reacted successfully. Lennox states that after the withdrawal of tridione there may be no attacks for 18 months. We gradually reduced the dosage when the fits ceased or became much less frequent. A number of patients whose attacks were considerably reduced with tridione showed an increase in attacks when the drug was discontinued owing to some contraindication.

Immediate Effects

Tridione is beneficial in cases of petit mal, a condition which had previously appeared not to react to any form of treatment. The results with some patients, particularly children, were dramatic. Within a short time of the drug being administered there was complete relief in patients previously having frequent attacks. One typical case illustrates this:

T. F., aged 14 years 10 months. Admitted to Chalfont on April 29, 1943. He had suffered from 10 to 21 minor attacks per month for five and a half years. On Oct. 18, 1947, he was given tridione, one capsule t.d.s. Since that date he had one major attack, in November, 1947, and no epileptic attack of any type since. Prior to having tridione he was described as a "dopy" type of child; at present he is a bright and reliable boy and joins in all games with obvious enjoyment.

Apart from cessation or reduction of frequency of attacks, there has been improvement in behaviour defects and mental capacity in several cases, and the patients have expressed a feeling of general betterment. We have not been able to record improvement by the electroencephalograph, as the apparatus is not available. Lennox utilizes electroencephalography as an indication for reducing the dose of tridione. If his cases have had no petit-mal attacks for three months and the encephalograph is free of wave-and-spike formations, he reduces the dosage by one capsule every two months until none is taken, if the attacks do not return. When reduction or cessation of attacks is not accompanied by an improvement in the patient's mental state, this may be due to insufficient time having elapsed for the mental capacity to be judged. An improved mental state may follow, particularly in children and in cases with a short history.

In our experience the best results have been produced in children. Whether this is due to the age of the patient or the shorter duration of the malady we do not feel in a position to say, though Lennox states that the age is presumably the important factor. Age would appear to be no contraindication to the use of tridione. Our oldest case is a woman of 68, whose history is appended:

K. A., admitted to Chalfont on Nov. 12, 1931, with 27 years' history of epilepsy—all minor attacks. Her annual number of attacks was from 150 to 250. She was first given tridione on Nov. 21, 1947, since when she has had six to seven attacks per month.

In addition to the petit-mal attacks recorded by the attendants, presumably there are a large number which must escape observation.

One other factor in assessing the value of original treatment, particularly in adults, is the patient's suspicion of a new drug; in some cases this resulted in a lack of co-operation and hysterical manifestations.

Toxic Effects

Visual.—There were no serious toxic effects in our cases. Photophobia, or the "glare" phenomenon, particularly when the patient was out-of-doors, has been the most common manifestation, although this has occurred only in adults. There was no evidence of intrinsic eye changes. In no case was it necessary to discontinue treatment on this account, and the condition appeared to occur irrespective of dosage.

Blood.—White cell counts and haemoglobin estimations were done at monthly intervals. We had decided that if the count fell below a total of 4,000 white cells we would stop the drug. This occurred in one case, and the count improved considerably after the tridione had been discontinued. Lennox lays down that a white count of below 4,000, with polymorphonuclears less than 40% or numbering less than 1,600, are indications for at least temporary discontinuance of medication. The haemoglobin remained normal except in one case with a reduction to 60% ; there was no evidence that the diminution was due to the tridione.

Skin.—Two children developed a morbilliform eruption, one having in addition a severe stomatitis, presumably due to the drug ; the blood picture was normal. The condition cleared up shortly after tridione was discontinued.

Gums.—There was no effect on the gums, such as the hyperplasia that follows epanutin administration.

Ataxia.—There was no case in which tridione could be incriminated.

Indications for Stopping Treatment

These are: (1) an increase in the number of attacks, (2) failure to control petit mal, and (3) manifestation of toxic symptoms. The dose of tridione was increased to six capsules per day, when necessary, before we considered it had failed to control the petit mal. One important factor in the use of tridione is that, unlike the anti-convulsant drugs, it can be withdrawn abruptly without ill effects.

Summary of Cases

Children.—Fourteen cases.

Boys.—Ten cases, aged between 10 years and 14 years 11 months. Attacks have entirely ceased in four cases. In case 1 they ceased in seven months, in case 2 in six weeks, in case 3 in four weeks, and in case 4 in four months. Case 1 was having 100 attacks a month ; case 2, 65 attacks a month ; case 3, 10 to 20 attacks a month ; and case 4, 35 attacks a month. The remaining 10 cases showed from 10% to 90% reduction in the number of attacks.

Girls.—Four cases, aged between 11 years 11 months and 13 years 11 months. Case 1 was exhibiting the akinetic type of attack. She has ceased to fall in the attacks, and they were reduced by about 15%. In cases 2 and 3 the attacks were reduced by 50%. Case 4 had shown a marked reduction in her attacks, but after four months' treatment tridione was withheld when the total white cell count fell to 4,000 per c.mm.

Adults.—Thirty-six cases.

Females.—Twenty-six cases, aged between 16 years 10 months and 68 years. Attacks ceased in six months in one case that was having 120 to 300 attacks a year. Thirteen cases showed a diminution in the number of attacks. Seven cases showed little or no improvement. Three of these cases were among the earliest treated with tridione, and began severe attacks of grand mal as soon as therapy was started. Two of these cases are now receiving tridione again, and doing well. Two cases were apparently worse with tridione.

Males.—Ten cases. Of these, eight cases showed improvement and two no improvement.

From the foregoing it will be seen that in boys 28.5% showed cessation of attacks, and in girls 75% showed improvement. In female adults 3.7% showed cessation, 50% improved, and 7.7% became worse. In male adults 80% showed improvement, and 20% showed no improvement.

We are now giving tridione to more patients. The drug appears to be of use in all cases of petit mal, although it is of little or no value in the treatment of grand mal.

Summary

Conclusions are given of the treatment of 50 cases of petit mal with tridione over one year. Tridione is of value only in the treatment of petit mal. Dosage and toxic effects are discussed.

An analysis is given of the effects of treatment upon adults and children. The best results were with children.

My thanks are due to the committee of the National Society for Epileptics for their permission to publish these results, and to the matron and nursing staff for their co-operation.

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CASE OF SALMONELLA ENTERITIDIS SEPTICAEMIA WITH LUNG ABSCESS

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Although *Salmonella enteritidis* (Gaertner's bacillus) infection is usually characterized by an acute gastro-intestinal illness with a pyrexia, many authors report a positive blood culture. Huang (1937) reviewed 50 cases of Salmonella septicaemia, most of which also had a coincidental debilitating disease—e.g., relapsing fever. There is a striking similarity between the features of *Salm. enteritidis* septicaemia and typhoid fever.

The usual onset of *Salm. enteritidis* septicaemia is sudden, with fever and generalized aches. A continuous fever with a relative bradycardia often occurs in the second week. A moderate anaemia with a leucopenia is frequently present. An enlarged spleen is almost constant. Rose spots about 3 mm. in diameter, not fading on pressure, are a feature at this stage. The blood cultures are positive in the first two weeks, and the organisms can be recovered from the stools and the urine later. Serum agglutinins are not usually detected until the fourth week.

Occasional variants from this clinical picture have been recorded—e.g., hepatic enlargement. Necropsy findings include hyperplasia of Peyer's patches, haemorrhages in the gastro-intestinal mucosa, and inflammatory lesions of the brain, gall-bladder, bile ducts, and lungs.

Predisposing Factors and Prognosis.—Most authorities stress the importance of malnutrition and debilitating disease, which is emphasized in the case report below. The mortality is high, and due to the frequent occurrence of complications.

Complications

The complications recorded include meningitis, pyelitis, osteomyelitis, cholecystitis, cholangitis, and pulmonary

involvement. Two cases of fatal purulent meningitis are recorded by Huang. Stevenson and Wills (1933) have reported a "primary" *Salm. enteritidis* meningitis in a child of 9 weeks. Pyelitis and pyelonephritis are common in the recorded cases. Harvey (1937) and Guerra have reported the occurrence of *Salm. enteritidis* osteomyelitis. Barwell (personal communication, 1947) describes a case of amoebic liver abscess in which *Salm. enteritidis* (Chaco variety) was found in the pus from the abscess.

Pulmonary Involvement.—The recovery of *Salm. enteritidis* from the sputum has often been reported, but only two cases of pulmonary involvement could be found. McNee (1921) describes a case of "influenza bronchopneumonia" in which necropsy findings were haemorrhagic peribronchial areas with pus in the bronchi, from which *Salm. enteritidis* was cultured. Smith and Scott (1930) report a case of *Salm. enteritidis* septicaemia in which consolidation of the right upper lobe developed. The rarity of the pulmonary involvement is contrasted strikingly with the comparative frequency in typhoid and paratyphoid fevers and in infection by *Salm. cholerae-suis.*

Case Report

A merchant seaman aged 48, a native of Barbados, was admitted to the Seamen's Hospital on Feb. 6, 1946. He complained of several weeks' headache and sweating. He also had some shortness of breath and had recently developed anorexia with occasional vomiting. He had a history of malaria and had been treated for nutritional oedema in 1945 at Durban.

On admission his temperature was 101.4° F. (38.55° C.), but there were no abnormal physical signs except a furred tongue and a dermatitis on his back and arms. The initial white-cell count was 12,900 (82% polymorphs) and the blood urea 49 mg. per 100 ml. The urine contained albumin, pus, and a few red cells. The chest showed no radiological abnormality at this stage.

Pyrexia continued, with peaks of 104 to 105° F. (40 to 40.6° C.), and six days after admission a course of quinine and mepacrine was tried empirically. The pyrexia did not respond to this therapy. Twelve days after admission he developed a coliform cystitis which responded to potassium citrate, and he became afebrile for a week, with much clinical improvement.

On the 24th day after admission he again became febrile and developed a cough with "rusty" sputum. Examination revealed fine crepitations over the right upper lobe and signs of a small effusion at the left base. A skiagram now showed the presence of a thick-walled abscess cavity in the right upper lobe and a small left basal pleural effusion. Further radiological examinations during three days showed an increase in size of the abscess, which lay in the axillary-pectoral segment of the right upper lobe. A second smaller cavity developed in the left upper lobe, but this diminished in size subsequently.

The patient's condition slowly deteriorated, and he was soon producing 4–6 oz. (110–170 ml.) of foul sputum daily. There was no response to penicillin or sulphonamide therapy, and on March 22 he was transferred to the London Chest Hospital for surgical drainage. At this stage his main complaint was a sharp pain in the right side of the chest, and his temperature was continually about 101.6° F. (38.7° C.). Clubbing of the fingers had not developed, but the dullness at the right upper lobe and showers of fine crepitations were still present. His white cells numbered 34,000 (polymorphs 70%), and his haemoglobin was 66%.

A course of penicillin (500,000 units daily) was again started, and on March 24 the abscess was drained through the axilla. Specimens of pus from the abscess, the sputum, and the blood all produced *Salm. enteritidis* on culture. However, the patient became stuporous two days after the drainage and developed marked meningism. The cerebrospinal fluid was sterile on culture, and there were no abnormalities in pressure or cell count. The patient's condition gradually deteriorated, and generalized oedema developed. He died on April 4, eight weeks after his original admission.

Necropsy revealed a marked increase in intracranial tension, with numerous abscesses and septic infarcts but no meningitis. The whole of the right upper lobe of the lung consisted of a sloughing pneumonitis with central cavitation, and there was a thin-walled abscess in the left upper lobe. Ulceration of the ascending and lower descending colon was present, non-specific in character. The liver and spleen were normal.

The bacteriological investigation (Dr. Joan Taylor, Salmonella Reference Laboratory) showed that this particular organism was the Chaco variety of *Salm. enteritidis*, which had been isolated in India and South America but not previously in this country.

We are indebted to Dr. E. H. Hudson, Dr. Keith Simpson, Dr. C. E. Sundell, and Mr. Vernon Thomson for permission to publish this case and for their helpful criticism.

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Medical Memoranda

Direct Inspection of Coarctation of Aorta with a Thoracoscope

A study of the literature reveals that a coarctation of the aorta has never been reported as having been seen through a thoracoscope, nor has the use of this instrument as a means of identifying abnormalities of the great vessels been described, though Fatti (1949—personal communication) used the procedure before performing Blalock's operation.

In the case here described there was a chance combination of two diseases—coarctation of the aorta and pulmonary tuberculosis. A therapeutic pneumothorax was induced and the presence of adhesions indicated thoracoscopy. An opportunity for direct inspection of the coarctation was thus presented. We were able to confirm the presumptive diagnosis and to determine the exact position and extent of the lesion and its relation to the subclavian artery.

Case Report

The patient, a woman aged 22, had a haemoptysis in July, 1948. She was *x*-rayed, and pulmonary tuberculosis was diagnosed.

On admission to the tuberculosis unit of St. Stephen's Hospital she felt well, had only a slight cough and a trace of sputum, had not lost weight, but had had some headaches which were not severe. The feet were always cold, even though she used a hot-water bottle to try to keep them warm.

Her general condition was good: she was afebrile and her weight was 7 st. 12 lb. (49.89 kg.). There were no physical signs of pulmonary disease. Examination of the cardiovascular system revealed a normal-sized heart with a blowing systolic murmur heard all over the praecordium, and equally well heard in the interscapular region, especially on the left side. The blood pressure was 200/95 in the right arm, 210/90 in the left arm, 190/100 in the right leg, and 190/100 in the left leg. There was visible and increased carotid pulsation, but no evidence of abnormal collateral circulation over the chest wall. The femoral pulses, though present, were difficult to feel, and were later than the radial pulses.

A radiograph of the chest showed diffuse miliary-type infiltration throughout the left lung. The right side was normal, as was the heart size; the aortic knob was small, and the pulmonary conus was not enlarged. There was no rib-notching. The electrocardiogram was normal. Sputum once showed scanty tubercle bacilli.

A diagnosis of pulmonary tuberculosis complicated by a mild degree of coarctation of the aorta was made. Dr. Paul Wood, who saw her in consultation, thought that the diagnosis of coarctation of the adult type was likely.

After a period of bed-rest and para-aminosalicylic acid the patient's condition was even better than on admission; her erythrocyte sedimentation rate had fallen from 30 to 7 mm. Westergren. The radiograph was unchanged. Tomography showed a cavity in the left infraclavicular region. A left artificial pneumothorax was induced on Feb. 16, 1949, without incident. Adhesions were present. In the absence of evidence of gross chest-wall anastomoses thoracoscopy was considered to be a justifiable procedure.

The operation was performed by one of us (J. R. B.) on March 4. The few apical adhesions which were present were divided without haemorrhage from the cut ends. After this the aorta was examined both above the upper lobe and through the fissure, and the whole length from arch to coarctation was seen. The notch was easily visible at the posterior end of the fissure, and was rather deeper than had been anticipated from the clinical picture. It was a short constriction and well below the origin of the left subclavian artery—the second type described by Salén and Wiklund (1948). Convalescence from thoracoscopy was not complicated by intrapleural haemorrhage.

COMMENT

Since Gross (1949) reported a case in which a graft had been successfully implanted in a boy in whom a long segment of aorta had to be removed in order to excise the stenosed segment completely, an accurate pre-operative diagnosis of the anatomy of the coarctation has become more important.

The method of angiocardiography using a systemic vein as the site of injection does not give very satisfactory results owing to excessive dilution of the medium. As an alternative, dye may be injected by introducing a catheter through the brachial artery, as has recently been done in Scandinavia.

It is suggested that there may be a place for thoracoscopy, as a view of the actual lesion must be far more informative than any radiological technique. The risk entailed must necessarily be haemorrhage from the anastomotic vessel on the chest wall, and, although this problem was not encountered in our case, it was not one in which complete obstruction was present. To avoid this risk it may be wise to introduce the thoracoscope high up, possibly in the second space anteriorly. Rib-notching is seldom seen in the upper two or three ribs, which may indicate that the collateral circulation is not extensive at this level, although J. Chesterman (1949—personal communication) states that the vessels are greatly dilated in all the intercostal spaces in specimens he has had the opportunity of investigating by injection at necropsy.

We would like to thank Mr. T. H. Holmes Sellors and Dr. Alec Wingfield for their encouragement.

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Artificial Pneumoperitoneum Associated with Strangulated Hernia and Scrotal Pneumocele

It has not been possible to find an account of strangulated hernia complicating artificial pneumoperitoneum treatment. The following case is therefore recorded.

CASE REPORT

A man aged 22 was referred to the Bedford Chest Clinic in October, 1946, because of persistent tachycardia. An x-ray film on Oct. 22, 1946, showed shadowing in the left upper zone, suggesting tuberculous infiltration. The right lung was clear. An artificial pneumoperitoneum was induced on Jan. 19, 1947. A left phrenic crush was done on Feb. 15. A rise in position of the left diaphragm of approximately 3 in. (7.5 cm.) was obtained by these means. The patient has done no heavy work since his lesion was diagnosed. His refills have been given at approximately ten-day intervals, 1,000 c.cm. in amount. His final pressure has averaged +4 to +6, and the highest ever recorded was +9 on two occasions in November, 1947.

His left phrenic nerve was recrushed on Feb. 14, 1948. He was last refilled on Oct. 1, 1948. Final pressure +3 to +6.

About October, 1947, he had noticed a small painless "lump" below the right inguinal canal. On Oct. 5, 1948, he noticed a sudden increase in the size of the swelling. Severe pain developed accompanied by vomiting. Six hours later a tender tense swelling was present in the right inguinal region, extending into the scrotum and reaching the upper pole of the right testicle. The swelling was irreducible, size about 3½ in. (8.75 cm.) long by 1 in. (2.5 cm.) wide. After administering morphine and atropine the hernia was reduced by taxis with some difficulty. Immediately following this procedure the right side of the scrotum became distended to about the size of a grapefruit. The testicle was covered but could be felt below the swelling, which was not tender. This swelling could be easily reduced, but it rapidly re-formed. It was undoubtedly caused by air. A pressure pad placed over the external ring retained the swelling without difficulty.

An operation for right inguinal hernia was performed. An air-distended processus vaginalis was demonstrated, dissected down, and found to include the testis.

COMMENT

The interest in this case lies in the fact that no reference has been found in the literature to the occurrence of strangulated (incarcerated) hernia accompanied by a scrotal pneumocele complicating pneumoperitoneum treatment. Meltzer (1948) describes a case of scrotal pneumocele, and quotes four others as the only cases that he has found in the literature. Nagley (1948), however, quotes a case of inguinal hernia, and also adds three cases of scrotal pneumocele. Bennett (1938), in a review of 200 cases of pulmonary tuberculosis treated by pneumoperitoneum, had three cases of hernia develop, none strangulated, but treatment was discontinued. Rilance and Warring (1944) report a case of a patient who had a small inguinal hernia sac which was filled with fluid from the peritoneal cavity by coughing. This could not be reduced until 25 ml. of fluid was aspirated. Daniels and Eisele (1938) describe two cases of inguinal hernia in which increase in the size of the scrotum occurred during pneumoperitoneum treatment. This they ascribed to air. Banyai (1946) also quotes two cases of inguinal hernia, not started by pneumoperitoneum treatment, but made worse by it. Crow and Whelchel (1945) report an emphysematous type of inguinal swelling occurring in something under 2% of 546 patients. They treated this by reduction of the swelling and the fitting of a truss.

Refills were then continued without further trouble. A number of other authors have quoted similar experiences.

It is obvious that hernia complicating artificial pneumoperitoneum treatment is common. It is clear that it can be well controlled by a truss, that this should be done, and that the pneumoperitoneum need not be discontinued. Scrotal pneumocele, until lately looked upon as a rarity, is probably more common than hitherto thought.

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Haematemesis Following Intraduodenal Rupture of Aneurysm

The frequency of occurrence of aneurysms of the abdominal aorta and its branches is now well recognized. Bryant (1903), examining necropsy records at Guy's Hospital, found, over a period of 46 years, 325 cases of aneurysm of the aorta, 54 of which were abdominal. Of Lucke and Rea's (1921) series of 321 aortic aneurysms 40 were abdominal, as were 6 of 94 aortic aneurysms recorded by Levitt and Levy (1940). Kampmeier (1936) found 386 cases reported in the literature, which was reviewed by Jennings (1941), who added four further cases and stressed how varied and dramatic may be the presenting clinical picture.

American authors seem to regard syphilis as the major aetiological factor in the development of these aneurysms, whereas in this country the combination of atherosclerosis and continued heavy manual work is generally held to be responsible, a view that is supported by the predominance of males among reported cases. In untreated cases the expectation of life from the time of diagnosis appears to be little more than a year, death being due to rupture of the aneurysm and haemorrhage.

In the majority of cases rupture is either retroperitoneal or intraperitoneal. Bockus (1943), in discussing the causes of haematemesis, refers to the possibility of aneurysmal rupture into the stomach but does not quote any recorded instances. Perry and Shaw (1893) reported a case of a man aged 37 in which at necropsy "at the lower end of the duodenum" there was a small orifice opening into the sac of an aneurysm "which sprang from the centre of the abdominal aorta." The stomach, duodenum, and parts of the small intestine were full of blood clot, but death was sudden and the occurrence of haematemesis was not described. Scott (1944) refers to a patient whose death was due to massive gastro-intestinal haemorrhage following rupture into the duodenum, but no clinical history is given. No other reports of rupture into the duodenum have been found in the more readily available literature.

The following case seems to be of particular interest, the patient being a female and death being preceded by haematemeses recurring over a period of nearly 24 hours.

CASE RECORD

A widow aged 58 was admitted to Edgware General Hospital at 11.30 p.m. with a history of having vomited approximately 10 oz. (280 g.) of blood-stained gastric contents 12 hours and six hours previously. For the preceding five months she had felt generally unwell, with poor appetite, distaste for food, and occasional upper abdominal discomfort which bore no definite relation to the taking of food. There had been no earlier history of dyspepsia and no loss of weight. Bowel action had been normal and there had been no observed abnormality of the stools.

The patient was a well-preserved co-operative individual; her general condition was good and not indicative of any great blood loss. Haemoglobin was 70% (Haldane). The abdomen was soft, and in the region of the umbilicus was a tumour, about 7 cm. in diameter, showing the characteristic sign of expansile pulsation. Pulsation of the tumour was visible through the anterior abdominal wall, but there was no palpable thrill and no bruit was audible on auscultation over the tumour. There were signs of moderate cardiac enlargement, considerable sclerosis of peripheral arteries was present, and the blood pressure was 140/85. A barbiturate hypnotic was prescribed and the patient spent a comfortable night, but at 8.30 a.m. the next day there was a further haematemesis leading to collapse and death.



Glass rod passed through connecting stoma.

A post-mortem examination was made by Dr. H. C. Moore. A large saccular aneurysm was present, arising from the main trunk of the abdominal aorta, which showed severe atheroma though no adventitial thickening. The aneurysm extended anteriorly and was filled with blood clot, removal of which revealed a stoma opening into the third part of the duodenum. The stomach and intestines were filled with blood. Sections of the aortic wall were reported as showing marked atheroma of the intima and, in the media, diminution of elastic and muscle tissue with collagenous replacement; in one place the media was absent. Mild lymphocytic infiltration of the media was present, and in the adventitia there was also some perivascular lymphocytic infiltration; no plasma cells were seen. There was no evidence of medionecrosis.

My thanks are due to Dr. H. C. Moore for assistance with the pathological examination, to Miss M. Shaw for the clinical photograph, and to Dr. L. I. M. Castleden for permission to publish this report.

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According to the third annual report of the Institute of Child Health in the University of London, the Institute has been considering the possibility of obtaining its own premises. The new Board of Governors of the Hospital for Sick Children, Great Ormond Street, was consulted, with the object of seeking agreement on a joint policy of building and development. This policy has now been decided upon, and plans being considered include the completion of the hospital's buildings. The Institute has been stimulated in this course by a gift of £105,888 received last year from the people of Durban and the Province of Natal. The close association between the University and the Institute has been continued, and lecture-demonstrations have been given for D.P.H. students and for students of the London School of Economics. An account of progress in research supported by the Institute and the Hospital for Sick Children is appended to the report.

Reviews

RECTAL SURGERY

The Principles and Practice of Rectal Surgery. By William B. Gabriel, M.S., F.R.C.S. Fourth edition. (Pp. 508; 11 coloured plates and 278 illustrations. £2 5s.) London: H. K. Lewis and Co. 1948.

Sixteen years have elapsed since Mr. Gabriel published this excellent book, which is one of the standard works on the subject and is studied by all who undertake the treatment of lesions of the ano-rectal region. During this period, when so many matters have been in a state of flux, surgery has progressed along many lines, knowledge has increased, operative technique has advanced, and new operations have been perfected. In this surge forward rectal surgery is in a place of prominence and has become a specialty resting upon the safe foundation of anatomy, physiology, and pathology, with a sound superstructure of symptomatology, diagnosis, and treatment. Proctology in this country is practised by surgeons trained in general surgery who continue their work in the latter subject.

The appearance of the beautifully illustrated fourth edition is appreciated, since the subject matter has been revised carefully to incorporate the latest developments. In addition, a new chapter on anal incontinence is presented. The sad plight of patients with this condition is obvious and their gratitude for relief without the institution of a colostomy is unbounded. The author discusses all the varieties of anal incontinence and warns against unskilled and injudicious deep division of the external sphincter and ano-rectal ring for the cure of fistula, which is especially liable to happen with high-level fistulae anterior to the transverse anal line, particularly in women. Anal incontinence may, of course, follow several other operations on this region, and the chapter should be studied by younger surgeons who contemplate carrying out these procedures. The correction of the condition by various operations is described in detail and illustrated by helpful diagrams. I am glad to note the author advocates the use of unabsorbable sutures with an aseptic technique, pointing out that the use of an absorbable suture may account for the comparatively poor end-results in the past.

The part of the book concerning malignant disease is important, and reflects the mature wisdom of a surgeon who has studied the subject in detail from every viewpoint, often in collaboration with Cuthbert Dukes. As the result of his experience he prefers the one-stage perineo-abdominal excision, which has given him a 75% five-year survival rate in group A patients. Other operations, including anterior resection and proctosigmoidectomy, which are being studied earnestly at the present time, are discussed in a most helpful manner. The author incorporates the warning that we should adopt a cautious attitude until comparable statistics are available, "and the death of W. Ernest Miles in September, 1947, is also a sad reminder of the fact that his abdomino-perineal excision has now been the standard procedure for forty years, and it is not lightly to be discarded." Consideration is given to the so-called "inoperable" carcinoma. I feel the time has come to delete this term, for at best it is only relative and its attachment to a patient means the abandonment of hope. The author rightly demands, "When is any particular growth to be considered inoperable?" and he supplies the answer by stating it can be given only in most of the advanced and borderline cases when laparotomy is undertaken by a surgeon with special knowledge of this branch of surgery.

It is hoped that in a future edition more details will be given concerning the subject of sacro-coccygeal tumours, including teratoma and chordoma. Doubtless a section will be added on carcinoid tumours, which are being discovered in increasing numbers.

I express my indebtedness to the author for all the contributions he has made to rectal surgery, praise his book, and commend it to surgeons who seek to relieve the intense suffering occasioned by ano-rectal disease.

RONALD W. RAVEN.

ESSAYS ON SURGERY

Surgery Orthodox and Heterodox. By Sir William Heneage Ogilvie, K.B.E., D.M., M.Ch., F.R.C.S., Hon. F.A.C.S., Hon. F.R.C.S.Canada, Hon. F.R.A.C.S. (Pp. 241. 12s. 6d.) Oxford: Blackwell Scientific Publications.

The author has collected in this volume reprints of articles he has published at various times during the last few years. They range from addresses to students and professional societies to papers on highly technical aspects of surgery. Throughout they give evidence of the wide interests of the author, of his great surgical experience, and of his clear insight into the many problems which have confronted him. The descriptions of his own cases are the most attractive feature of the volume, and they are certainly examples, which any student should study, of how cases should be described. Indeed, there are few surgeons, however great their own experience, who will not learn something from their perusal. Even those articles outside the field of technical surgery have a wide interest, and should appeal to many readers whose interests are not restricted to the world of medicine.

H. S. SOUTTAR.

TABULATED THERAPEUTICS

A Course in Practical Therapeutics. By M. E. Rehfuss, M.D., F.A.C.P., F. Kenneth Albrecht, M.D., and Alison Howe Price, A.B., M.D. (Pp. 824; 70 plates. £4 2s. 6d.) London: Baillière, Tindall and Cox. 1948.

This great book, which in appearance is not unlike a family bible (it is beautifully printed and illustrated), has evolved from the method of undergraduate instruction in Jefferson Medical College, Philadelphia. For some years each student was assigned to review a particular therapeutic subject in internal medicine. Their contributions were then considered by the members of the department best fitted to do so, revised, edited, mimeographed, and given out to the class. In this way a huge quantity of material gradually accumulated and has been incorporated in the present volume. One feels the result is indeed the product of some great organization rather than of a few individual writers. As the pages are scanned one can almost hear the whirring of holleriths, the clicking of massed typewriters, and the hurrying feet of bands of busy amanuenses. And yet the result is co-ordinated, wonderfully well balanced, and lacking in contradictions. Somewhere in the background there has been a meticulously efficient secretary to the organization (probably a woman) and a remarkably well informed editorial board.

The book is planned in four sections. The first and shortest is an introduction to the principles of treatment by the senior editor. It is the only section to be written in a consecutive prose style, the other three being set out in tabular notational form. The second section is devoted to a discussion of symptomatology and its management. The third is concerned with the therapeutics of definite diseases, some consideration being given to aetiology and diagnosis, since it is realized that the successful description of treatment demands some preliminary classification and definition of the disease to be treated. The fourth section is on special forms of therapy.

In a rapid survey of the book I have been unable to find a single important drug or method of treatment which does not receive mention. In spite of the fact that such a large volume must have taken a considerable time to pass through the press, it is nevertheless remarkably up to date, even in respect of the most modern forms of antibiotic treatment. The main criticism of the work, and it is a serious one, is that too many methods of treatment are described without adequate critical assessment of their relative values. The reader is dumbfounded by the number of things he can do for a patient, but is left in some doubt about which is most important and when to do it. Embarrassed by his riches, he may feel like the celebrated ass which starved between two bundles of hay because it could not make up its mind which to turn to first.

This is manifestly not a book to read through, but one to use as a work of reference. A lecturer anxious to deal with any aspect of the therapeutics of internal medicine will here

find his notes beautifully prepared for him; and should anyone in this country think of editing a booklet on medical treatment he will find it easy, with the help of this volume, to ascertain how far the information given by his contributors is accurate, up to date, and comprehensive.

D. M. DUNLOP.

NOMENCLATURE OF DISEASE

The Nomenclature of Disease. Drawn up by a joint committee appointed by the Royal College of Physicians of London. Seventh edition. (Pp. 385. 8s. 6d.) London: H.M. Stationery Office. 1948.

The appearance of the seventh edition of this work coincides with the publication of the *International Statistical Classification of Diseases, Injuries, and Causes of Death* (*British Medical Journal*, April 30, p. 771). The purpose of the nomenclature is to lay down an approved terminology and to list the separate disease entities and parasites which in the light of current knowledge are believed to exist, giving in most instances only the recommended name for each. A statistical classification, on the other hand, has to group together into numbered categories, in a manner thought to be most useful for statistical presentation and research, all descriptive terms likely to be found on medical records. For each of these systems some form of combined aetiological and anatomical framework has to be used, and to some it may seem unfortunate that the system newly adopted for this edition follows the plan of the American standard nomenclature of disease rather than the simpler one which has stood the test of time in the international list. However, there are advantages as well as disadvantages in having a diversity of system between the nomenclature and the statistical classification.

The distribution of diseases according to aetiology within each anatomical section was entrusted to one, two, or three experts in diseases of that part of the body, and this has resulted in a certain lack of consistency between the sections and loss of balance in the amount of detail devoted to them in the index. What is more important, there are differences in aetiological assignment of some diseases between the nomenclature and the international classification. Hodgkin's disease, for example, placed among the neoplasms by overwhelming opinion from many countries in the course of constructing the international classification, finds an uneasy place under several headings in the nomenclature, only the bone deposits being grouped as neoplasmic. Some diseases, such as haemorrhagic disease of the newborn, appear in two different sections.

The list of eponyms and the list of plant and animal parasites (which occupies 59 pages) will possibly prove to be the most useful parts of the volume. The index contains more than 15,000 items, including references to the parasite section. In course of its preparation the book was placed at the disposal of those responsible for preparing the index to the international classification, which will contain many more terms, not all to be recommended, however.

PERCY STOCKS.

ARTERIAL DISEASES

Vascular Diseases in Clinical Practice. By Irving Sherwood Wright, M.D. (Pp. 514; 104 figures. £2 1s.) Chicago: Year Book Publishers Inc. London: H. K. Lewis.

Arterial disease is man's greatest natural enemy after middle life. His chance of dying from such disease or from its effects on the heart and kidneys is then probably five times as great as his risk of death from any other single cause.

Dr. Irving Wright's book considers all the well-known and lesser-known diseases of the arteries and veins, but not the resultant morbid changes in the heart, brain, kidney, and other viscera. An account of the methods of examination includes not only detailed descriptions of clinical methods, such as Allen's test for patency of the ulnar artery, but also such practical points as the great variation in the position of the dorsalis pedis artery and the fact that some individuals have such a distinct pulse in their own finger-tips they cannot use them reliably for palpation. Although oscillometry, angiography, and other instrumental methods receive attention, emphasis is placed throughout upon clinical procedures.

In connexion with the aetiology of arteriosclerosis, the author has little to add to the well-known factors such as heredity and an excess of cholesterol, lipoids, and fatty acids in the blood. Conversely, he sees only one important agent in the causation of thrombo-angiitis obliterans, namely, tobacco. He insists that every patient with this disease must give up smoking altogether and for good, and he states that every one of his 300 or more patients who have required major amputation has continued to smoke, often surreptitiously. Moreover, he predicts that sympathectomy operations will fail in their main purpose if smoking has not been abandoned. Most physicians will agree that tobacco is also disadvantageous in the degenerative types of peripheral vascular disease; this being so, it is remarkable that abstinence from tobacco so rarely alleviates the symptoms of myocardial ischaemia.

This work deals with many other interesting problems, among them the role of the cervical rib and the scalenus anticus in the production of vascular and neurological symptoms in the arm, as well as the disputed costo-clavicular syndrome and the effects of hyperabduction. The book is enlivened throughout with graphic clinical examples illustrating the points under discussion. In short, it is a first-class guide by which the clinician may orientate his own experience, and a stimulating exposition of a rapidly growing subject.

K. SHIRLEY SMITH.

THE SCHOOL CHILD

Everyday Problems of the School Child. By Agatha H. Bowley, Ph.D. (Pp. 142; 11 photos. 7s. 6d.) Edinburgh: E. and S. Livingstone. 1948.

A new book by Dr. Agatha Bowley is always welcome, because she writes clearly, interestingly, and sensibly. This volume is primarily intended for teachers, and gives advice on the handling of the child throughout his school life. Dr. Bowley founds her advice on psycho-analytic principles, but never becomes technical, obscure, or extreme. In fact, the whole story reads extremely like practical common sense, which is a tribute both to the author's presentation and the fundamental soundness of modern psychology when shorn of the excrescences which are often derived from a lack of practical understanding of human nature.

Two chapters discuss the relationship of teachers to child and parent, the rest being devoted to a consideration of the problems met at each stage of the child's career from nursery to secondary school. It may be asked what such a book has of interest to the medical reader, but neither the paediatrician nor the child psychiatrist, and still less the family doctor, can afford to lack a full understanding of the child at school. If the doctor is to keep the child healthy and treat him when he becomes ill in mind or body, he must realize what the child is experiencing intellectually, emotionally, and spiritually during the school life which takes up so much of his waking time. If the practitioner wishes to obtain at least a general understanding of this subject without having recourse to the more erudite textbooks of child psychiatry or education, he cannot do better than spend a wet Sunday afternoon reading Dr. Bowley's admirable little book.

R. G. GORDON.

CHILD GUIDANCE

Handbook of Child Guidance Edited by Ernest Harms. (Pp. 751. No price.) New York City: Child Care Publications.

Dr. Ernest Harms has gathered together many workers in child guidance; each has written on some aspect of theory or practice; and the result is a book of 751 pages of beautiful paper.

Every feature is covered: one wonders whether any more need ever be written on the subject. It may be that from now on the matter of child guidance must be considered closed. Every library should have this volume on its shelves, and there

are probably people who, unlike this reviewer, love to read books of 751 pages which cover everything.

I have looked through the pages for annoying features and obvious errors, and I cannot find any. The English is clear and good. There is even an attempt to present Freud's and Jung's theories which must be described as serious. Francis G. Wickes's chapter on Jung's theories is one of the best. Beside this there are references to Anna Freud's work, and there are attempts to state or evaluate a few of Melanie Klein's concepts.

I have also looked for an original idea, and the fact that I have not found one must not be taken as meaning anything. Such volumes can easily be burial grounds for new ideas. In any case the book remains a monument to the personal drive of Dr. Harms.

D. W. WINNICOTT.

BESNIER'S PRURIGO

Clinical Studies of Besnier's Prurigo. By P. H. Nexmand. (Pp. 236; illustrated. No price.) Copenhagen: Rosenkilde and Bagger. 1948.

This is a factual survey of a series of one hundred cases of Besnier's prurigo, observed over an average period of six months. The syndrome is regarded as something apart from eczema, which to the author is a vague and uncertain group of itching affections of unknown aetiology. Nevertheless, infantile eczema commonly precedes Besnier's prurigo and is often localized to the flexures of elbows and knees at this early age.

Little credence is given to the significance of the psychological basis of Besnier's prurigo, attention being directed almost entirely to the allergic aspect. Elaborate investigations by patch, scratch, electrophoretic, and intradermal methods revealed no very certain relationship to foods or inhalants, including pollens, moulds, house dust, and animal or human dander. Treatment by desensitization and by ultra-violet light is described, but better results were obtained in a shorter time and at less expense by local therapy. Antihistaminic drugs, employed over short periods in eight cases, did not appear to be of much value.

The author draws attention to the occurrence of perlèche in a number of his patients. Ichthyosis was present in only six cases and cataract in one case. He has observed a significant increase in the incidence of the disease during the past ten years.

J. T. INGRAM.

While the standard limb-lead electrocardiogram remains sufficient for the examination of arrhythmias, it is now widely recognized as inadequate for the study of myocardial disease. This fact has been taken into account by Burstein and Bloom in the third edition of their *Illustrative Electrocardiography* (pp. 309; illustrated; $6.00. New York and London: D. Appleton-Century Company, 1948). They have discussed in the first two-thirds of their work the well-understood principles of electrocardiography and the arrhythmias, describing the conventional leads and sometimes an additional lead, IV R or IV F. The chapter on the electrocardiogram in myocardial infarction would be quite inadequate without the supplementary section (later in the book) on "the fourth and other precordial leads"; no doubt in future editions these passages will be integrated and the obsolete designation "fourth lead" dropped. The authors have given a useful survey of the development of unipolar limb leads. They emphasize the manner in which curves from these leads relate to the posture of the heart and demonstrate that apparently abnormal Q or S waves in limb leads may prove to be positional when unipolar leads are used. With so much that is new in electrocardiography it is surprising that the authors have seen fit to include sections on phonocardiography and the radiology of the heart. Moreover, neither of these subjects is properly included under the title "electrocardiography." The former is a cognate subject but deals largely with the elucidation of valvular lesions by the registration of sound; the second is a totally different topic, as worthy as electrocardiography of a book to itself. It is certainly inappropriate to sandwich 35 pages of radiology into *Illustrative Electrocardiography*. Nevertheless, all of these subjects are clearly and briefly described, and any student or practitioner who seeks an introduction to some of the instrumental methods employed in cardiology will find much of what he needs in this book.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

Aviation Medicine, Its Theory and Application. By K. G. Bergin, M.A., M.D., D.P.H., A.F.R.Ae.S. (Pp. 447. 35s.) Bristol: John Wright. 1949.

Sex in Social Life. Edited by S. Neville-Rolfe, O.B.E. (Pp. 506. 21s.) London: George Allen and Unwin. 1949.

The Epidemiology of Hemolytic Streptococcus. By A. F. Coburn, M.D., and D. C. Young, M.D. (Pp 229. 22s.) London: Baillière, Tindall and Cox. 1949.

The Rhesus Factor. By G. F. Roberts, M.A., M.B.Cantab. 2nd ed. (Pp. 64. 3s. 6d.) London: William Heinemann. 1949.

The Clinical Application of Psychological Tests. By R. Schafer, M.A. (Pp. 346. 30s.) London: George Allen and Unwin. 1949.

Textbook of Histology. By J. F. Nonidez, D.Sc., and W. F. Windle, Ph.D., Sc.D. (Pp. 456. 40s. 6d.) London: McGraw-Hill Book Co. 1949.

The Fundamentals of Pulmonary Tuberculosis and its Complications. Edited by E. W. Hayes, M.D. (Pp. 480. 50s.) Oxford: Blackwell Scientific Publications. 1949.

Transactions of the Association of Life Insurance Medical Directors of America. 57th Annual Meeting. Edited by J. R. Gudger, M.D. Vol. 32. (Pp. 242. No price.)

Psycho-Analysis. By E. Glover, M.D. 2nd ed. (Pp. 367. 15s.) London: Staples Press. 1949.

Villon. By P. Loo. (Pp. 127. No price.) Paris: Vigot. 1947.

La Lobectomie Supérieure. By A. Maurer and others. (Pp. 71. No price.) Paris: Vigot. 1948.

Les Maladies de L'Appareil Genito-Urinaire. By J. Trabaud. 2nd ed. (Pp. 192. No price.) Paris: Vigot. 1949.

Greffe Ovarienne Intra-Oculaire chez la Lapine Castrée: Application au Diagnostic de la Gestation. By J. Vors. (Pp. 66. No price.) Paris: Vigot. 1949.

Morphologie et Histologie des Corps Progestatifs et Gestatifs de L'Ovaire Féminin. By G. Dubreuil and M. Rivière. (Pp. 101. No price.) Paris: Vigot. 1947.

La Chirurgie du Mouvement. By R. Massart. (Pp. 128. No price.) Paris: G. Doin. 1949.

Dermatologie. By J. Darier, A. Civatte, and A. Tzanck. (Pp. 922. 90 Swiss francs.) Bern: Medizinischer Verlag Hans Huber. 1949.

Oto-Rhino-Laryngologie im Kindesalter. By E. J. Jents. (Pp. 326. 48s.) Vienna: Verlag Wilhelm Maudrich. 1949.

Obesity. By E. H. Rynearson, M.D., F.A.C.P., and C. F. Gastineau, M.D. (Pp. 134. 17s. 6d.) Oxford: Blackwell Scientific Publications. 1949.

Advances in Surgery. Edited by W. D. Andrus. Vol. I. (Pp. 554. 66s.) London: Interscience Publishers. 1949.

Diagnostic Tests for Infants and Children. By H. Behrendt, M.D. (Pp. 527. 57s.) London: Interscience Publishers. 1949.

Practical Lessons in Psychiatry. By J. L. Fetterman, M.D. (Pp. 342. 30s.) Oxford: Blackwell Scientific Publications. 1949.

A Miniature Textbook of Feeblemindedness. By L. Kanner, M.D. (Pp. 33. $1.25.) New York: Child Care Publications. 1949.

English-Italian Medical Dictionary. By R. Marconi and E. Zino. (Pp. 565. 2,400 lire.) Turin: Edizioni Minerva Medica. 1949.

Medicine on the March. By M. Clark. (Pp. 308. About 21s.) London: Mayflower Publishing Company. 1949.

Specs. By "BM/TFCE." (Pp. 49. 3s. 6d.) St. Albans: W. Cartmel. 1949.

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POLIOMYELITIS PRECAUTIONS

We do not know if there will be a major epidemic of poliomyelitis this autumn, but the warning signs are sufficiently grave; and local authorities, hospital management committees, and individual practitioners would be well advised to consider how best to handle the situations which may arise. Attempts to control the spread of poliomyelitis have in the past been singularly disappointing. The apparent ineffectiveness of public health measures must be due at least partly to there being perhaps several hundred cases of abortive infection for every one diagnosed as poliomyelitis. Food in this country is handled so carelessly that the avoidance of infection seems impossible. However, the amount of infection may make a difference, and sensible precautions should be taken without carrying these to tiresome extremes. Parents should realize that they themselves may be carriers of the virus and may infect their own children either by droplets from the mouth or by handling food with contaminated hands. The virus is also found on flies during an epidemic. Clearly the threat of poliomyelitis is an indication for special attention to personal hygiene, and children who are in any way unwell should be put to bed and isolated from others. A patient suspected to have an abortive infection should be kept in bed for one week.[1]

Since little can be done to avoid the virus, the question arises whether any steps can be taken to reduce the risk of the infection, when it occurs, developing into the paralytic form of the disease. In the first place there seems to be little chance of keeping the virus outside the central nervous system, for it is found in the brain experimentally even in abortive cases. Further, though the virus has for long been thought to travel by the nerve axon, Brierley and Field[2] have recently demonstrated a very easy pathway from peripheral nerve to spinal cord by the inter-fibre spaces. This means that some long-established theories will have to be reconsidered.

After a minor and non-specific catarrhal illness, which may be the first indication of infection, the virus seems to lurk in the brain and spinal cord for many days, apparently awaiting an opportunity to attack the nerve cells and cause paralysis. Study of the physiology of the neurone in relation to its vulnerability to virus infection is therefore well worth while: it is a difficult task, but at the present time provides perhaps the most hopeful line of defence. In poliomyelitis the motor cells in the spinal cord are the most vulnerable; and there is good evidence to indicate that motor cells supplying fatigued muscles are, as a result of this fatigue, rendered more vulnerable to the virus. This effect of fatigue may perhaps operate in converting an otherwise abortive case into a paralytic case, but fatigue is probably most dangerous after the pre-paralytic phase, with its meningeal symptoms, has developed.[3] Physical fatigue during this meningeal stage is often disastrous, while even the continuance of normal activity is highly dangerous.

Over-careful advice to make all children rest during an epidemic seems undesirable, but the thoughtful parent can do much to avoid that state of over-fatigue which occurs often during the holiday season, especially when the weather is good. Further, there are theoretical reasons for increasing precautions against fatigue for several days after injury, minor illnesses, sunburn, and surgical operations. Dietary indiscretions, such as eating excessive quantities of fruit, or unnecessary purging may also be harmful. In addition, however, to these mild and easily planned restrictions there should be an absolute rule that children who develop minor illness must go to bed at once, and unnecessary contact with healthy persons should be avoided, particularly when the symptoms are in any way suggestive of those which may occur in the pre-paralytic phase: these include fever, nausea, vertigo, unsteady eyes, retention of urine, pains in the head, neck, back, limbs, chest, or trunk, with perhaps some stiffness of the neck or spine. Ritchie Russell[3] has recently described in this *Journal* some of the many ways in which paralytic poliomyelitis may present.

The doctor seeing a patient who he suspects may be developing the pre-paralytic stage of the disease must often be uncertain about the indications for transfer to hospital. In making his decision he should bear in mind that at this stage the sick child should be kept very quiet, both physically and mentally, with adequate sedation to prevent restlessness and to ensure at least some sleep. In such a case a tiring journey to hospital, followed perhaps by the child crying for its mother, may be harmful, while if isolation precautions are taken in the home and the case is notified a few days' delay is unlikely to cause any otherwise preventable spread of infection. On the other hand, the development of bulbar or respiratory paralysis outside hospital means that the practitioner has a very difficult situation to handle successfully. The need for very early diagnosis by lumbar puncture is not usually a vital matter, but if the differential diagnosis includes the possibility of bacterial meningitis then early lumbar puncture is urgently called for, since specific treatment may be required. It is unnecessary for the doctor to exhaust his patient by testing all muscle groups

[1] *British Medical Journal*, 1947, 2, 141.
[2] *J. Neurol. Neurosurg. Psychiat.*, 1949, 12, 86.
[3] *British Medical Journal*, 1949, 1, 465.

in the acute stage. A few simple tests for each limb and trunk are sufficient to judge whether paralysis is spreading.

Patients with developing poliomyelitis are clearly better cared for in hospital, if it is satisfactorily staffed, but in some cases the doctor and parents may be justified in deciding that the child should remain at home provided precautions are taken to secure isolation and arrangements can be made for transfer to hospital at short notice. If the ability to cough becomes very weak, or swallowing difficult, hospital care is urgently necessary. Bulbar palsy is treated by postural drainage (raising the foot of the bed to make an angle of 30 or more degrees); the use of the respirator must be avoided in these cases if the muscles of respiration are active, since it is liable to suck pharyngeal secretions into the lungs. When respiratory muscles begin to fail there should be a respirator at hand to give the weak muscles a rest and, if necessary, to maintain respiration. If a respirator is not available some other form of artificial respiration must be used temporarily, and of these a resuscitator or lung inflator is the best: the Oxford inflator is excellent for this purpose. The services of an anaesthetist will be found very helpful in such an emergency. Finally it would be wise to overhaul respirators now and to ensure that someone is ready without delay to direct operations when they are required. The National Foundation, 120, Broadway, New York, 5, N.Y., will send to any physician or hospital an excellent booklet on the nursing of patients in respirators.

THE ELDERLY SICK

The fact that the problems of ageing and chronic sickness should have been chosen by Professor A. P. Thomson as the subject for the Lumleian Lectures—published in this and last week's *Journal*—is an indication of their great practical importance at the present time. The Report of the Royal Commission on Population[1] shows that the steady increase in the numbers of the old, both absolute and relative to the rest of the population, has already brought us to the point where there is approximately one person over 65 to six persons of working age, and that in another 25 years the proportion may well be one to four or even less. Clearly such a state of affairs will present society with a difficulty that is potentially disastrous, and it is only sensible to use the present time to determine the best methods of securing for the elderly conditions in which they will be able to live independent and useful lives.

Hitherto medical investigation has been mainly concerned with two aspects of the problem—the rehabilitation of the chronic sick and the physiological processes of ageing. The complete indifference to the state of the aged and chronic sick in the wards of long-stay hospitals has been replaced by a welcome growth of interest in their special needs, and by a realization not only that much can be done to ameliorate their physical distress but also that some of the physical and mental states found in long-stay patients may actually derive from their removal from home to the atmosphere of a chronic ward. Professor Thomson's plea that such individuals should be brought out of their segregation into the common stream of medicine deserves the fullest support. Many of the elderly sick present clinical problems of great interest, and behind these there lies the riddle of the intrinsic nature of the ageing process, which, in spite of some famous assaults in which the intestinal flora and the sex glands were concerned, is still an enigma to the investigator. In addition to the common disabilities of old age there is the sad group of "iatrogenic" disorders resulting from prolonged confinement to bed. It will indeed be some time before the law of diminishing returns begins to apply to the results of skilled clinical research in this field.

It should never be forgotten that the problems of old age are fundamentally domestic, and there is no prospect of their ever being anything else. As recently as 1946 only 1.16% of the population of pensionable age were housed in public assistance institutions. If the great future burden of old age is still to be borne within the family, a better understanding of the sense of family responsibility towards the aged and of the external factors which may facilitate or hinder its operation will be essential. Professor Thomson refers to the prevailing opinion that in general the sense of family unity is weakening, and he suggests that this may be related, at any rate in part, to the fact that there is less reluctance than formerly to call in "public assistance" to solve the problems of family life. This process has probably been hastened by the largely successful attempts of both central and local government departments to banish the stigma of the old Poor Law. Public assistance authorities, for instance, are now "welfare" or "social welfare" authorities—a great improvement in terminology. No doubt the increased numbers of old people in the population will eventually make it necessary to provide some form of assistance to those younger relatives who carry a disproportionate share of the domestic burden of old age, but fortunately both Professor Thomson's findings and the results of Dr. J. H. Sheldon's survey[2] in Wolverhampton show that family loyalty is still a common virtue.

Though the problems of old age are mainly domestic, the number of beds available in hospitals for the treatment of the aged sick is relatively small, and it is of great importance that full use should be made of them. Standards for admission and rate of turnover require careful examination, and Professor Thomson's findings on the social aspects of hospital stay are particularly interesting. No less than one-third of the patients were

[1] Report of the Royal Commission on Population, 1949. London: H.M.S.O. See leading article in the *British Medical Journal*, 1949, 1, 1127.
[2] *The Social Medicine of Old Age*, 1948, London. See leading article in the *British Medical Journal*, 1948, 1, 1142.

admitted to a large infirmary in Birmingham because of some domestic catastrophe, such as the death of a spouse, while the rate of turnover was in part determined by the condition of the home to which the old person would return on discharge. This, again, was affected by the length of the patient's stay in hospital—during the first three months after their admission 71% of the males and 51% of the females have a home to return to, whereas after a stay of four years only 24% of the males and 13% of the females are in this fortunate position. Clearly the mere fact of admission to hospital has undesirable consequences in some cases, and Professor Thomson's findings support the results of the experiment carried out by Brooke at St. Helier's Hospital, Carshalton, to which old people are admitted only if they come within a few sharply limited categories. By the provision of suitable transport and other means every effort is made to provide out-patient treatment for the elderly sick.

Elsewhere in this issue Dr. John Pemberton and Miss Joan Smith report the results of a study of elderly male patients discharged from hospital. They discuss the type of social service which elderly men who are partially disabled by chronic illness require. The most important reason why patients admitted to medical wards did not return to work was because the illnesses from which they suffered were chronic or progressive, and their course could not in most cases be reversed or arrested by admission to hospital. At a recent conference (reported on page 330) on the community care of old people Dr. C. A. Boucher emphasized the necessity for co-operation between the general practitioner, the hospital specialist, and the medical officer of health. It is certain that in the future a medical service for the aged will require to break down the rigid distinctions between hospital and home treatment and between medical and social care.

TREATMENT OF PETIT MAL

Petit mal is difficult to treat: little success has been obtained with the hydantoinates, phenobarbitone only occasionally reduces the number of attacks, while the older remedies—the bromides, belladonna, and borax—are of value in very few cases. A minority of patients are helped by amphetamine, caffeine, or a ketogenic diet, but until recently no form of therapy has been consistently effective. In 1945 Lennox[1] introduced a synthetic product—3,5,5-trimethyloxazolidine-2,4-dione—usually known as "tridione," which has a specific effect in reducing the frequency of petit mal, and in 1947 he reported on its use in 166 patients.[2] He found that 83% of them had improved, and attacks had stopped completely in 31%. Others have since confirmed its value, and in this number of the *Journal* Dr. C. W. M. Whitty and Dr. F. C. Haward report small series of patients with petit mal in whom the drug has been of value. In the former's 46 patients the attacks ceased or there was great improvement in 31 and some improvement in 10 others.

The best results with tridione have been obtained in patients with typical wave-and-spike complexes in their electroencephalographic records, but in some of Whitty's successful cases this E.E.G. abnormality was not present. Lennox divided petit mal into three varieties: true petit mal, in which there is a lapse of consciousness for 5–30 seconds, the patient usually remaining immobile but occasionally having rhythmic jerking or twitching movements of the eyelids, head, and arms; myoclonic attacks, in which single contractions of flexor muscles of the arms occur without impairment of consciousness; and akinetic attacks, in which there is sudden loss of postural control with nodding of the head and, at times, falling and loss of consciousness. It is in these three varieties of attack, especially when the E.E.G. shows characteristic changes, that the best results are obtained with tridione. The drug has no effect in reducing the frequency of major epileptic attacks, and some patients even have an increased number of major attacks when tridione is being administered. When major attacks and petit mal are occurring in the same patient phenobarbitone or hydantoinate has to be given in addition. An unusual feature of treatment with tridione is that in many cases administration can be stopped suddenly without causing an increase in the number of attacks. This does not happen invariably, however, and Whitty found that in two of his patients the attacks increased in frequency when tridione was stopped, and decreased again when they were put back on the drug.

Unfortunately tridione has disadvantages: the commonest toxic symptom is an unusual type of photophobia in which objects appear to shimmer and which is usually called the "glare phenomenon." This appears to be related to the dose employed and can often be stopped by reducing the dose. Lennox noted this side effect in 31% of his patients. Skin rashes may also occur: acne-like papules, the most usual form of rash, are unbecoming rather than dangerous, but at times a rash similar to that of measles may develop, and Lennox advises stopping the drug if this occurs. One fatal case of exfoliative dermatitis apparently due to tridione has been reported.[3] The most serious toxic effect is on the blood-forming organs. This appears to be due to individual susceptibility, as is the case with other drugs, such as amidopyrine or thiouracil, and not to be related directly to the dosage employed. Lennox reported one

1 *J. Amer. med. Ass.*, 1945, 129, 1069.
2 Ibid., 1947, 134, 138.
3 Kerrin, J. C., *Lancet*, 1948, 1, 267.
4 Braithwaite, R. F., *British Medical Journal*, 1948, 1, 14.
5 Foster, T. W., Watson, J. W., and Neumark, E., *Lancet*, 1947, 1, 517.
6 Harmson, F. F., Johnson, R. D., and Ayer, D., *J. Amer. med. Ass.*, 1946, 132, 11.
7 Mackay, R. P., and Gottstein, W. K., ibid., 1946, 132, 13, 163.
8 Barnett, H. L., Simons, D. J., and Wells, R. E., *Amer. J. Med.*, 1948, 135, 760.
9 Briggs, J. N., and Emery, J. L., *Lancet*, 1949, 1, 59.
10 Ibid., 1949, 1, 366.

fatal case of aplastic anaemia and stated that he had heard of three other fatal cases in the United States. There are published records of two deaths from agranulocytosis[4,5] and two from aplastic anaemia.[6,7] Finally a nephrotic syndrome has been observed during administration of tridione and attributed to the drug.[8,9]

Because of these rare toxic effects tridione should not be used indiscriminately, but should be reserved for cases of petit mal; if possible an E.E.G. record should be made before it is prescribed. It is preferable to find out first whether the petit mal can be controlled by the safer but less commonly effective remedies. If these fail and if the attacks are frequent, then treatment with tridione should be begun. The patient must be kept under regular medical observation while he is taking the drug. A white-cell count and differential count should be performed at monthly intervals, and if the granular cells fall below 1,600 per c.mm. tridione administration should be stopped. Complete reliance cannot be placed on regular cell counts to give warning of agranulocytosis, for it may develop suddenly, and careful watch must be kept for symptoms such as sudden lassitude, pyrexia, sore throat, or stomatitis; if these appear the drug must be stopped and a white-cell and differential count done immediately. As Lennox[10] puts it, "Like any potent weapon of offence, tridione can cause grave harm if not handled with respect and conscientious care, but this would be a poor reason for not using it."

A DISPUTE ENDED

The local authority associations have at last agreed to meet representatives of the medical profession to negotiate new scales of remuneration and conditions of service for public health medical officers.[1] The B.M.A.'s proposals for the new terms were submitted to the Ministry of Health in July, 1948, but in spite of repeated requests the local authorities would not consent to open negotiations on them. In January of this year, therefore, the Council decided that if negotiations through approved Whitley machinery were not begun by the end of February advertisements from local authorities would not be accepted by the *British Medical Journal* unless the salaries offered conformed with those in the Association's proposed scales. The local authorities continued to refuse negotiation, and for the last five months advertisements have not been accepted by this or by other medical journals unless they fulfilled those conditions.

The local authorities' delay has caused inconvenience and hardship to men and women in the Public Health Service; with very few exceptions they have followed the B.M.A.'s advice in refusing to accept appointments which were the subject of an "Important Notice." They are to be congratulated on the fortitude with which they have stood loyally by their colleagues. Only one advertisement in conformity with the Association's proposals has been published in the *Journal* during this period—from Merthyr Tydfil.

[1] See *Supplement*, p. 73.

The last obstacle to the formation of a medical functional council in the Whitley machinery has now been removed. It was not possible to set one up until the local authorities agreed to co-operate, since they must be represented on the management side as employers of practitioners in the Public Health Service. It was also questionable at one time whether the Whitley machinery would be of much value to the profession if it was not backed by the right to go to arbitration. Though the absolute right has not been granted, the consultants obtained satisfactory assurances from the Ministry that, "save in exceptional circumstances, and after the conciliation machinery of Whitley has been exhausted, issues on remuneration remaining in dispute will go either to arbitration or for inquiry and report by a committee." Because of this promise and other assurances the Joint Committee and the Central Consultants and Specialists Committee advised hospital staffs to sign permanent contracts. On July 28 the General Medical Services Committee met and decided that these assurances appeared to safeguard the rights of general practitioners in the Service, and the chairman of the committee has written to Sir Lionel Whitby thanking him "for the magnificent work which you have put in not only for consultants but for general practitioners as well."

Though the Minister has not conceded all that the profession wished in order to ensure that disputes go to arbitration if they cannot be resolved through Whitley machinery, he has gone a good way to meet our requirements and allayed much anxiety. The outcome of these disputes reveals plainly what has so often been said—that when the profession stands together in a just cause it obtains satisfaction. It only remains now to set up the Functional Medical Council and to bring before it, as occasion demands, outstanding points of difference between the medical profession, or any part of it, and the employers' side.

ANATOMY OF THE BRONCHIAL TREE

The anatomy of the bronchial tree used to be a neglected subject, but the last ten years have seen this deficiency corrected and a number of good descriptions have appeared. Recognition of the importance of the broncho-pulmonary segment as a unit has led to advances in knowledge of the natural history, pathology, diagnosis, and treatment of many lung diseases. Drs. J. Hardie-Neil and W. Gilmour, of Auckland, have carried out long and painstaking work on this subject, and an authoritative article by them appeared in this *Journal* in 1939.[1] In a more recent paper[2] they present in greater detail the results of their study of a subject which is of much importance and about which other authors have written little—the comparative anatomy of the bronchial tree and the application of the knowledge acquired to the investigation of the human bronchial tree. In this issue of the *Journal* we publish a summary of the research work undertaken by these authors. The clear exposition of the otherwise confusing arrangement of the subapical bronchi of the lower lobes can be cited as a practical result of their comprehensive anatomical studies,

[1] Hardie-Neil, J., Gilmour, W., and Gwynne, F. J., *British Medical Journal*, 1939, 1, 495.
[2] —— ——, *N. Z. med. J.*, 1946, 45, 20.
[3] *The Anatomy of the Bronchial Tree*, 1946, London.
[4] Kourilsky, R.; *et al.*, *J. franç. Méd. Chir. thorac.*, 1948, 2, 402.

which have been carried out on eleven different mammalian species.

Hardie-Neil and Gilmour's nomenclature has also been followed by other authors and has served as a basis for modified nomenclatures. The term "apical segment of the lower lobe" is, for instance, more satisfactory than the term "dorsal lobe." Subapical follows quite naturally from this, in contrast to the ill-begotten and quite unacceptable term "subdorsal," which they criticize strongly. On the other hand, their adherence to a classification which includes four divisions to the right upper-lobe bronchus will not have much support; it is now generally agreed that this lobe contains only three chief broncho-pulmonary segments. The specimens and diagrams they use or borrow from other authors to sustain their claim cannot be interpreted convincingly in the way they suggest. Moreover, in their earlier paper they quote Brock[3] incorrectly when they state that he describes the lateral division of the pectoral or anterior bronchus as the most common site for lung abscess in the upper lobe. According to Brock the most common site is the subapical or postero-lateral segment, and either its lateral or posterior division may be affected, or both together.

These differences of description serve to emphasize that the time is fully ripe for the adoption of a nomenclature that would be, ideally, accepted internationally. A committee in France[4] has recently agreed on a nomenclature, but this certainly is one that would not be accepted in most other countries. It is to be hoped that an attempt will be made to obtain international agreement on a working nomenclature for the anatomy of the bronchial tree.

TUBERCULOSIS IN SCOTLAND

During the present century there has been a great reduction in the tuberculosis mortality rate, and at the same time living conditions generally have improved. The relationship between cause and effect is generally accepted. Disturbances in the life of the people may alter the trend of death rates, and in both of the world wars an increase in tuberculosis mortality occurred. In England and Wales the crude death rate per million from respiratory tuberculosis rose from 989 in 1913 to 1,323 in 1918. In the last war the change was not so great, and the rate rose from 516 in 1938 to 602 in 1941 and then commenced to fall. After the 1914–18 war the fall in tuberculosis mortality was retarded in several areas, but the figures available made a direct explanation of this phenomenon impossible. This slowing down was most pronounced in those towns and areas where social and economic conditions were least satisfactory.

The trend of the death rate in Scotland and in England and Wales has differed during the past few years. In England and Wales the death rate from respiratory tuberculosis has fallen steadily from 557 per million in 1943 to 473 in 1947, while in Scotland the rate fell from 647 in 1941 to 627 in 1945 and then rose in 1946 to 658 and remained practically constant at this level for the next two years. As Mr. Walter Elliot points out in a paper appearing in the opening pages of this issue, a convincing explanation for this rise cannot be found. Paradoxically the economic social factor does not appear to be the important one. The nutritional state of the community, which is probably the most important single factor in determining tuberculosis morbidity and mortality, does not differ between the two countries in these days of food rationing. Housing, another important influence on the prevalence of the disease, has deteriorated more in England, because of the greater damage done by bombing. McKinlay[1] has shown that overcrowding does not explain the different trend of pulmonary tuberculosis in Scotland, and economic factors can hardly be held responsible, since the rise in mortality has occurred during a period of full employment.

The increase in mortality in Scotland has been greater among females than among males. The percentage ratio of the actual deaths in 1946–7 to the expected deaths, calculated from the 1937–9 figures, was 119 for men and 132 for women. All age groups shared in the rise in mortality, though it is among the younger people, particularly those aged 15–25 and, to a lesser extent, school-children, that the adverse change has been greatest. Over Scotland as a whole the mortality follows the usual pattern, rising in the more industrialized areas. Glasgow, with a very high rate and about one-fifth of the total population, takes a large share in the responsibility for the unfavourable trend of the Scottish figures.

The rise in mortality may be due to several causes, and from the figures available for analysis it does not seem likely that these can be positively identified. Mr. Elliot's suggestion that Polish migration in the early days of the war may have introduced a more active strain of infection is interesting but difficult to prove. On a similar line of reasoning the high rate for Glasgow might be explained by the fact that many of the population of the city are of Irish extraction. Susceptibility to tuberculosis is high in Ireland: in 1947 the death rate was 124 in Eire and 79 in Scotland. Some have attempted to explain the proportionate increase in tuberculosis among the younger people by finding fault with their way of living—too many late nights spent dancing or in cinemas, careless eating habits, and a neglect of a proper balance between exercise and rest.

Tuberculosis notifications have risen steadily in Scotland, and in 1948 they were twice the pre-war figure. Comparisons of notifications are not very satisfactory, owing to changes that have been introduced in recent years. By mass radiography minimal lesions are discovered that would have gone completely undetected a few years earlier. Notifications are merely the cases which are discovered, and the number may be only loosely related to the true incidence—the relationship in any area depending upon the carefulness of the local practitioners. Thus the notifications of tuberculosis in England and Wales dropped by 2,000 in 1939 due to the effect of war on medical and administrative procedure.

[1] *Health Bulletin*, Department of Health for Scotland, Vol. V, No. 3, and Vol. VI, No. 4.

THE M.R.C.P.

The Comitia of the Royal College of Physicians last week received a report of a committee which had been set up "to consider whether the examination for the M.R.C.P. as regulated and conducted in the past can meet the needs of the future, and to make recommendations." The recommendations were accepted by the Comitia and therefore now become the official policy of the College for the

next two years, when the M.R.C.P. examination will once more be reviewed. The outstanding conclusion of the committee is that "membership of the College should signify a knowledge of general medicine that justifies further training as a consultant, and the examination should therefore be a test in general medicine, on a level higher than that required for qualification." From this follows the conclusion that the examination "should be taken early in training, normally about two years after qualification." The College report recognizes that the M.R.C.P. is widely regarded as the hallmark of the specialist, but also notes that the teaching hospitals more and more demand the M.R.C.P. as the qualification for the post of registrar or chief assistant. It considers that no examination can satisfy both these criteria and that a choice must be made between them.

The choice is admittedly difficult, but the decision of the College is one the consequences of which it does not seem to have thought out to the end. Until now the M.R.C.P. has been looked upon as a qualification conferring specialist status. Obviously the man who has passed the M.R.C.P. has regarded this as the first and important step to establishing his career of a specialist or consultant. It is the beginning and not the end of experience in this field of medicine. When the College states that membership "should signify a knowledge of general medicine that justifies further training as a consultant" the question must be asked, What further training is to be considered necessary, and who is to decide at the end of such training that the possessor of the M.R.C.P. is or is not "a failed specialist"? The answer may be that so far as the College of Physicians is concerned this will be recognized by election to the Fellowship; but many men have practised and are practising as specialists and consultants who have not had this distinction conferred upon them. By its decision the College has altered the status of the M.R.C.P., and this alteration may well be resented by those who have passed the examination on the widely held assumption that its possession was a recognized entry into the ranks of consultants and specialists. Not only does the College decision appear to lower the status of the M.R.C.P., but it may well have the unfortunate effect of lowering the standard of the examination. In fact the two would seem to be inseparable.

The committee considered whether the M.R.C.P. should not be preceded by a primary examination in anatomy and physiology, or any other subjects. It did not, apparently, consider the possibility of holding a primary examination which would qualify successful candidates to enter a final examination the passing of which would clearly define the status of the candidate as a consultant or specialist. The method adopted by the Royal College of Surgeons appears to be more rational and fair, and it may be hoped that when the M.R.C.P. is reviewed in two years' time the College will consider the possibility of holding, instead of the M.R.C.P., a primary examination, possibly in conjunction with the Royal College of Surgeons, as a preliminary to a final examination for the F.R.C.P., say four or five years after qualification. Its present decision is simply a recognition of the fact that very large numbers of young men and women are exhausting themselves and their examiners to obtain a diploma which will enable them to avoid going into general practice. It is no solution to the problem of how a man should be trained and recognized as a consultant or specialist in medicine.

DOMICILIARY MIDWIFERY

The Ministry of Health has issued a statement on the Domiciliary Midwifery Service which, it is advised by the Central Health Services Council, should be given the widest possible publicity. The statement is printed in this week's *Supplement*. The Ministry considers that in England and Wales there is misunderstanding about the nature of the medical services available for the mother who is confined in her own home. The misunderstanding, apparently, is the belief among general practitioners and the public that the doctor accepts full responsibility for antenatal care, labour, and the lying-in period. "This was certainly not the intention; it was not intended in any way to diminish the importance of either the antenatal clinics or the midwives by the introduction of the Maternity Medical Services." The statement points out that the general practitioner, the midwife, the antenatal clinic, the pathologist, and the hospital and specialist services all have a part to play as members of a team. The Ministry appears to go out of its way to stress the value of the service of the midwife and the antenatal clinic. It observes, it is true, that the general practitioner may assume full responsibility for the conduct of the case, but adds that "it is the hope of the Minister that in domiciliary midwifery the midwife will continue to be regarded as a normal attendant, supported by the antenatal clinic during the pregnancy and working in co-operation with the general practitioner. . . ."

In its comment on the report of the Working Party on Midwives the B.M.A. Council[1] criticized it as speaking of the midwife as a practitioner of *normal* midwifery. It criticized also the feeling of competition which was tending to grow up between general practitioners and midwives. The present statement by the Ministry would seem to have the same undesirable effect, even though this may not have been intended. It is obvious that the general practitioner who practises obstetrics must have a large experience of the normal if he is to be able to deal satisfactorily with the abnormal. In its proposals for a General Medical Service for the Nation, published in 1938, the B.M.A. stressed the need in a maternity service for continuous medical supervision by a general practitioner. It considered that an efficient maternity service should include among other things: "(1) antenatal care by, or under the responsibility of, a medical practitioner chosen by the patient throughout pregnancy in every case; (2) attendance in every case by a certified midwife during the antenatal period, labour, and the puerperal period; (3) attendance by the practitioner chosen by the patient during pregnancy, labour, and the puerperal period, when as a result of antenatal examination the practitioner has declared his personal attendance to be necessary, or when his attendance is requested by the midwife." These recommendations are as sound to-day as they were eleven years ago, and it is hoped that in the National Health Service a real effort will be made to see that they are carried out. The present statement of the Ministry of Health is not encouraging.

[1] *British Medical Journal Supplement*, July 30, 1949, p. 65.

HEALTH REGULATIONS FOR AIR TRAVEL (III)

BY

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Medical Officer, Ministry of Health

The attention of the travelling public and of practitioners has often been drawn to the number of inoculations and vaccinations that are obligatory on the intending traveller, particularly if he intends proceeding abroad by air. During the period since 1946 the position described in the first article in this series (*British Medical Journal*, 1947, 2, 741) has become more stable, as was indicated by Kyle in the table appended to the second article (*British Medical Journal*, 1948, 2, 1115). This increase in stability has occurred despite the setback caused by the cholera epidemic in Egypt in 1947, an event which precipitated certain health authorities into adopting quarantine measures that had not been invoked since the Middle Ages. The closing of frontiers and the threat of the use of firearms to prevent the unauthorized entry of persons from an infected or supposedly infected area were examples of a fashion in quarantine which might properly have been left in the textbooks of medical history. Nevertheless, the international outlook as regards quarantine has steadily improved, with a corresponding reduction in the delays and frustrations.

It may therefore be of interest to practitioners and others to know that this particular aspect of international co-operation is being actively pursued by the World Health Organization, which has recently taken over the duties previously carried out in this field by the Office International d'Hygiène Publique in Paris. In October, 1948, an Expert Committee on International Epidemiology and Quarantine met in Geneva and considered amongst other matters a revision of the International Maritime and Aerial Sanitary Conventions, which are to be replaced in the future by WHO Sanitary Regulations. It was very encouraging to note the more liberal attitude adopted by the committee towards quarantine restrictions in the light of the advances made by modern methods in disease control.

In the proposed "principles" on which the WHO Regulations for air travel will be based the following recommendations were made; they are of particular interest:

1. *Plague and Typhus Inoculations.*—These inoculations will not be required of travellers by the new regulations. It was considered by the committee that the use of new insecticides and rodenticides now available should be the most effective method of dealing with outbreaks of these diseases.

2. *Cholera Inoculation.*—This inoculation will not ordinarily be required of travellers; but it will be permissible for individual Governments to require it of passengers coming from local areas infected with cholera.

3. *Transit Passengers.*—Air passengers in transit through foreign airports will not be subjected to any sanitary measures in force for that locality—e.g., compulsory inoculations or vaccinations—provided that they are not suffering from an infectious disease and that they do not leave the precincts of the airport. A passenger will not be considered to have left the airport if he is conveyed to another airport in the same vicinity under the supervision of the health authority.

4. *Immunization of Travellers.*—The committee's views on the subject of immunization of travellers as a quarantine measure are worth quoting at length:

> "The committee noted that there had developed since the last war a widespread tendency on the part of health administrations to require from travellers certificates of immunization, irrespective of the value of such immunizations for the protection of the countries reached by the travellers or for that of the travellers themselves.
>
> "The committee was aware of the many disadvantages inherent in the compulsory production of immunization certificates, and considered that the serious obstruction to free and rapid travel caused by such requirement was out of all proportion to the protection likely to be afforded to the country of arrival."

5. *The Personal Declaration of Health.*—This document was compulsory for air travellers in the 1944 Sanitary Convention for Aerial Navigation, but its use under the WHO Regulations will be optional at the discretion of individual Governments.

Summary

In the future, therefore, it seems that the statutory immunizations likely to be required of travellers, apart from those required for personal protection—e.g., T.A.B.—will be confined to vaccination against smallpox and inoculation against yellow fever, with anti-cholera inoculation as an occasional measure. Practitioners with practical experience of these diseases in epidemic form will probably not quarrel with this decision. But the traveller will no doubt impatiently await the day when world epidemiological conditions will render even these measures unnecessary.

The Expert Committee reflected this feeling in the first of the "principles" upon which the new regulations will be based when it was agreed that "WHO Regulations would be needed until the true object of international epidemic control—the eradication of the pestilential diseases—had been achieved."

INTERNATIONAL CONGRESS OF OTOLARYNGOLOGY

EDINBURGH VISIT

A discussion on "Otogenous Thrombophlebitis and its Complications" was held in conjunction with the Scottish Otological and Laryngological Society in the Department of Surgery, University of Edinburgh, on Monday, July 25. Dr. G. Ewart Martin, president of the Scottish society, was in the chair.

In the absence through illness of Professor Norman M. Dott (Edinburgh), who was to have led the discussion, the opening paper was delivered by Dr. BERGER THOMAS (Edinburgh). Dr. Thomas dealt with the complications of thrombophlebitis which might be met in cases exhibiting a resistant strain of organism. He first described aseptic thrombosis of the lateral sinus, which may produce a subacute external hydrocephalus (the post-otitic hydrocephalus of Symonds). This could be demonstrated by ventriculograms. Treatment consisted in the intravenous administration of hypertonic saline solution and the control of cerebrospinal fluid pressure by a lumbar puncture. Where no improvement occurred a subtemporal decompression, with a simple stellate opening in the dura, was advocated.

Aseptic thrombosis of the cerebral branches of the lateral sinus was often silent in onset, the patient first complaining of loss of vision or seizures due to cerebral damage following thrombosis of the veins. Ventriculograms showed localized cerebral involvement with ventricular shift and displacement of the third ventricle. In these cases antibiotics were given, and the cerebrospinal pressure controlled as already described. A bone-flap decompression might be required.

In connexion with the septic complications of thrombophlebitis of the lateral sinus, Dr. Thomas referred to Gradenigo's syndrome, which he thought was seen less commonly since the introduction of antibiotics, and which he regarded not as an apical petrositis from direct spread of the infection but as a thrombophlebitis of the petrosal sinus. Subdural empyema, on the other hand, was more commonly encountered now, particularly after frontal sinusitis. Cerebral and cerebellar abscesses were now considered to be due to a thrombophlebitic process rather than a direct spread of infection. Dr. Thomas showed that tension within the abscess interfered with the penetration of penicillin. When the abscess was drained surgically, penicillin could then be recovered from the pus.

Dr. A. BROWNLIE SMITH (Edinburgh) contrasted his experiences of lateral sinus thrombosis before and after the introduction of antibiotics. Although diagnosis was often easy before the advent of penicillin, many cases presented extreme difficulty, and complications were frequent. Since penicillin became available the difficulty of diagnosis had increased but the serious consequences of thrombosis had diminished. Of the 29 cases of lateral sinus thrombophlebitis in his series, 22 occurred before antibiotics were introduced, and of these 14 were complications of acute otitis media. There were seven deaths (32%) in this series. One was due to the anaesthetic, and six occurred from undue delay in operating, either because the case was referred too late or because the condition was not

suspected until the patient had been some days in hospital. Of the seven remaining cases, all were associated with chronic otitis media and five were in children under the age of 11 years. No deaths occurred in this series, and in no patient receiving penicillin was the jugular vein ligated. It would appear that lateral sinus thrombosis as a complication of acute otitis media was disappearing, or if it occurred the condition responded to antibiotic treatment and remained undiagnosed. The cardinal features—rigors, positive blood culture, raised cerebrospinal fluid pressure, and a positive Queckenstedt test—were not now seen, and the temperature chart was the only certain guide to the possibility of thrombophlebitis. An unexplained temperature in the face of penicillin treatment for acute otitis media was, in Dr. Smith's opinion, an indication for urgent operation.

OLD PEOPLE AND THE COMMUNITY

A two-day conference was held recently at the Royal College of Nursing on the community care of old people. Those who took part included representatives of the nursing service of the L.C.C., the Women's Voluntary Services, the Civilian Welfare Department of the British Red Cross Society, the Public Health section of the Royal College of Nursing, and the National Council of Social Service.

Mr. ARTHUR BLENKINSOP, M.P., Parliamentary Secretary to the Ministry of Health, said that most local authorities were now providing accommodation for old people on their new housing estates of a much more attractive kind than had hitherto been available. He hoped it would be possible to provide a certain number of hostels also where services could be rendered to the occupants. Old people often became permanent bed cases in hospital when, for their own benefit and that of others, they ought to be taking their place again in the community.

Dr. KENNETH COWAN, county medical officer of health for Essex, spoke on the care of the chronic sick in hospitals in relation to shortage of beds and lack of nursing staff. Where treatment by rehabilitation and physiotherapy had been given there had been a remarkable increase in the bed turnover. He instanced the position in Cornwall where, by the use of adequate rehabilitation and medical treatment for the chronic sick in the institutions of the county, the available bed accommodation had been increased by 50%. Part-time nursing staff had been used to good purpose in some areas, particularly in Gloucestershire. He pleaded for suitable holiday homes and hostels in the country where aged people who were living with their relatives could be taken for short periods, so relieving the strain at home and perhaps enabling the old people to continue their home life for a much longer time. For organized voluntary endeavour in the care of the aged he suggested a national organization which would institute measures for the care of old people in their homes and formulate a policy which could be carried out locally.

Dr. C. A. BOUCHER, medical officer of the Ministry of Health, said that the problem of the aged was really a problem of social medicine—that is to say, of medical science applied to groups of people. He begged that these people should not be isolated as a race apart. Their relatives, friends, and neighbours would then be relieved from all responsibility, which would be unfortunate. In spite of the brilliant work of experienced specialists and enthusiastic doctors in geriatric units, much more could be achieved if there was adequate help at an earlier stage before chronicity developed. The geriatrician had already shown what could be done; he must now show how much more could be prevented. The present overloading of hospital beds was a confession of failure of preventive measures. The fantastic position had been reached whereby an old person who required skilled hospital treatment had to wait a long while for it. The result was that his illness became well advanced, it required a much longer period for treatment and rehabilitation, and in the end the patient had often to be retained in the institution because his family circumstances had altered and there was no home to which to send him. Four thousand old people were killed every year in accidents in their homes. If they were made aware of these dangers and how preventable they were, this heavy fatality list would be lightened and hospital beds would not be filled with fractured femurs and the like. He praised St. Helier Hospital, Carshalton, where they had a geriatric liaison committee with representatives of Surrey County Council, the Hospital Management Committee, the Local Executive Council, and the National Assistance Board. Another notable effort was the Bermondsey Mission, which was run by three general practitioners. The mission had a ward of 25 beds for old people, and a geriatric specialist from a near-by hospital visited once a week and was available on call. There was need, said Dr. Boucher, for a "triangular" system. At the apex was the family doctor, who knew the old person and his background. At one of the bases was the hospital specialist, the geriatrician, and at the other the medical officer of health, through whom the local authority and voluntary association services should be made available. These services included home helps.

No resolutions were formulated, but it was stated that the ideas put forward at the conference would serve as a guide for local action in the months ahead.

COLONIAL MEDICAL RESEARCH

TRIAL OF NEW DRUGS IN THE TROPICS

The Colonial Research Council is responsible for research schemes in many fields—agriculture, forestry, demography, social science, engineering, and a dozen others. Research in medicine, undertaken by the Medical Research Committee, of which Sir Edward Mellanby is chairman, is one of the most important of its interests; of the last annual grants, amounting to £1,652,169, medical research schemes took more than 10%. Many of the other investigations have medical aspects, such as the work on insecticides and the search for plants of possible medicinal value.

The annual report of the Council[1] contains a list of about 150 new or supplementary projects which have been approved for grants during the year under review. They range from an investigation into the technique of parboiled rice to a study of the properties of antisera for identification of blood found in mosquitoes and other insects; from the bionomics and distribution of ornithodorus ticks in relation to relapsing fever to the establishment of the East African Bureau of Medicine; from psychological research in Northern Rhodesia to an investigation into the suitability of the roller mill for milling millets and sorghum, this latter as part of nutrition research in West Africa; from the setting up of a medical research library in Fiji to the study of hot-climate physiology in Nigeria; from an investigation of salt-water mosquitoes to studies in African witchcraft.

The Medical Research Committee had some eight projects in hand last year in Africa and Malaya, and during the year started two new ones. The first was an investigation on Bancroftian filariasis and onchocerciasis in East Africa, and the other was a study of loasis (infestation of *Loa-loa*, a genus of filarial roundworm) in the Cameroons. The whole subject of filariasis is being extensively investigated in East Africa, and Mwanga, in Uganda, has been selected as the headquarters of the Colonial Office team for this work. Research on schistosomiasis is already being undertaken independently in Egypt and in Southern Rhodesia, and it is not considered necessary to begin work on this subject in the colonial territories at present. From Egypt it is reported that marked clinical improvement has been obtained by the use of "miracil D," but complete sterilization does not appear to have been obtained as a rule in the Egyptian patients. Moreover, the drug has been found irritating to the gastro-intestinal mucosa, which contraindicates its general use in Egypt. In Southern Rhodesia the drug works more favourably—for some reason the dweller by the Zambesi withstands its irritant action better than the dweller by the Nile.

Prophylactic Value of Proguanil

Work on malaria has been continued in Malaya, East Africa, and North Borneo. In Malaya extensive trials have been made

[1] *Colonial Research 1948-49*. Cmd. 7739. London: H.M. Stationery Office. 2s. 6d. net.

to establish the prophylactic value of proguanil and mepacrine. Among the labour forces on the plantations in an endemic area the high suppressive value of proguanil in *falciparum* and *vivax* malaria has been confirmed. The disappearance of parasitaemia when proguanil was given was found to be more rapid than with mepacrine in cases of *falciparum* malaria, though the duration of the fever was somewhat longer. The exact comparative value of these two drugs seems as yet undetermined. The most suitable methods of using proguanil, with its effective gametocidal action, have been worked out for both prophylaxis and treatment. The prophylactic value of the drug is said to be high, but the clinical response to treatment slow. It has been found that the duration of the fever is shortened and relapse prevented when the ten-day course of proguanil is supplemented, on the first day of treatment only, by mepacrine or quinine, and the trial of this reinforced method is recommended. Chloroquine has also been tried out with a view to its probable practical value in rural areas.

Work on nutrition has been continued in the Gambia and elsewhere, chiefly on the prevalent types of anaemia and the extent to which these conditions are dependent on malnutrition and on zymotic disease. A study of the digestive function in conditions of malnutrition is being undertaken in Uganda by the Medical Research Council. Protein deficiency is shown to be common in the Gambia. Other investigations include research in tick-borne relapsing fever in Kenya. The Virus Institutes in Nigeria and Uganda have been primarily concerned with a study of the epidemiology of yellow fever, and the work in Uganda has shown that there exists in Africa an epidemiological type of yellow fever which is analogous to the jungle yellow fever of South America. It is now thought that the permanent reservoir of virus which exists in the animals and mosquitoes of the forest is the ultimate source of the yellow fever of urban communities.

Chloramphenicol in Scrub Typhus

A section of the medical report concerns the work of a research unit in Malaya which is making a long-term study of the natural history of scrub typhus, a condition which took a heavy toll of the Allied forces during the Japanese war. An investigation has been made by an American unit on the value of the new antibiotic, chloramphenicol, in this condition and in typhoid fever. An explosive outbreak of scrub typhus occurred on an estate near Kuala Lumpur soon after the investigation began, and during the next 10 weeks 40 proved cases were treated with the drug without failure. Some of them were treated as late as the eighth or ninth day of the disease, although in untreated cases death may occur from the twelfth day onwards. Up to now about 90 cases have been treated successfully. A small amount of the drug prepared by chemical synthesis became available to the workers at Kuala Lumpur and was used in treating two Gurkha soldiers infected during jungle warfare against bandits. They were given the synthetic drug on the fifth and sixth days of fever, and in both cases the temperature reached normal within 48 hours. The toxicity disappeared and convalescence was uneventful. In typhoid fever the improvement of the general condition and the diminution in toxicity usually began within 24 hours. One curious circumstance is that chloramphenicol has been found effective against gonorrhoeal urethritis, and a recent preliminary communication records the successful treatment of 32 cases. The importance of this finding, which is thought by venereologists to open up a fruitful field of investigation, lies in the fact that the drug is given orally. The successful large-scale synthesis of an effective non-toxic antibiotic has obviously wide implications. It is hoped that the number of diseases affected by this class of drug will be increased, and that reduced costs, approximating perhaps to those of the sulphonamides, will gradually free chloramphenicol and other antibiotics from the restrictions imposed by expensive fermentation methods of preparation.

The question of undertaking trials in Africa with B.C.G. vaccine has been considered further. In French and Belgian African territories this vaccine is already being tried out. The Medical Research Committee considers that trials should be undertaken in a selected area with a stable population and a known incidence of tuberculosis, and the committee is making suitable arrangements. Climate physiology is another long-continuing study. One experiment mentioned is that small doses of pituitrin have been given to a group of eight African students, and those who had high sweat-rates were found to have them lowered after injection, while those with low sweat-rates had the opposite experience. In other words, without pituitrin there was a great difference between the sweat-rates of the two sub-groups, but after pituitrin there was no difference.

The tsetse fly has been a major preoccupation of a number of colonial investigators this year. The important reports on trypanosomiasis in Eastern and Western Africa and on the Anchau rural development scheme have been the subject of notice in these columns. They were followed by the introduction of "antrycide" for the treatment of trypanosomiasis in cattle, about which the Colonial Office report expresses the hope that the experiments now in progress will establish the prophylactic value of this drug and extend its practical application. A sum of £15,800 has been allocated for a three-year research on the effects of antrycide injections on cattle in East Africa. An account is given of the trials in Uganda with D.D.T. and B.H.C. smokes. It has been confirmed that these substances are lethal to tsetse flies, but the application apparently still presents difficulties. The malaria eradication experiments in Mauritius and Cyprus are described, as well as the control measures in Uganda, Swaziland, and Malaya.

It is stated that the shortages of scientific personnel, labour, building materials, and equipment are being slowly overcome, and proposals are to be submitted to Parliament for the amendment of the Acts under which colonial development and welfare research is administered, to enable the yearly disbursement to be increased.

SCIENTIFIC FILM ASSOCIATION

MEDICAL FILMS

A meeting called by the Medical Committee of the Scientific Film Association was held recently at the Royal College of Obstetricians and Gynaecologists.

Mr. MALCOLM DONALDSON in his introductory remarks said that the object of the meeting was to discuss the best way to encourage the use of films and film strips in teaching. At present there was no central medical film library for teaching purposes. There were very few medical films and more would have to be made. This could perhaps best be done by the senior teachers of any particular subject forming a committee and, after deciding exactly what points it was necessary to illustrate, writing a script for a film to be produced by a professional film artist. Although everyone had his own methods of teaching, it was uneconomical for each man to make his own film. The fundamental points which an undergraduate had to learn were common to all teaching schools. It was after qualification that points of difference in technique should be taught.

Sir KENNETH GOADBY, the chairman of the Medical Committee, said that the Scientific Film Association had been in existence for five or six years. The association had as its aim the general diffusion of knowledge concerning the making, use, and advantages of scientific films in all branches of education. The Medical Committee was handicapped by want of funds. It had published, in conjunction with the Royal Society of Medicine, a catalogue of medical films, and had corresponded with the deans of medical schools in the hope of stimulating interest in the use of films as an aid to teaching. The real value of the medical film was in presenting the salient points which could not adequately be demonstrated by lantern slides or by word of mouth.

Films were then shown illustrating normal labour, the use of Kielland's forceps, and breech delivery. *Girl Grows Up* was a film intended to explain menstruation to girls aged 12 to 14, and a film on the care of premature infants came from the Rotunda Hospital. In the discussion after each film, among many who took part were Sir WILLIAM GILLIATT, Dame LOUISE MCILROY, and Mr. LESLIE WILLIAMS. The production of these films was of a high standard, but there was outspoken criticism of the obstetrical technique illustrated in some of them.

INTERNATIONAL CONFERENCE ON AUDIOLOGY

The second International Conference on Audiology was held in London on July 15 and 16, at the Royal Society of Medicine, under the presidency of Professor Gunnar Holmgren (Sweden). The Conference was attended by otologists, physicists, and others interested in the various aspects of audiology. Fifteen countries were represented.

The delegates were welcomed on behalf of the Royal Society of Medicine by Mr. Scott Stevenson, president of the Section of Otology. On the first day a review was given by the secretary, Professor Eelco Huizinga (Holland) of work already done. Papers were read by Professor Maurice Sourdille (France), Dr. E. P. Fowler, jun. (U.S.A.), Professor E. Luscher (Switzerland), and Dr. Harvey Fletcher (U.S.A.). The second day was occupied by a discussion on the work in audiology carried out in England by the Ministry of Health, the Medical Research Council, and others. An introductory address was given by Sir Wilson Jameson, Chief Medical Officer of the Ministry of Health, and other speakers included Dr. C. S. Hallpike, Medical Research Council; Dr. W. G. Radley, G.P.O. Research Station; Mr. R. S. Dadson, National Physical Laboratory; Dr. T. S. Littler, Department of Education of the Deaf, Manchester University; Mr. Michael Reed, Ministry of Health; Dr. E. A. Underwood, Ministry of Education; Miss Edith Whetnall, Royal National Throat, Nose, and Ear Hospital; Mr. R. Scott Stevenson, Metropolitan Ear, Nose, and Throat Hospital; Professor Sir Henry Cohen, Medical Research Council; Mr. Leslie Wilkins, the Social Survey; and Mr. Terence Cawthorne, Medical Research Council. At the end of the meeting it was announced that the present secretary was retiring and that his place would be taken by Mr. Terence Cawthorne (England).

Reports of Societies

HAEMODYNAMICS OF PREGNANCY

At a meeting of the Edinburgh Obstetrical Society on May 11, with the president, Dr. E. C. FAHMY, in the chair, Professor R. J. KELLAR presented a symposium on the "Haemodynamics of Pregnancy." His critical review of the subject was supplemented by four short papers.

Dr. HILARY HAMILTON gave a brief description of previous experimental work and then analysed the changes in cardiac output during normal pregnancy in 68 women. Output was determined by the Cournand technique of right heart catheterization. Experimental work now in progress at the Simpson Memorial Maternity Pavilion was concerned with the cardiac output in cases of toxaemia all showing some degree of hypertension. Preliminary results in 44 cases showed that they fell into fairly distinct groups. Pregnant patients with "fixed" essential hypertension (10 cases) showed no alteration in cardiac output from the curve found in normal pregnancy. In 6 cases of "fixed" essential hypertension with superimposed pre-eclampsia a rise in cardiac output was noted. There was also an increase in cardiac output in 11 cases of "labile" hypertension.

Varying results were observed in 17 cases of pre-eclampsia; 13 had a mild or marked increase in output, and this usually exceeded the increase seen in the two hypertensive groups; in 4 cases the cardiac output was within the normal limits for the duration of pregnancy. The changes in cardiac output in the cases of pre-eclampsia did not appear to bear any clear-cut relationship to the clinical severity of the toxaemia. No explanation of these results could be put forward at the present time, but it was hoped that future work would help to clarify the situation.

Blood Volume and Blood Flow

Dr. RACHEL WHITE contributed two short papers, one on blood volume in pregnancy and the other on limb volumes in pregnancy. In the first paper she outlined the method used and the results obtained in the investigation of 10 normal non-pregnant women, 56 women at various stages of normal pregnancy, and 10 women in the first week of the puerperium. She showed that the increase in blood volume during pregnancy was approximately 23%—a result comparable with those of previous investigators. This increase occurred mainly during the second half of pregnancy and was maintained for the first seven days of the puerperium. She also gave a preliminary survey of the results of investigations now being carried out during pregnancies complicated by hypertension and pre-eclampsia. From these results it appeared that the blood volume in cases of hypertension ("labile" and "fixed") was comparable with that in normal pregnancy, while in cases of pre-eclampsia it was lower than normal.

The second paper was concerned with a study of the limb volumes of 15 patients during the second half of pregnancy. She described the method, which was based on the principle of water displacement, and said that records were kept at 2–4-weekly intervals during the pregnancy and at seven days and six weeks after delivery. Of the 15 cases, four had a normal pregnancy with a variation of 0.5 to 3.8% in limb volumes; 7 cases developed a mild to moderate degree of toxaemia with an increase of at least 6% in all their limb volumes, a 6 to 7% increase appearing to coincide with the presence of "pitting" oedema. The remaining 4 cases showed an increase of up to 9% in at least one limb volume with no other manifestation of toxaemia. She also showed that the increase in volume during pregnancy appeared to be more marked in the hand used less frequently—i.e., the left hand in right-handed patients.

Dr. CATHERINE BURT presented a preliminary report on blood flow and finger temperatures in 20 pregnant patients (8 normal, 7 pre-eclamptic, and 5 hypertensive) compared with those in a group of non-pregnant controls. Records of resting forearm blood flow made in the later weeks of pregnancy showed an increased flow in normal pregnant patients in comparison with non-pregnant women. A greater increase was found in pregnant patients with pre-eclamptic toxaemia or hypertension; in these cases the average resting forearm blood flow was twice that of the control group. In all the pregnant patients a fall in the average forearm blood flow occurred following delivery, but the figure remained above that of the non-pregnant group for the first few weeks of the puerperium. During reflex vasodilatation tests forearm blood flow was more variable and showed a greater average rise in pregnant than in non-pregnant patients, this increase being most evident in patients with pre-eclamptic toxaemia.

At an environmental temperature of 17° C. non-pregnant women and women in the first trimester of pregnancy showed peripheral vasoconstriction as evidenced by a low resting blood flow in the hand; as pregnancy advanced the hand blood flow showed a gradual rise up to the time of delivery. A state of cutaneous vasodilatation, as shown by a resting finger temperature of over 30° C., was found in 19 out of 20 cases in the later weeks of pregnancy and in all 17 tested in the first eight weeks of the puerperium. In non-pregnant volunteers exposed to the same environmental temperature (15.25° C.–22.5° C.) the average finger temperature was 24.7° C. This preliminary work indicated a tendency to muscular and cutaneous vasodilatation in the upper limbs during the later months of pregnancy.

On June 17 and 18 the Fever Group of the Society of Medical Officers of Health held a meeting at Seacroft Hospital, Leeds, by invitation of the president of the Group, Dr. E. C. Benn. On June 17 Dr. D. C. Liddle read a paper on the Steven-Johnson syndrome, and Dr. H. J. Parish, Dr. K. J. Randall, and Miss M. Barr contributed a symposium on "Immunity in Early Life." In the afternoon Dr. Leese, Professor J. W. McLeod, and Dr. P. T. Boyle gave a clinical, bacteriological, and pathological review of a series of patients with tuberculous meningitis treated with streptomycin. On June 18 Dr. Hugh Parry read a paper on "The Fate of Infants with Gastro-Enteritis Receiving Intravenous Plasma," and Dr. C. W. Dixon gave an account of an outbreak of meningococcal meningitis in New Zealand.

Correspondence

Ankylosing Spondylitis

SIR,—I have been very interested to read the letters of Drs. F. Dudley Hart and H. F. West (April 9, p. 633) in reply to Dr. C. B. Heald's communication (March 26, p. 546). Dr. West rather takes Dr. Heald to task for being over-enthusiastic about ankylosing spondylitis. We in New Zealand recently had the pleasure of hearing Dr. Heald when he was asked to lecture on rheumatism by the New Zealand Government. In connexion with ankylosing spondylitis one would agree that he showed enthusiasm, but is it not better to show enthusiasm than adopt an attitude of *laisser-faire* in such an important and, in many cases, such a crippling disease? Dr. H. F. West has looked up a great many references which are not available in this country, and rather tends to belittle the crippling effect of ankylosing spondylitis and also the benefits of *x*-ray therapy. Two cases I have seen recently illustrate that the disease can be crippling and does respond to *x*-ray therapy.

The first was a woman aged 33 who complained in the first place of pain in the neck and back and a little later stiffness in the left shoulder. A course of gold injections had been advised and given without any relief, and her condition was becoming worse. Her right arm could not be raised above the level of the shoulder and the pain and stiffness in the back had spread to the lumbar region. A diagnosis of ankylosing spondylitis was made from radiographs. An interesting point in this case was that while waiting for *x*-ray therapy an injection of 1 ml. "prostigmin" was given. The patient almost immediately felt ill, became collapsed, and vomiting set in. The antidote to this, 1/100 gr. (0.65 mg.) of atropine, was given, and the reaction gradually subsided. Within 24 hours there was marked improvement in the movement of the right arm, which could be raised above the head. In spite of the reaction, the patient begged for a second injection. This time atropine was given prior to ½ ml. of prostigmin—even so the patient had a milder reaction. Any further requests for injection were refused. Three courses of deep *x*-ray therapy to the dorsal and lumbar spine and sacro-iliac joints were given. In addition, after consulting with Dr. John Mennell, manipulation was given to the cervical dorsal and lumbar vertebrae and the costo-vertebral articulations from time to time. This has produced freedom of movement in these areas. In addition breathing, which was becoming increasingly difficult, has been very much relieved. This patient now has no pain, is bright and happy, and can manage her own housework and cooking. There is permanent loss of rotation in the dorsal vertebrae and limited lateral movement in the lumbar region. In spite of this she is very grateful for the marked improvement in her movements, general health, and her freedom from pain. Before I saw her she was spending most of her time in bed, and the future outlook was not at all good.

The second case, a young man of 20, had been suffering from "rheumatism" for four years, with pain in the back and limbs. General wasting of muscles was present, the joints of both limbs were swollen and painful, and he was in continual pain. For the last 14 months he had been confined to bed almost continuously. Gold injections, penicillin, physiotherapy, and polyvalent streptococcal vaccine had all been tried without effect. Dr. C. B. Heald was called in consultation and diagnosed the case as one of ankylosing spondylitis. Radiographs showed quite definitely involvement of the sacro-iliac joints. *X*-ray therapy was ordered with very satisfactory results. Two years later this patient reported that he had had several courses of *x*-ray therapy—not only to the spine, but also to the joints of the upper and lower limbs. Apart from the fact that there is a rather general stiffness of joints, he can go about his teaching duties at a preparatory school, and, most important of all, he is free from pain.

In both the preceding cases it can be stated quite definitely that ankylosing spondylitis was having a crippling effect, and following *x*-ray treatment there has been a very marked improvement in their condition and they have again become useful citizens.—I am, etc.,

Christchurch, New Zealand. W. GORDON RICH.

Treatment of Angina with Thiouracil

SIR,—All those who have tried to investigate the value of thiouracil in the treatment of angina pectoris will agree with your annotation (June 4, p. 997) that "it is time a large series of cases was treated under scientifically controlled conditions." But it seems unlikely that both these requirements can be satisfied. Evans and Hoyle[1] have drawn attention to the main difficulty, which is the inherent variability of angina. They conclude that in addition to adequate scientific control the type of case selected for study must be clearly defined if the results are to be reliable.

The investigation described below, though not significant on its own, may contribute a little to the subject when read in conjunction with other reports. An attempt was made to select for study only those cases which were as nearly "stable" as possible. The criteria were as follows:

1. All had unequivocal angina of effort, with pain as their worst symptom. Its site, type, relation to exertion, and quick relief by rest or glyceryl trinitrate were definite. If a neurosis became obvious and predominant during the investigation the patient was excluded from the series.
2. No patient had dyspnoea as a prominent factor limiting exertion.
3. No patient had any other physical disability limiting exertion or lowering pain threshold.
4. No patient had a haemoglobin below 90%.
5. No patient had evidence of myocardial infarction in the six months immediately preceding the start of the investigation.
6. No patient had hypertension above 170/110 mm. Hg or evidence of valvular disease, paroxysmal disturbances of cardiac rhythm, or cardiac failure.
7. No patient had clinical or serological evidence of syphilis, or clinical evidence of thyrotoxicosis, diabetes, or adrenal disturbance.
8. All were under the age of 65 years.
9. All were at least of average intelligence.

Out of over 80 patients attending the hospital with angina only 19 fulfilled the above criteria, but during subsequent weeks 11 of these had to be excluded from the series for the following reasons: dyspnoea found to be prominent factor limiting exertion, 3; neurosis became overt, 3; failed to attend, 2, no attacks during the summer, 1; developed pernicious anaemia, 1; developed status anginosus, 1. This last patient had thiouracil for one week only. It was stopped because his attacks became more frequent. A week later he developed status anginosus. The eight patients who remained were all men between the ages of 49 and 64 years. Three had had previous myocardial infarctions.

The initial examination of the patients included a detailed history, full clinical examination, fluoroscopy, and limb and unipolar chest lead electrocardiograms. During the first two weeks the variability of the angina was observed, and base-line white-cell counts and blood-cholesterol determinations were made. Four patients were then given 0.2 g. of thiouracil three times a day (Group A), and the remaining four one lactose tablet three times a day (Group B). No patient knew what tablets he was having. Each patient was urged to continue his normal routine of life.

Observations were made on the pulse rate, blood pressure, weight, glyceryl trinitrate requirements, walking distance on level ground, and blood-cholesterol levels for periods ranging from 19 to 36 weeks. Thiouracil was stopped when there was evidence of myxoedema. In two patients (Cases 1 and 2) who had shown only a slight response to the initial dose the dose was increased to 1.0 g. daily after 17 and 19 weeks respectively. Progress was assessed by comparison of the glyceryl trinitrate requirements and a detailed history of the pain at the beginning and at the end of the investigation. The table shows the progress of each patient.

It will be seen that three out of four patients in the treated group were improved, whereas only one patient in the control group was slightly improved. In those who were benefited improvement occurred gradually during the third and fourth months of treatment, and it is interesting that the improvement was more marked in the substernal than in the peripheral component of the pain. The patient in Group A who did not improve was the one who had had a previous myocardial infarction. Serial blood-cholesterol levels were found not to

correspond to thiouracil dosage or to the clinical response to treatment. There were wide variations in level in both groups of patients. One patient (Case 3) developed florid myxoedema, with a cholesterol level lower than at the start of the

Patient	Age	Previous Infarction	Weeks of Observation	Result	Weekly Glyceryl Trinitrate Requirements		Maximum Weight Change in Kg.	Remarks
					Before	During		
				Group A				
1	50	No	34	Improved	Nil	Nil	−4	Individual attacks less severe. Substernal pain almost completely disappeared. Pain in left wrist no longer distressing. Distance increased from two miles on level ground to five miles including hills
2	63	No	33	Improved	20–30	12	−20	Substernal pain disappeared; only pain in throat remained. Cold weather no longer a precipitating factor. Able to manage stairs, previously impossible. Myxoedema after 29 weeks. B.M.R. −15%
3	63	2 yrs. before	32	No change	25–30	28	+35	Myxoedema after 19 weeks. B.M.R. −20%
4	56	No	22	Improved	10–20	Nil	Nil	Chest pain disappeared; only left shoulder and elbow pain remained. Meals, emotion, and cold weather no longer precipitating factors. Able to run 100 yards for bus without pain, whereas previously any hurrying brought on pain
				Group B				
5	64	5 yrs. before	36	No change	30–35	Same	+20	No change
6	63	No	19	No change	10–20	Same	−4	No change
7	59	1 yr. before	36	Slightly improved	90–100	Same	+7	Very doubtful improvement judged by detailed history of pain
8	49	No	22	No change	20	Same	+29	No change

investigation. It is hoped that these results once again confirm the difficulty of assessing the results of any form of treatment in angina pectoris.

Dr. Evan Jones, Dr. F. T. G. Prunty, and Dr. Raymond Daley have kindly agreed to the publication of this letter. I am very grateful to them for the special investigations and for their interest, advice, and criticism.

—I am, etc.,

Uffculme, Devon. D. W. R. LYLE.

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Tuberculosis in Industry

SIR,—Drs. Alice Stewart and J. P. W. Hughes and their colleagues (May 28, p. 926) showed that a tenfold increase in the size of boot and shoe factories was associated with a twofold increase in the number of persons "infected with tuberculosis." Their paper appears to have caused some surprise and criticism (Dr. Stephen Hall, June 11, p. 1049). It is, of course, true that it is only by the routine use of the tuberculin test that recently infected persons can be detected: it is, however, of interest that statistics collected by Bang as long ago as 1896 showed that a tenfold increase in the size of herds of cattle was associated with an approximate doubling of the incidence of tuberculosis as judged by the tuberculin test.[1] This is true even when small herds in which there were no tuberculous cattle were excluded. Almost the same trend is obtained by classifying results of tuberculin tests on 364,286 cattle in Great Britain according to the size of the herd.[1]

Dr. Hall has suggested that infection is inevitable, and the important thing is to study why only some people develop clinical tuberculosis. It appears to the present writer that no attitude could more stultify the main effort which should be made to control tuberculosis. It is true that every effort should be made to increase resistance (including the use of B.C.G.), but it was pointed out at the recent Commonwealth and Empire Health and Tuberculosis Conference that tuberculosis is still a serious problem in New Zealand, where the standard of nutrition is excellent. All the work on the control of tuberculosis in cattle indicates that it is the degree of exposure to infection which is important and that effective control of the disease is achieved only when every effort is made to prevent the spread of infection. As pointed out by Dr. S. Roodhouse Gloyne (July 2, p. 31), the work of Drs. Stewart and Hughes does indicate that in man the degree of exposure to infection has an important effect on the number of "recently infected" individuals.

The question of whether one should concentrate on breeding and feeding cattle with "sound bodies and perfect mucous membranes" in order to eliminate tuberculosis was being discussed in 1901 when McFadyean[2] wrote: "The man whose sense of proportion is not hopelessly defective will attach only minor importance to such considerations, and will concentrate his efforts against the one great cause of the disease—the operation of contagion. When that has been successfully grappled with predisposition becomes of no account. . . ." Subsequent events have proved him to be correct.

It is, of course, true that it is much more difficult to control tuberculosis in man than cattle, but Myers[3] and his colleagues have created areas in which no child of primary-school age reacts to tuberculin, and on the island of Bornholm Olsen[4] has reported that communities have been made free from infection with tubercle bacilli. Both these workers have consistently emphasized the importance of treating tuberculosis as an infectious disease and concentrating special efforts on the prevention of spread.—I am, etc.,

Bramhall, Cheshire. JOHN FRANCIS.

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Fibrocystic Disease of the Pancreas

SIR,—After reading Dr. W. J. Matheson's interesting article (July 23, p. 206) I am prompted to give a short account of a case of fibrocystic disease of the pancreas in an infant which I was fortunate enough to diagnose during life.

The patient, a female infant 8 weeks of age, was a first-born child; delivery was normal but the birth was said to be 5 weeks premature. Her birth weight was 5 lb. 8 oz. (2.5 kg.). Since birth she had failed to gain weight and was stated to have had continuous diarrhoea and occasional vomiting. She had been given several different proprietary foods, none of which had been continued for very long. On examination she was a marasmic infant weighing 5 lb. 2 oz. (2.3 kg.). She had signs of bronchitis; her stools were yellow, loose, copious, and both offensive and frequent. She vomited occasionally, but apart from this took her feeds well and appeared always hungry. In spite of correction of her feeds she did not gain weight and remained marasmic. The Wassermann reaction was negative, and bacteriological examination of stools, and chest radiographs, etc., did not reveal any abnormality. Blood count showed definite anaemia: haemoglobin 67%, R.B.C.s 3,250,000.

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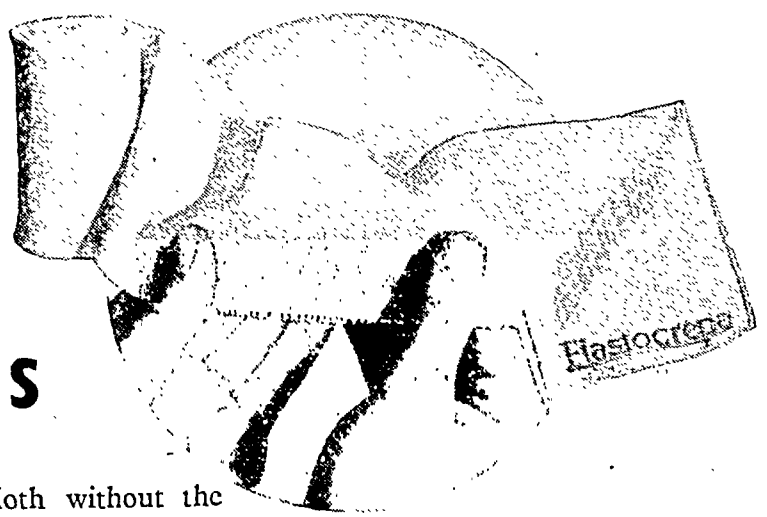
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In view of these negative findings—accompanied by the following four facts: (1) continued failure to gain weight in spite of an adequate calorie intake; (2) persistent, loose, bulky, offensive, and frequent motions; (3) feeds eagerly taken by the infant; (4) severe bronchitis not responding to chemotherapy—a tentative diagnosis of fibrocystic disease of the pancreas was made. However, before further investigations could be carried out the child developed bronchopneumonia and died. Necropsy revealed a well-marked bilateral bronchopneumonia and some fatty degeneration of the liver. Histological examination of the pancreas showed typical fibrocystic disease.

I agree with Dr. Matheson that this condition is probably more common than one would be led to believe by published reports, and I feel with him that this diagnosis should be considered when infants presenting the above four criteria are encountered.—I am, etc.,

Stoke-on-Trent. JAMES HINGSTON.

Essential Hypertension in Pregnancy

SIR,—The report (July 16, p. 148) of my statement at a discussion on this subject at the twelfth British Congress of Obstetrics and Gynaecology is so brief that I should be grateful if you would kindly allow me to amplify it. My main thesis was that functional vascular spasm due to sympathetic overactivity was the primary factor in the early stages of hypertension, that it resulted locally in renal cortical ischaemia, and that a humoral substance or substances produced within the kidney in consequence of the anoxia or hypoxia passed into the general circulation to produce effects throughout the body as a whole.

My belief in the occurrence of such nervously intermediated functional vascular spasm within the kidney is strengthened by the evidence provided by Solymoss (*Lancet*, 1949, 1, 957) and also by the results obtained by Dr. Robert A. Hingson, of Johns Hopkins Hospital, in his treatment of eclamptic patients by means of controlled spinal analgesia. Dr. Hingson has recently lectured in Oxford and London on his technique and the effects of its application in such cases, and the gist of his findings is that the interruption of reflex nervous pathways at the renal spinal level can in a vast majority of cases produce rapid relief from the gross symptoms and signs (including oliguria and anuria) of eclampsia.—I am, etc.,

London, W.1. JOHN SOPHIAN.

Reactions to Intravenous Sclerotics

SIR,—In the last quarter of 1948 you published a short series of letters under the above heading. I should like to report a further case of acute allergic reaction following the use of "ethamolin," and to pose one or two queries therefrom.

The patient, a woman of 58, with bilateral gross varices, was subjected to juxtafemoral ligation and resection of the left internal saphenous vein, together with retrograde injection of 10 ml. P2G (2% phenol in glycerin), in January of this year. Following this she attended on ten occasions, at weekly intervals, for injections of ethamolin, receiving a total of 37 ml. (averaging 4 ml. per visit). On the first occasion she received the customary 0.5-ml. test dose, to which she showed no reaction. The visits were uneventful, except that at the fifth she fainted, but recovered immediately.

In April a similar operative procedure was performed on the right leg, and following this she attended on three occasions for injection of ethamolin into the remaining varices, receiving a total of 8.5 ml. At the fourth visit she received 4 ml. (three injections of 1.5, 1.5, and 1 ml. respectively) and left for home shortly afterwards. About ten minutes later, while approaching her house, the skin of her back and shoulders began to itch, and her breathing, she noticed, was becoming "wheezy." She returned to the clinic, where I saw her twenty minutes after the injection.

On examination, she was faintly cyanosed and was clearly suffering from a mild attack of asthma. There were patches of urticarial erythema and weals all over her body, being most marked over the left upper arm. There was no reaction at the site of the recent injections. A total of 10 minims (0.6 ml.) of 1:1,000 adrenaline was administered. The itching ceased within five minutes, and the skin reaction had disappeared within half an hour. On questioning, she stated that she usually suffered from asthma in the winter months, but not in the summer unless she had a cold. She added that a cold had been "coming on" for the past two days. She had never experienced a similar skin reaction before. She returned home and continued her normal work. When seen one week later she stated that she had remained well, with no recurrence of her skin reaction. She was still a little wheezy, however.

Perhaps the most important lesson to be learnt is that even ethamolin can seemingly give rise to a generalized systemic allergic reaction. Patients should wait a little while before returning home, and adrenaline should always be to hand. The obvious conclusion to be drawn is that the patient has been slowly sensitized to ethamolin during the past six months, but I must confess to being not entirely convinced by this thesis. While it would be an extremely bold man who would administer a further dose of ethamolin to this patient (a man, I hasten to add, far bolder than I), could it not be that the patient was in a "trigger" state, and that an injection of saline at that particular time might have produced a similar allergic reaction? How are we going to explain the case reported by Dr. C. E. Taylor (Sept. 18, 1948, p. 573) in which, following an allergic reaction to sodium morrhuate, the substitution of sodium salicylate produced an exactly similar result? What reason can be advanced for the fact that allergic reactions are occasionally reported following a test dose of 0.5 ml. of a sclerotic never before administered to the patient?

It would help if we could learn of any case where a sclerotic which had previously given rise to a reaction had inadvertently been administered on a further occasion, and with what result. Perhaps your correspondence columns, Sir, may help to provide the answer.—I am, etc.,

London, E.8. S. M. RIVLIN.

Sir William Osler Centenary

SIR,—The memory of "the greatest physician of all time" was fittingly honoured by the Osler Club celebrations at the Royal College of Surgeons on July 12, followed by the pilgrimage to Oxford on July 16 (concluding with the visit to the famous almshouse and church at Ewelme). It is, perhaps, not generally known that the Osler exhibition at the Radcliffe Camera in Oxford will be open to the public for some months. One wishes that it could be visited by every doctor (including those overseas) who is on the *Medical Register*. A trip to that beautiful "city of dreaming spires" is always a delight, and, to a medical man, the added inspiration from visiting the Osler exhibition will be more than worth the expenditure of time and effort.

How many doctors realize that Osler's world-famous textbook, *The Principles and Practice of Medicine*, has appeared in a Chinese edition? Or that during his lifetime Osler had the following qualifications and distinctions conferred upon him: LL.D. (Aberdeen, Edinburgh, Liverpool, Leeds, Yale, Harvard, McGill, Toronto, Johns Hopkins); F.R.C.P.London, 1883; M. 1878; L. 1873; M.D.McGill, 1872; M.D.Oxon., 1905; M.D.(Hon.) Oslo; Sc.D.(Cantab.); D.Sc.(Hon.) (McGill, London, Leeds, Berlin, Vienna, Trinity College, Dublin); D.C.L.(Durham); F.R.S., etc.? In addition to which he was, among other things, president of the Bibliographical Society and, later, president of the Classical Association. His publications numbered over 1,500. Certainly an astonishing record.

Recently the French have made a film of Laennec, the originator of the stethoscope. Is it too much to hope that the English-speaking world will make a film of the life of "The Great Physician"?—I am, etc.,

London, W.5. L. CARLYLE LYON.

Histamine Headache

SIR,—The report on the treatment of histamine headache by Dr. M. Eszenyi-Halasy (June 25, p. 1121) was both instructive and timely. Should it arouse the profession from a somewhat lethargic attitude towards such ailments it will certainly have served a useful purpose.

For some reason both general practitioners and specialists seem to fight shy of making a serious attempt to treat sufferers from "migrainous" headaches, be these associated with menstruation or allergy, or inducible by histamine. To tell a patient to "go to bed with an aspirin" is as much a confession of failure on the part of the physician as it is useless to the

patient, who may be incapacitated for as long as three days every two or three weeks. Ergotamine tartrate, though useful in some cases, requires to be injected at the very start of the headache, a procedure often quite impossible.

Dr. Eszenyi-Halasy has shown that histamine headaches can be cured in a significant percentage of cases by giving increasing doses of histamine by injection, thus producing a tissue tolerance. I have had comparably good results in cases which give a positive intradermal histamine reaction by the oral administration of gradually increasing doses of "prostigmin" bromide as advocated by Pelner and Aibel.[1] This is a simple procedure and has the added advantage of not inducing headache or requiring injection.

So far as true migraine is concerned, it seems a pity that, as one person in five hundred is a sufferer, greater use is not made of the anterior-pituitary-like hormone[2,3] or even, in obstinate cases, urea.[4] I have personally treated over 150 cases in the past six years, and relief from this crippling complaint has been achieved in over 50% of patients.

Surely it is time more consideration was given by the profession to therapies which can alleviate one of the commoner, even though not lethal, complaints suffered by mankind.—I am, etc.,

London, W.1. NEVIL LEYTON.

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Treatment of Rheumatism with Cortisone

SIR,—The paper by Hench and his colleagues[1] on the beneficial therapeutic effect of 17-hydroxy-11-dehydrocorticosterone (Kendall's compound E) and of adrenocorticotropin (ACTH) in rheumatoid arthritis was undoubtedly of remarkable significance. In a recent paper cases of rheumatic fever are also presented.[2] The practical significance of the advantages mentioned in this second report—the rapid improvement in the anaemia, the atrioventricular interval, and the sedimentation rate—seems to be not of the highest importance. The cardiac involvement was unaltered in all cases. There is no definite practical advantage over bed-rest with salicylate therapy.

Before these compounds come into wide use it is as well to note communications of Ingle[3] and Conn and his colleagues.[4] According to them, both of the compounds are capable of producing at least a diabetes-like picture in animals and in human beings. In Hench's cases the doses were large, and the duration of the treatment is long; this merits some attention.—*I am, etc.*,

Szeged, Hungary. E. KELEMEN.

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POINTS FROM LETTERS

Length of Gestation Period

Dr. DORA J. ADAMS CLARK (Spennymoor, Co. Durham) writes: In connexion with the case reported under the heading "A Still Longer Gestation Period" (July 16, p. 181), I have seen to-day a woman in late pregnancy whose last period finished on August 2, 1948. Thus she might be 351 days pregnant.

Sunburn Treated by Antihistamine Drug

Dr. DONNELL DEENY (Lurgan, Co. Armagh) writes: On a recent holiday in the South of France my wife and I suffered a mild attack of sunstroke, with headache, elevation of temperature, reddening of the skin, and great discomfort. Since the liberation in the tissues of histamine causes vascular dilatation and oedema, it seemed reasonable to give an antihistaminic drug ("antistine"), 30 mg. four times daily. We found considerable relief from local irritation. The skin lesions did not proceed to oedema and desquamation so fast or so severely as in other members of our party who did not take the tablets, although the period of exposure to the sun was the same. The sedative effect of the drug was also of help in this painful condition.

Obituary

LAWRENCE JONES, M.S., F.R.C.S.

Mr. Lawrence Jones died on July 11 at the age of 71. He received his medical education at St. George's Hospital and qualified with the Conjoint Diploma in 1900. He took the London degree of M.B. in 1901 and the B.S. with first-class honours, as well as the F.R.C.S., the following year. While serving as surgical registrar at St. George's he took the M.S. in 1904.

His seniors formed a high opinion of his capabilities; he was soon appointed assistant surgeon to the hospital, and lecturer in operative surgery both at the medical school and at the London School of Clinical Medicine. His ability, allied to a singular modesty and charm of manner, had marked him out for success as a consulting surgeon in London, when he was attacked by a very serious illness which necessitated major surgical treatment. He made a satisfactory recovery, but was advised that the strain of consultant practice in London entailed a risk which he ought not to run. He therefore gave up his hospital post and accepted an appointment as chief examining surgeon to the Great Central Railway Company. Here he was able to use his talents to the great advantage of the company's employees for many years until his final retirement a few years ago. He was unmarried.

Dr. Frank Coleman writes: As a colleague and friend of NORMAN GRELLIER, I should like to express my appreciation of his sterling qualities and integrity of character. I knew the Grelliers—Norman and Bernard—whilst they served on the staff of the Royal Dental Hospital for four or five years after the first world war. Apart from Norman Grellier's many interests and distinctions recorded in the obituary notice (June 18, p. 1099), the twin brothers had much in common both in work and play. Flying was one of their mutual accomplishments. Norman and Bernard joined the Cinque Ports Flying Club at Lympne in October, 1933, and early in the following year both took their "A" licences. Norman and his brother had a theoretical and practical knowledge of mechanics which no doubt contributed to their rapid progress and efficiency in aeronautics. From then onwards they joined several flying-clubs in Kent and Sussex and regarded flying as their week-end pastime, although this included aerobatics and other forms of stunt flying. After the last war they became active members of a gliding-club. It was on the evening of Sunday, April 19, 1936, that these brothers had their only accident. Norman was piloting a Gipsy Moth and Bernard was a passenger, when the aircraft stalled at a height of 100 feet and crashed in a field at the top of Hythe Hill, just off the roadway. Both were seriously injured, but on recovery they were back at Lympne and resumed their flying. Incidentally, this accident enabled many of us to distinguish the brothers, as one had been trephined for a fractured skull and the scar of the operation showed. Norman was medical officer to a Grenadier Guards battalion from 1915 until the end of the war, and remained with them for a time at Cologne after the armistice. His brother Bernard served for a similar period as medical officer to a battalion of the Royal Welch Fusiliers. Both were awarded the Military Cross, Norman at Passchendaele and Bernard in the Ypres Sector. The ashes of Norman, carried in a casket, were scattered over the South Downs in a plane piloted by his brother.

Dr. GUY THORNTON BIRKS died at his home in Bedford on June 25 at the age of 71. He was educated at Harrow and King's College, Cambridge, where he took honours in the Natural Science Tripos, and later the degree of M.B., B.Ch., receiving his clinical education at St. Thomas's Hospital. After

holding house appointments there Dr. Birks went to practise in Bedford in 1906, joining the late Mr. W. Gifford Nash. For 30 years he was on the staff of the Bedford County Hospital as honorary physician, and was an energetic and popular honorary secretary to the local Bedford Medical Society for 15 years. He served in the R.A.M.C. in Palestine during the war of 1914–18. To the regret of his colleagues and patients ill-health enforced a too early retirement a few years before his death. Dr. Birks was a good diagnostician and clinician, a wise and kindly adviser, and a loyal colleague, well liked in both lay and professional circles. He was a fine example of the type of medical adviser now unfortunately fast disappearing.—H. D. P.

Dr. A. FLETCHER-JONES died suddenly on July 11 at Chester, while on holiday from his home in Alderney, at the age of 75. He qualified with the L.R.C.P.&S. at Edinburgh in 1897, and shortly afterwards took up an appointment in North China as a medical missionary. *His life in China* was full of adventure. Soon after his marriage he and his wife were driven from their home by the Boxer rebels, and this fate befell them again during the 1911 revolution. For his work in connexion with a plague epidemic the Chinese Government conferred upon him the Order of the Excellent Crop. In 1921 he retired from his missionary work and settled in practice in Alderney, where he held many public appointments. When Alderney was evacuated during the war he took up an appointment as resident medical officer at the Southampton Isolation Hospital and Sanatorium. While Southampton was being subjected to heavy bombing he never considered his own personal safety, and tended the sick and wounded with that care and friendliness which endeared him to patients and staff alike. On the liberation of Alderney he returned and re-established his practice, overcoming great difficulties. He leaves a widow, a married daughter, and four sons, one of whom is a member of the medical profession.

Medico-Legal

PREGNANCY OF 360 DAYS

The Court of Appeal gave judgment on July 22 on the case of a baby stated to have been born after a pregnancy of 360 days. By a majority, Lord Justice Denning dissenting, the Court directed a new trial, and gave leave to both sides to appeal to the House of Lords.[1] The husband's evidence was that he had been serving in Germany, had had home leave from Aug. 7 to 17, 1945, and had been demobilized on Feb. 9, 1946.[2] He had had no access to his wife between those dates, but on Aug. 13, 1946, she had borne a child which weighed 8¼ lb. and was apparently normal in every way.

Lord Justice Bucknill, with Lord Justice Asquith concurring, said that the question was whether it was contrary to the laws of nature that the child, if conceived not later than August, 1945, could be born a normal healthy child 360 days later without any forcing or prolonged labour. The husband had applied for leave to call further evidence. It was proper that he should have an opportunity of calling it.

Lord Justice Denning, dissenting, said that a Judge did not require evidence to prove that in the ordinary course nine months elapsed between the conception and birth of a child. He might take judicial notice of the fact that there might be a margin of a week or two on either side without noticeable effect on the child, but that if the margin became a couple of months either way the result would be apparent on the body of the child. He said that he would have been for allowing the appeal and granting a decree *nisi*.

1 *The Times*, July 23.
2 *British Medical Journal*, July 16.

Under an order made by the Treasury, scientific instrument cases have been exempted from purchase tax.

Medical Notes in Parliament

NURSES (SCOTLAND) BILL

On July 20 the House of Lords went into Committee on the Nurses (Scotland) Bill. Clauses 1 to 6 were agreed to. On Clause 7 (the Mental Nurses Committee) Lord MORRISON moved amendments which he explained were drafting ones. He further explained that the great bulk of the amendments to be moved were drafting or consequential or dealt with minor points on which there was no difference of opinion. The amendments were accepted and Clause 7 as amended was passed. Amendments were also made in Clause 8 (Registration of Nurses Trained Abroad), and the amended Clause was accepted. On Clause 9 (Closing of Part of the *Register*) Lord Morrison moved an amendment which debarred the General Nursing Council from asking for the closure of the principal supplementary parts of the *Register* unless it was satisfied that other means existed enabling the public to identify nurses with special training. He said that what would happen in practice was that when the *Supplementary Registers* were closed the Council would attach an appropriate distinguishing mark in the main *Register* to the names of nurses who had undergone particular forms of training. The amendment corresponded to one made in the English Bill, and it was desirable to have similar provisions because of the statutory reciprocity between the Scottish and English *Registers*.

Lord CLYDESMUIR said the amendment was desirable, and the slight difference in drafting from the English version had been made because in Scotland nurses for mental defectives were entered in a separate supplementary part of the *Register*.

The House agreed to the amendment and Clause 9 as amended was carried. Small amendments were made in Clause 10 (Provisions Relating to the Approval of Training Institutions). Clause 10 was then agreed to as amended and Clauses 11 to 14 were approved. A drafting amendment was made in Clause 15 and this Clause, with Clauses 16 to 18, was agreed. On Clause 19 (Interpretation) Lord MORRISON moved an amendment making clear that references in the Bill to supplementary parts of the *Register* included references to parts which had been set up by rules made in pursuance of the Act of 1919. He said the only statutory supplementary parts were the parts for male nurses, for mental nurses, and for sick children nurses. The parts for nurses for mental defectives and for fever nurses had been set up by rules. The House accepted the amendment and agreed to Clause 19 as amended. Clause 20 was approved. On the first schedule Lord CLYDESMUIR moved to leave out paragraph 3 and to insert:

3. The members of the Council appointed by the Secretary of State shall include—

(*a*) two registered nurses employed in services provided under Part III of the National Health Service (Scotland) Act, 1947, appointed by him after consultation with such persons and bodies as he thinks fit, being persons and bodies having special knowledge and experience of the work of nurses so employed;

(*b*) registered medical practitioners, appointed by him after consultation with such organizations representative of the medical profession as he thinks fit;

(*c*) persons with experience in hospital management, appointed by him after consultation with such persons and bodies having experience in hospital management as he thinks fit; and

(*d*) persons with experience in local government, appointed by him after consultation with such local health authorities, or such organizations representative of local health authorities, as he thinks fit.

He said the amendment was the result of an agreement with the Government. It was to give more precise direction about the type of person to be appointed by the Secretary of State to the General Nursing Council. It would secure that nurses employed by voluntary bodies under contract with local authorities would not be debarred from appointment. It also directed that medical practitioners should be included in the composition of the Council, and it named persons with experience of hospital management and also persons with experience in local government. This would meet the

representations of bodies which had proposals for improving the Bill in this respect.

Lord MORRISON accepted the amendment and the House agreed to it. A further amendment was made and the first schedule as amended was approved. On the second schedule (Regional Nurses Training Committee) drafting amendments were made on the motion of Lord Morrison. An amendment moved by Lord POLWARTH dealing with the qualifications of auditors was withdrawn. The schedule as amended was agreed to. The third schedule (the Mental Nurses Committee) was amended to make it clear that persons appointed to fill casual vacancies must have the qualifications which would have been required had they been elected or appointed in the ordinary way. This schedule and the third schedule were then approved and the Bill was read a third time.

Distribution of Doctors

On July 21 Mr. PLATTS-MILLS reported that in the Borough of Finsbury there was only one doctor to every 3,678 of the population, compared with one for each 2,935 in Islington, and 2,429 in Holborn.

Mr. BEVAN said redistribution of the available supply of doctors in accordance with the best interests of the public must be done gradually. The method of remuneration under the National Health Service, coupled with the powers of the Medical Practices Committee to close over-doctored areas to new entrants, should be sufficient to bring about the desired result.

Hospital Administration

Mr. DONNER on July 21 asked Mr. Bevan if he knew that the Basingstoke hospital service was now responsible to the Winchester Group, which was responsible to the Region, which in turn was responsible to the South-Western Board; that expenses of operation had been increased by this system as well as by the appointment of officials, and that delays due to this centralized control marred the efficiency of the service; and whether he would simplify control.

Mr. BEVAN said if Mr. Donner sent evidence of delays and increased expense he would investigate it, but he was not prepared to consider unsubstantiated statements.

Mr. DONNER said the chairman of the hospital committee had resigned.

Mr. BEVAN said there were 10,000 to 11,000 voluntary workers in the hospital system, but this was the first resignation which the Ministry had received. Mr. Bevan added that the regional hospital board was considering the provision of a new hospital in Basingstoke, but progress must depend on its urgency compared with other calls on the available money and building resources. A new x-ray set would be delivered to Basingstoke hospital shortly.

Attendance at Maternity Clinics

On July 21 Mr. LANGFORD-HOLT inquired to what extent regulations made under the National Health Service Act made it compulsory for expectant mothers to go to a maternity clinic.

Mr. BEVAN replied that he had made no regulations which made it compulsory for expectant mothers to attend clinics. He hoped, however, that they would realize that it was much in their interest to do so.

Televised Operations

Mr. JANNER asked Mr. Bevan whether he was aware that for the first time in medical history delegates to the International Gynaecological Congress saw televised operations; and what precautions were taken to ensure that the patients or their relatives gave their full consent.

Mr. BEVAN replied on July 21 that an operation was televised by land line to a lecture theatre in the medical school to which delegates from the Congress were invited. It was therefore a purely private occasion, and the operation was not "broadcast." This method avoided all the difficulties and possible dangers to the patient of the alternative normally used—i.e., to have groups of spectators in the operating theatre itself.

Typhoid in Kenya

Mr. LONGDEN asked on July 19 for information on the typhoid epidemic in the British Army camp at McKinnon Road, Mombasa, Kenya.

Mr. SHINWELL said he had received a full report on this unfortunate outbreak. A total of 88 cases of typhoid and enteric group fevers had been reported up to July 8, of which 34 were British and 54 African. In addition to the deaths of two British soldiers four African soldiers had died. The outbreak originated among the African troops, but the source of infection could not be definitely stated. The water supply had been thoroughly investigated, and it seemed most unlikely that it was the cause. Everything possible had been done to ensure that the hygiene of the area was fully up to standard and to ensure that all troops and civilian employees were protected by inoculation. A good number of civilians in the area had also been inoculated. The outbreak was now under control, although the possibility of further cases occurring could not be ruled out.

Tuberculosis in the Colonies

When the Colonial Estimates were debated on July 20 Mr. ANTHONY GREENWOOD complained that the Colonial Office Report on Development and Welfare made only four references to tuberculosis in the Colonies. There was little doubt about the high incidence of tuberculosis and the high death rate from it. In Lagos the mortality rate was 128 per 100,000. The Director of Medical Services for Kenya reported that the position in respect of tuberculosis gave rise to anxiety, and that there appeared to be no doubt of its increasing spread. In Tanganyika the tuberculosis mortality rate had doubled in six years. Small dispensaries, mobile units, and trained staffs were most needed.

Dr. HADEN GUEST said visits to West Africa by consultants in obstetrics, tuberculosis, and social and preventive medicine had been of great value, but up to the present sufficient doctors had not been obtained for the Colonies. Doctors did not to-day exist in the required numbers. There was a shortage of general practitioners alike in the United Kingdom and in the Colonies. The medical schools set up in East Africa, West Africa, the West Indies, Singapore, and Hong Kong would not supply any large number of medical officers for eight to ten years. If the Colonies competed in this country for specialists and general duty doctors it would be an error. It would be better to treat the Colonial Medical Service as a branch of the National Health Service in this country. Doctors could be sent to the Colonies for six months or a year. When they returned, other doctors from the National Health Service in this country would take their places. That might also be required in other spheres outside the United Kingdom where doctors were difficult to get. There would not be in the next 50 years the proportion of doctors to population which there was in this country. Dr. Guest thought the system would have to be adopted of employing medical auxiliaries who could carry out medical preventive work under medical direction without themselves being qualified.

Mr. CREECH JONES in his opening remarks had said that the Colonial Service had vacancies for 163 doctors, but Mr. REES WILLIAMS in replying to the debate did not touch on medical questions.

Grading of Venereologists

Sir ERNEST GRAHAM-LITTLE asked Mr. Bevan whether, as by reason of the down-grading of venereologists, the total of accredited specialists would be reduced to a number wholly insufficient to deal with the increasingly anxious problem of venereal disease, he would review the position.

Mr. BEVAN replied on July 22 that boards were reviewing their medical establishments in the light of the needs of the service. He added that it would not be proper for the grading of existing individuals to be influenced by considerations of staffing requirements. He was making inquiries about dissatisfaction among whole-time venereologists in the Liverpool area who found themselves relegated to the category of senior hospital medical officers.

Kenny Treatment

Mr. VIANT asked Mr. Bevan, "in view of the failure of medical science to discover a cure for poliomyelitis," to give an assurance that steps had been taken to provide the Kenny treatment to sufferers from this disease.

Mr. BEVAN replied on July 22 that this method of treatment was well known to specialists in the disease in this and other countries. The use of it in individual cases was a matter of medical discretion. It had not been shown that it would be justifiable to adopt it to the exclusion of other methods used in current medical practice which were no less valuable.

Infectious-disease Certificates

On July 25 Sir ERNEST GRAHAM-LITTLE drew attention to the fact that persons certified by a general practitioner as being unfit for work as a result of being carriers or contacts with one of the more serious infectious diseases were refused sickness benefit, as only a certificate issued by a medical officer of health was accepted. He said this was much resented by general practitioners.

Mr. STEELE replied that this provision had been introduced into the National Insurance (Unemployment and Sickness Benefit) Regulations to give effect to a specific recommendation by the National Insurance Advisory Committee. He had no reason to think it was not working satisfactorily.

Prescribing by Service M.O.s

Mr. NIALL MACPHERSON asked on July 27 why Service doctors at stations in Great Britain and Northern Ireland were not allowed to prescribe for wives and families of Service personnel registered with them on National Health Service forms, so that their patients could obtain necessary medicines from local chemists free of charge instead of having to buy them when they were not available at the station dispensary. Mr. Macpherson suggested that Service doctors at stations in Great Britain and Northern Ireland should be registered as medical practitioners with the appropriate executive council in respect of such patients.

Mr. A. V. ALEXANDER replied that participation of Service medical officers in the National Health Service would not be feasible, since the resulting division of responsibility would be bound to give rise both to administrative and disciplinary difficulties. They could not, therefore, issue prescriptions on National Health Service forms. There was, however, no reason why dependants of Servicemen should have to pay for medicines prescribed by Service doctors, since the Service Departments themselves met the cost if such medicines could not be supplied by a Service dispensary.

X-ray Films.—Mr. BEVAN states that there is a general shortage of x-ray films. He has had to ask hospitals to economize in their use.

Contraceptives.—Mr. CHUTER EDE can hold out no prospect of legislation to prevent the sale of contraceptives from slot machines.

Hospital Transfer.—Mr. BEVAN has informed the Boards concerned that he is unable to agree to the proposed transfer of the South-Western Hospital, Landor Road, S.W.9, to St. Thomas's Hospital.

Closed Areas.—In general Mr. BEVAN will not give permission to exceed the normal maximum in any area where the Medical Practices Committee considers that the number of doctors is adequate. Where a doctor has an assistant he is able to have a larger list.

Confinement in Hospital.—Mr. BEVAN said on July 14 that hospitals and local authorities were being encouraged to give priority for hospital confinement to those who needed it for *medical reasons* or because home circumstances are unsatisfactory.

Spectacles.—Mr. BEVAN said on July 14 that the total demand for spectacles in the United Kingdom in the first six months of 1949 was estimated at 5,000,000 pairs. Production during the same period had been about 3,700,000 pairs and continued to expand rapidly.

Children Electrocuted.—Twenty-three children have been electrocuted in 1948 on live rails, other than those belonging to the London Transport Executive, 11 being killed and 12 injured.

Medical Films.—Mr. BEVAN has arranged for the acquisition of suitable films as they become available, with the object of building up a special medical and nursing section of the Central Film Library.

Duck-egg Poisoning.—Asked about recent incidents of food-poisoning which had been traced to consumption of duck eggs, Mr. BEVAN said it was safest to bake or fry these eggs, or to boil them for at least ten minutes. They should not be preserved in water-glass or eaten uncooked.

Rheumatism Clinics.—In Wales one clinic in charge of a senior hospital medical officer deals exclusively with rheumatism. In addition, treatment is given in the special departments of 23 hospitals and by arrangement at four spas.

Foot-and-mouth Disease.—In co-operation with the French authorities the Ministry of Food has arranged that livestock exported to Britain shall be drawn only from areas which are believed to be free from foot-and-mouth disease and kept segregated from other animals to minimize any risk of importing infected meat

Records of Vaccinations.—There is no statutory requirement for doctors performing vaccinations against smallpox to report them to their local medical officers of health or executive committees, but there are arrangements for doctors taking part in the vaccination service of local health authorities to supply them with records. These authorities make returns accordingly to the Ministry of Health.

Tuberculosis Waiting-list.—About 960 cases are on the waiting-list in South Wales and Monmouthshire of persons suffering from tuberculosis who have been certified as needing institutional treatment. Mr. BLENKINSOP states that the reason for the length of the wait is lack of staff, which Mr. Bevan is doing all he can to remedy.

Universities and Colleges

UNIVERSITY OF EDINBURGH

At a Graduation Ceremonial on July 20 the following medical degrees were *conferred*:

M.D.—E. G. Barnes, [3]A. E Claireaux, J. W. Fraser, [2,4]A. D. Gillanders, D. Gilmour, J. S. Grant, [4]B. Isaacson, [1]Marjory A. Keith, C. K. McDonald, W. A. L. MacFadyen, C. Mackie, [4]A. B. Monro, M. Niazi, A. W. Williams, [2]J. H. Young.

C.M.—[3]A. W. Wilkinson.

Ph.D.—In the Faculty of Medicine: M. M. A. Aal, B.M., B.Ch., Barbara E. Clayton, M.B., Ch.B., Helen N. Duke, M.B., Ch.B., J. A. Loraine, M.B., Ch.B., [4]H. C. W. Stringer, M.B., Ch.B.

M.B., Ch.B.—Mary H. Aitken, J. A. D. Anderson, O Archer, [5]P. G. Aungle, N. E. Awunor-Renner, J. S. Barrett, J. A. Beattie, M. H. Beaubrun, B. Bendkowski, J. S Berkeley, L. H. Berman, W. F. Blair, Dorothy S. Bleakley (née Macdonald), Halina Bobinska, D. H. A. Boyd, J. D. D. Brown, J. H Brown, J B Brown, T. A. Brown, I. A. Cameron, I. H. Cameron, Margaret M. Cameron, J. H. Campbell, M. A. Campbell, A. J. M Carlin, Marion L. Clark (née Robertson), Matilda J. Clerk, W. P. Cockshott, N Conley, J. Cook, [4]W. F. Coulson, Isobel B. Craighead, W A. Cranston, Janet S. Darling, R. D. McC. Davie, A. R. Dawson, K. S Deas, Catriona M. Dempster, Pamela M Dodson, Alice B. Doherty (née Ritchie), Eleanor J. Durrand, Frances M. Falconer, Helen L. A. P. Fermie, Mary C. R. Fisher, H. M. Flett, Mary L. Fraser, J. A. G. Graham, P W. Grant, G. H. Hardie, E. R. Harris, Muriel G. Hartley, Susan E. Herdman, J. A. Hislop, Sheila S Hume, R. S. M. D. Inch, T. T. S Ingram, J. J. Ironside, Ailine M W. James, D. A. Johnson, I. M. Johnstone, L Kaufman, Margaret Kennedy, I. H. Kidd, [4]R. Kilpatrick, J. D E Knox, A Koch, J. A. Krawiecki, K. Krnjevitch, Janet M. Lamont, J. A H. Lee, Anne P. Lerpinière, Isabel J. Lim, J. A. Liver, M D W. Low, Elizabeth Y. McDonald, M. S. Macdonald, Beryl B. MacKenzie (née Grenfell), W. A. N Mackie, Sheila L. McKinlay, I. F. MacLaren, [3]Catherine M. U. Maclean, D. W. MacLean, Edith M McLean, J. D. F. McLean, K. F. M. MacLennan, T. J. McNair, D. M. MacPhee, D. M. McSwan, F. Malcolm, [3]Annie B Mann, Helen F. Martin (née Steele), G. H. Matheson, J. H. M. Miller, J. L. Miller, V. G. Milne, C. J. Morris-Mancor, Winifred A. Morton, Helen M. C. S. Mowat, Catherine R. Munnoch, J. H. Neill, J. E. Newsam, H. M. S. Noble, B Nolan, S. E. N.-A. Otoo, J. A. Owen, Rosemary E. T. Philp, Hilary R. Pullon, Helen M. Roberts (née Rebalska), A. D. Robertson, Elizabeth MacK Ross, Joan M. Russell, Helen H. Scott, H. G. Seed, R. L. Simpson, Krystyna M. Slawinska (née Andrzejowska), Lesley D Smith, J. S Stark, T. Stevens, Sheila M. Stewart, I. B. Sutherland, H B. Torrance, Dorothy I. Troup, Margaret A. Tubbs, G McD. A. Turner, W. B. Vallance, I R. Verner, Pearl A. Walker, Edith J. Warner, Phoebe M. White, J. McA. Williams, C W. M. Wilson, D. I. T. Wilson, Janet W. Worling, Mary E. S. Wylie, G. Young, [3]R. Yule.

B.Sc.—In the Department of Pure Science: [4,6]A. MacFarlane, M.B., Ch.B.

The following diplomas were awarded:

D.P.H.—R. S. F. Adam, E. Akwei, [4]K. H. Black, Jean A. Gemmell, D. W. Horn, [4]J. A. Leitch, J. P. Sexton, L. Sheldon, [4]J. L. Watson.

D.I.H.—W. Bolliger, [4]W. H. Graham, A. K. Niyogi.

D.T.M.&H.—Mary A. Ashton, M. Davey-Hayford, A. H. Dunnett, S. C. Ghosh, P. M. Kirkwood, S. A. Mannan, R. Park, J. M. U. Philip, S.-W. Wang.

DIPLOMA IN MEDICAL RADIODIAGNOSIS.—Agnes M. Macgregor, J. Mackenzie, C. D. Preston, D. F. Ross.

DIPLOMA IN MEDICAL RADIOTHERAPY.—J. D. Crowley, J. Milligan.

The following scholarships, bursaries, prizes, etc., were awarded in the Faculty of Medicine. *Cameron Prize in Practical Therapeutics,* D. Bovet (Rome). *Ettles Scholarship and Leslie Medal,* P. G. Aungle and R. Kilpatrick (equal). *Scottish Association for Medical Education of Women Prize, Buchanan Scholarship in Obstetrics and Gynaecology, Mouat Scholarship in the Practice of Physic, Dorothy Gilfillan Memorial Prize,* Catherine M. U. Maclean. *James Scott Scholarship in Obstetrics and Gynaecology,* Annie B. Mann. *Murchison Memorial Scholarship in Clinical Medicine,* C. W. M. Wilson. *Whaitt Research Scholarship,* W. Tomaszewski. *Gunning Victoria Jubilee Prize in Physiology,* I. F. Sommerville. *Gunning Victoria Jubilee Prize in Pathology,* G. M. Wilson. *Beaney Prize in Anatomy and Surgery,* R. Kilpatrick (*proxime accessit,* Margaret Kennedy). *Keith Memorial Prize in Systematic Surgery and Lawson Gifford Prize in Obstetrics and Gynaecology,* R. Kilpatrick. *Singapore Medal,* A. H. Banton. *Annandale Medal in Clinical Surgery,* Margaret Kennedy. *Murdoch Brown Medal in Clinical Medicine,* G. Young. *Ellis Prize in Physiology,* W. E. Balfour. *Wightman Prize in Clinical Medicine,* C. W. M. Wilson. *Pattison Prize in Clinical Surgery,* J. R. Brown. *Stirton Bursary,* D. N. S. Kerr. *Colonel Thomas Biggam Memorial Medal and Prize in Pathology,* B. C. Paton. *Lewis Cameron Undergraduate Prize in Bacteriology,* D. N. S. Kerr and D. McIntyre (equal). *Maclagan Prize in Forensic Medicine,* M. R. King. *Wellcome Medal and Prize in the History of Medicine,* S. Polsky. *Cunningham Memorial Medal and Prize in Anatomy,* W. D. Smith. *Senior John Aitken Carlyle Bursary in Anatomy and Physiology,* J. H. Tait. *Whiteside Bruce Bursary,* L. Gilbert. *Ian Oswald Prizes in Anatomy,* W. Harrison and J. K. Morrison. *Robert Wilson Memorial Prize in Chemistry and Vans Dunlop Prize in Physics and Chemistry,* P. H. Jaques. *Vans Dunlop Prize in Botany and Zoology,* W. C. Constable. *MacGillivray Prize in Zoology,* W. C. Constable (*proxime accessit,* Margaret C. Holderness).

[1]Awarded medal for thesis. [2]Highly commended for thesis. [3]Commended for thesis. [4]*In absentia.* [5]With honours. [6]With second-class honours in pathology.

UNIVERSITY OF DURHAM

Alfred Alexander Harper, M.D., has been appointed to the Chair of Physiology tenable at King's College, Newcastle-upon-Tyne.

UNIVERSITY OF LONDON

The following candidates have been approved at the examinations indicated:

ACADEMIC POSTGRADUATE DIPLOMA IN MEDICAL RADIOLOGY.—A. I. Black, J. M. Burbury, D. McC. Gregg, S. J. Hinds, B. M. Jacobson, T. M. Prossor, R. Singh, Z. L. Szur.

M.S.—*Branch I (Surgery):* C. J. Longland, P. P. Rickham. *Branch IV (Otology, Rhinology, and Laryngology):* L. F. W. Salmon.

Claud Foster Barwell, M.B., B.Chir., has been appointed to the University Readership in Bacteriology tenable at the London Hospital Medical College, from October 1.

John Joseph Pritchard, B.M., B.Ch., has been appointed to the University Readership in Anatomy tenable at St. Mary's Hospital Medical School, from October 1.

Harold Charles Stewart, M.D., Ph.D., has been appointed to the University Readership in Pharmacology tenable at St. Mary's Hospital Medical School, from October 1.

UNIVERSITY OF MANCHESTER

Robert Francis Leslie Logan, M.D., M.R.C.P., C.P.H., has been appointed Part-time Lecturer in Occupational Health.

UNIVERSITY OF BIRMINGHAM

In Congregation on July 2 the honorary degree of D.Sc. was conferred on Sir Howard Florey, Ph.D., M.D., F.R.S., Professor of Pathology in the University of Oxford, and on Francis Peyton Rous, M.D., Pathologist, Rockefeller Institute for Medical Research, and a Foreign Corresponding Member of the British Medical Association.

The following medical degrees were conferred in Congregation on July 2:

M.D.—[1]J. J. Elkes, [1][3]Margaret D. Thompson, W. D. Carruthers.

Ch.M. *(ex officio).*—E. B. C. Hughes.

M.B., Ch.B.—[2]F. B. Buckley, [2]Sheila G. S. Burnie, [2]V. W. M. Drury, [2]Margaret T. England, [2]J. A. Ireland, [2]Lillian F. Jones, [2]Ann L. Reynolds, [2]Sylvia M. Saddington, June M. Astill, C. G. Berry, Jean E. Buller, B. W. M. Bushell, R. M. Butler, Winifred N. Chamberlin, E. W. Clarke, J. A. G. Clarke, R. F. Crampton, M. P. Creedy-Smith, J. R. Cross, D. H. Davies, W. R. Davies, R. F. Dingley, Margaret G. Douglas, F. J. Ensell, Thelma P. Higginson, P. D. Hooper, I. Hyde, Marjorie E. Johnston, J. E. Keen, Jean M. Kennedy, N. G. Kirby, Ruth L. Lawson, Bridie O. Lyons, D. F. J. Malins, M. R. Mellor, B. R. Middleton, Jill Prichards, I. Robinson, R. G. Robinson, D. S. Rowe, Brenda W. Stevens, P. J. Stevens, K. Wade, L. E. Wall, D. E. Wallis, I. M. Webster, Jean I. Whittle, V. Zuck, [3]B. B. Jakeman, [3]Elsie M. Wormington.

Dr. A. B. L. Beznak has been appointed Lecturer in Physiology and Dr. C. N. Iland Lecturer in Bacteriology, both from October 1. Dr. J. H. Hirshman resigned his appointment as Research Fellow in Social Medicine on June 30.

[1]With honours. [2]With second-class honours. [3]*In absentia.*

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At an ordinary quarterly comitia of the College held on July 28, with the President, Lord Moran, in the chair, the following Fellows were elected officers for the ensuing year: *Censors,* J. Crighton Bramwell, R. V. Christie, J. F. Smith, A. H. Douthwaite; *Treasurer,* W. G. Barnard; *Registrar,* H. E. A. Boldero; *Assistant Registrar,* W. D. W. Brooks.

Sir Leonard Parsons was appointed Harveian Orator and Dr. E. R. Cullinan Bradshaw Lecturer, both for 1950. The following Lecturers were also appointed: Lumleian (1950), Dr. B. T. Parsons-Smith; Goulstonian (1950), Dr. Howard Nicholson; FitzPatrick (1950), Dr. William Brockbank; Croonian (1951), Dr. T. F. Fox; Oliver-Sharpey (1950), Dr. E. E. Pochin; Lloyd Roberts (1950), Lady Violet Bonham Carter; Humphry Davy Rolleston (1950), Dr. J. H. Dible; Bertram Louis Abrahams (1950), Dr. E. C. Dodds. The Baly Medal was awarded to Sir Edward Mellanby, F.R.S., for his services to physiology and his work on nutrition, with particular reference to the accessory food factors.

Lord Moran was elected the College representative on the General Medical Council and on the Governing Body of the British Postgraduate Medical Federation. The reappointment of Dr. J. A. Nixon as representative on the Court of the University of Bristol was confirmed, as was the appointment of Sir Arthur MacNalty as representative on the Royal Medical Benevolent Fund. Dr. W. W. D. Thomson was appointed representative of the College at the centenary celebrations of the foundation of the University of Belfast, at Queen's College, Belfast.

The following having satisfied the Censors' Board were elected Members of the College: D. E. Aikenhead, M.D., C. D. Alergant, M.D., S. Balasingam, M.D., J. Baragan, M.B., E. M. M. Besterman, M.B., J. E. Blundell, M.B., R. E. Bowers, M.D., J. F. Britto, M.D., D. E. St. J. Burrowes, M.B., L. J. Bussell, D.M., J. A. Chamberlin, M.B., Patricia Chippindale, M.B., E. S. Clarke, M.D., H. R. Colquitt, M.B., Lorna Cooke, M.B., Christine E. Cooper, M.B., J. E. Cotes, B.M., C. J. Don, M.B., A. S. Douglas, M.B., C. E. P. Downes, L.R.C.P., J. R. Edge, M.D., R. H. Ellis, M.B., J. D. Everall, L.R.C.P., P. R Fleming, M.B., R. V. Gibson, M.B., J. E. MacA. Glancy, M.D., J. M. Gooch, M.B., D. A. Gordon, M.B., R. G. Gornall, M.D., R. F. Griffith-Evans, M.B., L. N. Grunbaum, M.B., S. Grzybowski, M.D., R. O. F. Hardwick, M.B., D. S. Harling, M.B., W. C. Harris, M.B., W. Hausmann, M.D., J. C. Hogarth, M.D., M. Horwitz, M.D., Betty E. Howarth, M.B., June L. Howqua, M.D., E. C. Hutchinson, M.B., M. A. Jackson, M.B., J. A. James, M.B., O. Janus, M.B., S. E. M. Jarvis, M.B., A. M. Joekes, B.M., E. R. Jones, M.B., A. J. Karlish, M.D., R. C. King, M.B., A. Knudson, M.B., J. B. Lyon, M.B., R. F. Mahler, M.B., R. H. Meara, M.B., K. B. M. O. Megat, L.M.S., Margaret Middleton, M.B., E. W. Nation, M.B., K. A. Newton, M.B., J. A. Nightingale, M.B., G. O'Gorman, L.R.C.P., C. V. Patel, M.B., H. K. Pawsey, M.B., A. V. Price, M.B., S. G. Rainsford, M.D., Surgeon Captain, R.N., J. T. Rendle-Short, M.B., R. F. Robertson, M.B., K. C. Robinson, M.B., R. Sahu, M.B., F. D. Schofield, M.B., A. B. Sclare, M.B., G. A. Scott, M.D., W. A. McD. Scott, M.B., Major, R.A.M.C., F. W. Smith, M.B., I. O. Stahle, M.D., A. G. Stephenson, M.B., H. C. Stewart, M.D., H. T. Swan, M.B., B. E. R. Symonds, M.B., Cecily M. Tinker, M.B., D. Tomlinson, M.B., D. A. H. Trythall, M.B., A. S. Turner, M.B., D. A. J. Tyrrell, M.B., N. R. Venkatswami, M.B., G. R. Venning, B.M., R. G. Vine, M.D., D. G. Vulliamy, M.B., M. H. West, M.D., D. Whitfield, M.B., D. H. M. Woollam, L.R.C.P., Esme M. Wren, M.B., E. A. Wright, M.B., R. J. Young, M.B., Flight Lieutenant, R.A.F.

Licences to practise were conferred upon 117 candidates (including 28 women) who have passed the final examination in Medicine, Surgery, and Midwifery of the Conjoint Board and have complied with the necessary by-laws: C. A. McC. Aitken, G. W. Bainbridge, J. F. R. Ball, Q. A. Bari, Eleanor H. Barrington, A. T. Barwood, L. Bernstein, J. A. Blundell, I. I. Bornstein, Christine A. Bratt, J. E. Breese, Patricia L. Broadhead, D. E. Brown, H. J. Burns, R. A. Chesterfield, R. E. Citrine, E. G. Clarkson, K. R. J. Coates, B. Crawshaw, P. J. Crosland-Taylor, J. R. Cross, Patricia A. Crowther, Thelma W. Dafforn, Brenda L. D'Arcy, D. M. Davies, I. B. Davies, Lorna C. Davies, J. G. Elliott, G. Ellis, Valerie M. Ellis, K. A. Etherington, M. N. Fergusson, Barbara M. Fessey, O. O. F. Ffooks, G. Fleet, E. A. Foreman, W. G. C. Forrester, Yvette A. P. Franklin, R. Gathercole, Patricia M. Gilbert, H. S. Glatt, Helen Gordon, H. Gough-Thomas, S. S. Grové, A. O. Hagger, R. E. Hancock, Josephine Harper, W. H. Harper, P. H. R. Hawkes, K. M. Herd, Patricia Herdman, J. J. B. Hobbs, T. H. Hughes, Sheila M. H. Hugh-Musgrove, Margaret M. Ives, H. Jackson, C. H. James, W. B. Jennett, C. H. Jones, P. Kelly, I. Kent, D. S. Kerr, Ann Kiln, W. B. Knapman, N. B. Kreitman, K. Kuczynski, J. W. Latham, Mary I. Legg, J. C. Linn, H. K. N. Lister, Marcia McArthur, J. Mander, W. K. Marshall, Pamela G. L. W. Mason, S. N. Mathur, D. G. May, J. S. Mehta, Margaret L. Meikle, B. R. Middleton, J. B. Millard, D. D. Miller, K. E. Mortimer, G. M. Muller, Q. F. Neethling, N. H. Newman, R. L. Newman, G. J. Nicholas, D. H. Nixseaman, P. L. Norman, C. P. B. Parry, P. T. Perkins, C. D. Peters, S. T. H. H. Pilbeam, K. N. J. Pocock, C. O. M. Priday, Suzanne L. Quittner, Joselen Ransome, J. A. Rassell, Regina Reif, W. M. Savery, H. Schlossmann, P. B. Schofield, E. M. Sklar, June M. Smith, Susan Simpson, B. Singh, J. G. Sowerbutts, G. D. Stones, Medora Storkey, J. C. Sumption, F. Tavill, J. M. Thomas, P. W. Thompson, W. L. Timmins, I. M. Webster, Jean I. Whittle, W. B. M. Young.

Diplomas in Tropical Medicine and Hygiene, in Public Health, and in Physical Medicine were granted, jointly with the Royal College of Surgeons of England, to the following successful candidates:

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—Y. G. Abdelal, J. P. Satterwhite, A. F. H. Stewart, S. W. W. Terry.

DIPLOMA IN PUBLIC HEALTH.—A. Bashir, B. A. Bhatti, Mary Brooks, T. H. Elias, J. E. Francis, Joan K. Griggs, W. E. Hadden, D. G. Levis, G. K. Lim, J. H. F. Norbury, Alexandrina M. M. Parker.

DIPLOMA IN PHYSICAL MEDICINE.—M. Fletcher.

Diplomas in Anaesthetics and in Medical Radiotherapy were granted, jointly with the Royal College of Surgeons of England, to the successful candidates whose names were printed in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of June 25 (p. 1145).

Diplomas in Medical Radio-Diagnosis were granted, jointly with the Royal College of Surgeons of England, to D. Chisholm and J. J. Wallis and to the other successful candidates whose names were printed in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of June 25 (p. 1145).

Diplomas in Laryngology and Otology and in Psychological Medicine were granted, jointly with the Royal College of Surgeons of England, to the successful candidates whose names were printed in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of July 30 (p. 292).

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At a meeting of the College held on July 19, with the President, Dr. W. D. D. Small, in the chair, the following were elected to the Fellowship: D. E. Sands, A. W. S. Thompson, C. F. J. Cropper.

Diplomas of Membership were conferred on the following: R. G. Lendrum, J. I. Lipschitz, R. W. D. Turner, R. M. M. Hunter, A. C. S. Iyer, A. P. Littlewood, W. Gordon, Muriel M. D'Souza, B. E. Cohen, J. H. Taylor, J. O. Craig, J. W. Farquhar, K. Rhaney, G. Mundel, D. Cappon, T. C. Noble, F. W. A. Turnbull, J. S. Calder, R. T. Ritchie, R. S. Walker, A. B. Sclare, J. D. Matthews.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a reception held on July 25 the Honorary Fellowship of the College was conferred on Mr. Victor Ewing Negus, M.S., F.R.C.S., President of the Fourth International Congress of Otolaryngology held in London last month, and, *in absentia*, on Dr. Chevalier Jackson, Professor of Bronchology in Temple University, Philadelphia, U.S.A. The first Honorary Fellowship in Dental Surgery of the College was conferred on Mr. William Guy, LL.D., F.R.C.S.Ed., H.D.D., former Principal of the Edinburgh Dental Hospital and School. Honorary Fellowships in Dental Surgery were also conferred on Professor Kent Thoma, Professor of Aural Surgery in Harvard University, and on Professor Robert Vivian Bradlaw, M.R.C.S., L.R.C.P., F.D.S., Dean of the Faculty of Dental Surgery, Royal College of Surgeons of England.

The Honorary Fellowship in Dental Surgery of the Royal College of Surgeons of England was also conferred on Mr. Guy. Professor Bradlaw, who presented it, said that it was fifty years ago that Mr. Guy had succeeded Bowman McLeod as Dean of the Edinburgh Dental Hospital and School, and to his endeavour might be ascribed the deservedly high reputation of that great school. To his vision they owed the Dentists Act of 1921, the charter of their profession: from his researches came advances in dental anaesthesia; and his skill and wide experience laid the foundations of their modern concept of maxillo-facial surgery. A fine scholar, a skilful surgeon, an outstanding teacher, and an able administrator, he brought distinction to the Roll of Fellows in Dental Surgery of the Royal College of Surgeons of England. If Carlyle was right when he said that statesmanship was to provide for posterity, William Guy was indeed a statesman.

At a meeting of the College held on July 27, with Mr. Frank E. Jardine, President, in the chair, the following candidates, having passed the requisite examinations, were admitted Fellows: C. E. L. Allen, F. Baar, A. J. Biesman-Simons, C. S. Campbell, B. C. Dastur, Patricia R. Davey, K. Drummond, J. M. E. Jewers, D. H. King, G. L. McEwan, I. W. MacPhee, J. J. MacPherson, R. M. Nadkarni, M. A. Radwan, T. K. Raju, T. J. Reid, M. H. Saadi, N. T. Sampanthan, H. Sayeed, R. N. Sinha, G. Smith, H. J. M. Stratton, P. A. Thorpe, H. S. Trafford, H. V. Wingfield.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a meeting of the Council of the College held in the College House on July 23, with the President, Sir William Gilliatt, in the chair, Professor Hilda Nora Lloyd was elected President and will assume office in October. Mr. John Eric Stacey and Dr. V. B. Green-Armytage were elected Vice-presidents.

The following officers were re-elected: *Honorary Treasurer*, Mr. Arthur A. Gemmell; *Honorary Secretary*, Mr. Humphrey G. E. Arthure; *Honorary Librarian*, Mr. Frederick W. Roques; *Honorary Curator of the Museum*, Mr. Aleck W. Bourne.

The following candidates were elected to the Membership of the College: A. B. Backus, Jessie E. C. Baird, T. E. C. Barns, A. Bhagat, D. H. Blakey, V. Y. Bockner, S. C. Bose, M. B. Bruce, R. C. Cummin, Mona M. Davin-Power, R. G. Denniss, H. Doberman, T. Dougray, L. W. D. Drabble, C. T. F. Ealand, G. K. Emsley, G. M. Evans, J. J. Foley, P. S. Gardner, G. W. Garland, H. K. B. Geiser, Elizabeth Gilbertson, Marie P. S. Grant, G. T. Hammond, J. C. Harvey, I. Henderson, J. A. Henderson, D. W. Hendry, R. W. Hutchinson, E. W. Ilangantileke, E. P. Jones, F. G. E. King, J. M. King, E. W. Kirk, Joan E. M. Lambert, D. Latto, J. G. Lawson, F. H. Leckie, E. M. Leyland, J. W. F. Lumsden, J. M. McCracken, I. MacGillivray, H. N. Mansfield, W. G. Millar, R. Moolan-Feroze, Ll. O. Morgan, M. R. Neely, F. C. R. Picton, J. G. Reynolds, N. A. Richards, S. Riterband, T. W. Roddie, J. H. Routledge, C. A. Samad, E. M. Sandler, Olive C. Sandys, J. W. F. Scrimgeour, S. Sen, J. C. Shelton, Norah P. Sherlock, A. Sinnatamby, J. A. McC. Smith, Doreen M. J. Stracey, A. B. Swarbreck, J. L. Taylor, S. D. Tewary, J. Watson, G. F. J. Williams.

The Services

Surgeon Rear-Admiral F. G. Hunt, C.B.E., R.N., has been appointed Honorary Physician to the King in succession to Surgeon Rear-Admiral J. A. Maxwell, C.V.O., C.B.E., K.H.S., R.N., who has been placed on the Retired List.

Surgeon Lieutenant-Commander J. A. Shepherd, R.N.V.R., has been awarded the R.N.V.R. Decoration.

Captain (now Major) R. M. Vanreenan, R.A.M.C., has been awarded the Efficiency Medal (Territorial).

The Efficiency Decoration has been conferred upon Majors H. Dickie, C. H. Johnson, and J. L. Warner, R.A.M.C., T.A.

DEATHS IN THE SERVICES

Colonel JOSEPH DALRYMPLE died on July 17 at the age of 80. He qualified at Edinburgh in 1899, having already served with the Bechuanaland Field Force in the Langeberg Rebellion in 1897. In 1900–1 he served in the South African War, gaining the Queen's Medal with five bars, and he served throughout the war of 1914–18, being mentioned three times in dispatches. He received the O.B.E. in 1918, and was made a C.M.G. the following year. He had published work on the restoration of the sick and wounded to the forward areas and on the treatment of malaria-infected troops.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ending July 16. [No. 28

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London), (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	17	1	12	—	—	25	3	13	—	2
Deaths		—	—				—	—		
Diphtheria	104	22	16	2	7	183	18	40	14	1
Deaths	1	1	—	—	—	4	2	1	—	—
Dysentery	68	8	33	2	2	67	24	25	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	2	—	—	—	—	1	—	—	—	—
Deaths		—					—			
Erysipelas			17	4	3			21	9	—
Deaths		—					—			
Infective enteritis or diarrhoea, under 2 years				71					24	
Deaths	22	2	8	1	1	27	—	5	1	2
Measles*	5,376	490	149	204	102	9,459	602	70	91	78
Deaths†			—	1	—			—	—	1
Ophthalmia neonatorum	54	—	12	—	—	55	2	8	1	—
Deaths										
Paratyphoid fever	50	—	1(A) 2(B)	—	1	12	1	—	—	—
Deaths	1	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	330	24	2	1	1	377	19	—	2	4
Deaths (from influenza)‡	6	—	—	—	—	3	1	—	1	—
Pneumonia, primary			123	27				128	32	
Deaths	126	9		2	4	122	17		10	6
Polio-encephalitis, acute	5	1				2	—			
Deaths										
Poliomyelitis, acute	112	12	3	1	2	36	5	5	1	—
Deaths§	9	1				3	1			
Puerperal fever		—	6		—		—	2		—
Deaths										
Puerperal pyrexia‖	105	11	3	—	1	96	4	9	3	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,043	66	105	74	32	1,703	114	256	40	34
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	6	—	1	4	—	4	—	—	3	—
Deaths	—	—	—	—	—	2	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	2,184	84	33	100	76	3,416	258	18	117	10
Deaths	9	—	3	—	—	8	1	1	—	1
Deaths (0–1 year)	275	43	29	17	9	276	33	35	7	10
Infant mortality rate (per 1,000 live births)				1						
Deaths (excluding still-births)	4,228	678	496	146	91	4,090	630	507	140	104
Annual death rate (per 1,000 persons living)			9·9	9·0				10·2	8·8	
Live births	7,608	1223	866	411	209	8,363	1340	915	351	253
Annual rate per 1,000 persons living			17·4	25·5				18·5	22·0	
Stillbirths	182	20	19			197	28	29		
Rate per 1,000 total births (including stillborn)			21					31		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

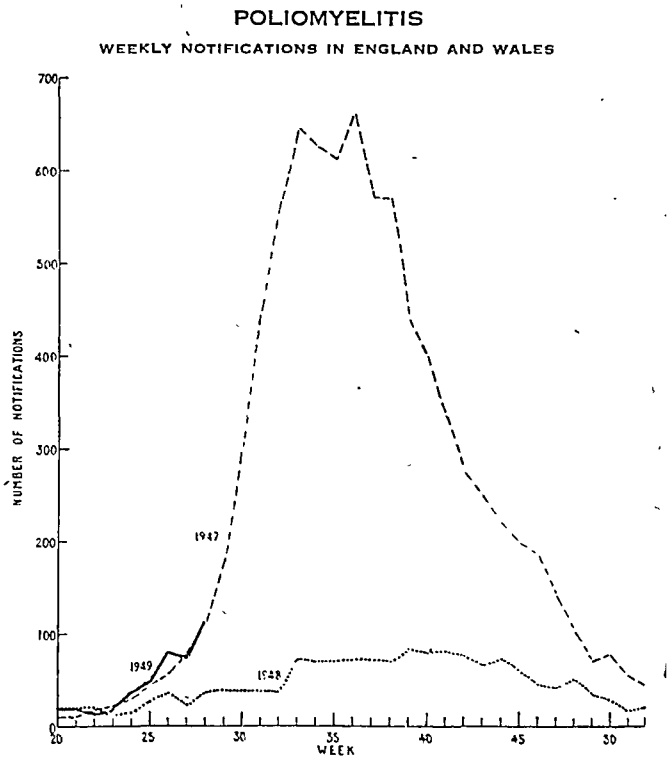
§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales, Eire, and Northern Ireland.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

The rise in the notifications of poliomyelitis (39) was due to increases in four counties; these counties accounted for 56 of the 112 cases. The largest returns during the week were Yorkshire West Riding 19 (Sheffield C.B. 4, Batley M.B. 4, Wortley R.D. 3); Southampton 14 (New Forest R.D. 12); London 12 (Camberwell 3, Lewisham 3); Middlesex 11 (Finchley M.B. 5, Hornsey M.B. 3); Devonshire 8 (Okehampton R.D. 4); Lancashire 6; Gloucestershire 5 (Bristol C.B. 4).



The number of notifications in the week ended July 23 was poliomyelitis 96 (112), polio-encephalitis 3 (5). (Figures for the previous week are shown in parentheses.) This is the second time since the seasonal rise definitely began in the week ended June 11 that the weekly notifications have been fewer than those of the previous week. In 1947 the rise was remarkably steady once it had set in, and the figure for the week ended July 19, corresponding to the present week, was 193. It is possible that this may portend a flattening of the curve of incidence.

Multiple cases (poliomyelitis and polio-encephalitis together) were reported from the following counties: London 7 (13), Berkshire 3 (2), Cumberland 2 (2), Devon 7 (9), Essex 4 (3), Gloucester 2 (6), Lancashire 8 (7), Leicestershire 6 (2), Middlesex 11 (11), Northumberland 2 (0), Southampton 8 (14), Suffolk East 2 (0), Suffolk West 3 (1), Surrey 3 (4), Sussex East 2 (2), Yorks West Riding 17 (19).

Film for General Public

In addition to the film for doctors, "Polio: Diagnosis and Management," mentioned in this column last week, a short film for the general public entitled "Johnny Green in his Fighting Chance" has been made and will be shown in ordinary cinemas from Aug. 8. Copies will be available in the Central Film Library, Imperial Institute, South Kensington, from about Sept. 1.

Discussion of Table

In *England and Wales* decreases were reported in the number of notifications of measles 195 and cerebrospinal fever 22, while increases were recorded for scarlet fever 97, acute poliomyelitis 39, and paratyphoid fever 18. There were 278 fewer

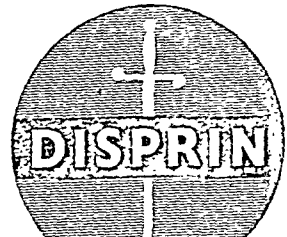
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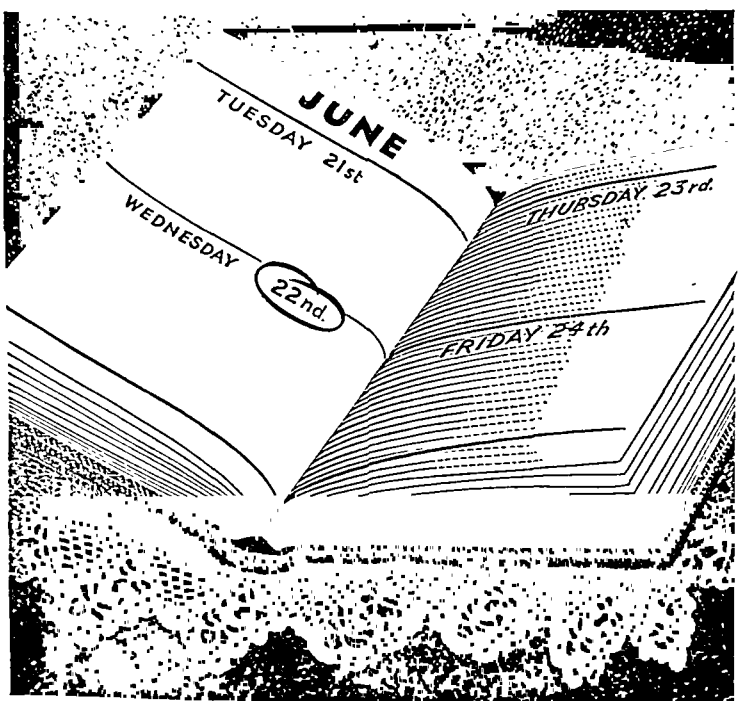
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notifications of food-poisoning than in the preceding week. A very small rise in the incidence of scarlet fever was recorded in every region of the country, but no change of any size occurred in the local trends. The largest decreases in the notifications of measles were Kent 170, Middlesex 46, Yorkshire West Riding 42, and the largest increases were Lancashire 37, Glamorganshire 31. The only variations of note in the local trends of diphtheria were a decrease of 5 notifications in London and an increase of 6 in Lancashire. The largest fluctuations in the returns of whooping-cough were a decrease of 38 in Essex and an increase of 31 in Lancashire.

The rise in paratyphoid fever occurred in Lancashire, where the chief centres of infection were Liverpool C.B. 29 and Crosby M.B. 6. Dysentery decreased throughout the country except in Warwickshire, where in Warwick R.D. the notifications rose from 2 to 34. The largest outbreaks of food-poisoning notified were the City of London 31 and Essex, Chingford M.B. 30.

In *Scotland* decreases were recorded in the number of notifications of scarlet fever 25, diphtheria 10, and a rise of 27 was reported for measles. The chief centres of dysentery were the cities of Glasgow 15 and Edinburgh 8. The decline in scarlet fever was confined to the western area, and a slight rise occurred in the south-eastern area.

In *Eire* a decrease occurred in the number of notifications of measles 24, while increases were recorded for whooping-cough 27, scarlet fever 21, and diarrhoea and enteritis 16. The experience of Dublin C.B. was mainly responsible for the rise in scarlet fever and diarrhoea and enteritis. The increase in whooping-cough was due to an outbreak at Dublin, Balrothery R.D., involving 30 persons.

In *Northern Ireland* decreases occurred in the number of notifications of measles 15 and whooping-cough 12, due mainly to the experience of Belfast C.B.

Week Ending July 23

The notifications of infectious diseases in England and Wales during the week included : scarlet fever 1,157, whooping-cough 2,004, diphtheria 76, measles 5,052, acute pneumonia 329, cerebrospinal fever 28, acute poliomyelitis 96, dysentery 90, paratyphoid fever 54, typhoid fever 8.

Medical News

Malta University Rector's Visit

Dr. J. A. Manché, Rector of the University of Malta, began a three-weeks visit to Britain under the auspices of the British Council on July 25. He is visiting laboratories, medical schools, and teaching hospitals to see teaching methods. Dr. Manché was appointed senior medical officer in the Malta Medical and Health Department in 1937. While holding this post he was appointed professor of physics in 1943, in which subject he has always been deeply interested. He became Rector of the University last year.

Gift for Nuffield Orthopaedic Centre

Lord Nuffield has given £50,000 to the Nuffield Orthopaedic Centre at Oxford. The centre offers special facilities and training for orthopaedic specialists from all over the world and students from the Commonwealth.

Great Ormond Street War Memorial

A bronze memorial tablet has been erected to the memory of members of the staff of the Hospital for Sick Children, Great Ormond Street, who gave their lives during two world wars. The memorial was unveiled on July 27 by Sir Lancelot Barrington-Ward, consulting surgeon to the hospital and former chairman of the medical committee. Sir Lancelot, who was invited to perform the ceremony by the chairman of the hospital, Mr. T. H. Bischoff, said that the tablet commemorated 16 men and women, all of whom were on active service in one or other of the wars. They had served the hospital in various capacities—as physicians, surgeons, nurses, electricians, and porters. All of them were members of its fellowship and all had rendered devoted service. The tablet was set by the main doorway of the hospital, where it would remind those passing through of the men and women who had made the great sacrifice for the nation and its children. After the unveiling, the simple ceremony was concluded by prayers of dedication and thanksgiving said by the hospital chaplain, the Rev. R. Mercer Wilson.

Ligue Européenne contre le Rhumatisme

At a general meeting of the Ligue held in Paris on May 14, with Professor M.-P. Weil in the chair, Dr. W. S. C. Copeman (Great Britain) was elected president for the next two years. The next congress will be held in Barcelona in 1951.

Directory of Collections of Micro-organisms

One of the recommendations of the British Commonwealth Scientific Official Conference, 1946, was that a directory of the important culture collections of the Commonwealth should be prepared. Duplicated copies of the "Directory of Collections of Micro-organisms maintained in the United Kingdom and Crown Colonies" and of the "Catalogues of Arthropods, Helminths, Molluscs, and Protozoa of Interest to Medical and Veterinary Workers" are now available free on request, the former from the Secretary, United Kingdom National Committee of the British Commonwealth Collections of Micro-organisms, 38, Old Queen Street, Westminster, London, S.W.1, and the latter from the Director, Laboratory Animals Bureau, Royal Veterinary College, Royal College Street, London, N.W.1.

Lord Webb-Johnson Lecture

The Council of the Royal College of Surgeons decided at a meeting on July 28, on the recommendation of the Faculty of Dental Surgery, to institute an annual dental lecture entitled the Lord Webb-Johnson Lecture. It will be a College lecture, and will be given on invitation from the College. It commemorates the indebtedness of the dental profession to Lord Webb-Johnson, who was instrumental in founding the Faculty of Dental Surgery.

Freedom of City

The freedom of the city of Verona has been conferred on Sir Alexander Fleming.

Dean Resigns

Professor J. M. Mackintosh has resigned from the position of Dean of the London School of Hygiene and Tropical Medicine, but will continue to teach in the school as Professor of Public Health. We understand that the school has decided to appoint a whole-time Dean.

COMING EVENTS

General Meeting of Psychiatrists

A meeting, open to all psychiatrists practising within the South-West Metropolitan Region, will be held at B.M.A. House, Tavistock Square, London, W.C., on Thursday, Aug. 11, at 2.30 p.m.

Veterinary Congress

The National Veterinary Medical Association will hold its annual congress in London on Aug. 12–15 in conjunction with the International Veterinary Congress being held on Aug. 8–13. Dr. J. Peters, of Rotterdam, and Dr. J. Winsser, of Leiden, will present a paper on "Diseases of Household Animals Communicable to Man." Members of the B.M.A. will be welcome at this discussion, which is to be held at the Central Hall, Westminster, at 2.15 p.m., on Saturday, Aug. 13. Tickets of admission may be obtained from the General Secretary of the N.V.M.A., 36, Gordon Square, London, W.C.1.

First-aid and Nursing Courses

A course of first aid and nursing will be started under the direction of the St. John Association on Sept. 3 at the new Brigade Training Centre, St. John House, 15 and 16, Collingham Gardens, London, S.W.5. All are eligible without obligation to join the Brigade. First aid will be dealt with in one week, home nursing in the following week, with an examination at the end of each week. Successful candidates will receive a

St. John Association certificate in either or both subjects according to the set of lectures followed. The training centre is also a social club and provides meals and accommodation for all taking part in the course.

Congress of Haematology

The Société Européenne Internationale d'Hématologie is holding a meeting in Montreux, Switzerland, on Sept. 15–17. The official languages of the congress are English, French, German, and Italian. Two subjects have been proposed for the main discussions: (1) haemolytic anaemias; (2) changes in blood proteins in blood dyscrasias. British haematologists may obtain particulars from Dr. A. Piney, 152, Harley Street, London, W.1.

SOCIETIES AND LECTURES

Friday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At Anatomy Lecture Theatre, Edinburgh University, Aug. 12, 12.30 p.m., "*Frontal Lobe and the Integration of Thinking*," by Professor G. Jefferson, F.R.S.

APPOINTMENTS

ASHCROFT, A. T., M.B., Ch.B., Regional Medical Officer, Ministry of Health.

EAST ANGLIAN REGIONAL HOSPITAL BOARD.—The following appointments are announced: *Consultant Physician in Ipswich Area*, J. W. Paulley, M.D., M.R.C.P. *Consultant Paediatrician in Ipswich Area*, R. M. Mayon-White, M.D., M.R.C.P., D.C.H. *Physician Superintendent at Ipswich Sanatorium*, G. R. McNab, M.D., F.R.C.P.

FERREIRA, H. P., M.B., B.S., Assistant Pathologist to Queen Charlotte's and Chelsea Hospitals at Chelsea Hospital for Women.

GREGORY, T. S. S., M.B., F.R.C.S (Ophth.), D.O.M.S., Ophthalmic Surgeon to Aylesbury and District Group of Hospitals, Oxford Regional Hospital Board.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.—The following appointments are announced: *House-physicians*, J. C. Macaulay, M.B., B.S., M.R.C.P., D. McR. Hanna, M.D., M.R.C.P., M.R.A.C.P.; *House-surgeons*, L. H. Pimm, M.B., B.S., R. M. T. Walker-Brash, B.M., B.Ch.; *Part-time Surgical Registrar*, D. J. Waterston, M.B., F.R.C.S.

SOUTH-WESTERN REGIONAL HOSPITAL BOARD.—The following appointments at the hospitals indicated in parentheses are announced: *Pathologist*, G. Stewart Smith, M.D. (Royal Devon and Exeter Hospital, Exeter); *Assistant Orthopaedic Surgeon*, M. H. Salz, F.R.C.S. (Mount Gold Hospital, Plymouth, with clinical duties in other hospitals in area, as required); *Assistant Radiologists*, G. R. Airth, M.B., B.S., D.M.R. (Southmead Hospital, Bristol), and C. W. B. Woodham, M.R.C.S., L.R.C.P., D.M.R.E. (Royal Devon and Exeter Hospital, Exeter); *Assistant Clinical Pathologist*, C. H. Jellard, B.M., B.Ch. (Gloucestershire Royal Hospital); *Plastic Surgeon*, G. M. Fitzgibbon, M.D., F.R.C.S. (Frenchay Hospital, Bristol).

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Bartolo.—On July 21, 1949, at Blue Sisters Hospital, Malta, to Jean (née Callie), wife of Dr. A. E. Bartolo, a son—David.

Benians.—On July 15, 1949, at North Middlesex County Hospital, London, N., to Edith (née Aiken), S.R.N., wife of Richard Benians, M.B., M.R.C.P., a daughter.

Beynon.—On July 27, 1949, in London, to Nora, wife of Dr. Arthur E. Beynon, a son.

Elphick.—On July 14, 1949, at Lagos, Nigeria, to Hilary Jean Elphick (née Haden), M.B., B.S., and Richard Michael Elphick, of King's College, Lagos, a daughter.

Freeman.—On July 23, 1949, at British Military Hospital, Vienna, to Frida (née Allibone), wife of Captain Roger Freeman, R.A.M.C., a daughter.

Gilmour.—On July 24, 1949, at Hayes, Middlesex, to Jean (née Macleod), wife of Dr. S. J. G. Gilmour, a son.

Goulden.—On June 19, 1949, at 94th British Military Hospital, Hamburg, to Margaret Fionnula (née Macrae), wife of Captain Richard Patrick Goulden, R.A.M.C., a daughter—Margaret Sheonagh.

Hirsch.—On July 22, 1949, at Leicester General Hospital, to Edna (née Sayer), S.R.N., S.C.M., wife of W. P. Hirsch, F.R.C.S.Ed., M.R.C.O.G., a son.

MacAuliffe.—On July 15, 1949, at Swindon, to Judy (née Baldry), wife of Richard MacAuliffe, M.D., a daughter.

Wharton.—On July 10, 1949, at 277, Stroud Road, Gloucester, to Jenny (née Morgan), wife of Dr. G. C. C. Wharton, a son.

MARRIAGE

Thomson—Milne.—On July 23, 1949, at Perth, Thomas Nairn Thomson to Nancy S. M. Milne, M.B., Ch.B., late of Wisbech.

DEATHS

Ackland.—On July 26, 1949, William Robert Ackland, M.D.S., M.R.C.S., of 5, Rodney Place, Clifton, Bristol, aged 85.

Anderson.—On July 25, 1949, at Craigbittern, Colvend, Dalbeattie, Kirkcudbrightshire, Alford William Anderson, T.D., M.D., J.P., aged 81.

Barr.—On July 22, 1949, at The Cairn, Oxlea Road, Torquay, James Barr, M.B., C.M., D.P.H., aged 81.

Brew.—On July 23, 1949, Richard William Brew, M.B., B.Ch., of 8, Herbert Terrace, Penarth, aged 78.

Cairns.—On July 24, 1949, at Edinburgh, Agnes Josephine Cairns (née Gardner), M.B., Ch.B., D.P.H.

Elwell-Johnston.—On July 26, 1949, at University College Hospital, London, Loiza Elwell-Johnston (née Elwell), M.R.C.S., L.R.C.P., aged 77.

Fegan.—On July 26, 1949, at Leverstock Green, Herts, John Herbert Crangle Fegan, M.R.C.S., L.R.C.P., aged 77.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Bedsores

Q.—*A woman of 40, bedridden for some years with disseminated sclerosis, has some very bad bedsores. For several months she has had almost constant urinary incontinence, which makes treatment of the sores impossible. Is there any reason why a catheter cannot be inserted and left in, and can you suggest any palliative treatment?*

A.—Urinary incontinence should not prevent adequate treatment of bedsores; indeed, with good nursing care the sores can usually be healed in such a case. If the deformities referred to consist of severe flexion and adduction contractures of the lower limbs the task will be more difficult. An indwelling catheter may be tried for a few days, but is not always satisfactory. A rubber bed-pan, which the patient can lie on all day, like a rubber ring, is of very great help. The free use of diapers which have been sprinkled with boric acid solution and allowed to dry prevents much discomfort and also the ammoniacal odour.

Bedsores develop in such a case because the patient is left in one position for more than four hours at a time. The common propped-up position of the chronic invalid in bed throws nearly all weight on the sacrum. The patient should never be left like this for long; every four hours the position should be changed, but this involves removing all but one pillow and turning the patient fully on the side or face, if contractures allow. It is also worth noting that removal of all pillows in itself transfers much of the weight from the sacrum to the shoulders; while raising the foot of the bed with the patient lying flat is even better, and in difficult cases should be used for one period every day. Deep bedsores should seldom be packed, and then only very lightly, as the patient's weight on the dressing makes the bedsore deeper. An empty space stimulates free growth of granulation tissue. If flexion contractures have not yet developed, a daily period of lying prone on the face is specially valuable for all bedridden patients. This relieves sacral pressure, counters flexor spasms, and prevents the otherwise inevitable flexion deformities of hip, spine, and neck. The last point is not applicable to this particular question, but its importance demands emphasis. After a long illness a properly treated patient should be able to walk as erect as a guardsman; the curled-up victims whom one sees coming out on fine days exemplify how sadly our profession fails to counter the vicious flexion deformities of the infirm.

Oedema of the Newborn

Q.—*What are the modern views on the causation of spontaneous oedema of the newborn? Is vitamin E of any value in treatment?*

A.—Oedema of the newborn, apart from the hydrops of haemolytic disease, occurs principally in association with two conditions—sepsis and prematurity—but in neither is the causation at all clear. Certainly infants with severe infection develop oedema, first of the legs and later of other parts of the body, and it is usually, but not always, an ominous sign. It is often accompanied by anaemia, and is possibly associated in severe cases with heart failure. Treatment in such cases is of course directed at the infection. In premature and weakly infants who are not thriving oedema is also often found, sometimes indicated by an upward jump in the weight curve even before oedema becomes obvious. In this connexion it should be remembered that the infantile kidney, as McCance has shown, is poor at concentrating the urine, and if chlorides are being given, as in normal saline or even in milk, retention may occur and may explain the oedema in some instances. The serum protein level may be low in either of these conditions, but, as with hunger

oedema, there is not an absolute correlation. Oedema may occur with normal protein figures and not occur with low levels. In premature infants with a subnormal temperature the condition may be treated by the administration of thyroid as suggested by the late Eric Pritchard. He recommended *1/10 gr. (6.5 mg.)* for every 1 lb. (453 g.) of body weight daily for a few days. Congenital syphilis affecting the kidneys is a theoretical cause of oedema of the newborn, but ought never to be seen if routine antenatal investigation of all expectant mothers is carried out. Also theoretically, Milroy's hereditary oedema might begin to show in the newborn period. It is difficult to see what part vitamin E could possibly play in treatment of oedema of the newborn. Most mild examples clear up spontaneously, and any preparation or treatment used can thereby secure a spurious reputation.

Resuscitating Apparatus

Q.—*What are the latest views on the use of a resuscitating apparatus supplying oxygen with a fixed proportion of carbon dioxide in cases of drowning, carbon-monoxide poisoning, or electric shock? Is there much value in giving oxygen alone in any of these cases? Is carbon dioxide of value, and, if so, in what proportion?*

A.—Carbon dioxide is a stimulant to the respiratory and vasomotor centres. It is therefore logical to administer carbon dioxide along with oxygen in cases where the patient is suffering from anoxia and impaired respiratory function. The proportion usually recommended is 5 to 7% of carbon dioxide; appreciably higher concentrations may be deleterious. An appropriate oxygen–carbon-dioxide mixture is considered specially suitable in the treatment of severe carbon-monoxide poisoning, because the increased carbon dioxide not only stimulates the respiratory centre but also favours a more rapid dissociation of the carboxyhaemoglobin. Moreover, there may be an added value in that the hyperventilation occurring in the earlier stages of carbon-monoxide asphyxia causes a deficiency of carbon dioxide in the body. This latter argument does not apply in cases of drowning and electric shock, and the desirability of the addition of carbon dioxide to the inhalation mixture is probably not so great in these conditions. Nevertheless, it would seem reasonable to try the effect of a similar mixture where the respiratory movements are feeble and there is an obvious need for increased pulmonary ventilation. The beneficial effect of the carbon dioxide on the circulation should also be borne in mind. The administration can be combined with artificial respiration, and in most cases need not be unduly prolonged. If no oxygen–carbon-dioxide mixture is available, oxygen by itself should certainly be used.

Supplementary Vitamins

Q.—*Is there any justification for advising the routine administration of vitamins A and D to, say, a police force to increase vitality and resistance to infection?*

A.—There is not the slightest justification for advising this practice.

Anterior Pituitary Growth Hormone

Q.—*Will you please let me know if the isolated growth-promoting hormone of the anterior pituitary is obtainable; also the indications for use and recommended dosage.*

A.—No preparation of the isolated growth hormone is available, but there is on the market an extract of the anterior pituitary, standardized for the growth hormone (100 units per ml.) and also containing adrenotropic hormone. The dose recommended is 1 ml. daily intramuscularly. In the writer's experience this dosage is useless, and he has obtained results only with 5 ml. twice daily, which is both painful and expensive. The pure hormone has been isolated by Li, of California (*J. biol. Chem.*, 1945, **159**, 353), and in some unpublished experiments on dwarfs this failed to stimulate growth and even failed to produce nitrogen retention; both these effects, however, were obtainable in animals. The position as regards growth hormone is therefore unsatisfactory, even to the point of causing scepticism about the existence of a pure growth hormone. Thyroid and testosterone stimulate growth in suitable cases.

Fox-Fordyce Disease

Q.—*A female aged 20 has been suffering from Fox–Fordyce disease for the last two years, and in spite of expert treatment the condition seems to be at a standstill—in fact, it is becoming more painful in both axillae. Is the aetiology known, and is there any effective treatment?*

A.—Fox–Fordyce disease is an irritable papular eruption of axillae, pubes, and breasts related to apocrine-gland function. It depends on disturbances of endocrine function and is usually relieved by the administration of oestrogens. Local applications, including *x*-ray therapy, as employed in other types of prurigo are of little value in this affection.

Glutamic Acid for Mental Retardation

Q.—*Is glutamic acid likely to improve the intellectual performance of a boy of 8 who is not mentally defective but only somewhat retarded? The father rejects the boy because of his slowness, and any improvement would probably make a difference to this attitude. Please state the dosage and the method of administration. How long ought treatment to be continued, and are there any contraindications?*

A.—The evidence that administration of glutamic acid makes a real difference to retarded and defective children is not convincing. According to published reports, response varies greatly from individual to individual, so that while one child makes a striking advance others are unaffected or even drop points on intelligence testing. There is no indication that results differ with different types of defective. The numbers of patients so treated have not been large. L-Glutamic acid is given by mouth in doses which are to a considerable extent independent of age and determined by the response obtained, but beginning, say, with 2 g. thrice daily and increasing even up to 48 g. daily. It can be given as tablets, powder, or in capsule. Unpleasant effects may be indicated by gastro-intestinal upset. The patient described might perhaps benefit from this treatment, and ill effects need not be feared. It might in any case be good for the father's attitude—which may itself be partly the cause of the son's slowness—to try something in the way of treatment, and lead him to regard the boy more sympathetically. The inquirer is referred to the following articles: *Arch. Neurol. Psychiat., Chicago*, 1944, **51**, 446; 1946, **56**, 489; 1949, **61**, 275; *Psychosom. Med.*, 1947, **9**, 175; *Amer. J. Psychiat.*, 1948, **104**, 593; *J. nerv. ment. Dis.*, 1946, **104**, 263.

Menstrual Tension State

Q.—*Since her first pregnancy five years ago a woman of 29 has headache, irritability, depression, aching in the gums, and right low-abdominal pain starting a few days before and continuing till a few days after each menstrual period. The lochia were blood-stained for several weeks after the birth of the baby, and during lactation the mother often had night sweats. Tuberculosis was excluded. In 1947 the uterus was found to be pulled over to the right, but was normal in size and anteverted; the right ovary was tender on pressure, and at laparotomy was seen to be covered by a thick white capsule and contained a few small follicular cysts. It was removed, but histological examination failed to reveal any abnormality. After a few months the symptoms returned, with pain in the left side. The patient became pregnant again. After her confinement night sweating recurred, and for six weeks the lochia contained blood. On examination a well-anteverted but subinvoluted uterus was found. When her periods started again there was a return of the symptoms with in addition small papules on the body and face. A papular rash also developed on the baby, accompanied by colic and green stools. Can the mother's symptoms, including the ovarian tenderness, be due to an endocrine disturbance, affecting the baby by excretion of hormones in the milk? If so, can any treatment on an endocrine basis be suggested?*

A.—It is difficult to comment adequately on a complicated case history of this kind, and personal knowledge of the patient and her environment would seem to be important before coming to any final conclusions. There is nothing in the account to indicate an endocrine disturbance, nor is it likely that the upsets

in the baby were related to a noxious agent in the milk. Indeed, the whole picture suggests that the basis is one of over-anxiety. Colonic spasm is likely to be the cause of the left-sided pain and to give rise to occasional right-sided pain from the caecum. The abdominal discomfort has probably always been of bowel origin, and the ovary which was removed was blameless. The general disturbance associated with menstruation represents exaggerated molimina, amounting to what is sometimes called a "menstrual tension state," which again often has a psychological underlay. Night sweats, sometimes most profuse and disturbing, are common enough during the puerperium and early weeks of lactation, and in the absence of pyrexia they are not of any real significance. Persistence of red lochial discharge for six weeks after delivery is also not necessarily pathological. Cyclical ulceration of the mouth associated with menstruation and perhaps causing discomfort in the gums is a condition the cause of which is unknown. It may be an allergic manifestation, and is dealt with at some length in replies to questions in the *Journal* (Aug. 21, 1948, p. 408; March 15, 1947, p. 365; and June 15, 1946, p. 940).

Paroxysmal Tachycardia

Q.—*A male aged 73 has suffered from paroxysmal tachycardia for nearly 20 years, and the attacks seem to be increasing in frequency—though not in intensity. Treatment with quinidine appears to have little effect. Is there any other treatment that would decrease the number of paroxysms or abort or shorten the attacks?*

A.—If quinidine in doses of 5 gr. (0.32 g.) thrice daily has failed to influence the frequency or duration of the attacks, mepacrine 0.1 g. daily may be tried when attacks are particularly frequent. Although digitalis is usually contraindicated, it is helpful occasionally, and is always worth trying when other methods fail.

NOTES AND COMMENTS

Anaesthetics for Domiciliary Midwifery.—Dr. J. E. M. BARNES (Eye, Suffolk) writes: I was interested in the answer to the question about anaesthetics in domiciliary midwifery ("Any Questions?" July 9, p. 112). It was stated that the Cyprane inhaler could be adjusted to produce a concentration of "trilene" sufficient for general anaesthesia. I would like to know whether this was a theoretical assumption or based on practical experience. I have used one of these inhalers with complete satisfaction in purely domiciliary surroundings—but only in so far as analgesia is concerned. On occasion I have tried to induce anaesthesia, but not successfully. In one particular case forceps blades were positioned on the foetal head without untoward reaction, but as soon as traction occurred the patient resisted the manœuvre. It was a low-forceps delivery, and was terminated rapidly and smoothly, with no difficulty, after anaesthetizing with straight chloroform. I would be interested to know from others their experiences in this particular direction, because I am loath to follow trilene with chloroform as a routine, having, since the case quoted, run up against an alarming instance of cardiac arrest due presumably to vagal inhibition, which entailed resuscitation of mother, infant (white asphyxia), and, almost, the single-handed G.P.

Weight in Pregnancy.—Dr. F. R. KINKEAD ALLEN (Belfast) writes: Gain in weight during normal pregnancy ("Any Questions?" May 7, p. 831) is subject to rather wide variation. In the United States of America this gain appears to be more than in the British Isles. According to McIlroy and Rodway (*J. Obstet. Gynaec. Brit. Emp.*, 1937, **44**, 221), in a thousand cases the average total gain among primiparae was 11 lb. 3 oz. (5 kg.) and for multiparae it was 11 lb. 7 oz. (5.2 kg.), and they noticed that the older patients gained less in weight than the younger ones. According to Chesley (*Amer. J. Obstet. Gynec.*, 1944, **48**, 565) the average gain in weight may be generally ranked as 24 lb. (10.8 kg.); two-thirds of the normal women in his series gained between 18 and 35 lb. (8.1 and 15.7 kg.), but one-sixth gained more than 35 lb. (15.7 kg.). The total increase in any one case, however, is to some extent dependent on the woman's initial bulk, and Stander and Pastore (*Amer. J. Obstet. Gynec.*, 1940, **39**, 928) suggest that it should not exceed 25% of the pre-pregnancy weight. There are, however, many exceptions even to this, and gain does not take place regularly throughout pregnancy. In the first three months there is often little gain, and even a loss may be recorded, especially where a woman suffers from vomiting or anorexia. In the last two or three weeks there may also be a tendency to lose or to cease to gain weight. McIlroy and Rodway claim to have prevented the onset of toxaemia in patients showing excessive gain in a week by regulating diet and by increasing walking exercise. Emblin (*British Medical Journal*, 1949, **1**, 260) considers that the weekly gain during pregnancy should not exceed 8 oz. (0.22 kg.).

Bacteriology of the Throat.—Dr. W. B. ORME (Hove, Sussex) writes: One of the queries in "Any Questions?" (July 2, p. 39) was, "What is the normal bacteriology of the throat?" In answering, your specialist replied giving non-haemolytic streptococci of the *viridans* and *salivarius* types, Gram-negative diplococci of the *catarrhalis* group, slender Gram-negative bacilli of the *Haemophilus influenzae* family, and Gram-positive diphtheroids. Further on in his reply he refers to organisms which are recognized as pathogens, including *Staphylococcus aureus*, haemolytic streptococci, pneumococci, meningococci, and occasionally diphtheria bacilli. Not in the whole reply does he once mention the well-known Friedländer's bacillus, also known as *Bacterium mucosum-capsulatum* and other names; micro-organisms of this group are not infrequently associated with various respiratory infections in man, though in many cases these are considered as being simple secondary invaders. Yet they are commonly present in the nasopharynx of patients suffering from chronic sinusitis, and in some cases they are definitely pathogenic, accounting for 1% of all pneumonias—such cases have an exceptionally high case-fatality rate. Again, Friedländer's bacillus is one of the most difficult organisms to deal with, as it appears to be resistant to all modern bacteriostatic drugs. I am therefore surprised at its omission from your reply.

Ergotamine and Pregnancy.—Dr. K. D. SALZMANN (Reading) writes: Your answer to the query on ergotamine and pregnancy ("Any Questions?" July 2, p. 40) states that, "unless the patient's previous history suggests a special susceptibility to abortion or premature labour, ergotamine is unlikely to have any significant effect on the uterus, and its continued administration is therefore not contraindicated." A few years ago a consultant recommended to one of my colleagues a simple method of inducing labour. He advised giving one ergometrine hydrochloride tablet every morning until labour ensued. My colleague, at his next antenatal clinic, found three of his patients were about a fortnight postmature and unfortunately decided to try the ergometrine method of induction. It worked. All three mothers went into labour within three days. All three had spontaneous labours, and all three gave birth to macerated foetuses, although at the last antenatal examination the infants were alive. In addition to the above experience I recall a patient of mine who had reached term and developed a migrainous headache. I gave her a tablet of ergotamine tartrate. She started in labour, had violent pains, and gave birth—spontaneously—to a stillborn infant. In view of the experiences of my colleague and myself I think one should say that it is unwise to give ergotamine to a primigravida in the early months of pregnancy (before it is known whether she has any tendency to miscarriages) and rarely or never should it be given when the uterus is no longer inert—at term or during the last few weeks preceding maturity. There is one exception to the above rule. If the foetus *in utero* is dead, one might utilize the daily tablet of ergometrine or ergotamine as a means of inducing labour—particularly if massive oestrogen therapy has failed. I have known this done successfully on several occasions.

Corrections

Dr. E. K. PRITCHARD (Southwark) writes: It is not clear in the report of my remarks at the Commonwealth and Empire Tuberculosis Conference (July 16, p. 152) that domiciliary collapse therapy was first organized on a large scale in May, 1946, by Dr. C. H. C. Toussaint and myself in our respective Boroughs of Bermondsey and Southwark. Dr. Toussaint subsequently organized a similar scheme in the Borough of Willesden. The necessity for this form of treatment was the natural corollary of the success of the mass *x*-ray survey of cases with minor respiratory symptoms started in similar collaboration between Dr. Toussaint and myself in 1942. This survey brings to light a large number of early cases in urgent need of treatment.

The Hunterian Lecture by Dr. W. S. C. Copeman, published in the *Journal* of July 23 (p. 191), was incorrectly described as the Hunterian Oration.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Attiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone.
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SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY AUGUST 6 1949

THE SECRETARY REPORTS

N.H.S. SUPERANNUATION

The Minister of Health has laid before Parliament regulations amending the National Health Service Superannuation Scheme. Regulations on this subject are among the few which the Minister is not empowered to make under the N.H.S. Act without an affirmative resolution by both the Commons and the Lords. The amending regulations, which have now been approved by both Houses, are technical in character, and for the most part serve to tidy up points of difficulty and to bring the scheme into line with developments in other superannuation schemes in the past year. They include a provision designed to encourage pensioners to continue in employment for up to a further five years, by enabling them to increase the pension which they will ultimately get as a *quid pro quo* for the loss of pension while they continue to be employed in the service.

But the most important provision from the profession's point of view is the extension to consultants and specialists in contract with regional and teaching hospital boards of the option, previously limited to general practitioners on executive council lists, to remain outside the Government superannuation scheme and to receive from the Ministry an amount equivalent to the employer's contribution (8% of the net remuneration) towards the payment of insurance policy premiums. Full details of the conditions under which the option may be exercised have yet to be published. But on the general practitioner analogy it is reasonable to expect that consultants who have already made provision for retirement by endowment or deferred annuity policies will be able to opt out on satisfying the following requirements:

(i) The policies must not mature at an earlier age than 60; where a policy would under its original terms have matured before age 60, it may be recognized if its terms are modified so that it matures at or after age 60.

(ii) The premiums (or total premiums) must not be less than £150 per annum; alternatively, if the total annual premiums on existing policies are less than £150 per annum but not less than £50 per annum, these policies may be recognized on condition that the practitioner takes out forthwith a further policy which will bring the total premiums to at least £150 per annum on policies satisfying the conditions above.

(iii) The policies must not be assigned to any other person, or surrendered before maturity.

(iv) Payment by the Ministry of an amount equal to 8% of the practitioner's remuneration will continue only so long as the premiums on the policies continue to be payable.

(v) The policies must be produced for inspection on a request made to the practitioner by the Minister or by an employing authority on his behalf. Alternatively, a statement from the assurance company as to the nature of the policies may be submitted.

(vi) Premium receipts must be submitted to the Minister or to the employing authority for examination within one month after the date on which each payment of premium falls due.

These are the conditions which will obtain if the Ministry follows the precedents adopted in the case of general practitioners. The Ministry will shortly issue full details in a special leaflet which consultants and specialists will be able to obtain from regional hospital boards and teaching hospital boards of governors.

So complicated is the structure of this vast superannuation scheme that as soon as one anomaly is dealt with another appears. For example, the Medical Women's Federation has recently brought to light the fact that the scheme discriminates unfairly between married women who are employed in the health service and married women who are not so employed. In the latter case, the woman makes no contribution to the N.H.S. superannuation scheme, but qualifies for a widow's pension on her husband's death. In the former case the woman contributes to the scheme as a member of the Service, but loses the widow's pension on becoming entitled to a pension in her own right. In brief, a widow's pension which would otherwise be payable is not payable if the wife is herself receiving a pension under the regulations. This point is at present under discussion with the Ministry.

The Public Health Service

The dispute with the Associations of Local Authorities is now over. The Associations, following a meeting on July 26, agreed to participate in the Whitley machinery provided that its constitution provides that the decisions of the committee dealing with the remuneration and terms and conditions of service of public health officers are final, without need for confirmation by the functional council. It will be recalled that the Whitley proposals for the medical profession provided for a functional council and three main subcommittees, one dealing with consultants, one with general practitioners, and one with public health officers. The effect of the proviso of the Associations of Local Authorities is to ensure that these three subcommittees reach their conclusions without their being subject to the approval of the functional council as a whole. Similarly, no doubt, the remuneration of general practitioners will be determined by its subcommittee without the approval of a functional council which would include not only representatives of the Ministry but representatives of regional hospital boards and local authorities; and, of course, the same would apply to the subcommittee dealing with the terms and conditions of service and remuneration of consultants. The condition seems reasonable, and although it will have to be considered by the Ministry it need not be the cause of any prolongation of the dispute.

The Scottish representatives at the meeting on July 26 were not authorized to commit their association, but they are recommending it to participate. In the meantime, the ban on Scottish advertisements as well as those coming from local authorities in England and Wales will be lifted, although, of course, the final decision of the Scottish Association will be awaited with interest.

Survey of General Practitioner Income

It was reported to the General Medical Services Committee at its meeting on July 28 that the Ministry's survey of the incomes of general practitioners from National Health Service sources was complete and that the results would be in the hands of the committee within the next few days. The committee decided to hold a special meeting on Wednesday, Aug. 31, for the sole purpose of considering this report. Local medical committees are being warned that they may be asked to call meetings of their committees early in September to consider a statement on the position from the General Medical Services Committee.

SURVEY OF GENERAL PRACTICE

MEDICAL PRACTICES COMMITTEE REPORT

The Medical Practices Committee has completed its survey of the number of general practitioners practising in the various parts of England and Wales. It has listed executive council areas or parts of them in one of four schedules.

Schedule 1.—The committee considers that more doctors are needed in the places listed.

Schedule 2.—Places listed in this schedule are those, in addition to the places included in Schedule 1, open to any doctor to settle in with a view to starting practice. Admission to the medical list of the executive council concerned will be automatically granted by the Medical Practices Committee.

Schedule 3.—These are "doubtful" places. Applications to practise in them are likely to be granted, but information in the hands of the Medical Practices Committee when the doctor's application is being considered may result in the area then being closed and the refusal of his application. The establishment of a successful practice in such areas is likely to be hazardous.

Schedule 4.—These are "closed areas." The committee has decided that the number of doctors undertaking to provide general medical services in them is for the time being adequate. Closure is limited in that it gives the committee the power to refuse an application to go on the executive council list (subject to the right of the applicant to appeal to the Minister). The committee is unlikely to agree to an increase in the number of general practitioners practising in the district and might agree with an executive council to refuse to allow replacement of what might be regarded as redundant practitioners resigning from the list. But where an executive council, in agreement with the local medical committee, considers replacement desirable the Medical Practices Committee would agree. Further, it might suggest replacement in other instances where it considers it necessary. Nor does closure mean that under no other circumstances would the committee admit a practitioner to the list; personal factors advanced by the applicant or in his favour by the local executive council, the local medical committee, or other interested parties might be considered of sufficient weight to cause the application to be granted.

The four schedules are printed below:

Schedule 1

The densely populated parts of the following districts:

Counties

Bedfordshire.—Luton.

Cheshire.—Crewe and Nantwich; Hyde, Dukinfield, and Stalybridge; Runcorn and Stockton Heath; Newferry and Bebington.

Cumberland.—Cockermouth, Maryport.

Derbyshire.—Chesterfield Borough and Rural District; Ilkeston Borough; Alfreton, Bolsover, Claycross, Heanor, Long Eaton, Matlock, Ripley, Staveley, Swadlincote Urban Districts; Blackwell and Clowne Rural Districts.

Durham.—Felling Urban District; Hebburn Urban District; Jarrow Borough and Boldon Urban District; Houghton-le-Spring, Hetton, and Washington Urban Districts; Chester-le-Street Urban and Rural Districts: Stanley Urban District; Consett Urban District and Lanchester Rural District; Crook and Willington Urban District and Tow Law Urban District; Bishop Auckland, Shildon, and Spennymoor Urban Districts; Easington Rural District; Sedgefield Rural District; Stockton Urban and Rural Districts and Billingham Urban District.

Gloucester.—Kingswood.

Hampshire.—Aldershot, Eastleigh.

Hertfordshire.—Ware Urban District and Cheshunt.

Huntingdonshire.—Ramsey.

Isle of Ely.—March, Wisbech, Whittlesey.

Kent and Canterbury.—Boroughs of Bexley, Chatham, Dartford, Erith, Gravesend, Rochester; Urban Districts of Crayford, Northfleet, Sittingbourne and Milton, Swanscombe; and Rural District of Dartford.

Lancashire.—Aintree, Bacup, Barrowford, Coppull, Croston, Farnworth, Haydock, Heywood, Hindley, Huyton with Roby, Irlam, Kearsley, Leigh, Litherland, Middleton, Newton-le-Willows, Prescot, West Houghton, Widnes, Worsley.

Leicestershire and Rutland.—Ashby-de-la-Zouch, Coalville, Hinckley, Melton Mowbray excluding Somerby.

Lincolnshire.—Holland: Spalding Urban and Rural Districts. Kesteven: Grantham. Lindsey: Louth.

London.—Boroughs of Battersea, Bethnal Green, Hammersmith.

Middlesex.—Boroughs of Edmonton, Heston and Isleworth, Southall, Wood Green; and Urban District Council areas of Feltham, Hayes and Harlington, Staines.

Norfolk.—Mitford and Launditch.

Northampton.—Kettering.

Northumberland.—Ashington, Bedlington, Haltwhistle, and Wallsend.

Nottingham County and City.—Arnold, Bawtry, Beeston, Carlton and Netherfield, Clipstone, Eastwood, Hucknall, Kimberley, Langold, Stapleford, Warsop, Worksop, and the City of Nottingham.

Soke of Peterborough.—Peterborough, Whittlesey, and Market Deeping.

Somerset.—Chew Magna and Street.

Staffordshire.—Newcastle-under-Lyme Borough and Rural District; Wednesbury, Bilston, Rowley Regis, Tipton Boroughs; Kidsgrove, Biddulph, Aldridge, Brownhills, Rugeley, Darlaston, Willenhall, Wednesfield, Sedgley, Brierley Hill, Amblecote Urban Districts; Lichfield Rural District.

Surrey.—Borough of Mitcham; Urban Districts of Chertsey and Walton and Weybridge.

Sussex West.—Lancing.

Warwickshire.—Bedworth, Nuneaton, Warwick Urban Districts; Atherstone Rural District.

Wiltshire.—Swindon.

Worcestershire.—Bromsgrove, Halesowen, Oldbury, and Stourbridge.

Yorkshire.—East Riding: Haltemprice district, Hedon district, Howden and Goole. North Riding: Carlin How, Dormanstown, Grangetown, Guisborough. West Riding: Castleford Urban District and Normanton Urban District. Featherstone Urban District; Knottingley Urban District; Pontefract Borough; Osgoldcross Rural District. Horbury Urban District; Ossett Borough; Wakefield Rural District. Batley Borough; Heckmondwike Urban District. Hoyland Nether Urban District; Stocksbridge Urban District; Wortley Rural District; and Penistone Urban and Rural Districts. Hemsworth Urban and Rural Districts. Cudworth Urban District; Darton Urban District; Royston Urban District. Darnfield, Wombwell, Worsborough, Dodworth Urban Districts; Swinton, Rawmarsh, Wath-on-Dearne Urban Districts; Adwick-le-Street Urban District; Bentley with Arksey Urban District; Rotherham Rural District. Doncaster Rural District and Tickhill Urban District. Thorne Rural District. Conisborough, Mexborough, and Dearne Urban Districts. Maltby Urban District; Kiveton Park Rural District.

Denbighshire and Flintshire.—Buckley, Caergwrle, Connah's Quay, Hawarden, Holywell, and Wrexham Rural District.

Glamorganshire.—Aberdare, Bridgend, Caerphilly, Gelligaer, Llwchwr, Maesteg, Mountain Ash, Neath, Penybont, Pontypridd, Port Talbot, Rhondda.

Monmouthshire and Newport.—Abercarn, Bedwas and Machen, Bedwellty, Cwmbran, Ebbw Vale, Pontypool, Risca, and Tredegar.

County Boroughs

All of the larger cities in the country have densely populated districts, where the services of additional doctors are required. In addition more doctors are required in the following county borough areas:

Barnsley, Birkenhead, Bootle, Burton-on-Trent, Carlisle, Coventry, Derby, Dudley, East Ham, Gateshead, Great Yarmouth, Leicester, Middlesbrough, Northampton, Norwich, Rotherham, St. Helens, Smethwick, South Shields, Stoke-on-Trent, Sunderland, Tynemouth, Wakefield, Walsall, Warrington, West Bromwich, West Hartlepool, Wolverhampton.

Schedule 2

Counties

Bedfordshire.—Bedford, Dunstable, Barton and Shillington, Leighton Buzzard, Woburn, Toddington, Ampthill and Cranfield, Shefford and Arlesey, Barford, Eaton Socon, Sandy and Potton, Biggleswade.

Berkshire.—Abingdon Urban and Rural Districts; Easthampstead Rural District; Faringdon Rural District; Hungerford Rural District; Maidenhead Urban District; Wallingford Urban and Rural Districts; Wantage Urban and Rural Districts.

Buckinghamshire.—Buckingham, Winslow, Claydon, Bourne End, High Wycombe, Flackwell Heath and Marlow, Stony Stratford, Chesham, Princes Risborough, Aylesbury, Wendover, Waddesdon, Slough, Datchet, Iver, Burnham, Colnbrook, Wolverton, New Bradwell, Olney, Bletchley, Newport Pagnell, Linslade, Wing and Wraysbury.

Cambridgeshire.—Cambridge Borough and County.

Cheshire.—Lymm, Macclesfield with the exception of Bollington, Middlewich, Sale, Bromborough and Eastham, Neston and Parkgate, Bredbury and Romiley, Cheadle and Gatley, Congleton, Northwich and Winsford, Weaverham, Frodsham.

Cornwall.—Albaston, St. Blazey, Bugle, Camborne, Camelford, Carn Brea, Chacewater, St. Dennis, Helston, St. Just, Looe, Penryn, Perranporth, Probus, Redruth, Grampound, St. Austell, Bodmin, Callington, St. Columb, Launceston, Newquay, Penzance, Polperro, Porthleven, Port Isaac, Saltash, Truro.

Cumberland.—Aspatria, Brampton, Cleator, Egremont, Kirkbride, Whitehaven, Workington, Distington, Harrington, Wetheral, Wigton.

Derbyshire.—Belper Urban and Rural Districts; Dronfield, New Mills, Wirksworth Urban Districts; Chapel-en-le-Frith, Repton, Shardlow Rural Districts; Glossop Borough; Ashbourne Urban and Rural Districts.

Devon and Exeter.—Axminster, Barnstaple, Calstock and Gunnislake, Crownhill, Dartmouth, Exeter, Plymstock, South Molton, Tavistock, Tiverton.

Dorset.—Blandford, Portland, Verwood, Wimborne, Bridport, Parkstone, Poole, Sherborne.

Durham.—Blaydon Urban District and Durham City; Borough of Hartlepool; Rural District of Darlington; Urban and Rural Districts of Barnard Castle.

Essex.—Whole of County regarded "open" in absence of survey report.

Gloucester County and City.—Bitton, Bream, Chipping Sodbury, Church Down, Coleford, Drybrook, Dursley, Filton, Gloucester, Hambrook, Hugglecote, Lydbrook, Lydney, Mangotsfield, Mitcheldean, North Leach, Parkend, Stonehouse, Stroud, Tidenham, Ulney, Almondsbury, Berkeley, Blakeney, Newnham, Westbury-on-Severn, Cinderford, Chalford, Eastcombe, Frampton-on-Severn, Painswick, Pilning, Tewkesbury, Wotton-under-Edge, Warmley, Winchcomb.

Hampshire.—Gosport, Fareham, Farnborough, Havant, Basingstoke Urban and Rural Districts, Romsey and Stockbridge, Andover, Petersfield, Winchester City, Alton, Droxford, New Forest Rural District, Ringwood and Fordingbridge, Winchester.

Herefordshire.—Grosmont, Vowchurch, Bromyard, Hereford, Leominster, Ross-on-Wye.

Hertfordshire.—Royston, Baldock, Welwyn, Sawbridgeworth, Hoddesdon, Watford Borough and Rural District, Letchworth, Hitchin Urban and Rural Districts, Stevenage, Hertford, Bishop's Stortford, Tring, Berkhamsted, Hemel Hempstead Borough and Rural District, St. Albans, Harpenden, Hatfield, Elstree, Ware Rural District, Chorley Wood, Rickmansworth, Bushey, Barnet.

Huntingdonshire.—Huntingdon, Old Fletton, Somersham, Warboys, Yaxley, Kimbolton, St. Ives, St. Neots.

Isle of Ely.—Chatteris, Doddington, Ely, Haddenham, Long Sutton, Mildenhall, Parson's Drove, Peterborough, Ramsey, and Upwell.

Kent and Canterbury.—Boroughs of Beckenham and Bromley, Canterbury, Deal, Dover, Faversham, Gillingham, Maidstone with Rural District of Hollingbourne, Margate, Queenborough, Ramsgate; Urban Districts of Ashford, Chislehurst and Sidcup, Orpington, Penge, Sheerness, Tonbridge, and Whitstable; Rural Districts of Dover, Bridge Blean, Eastry, Elham, Maidstone, Malling, Strood, and Tonbridge.

Lancashire.—Accrington, Ashton-in-Makerfield, Ashton-under-Lyne, Barnoldswick, Brierfield, Chadderton, Chorley, Church, Colne, Crompton, Crosby, Dalton-in-Furness, Adlington, Anderton, Atherton, Billinge, Carnforth, Clayton le Moors, Darwen, Fleetwood, Golborne, Great Harwood, Lancaster, Lees, Littleborough, Maghull, Miln Row, Denton, Droylsden, Eccles, Ellel, Failsworth, Formby, Haslingden, Horwich, Ince in Makerfield, Kirkham, Leyland, Little Lever, Longton, Orrell, Ormskirk, Oswaldtwistle, Padiham, Poulton-le-Fylde, Prestwich, Rainford, Rawtenstall, Royton, Stretford, Tarleton, Thornton Cleveleys, Tottington, Upholland, Urmston, Walton-le-Dale, Whitefield, Whittle-le-Woods, Penwortham, Poulton with Fearnhead, Preston, Radcliffe, Rainhill, Ramsbottom, Ribchester, Rishton, Skelmersdale, Stalybridge, Standish with Langtree, Swinton and Pendlebury, Turton, Tyldesley, Ulverston, Wardle, Whitworth.

Leicestershire and Rutland.—Leicester, Loughborough Urban and Rural Districts, Lutterworth excluding Peatling Magna, Market Harborough Urban and Rural Districts excluding Hallaton, Rutland excluding Uppingham and Market Overton.

Lincolnshire.—Holland: Boston Municipal and Rural area, East Elloe Rural District with the exception of Gedney Hill. Kesteven: Stamford and Bourne, Sleaford. Lindsey: Barton-on-Humber, Keadby, Cleethorpes, Scartho, Spilsby, Horncastle, Caistor, Brigg, Scunthorpe, Barnetby, Winterton and Burton Stather, Gainsborough, Skegness, Alford.

London.—Boroughs of Bermondsey, Camberwell, Deptford, Finsbury, Fulham, Greenwich, Hackney, Islington, Lambeth, Lewisham, Poplar, St. Pancras, Shoreditch, Southwark, Stepney, Stoke Newington, Woolwich.

Middlesex.—Boroughs of Acton, Brentford and Chiswick, Ealing, Hornsey, Southgate, Tottenham, Twickenham, and Wembley; Urban District Council areas of Enfield, Friern Barnet, Harrow, Potter's Bar, Ruislip and Northwood, Sunbury-on-Thames, Uxbridge, Yiewsley, and West Drayton.

Norfolk.—Depwade, Forehoe and Henstead, Loddon, St. Faith's and Aylsham, Walsingham, East Dereham, King's Lynn, Blofield and Flegg, Docking, Downham, Erpington, Marshland, Smallburgh, Wayland, Downham Market, North Walsham, Wymondham, Thetford.

Northamptonshire.—Burton Latimer and Finedon, Corby, Daventry, Irthlinborough, Rothwell and Desborough, Rushden, Towcester, Wellingborough, Blisworth.

Northumberland.—Alnwick, Blyth, Glendale, Hexham, and Morpeth.

Nottinghamshire County and City.—Bilsthorpe, Bingham and adjacent villages, Blidworth, Costock, Huthwaite, Kegworth, Keyworth, Kirkby-in-Ashfield, Mansfield, Misterton, Newark, Pleasley, Radcliffe-on-Trent, Retford, Ruddington, Selston, Southwell and adjacent villages, Sutton-Bonnington, Sutton-in-Ashfield, West Bridgford.

Oxfordshire County and City.—Banbury, Bicester, Charlbury, Chipping Norton, Deddington, Henley-on-Thames, Little Milton, Shipton-under-Wychwood, Watlington, Whitney, and Woodstock.

Shropshire.—Chirbury, Ellesmere, Ludlow, Market Drayton, Newport, Oswestry, Shifnal, Shrewsbury, Wellington, and Wenlock.

Somersetshire.—Axbridge, Banwell, Bishops Lydeard, Bridgwater, Cannington, Cheddar, Frome, Glastonbury, Highbridge, Keynsham, Midsomer Norton, Milverton, Nether Stowey, North Curry, Paulton, Peasedown St. John, Pill, Radstock, Shepton Mallet, Stoke-under-Ham, Taunton, Templecombe, Timsbury, Watchet, Wells, West Town, Wrington, and Yeovil.

Staffordshire.—Cannock Urban and Rural Districts; Cheadle Rural District; Coseley Urban District; Leek Urban and Rural Districts; Lichfield City; Stafford Borough and Rural District; Stone Urban and Rural Districts; Tamworth Borough; Tettenhall Urban District; Tutbury Rural District; Uttoxeter Urban District.

Suffolk East.—Beccles, Botesdale, Bungay, Debenham, East Bergholt, Eye and Great Horkesley, Framlingham, Halesworth, Leiston, Lowestoft, Needham Market Stowmarket, Wickham Market, and Woodbridge.

Suffolk West.—Bury St. Edmunds, Hadleigh, Haverhill, Mildenhall, Newmarket, Sudbury, Thedwastre, and Thingoe.

Surrey.—Boroughs of Barnes, Beddington and Wallington, Godalming, Malden and Coombe, Sutton and Cheam, and Wimbledon Urban District Council areas of Carshalton, Caterham and Warlingham with Woldingham, Merton and Morden; Rural District Council areas of Bagshot and Godstone.

Sussex East.—Burgess Hill and Newhaven.

Sussex West.—Arundel, Chichester, Crawley, Emsworth, Horsham, Petworth, Shoreham, Southwick and Portslade, and West Wittering.

Warwickshire.—Arley, Coleshill, Kenilworth Urban District, Leamington Spa, Rugby Rural District Solihull Urban District, Sutton Coldfield Urban District, Tamworth Rural District.

Westmorland.—Appleby, Brough, Crosby Ravensworth, and Temple Sowerby.

Wiltshire.—Amesbury, Andover, Batheaston, Box, Bratton, Calne, Chippenham, Corsham, Cricklade, Devizes, Downton, Highworth, Ludgershall, Malmesbury, Melksham, Purton, Ramsbury, Salisbury, Stratton St. Margaret, Trowbridge, Upavon, Warminster, Westbury, Wilton, Wootton Bassett, and Wroughton.

Worcestershire.—Droitwich, Evesham, Kidderminster, Pershore, Redditch, Stourbridge-on-Severn, Tenbury, Upton-on-Severn, and Worcester.

Yorkshire.—East Riding: Beverley district, Bridlington district, Driffield district, Market Weighton, Newport, North and South Cave district, Norton, Pocklington, Scarborough, Selby, and South Holderness. North Riding: Billingham, Borough Bridge, Brotton, Brough, Catterick, Elvington, Eston and Normanby, Filey, Haxby and New Earswick, Hinderwell, Hovingham, Kirby Stephen, Malton, Marske-by-Sea, Masham, Redcar, Richmond, Ripon, Saltburn, Scarborough, Scorton, Sherburn, Skelton, Snainton, South Bank, Strensall, and Yarm. West Riding: Morley Rural District; Rothwell, Stanley, Garforth Urban Districts; Mirfield and Spenborough Urban Districts; Hebden Royd, Ripponden, Sowerby Bridge Urban Districts, and the Borough of Todmorden; Barnoldwick, Earby, and Silsden Urban Districts; Skipton Urban and Rural Districts, and the Borough of Keighley; Baildon, Bingley, and Denholme Urban Districts; Aireborough and Horsforth Urban Districts, and the Borough of Pudsey; Selby Urban District, and the Borough of Goole; Goole Rural District; Elland, [illegible]ueensbury, and Shelf Urban Districts, and the Borough of Bri[illegible]ton, Meltham, Denby Dale, Holmfirth, Colne Valley, [illegible]n Districts; Sedbergh, Settle, Bowland Rural Dist[illegible]ely Bridge and Kirkby Malzeard Rural Districts; N[illegible] Wharfedale Rural Districts.

PAYMENT OF PART-TIME CONSULTANTS

CONTRACTS WITH SEVERAL BOARDS

The Ministry of Health has sent a circular to regional boards and boards of governors giving guidance on the application of the terms of service to part-time consultants employed by two or more boards. In order to determine the consultant's total part-time remuneration it should be assumed that his services for all the boards are rendered to a single employer. Though he must hold separate contracts with each board, and may be paid separately in respect of each contract if the boards so arrange, his total remuneration should not be more than he would receive were all the time he devotes to the hospital service provided for in a single contract.

If the number of hours worked by a consultant for each board were calculated separately by each board, the number of notional half-days might be higher than if the total hours worked for all the boards were aggregated before calculating the number of notional half-days, because the translation of hours worked into notional half-days may be reckoned in the consultant's favour in arriving at a round figure.

The weighting factors added to the number of elevenths of the whole-time salary are $\frac{x}{44}$ or $\frac{11-x}{44}$, whichever gives the less result, x being the number of notional half-days. The formula should be applied not to the number of half-days worked separately for each board but to the total number of half-days worked for them all.

Each board pays the consultant in proportion to the number of hours a week he works for it.

INTEREST ON COMPENSATION

The Minister of Health has made amending regulations under which, until the amount of compensation has been notified to the claimant or his personal representative, payments in respect of interest are to be calculated and paid on a provisional basis. Underpayment or overpayment will be adjusted subsequently.

GENERAL MEDICAL SERVICES COMMITTEE

An all-day meeting of the General Medical Services Committee was held on July 28, Dr. S. Wand presiding. The committee congratulated Dr. E. A. Gregg on his election to the chairmanship of Council, and again expressed appreciation of his long term of service in the chair of the committee.

On the constitution of the committee an objection from Cumberland to the proposed grouping of electoral areas was considered. Cumberland asked that, with North Westmorland and Carlisle, it might form a special area instead of being joined with Northumberland and Durham. The committee was of opinion, however, that the proposed arrangement could not be altered without upsetting the balance of representation, and trusted that with good will the two seats would be filled with as much satisfaction as possible to all parts of this rather unwieldy northern area.

Remuneration

It was reported that the statement from the Ministry on remuneration following its inquiry into the incomes of general practitioners from National Health Service sources was expected very shortly. It was agreed that it should be circulated immediately to members of the committee and that a special meeting be called to consider it on Aug. 31.

Arbitration

Following negotiations between the Joint Committee of Consultants and the Ministry of Health, the statement on what had been agreed on arbitration was reported to the committee—namely, that no changes would be made in terms and conditions of service without discussion in the appropriate Whitley machinery, that remuneration was a subject suitable for arbitration, and that, save in exceptional circumstances and after "Whitley" had been exhausted, issues of remuneration remaining in dispute would go either to arbitration or for inquiry and report by a committee.

The view of the General Medical Services Committee was that this went a considerable way to meet the necessities of the position, and it was agreed to see how it worked out before taking any action on the resolution of the Annual Representative Meeting insisting that arbitration machinery be set up and that the necessary alteration be made in the Amending Bill.

The chairman of the committee was asked to write to Sir Lionel Whitby, chairman of the Joint Committee of Consultants, thanking him for the great force and skill with which he had handled the negotiations with the Ministry on the terms and conditions of service for consultants and specialists—negotiations which, as on the issue just mentioned, had their repercussions on the general practitioner side.

Midwifery Service

The committee considered at some length a statement (reproduced below) on the domiciliary midwifery service forwarded by the Ministry of Health from the Central Health Services Council. Many members of the committee took strong exception to certain of the statements in the document, which it was felt would tend to diminish the status of the general practitioner in the maternity service, and it was agreed to urge the Ministry that nothing should be done pending a conference of interested bodies which has been called for Sept. 28.

A further report of the committee's discussions will appear in a subsequent issue of the *Supplement*.

DOMICILIARY MIDWIFERY SERVICE

The Ministry of Health has issued to local health authorities and local executive councils the following statement on Domiciliary Midwifery Services, which was prepared by the Standing Maternity and Midwifery Advisory Committee of the Central Health Services Council:

Misunderstanding exists about the nature of the medical services available for the expectant mother who is to be confined in her own home. In certain areas the terms of service of the doctor providing maternity medical services have been correctly interpreted and the service is working smoothly, but in others difficulties have been encountered.

The principal cause of the trouble is the widespread belief among general practitioners and the public that the agreement between a doctor and a patient by which the doctor undertakes to provide maternity medical services as laid down in the terms of service converts the case into what is commonly known as a "doctor's case," that is the doctor accepts full responsibility for the antenatal care, for the labour, and for the lying-in period. This was certainly not the intention: it was not intended in any way to diminish the importance of either the antenatal clinics or the midwives by the introduction of the maternity medical services.

In the past, about three-quarters of the domiciliary confinements were conducted by midwives who were booked early in the pregnancy. The antenatal care was primarily the responsibility of the midwife, who in most cases worked in close association with an antenatal clinic. The medical officer in charge of the clinic could accept no responsibility if an abnormality arose, and the midwife had therefore to call in a general practitioner who had not previously seen the patient. This has long been recognized as unsatisfactory, and the maternity medical services were designed to get over this difficulty. At the same time it should be appreciated that a good service was being provided before July 5, 1948: the progressive reduction in the maternal mortality and stillbirth rates bears witness to this fact.

If the best possible maternity service is to be provided under the National Health Service the general practitioner, the

midwife, the antenatal clinic, and the pathologist, as well as the hospital and specialist services, all have a part to play as members of a team.

The midwife and the antenatal clinic have at their disposal all the services of the local health authority. If the patient fails to attend as advised she is visited without delay. Blood examinations are carried out as a routine and instruction given in hygiene and mothercraft. If any abnormality arises the general practitioner will be informed.

For the payment of a comprehensive fee a general practitioner providing maternity medical services undertakes:

1. To examine the patient at the time of booking.
2. To examine the patient at about the 36th week.
3. To make a post-natal examination about six weeks after confinement.
4. To provide any medical attention additional to the above either if he considers it necessary, or in response to a call from the midwife.

He is not required to undertake the more frequent routine antenatal supervision that is essential, nor to attend the labour, unless such attendance is considered necessary by himself or by the midwife. The doctor may, of course, provide additional services if he so desires. His remuneration is not affected whether or not he gives such additional services.

By the rules of the Central Midwives Board the midwife must undertake regular antenatal supervision even if this duplicates the examination of the general practitioner, unless the doctor makes it quite clear that he accepts full personal responsibility for the case during pregnancy, labour, and lying-in period. The general practitioner may of course assume these full responsibilities if he considers it necessary. But it is the hope of the Minister that in domiciliary midwifery the midwife will continue to be regarded as the normal attendant, supported by the antenatal clinic during the pregnancy, and working in co-operation with the general practitioner who has had the opportunity to satisfy himself that there are no deviations from the normal in the patient's general health during pregnancy nor obstetric complications towards the end of pregnancy and will come to her aid if trouble arises during labour or the lying-in period. The midwife will consider herself to be acting as a practising midwife unless she has been informed to the contrary by the doctor. The success of this arrangement will depend on the close co-operation and understanding between the general-practitioner obstetrician and the midwife.

The arrangements for the introduction of a maternity medical service under the National Health Service were meant to be an addition to—not a substitute for—the facilities previously available for the care of the expectant and nursing mother. There has unfortunately been some misunderstanding about this in some parts of the country, but it is hoped that this statement will help to clarify the position as the services gradually settle down.

3,000,000 WAIT FOR SPECTACLES

The current "News-Letter" of the Association of Optical Practitioners announces that orders for well over 3,000,000 pairs of spectacles are outstanding under the National Health Service.

REMUNERATION OF NURSES

BAN ON HIGHER PAY

The Ministry of Health has sent a circular to hospitals in the Service saying that "considerable numbers of nurses have hitherto been employed by hospital authorities at rates of remuneration and under conditions of service which do not accord with the recommendations of the Rushcliffe Committee; this has been notably the case where nurses have been employed through the agency of nursing co-operations and similar organizations which themselves fix fees and charge commissions." The circular points out that nurses in the Service must be paid in accordance with the rates agreed by the Whitley Council, and that arrangements for nurses not being paid in accordance with the agreed rates must be ended as soon as possible.

In some cases the nurses referred to have been paid at higher rates than those recommended by the Rushcliffe Committee.

PAY OF FORCES M.O.s

No progress has yet been made in the negotiations with the Ministry of Defence on remuneration. A preliminary meeting was held in May, at which representatives of the Ministry of Defence and the Service Departments inquired how the Association's proposals had been calculated. Some correspondence followed, but no further negotiations. It is understood that the Association's proposals are under consideration "at a high level."

HOSPITAL FINANCE

COST ACCOUNTS

The Ministry of Health has informed hospitals that a standard form of cost account will be introduced as soon as practicable. For the period ending March 31, 1949, accounts will be analysed in accordance with Tables B and D in the Third Schedule of the Hospital Accounts and Finance Provisions Regulations, which require details of how money is spent and received. Further statistical data asked for include the number of in-patient days and out-patient attendances, as well as a list of special departments at the hospital, with information about the number of specimens examined, etc.

The Minister asks hospitals which prepared detail cost accounts before the appointed day to send a summary showing the average figures for the period to March, 1949.

HEALTH SERVICE COSTS IN LONDON

The London Executive Council announces that payments for the Health Service during the first year amounted to £8,648,185, and that administration cost 1·25% of the total. The figures are as follows: Medical services, £2,627,614; dental, £2,300,532; ophthalmic, £1,693,767; pharmaceutical, £1,918,188; administration, £108,084.

HOSPITAL SERVICES

COMMITTEE TO REVIEW

The Ministry of Health states that the Central Health Services Council has appointed the following committee to review the organization of the hospital services under the National Health Service Act: Mr. F. Messer (chairman), Sir Harold Wernher (vice-chairman), Mr. E. C. F. Bird, Alderman Bradbeer, Mr. F. J. Cable, Sir Allen Daley, Mr. S. C. Fryers, Mr. A. J. P. Howard, M.P., Mr. R. A. Mickelwright, Sir Owen Morshead, and Dr. W. G. Patterson. Joint secretaries are Mr. E. J. S. Clarke and Mr. E. W. Bryant, of the Ministry of Health.

The committee will not consider the administration of individual hospitals but will make recommendations and frame detailed terms of reference for a committee on the subject.

RETURN TO PRACTICE

The Central Medical War Committee announces that Dr. A. W. J. Houghton, M.R.C.P., Wren Cottage, Pulverbatch, near Shrewsbury (Tel.: Dorrington 24), has resumed civilian practice. (*Corrected announcement.*)

Correspondence

Grading of Hospital Staff

SIR,—In view of the discrepancies appearing in the present grading of specialists, due largely to the fact that there are no criteria laid down to define a specialist or a hospital medical officer, the St. Helier Group Medical Advisory Committee have instructed me to send you a copy of the criteria they laid down to help the assessing committees working in this group.

This grading is dependent to a certain extent on whether a person engaged in general practice is debarred from full specialist status, but we are concerned primarily in preventing people who by any reasonable standards qualify for specialist status being reduced to hospital medical officers. To say that hospital medical officers are in fact specialists is nonsense and is in line with the political trickery with which we are becoming familiar.

It is felt most strongly that some classification on these lines should be drawn up, approved, and accepted to guard us not only from the Minister and his satellites but even, unfortunately, from some of our own colleagues.

CRITERIA FOR CLASSIFICATION

In our opinion a specialist should be defined as a medical practitioner who

(i) has held an appropriate higher qualification for five or more years ;

(ii) has had training and experience in his specialty ;

(iii) is capable of practising his specialty without supervision ;

(iv) has held a hospital staff appointment prior to July 5, 1948 ;

(v) is recognized by his colleagues, in his district, as a specialist.

In considering the senior medical staff of our hospitals we find that they are divisible into three main groups.

Group 1.—Those who are entirely engaged in specialist practice, hold an appropriate higher qualification, and have a hospital appointment as a specialist should without question be recognized automatically as of full specialist status.

Group 2.—Those not entirely engaged in specialist practice but holding an appropriate higher qualification and a specialist hospital appointment and recognized by their colleagues in the district as specialists should also have full specialist status.

Group 3.—(*a*) Those who hold a hospital appointment as a specialist though not holding an appropriate higher qualification should, by reason of their experience, be retained as senior hospital medical officers. (*b*) In exceptional cases practitioners with a specialist hospital appointment of many years' standing and recognized by their colleagues in the district as specialists, but not holding a higher qualification, should be considered for full specialist status.

—I am, etc.,

P. M. KELLY,
Hon. Sec., St. Helier Group Medical Advisory Committee.

SIR,—I am in agreement with the views expressed in your leading article (July 23, p. 220) concerning the grading of specialists. I should like to point out, however, a slight error in your description of men of registrar status—at any rate, so far as this region is concerned.

The vast majority of senior registrars in this region have been qualified for fourteen or fifteen years and not for four or five as you suggest. Perhaps the senior registrars here have been very slow in achieving specialist status, but I cannot really believe that this is true only of this area.—I am, etc.,

Sheffield. W. INGMAN.

SIR,—In your controversial leader on the grading of specialists (*Journal*, July 23, p. 220) you suggest that there is a case for the grade of S.H.M.O. in tuberculosis sanatoria. Apart from the fact that your suggestion comes at a most unfortunate time, while the regrading of specialists is still proceeding, there are other serious objections to it.

Modern sanatorium work demands a high degree of special experience and skill. You appear to suggest that men who have taken considerable time and trouble to acquire these qualities should be rewarded by a low degree of remuneration and professional standing.

Furthermore, for reasons well known to all, tuberculosis is one of the major medical problems in this country to-day. Good men are needed to tackle it, and they will not be attracted by the lure of an inferior status.

Sanatoria should be medically staffed by full specialists and trainee specialists. Our tuberculous patients deserve no less. —I am, etc.,

Worcester. R. B. MAYFIELD.

SIR,—Having recently been accepted, albeit apparently only upon reluctant second thoughts, as of "full specialist status" and finding my foot thus poised, however insecurely, upon the lowest step of the New Citadel, I may perhaps with less rancour comment upon the activities of those elderly medical gentlemen who have allowed themselves to be used to belittle the ability of their colleagues.

Some form of grading is of course necessary, but this was achieved in the Services with much more consideration and with much less bizarre results. When one knows that among those whose competence is now disparaged are not only many who have practised their specialty with success for more than ten years but also one who was, during the war, an adviser to the Air Ministry, one wonders whether our arbiters may expose themselves not only to obloquy but even to a claim of damages for defamation.

Whether their motive be the well-established principle, "It took me years to get anywhere and I'll make it tough for you," or the hope of favour for assiduous devotion to the course politic, it would appear to many of us that the apparent misuse of their professional authority by these elderly gentlemen in proscribing their colleagues would be a fit subject for review by the General Medical Council.—I am, etc.,

St. Day, Cornwall. CHRISTOPHER HEATH.

SIR,—May I congratulate "Qualified Consultant" (*Supplement*, July 16, p. 50) on his courageous and lucid writing and carry at the same time his suggestion a step farther to its logical conclusion by putting forward some concrete proposals ?

The confusion and secrecy that enshroud the grading of specialists is a clear indication by itself that something is fundamentally wrong with the whole problem. For example, speeches made by representatives at Harrogate and correspondents in your columns suggest that grading committees have acted on instructions from some quarters. Yet I am informed by the highest authority that the Joint Committee "could not lay the blame at the door of the Ministry, in that the latter promptly retort that the grading, having been carried out by the profession itself, is no concern of theirs." And in a letter dated July 7, 1949, one of the assistant secretaries of the B.M.A. assured me that "we are informed authoritatively that the grading committees have not received instructions from the Ministry with regard to the number of practitioners who hold contracts with the regional board who should be graded senior hospital medical officers. I am quite sure that grading committees would not have carried out such instructions." What is the truth ?

We all agree with "Qualified Consultant" that "we are now at the last ditch, and if we do not fight now we will never get the opportunity again in our lifetime," but who is going to organize this fight ?

The Central Consultants and Specialists Committee and the Joint Committee in negotiating with the Minister can only safeguard principles regarding terms and conditions of service and remuneration, but obviously they have neither the power nor the interest to enforce their just and fair application in practice. Indeed, a situation has arisen which is exactly the same as if a trade union had concluded after a hard fight a successful wage agreement in principle for their skilled labourer members and had *then* allowed in practice a large proportion of their members to be classified arbitrarily as *unskilled* labourers, and supported the *employers* to pay them at *unskilled* rates. Such a situation would be the more absurd

should it ever occur in that the so-called "unskilled labourers" could seek legal redress from a competent court, while highly specialized members of the medical profession cannot.

To clarify the position I wish to put through the medium of the *Journal* the following questions to the B.M.A. :

(1) Would the B.M.A. organize without delay a campaign—in the same way as they did for the general practitioners and for the consultants and specialists in principle—for the consultants and specialists in practice, to ensure justice and fair play in grading ?

(2) If so, would the B.M.A. form a representative committee to investigate the *modus operandi* of the grading and appeal committees ?

(3) And if so, would this committee form a subcommittee to collect relevant material such as copies of appeals and other evidence, so that they may have a nation-wide view of the magnitude of the problem ?

(4) Would the B.M.A. lift the veil of secrecy over the whole procedure of grading by publishing at once all available facts at their disposal, such as the composition of the grading committees, their terms of reference, the methods, standards, and principles which they had applied to grading, and above all whether the grading committees did or did not receive instructions from the Ministry, or the regional boards, or from any other body as to the proportion of practitioners who were to be graded other than consultants ?

—I am, etc.,

QUOUSQUE TANDEM ?

B.M.A. War Memorial

SIR,—At the recent A.R.M. the balance of the argument about the proposed war memorial was, from the voting, clearly in favour of some physical visible memorial, and we were convinced the educational project was not so attractive as many of us had presumed. There was, however, a strong feeling against the proposal of a fountain as the form a memorial should take, and this from several angles which I need not detail. The purpose of this letter is to suggest in all humility a form of memorial which would, I believe, prove acceptable to the majority of our members, and in this project the greatest possible unanimity is most desirable.

If the memorial is to be satisfactory it must be one which should suggest, and if possible promote, the highest ideals of medicine, in the service of which those who fell gave their lives. At the same time it should not be purely utilitarian or suggest that the B.M.A. was trying to complete B.M.A. House "on the cheap." A war memorial at Trinity College, Cambridge, which some of those who attended last year's Annual Meeting may have seen, gives an idea of one way in which these requirements might be met.

The memorial referred to is the Junior Combination Room at Trinity College, which was redecorated by Mrs. Allhusen in 1925 in memory of her son and husband. This room is quite outstanding for its beauty amid the architectural glories of Cambridge. There is in it nothing extravagant or exotic, yet it is impossible for anyone to enter it without saying to himself, "This room is something special. What is it for and why was it made ?" There is about it an atmosphere of quiet grace and beauty, a dignity that is neither heavy, dull, nor dowdy, that strikes even the least responsive.

Now this surely was the aim and probably also the effect of the Greek temples of healing. It is the spirit which is so largely missing in modern life and even in modern medicine, a spiritual quality the lack of which lies at the root of many of our present ills, social as well as medical. My proposal therefore is that one of the rooms at B.M.A. House—perhaps the old library would be suitable, and the fact that to use it would entail some sacrifice should be no real obstacle—should be transformed into such a quiet haven of restfulness, a refuge from the bustle of life in London (and B.M.A. House, too), not definitely a reading-room nor a smoking-room, which are provided elsewhere, but a place of beauty and refreshment which might perhaps be used for very special receptions, etc.

It was stressed by several speakers that our memorial ought to be one that visitors to London would be anxious to see, and I should imagine that our finest designers would be proud to design a room which would preserve the highest traditions of the past for the enrichment of the future, a memorial that would mellow instead of grow old, a room in which fine flowers, etc., would keep evergreen the memory of those who gave their lives that we might not only live but live in peace and freedom.

It seems to me that this sort of a memorial, which I have so poorly tried to outline, would be of particular interest to our members overseas, as it would give an opportunity for the various Branches to enrich the adornment of the room by gifts of special products of their countries—e.g., carpets from India, rare woods from the Tropics, perhaps even a golden memorial tablet from South Africa—while I think our many friends in the U.S.A. would like to join with an expression of their comradeship and unbounded generosity. The design would, of course, have to provide for these things so that all would take their place in building up a harmonious whole, as diverse in its parts as medicine, our Empire, and the war itself, yet expressing, as they do, one spirit.

I am confident that such a memorial would be sought out by visitors from overseas, who would look with pride for the special contribution of their country, and as one who has attended many meetings at B.M.A. House I am sure that those who go there might find that the memorial room was not only a thing of beauty and a joy for ever but a perpetual refreshment of the spirit, an invitation to that quiet and reflection which are essential to real health and healing, a gracious reminder of things which, though unseen, are eternal. By it not only would B.M.A. House be enriched and beautified but the standards of medicine (and of civilization) be upheld, as those who gave their lives for it would have wished.—I am, etc.,

Winsford, Cheshire. W. N. LEAK.

Headquarters and the Regions

SIR,—My attention has been drawn to remarks made by Dr. W. Hunter at a recent Conference of Honorary Secretaries of Divisions and Branches (*Supplement*, May 28, p. 297).

In referring to the method now in operation for making available to the regions the services of the Headquarters secretarial staff, as explained by the Secretary, Dr. Charles Hill, Dr. Hunter expressed his fear that the policy of "regionalization" might overweight the administrative machinery of the Association, and proceeded to say : "We want not a man from Headquarters to keep an eye on the periphery. . . ." These are entirely wrong assumptions. I take it the object is to enlighten members of Branches on many points of doubt and difficulty that are constantly arising.

Dr. Hunter must not say : "We are self-sufficient here in the North ; do not disturb us." Rather should it be suggested that the Branch hold quarterly meetings to which a member of the Headquarters staff would be invited to attend.—I am, etc.,

Hetton-le-Hole, Co. Durham. R. MACLEOD

POINTS FROM LETTERS

Tuberculosis Service

ASSISTANT T.O. writes: The propounding of major principles was not a function of the Spens Committee. Only incidentally was anything approaching principles laid down. Amongst these were that: (1) A specialist is a specialist. (2) To ensure the manning of all special departments in all hospitals all specialists shall be paid on the same scale, and/or with equal eligibility for promotion to super-scales. (3) The prefix "assistant" need not, and frequently does not, imply intrinsic inferiority. Against expectation the tuberculosis service has been included in the hospital service. There can be no honest doubt that had this been foreseen tuberculosis would have been included with radiology, dermatology, clinical pathology, etc., in the list of specialties in the Spens Report. T.O.s who have been graded as senior hospital medical officers have a real grievance. Some, like myself, have been graded as *junior* medical officers. . . .

Conservative Policy

Dr. J. P. O'SHEA (Newquay, Cornwall) writes: On p. 46 of *The Right Road for Britain* the Conservative Party promises (*a*) appeal to the courts over the Minister, (*b*) free drugs for the private patient, thereby putting right social injustices. If any medical men have any spare time, they can surely see wherein their duty lies these coming weeks.

Association Notices

B.M.A. LECTURES

Every Branch and Division may have one B.M.A. Lecture a year. The lecturer, who is chosen by the Branch or Division, is an authority on his particular subject. He is invited from the Central Office and receives an honorarium and his expenses. Branch and Divisional secretaries making up their programmes for the forthcoming year are invited to send requests to Headquarters for B.M.A. lectures. The application should be on a special form obtainable from Headquarters denoting the name of the lecturer, the subject, and choice of dates.

SIR CHARLES HASTINGS CLINICAL PRIZE

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of 50 guineas, is again open for competition. The following are the regulations governing the award:

1. The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research, and record in general practice.

2. Any member of the Association who is engaged in general practice is eligible to compete for the prize.

3. The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not be omitted when it bears directly on their results, their interpretations, and their conclusions.

4. Essays, or whatever form the candidate desires his work to take, must be sent to the British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1949. The prize will be awarded at the Annual General Meeting of the Association to be held in 1950.

5. No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. A prizewinner in any year is not eligible for a second award of the prize.

6. If any question arises in reference to the eligibility of the candidate or the admissibility of his or her essay the decision of the Council on any such point shall be final.

7. Preliminary notice of entry for this competition is required, on a form to be obtained from the Secretary.

8. Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

9. The writer of the essay to whom the prize is awarded may, on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate Section of the Annual Meeting of the Association.

10. Inquiries relative to the prize should be addressed to the Secretary.

NATHANIEL BISHOP HARMAN PRIZE

The Council of the British Medical Association is prepared to consider the award of the Nathaniel Bishop Harman Prize in the year 1950. The value of the prize is approximately £100. The purpose of the prize is the promotion of systematic observation and research among consultant members of the staffs of hospitals who are not attached to recognized medical schools. It will be awarded for the best essay submitted in open competition. The work submitted must include personal observations and experiences collected by the candidate in the course of his practice. A high order of excellence will be required. No study or essay that has been previously published in the medical press or elsewhere will be considered eligible for the prize.

Any registered medical practitioner who is a consultant member of the staff or senior hospital medical officer of a hospital in Great Britain or N. Ireland and is not attached to a recognized medical school is eligible to compete. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay the decision of the Council shall be final.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1950 but will be offered again the year next following this decision, and in this event the money value of the prize on the occasion in question shall be such proportion of the accumulated income as the Council shall determine.

The writer of the prize-winning essay may be required to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate Section of the Annual Meeting of the Association. Each essay must be typewritten or printed in the English language, and must be distinguished by a title and a motto. The essay must not bear the name of the writer, which should be sent with the essay in a sealed envelope bearing only the motto on the outside.

The title of the proposed essay and the motto should also be notified in writing to the Secretary by Dec. 1, 1949, on a form to be obtained from the Secretary. Essays must be forwarded to reach the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, not later than March 31, 1950. The prize will be awarded at the Annual Meeting of the Association to be held in 1950. Inquiries relative to the prize should be addressed to the Secretary.

PRIZES FOR MEDICAL STUDENTS, 1950

The Council of the British Medical Association is prepared to consider the award in 1950 of prizes to medical students for essays submitted in open competition.

The subject of the essays shall be "Clinical Teaching in Relation to the Practice of Medicine."

The purpose of these prizes is the promotion of systematic observation among medical students. In awarding the prizes due regard will be given to evidence of personal observation. No study or essay that has previously appeared in the medical press or elsewhere will be considered eligible for a prize. Any medical student who is a registered member of a medical school in Great Britain or Northern Ireland at the time of submission of the essay is eligible to compete for a prize.

If any question arises in reference as to the eligibility of a candidate or the admissibility of his or her essay, the decision of the Council of the British Medical Association shall be final. In determining the number and the value of the prizes to be awarded the Council will take into consideration the number of essays received. Should the Council decide that no essay entered is of sufficient merit, no awards will be made.

Each essay must be typewritten or legibly written in the English language, on one side of the paper only, must be unsigned, and must be accompanied by a form of application which can be obtained from the undersigned. Essays must be forwarded so as to reach the Secretary of the British Medical Association not later than Dec. 31, 1949. Inquiries relative to the prizes should be addressed to the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1.

CHARLES HILL,
Secretary.

Meetings of Branches and Divisions

LEEDS DIVISION

The Leeds Division has expressed its pleasure on hearing that Dr. J. E. Rusby, immediate past-chairman of the Division, and Dr. J. Wyllie have been appointed to the Commission of the Peace.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 13 1949

THOMAS ADDISON: PIONEER OF ENDOCRINOLOGY*

BY

Sir HENRY DALE, O.M., G.B.E., F.R.C.P., F.R.S.

Thomas Addison was second in that matchless succession of physicians and morbid anatomists—Richard Bright, Thomas Addison, William Gull, and Samuel Wilks—whose work at Guy's Hospital in the earlier and middle years of the nineteenth century raised to such heights the reputation of this school as a great centre of medical teaching and investigation, and contributed so much to the foundation of the great nineteenth-century tradition of advancing medical knowledge by the accurate study and differentiation of diseases in the clinic, closely linked with an equally thorough scrutiny of their results as seen after death. The names of two of them, Bright and Addison, have been permanently associated with diseases which they thus described; the number would be three if we included the name of Thomas Hodgkin, who was curator of the museum here in the same period, though never on the clinical staff. Two of them again, Addison and Gull, can be regarded as clinical pioneers of endocrinology. In Gull's case we ought to associate his achievement with that of another and younger Guy's physician, Hilton Fagge, whose recognition of absence of the thyroid as the cause of cretinism enabled Gull, in 1874, in describing "a cretinoid condition in adult women" now known as myxoedema, to associate it with atrophy and functional defect of that gland. That, however, was a quarter of a century later than Addison's first mention of a condition which he had discovered, now known everywhere as Addison's disease, and which he then described as "a remarkable form of anaemia" regularly associated with disease of the suprarenal capsules.



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Two Pioneer Communications

The late Sir William Hale-White,† whose long life enabled him to transmit to more than one later generation the great tradition of this school from a time when Addison was still held in living memory here, has suggested that "the whole of endocrinology dates from March 15, 1849"—this being the date on which Addison made the first, short communication on his disease to the South London Medical Society. I believe that a good case could be made for that claim. There had, indeed, been earlier accounts of diseases—diabetes mellitus and exophthalmic goitre—which were shown much later to have a causal relationship to endocrine disorders. Even cortical tumours of the suprarenals had been recorded early in the nineteenth century, and hirsutism noted in a girl patient, but again without clear recognition of an aetiological relationship. I think, therefore, that we may agree with Sir William Hale-White that

*The Addison Lecture given at Guy's Hospital on June 23.

†*Great Doctors of the Nineteenth Century*. Sir W. Hale-White. Arnold and Co. 1935. To those who wish to learn more of Addison's life, personality, and achievements, the chapter on him in that volume is recommended. It gives references to other accounts of him by Samuel Wilks, who was his pupil, and Lonsdale, a lifelong medical friend.

endocrinology began effectively with Addison's paper, which in 1849 made the first clear attribution of a general morbid condition to defect of a ductless gland; and you will note that the date gives a centenary character to our celebration of this great man and his achievement.

Addison's fuller account of the disease which now bears his name was published six years later, in 1855, as a separate slender quarto with fewer than 46 pages of large printed text, richly illustrated with coloured lithographic plates and bearing the title *On the Constitutional and Local Effects of Diseases of the Suprarenal Capsules*. You will note that even the title emphasizes the aetiological inference. On these two pioneer communications by Addison the author of a recent textbook on the now enormous science of endocrinology makes apt comment: "... They show how much can be accomplished, without any of the modern clinical and laboratory facilities, by keen observation of the living and dead patient. They are prominent examples of concise and descriptive medical writing." They are so indeed; no better model could be recommended to the many who to-day seek to give permanent record to observations which are, in the main, of slighter significance.

A remarkable feature of the publication of 1855 is that, by way of introduction to the principal theme, Addison describes and differentiates another new disease, for which, by contrast, he had failed to discover an adequate cause by examination post mortem. This he named "idiopathic anaemia," but it is now generally known as "pernicious" or "Addison's" anaemia. It is not clear that he had at first distinguished with certainty between these two fatal diseases, in both of which anaemia and lassitude were prominent; but there is no doubt about the distinction in the book of 1855. His object there was to give an exact account, based on a series of cases, of what he called "bronzed skin" or "melasma suprarenale," known to us as "Addison's disease." The description of "idiopathic anaemia" is given only by way of introduction, to explain that the author was looking for additional cases of this condition when, in his own phrase, he "stumbled upon" another major discovery, which is the main subject of the book.

So that this slender volume contains the first full description of two new diseases; and, to quote Sir William Hale-White again, "Addison's account of each is so perfect that nothing has been found wrong in his clinical picture, and nothing has been added except facts that have been obtained by instruments which he did not possess, and a few occasional symptoms not present in the cases which he describes." I think it should be added that, if Addison had looked at the marrow in the long bones of the patients dying of pernicious anaemia, his acute eye could hardly have missed its unusual appearance. Even without any of the technical equipment which has made haematology a later possibility, he might in this case also have associated what he could see post mortem with the general disease. He certainly could not have foreseen, however, that the bone-marrow defect and the consequent anaemia would be traced many years later, in 1926, to the failure of a kind of endocrine control normally exercised by the liver; and even remoter from any conception possible to Addison, or to anybody till very recent years, is the news from two different research centres, in America and this country, of the isolation this year of the immensely active agent responsible for this endocrine control of the haematopoietic function, and the remarkable discovery that cobalt is an important element of its composition. Perhaps we may regard that, too, as an achievement suitably commemorating the fact that pernicious anaemia, which this potent hormone (or vitamin) so dramatically relieves, was first recognized by Addison about 100 years ago.

Other Achievements

When Addison's book describing these diseases was published in 1855 he was already 60 years of age. It would be very remarkable if he had first begun to make and to publish discoveries of such outstanding merit so late in life. In fact, he had already made and published others in an impressive series; and some of these, in particular those dealing with pneumonia and phthisis, were regarded by his pupil Wilks as the highest of all his achievements. What is really remarkable is that they should have been so little recognized and so widely forgotten. His earliest publication of importance was a characteristically perfect description of the clinical appearance which he found to be associated with, and diagnostic of, a fatty liver. Then in 1839, when he was 44 years old, in a book, *Elements of the Practice of Medicine*, which he published with his senior, Richard Bright, Addison gave the first descriptions of appendicitis and its consequences—"descriptions," according to a modern writer, "so clear and well presented that they could not be surpassed to-day." Later he gave the first correct account of the pathological process of lobar pneumonia; he published observations calling for a profound modification of the earlier conception, due to Laennec, of the destructive process in pulmonary phthisis; and he discovered and described xanthoma, which he called "vitiligoidea." And all these contributions to the advancement of medical knowledge, any one of which might be judged adequate by itself to have given him high rank as an investigator, were made by Addison before he discovered the two diseases which bear his name and thereby keep it in general remembrance among those who study and practise medicine.

When Addison came to London after graduation in Edinburgh, he gave his time and interest for some years chiefly to diseases of the skin. This interest he retained after he had begun his career at Guy's, where he entered as a student in 1817; it was he who later superintended the making of the beautiful wax models of skin conditions which are still one of the great treasures of the pathological museum here. He seems to have been rather a proud and shy man, not easy of approach; but none of the Guy's men in that great succession stood higher in reputation with his colleagues and pupils as a physician or as a teacher. Much of his time was spent, and practically the whole of his professional interest was centred, in this hospital. Outside it he sought no recognition, and he received but little. Only late in his career was he elected to the Fellowship of the Royal College of Physicians, and he held neither lectureship nor office there. He was never even proposed for the Fellowship of the Royal Society, and he was never a physician to the Court. Here you will keep him in proud memory as the greatest of all, perhaps, of the great medical investigators and teachers who were members of the staff of this hospital in that period. As his pupil, Samuel Wilks, wrote of him: "For many years he was the leading light of Guy's, so that every Guy's man during the thirty or forty years of his teaching was a disciple of Addison, holding his name in the greatest reverence, and regarding his authority as the best guide in the practice of his profession."

The Development of Endocrinology

In the medical circles of a wider world Addison will be remembered chiefly as a pioneer of the science of endocrinology—as the man who first entered and opened to other explorers a new territory which in the intervening century has been extended in all directions and brought under a most vigorous cultivation. There have been periods in which doubts of its further fertility have become prevalent and have seemed even to be natural, but it is to-day yielding harvests of medical knowledge in overwhelming abundance and in bewildering variety. I am going to invite you now to follow me in a preliminary survey, at the best a most cursory review, of the lines of development along which the present position has been reached. Then I shall endeavour to speak in somewhat greater detail of the course of the advance, including some recent and intricate phases, of knowledge of the endocrine functions of the particular ductless glands, the suprarenals, which, through Addison's discovery, provided endocrinology with the point of its very beginning, and which are now providing a focus for some of its most recent and most rapidly progressive developments.

I think we may assume that, brilliant and accurate observer as he was, Addison went as far as it would ever have been possible to proceed with the advancement of knowledge of an endocrine defect by simple observation of the results of a natural process at the bedside and in the post-mortem room. His work came at the end of the purely observational period and at the beginning of a new epoch, in which deliberate experiment was to play a dominant part. It is curious, indeed, that the use of the experimental method in medicine should have fallen so long into abeyance. William Harvey had shown what it could do, and had particularly enjoined its use on his fellow physicians, two centuries earlier; but before Addison's day English physicians appear to have forgotten Harvey's injunction, and to have left the use of experiment to surgeons like John Hunter and Charles Bell. And when a major revival of the experimental method came, opening the era in which we are still living, it began, not in Harvey's England, but on the European continent.

There, in Paris, the founder of modern physiology, Claude Bernard, in his experimental studies of the glycogenic function of the liver had reached and propounded the general idea of an internal secretion into the blood. The idea was not an entirely new one; its germ can be found in medical writings at least as early as 1775; but Bernard gave it form and an experimental basis. He was not directly concerned, however, with the specifically acting internal secretions of the glands with which endocrinology normally deals; and, apart from what had been known since prehistoric times of the effects of castration, the first attempt to study the function of an endocrine organ by deliberate experiment must apparently be credited to Brown-Séquard, who began to remove suprarenal glands from animals by operation in 1856, the year after Addison's book was published. His animals all died rapidly; but any significance which his results might otherwise have claimed seems to be called in question by his frequent record of fatality following unilateral adrenalectomy—an operation which later workers, using a clean surgical technique, have uniformly found harmless. In any case, neither he nor Tizzoni (1886), nor Abelous and Langlois (1891), who thus later confirmed the fatal effect of double adrenalectomy, contributed much more than a confirmation of Addison's conclusion, from his study of Nature's experiments, that the function of the suprarenals was for some reason a vital necessity.

It was in 1856, again, that Moritz Schiff reported that extirpation of the thyroid gland was fatal to dogs—many years, it will be realized, before the clinical studies of Fagge and Gull brought to light the connexion between defect of thyroid function and cretinism or myxoedema. There can be no doubt, however, that the effect which Schiff thus early observed was mainly due to his removal of the parathyroid glands with the thyroid, to which in the dog they are closely attached. This was eventually made clear by the work of Gley in 1891; but, before this, Schiff had himself shown that successful grafting of a portion of a dog's thyroid gland, which presumably contained a parathyroid, would protect it from the normally fatal result of removing the remainder. And after Gley's demonstration of the separate function of the parathyroid glands the possibility and protective effect of grafting these alone was shown by von Eiselsberg (1892), Leischner (1909), and others.

Meanwhile the experience of Reverdin and of Kocher on the myxoedematous or cachexial condition following surgical removal of the human thyroid for goitre, and Horsley's production in 1884 of an artificial myxoedema by thyroidectomy in the monkey, had brought the experimental work on the thyroid again into closer relation with the observed results of its atrophy in man. And then in 1891 came the first successful application of these experimental findings in practical therapeutics, when Murray, of Newcastle, showed that myxoedema could be successfully treated by administering an extract of sheep's thyroid—a notable milestone, indeed, on the road of advance in endocrinology. In this case, at least, the formation of an internal secretion was no longer a matter of inference: it had become a demonstrated fact.

This advance was followed, however, by a long and discouraging delay, which was especially obvious on the side of remedial application. When I myself, as a student, first began to be conscious of physiology and its progress, Horsley's experimental results and Murray's triumphant application of them were still relative novelties, and there was great interest in the likelihood of analogous therapeutic success in diseases due to defects of other ductless glands. As the years went by, however, such possibilities seemed to become increasingly remote. Plenty of observers were trying to correct such defects, whether resulting from disease or from experimental removal, by administering glands in substance or as artificial extracts; but no convincing success was for many years obtained in such other cases—neither with the parathyroid and suprarenal glands, nor with the gonads, nor with the pancreas, the removal of the latter having been found by Minkowski, in 1889, to cause a diabetes mellitus. With all these glands, on the other hand, protection against the effects of removal was obtainable by the establishment of successful grafts in advance.

It began to be believed, and the conviction grew and hardened with time, that the thyroid might be unique among these presumptively endocrine organs in the stability of its active principle, or in the extent to which this was stored in the gland so as to be available at a given moment for extraction. It had not, indeed, been established even yet, by strict evidence, that these other organs had in fact an endocrine function: one or another of them, if not all, might conceivably act by destroying an injurious by-product rather than by supplying a factor necessary for normal metabolism. And while this position of doubt remained, the progress of endocrinology, especially on the side of remedial replacement, was of necessity halted. Thus there grew, for a time, a discouraging tendency to suspect that the experimental method, like that of clinical observation

before it, might be approaching the limits of what it could achieve in this difficult field of inquiry. Then, after some thirty years, came the discovery of insulin by Banting and Best in 1921, revolutionizing the treatment of pancreatic diabetes, bringing a whole range of metabolic problems within the scope of new and progressive exploration, restoring to work on the ductless glands the earlier spirit of hopeful enterprise, and sounding the advance into a new phase, in which endocrinology is still expanding with a speed which now puts a strain on the alertness and the scientific equipment of anyone who endeavours to keep pace with its headlong progress and its dazzling changes.

There have, of course, been a number of other important factors of this astonishing acceleration. One has been the concentration of studies on the pituitary body, in the medical and surgical clinics as well as in the experimental laboratory, and especially on the control over the functions of other ductless glands which is exercised by the hormones of its anterior lobe—a control which led the late Sir Walter Langdon-Brown, and others who have adopted his picturesque phrase, to describe the pituitary anterior lobe as "the conductor of the whole endocrine orchestra." Another has been the rapid elucidation of the once baffling interplay of endocrine activities involved in the sexual cycle. Yet another and most important factor has been the discovery of the true plan of the chemical structure of the sterols and their derivatives, providing the key to the chemical nature and relationships of the whole series of steroid hormones, including, as we shall see, those of the suprarenal cortex as well as those of the gonads.

We must make no further attempt, however, to range over the whole endocrine landscape. Any one section of it, if an endeavour were made to deal with it in full detail, could now provide the material for a whole course of lectures by somebody equipped so to present it. For several reasons I must bring our inquiry now to a narrower focus, and in the rest of this memorial lecture I shall ask you to look with me, still in rather hasty survey, and without any pretence at more than an occasional reference or attribution, at some of the recent developments of knowledge concerning the subject of Addison's own pioneer investigation, the suprarenal glands.

The Suprarenal Medulla

We must recall first that it was not till 1895 that it began to be understood that the suprarenal body consisted of two functionally different glandular organs bound together as cortex and medulla. In that year Oliver and Schäfer discovered the remarkable immediate actions of simple extracts from the gland when these were injected intravenously or, as in later experiments by others, were applied locally. Then the active principle responsible for these intense immediate effects was found to be localized entirely in the medulla of the gland; and just after the end of the nineteenth century it was isolated, as adrenaline or epinephrine, and eventually made by synthesis.

Meanwhile it had been discovered by Lewandowsky and by Langley, and then further demonstrated in fullest detail by Elliott, to whom the pure adrenaline was available, that there was a remarkable and unquestionably significant correspondence between the actions of adrenaline and those of the true sympathetic nerves. It is well known how Elliott's penetrating early suggestion (1904) that sympathetic-nerve impulses transmit their effects by liberating small charges of adrenaline at the endings of the nerve fibres was verified many years later by Loewi's brilliantly simple and convincing experiments from 1921 onwards. It thus became a component of a now familiar and wider scheme which pictures the effects of all efferent peripheral nerve impulses as evoked by the liberation of one or another chemical transmitter at the nerve endings. There remained, however, some grounds for uncertainty whether the adrenergic transmitter was always, or entirely, "adrenaline" itself, though the correspondence was so close that nobody doubted that there was a definite chemical relationship. The late W. B. Cannon took care to leave the question open by referring to the transmitter always as "sympathin"; and, apart from a further hypothesis which led him to complicate this terminology, Cannon was clearly right in emphasizing the departures from complete identity between the actions, on the one hand, of artificially applied adrenaline and those, on the other hand, of sympathetic-nerve impulses and of the actual transmitter escaping from the site of its liberation into the blood stream and carried therewith to act on a distant organ. I myself, as early as 1910, had emphasized the tendency of adrenaline to exaggerate the inhibitor in relation to the augmentor components, as seen in the corresponding actions of sympathetic nerves. In comment on Elliott's hypothesis, I had even then pointed out that the primary amine corresponding to adrenaline (*nor*-adrenaline, then known commercially as "arterrenol") reproduced the actions of sympathetic impulses with an even closer fidelity, in this respect, than adrenaline itself.

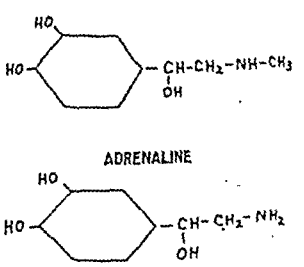


FIG. 1.

The evidence did not then seem to warrant a direct suggestion that *nor*-adrenaline might be the transmitting agent, or even a component thereof. Elliott's suggestion had at that time received but little notice, and *nor*-adrenaline was known then, and indeed till quite recently, only as a product of artificial synthesis.

But now, in the past year, the evidence has begun to flow in, arising simultaneously and independently in a number of different laboratories and in several different countries. Differential physiological reactions, contrived with much ingenuity and reinforced by fluorometric measurements, have made it possible to determine the proportional contributions of adrenaline and *nor*-adrenaline to the sympathomimetic activity of a fluid containing both. And by such methods it has been possible to prove that the sympathetic transmitter, as extracted from the sympathetic chain or from a purely adrenergic nerve, or found leaving the spleen in its venous blood during stimulation of its adrenergic nerve-supply, consists mainly of *nor*-adrenaline, with adrenaline itself as, at most, a minor component. Even the hormone secreted into the blood from the suprarenal medulla when the splanchnic nerve is stimulated, though it usually consists mostly of adrenaline during the early stages of such a stimulation, contains *nor*-adrenaline in increasing proportion as the process is repeated, and may even, after several periods, consist almost entirely of this primary amine.

These discoveries have interest for the pharmacologist and the chemist, and they remove certain puzzling discrepancies, but they make no fundamental difference to our conception of the endocrine function of the suprarenal medulla. We still regard it, following Cannon, as contributing immediate reinforcement to sympathetic-nerve actions on occasions of emergency, of sudden calls for

activity, or of emotional stress; and its hormone still figures also as the peripheral transmitter of the effects of adrenergic impulses. Only our conception of its chemistry is slightly changed. When first the actions of this medullary hormone were discovered it was natural to expect that a lack of it would be found to play at least an important part in the symptoms of Addison's disease, and evidence for such an effect of its exclusion was eagerly sought. As a result, however, we are left without any clear reason for attributing any conspicuous item of the Addisonian syndrome to simple lack of the endocrine function of the medulla. It is remarkably difficult, in fact, to detect any significant result from the removal of one suprarenal gland and extirpation of the medulla from the other. Even when Cannon removed, in addition, the whole system of the true sympathetic ganglia from cats, the animals remained healthy and exhibited only an unusual placidity. The fact that a melanin pigment is formed by oxidation of adrenaline or of its primary homologue might well suggest a connexion between a medullary defect and the bronzed skin of Addison's disease. Even in that case, however, there is no direct experimental evidence. Extirpation of the medulla does not cause any comparable pigmentation, though the possibility still remains open that a disorder, rather than a suppression, of the medullary metabolism normally producing the adrenalines may be responsible for the appearance of Addison's pigment.

What is now abundantly clear is that the main features of Addison's disease—the increasing debility and languor, the muscular weakness, the low arterial pressure, the decrease in blood volume, the disturbance of the normal balance of inorganic salts between body fluids and tissues, the liability to attacks of hypoglycaemia, and the general lack of the normal resistance to infection, poisoning, temperature changes, or any kind of harmful influence, this complex of symptoms leading to the inevitably fatal termination of untreated Addison's disease—are due entirely to the lack of the hormones formed by the cortex. It becomes ever clearer, indeed, that when Addison described his "melasma suprarenale" he was dealing with the collapse of a main arch of the functional structure by which a large proportion of the functions and reactions concerned in the maintenance of a healthy vitality are kept under endocrine control and regulation, and that the keystone of that arch was to be found in the hormones of the suprarenal cortex.

Cortical Hormones

After long discouragement and frustration, as an important item of the new and accelerating advance which set in after insulin was discovered, Swingle and Pfiffner in 1931 succeeded at length in preparing a stable and approximately purified extract of the cortical hormones by systematic injection of which life could be maintained in an animal deprived of its suprarenal glands. It was not long before, from several laboratories in different countries, crystalline fractions began to be obtained from cortical extracts, and a little later again the chemical nature of these began to be clarified. A few years earlier the chemical identification of pure hormones from the suprarenal cortex would have seemed an almost fantastic aspiration. Its achievement was greatly facilitated by the recognition, then recent, of the widely varied physiological significance of substances built by the attachment of different substituent groups and side-chains to a common hydrocarbon skeleton—the so-called cyclo-penteno-phenanthrene nucleus, forming the central structural feature of the sterols, the bile-acids, certain remedial glucosides, the steroid vitamin D, the steroid sex hormones, and, now, the steroid hormones of the suprarenal cortex. Many investigators have contributed to the amazingly rapid advance of knowledge of these substances, and mention can be made only of work by Kendall, and his co-workers of the research laboratories of the Mayo Clinic, in isolating several of these hormones from animal suprarenals, and of that of Reichstein, and his co-workers of Basle University, in producing members of the series artificially by synthesis.

At least six such active cortical steroids are known in pure crystalline form, and there is a highly active amorphous residue, probably containing a number of others. The evidence available concerning the different activities of those already isolated would by itself provide material for a course of lectures by an expert. In broadest terms, the hormones already recognized fall into certain main groups. The members of one such group are oxygenated at the carbon atom numbered 11 on the structural formula, while those of another group differ from the former only in having no oxygen in this position. Corticosterone (Fig. 2, I) is a representative member of the former group,

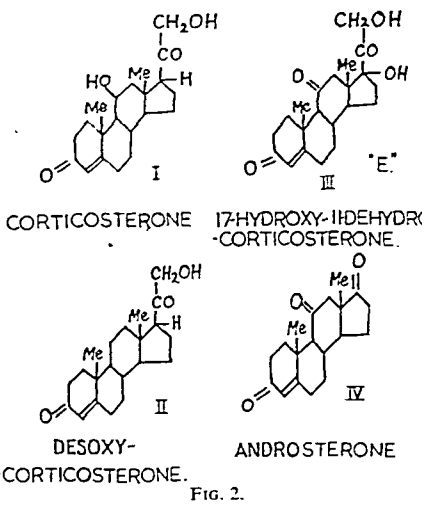


FIG. 2.

the actions of which are particularly concerned with carbohydrate metabolism. When given in excess they cause breakdown of cellular proteins, rise of blood sugar amounting to a temporary diabetes, with resistance to insulin, greatly increased excretion of uric acid, and a steep decline in the number of eosinophil leucocytes in the circulating blood. As a group, they may be regarded as the carbohydrate-controlling cortical hormones. A type of the other group is desoxycorticosterone (Fig. 2, II), and the characteristic action of these is to maintain the balance of inorganic salts in the body, with preponderance of sodium and chloride in the fluids and of potassium and phosphates in the cells. Lack of these hormones, which may be referred to as the salt-controlling group, causes loss through the urine of sodium and chlorides from the blood and body fluids and appearance in these of excess of potassium; administration of these hormones in excess causes over-retention of sodium and chlorides and water-logging of the tissues. Both these types of endocrine control are deficient in Addison's disease, and both must be replaced to preserve life, though lack of salt-controlling hormones can to some extent, and for a time, be made good by an added intake of sodium chloride. And there is another group, derivable from the 11-oxygenated series by replacement of the side-chain on the 17-carbon atom by oxygen: and the members of this group, of which

androsterone is a type (Fig. 2, IV), closely related to testosterone, the hormone of the testis, have indeed a sex-hormonal virilizing action.

Conclusion

The outlines are beginning to appear of the most complicated pattern of the complementary actions of these hormones in relation to one another; of their balanced actions against those of other hormones—for example, of some of them against the actions of insulin; and of the control of their formation and output by the so-called adrenocorticotropic hormone of the pituitary anterior lobe and apparently to some extent by the suprarenal medullary hormone adrenaline. I myself observed, as early as 1921, that a cat from which the suprarenals had been removed showed a greatly exaggerated sensitiveness to histamine, even before overt general signs of deprivation appeared. And, in more general terms, the part played by the cortical hormones in the whole scheme of the endocrine control of the body's functions and reactions, and especially, as Selye, of Montreal, has emphasized, in its adaptative reactions to almost all kinds of injury or stress, is undoubtedly one of central importance.

In further and most suggestive illustration of this function, in the case of at least one of the corticosteroids comes the recent news of therapeutic trials, at the Mayo Clinic and elsewhere, giving promise of a protective and curative effect of another member of the carbohydrate-controlling group, the 17-hydroxy-11-dehydrocorticosterone (Kendall's "Substance E," Fig. 2, III), against defective or perverted adaptative reactions responsible for rheumatoid arthritis. We shall wait eagerly for further evidence of advance in this new and surprising direction. And meanwhile I think you will agree that, if the anterior pituitary lobe occupies the conductor's rostrum in the endocrine orchestra, we must at least assign the leading violinist's desk to the suprarenal cortex. And surely no artificial monument to the memory of Thomas Addison could be so imposing as this great and now so rapidly growing tree of health-giving and life-saving knowledge, sprung from the seed which Addison dropped as he worked in this hospital with such patient devotion and with a clinical vision unsurpassed in its clarity and alertness.

The Report of the Food Investigation Board for the year 1939 has now been issued by His Majesty's Stationery Office, price 2s. 6d. Before publication could be effected when the report was originally prepared the type was destroyed by enemy action, and the document could not be issued until the present time because of restrictions on printing and paper. Some of the work described in the original paper has now been completed, and accounts have been published in various journals, to which references are given. Among the experiments described are tests on the control of microbial spoilage in meat by ultra-violet irradiation. Some retardation of bacterial growth was obtained, but the effect was not great. The storage of eggs was investigated, and experiments were carried out on freezing and storage of sprats before canning. Work was undertaken on the effect of acetylene and ethylene on the ripening of "Kelsey" South African plums. Treatment with either gas for three days accelerated ripening and improved the quality of the fruit, while untreated samples kept in air ripened slowly. Continued exposure to acetylene until the fruit ripened, however, made it too sweet. Research on blemishes on the rind of grapefruit stored at low temperatures, known as "low temperature spot," showed that wrapping in moisture-proof material instead of tissue-paper enabled lower temperature storage to be used, or the fruit to be stored longer. Other work included investigations of various methods of freezing strawberries, raspberries, and peas.

SOME PRINCIPLES UNDERLYING DETERMINATION OF SEX HORMONES*

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During the last two decades our knowledge of biological processes has been rapidly extending. Studies on sex hormones have had an outstanding influence on this advance. Research work and clinical experience have shown that specific principles formed in the pituitary, gonads, and adrenals profoundly affect the structure and function of the whole body. Therefore sex hormones, now available in highly purified preparations, have been introduced in many cases of gonadal and extragenital disorders either as substitution or as stimulation therapy. This use of hormones has enormously increased. However, it must always be remembered that no benefit can be expected from their promiscuous use. A critical attitude should be maintained in the management of endocrine disorders.

These disorders demand some understanding of sexual functions under various physiological and pathological conditions and a thorough knowledge of the hormone-producing organs and those involved in hormone metabolism. In cases of possible hormonal deficiency diagnosis and treatment are based both on the clinical picture and on the histological, biological, and chemical findings.

Any hormone determination is of value only in the light of a preceding clinical examination. Typical changes in weight, temperature, fatigue, appetite, growth and distribution of hair, and vascular, nervous, and other physical manifestations sometimes suggest the kind of sex-hormone imbalance present. The sexual sphere, as the most sensitive to hormonal influence, is the one most readily involved. Undisturbed sexual function may already exclude important hormonal disorders. Administration of sex-hormone preparations in such cases may be unwise and even harmful.

Further information on hormonal activity is obtained from histological and cytological examinations. In women, endometrial biopsy and vaginal smears reveal the uterine and vaginal response to ovarian stimulation. They are the simplest means of determining ovarian function. They show whether an ovarian deficiency exists and whether the disturbance involves suppression in the follicular or luteal phase, or both. They are used not only as diagnostic aids but also as a control to the efficacy of treatment. These clinical findings, however, vary with the responsiveness of the organ involved and are predominantly qualitative in character. They have to be completed by quantitative studies of sex hormones, data of which are provided by biological and chemical methods indicating hormone levels in blood and urine. These give evidence not only of the kind but of the amount of hormone produced. These determinations represent one of the most important diagnostic

*From a lecture delivered by Professor de Watteville to the Faculty of Ophthalmologists of London, at the Maternité of Geneva, on May 11, 1948.

aids and should be a part of the general clinical routine work.

Because of the importance of these biological and chemical findings, some principles underlying hormone determination are here discussed (see Tables I and II).

TABLE I.—*Substances to be Determined in Endocrine Disturbances of the Genital System*

Substances	Sources	Principal Target Organs	Material	Method of Determination
Gonadotropins	Pituitary Placenta	Ovary: follicle, corpus luteum Testes: interstitial cells	Urine Blood	Biological test
Oestrogens	Ovary (follicle) Placenta	Uterus: endometrium, myometrium	Blood	Biological test
	Adrenal cortex (neoplastic)	Vagina Mamma	Urine	Biological test Colorimetry, fluorimetry
Progesterone	Ovary (corpus luteum) Placenta	Uterus: endometrium, myometrium Mamma	Blood	Biological test
Pregnanediol	Progesterone (and corticosteroid) metabolite		Urine	Gravimetric, titration, colorimetry
Androgens	Testes: interstitial cells Adrenal cortex	Spermatogenic cells Prostate Seminal vesicles Penis	Urine (Blood)	Biological test
Corticosteroids	Adrenal cortex	Metabolism	Urine	Biological test, colorimetry
17-Ketosteroids, proportion α/β	Metabolites derived from adrenal and testicular steroids		Urine (Blood)	Colorimetry, polarography

TABLE II.—*Hormone Levels in Some Diseases*

Increased	Decreased or Zero
Gonadotropins	
Hydatid mole Chorionepithelioma Testicular teratoma Natural and artificial	Hypopituitary amenorrhoea Anovulatory failure of pituitary origin Chromophobic adenoma Craniopharyngioma Fröhlich's syndrome (adiposogenitalism) Simmonds's disease Laurence–Moon–Biedl syndrome Dercum's disease Diabetes insipidus Pituitary dwarfism
Oestrogens	
Hyperovarianism due to granulosa or theca-cell tumours Follicular hyperplasia Persistent follicular activity Feminizing adrenal tumour	Castration Menopausal ovarian involution Hypo-ovarianism (amenorrhoea, oligomenorrhoea, extragenital symptoms)
Pregnanediol	
Normal pregnancy Persistent corpus luteum Theca-cell tumour Certain adrenal tumours	Missed abortion Threatening abortion Anovulatory cycle Luteal deficiency
17-Ketosteroids	
Adrenal tumour	Addison's disease Chromophobic adenoma Simmonds's disease Myotonia dystrophica Pituitary dwarfism

Hormones affect what we may call the target organs by way of the blood. Determination of hormone levels depends upon the presence of hormones or their metabolites in blood and urine. In the *blood* they are as a rule present in *low concentration*. This represents a practical difficulty, as large quantities are required to obtain measurable values. This inconvenience is easily avoided, as *urine* hormone levels are *higher* and parallel those in blood. Although on the whole the amounts excreted do not exceed 5 to 20% of that present in the body, these are fairly well reflected by the excretion values. This fact has been proved from simultaneous blood and urine controls after the administration of hormone preparations.

Actually most hormone determinations are made with urine. No preserving chemicals have to be added to urine samples when they are examined within 24 to 48 hours after collecting. As the hormone concentrations vary with the quantity of urine eliminated, excretion values should be reported not in milligrams or units per litre but in milligrams or units per 24 hours. *Exactness in the collecting of urine is therefore necessary.* Whether a given specimen represents the complete 24-hour collection or not may be determined approximately by the amount of creatinine it contains, this substance being eliminated in most cases at a fairly constant daily rate (Smith, 1942). From the excretion values thus obtained deductions regarding hormonal activity in the body are justified provided that kidney and liver functions are normal.

Hormone output, however, has no constant normal value. It varies greatly, according to age, pregnancy, or the menstrual cycle, so that these physiological variations must be borne in mind when interpreting results. Furthermore, the determination of hormone levels should be carried out only at a suitable time (see Table III). Ignorance of these facts may commit laboratory workers to expensive and time-consuming examinations without providing any useful information.

TABLE III.—*Schedule for Sex-hormone Determinations in Urine*

In Men

Gonadotropins Androgens 17-Ketosteroids Oestrogens (in cases of feminizing tumour)	Twice within a few days

In Women

(*a*) During the menstrual cycle:

	Urine, to be Collected on the Following Days of the Cycle			
	10th–11th	15th–16th	20th–21st	25th–26th
Gonadotropins ..	(x)	X	x	(x)
Oestrogens	x	X	x	(x)
Pregnanediol ..	—	(x)	X	x
17-Ketosteroids	Twice during the cycle			

X = Urine samples of high diagnostic value.
x = " " " medium " "
(x) = " " " little " "

(*b*) In pregnancy:
Gonadotropins .. .. From the 35th day of amenorrhoea onwards
Pregnanediol .. .. .. " " 29th " " " "

(*c*) Pre-puberty—Menopause—Amenorrhoea:
Gonadotropins, Oestrogens .. .. Three times, once every 7–10 days
17-Ketosteroids, Androgens (in cases of virilizing tumour) Twice within a few days

Methods

Determination of sex hormones is carried out by chemical methods or by biological tests on the animal. Chemical methods are cheaper and simpler than biological tests because no stock of test animals has to be kept. Standard techniques, giving similar or even equal results in different laboratories, can be established more readily for chemical methods than for biological tests. In most instances chemical procedures take less time than biological reactions. On the other hand, chemical procedures should not be introduced without the assistance of a trained chemist.

The main difference between the two methods lies in the fact that bio-assays measure the biological activity of an extract which may contain not only the hormone but also its active or inactive metabolites; it is evident that the latter are no less important than the hormone itself, but they cannot be detected by bio-assay methods. On the other hand, chemical methods, while presumably a test for hormonal activity, do not measure anything but the amount of chemical substances which have in common certain chemical reactions or physical properties. Therefore the development of chemical methods of hormone determination depends upon the proof (*a*) that certain chemical structures with specific properties are typical for a hormone

and/or its metabolites, and (*b*) that no other substances present in the extract under consideration show the same properties or interfere with the reaction employed.

Unless these two facts have been established by biochemical research no chemical determinations are possible. That is why gonadotropins, for instance, as protein compounds of unknown chemical constitution, are tested exclusively by biological methods. (Compare, however, the work of Mello, 1943.) Bio-assay measurements are comparative and require the use of a reference standard, because differences in strain, living conditions, and age of test animals (mostly mice, rats, and rabbits) sometimes lead to divergent results. Therefore values obtained from biological tests by different research workers are comparable only if related to the international unit of a standard preparation.

Some clinicians prefer biological methods, arguing that biologically active principles can be measured only by the response of a living organism. But actually the respective proportions of active principles and the corresponding chemical fractions in human urine are fairly well known. Chemical and biological standard methods are therefore regarded as equally reliable and informative.

Gonadotropins

Aschheim and Zondek, and independently Smith, in 1926–7 observed that immature mice respond to implantations of pituitary or injections of human pregnancy urine with precocious ripening of their ovaries. This reaction is the effect of the gonadotropic hormones. *These are not sex-specific,* as they stimulate male as well as female gonads.

In the pituitary two fractions of gonadotropins are produced: the follicle-stimulating hormone stimulates primordial follicles of the ovary to develop into mature follicles, which in turn produce oestrogens; the luteinizing hormone transforms the ruptured follicles into corpora lutea, which in turn will produce progesterone.

Gonadotropins also have a stimulating effect on the size and functional activity of the testis.

A source of gonadotropins other than the pituitary is the placenta, which is the chief producer of the luteinizing factor. Tumours derived from chorionic tissues likewise produce gonadotropins, the amounts far exceeding those already high during pregnancy.

Generally, routine biological tests determine both fractions together. Separation of follicle-stimulating hormone and luteinizing hormone is done only in biological research work and is not used for clinical examinations.

Determinations of high gonadotropin levels in body fluids are of practical importance for the early diagnosis of pregnancy. A drop to subnormal values indicates foetal death. Excessive rise in gonadotropin titres as proved by a positive Aschheim–Zondek reaction with highly diluted samples of urine indicates pathological growth of hormone-producing chorionic tissues, such as hydatid mole, chorion-epithelioma, and some kinds of teratoma containing chorionic cells.

In conditions other than pregnancy only small amounts of gonadotropins are present. Therefore they must be concentrated before they can be measured by the biological tests available. During the menstrual cycle gonadotropin excretion rises and falls, with a peak about the time of ovulation. Several determinations have therefore to be made, the most important one being in mid-cycle.

In castrates of both sexes, in old men, in women at the menopause, and in conditions due to primary ovarian failure a rise of gonadotropin levels has been demonstrated. This fact is said to be at least partly responsible for climacteric troubles.

The pituitary gland influences the whole endocrine system. Therefore control of gonadotropins is of interest in all cases in which endocrine dysfunction is suspected. High levels of gonadotropins are to be expected in pituitary basophilic hyperplasia or adenoma and in organic diseases of the hypothalamus. On the contrary, low values are found when the basophilic cells of the pituitary are destroyed by tumour growth—for example, in cases of chromophobic adenoma, eosinophilic adenoma, and craniopharyngioma or some other intracranial tumours—and in all cases of symptomatic or idiopathic pituitary atrophy, such as Simmonds's disease, Dercum's disease, and the syndromes of Fröhlich and Laurence-Moon-Biedl.

Oestrogens

The three naturally occurring oestrogens considered here are oestradiol, oestrone, and oestriol, the first being the most potent, the last-named the least potent. They are formed not only in the ovary and in the placenta but, in much smaller amounts, also in the adrenals and in the testes. Possibly only oestradiol is actually elaborated by the glands, the two other oestrogens being its metabolites. All three are excreted in urine, to a small extent as such, but mainly in conjugated form as sulphate or glucuronide. The only *inactive* metabolites known are the oestranediols, which, however, have no clinical importance.

The oestrogens stimulate proliferation of the myometrium, endometrium, and vagina, and furthermore they develop the mammary gland and other secondary sex characters.

The most widely employed biological test (Emmens, 1939; Pedersen-Bjergaard, 1939) is based on the ability *of oestrogenic hormones to induce cornification of the* vaginal epithelium in spayed mice and rats. Positive reaction is demonstrated by the presence of cornified cells in the vaginal smear. For the determination of low oestrogen concentrations the histological demonstration of vaginal mucification preceding cornification has been used (Fluhmann, 1930). These biological tests necessitate a previous chemical preparation of urine involving liberation of the active principles by hydrolysis of the inactive conjugated oestrogens, followed by extraction and concentration.

Numerous chemical procedures have been described in the literature using colour reactions of the oestrogenic phenols for their colorimetric determination. Unfortunately, they can replace bio-assay only in conditions such as pregnancy, when high levels are present. To the clinician it is much more important to determine the small amounts excreted during the menstrual cycle. This seems to be achieved by a fluorometric method (Jailer, 1947–8) the principle of which has long been in use in veterinary medicine as a qualitative pregnancy test in mares (Cuboni, 1934).

Chemical determination as well as bio-assays may be done after separating the three oestrogens in order to determine their respective amounts. This chemical separation (Pincus, 1945; Friedgood *et al.*, 1948) complicates the technique considerably, but nevertheless it may be worth while because of the additional information on oestrogen metabolism which can be obtained.

The rate of oestrogen excretion in urine varies during the stages of the menstrual cycle. The highest values are encountered at the end of the follicular phase, and considerable amounts are still present during the luteal phase.

Before the onset of the menstrual flow a sharp drop occurs. Thus several determinations are necessary to adjudge the oestrogenic activity of the ovary. This determination of the rate of oestrogen excretion may be of importance in the detection of slight pathological deviations of oestrogen levels, which may cause functional troubles even when no morphological changes or menstrual disorders are observed.

The same clinical symptoms may be produced by different oestrogen production, as, for example, in amenorrhoea, in which oestrogen values may be low or high, cyclic or acyclic.

As practically no oestrogens are detectable in menopausal women, positive tests suggest hormone-producing tumours of the ovary or of the adrenals. Also, in the male, tumours of the adrenals, and especially adrenal carcinoma, may produce considerable amounts of oestrogens.

Progesterone and Pregnanediol

Gonadotropins stimulate not only oestrogen but also progesterone production in the ovary. The latter hormone is elaborated in the corpus luteum and, from the third or fourth month of pregnancy onwards, in the placenta. Its principal actions are: (1) the secretory transformation of the uterine mucosa, and (2) the muscular relaxation of the whole uterus. These progestational changes allow of the implantation of the fertilized ovum and make possible the undisturbed growth of the embryo.

The biological assay of progesterone makes use of the effect of this hormone on the endometrium. The test animal is the immature (Clauberg, 1930) or castrated (Corner and Allen, 1929) rabbit, which must have received preparatory treatment with oestrogen in order to induce the proliferative phase of its endometrium. The test is positive if in the histological examinations signs of secretory transformation are observed. By intrauterine administration of the material to be tested (de Allende, 1940; Hooker and Forbes, 1947) even the small amounts of progesterone present in the blood of normal women during the second half of the menstrual cycle can be detected. The test, however, is not rigidly specific for progesterone, because two other hormones—namely, testosterone (from the testis) and desoxycorticosterone (from the adrenal cortex)—are also able to induce the transformation of the proliferated uterine mucosa into its secretory phase. Of course, the respective activities are not the same. The doses required, as compared with progesterone, are six times greater for desoxycorticosterone and twenty times greater for testosterone.

The biological assay of progesterone gives positive results only with certain tissue extracts and with blood, but in urine practically no progesterone can be detected. This is explained by the rapid inactivation of this hormone within the body, leading partly to the formation of pregnanediol. This progesterone metabolite is eliminated in urine in conjugated form as sodium pregnanediol glucuronidate. Its chemical constitution differs only slightly from that of the parent compound, progesterone, but nevertheless it has no biological activity at all and can be determined only by chemical methods.

We use a method of our own (de Watteville *et al.*, 1948) which is relatively simple, reliable, and rapid. It is based on hydrolysis of the glucuronide and simultaneous extraction of the freed pregnanediol, followed finally by chromatographic isolation of the pure compound by means of an aluminium oxide column. The crystalline pregnanediol is weighed, and its purity can be controlled by determination of the melting-point.

Clinical experience has shown that, broadly, urinary pregnanediol levels parallel progesterone action observed in the organism. We are entitled, therefore, to use the pregnanediol level in urine as a reliable indicator of progesterone production by the corpus luteum or the placenta. The minimal amount of pregnanediol derived from normal adrenal steroids is too small to interfere with determinations during the menstrual cycle or in pregnancy. It acquires, however, some value as a diagnostic aid when considerably increased by certain adrenal tumours or adrenal hyperplasia. Still, the chief importance of pregnanediol determination lies in gynaecological and obstetrical diagnosis.

Together with the assay of gonadotropins, pregnanediol is employed as a test for normal or disturbed pregnancy. In threatened abortion normal or decreased pregnanediol levels are most informative regarding whether the further evolution will be good or bad. In cases of threatened or doubtful missed abortion the decision whether to interrupt pregnancy or not can almost exclusively be based on pregnanediol values.

Pregnanediol determinations are also very useful during the second half of the menstrual cycle. Normal values between the sixteenth and twenty-sixth days of the cycle are conclusive evidence that a normal corpus luteum is present. On the other hand, zero values are found only in anovulatory cycles when follicle rupture does not occur and no corpora lutea are formed. Finally, if pregnanediol values are too low, or if the period of excretion is too short, then progestational deficiency is strongly suggested.

It is well known that the ovary is not autonomous. Corpus luteum function, as well as follicle ripening, depends upon pituitary gonadotropins, and its disorders may be caused either by a primary ovarian deficiency or by disturbances of the pituitary. The latter, however, may be responsible for quite a lot of other more general disorders—for instance, post-partum obesity, which shows luteal deficiency of pituitary origin and can be successfully treated with pituitary luteinizing hormone. The meaning of all this is that normal pregnanediol values, if considered together with the clinical picture, enable us to exclude either ovarian failure or disorders of the gonadotropic function of the pituitary.

Androgens and 17-Ketosteroids

Testosterone is the characteristic endogenous hormone of the testicle. In the human body it is converted partly to androsterone and other 17-ketosteroids of less or no biological activity. These conversion products are excreted by the kidneys, but no testosterone is found in urine. Androgenic activity as well as 17-ketosteroids have been demonstrated in the urine of children and adults of both sexes. This is explained by the fact that androgens and 17-ketosteroids are not only of gonadal but also of adrenal origin. The normal output of 17-ketosteroids varies with age and sex: an extensive study of this subject (including standard curves) has been published by Hamburger (1948). In women, adrenals are by far the most prolific source of androgenic substances and 17-ketosteroids, the concentration of these being almost the same in normal and ovariectomized women, but less than in urine of normal men. Nevertheless, the ovaries also seem to be capable of androgen formation, as is strongly suggested by the fact that virilism may be caused by arrhenoblastoma. In men, both adrenals and testes are concerned with androgen and 17-ketosteroid elaboration: it is supposed that the testes account for 20 to 40% of the urinary 17-ketosteroids.

Determination values, therefore, are not a conclusive index of spermatogenic function, but in case of deficiency they may provide a clue to the incretory status of the testes and indicate a deficiency of the testicular hormone. Eunuchoids, for instance, excrete appreciably less androgens than normal men. In cases with destructive processes of the adrenals, such as Addison's disease, the values found are also low.

In some castrated and menopausal women and in those with arrhenoblastoma 17-ketosteroids tend to be increased. Urines from cases with adrenal hyperplasia or tumour yield enormous quantities of certain 17-ketosteroids. Therefore a rise in 17-ketosteroid output may be regarded as an aid in the differential diagnosis between Cushing's disease due to adrenal cortical tumour and that of pituitary origin where the level is apparently within normal limits.

The biological assay (Gallagher *et al.*, 1937) is based on the ability of androgenic material to promote comb-growth in the capon. To replace the biological test Zimmermann's (1935, 1946) colorimetric *m*-dinitrobenzene reaction, as modified by Callow *et al.* (1938) and many other workers, is now widely used for the determination of urinary non-phenolic 17-ketosteroids. To increase the specificity of this method it is strongly recommended to eliminate unspecific chromogens from the extract, using chromatography (Talbot *et al.*, 1941), charcoal (Consolazio and Talbott, 1940), or Girard's reagent T (Talbot *et al.*, 1940). Even then the 17-ketosteroid values obtained are too high if the 20-ketosteroids of pregnancy urine are present to contribute to the colour intensity. Pincus's (1943) antimony trichloride reagent seems to be more specific, but it does not react with dehydro-isoandrosterone, an important 17-ketosteroid in the β-fraction. The neutral steroid fraction of human urines can be separated into an α- and a β-fraction of ketosteroids (Pincus, 1945). The determination of these two fractions may aid in the differential diagnosis between adrenal cortical hyperplasia and adrenal carcinoma, the β-fraction being markedly increased in the latter.

Much useful information could be gained from fractionating the extracts still further in order to trace individual steroids instead of groups. Unfortunately, the chemical procedure involved (Dingemanse *et al.*, 1946) is too laborious to permit its use in daily clinical routine work.

The value of the determination of androgens and 17-ketosteroids in the diagnosis of gonadal and adrenal disorders is limited, because of great individual variations in both normal and abnormal subjects. Repeated determinations in the same subject, however, may yield some information about the evolution of an endocrine disease and about the therapeutic success. With regard to single determinations, significance can be attributed only to the very high figures occurring in cases of adrenal tumour.

Conclusions

Clinical endocrinology, although complicated, is of increasing importance. In order to stress this importance we may give some final conclusions: (1) Hormone determinations are of value only when considered simultaneously with, and in close relation to, the clinical picture of a case. (2) The usefulness of routine hormone determinations is threefold—theoretical, diagnostic, and therapeutic. (3) Their *theoretical* importance lies in basic research work on hormone metabolism, when we are trying to learn everything about the fate of hormone substances within the body, how they are produced, transformed in the target organ, inactivated, and excreted. (4) In *diagnosis* they provide valuable information on glandular functions, indicating whether these are normal, increased, or deficient. (5) In *therapy*, at last, they help us to judge the effect of hormone treatment on internal secretion—whether we have succeeded in stimulating, substituting, or regulating the functions we meant to influence.

Hormone research and its clinical applications are in full progress, but much work has yet to be done. We can be sure that the result of future research will extend still further the assistance which the physician already receives from the laboratory.

Readers not familiar with the steroid nomenclature mentioned in this paper are referred to the instructive survey by Mason (1948).

We are indebted to Harris and Thimann (1943–7), Burrows (1945), Hamblen (1945), and Pincus (1947–8), whose books and reviews may profitably be consulted for further and more detailed information.

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The Ministry of National Insurance reports that seven million new claims to sickness benefit have been made in the first year of the scheme that started on July 5, 1948—an average of 140,000 a week, about one half of which included claims for dependants. New claims rose to a peak of 220,000 during the week ending Feb. 22; the present rate is about 100,000 a week. About three-quarters of a million claims have been made for Industrial Injuries benefits of all kinds during the first year. Some 16,000 claims are made each week for injury benefit, and claims to disablement benefit are being received at the rate of nearly 6,000 a month. Claimants are being examined by 103 medical boarding centres to assess the degree of disablement, and 13 medical appeal tribunals hear appeals against assessments. Just under 200 claims a month have been received for the death benefit paid to the widow or to certain other dependants of a man who has died as a result of an industrial accident or disease.

POLIOMYELITIS AND THE SOCIAL ENVIRONMENT

BY

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One of the most striking but unexplained characteristics of poliomyelitis, to which many workers have drawn attention, is its relatively greater incidence and epidemicity in countries with high standards of living and good sanitation. In contrast it has "remained endemic and sporadic in countries where living conditions are poor, sanitary facilities minimal or non-existent, and infant mortality high" (Horstmann, 1948). Correspondingly, while water supplies and means of excreta disposal have been improved, while social conditions and nutrition have been steadily advancing, the disease has risen in many countries from sporadic or only small-scale appearances to epidemics on a wide scale. There seems no doubt whatever that this change is predominantly real, though its actual magnitude may well be exaggerated by the increasing attention paid during the last 50 years to the abortive and non-paralytic cases.

Somewhat similarly, the early literature on poliomyelitis contains constant references to the victims of the disease as healthy and strong children—indeed, Heine himself made such comment over a hundred years ago. This observation—if in fact the disease does fall with significantly greater frequency upon such children—might be explicable on the grounds that the strong and healthy by taking more muscular activity run a greater risk of bringing themselves into the paralytic class and thereby of being more often observed (Russell, 1947).

It has also been stated, and not infrequently, that the cases in a localized outbreak have been unduly concentrated in the better and more sanitary parts of the area. Thus, for example, Gilloran (1949) quotes the report of the medical officer of health for Beaminster rural district (Dorset) on a small outbreak in 1914: "The cases nearly all occurred . . . in the least-crowded and most sanitary part of the town on the main street." Going further afield, an inverse relationship between population density and attack rate was reported in the Mauritius outbreak of 1945 (McFarlan *et al.*). There is no dearth of such comments in the literature.

More recently, and arising out of the unprecedented epidemic that took place in Great Britain in 1947, it has been suggested that within a country exposed to a widely spread outbreak the incidence is likely to fall more heavily upon the communities that enjoy the most favourable environment and the best social conditions. Thus in a discussion of the poliomyelitis experience of the borough of Luton in 1947 it was said that "the birth rate was 21.3, death rate 9.4, infantile mortality rate 36, stillbirth rate 21.3, and maternal mortality rate 0.8. The outbreak was therefore set in circumstances of good health and low infection—a characteristic of poliomyelitis which seems to favour populations in favourable conditions where public health services are above the average" (*Med. Off.*, 1948).

Such striking events, however, may easily meet the eye and lead to comment while more normal or more expected happenings naturally tend to go unobserved and unrecorded. A full statistical account of the distribution of cases in relation to social environment is needed, and this we have attempted for the epidemic of 1947.

The Statistical Data

Through the kindness of the Registrar-General we were provided with the number of corrected notifications of poliomyelitis (including polio-encephalitis) in each of the 125 great towns and the 148 smaller towns of England and Wales in the year 1947. From these we computed the poliomyelitis attack rate during the year in each town (necessarily the crude rate at all ages, since attacks by ages are not available).

In the absence of a census since 1931 we have no up-to-date measure, in these towns, of overcrowding or of social-class attributes to use as our index of environment. Such characteristics are, however, invariably correlated closely with the infant mortality rate and to some extent, but less closely, with the general death rate. These, it will be recalled, were used as evidence of the social setting of the epidemic in Luton. As an indirect index of the environment we have therefore used these rates as computed for each town in the two years previous to the epidemic, 1945 and 1946 (the mean rate for these years).

Results

Correlation of the recorded attack rate from poliomyelitis with the specified mortality rates gave the following results (coefficients of correlation):

	125 Great Towns	148 Smaller Towns
Attack rate of poliomyelitis and crude death rate	−0·10	+0·04
Attack rate of poliomyelitis and infant mortality rate	−0·04	−0·13

These coefficients are all technically insignificant and therefore reveal no association between the incidence of poliomyelitis and the total and infant death rates of the towns.

The infant mortality index covers, by definition, the whole of the first year of life. It is, however, well known that the social and economic environment is mainly correlated with the mortality of the latter parts of the first year of life and less closely associated with deaths in the neonatal period. We therefore computed the degree of association between the attack rates of poliomyelitis and the infant mortality experiences of the great towns in 1945, limited to the ages 1–12 months and 6–12 months. The coefficients of correlation were as follows:

	125 Great Towns
Attack rate of poliomyelitis and infant mortality at 1–12 months of age	+0·08
Attack rate of poliomyelitis and infant mortality at 6–12 months of age	−0·07

Once more the coefficients are very small and again they are technically insignificant.

Reverting, therefore, to the total infant mortality rate—i.e., over the whole of the first year of life—the distribution of the poliomyelitis incidence in the total 273 towns in relation to this social index may be shown as in the table on the next page.

As follows inevitably from the insignificant correlations shown above, there is at every level of infant mortality a very wide scatter in the level of epidemicity of poliomyelitis. Over infant mortality rates ranging from 30 to 60 per 1,000 there is clearly no material difference between the percentage distributions showing the frequency with which different attack rates of poliomyelitis were recorded. At the two extremes of infant mortality, under 30 and

acid formation and the actual site of caries development a plug of persistent protein intervenes which would doubtless buffer the acid and protect the deeper part of the groove from being damaged. These considerations suggest that it is highly unlikely that lactic acid formed in "plaques" is the cause of caries beginning at the bottom of the occlusal groove.

These contentions are supported by the following experimental findings. If a perfectly sound molar tooth is placed in a solution of 2% HCl the enamel is in time completely dissolved away, but the protein contents of the groove are left intact. Any lactic acid, therefore, which is formed in a "plaque" in the superficial part of the occlusal groove could not dissolve away the persistent protein content of the groove and thus could not reach the bottom of the groove, where caries actually first sets in. The conclusion is therefore that, whatever may be the role of lactic acid in caries formation in other sites, lactic acid formation cannot account for the development of caries at its commonest site—i.e., at the bottom of the occlusal groove.

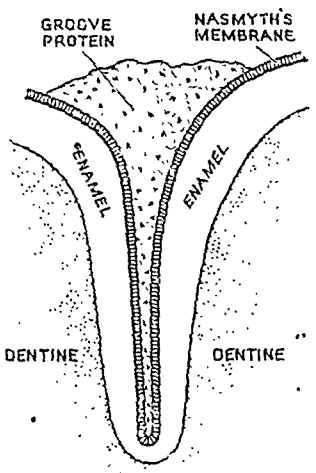


FIG. 2.—The occlusal groove in a newly erupted tooth.

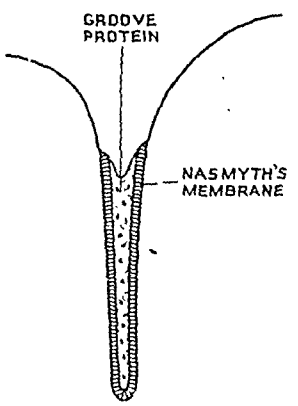


FIG. 3.—The occlusal groove in a tooth which has been in use in the mouth.

releases combined acid from the form in which it exists in mucoproteins. Such sulphatase-forming bacteria are present in the mouth as Gram-negative bacilli.

In the present work three sources of sulphatase have been employed—two strains of Gram-negative bacilli found in carious material, and *Aspergillus oryzae*. Material has been extracted from human dentine which when exposed to sulphatase releases sulphuric acid. The sulphatase has so far not attacked intact dentine or enamel protein; the extracted material on which it does act is a polysaccharide in which combined sulphuric acid is present. The dentine protein consists of a protein moiety collagen and the polysaccharide already referred to. Before the sulphatase can act on the tooth it would seem that initial hydrolysis of the protein to release the polysaccharide must take place; it is not known at present how this initial reaction occurs. The presence of a similar polysaccharide has been demonstrated in enamel protein, and there is some evidence that it is also present in groove protein. It is thought that the sulphatase of the Gram-negative mouth bacilli acts on

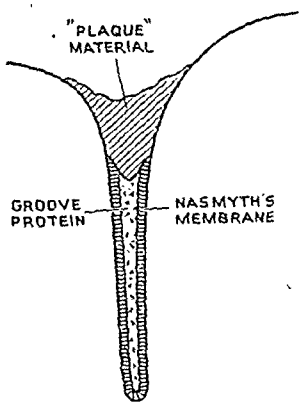


FIG. 4.—The situation of "plaque" material in relation to groove protein and Nasmyth's membrane.

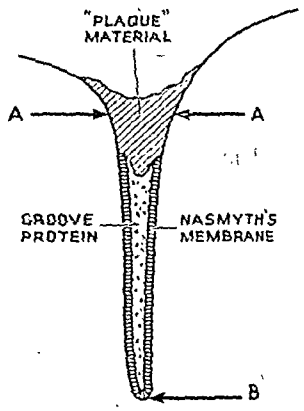


FIG. 5.—(As Fig. 4.) The arrows AA show where caries might be seen if it followed the breakdown of "plaque" material. Arrow B shows where caries in an occlusal groove is usually found.

2. Relation of Tooth Structure to Caries

The well-known work of Mellanby and Mellanby (1948) demonstrated conclusively that the structure of a tooth depends on the adequacy of the diet in respect of calcium, phosphorus, and vitamin D content. They found, further, that better-formed teeth are less liable to be affected by caries than less-well-formed teeth. The outstanding practical importance of these observations is obvious, but their work does not as yet explain the actual mechanism by which caries is produced in teeth of poor structure.

A Suggested New Chemical Theory of Caries

All previous theories stress the importance of the inorganic constituents of a tooth in relation to caries production. In the new theory to be outlined here it is suggested that the *organic* constituents of a tooth are of major importance. Excluding the cementum and pulp tissue, three proteins are found in teeth—namely, groove protein, enamel protein (Nasmyth's membrane and its prolongations into the enamel), and dentine protein. Dentine and enamel proteins have been examined in some detail, and both have been found to contain combined sulphuric acid. Enamel protein is a mucoprotein (Pincus, 1949). Neuberg and Hofmann (1931) demonstrated that many bacteria can form an enzyme, called sulphatase, which

the polysaccharide in these various tooth proteins, thus releasing sulphuric acid.

It is the initial freeing of combined sulphuric acid that forms the main feature of the present hypothesis. When the acid is freed by bacterial enzyme attack equilibrium is maintained at the expense of the calcium salts. At any given moment of the carious process the only free acid will be that which, having been released from one organic combination, has not yet formed a different combination with the calcium salts. The changes in the organic structures of the teeth are thus regarded as primary and those in the inorganic structures as secondary in the process of caries.

The release of sulphuric acid in enamel and in dentine may be expected to produce different effects on these two tissues as shown by experiments in which enamel and dentine were exposed to acid. Enamel attacked by acid becomes friable and is easily lost, while dentine attacked by acid may remain little changed on gross examination, apart from becoming softened. This difference in behaviour is accounted for by the fact that the inorganic material in enamel and in dentine may amount to 95% and 75% respectively. Thus the enamel exposed to acid will lose up to 95% of its constituents, while the dentine will lose only 75%, leaving an adequate organic framework to maintain its general arrangement.

It is important to note that in clinical caries a similar state of affairs is found—i.e., the enamel is friable and readily lost, while the dentine is softened. It follows from the hypothesis enunciated above that $CaSO_4$ should be present in carious material as a result of the interaction of the released sulphuric acid with calcium phosphate. In fact, $CaSO_4$ has been demonstrated in carious material, and it is absent from sound tooth structure.

Gram-negative sulphatase-producing bacilli would thus be the ultimate cause of caries. We do not yet know what are the conditions which determine the production and activity of the enzyme by these bacilli. Such conditions may play a large part in precipitating or preventing caries. This hypothesis argues that any organism in the mouth which can release sulphatase may be a factor in the production of caries. In other words, caries is not due to a specific bacillus but to specific enzymes, one of which has already been demonstrated, though obviously enzymes other than sulphatases are also involved in the complex process of initiation of caries.

The conditions at the bottom of an occlusal groove would seem to be favourable for the multiplication of the Gram-negative bacilli and the release and action of the sulphatase and other necessary enzymes. If the enamel were first attacked this would enable the organisms to penetrate into the dentine. Although the organisms might initially enter the dentine through a minute site of destruction in the enamel, once they had got into the dentine they could further damage the enamel from its deeper aspect.

The question still remains to be answered whether the hypothesis enunciated above can account for caries in situations other than the bottom of the occlusal groove. $CaSO_4$ has been demonstrated in carious material no matter what the site from which it has been obtained, provided enough material is available. In other words there is an *a priori* reason for supposing that sulphatase-forming bacteria may be concerned in caries production anywhere in a tooth.

Experimental Details

Organic Material Present in Enamel and Dentine.—Protein is found on the surface of newly erupted enamel (Nasmyth's membrane) and permeates the enamel in the form of threads, one such between each enamel prism and its neighbour (Fig. 6). The presence of organic material in enamel can easily be demonstrated. After a thin slice of enamel has been slowly attacked by a weak acid so that most of the inorganic matter passes into solution, microscopical examination shows fine strands of an acid-resistant nature which remain *in situ*, leaving a replica of the structure of the enamel, though this is now made up of organic material. Histological examination suggests that the organic material is a mucoprotein. In the present work sections of developing human enamel have been stained with thionin, when material resembling mucin was seen (Pincus, 1948c). Wislocki *et al.* (1948), using histochemical methods, found that the ground structure of the enamel organ resembled an "epithelial mucus," comparable in staining reactions to the acid mucopolysaccharides of some connective tissues. Chemical examination of the organic material has shown it to be a mucoprotein. Its chemical composition is: nitrogen 5.1%, sulphur 0.4%, hexosamine 11.2%; while the following qualitative tests are positive: Millon, xanthoproteic, Sakaguchi, ninhydrin, *p*-dimethylaminobenzaldehyde, naphthoresorcinol, carbazole (Dische, 1947).

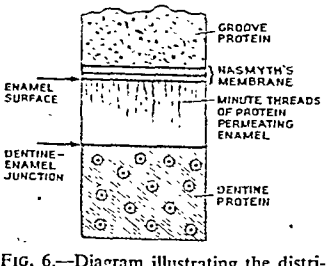


FIG. 6.—Diagram illustrating the distribution of tooth proteins.

Mucoproteins and Chondroitin Sulphuric Acid.—Few direct observations on the amount of protein present in enamel have been made. As a rule, determinations of nitrogen are carried out and the amount of protein calculated from these results. Since mucoproteins contain a lower percentage of nitrogen (10%) than do other proteins (15%), it will be clear that the actual amount of protein present in enamel may be 50% greater than has previously been supposed. To arrive at a result more directly, the protein must first be separated from the enamel, a matter of some difficulty. This point is emphasized to show that the amount of protein present in enamel is sufficient for the production of acid as demanded by the new theory, and may amount to 5% by volume. It is known that dentine contains collagen (Harrow, 1946), and I have demonstrated that dentine contains the polysaccharide chondroitin sulphuric acid, which may be separated from dentine by the use of a method similar to that employed to separate the polysaccharide from cartilage (Meyer and Smyth, 1937). The composition of chondroitin sulphuric acid separated from dentine is: nitrogen 1.7%, sulphur 4.6%, acetyl 8.1%, hexosamine 26.3%, hexuronic acid 28%.

Caries Bacteria

In earlier work (Pincus, 1948d) I have shown that, when mixed caries bacteria were inoculated into tubes containing cartilage (which is rich in chondroitin sulphuric acid) and incubated at 37° C., first Gram-positive forms resembling enterococci grew, while, later, Gram-negative bacilli resembling those of the *Proteus* group eventually outgrew all other forms. Both the Gram-positive and the Gram-negative forms were classified by their characteristics as shown in pure culture. Now, Gram-negative bacilli of the *Proteus* group are found in caries (Hine and Bibby, 1939); Neuberg and Hofmann (1931) have demonstrated in Gram-negative bacilli of the *Proteus* group the presence of an enzyme (sulphatase) that can liberate sulphuric acid from organic compounds in which it is present in combined form—e.g., mucoitin and chondroitin sulphuric acid. I have suggested above that such bacilli are present in the mouth and may play a part in caries by releasing sulphuric acid from the organic compounds in which it exists in the teeth. Evidence is presented elsewhere that bacterial enzymes can release free sulphuric acid quantitatively from both chondroitin and mucoitin sulphuric acid, which can be split off from enamel and dentine proteins.

It may be seen that caries of enamel and of dentine may be accounted for by the hypothesis set out above, for which there is some experimental support. The fact that a large mass of carious dentine is often found in a tooth despite the tiny size of the point of entry in the enamel is a clinical commonplace for which the present hypothesis offers a reasonable explanation. In the new theory, once suitable organisms gain access to the dentine bacterial growth and enzyme production may proceed, using as nutriment that available in the tooth itself. No nutritional factors other than these would then be needed.

Summary

Between the cusps of molar teeth lie grooves which, especially if narrow, are a common site of caries. These grooves in newly

erupted teeth contain two structures which differ in biochemical nature; one is a mucoprotein.

Enamel at eruption is covered with a layer of protein, and is permeated with protein throughout life. Enamel protein is a mucoprotein, which comprises a class of proteins containing mucoitin sulphuric acid.

Dentine contains chondroitin sulphuric acid.

Gram-negative bacilli found in caries can release an enzyme —sulphatase.

Sulphatase can release sulphuric acid from such combined forms as mucoitin sulphuric acid and chondroitin sulphuric acid, thus attacking the calcium salts of both enamel and dentine and causing caries.

To my colleagues at the hospital and to the Medical Research Council, which has provided financial facilities, I wish to express my indebtedness.

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A CASE OF PSITTACOSIS TREATED WITH PENICILLIN

BY

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The purpose of this note is to report the case of a patient infected with psittacosis who responded to treatment with penicillin.

Case History

A medical research worker aged 43 was admitted to hospital on Sept. 14, 1948. His work during the previous three months had involved the handling of material obtained from mice infected with psittacosis virus.

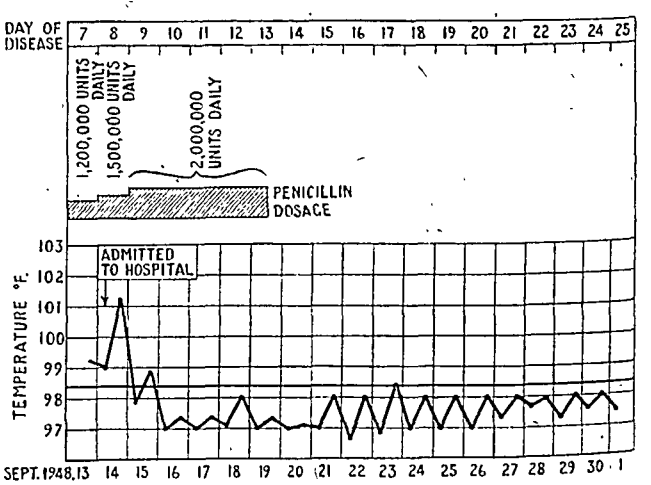
Two weeks before admission he had developed severe coryza. Six days later (eight days before admission) he suffered the sudden onset of marked malaise, shivering, and high fever (temperature 103° F.—39.4° C.) associated with severe headache and vomiting. He went to bed, and the symptoms persisted unchanged for 48 hours. Then they suddenly abated, and for 12 hours he felt much better. But five days before admission fever, rigors, headache, and vomiting returned; anorexia was complete; both mental and physical prostration soon became marked features; and he slept poorly or not at all. He developed a slight cough producing only scanty sputum. The day before admission he developed a sore throat.

On admission to hospital he looked seriously ill, with pale complexion, sunken eyes, and hollow cheeks. His lips were crusted with sordes, and his tongue was dry, brown, and furred. He was not dyspnoeic, and lay flat in bed without distress. His temperature was 99° F. (37.2° C.), pulse 80, and respirations 22. The fauces and tonsils were injected but no exudate was seen. The right tonsillar gland was enlarged and tender, but other lymphatic glands were normal. Bronchial breath sounds were audible in scattered areas over the right lung base posteriorly, and there were crepitations on inspiration in this area. The cardiovascular system was normal and the blood pressure 100/70 mm. Hg; the spleen was not enlarged. The central nervous system was normal except for the profound mental prostration. Questions were answered reluctantly, slowly, and with difficulty, but the answers were nevertheless clear and not confused.

Laboratory Investigations.—On Sept. 14 a radiograph of the chest revealed loss of translucency in the right lower zone, suggesting an inflammatory lesion. A psittacosis complement-fixation test was positive to a titre of 1/64. The titre rose to the level of 1/256 on Sept. 27. Blood culture was sterile aerobically and anaerobically. A throat swab revealed no haemolytic streptococci, diphtheria bacilli, or Vincent's organisms. On Sept. 15 a blood count showed: Hb, 89%; white cells, 5,400 per c.mm. (polymorphs 84%, eosinophils 1%, lymphocytes 10%, large hyalines 5%). Sputum contained many bacteria and some monilia, but no virus was seen. On Sept. 21 a radiograph of the chest showed that the lower zone of the right lung field had cleared. An irregular opacity was apparent in the left mid-zone. On Sept. 27 the lung fields were clear.

Treatment.—The history of exposure and the clinical features of the illness made the diagnosis of psittacosis certain enough to justify treatment before laboratory confirmation was available. Apart from penicillin, the only drugs used were analgesics to relieve headache and sedatives to ensure sleep. Each dose of penicillin was mixed with 1 ml. of 2% procaine to reduce the discomfort of the injection. Penicillin therapy was started in the patient's home on Sept. 13, seven days after the onset of the illness. On that day 1,200,000 units were given in three doses. On Sept. 14, the day of admission, one dose of 500,000 units and one of 1,000,000 units were given. Thereafter 1,000,000 units of penicillin were injected twice daily for four and a half days. The drug was discontinued on Sept. 19, the patient by then having received a total of 11,700,000 units.

The response to treatment was most satisfying. On Sept. 16, ten days after the onset of the illness and 72 hours after the initiation of penicillin therapy, the patient was completely apyrexial (see Chart), his mental processes were noticeably



clearer, and he was sleeping well. Next day the signs of consolidation at the base of the right lung were still present, and in addition there was clinical evidence of left basal pneumonia. These fresh pulmonary findings were not, however, accompanied by further symptoms or constitutional upset. On Sept. 19 treatment with penicillin was discontinued. On Sept. 21 a radiograph of the chest confirmed the clinical findings by showing diffuse shadowing at the left mid-zone, suggesting an inflammatory process. But by now the right base showed considerable clearing radiologically. Clinical improvement was rapid, and on Sept. 27 the lungs were normal both clinically and radiologically.

The patient was discharged, symptom-free, on Oct. 1, 25 days after the onset of the illness, and 17 days after admission to hospital.

Comment

A patient suffering from a severe attack of psittacosis is usually ill for between two and four weeks. Prognosis is difficult to assess, but the outlook is better in the young than in the old, and extensive pulmonary involvement tends to carry a high mortality. In the patient under consideration penicillin therapy was started seven days after the onset, and complete defervescence had occurred 72 hours later. In view of the severity of his illness it seemed reasonable to attribute the satisfactory response to the treatment he received.

Reported cases of human psittacosis treated with penicillin are few. Parker (1945) published details of two such patients. In the first, a woman of 61, treatment with intramuscular penicillin in a dosage of 120,000 units daily was started on the nineteenth day of the illness, and the patient had become apyrexial on the twenty-first day. The second patient was a woman of 52 who received 160,000 units of penicillin daily from the thirteenth day. She was afebrile on the sixteenth day. In the same year Flippin, Gaydosh, and Fittipoldi (1945) treated a man of 53 with 100,000 units of penicillin daily after he had been ill for 19 days. On the twenty-second day great improvement was shown. However, since in these three patients the drug was given late in the disease, when spontaneous recovery might have been expected, the improvement which followed the administration of penicillin cannot conclusively be attributed to this treatment.

In the case of a patient aged 43 reported by Turgasen (1944) a daily dosage of 100,000 units of penicillin was begun on the fifth day of the illness. But the response was not dramatic, for the patient's high fever persisted for five days after the initiation of treatment. Rosebury *et al.* (1947) reported the treatment of a man aged 41 with both penicillin and sulphadiazine: 400,000 units of penicillin were given daily from the fourth to the fourteenth day of the illness, and 6 g. of sulphadiazine was given daily from the fifth to the twelfth day. The patient became apyrexial, and marked clinical improvement was shown as early as the sixth day, after he had received 800,000 units of penicillin and only 4 g. of sulphadiazine. The dosage of sulphadiazine here seems too small for this drug to have been of major therapeutic value, and the satisfactory response must therefore probably be attributed to the penicillin.

Wolins (1948) reported six patients suffering from psittacosis, only one of whom could be considered severely ill. Four of them responded satisfactorily, though not dramatically, to 400,000 units of penicillin daily. The same dose of penicillin had little effect on the course of the illness in the remaining two. Wolins pointed out that two of the four patients who responded well to penicillin had earlier failed to improve on a smaller dose (200,000 units daily).

In contrast with the clinical evidence there is good experimental evidence that infection of the mouse with psittacosis virus can be controlled by penicillin. Heilman and Herrell (1944) infected 104 mice with psittacosis virus and treated half of them with very large doses of penicillin (1,000 units daily), the remainder acting as controls. All the controls died, whereas the mortality in the treated mice was only 8%. This finding was confirmed by Bedson and May (1945), who also showed that the minimum dosage of penicillin necessary to protect a mouse from a lethal infection was 800 units a day for four days. This again is a very large dose, and suggests that, if one may argue from mouse to man, the total dosage of penicillin needed to treat a human case of psittacosis would be about 11,000,000 units. The treatment of the case reported above was of this order.

It may be that the two most recent antibiotics, chloramphenicol and "aureomycin," which are effective against viruses of the psittacosis-lymphogranuloma group (Smadel and Jackson, 1947; Wright *et al.*, 1948), will prove more useful than penicillin. They have the added advantage that they can be given by mouth. However, neither is as yet available in this country, and in the meantime the encouraging result obtained in the case described here suggests that penicillin is well worthy of further trial in the treatment of psittacosis in man. It seems likely, however, that the dosage should always be massive; and if 2,000,000 units daily should prove ineffective an even higher dose should be considered.

I wish to thank Dr. Donald Hunter and Professor S. P. Bedson for much valuable advice and criticism. Permission to publish this account was kindly granted by Dr. Hunter, under whose care the patient was treated.

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A CASE OF MONOCYTIC LEUKAEMIA TREATED WITH AMINOPTERIN

BY

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The acceleration of the leukaemic process produced by folic acid led to the search for antagonists which might favourably influence the disease. The most potent compound so far reported is "aminopterin" (4-aminopteroylglutamic acid), though others with similar properties have lately been used. It is effective in doses of 0.5–1 mg. daily in children and up to 4 mg. daily in adults. It causes a general depression of bone-marrow function and has toxic effects at therapeutic dosage which seriously limit its usefulness. It can be given by intramuscular injection, but is equally effective by mouth. In the case reported below none was available for oral administration.

Case Report

An obese man aged 30, who was subject to spasmodic bronchitis severe enough to warrant grading C2 in the Army, presented with a six-weeks history of furunculosis and stomatitis. For six months he had been listless and unduly fatigued. The stomatitis consisted of a boggy hypertrophy of the gums and hard palate. There was no bleeding, but the mouth was very painful. Neither spleen, liver, nor lymph glands could be felt to be enlarged. There was an irregular fever; the patient was anaemic, and Hess's test for capillary fragility was positive. A blood count showed: white cells 32,400 per c.mm. (monocytes

62%, lymphocytes 28%, polymorphs 10%); red cells, 2,700,000 per c.mm.; Hb, 48%. Sternal marrow puncture showed 73% of the cells to be monocytes or precursors, with numerous primitive cells. A diagnosis of Schilling-type monocytic leukaemia of subacute nature was made. The marrow counts are shown in the accompanying table.

Table Showing Marrow Counts

	Day		
	3rd	44th	62nd
Neutrophil myelocyte	5%	28%	35%
Eosinophil myelocyte			3%
Neutrophil polymorph	6%	20%	11%
Eosinophil polymorph			1%
Monocytes and precursors	73%	19%	29%
Lymphocytes	12%	9%	5%
Nucleated red cells	2%	23%	11%
"*Blasts*"	2%	1%	4%
Plasma cells	—	—	1%

Treatment was begun with fresh blood transfusions and penicillin, which improved the local sepsis and general condition. Aminopterin was first given on the thirteenth day, and an immediate improvement occurred in the peripheral blood count (see Chart). The platelets were only 37,000 per c.mm. at first, but this level was well maintained throughout treatment. There

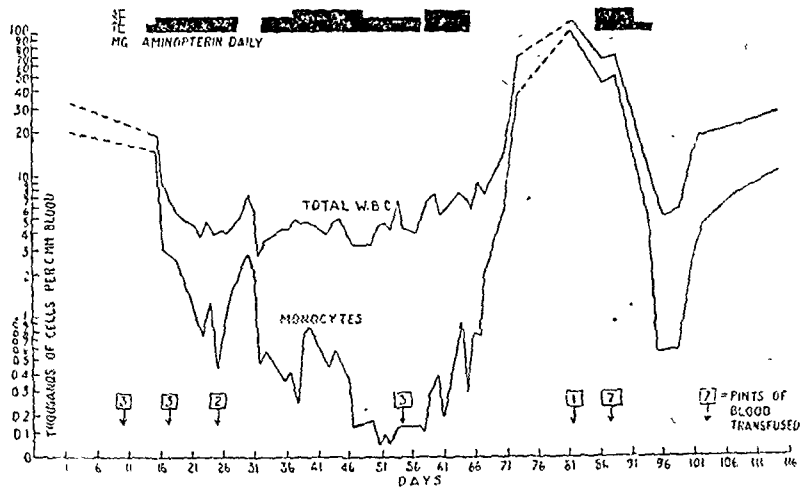


Chart showing progress of case.

was one brief intermission due to a respiratory infection, but apart from this the remission progressed until the blood picture was normal. A second sternal puncture showed a great improvement in the balance between the cells and considerable maturation.

Thirty-two days after starting treatment, when 64 mg. of aminopterin had been given, the toxic effects of the drug became manifest. Stomatitis due to painful shallow ulceration of the gums, spreading on to the lips, became steadily worse until treatment had to be stopped. A total of 109 mg. had then been given. The stomatitis rapidly healed on ceasing treatment.

A slow tendency to relapse was manifested in the peripheral blood picture even before treatment was stopped, but afterwards a rapid multiplication of the leucocytes occurred, the pathologist remarking that the blood resembled a marrow smear in the number of primitive cells involved. Between the 71st and 80th days the patient was at home, but on return to hospital the blood was found to contain 125,000 white cells per c.mm. (77% monocytes and 5% promonocytes)—a picture far more mature than during the rapid multiplication period after the aminopterin was stopped.

A second course of the drug was given, with blood transfusion; this led to a second and more dramatic remission, but the toxic effects of the aminopterin recurred almost immediately and the treatment was again stopped. Toxicity on this occasion also involved colicky abdominal pain, diarrhoea, and ulceration of the rectum. On the 103rd day, when the blood picture had again become grossly leukaemic, the patient was given a massive transfusion without aminopterin; but no improvement occurred, showing that transfusions were probably not the cause of the remissions. It was intended to follow this by a course of aminopterin without blood, but on the 113th day the patient died suddenly, almost certainly from a pulmonary embolism from a site of transfusion in the leg, although he was ambulatory up to the last. Only a limited post-mortem examination was permitted, so that it was not possible to confirm the immediate cause of death.

Comment

This case is of interest, as Dameshek (1949) was unable to produce remissions in three cases of monocytic leukaemia treated by him with folic acid antagonists, though myeloid and lymphoblastic cases responded. The readiness with which a return to maturity may be induced in the leukaemic cell with aminopterin serves to remind one that the leukaemic states are in the borderland between neoplastic and infective disease.

Leukaemic cells differ from cancer cells in that they do not show the phenomenon of aerobic glycolysis (Kempner, 1939); also they mature within 14 days when cultured *in vitro* (Israëls, 1940), whereas cancer cells multiply unchanged indefinitely. Mouse and fowl leukaemias are readily transmissible, but there is reason for suspecting that these results may be inapplicable to human leukaemia, since the disease has never successfully been transmitted in mammals other than rodents. The demonstration of marrow-stimulating substances in large quantities in the urine and faeces of leukaemic patients (Miller and Turner, 1943) suggests that the basic error in leukaemia may lie not in the leukaemic cell but in its environment. The ultimate cause of this change is unknown, and on that point it is difficult even to conjecture. But this concept provides a far more fruitful line of possible therapy, since, if the environment can be altered, useful remissions should be obtainable. Perhaps aminopterin may represent this form of approach to the problem: its effectiveness in such small quantities suggests that it may be acting on a fundamental mechanism. The efforts to obtain more effective and less toxic drugs of this nature which are now in progress are therefore amply justified.

Summary

A case of monocytic leukaemia in a man aged 30 is described in which remissions followed the administration of aminopterin. The peripheral blood count returned entirely to normal after five weeks, but owing to toxicity the drug had to be withdrawn after 109 mg. had been given, and a rapid relapse followed. A further remission was obtained by a second, shorter, course. The patient died on the 113th day from pulmonary embolus. Some aspects of this form of therapy are discussed.

My thanks are due to Dr. N. G. Hulbert, who had the patient under his care, for permission to publish this case and for his encouragement. Acknowledgments are also due to Dr. S. J. Hopkins, who was responsible for the blood counts, and to Dr. R. B. Scott and Sir Lionel E. H. Whitby, who confirmed the diagnosis; also to Professor Haddow, of the Royal Cancer Hospital, for his kindness in supplying the drug, which was manufactured by Lederle Laboratories.

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ISOLATED UNILATERAL SPINAL ACCESSORY NERVE PALSY OF OBSCURE ORIGIN

A REPORT OF THREE CASES

BY

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Injury to the spinal accessory nerve during operation for block dissection of cervical glands is probably the commonest cause of unilateral paralysis of the sternomastoid muscle. In the neck the nerve may be injured by direct compression from enlarged glands and from tumours or abscesses, and of course it may be damaged in penetrating wounds. Within the skull, in the posterior fossa, it may be involved in tumour, abscess, or aneurysm formation. Occasionally a syphilitic process within the skull may implicate the nerve as it runs from the foramen magnum to the jugular foramen. Within the spinal cord or medulla the cells of origin of this exclusively motor nerve are not infrequently involved in degenerative processes such as motor neurone disease and syringomyelia. The same cells are also liable to destruction by the virus of anterior poliomyelitis.

The sternomastoid and trapezius muscles often undergo atrophy in the muscular dystrophies and especially in the affection called myotonia atrophica.

During the past five years I have encountered three patients in whom the sole lesion was an isolated spinal accessory nerve palsy. Weakness and wasting of the sternomastoid muscle and of the upper fibres of the trapezius on the same side were the only abnormalities.

Case 1

A soldier aged 25, serving in the Middle East, was referred to hospital as a possible case of "shoulder-girdle neuritis" (Spillane, 1943). He had always enjoyed good health, but for a year past had been troubled with an aching pain about the right shoulder. This was never acute and did not involve the arm. It was ill defined and dull in character, nearly always following prolonged exercise. He had noticed that his neck was asymmetrical.



FIG. 1.—Case 1. Wasting of sternomastoid muscle and upper fibres of trapezius on right side. Tilt of head to right suggests that the lesion is of long standing.

There was considerable wasting and weakness of the sternomastoid and upper part of the trapezius on the right side. The right shoulder had dropped (Fig. 1). The nervous system was otherwise normal. *X*-ray examination of the skull base and cervical vertebrae revealed no abnormality. The C.S.F. was normal, and the Wassermann reaction in the blood and C.S.F. was negative.

During his stay in hospital repeated questioning and examination disclosed nothing to suggest that the problem was one of early myotonia atrophica.

Case 2

A soldier aged 31, serving in the Middle East, was similarly referred to hospital because of pain about the neck and right shoulder and obvious asymmetry. His past clinical history revealed nothing of note, and there were no other complaints. He said his right shoulder had not "felt right" for some years, but he had never had any acute pain and his right arm was normal.

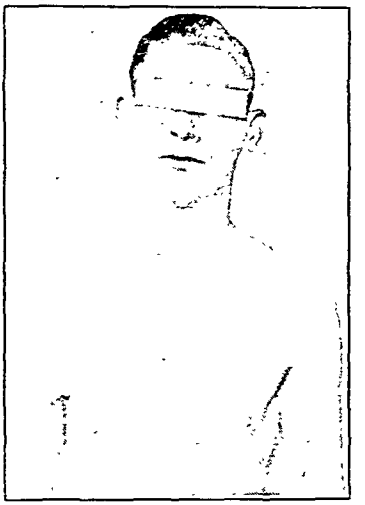


FIG. 2.—Case 2. Wasting of sternomastoid muscle and upper fibres of trapezius on right side. Considerable dropping of right shoulder.

The right sternomastoid muscle was apparently absent. There was considerable weakness and wasting of the upper fibres of the trapezius muscle on the same side, so that the right shoulder had dropped considerably (Fig. 2). There was no other abnormality in the nervous or the muscular system. *X*-ray plates, as in Case 1, showed nothing abnormal. Serological studies were negative.

The patient was detained in hospital, but no clue to the nature of the condition was forthcoming. His family history contained nothing relevant.

Case 3

A married housewife aged 30 who had never left this country was referred to me in 1946 because she complained that "there was something wrong with my neck." She was an intelligent and healthy young woman and said that at the age of 24 she had had acute pain on the left side of her neck. It prevented her sleeping and persisted for about one month. She consulted her doctor; he found local tenderness and believed that it was some form of fibrositis. During that month, however, she also had another symptom. This consisted of periodic tic-like movements of the head on the neck. Many times a day, for a few moments at a time, her head would tilt quickly, quite involuntarily, to the left. The whole condition seemed to have subsided spontaneously.

For several years she had forgotten the affair until her husband noticed some asymmetry about her neck when she wore an evening dress. That was in 1943 or 1944. In 1945 she either became self-conscious about it or the asymmetry was more noticeable, for she consulted a doctor. She had also found that certain movements were difficult from some positions. If she lay on her right side in bed and wished to raise her head she experienced particular difficulty.

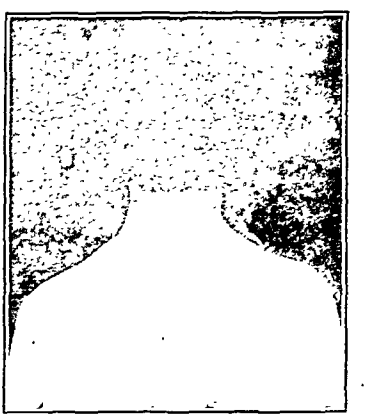


FIG. 3.—Case 3. Wasting of sternomastoid muscle and upper fibres of trapezius on left side.

She sometimes slept without a pillow, and then had some difficulty in raising the head. These symptoms, she stressed, were slight.

On several examinations the only abnormalities to be detected were identical with those found in Cases 1 and 2 (Fig. 3). The sternomastoid muscle and the upper fibres of the trapezius on the left side were noticeably weak and wasted. The nervous and muscular systems were otherwise normal. Faradic responses were not elicited from the left sternomastoid; only weak contractions were obtained from the upper part of the trapezius. Radiographs of the cervical spine and skull were normal. The blood Wassermann reaction was negative.

During the past two years she has been under my observation and no further signs have developed. Her condition is apparently stationary. Two brothers have been examined, and they present no abnormality. Both parents are dead and neither had any disability to suggest myotonia atrophica. She has inquired of cousins and other relatives, with negative results.

Aetiology

In each case all the known causes for such a lesion were considered, but the aetiology remains obscure. In the first two cases the story did not conform to the very characteristic sequence of events in the affection of neuritis of the shoulder girdle. Sternomastoid atrophy has not been recorded in that condition (Spillane, 1943; Parsonage and Aldren Turner, 1948).

The selective nature of the wasting strongly suggests that the lesion is neuritic and not muscular. There was no other abnormality; on careful examination neighbouring muscles were found to be normal.

If the nerve lesion is in the nature of a "neuritis" its causation remains unknown. Cervical adenitis would be unlikely to result in such severe atrophy. Surgeons have often commented on the manner in which the spinal accessory nerve escapes injury in suppurative conditions of the neck. Like the facial nerve the spinal accessory nerve is purely motor in function, but it does not emerge from the skull through a small foramen alone as does the former nerve. It enters the neck accompanied by the jugular vein and by the ninth and tenth cranial nerves through a relatively ample aperture. A lesion at this point would also be likely to involve these nerves.

Poliomyelitis is often suggested, especially in orthopaedic clinics, when the problem arises of explaining an isolated paralysis of one or more muscles. But in this series of cases there is certainly no positive evidence in that direction. From the accounts given by the patients the likelihood of congenital deficiency of the sternomastoid muscle is very remote.

Bilateral atrophy of the sternomastoid muscles is, of course, a usual finding in myotonia atrophica. But the other features of this disease—myotonia, general weakness, diffuse muscular pains, baldness, testicular atrophy, cataract, absent deep reflexes, and reduced vibration sense in the lower limbs—were entirely wanting. Maas (1937), however, has noticed unilateral wasting of one sternomastoid muscle in apparently healthy relatives of patients afflicted with this heredofamilial malady. One of his published photographs is very similar to that of Case 2. I have been interested in the condition of myotonia atrophica for some years, and inquiry and examination in the present series were conducted with this condition in mind. No evidence of the disorder was present—if one excludes the atrophy of the muscle fibres supplied by the spinal accessory nerve. In Case 3 it was also found that the electrocardiogram was normal. This may be of interest in view of the recent evidence that low-voltage P waves, prolongation of the P-R interval, and slurring of the QRS complex have been noted in myotonia atrophica (Evans, 1944; Heard and Spillane, in the press).

One may ask whether these cases are examples of the same disease. Although there is no definite proof, it is tempting to assume that they are. The only clue to causation lies in the story of Case 3. She had acute pain in the left side of the neck six years previously and for a time was troubled with spasmodic contractions of the left sternomastoid muscle. The affected area was tender and her doctor diagnosed "fibrositis." This sequence of events was followed by wasting of the muscle. It seems, therefore, that originally there was an irritative lesion of the spinal accessory nerve on that side.

A search of the literature has not disclosed any reports of such a condition, but isolated unilateral hypoglossal-nerve paralysis has been described. The lesion was thought to be due to a periostitis of the anterior condyloid foramen analogous to the lesion of the stylomastoid foramen which may be responsible for Bell's palsy (Goldenberg and Sandler, 1931).

Summary

Three cases are reported in which there was isolated wasting and weakness of one sternomastoid muscle and the upper fibres of the trapezius muscle on the same side.

The cause is not known, but it is probable that the lesion was in the spinal accessory nerve.

The lesion may be similar to that in Bell's palsy.

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A CASE OF DIAPHRAGMATIC HERNIA OF CONGENITAL ORIGIN WITH PERFORATION OF STOMACH

BY

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AND

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The following account of a complete right-sided thoracic stomach with a perforated pyloric ulcer is of interest because of (1) the extreme rarity of such a condition—we have found no other recorded case of a similar character; (2) the absence of any previous serious disability—in fact, he was able to earn his living as a general labourer, which involved considerable physical exertion and produced no pulmonary or acute digestive disturbance; (3) the opportunity of seeing and feeling the position of the various organs at operation; and (4) the complete absence in convalescence of any symptoms of discomfort, either above or below the diaphragm.

Case History

At about midnight on Oct. 25, 1948, a man aged 29 was suddenly taken ill with acute abdominal pain, which started at the centre of the abdomen around the umbilicus. It persisted and was extremely severe. He felt sick and vomited once before his admission to Newark Town and District Hospital.

Four years previously he had had "gastric trouble"—pain and fullness in the epigastrium about half an hour to one hour after food, followed by vomiting, which brought relief

immediately. His own doctor treated him by diet and alkalis, and the condition subsided after three weeks. Since then he occasionally had a mild recurrence of his epigastric pain for which he did not attend his doctor; he had not adhered to the diet prescribed. He had had no pain before the onset of his present illness. For the last five years he has been having mild attacks of "asthma," which were worse on the hot days of summer. The attacks did not prevent him from doing his work, and he has not received treatment for them.

On examination the temperature was 97.4° F. (36.3° C.), pulse 88, and respirations 26. He was well nourished. He seemed to be in pain but not shocked, and was rather excited. His tongue was moist and slightly coated. General abdominal rigidity was present, but no real tenderness; there was no reduction in liver dullness or any rebound phenomenon. No tenderness was felt per rectum. Respirations were mainly thoracic and wheezy in character. There was slight dullness at the right base posteriorly on percussion, and breath sounds were wheezy all over the chest. The pulse was regular and of good volume. The heart was not enlarged and there were no murmurs. The blood pressure was 130/84. No appreciable disease was found in the central nervous system.

Perforated gastric ulcer was suspected, and in view of the normal temperature and pulse and the patient's general condition it was decided to treat him conservatively under observation. A kaolin poultice was applied to his abdomen and he was put in Fowler's position. A half-hourly pulse chart was kept. At 5 a.m. the temperature was 99.8° F (37.7° C.), pulse 90, and respirations 24. At 7.30 a.m. the temperature was 100.6° F. (38.1° C.). pulse 112, and respirations 24. The pulse chart showed a rise from 90 to 112 between 5 and 7.30 a.m.

He was re-examined at 7.30 a.m. and his abdomen was found to be still rigid, with generalized tenderness and rebound phenomenon, and in view of his rising pulse and temperature laparotomy was decided upon.

Operation.—At 9 a.m., under anaesthesia induced by thiopentone followed by gas and oxygen and ether, a supra-umbilical paramedian incision was made and free fluid was found on opening the peritoneal cavity. On exploration the stomach was found to be entirely in the right thoracic cavity. It was in a complete peritoneal sac. There was a small hole under the liver in the right side of the crus of the diaphragm. This opening was a definite rounded orifice admitting three or four fingers. Through it, it was possible to trace the duodenum and pylorus. With peritoneal forceps passed through the opening the stomach could be grasped and pulled slightly downwards, but it could not be drawn through the aperture. A small perforation was identified by tracks of lymph and effusion, and it was closed by passing a needle on a holder through the aperture and making a purse-string suture, covering it with an omental graft from the greater curvature omentum. The liver was very prominent in the wound and seemed to be displaced downwards. It had to be retracted upwards to expose the gap in the diaphragm. When this was done there was a clear view of the opening, which was situated in the right crus of the diaphragm behind the liver and to the right of the vertebral column. A drainage tube was inserted through a separate suprapubic stab wound and the abdomen was then closed in layers.

The patient stood the operation quite well, and was in fair condition when taken from the theatre. Immediately on his return to the ward 5% glucose-saline intravenously was started. The 5% glucose saline was given intravenously for the first 48 hours. A Ryle's tube was passed and the stomach aspirated every two hours. Then he was given glucose water and citrated milk by mouth. This was gradually increased until at the end of the first week he was put on the first week of Sippy's diet. He tolerated his feeds well, and Meulengracht's diet was given at the middle of his second week. His temperature and pulse were raised for the first week; this was ascribed to pulmonary complications after anaesthesia. It subsided after treatment with penicillin injections and inhalations. His temperature and pulse have been normal since that time.

On Nov. 16 a screening examination and a series of skiagrams showed a complete thoracic stomach on the right side of the thorax and confirmed that the stomach is above the diaphragm and is lying centrally between the anterior and posterior walls of the chest. It is in a complete peritoneal sac, separated from the pleural cavity by omental tissue, peritoneum, and the basal pleura. Screen examination showed full movement of the left diaphragm and slight movement of the right diaphragm. The stomach, the greater curvature of which is uppermost, appears to empty from the right side. The duodenum passes across and behind the base of the stomach to empty through the aperture in the medial side of the right diaphragm. A film taken on Nov. 17 showed the colon displaced to the left side. This is probably due to the downward displacement of the liver.

By the sixth week he was convalescent and was able to take light diet without any discomfort or digestive trouble. He looks and feels extremely well and has returned home.

Comment

This is a case of complete thoracic stomach with a short oesophagus of congenital origin, hence the failure of the attempt to draw the stomach through the opening in the diaphragm at operation and the absence of a sliding stomach at the radiological examination under the screen when in the vertical position, which may occur in some cases.

It is completely enclosed in a peritoneal sac separating it from the pleural cavity. Unfortunately at operation it was not possible to feel the junction of the oesophagus with the stomach, so we cannot say whether the peritoneum was



Radiograph showing stomach on right side of thorax above the diaphragm. The greater curvature is uppermost. Barium is in the oesophagus.

reflected on to the stomach before it reached the cardiac orifice or whether it enclosed the cardiac end of the oesophagus.

As a result of the complete peritoneal sac there was no infection of the pleural cavity from the peritonitis after operation.

The stomach is completely rotated, with the greater curvature uppermost, and the oesophagus curves underneath the cardiac end of the greater curvature to reach the cardiac orifice. There is no stricture or hour-glass contraction, as it is a completely thoracic organ and no portion is nipped by the diaphragm, hence the absence of gastric fullness and distension.

We wish to express our thanks to Sir Thomas Dunhill for his interest in the case, for his great kindness in corresponding with us about it, and also for his account of the condition in the Arris and Gale Lecture delivered by him to the Royal College of Surgeons in 1934, from which we have derived much information. We are also indebted to Dr. F. M. Gordon and Mr. R. J. Walls, M.S.R., for the radiography.

Medical Memoranda

Traumatic Perforation of the Bladder

An unusual case of traumatic rupture of the bladder in a man suffering from schistosomiasis in South Central Africa is described below.

CASE HISTORY

A male African, judged to be about 65–70 years of age, was brought in dead to the Gwelo Native Hospital on July 2, 1948. The relatives stated that the man had died at his kraal the previous afternoon. Four days before his death, while coming out of a native hut, he had collided with another native who was entering, and the latter's head had struck the old man in the abdomen. During the four days before his death he had complained of abdominal pain and had vomited once or twice. The other natives had not brought him to hospital.

Post-mortem Examination.—At 10 a.m. on July 3 a post-mortem examination was carried out. As it was the cold season and rigor mortis was beginning to pass off, it was estimated that he had died 36 to 48 hours previously. There was no bruising of the abdomen or any other sign of injury. The presence of some vomitus in the mouth was noted. On opening the abdomen the peritoneal sac was seen to be full of a dark-brown fluid which smelt like urine. There were flakes of pus covering the coils of the small intestine, and several loops of these were adherent. The stomach, spleen, liver, gall-bladder, and small and large intestines were removed, and apart from distension and inflammation of the bowel no abnormality was detected. Examination of the bladder *in situ* revealed a hole in the fundus about the size of a sixpence. The bladder was empty. The edges of the hole were ulcerated and sloughing. The bladder was carefully removed and opened. The prostate (median lobe) was seen to be much enlarged, and the mucosa of the bladder had the granular appearance and ulcerated areas seen in extensive schistosomiasis. The kidneys and ureters were removed, but they showed no naked-eye pathology.

Histology.—A snipping of mucosa close to the hole in the bladder was examined microscopically by teasing out the preparation in water on a slide. The mucosa was seen to be packed with terminal-spined ova (*Schistosoma haematobium*). Section of a portion of the ulcerated edge of the vesical perforation showed the presence of *S. haematobium* ova in large numbers in the mucosal layer and some leucocytic infiltration of the deeper muscular layers.

COMMENT

From the above findings it was concluded that in the presence of a distended bladder, presumably in part due to the enlarged prostate gland, the blow on the abdomen had caused rupture to take place through the most advanced area of schistosomal destruction. The resulting extravasation of urine caused a generalized peritonitis, ending in death from the toxaemia.

This case is described for two reasons. First, enlargement of the prostate gland is not a common condition in the Africans of Southern Rhodesia, presumably because of their death at a somewhat early age. Secondly, although the presence of schistosomal infection is extremely common in the South Central African native (Gelfand and Ross), I can find no evidence in the literature of a previous traumatic rupture of the bladder through such an area.

Although this native must have been suffering considerable pain during the four days previous to his death, he was not admitted to hospital, which was in the near vicinity of the accident. This may have been due to a disinclination of the other natives to reveal the accident, but may be an example of the remarkable stoicism of the native in the presence of severe pain. The relatives definitely stated that in the first two days of his illness the old man was working in the fields.

Grateful thanks are due to Dr. G. R. Ross, Acting Secretary for Health, Southern Rhodesia, for permission to publish this case.

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A Case of Femoral Appendicitis

A rare complication of femoral hernia occurs when its sole content is the vermiform appendix. An example of this is considered worth recording.

CASE REPORT

The patient, a woman aged 55, was seen at a gynaecological out-patient clinic on Oct. 8, 1947. Three weeks previously she had developed a feeling of heaviness at the "bottom of the stomach." Five days later she noticed a lump in the right groin, and shortly afterwards she began before micturition to feel slight pain, which persisted. Her history was otherwise negative.

On examination the internal group of superficial inguinal glands in the right groin were found to be tender and inflamed. There was slight inflammation of the urethra, and a few sub-epithelial haemorrhages were present in the vestibule. The glands were treated by local applications for a week, and on re-examination on Oct. 15 the acute infection had settled. The hard irregular lump had persisted, and the glands were slightly movable, discrete, and hard. No femoral hernia was palpable, and arrangements were made to remove a gland for biopsy.

On Oct. 17 the patient was operated on under local analgesia. Dissection revealed a lobulated fatty mass with two normal lymphatic glands perched on its surface: the mass extended towards the femoral ring. The sac was opened and was found to contain turbid fluid surrounding a purple pre-gangrenous vermiform appendix. The appendix was removed and the stump allowed to retract into the abdomen. The inguinal canal was then opened, and the femoral sac was transposed above the inguinal ligament, where it was excised. One stitch between inguinal ligament and pectineus fascia was adequate for the repair of the small femoral ring. Closure of the aponeurosis and skin was then effected without drainage.

No pathological examination was considered necessary either for the glands, which were macroscopically normal, or for the appendix. Convalescence was uneventful.

DISCUSSION

In 1731 De Garengot recorded the first operation for hernial appendicitis, and in 1785 Hevin gave the first detailed description of operation for femoral appendicitis. Ryan (1937) published three cases of femoral appendicitis, Watson (1938) collected 217 cases, two cases were recorded by Seley (1941) and one by Knapp and Claps (1944), bringing the total number of published cases of this condition to 223.

The most unusual case recorded is that of Johnstone (1934). In his case auto-appendicectomy occurred, and was followed by survival of the separated appendix owing to the acquisition of a new blood supply from the wall of the hernial sac.

Battle (1899) has recorded a case of appendicitis in a femoral hernia associated with inflammation of the overlying glands, and this is the only case found in the literature similar to the present one.

The sustaining interest of femoral appendicitis would seem to be, first, that it is so rarely diagnosed pre-operatively, and, secondly, the difficulty in making a precise

diagnosis even when the possibility of its occurrence has been remembered. Taking the present case as an example, the data on which an accurate diagnosis could be based were quite inadequate: it was not even possible to be sure that a femoral hernia coexisted with the inguinal glands. Furthermore, even when a hernia is obvious, the differential diagnosis of femoral appendicitis is most difficult. One must exclude omental hernia, partial enterocele, adenitis, strangulated epiploic appendix, prehernial lipoma, intestinal diverticula in hernia, and reducible and irreducible hernia of the intestine, bladder, and other viscera. It seems obvious that in most instances this condition is destined to remain an accidental finding during herniotomy.

I am indebted to Dr. C. E. B. Rickards, honorary gynaecologist, Warrington Infirmary, for permission to publish this case.

J. STUART YOUNG, M.D., F.R.C.S.Ed.

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An Interesting Case of Epilepsy

The following case is worth reporting because of several unusual features. It also emphasizes one of the pitfalls of psychiatric practice and closely links up neurology and psychiatry.

CASE HISTORY

A male aged 30 was transferred to us from a hospital in the Midlands where he had been suffering from partial aphonia, difficulty in swallowing, and attacks of partial unconsciousness for several months.

History of Present Illness.—His first fit occurred at the age of 17, while he was at his fiancée's house. There was no recurrence until soon after marriage, at the age of 21. During these attacks he threw his arms and legs about, and after a severe attack found it difficult to walk. After being turned down by several medical boards he was finally accepted by the Army, but about three weeks later, while waiting to go overseas, he had one of his fits. On account of this he was invalided out.

He continued to have four or more fits daily for several months after his discharge. Gradually the fits became less frequent and their nature changed to what the patient's relatives described as "blackouts," in which his head suddenly dropped on his right shoulder, he appeared to lose consciousness for about two minutes, and then suddenly recovered. During these attacks he bit his tongue if no precautions were taken. In neither these "blackouts" nor the fits was he ever incontinent.

Early in 1947 he developed a progressive impediment in his speech and had difficulty in swallowing both liquids and solids. This led to his admission to the Midlands hospital, where, after some months' treatment, a psychiatrist was consulted. He came to the conclusion that the patient's condition was "in many ways a regression to infantile behaviour. It would appear that the epileptic element in his condition has receded and been largely replaced by hysterical regression." On account of the frequent fits the patient had been unable to work for four years. There was no history of epilepsy in his family and nothing significant in his early medical history.

Condition on Admission.—A well-nourished young man. Because of tonic spasm of the masseters the patient could not open his mouth wide and could only lisp like a child. There was continuous dribbling of saliva owing to difficulty in swallowing. There were no other physical signs.

Investigations.—Wassermann negative. Total R.B.C. 5 million, Hb 100%, C.I.=0.9.

Progress.—While under observation in the ward he had several fits, both when awake and when asleep. Fits could also be easily induced by hypnotic suggestion, and clinically there was no difference between spontaneous and induced fits. Each fit began with the typical epileptic cry, followed by tonic contraction of facial muscles and loss of consciousness for one to two minutes. At the same time the head dropped to the right side. During the attack the plantar reflex was extensor on both sides. Cyanosis of the face varied—sometimes it was marked, at other times it was slight or absent. During a demonstration it was possible to induce by post-hypnotic suggestion a series of these fits in rapid succession when the patient was standing but supported on either side. There was difficulty in obtaining the E.E.G. record owing to the number of fits, the tracing being "grossly abnormal; high amplitude slow rhythms between attacks, definite evidence of epilepsy." Next day he had fits almost every 10 minutes—a total of about 132 fits in 24 hours—although he was receiving phenobarbitone gr. 1 (65 mg.) t.d.s., and epanutin (soluble phenytoin) gr. 1½ (0.1 g.) b.d. Although lucid in the intervals, he was unable to open his mouth; the muscles of his neck and nasopharynx also appeared to be in spasm, as it was difficult to pass a feeding-tube. In order to control the fits he was given paraldehyde dr. 8 (28 ml.) per rectum, but he rejected a good deal of this. However, phenobarbitone sodium, 1 ml. intramuscularly, and "amytal," gr. 3¾ (0.25 g.) intravenously, caused sufficient relaxation of the pharyngo-oesophageal muscles to enable him to swallow. He was then given phenobarbitone gr. 2 (0.13 g.) t.d.s. and epanutin gr. 3 (0.2 g.) b.d., which reduced the fits to 23 in 24 hours. In spite of these large doses of phenobarbitone and epanutin he had 17 fits next day. He was then seen by a neurologist, who considered there was an approximation to status epilepticus. During the next 24 hours the patient had only seven fits, although there was considerable tonic spasm of the jaw muscles. Next day (26th day after admission) he had no fits, but the dribbling continued. The E.E.G. showed "great abnormality of the cortical rhythms from all areas of the head, possibly more so on the left side. Diffuse 3 c/s and 5/6 c/s rhythm. little alpha rhythm seen; 3 c/s rhythms often occurring in bursts of high amplitude. Blocking by visual stimuli poor." From that day he had no spontaneous fits and suggestion failed to induce them (although there was no change in his domestic circumstances). The increased salivation, however, did not respond to any treatment and persisted for several days. An E.E.G. performed just before his discharge from hospital showed: "Generalized abnormality of 5–6 c/s rhythms. Still some 3 c/s rhythms present, but not having the high amplitude of the previous recordings. Some alpha rhythm seen of 8 c/s, blocked by visual stimuli. No single focus of abnormality seen. Record greatly improved." On discharge from hospital he was able to start work, and was later reported to be still employed.

DISCUSSION

There is no doubt that this was a genuine case of epilepsy involving specially the face and the pharyngo-oesophageal region. Psychogenic causes were apparently sufficient to initiate the attacks, thus lending support to the concept of hystero-epilepsy. Fits which were clinically indistinguishable from epileptic attacks could also be induced by hypnotic suggestion, though they could not be controlled by suggestion. The E.E.G. records showed that the induced fits were identical with epileptic fits. The reponse to phenobarbitone and epanutin was also significant.

SUMMARY

A case of epilepsy involving the face and pharyngo-oesophageal region is described. The fits were initiated by psychogenic causes.

Thanks are due to the medical superintendent for permission to publish the case-notes.

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Reviews

VIRUS DISEASES OF MAN

Viral and Rickettsial Infections of Man. Edited by Thomas M. Rivers, M.D. (Pp. 587; 77 illustrations, including 6 plates in colour. 45s.) Philadelphia and London: J. B. Lippincott Company.

It is nearly fifty years since a virus was first demonstrated as the cause of a human disease, yellow fever. During these fifty years, and especially during the last two decades, a vast amount of knowledge has been acquired, and to-day there fall to be discussed in this work no fewer than fifty-four virus infections to which man is susceptible. Even then, two diseases are omitted: the recently described but somewhat unfortunately named "Mengo encephalitis" (Mengo is a place name and has nothing to do with the meninges), and Durand's disease, which was found in Tunis in the early days of the war. The latter undoubtedly deserves mention.

Within the past few years there has been a stabilization of our knowledge and ideas of virus and rickettsial infections, and it is opportune that these advances should be collected and made easily accessible to all those interested, whether or not they are actively engaged in the study of virus and rickettsial infections. As it would obviously be impossible for one person to write authoritatively on all these diseases and their causal agents, Dr. T. M. Rivers, the editor of this co-operative venture, has been assisted by twenty-seven collaborators, comprising all the best-known virus and rickettsial workers in America. After a short introduction on the general aspects of viral and rickettsial infections by the editor, there are chapters on physical and chemical procedures by W. M. Stanley and M. A. Lauffer, serological reactions by J. E. Smadel, chick embryo techniques by E. W. Goodpasture and G. J. Buddingh, tissue culture procedures by J. F. Enders, and epidemiology by K. F. Maxcy. The inclusion of a chapter on bacteriophages is of value but requires explanation, for bacteriophages never give rise to human infections. In one or two places in these introductory chapters there is a somewhat uneven distribution of emphasis. Variation in viruses is dismissed in less than half a page, but four times this space is given to the question of variation in bacteriophages. The same criticism may be urged against the space allotted to the interference phenomenon as applied to bacteriophages and to other viruses. Bruce White's original description of the interference phenomenon in bacteriophages is unmentioned.

Each virus and rickettsial disease is described under the following heads: definition, history, clinical picture, pathology, aetiology, diagnosis, treatment, and epidemiology. In the majority of cases the articles are excellent, and are written by those who have actually contributed to our knowledge of the particular infection they describe. The book thus represents a vast storehouse of facts up to 1946, and it should undoubtedly be read and digested by laboratory workers, clinicians, and epidemiologists alike. If any criticism is possible it is that American workers have failed to appreciate fully work carried out on viruses in Europe before and during the war. In the chapter on the hepatitis viruses, for instance, it would be difficult to deduce that their nature was well appreciated before 1940. There are, however, other than purely medical reasons for glossing over some of these facts.

The book is beautifully produced and well illustrated. An excellent coloured plate by Leon Schlossberg shows the reactions to vaccinia vaccination in both white and coloured persons. These illustrations will be intensively studied, though some of the other coloured plates are less successful. Adequate author and subject indexes are provided. A work of this type has obviously cost much to produce, and it is only through a grant from the National Foundation for Infantile Paralysis, Inc., that its publication has been possible. Virus workers in dollar-starved countries owe a further debt to the National Foundation for Infantile Paralysis in that it has made copies freely available to them. In 1783 Dr. Benjamin Rush wrote to Dr. John Lettsom in London to thank him for sending medical books from England. "I have feasted on each of your pamphlets," he said. "It is an act of Charity to pour upon a benighted American the discoveries of the last eight years in Europe." One hundred and fifty-six years later America has fully repaid her debt.

G. M. FINDLAY.

MYCOLOGY

Mycoses and Practical Mycology. By N. Gohar, M.R.C.S., L.R.C.P. With foreword by Sir Philip Manson-Bahr. (Pp. 234; 4 colour plates and 134 other illustrations. £1 5s.) London: Baillière, Tindall and Cox. 1948.

In his foreword to this work Sir Philip Manson-Bahr truly describes mycology as the Cinderella of modern medicine. Dr. Gohar is to be congratulated for having had the courage to attempt so comprehensive a task as preparing this book, and has succeeded in presenting a balanced picture of the whole range of medical mycology in a small and compact volume. The major mycological diseases as they affect the patient as a whole, and the more important affections of the separate systems, particularly of the respiratory and digestive tracts and the skin, are briefly but clearly described. The difficult problems of mycology, the morphological and cultural details, and terminology are discussed adequately but in simple and lucid style. The approach is modest, the presentation is capable of easy interpretation, and Dr. Gohar is fortunate in having the ability to incorporate the mycological studies as part of the whole clinical problem of diagnosis and treatment. There is a brief but interesting historical introduction to many of the major subjects which adds to the pleasure to be derived from reading this work.

The book is pleasingly produced, paper and typescript are good, and illustrations are plentiful and helpful. There are very few errors in the text, and the author has an attractive style.

The volume is particularly valuable to the dermatologist, and the section describing the dermatomycoses is admirably presented. It is not possible to satisfy all authorities in such a difficult and contentious subject, and if criticisms are offered it is only that they may be considered in preparing further editions of this book, which will certainly be expected as mycology receives more adequate recognition. The chapter on epidermophytosis is good except for the section on treatment, which is inadequate and makes no reference to the value of modern fungicides. In other parts the clinical descriptions and differential diagnosis could be elaborated with advantage. More comment upon modern fungicides and bases would have been interesting. Treatment in recent years has advanced rapidly, and this is not always reflected in the text. There is a tendency to indicate past and present therapeutic measures in rather colourless fashion, without emphasis or indication of their relative values. In the description of actinomycosis and erysipeloid infections the reader would not suspect from the text that penicillin has revolutionized treatment in these fields.

The section on diagnosis and treatment of ringworm infection of the nails could be improved, and Dr. Gohar is unduly pessimistic. The paragraph devoted to "phytid" reactions is too brief and inadequate. A kerion ringworm lesion is a pustular reaction to the ringworm fungus itself and not a secondary pyogenic infection superimposed upon the fungus, as suggested. In the paragraphs on black hairy tongue there is no reference to its occurrence as a sequel to sucking penicillin lozenges. The chapter on fungicides is incomplete and has no mention of the dyes, of dithranol, or of the modern fatty-acid preparations.

But these are small points relative to the value of the work as a whole. It promises to become a valuable textbook on this subject, of great help to the student and practitioner in every branch of medicine, but it will be particularly well received by the student of dermatology. It is surprising that this field has been so sadly neglected by the laboratory and research worker, and it is to be hoped that this book may

stimulate others with the necessary training to pursue further the investigation and research which are so necessary in medical mycology.

J. T. INGRAM.

ADVANCES IN OPHTHALMOLOGY

Documenta Ophthalmologica. Edited by F. P. Fischer, A. J. Schaeffer, and Arnold Sorsby. Vol. 2. (Pp. 462; illustrated. No price.) *Holland*: W. Junk. 1948.

The second volume of this series (which periodically summarizes recent advances in ophthalmology) contains seven articles of more than usual interest. A study on physiological optics by A. von Tschermak deals with several problems. The first describes a "contrastometer" to demonstrate the compensating reaction on simultaneous contrast in the retina of frogs, the illumination of which can be varied by polarization. The entoptic phenomenon of Heidinger's brushes is then considered, with an interesting discussion on the effect of double polaroid spectacles in reducing the light entering the eye. The discrimination curves of photopic and scotopic vision are described in terms of wavelength and oscillation frequency, and the basis of stereoscopic vision is reviewed as it originates on retinal points in which size relations differ. It is finally shown that the coincidence of entoptic and exoptic stimuli may result in monocular diplopia.

The physiological optics of the visualization of *x*-ray pictures are discussed by W. Bronkhorst, J. Ten Doesschate, and F. P. Fischer, who bring forward some points of considerable interest which have hitherto been largely ignored by radiologists. R. Weekers and F. Roussel contribute an article on the critical frequency of fusion, particularly in its relation to pathological conditions. They point out that the physiological variations of this factor are small, while pathological anomalies produce marked disturbance. Thus, in cases of detachment of the retina the pre-operative extent of the detachment and the functional defect can be estimated with considerable accuracy. In tobacco amblyopia the critical frequency is reduced in the centro-caecal area in proportion to the degree of intoxication; in glaucoma, disturbances in the frequency are early and common, and may supplement perimetric studies.

J. Ten Doesschate and F. P. Fischer contribute an article of considerable length on the mechanical properties of the tissues of the eye, emphasis being placed on their micellar structure; the bearing of this work, which may seem academic in nature, is of importance in such conditions as detachment of the retina.

Two papers are contributed by G. Karpe, of Stockholm, the first a description of his own apparatus for recording the electro-retinogram in clinical cases, and the second the application of this relatively new method in the investigation of cases of ocular siderosis. Electro-retinography can be used to follow the course of development of siderosis, and Karpe has found that it provides information of great value when the difficult decision has to be made upon the advisability of undertaking a dangerous operation for the extraction of a foreign body which has been in the eye for some time. It is interesting that in the initial stages of this disease both the positive and negative components of the electro-retinogram are increased at a stage when the disease cannot yet be recognized by the usual clinical examination, while at a later stage the retinogram becomes negative and is finally abolished, even though the retina may function reasonably well. The potentialities of this new clinical method are therefore considerable.

The final section by L. Poleff, of Rabat, deals with recent work on trachoma. He gives a general review of the state of our knowledge of the aetiology of this disease, based on morphological studies and the results of culture experiments and of inoculations carried out in animals and man, adding a discussion on the virus and rickettsial nature of the infective agent, the significance of the Weil-Felix reaction, and questions of immunity and predisposition. The discussion is critical, and it is pointed out that many problems are yet unresolved.

The book, in which the various articles are written in German, French, and English, deals with the more scientific developments of ophthalmology, which are not readily obtained elsewhere, and is of considerable interest and value.

STEWART DUKE-ELDER.

HEART DISEASE

Cardiology. By William Evans, M.D., D.Sc., F.R.C.P. (Pp. 310; illustrated. £1 15s.) London: Butterworth and Co. 1948.

Dr. William Evans has set out very effectively, though rather dogmatically, the facts and arguments upon which the diagnosis and treatment of heart disease are based. The work is founded upon a series of lectures, from which it derives a note of personal experience; at the same time it is inevitable that it should bear some of the disadvantages of such an origin.

The merits of the work are so obvious that it is unfortunate the author has at times allowed personal views to be presented as final judgments. For example, there is no general agreement that the term "triple rhythm" should replace "gallop rhythm," and, since most cardiologists are resolved that "gallop rhythm" shall stay, the term should at least find mention in a standard textbook. We know that ordinarily there are two heart sounds, just as there are two phases of respiration; if there is a third sound it may or may not be of pathological significance. While the term "triple rhythm" might suitably denote the innocent form of this auscultatory phenomenon, it would be better to preserve for the pathological sign the descriptive and honoured term of "gallop rhythm." To speak of "the fourth heart sound" is, to say the least, confusing.

It is regrettable that Dr. Evans has given room in this book for consideration of so complex a subject as the classification of auricular tachycardia into five groups. It is true there are good reasons for believing in the identity of flutter and paroxysmal tachycardia, but these matters are far outside the range of the average student. Other criticisms of the same kind could be cited.

The author has brought together here many themes that have interested him, and the whole work makes stimulating reading for the physician or cardiologist who can weigh the statements against his own experience. But the student who has no such background will not so readily profit from this approach. No work so individual as this could be free from shortcomings, and the merits of the book far outweigh the demerits. The production is well above the average post-war standard, and the diagrams, electrocardiographs, drawings, and photographic reproductions are on the whole excellent.

K. SHIRLEY SMITH.

AETIOLOGY OF HYPERTENSION

Arterial Hypertension. By David Ayman, M.D. Reprinted from Oxford Loose-Leaf Medicine. Oxford Medical Publications. (Pp. 91. 12s. 6d.) New York and London: Oxford University Press (Geoffrey Cumberlege).

Dr. Ayman is well known for his clinical studies of hypertension, and especially for his researches into the onset and early stages of essential hypertension in the children of hypertensive parents. He takes the view (which would be shared by many authorities in this country) that there is as yet no evidence that essential hypertension in man is initially caused by any disturbance of the renal circulation. In all probability essential hypertension is a functional condition in its early stages. Persons who have inherited the tendency react to physical and emotional stimuli by large and rapid changes in their blood pressure. Organic changes in the cardiovascular system occur later, and are the result and not the cause of the high blood pressure. The author rightly stresses the degree to which these patients are under the influence of their emotions, and the fact that in the early stages the majority of their symptoms are psychogenic, frequently induced by the finding of a high blood pressure at a medical examination. The reader's instinctive approval of this sane outlook on the early hypertensive case receives a rude shock when he finds that Dr. Ayman advises his patients to take their own blood pressures frequently at home.

The great variability of blood pressures in benign essential hypertension is pointed out, and it is clearly shown that most of the claims for one treatment or another are based on cases which have been inadequately controlled. Any placebo, if prescribed with sufficient assurance, will cause significant improvement in the great majority of cases. Only two forms of therapy are known to produce a persistent lowering of blood

pressure: thiocyanate treatment, which requires careful control and which is not free from untoward effects; and sympathectomy, the results of which are still difficult to assess because most surgeons, including Smithwick, have not observed their cases long enough before operation.

Most experienced physicians will agree with Dr. Ayman's general outlook on hypertension. The book has, however, certain rather important shortcomings. The section on pathology is inadequate and of doubtful accuracy. The reader is not given a clear account of the distinctions between essential and secondary hypertension. The description of the malignant phase of hypertension is poor, and nowhere is it made plain that while renal failure practically never occurs in benign hypertension it is almost inevitable in the malignant phase. Finally, the author, like many of his American colleagues, appears to be wholly ignorant of the British literature on his subject; the only British authors to which he refers are Bright, Mahomed, and Allbutt. Although it is natural that an author should refer to the most easily available literature when he is quoting general opinion or the records of cases, it is a serious defect to be completely unaware of important and fundamental observations which have been made in other countries.

ROBERT PLATT.

MENTAL HEALTH

Mental Health. By John H. Ewen, F.R.C.P.Ed., D.P.M. With a chapter by C. Friedman, M.D.(Vienna), L.R.C.P.&S.Ed. (Pp. 270. 12s. 6d.) London: Edward Arnold.

The author sets out to write a short and practical handbook for students and practitioners, and especially for those studying for the Diploma of Mental Health. Like many handbooks, it has fallen between two stools. It is brief, clear, and well set out, with a few short illustrative cases, but it is on strictly conventional lines without any originality or fresh ideas. As such, it is doubtful if it is full enough to allow the specialist student to appreciate the various theories and experimental work on which modern psychiatry is based. For the undergraduate, who is in most cases going to be a general practitioner, the situation is different. Surely the time has now come when in psychiatry, as in everything else, the emphasis in textbooks should be changed so that the student may learn what will chiefly concern him in day-to-day practice. Certainly the practitioner should have some idea of the symptoms and prognosis of the major psychoses, but the conditions he will be faced with are the psychoneuroses, the psychosomatic diseases, and the minor deviations from the strict norm which are not really diseases at all. As in so many textbooks of psychiatry, the psychoneuroses get short shrift in only 24 pages, and practically no mention is made of their treatment except in the section on special treatments—well set out by Dr. Friedman—where narco-analysis is described, but this is not common therapy for the general practitioner. Admittedly, it would not be easy to write a really effective textbook for the general practitioner, but do we need yet another conventional handbook of psychiatry, however good it may be?

R. G. GORDON.

In the preface of his *Introduction to Medical Psychology* (pp. 171; 17s. 6d.; London: William Heinemann Medical Books, 1948) Dr. Erwin Wexberg remarks the absence of suitable textbooks on psychology for preclinical medical students. He has set out to write one, and has certainly produced an interesting and informative handbook. Nevertheless, for British students the book makes the wrong approach to the subject. The first chapter discusses from the philosophical aspect the relations of the individual with the community, and it is doubtful if the preclinical student has sufficient preliminary education to grasp a dissertation on values. The acquisition of knowledge is dealt with chiefly from the *Gestalt* viewpoint, but though this is a physiological approach it is not a very easy concept to follow. In describing the emotional side the author refers frequently to Freudian theory and terminology, which is not suitable for the undergraduate, and certainly not for the preclinical student. It would be better to teach preliminary psychology on a basis of physiology, examining the complex relationships of the individual to his fellows at the end rather than the beginning of the course, and so far as possible leaving the psycho-analytical theory until the clinical aspects of mental illness are reached. If the other approach is favoured, however, this book has the merits of brevity and clarity.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

Functional Localization in the Frontal Lobes and Cerebellum. By J. F. Fulton, O.B.E., M.D., D.Sc., LL.D.Birm. (Pp. 140. 15s.) Oxford: The Clarendon Press. 1949

Diagnosis of Viral and Rickettsial Infections. By F. L. Horsfall, jun., M.D. (Pp. 153. 21s.) London: Geoffrey Cumberlege. 1949.

Interne Praxis. By H. Dopsch and E. Kurtisch. (Pp. 741. 60s.) Vienna: Verlag Wilhelm Maudrich. 1949.

Serologische Reaktionen und Immunität bei Malaria. By H. Hormann. (Pp. 106. M. 7.50.) Stuttgart: Hippokrates-Verlag Marquardt. 1949.

Die Individuelle Reaktionsweise bei Chirurgischen Infektionsprozessen. By G. Hegemann (Pp. 126 M. 12.) Berlin: Springer. 1949.

The Magistrates Courts. By F. T. Giles, LL.B. (Pp. 222. 1s. 6d.) Penguin Books. 1949.

Microbiology and Man. By J. Birkeland, Ph.D. 2nd ed. (Pp. 525. 27s. 6d.) London: Baillière, Tindall and Cox. 1949.

Social Surveys. By D. C. Jones (Pp. 232. 7s. 6d.) London: Hutchinson's University Library. 1949.

Sociology. By W. J. H. Sprott, M.A. (Pp. 192. 7s. 6d.) London: Hutchinson's University Library. 1949

Public Health in the World Today. By J. S. Simmons. (Pp. 332. 27s. 6d.) London: Geoffrey Cumberlege. 1949.

Nursing Care of Neurosurgical Patients. By R. M. Klemme, M.D., F.I.C.S., F.A.C.S. (Pp. 117. 15s.) Oxford: Blackwell Scientific Publications. 1949.

The Retarded Child. By H. Loewy. (Pp. 52. 3s 6d.) London: Staples. 1949.

Organic Husbandry. (Pp. 160. 2s. 9d.) London: The Biotechnic Press. 1949.

Psychological Statistics. By Q McNemar. (Pp. 364. 27s.) London: Chapman and Hall. New York: Wiley. 1949.

Surgery for Nurses. By J. Kemble, Ch.M., F.R.C.S.Ed. (Pp. 348. 21s.) Bristol: John Wright. 1949.

Anatomy and Ballet. By C. Sparger. (Pp. 77. 12s. 6d.) London: Black. 1949.

Food Inspection Notes. By H Hill, F.R.San.I., F.S.I.A., A.M.I.S.E., and E. Dodsworth, M.R.San.I., M.S.I.A. 3rd ed. (Pp. 125. 7s. 6d.) London: H. K. Lewis. 1949.

The Mental Life of the Child. By G H Graber. (Pp. 158. 8s. 6d.) London: Staples Press. 1949.

Science, Servant of Man. By I. B Cohen. (Pp. 362. 15s.) London: Sigma Books. 1949.

Conference on Metabolic Aspects of Convalescence. 16th and 17th Meetings. Edited by E. C. Reifenstein, jun., M.D. (Pp. 168 and 246. No price.) New York: Josiah Macy, jun., Foundation. 1949.

Clinical Methods in Surgery. By K. Das, M.B., F.R.C.S. 2nd ed. (Pp. 255. 35s.) Calcutta: City Book Co. London: H. K. Lewis. 1948.

Atlas of Plastic Surgery. By M. I. Berson, M.D. (Pp. 304. 75s.) London: William Heinemann 1948.

Materia Medica for Nurses. By L. Oakes, S.R.N., D.N., and A. Bennett, M.P.S. 3rd ed. (Pp. 373. 8s 6d.) Edinburgh: E. and S. Livingstone. 1949.

Sternal Puncture. By A. Piney, M.D., M.R.C.P., and J. L. Hamilton-Paterson, M.D., M.R.C.S. 4th ed. (Pp. 89. 15s.) London: William Heinemann. 1949.

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THE ADRENAL GLAND

It is one hundred years since Thomas Addison first described, at a meeting of the South London Medical Society, the disease which bears his name, and in the opening pages of this issue of the *Journal* Sir Henry Dale pays tribute to his pioneer work on the adrenal gland. Addison's vivid description of the clinical changes occurring in many parts of the body as a result of destructive disease of the suprarenal capsules suggested for the first time the importance of the control exercised by these glands over many body tissues. But although Addison's clinical observations on the disease were so exhaustive and novel they came at a time when neither physiology nor biochemistry was sufficiently advanced to carry much further the work he had begun. The study of other glands was for many decades to prove more fruitful to the investigator, and Sir Henry Dale traces the way in which the secrets of these other glands were to be disclosed one after another. The clinical results of over- and under-function of the thyroid gland were recognized. Its hormone was readily obtained in active form and many years later was brilliantly synthesized by Harrington and Barger. The internal secretion of the pancreas was obtained by Banting and Best, with consequent changes in the conception of diabetes and of its treatment. The clinical disturbances of the pituitary were classified, and many of the secretions of this gland were identified and put to clinical use. But during all this time it was clear that the main activities of the adrenal gland, on which the maintenance of life depends, had eluded understanding. Adrenaline, the hormone of the adrenal medulla, had been isolated at a relatively early date, its physiology had been thoroughly worked out, and it had been used widely in clinical practice. But study of the action of adrenaline alone went very little way to explain the various disturbances resulting from disease of the adrenal gland.

It was not until 1931, more than 80 years after Addison's description of the disease that bears his name, that Swingle and Pfiffner first succeeded in preparing an active extract of adrenal cortex which could prolong life in the adrenalectomized animal. At about this time a developing partnership between organic chemists and physiologists was beginning to prove very fruitful in the investigation of the sex hormones. Progress was rapid, and the chemical formulae of most of these hormones were worked out. The endocrine secretions of the testis, ovarian follicle, and corpus luteum proved to have in common a chemical structure consisting of four united carbon rings, three of which contain six carbon atoms and the fourth five carbon atoms. The active hormones such as testosterone, oestradiol, and progesterone vary mainly in the number and position of ketone, hydroxyl, methyl, and other groups attached to the carbon atoms of this ring skeleton. Thus the natural oestrogens have one methyl group, the androgens two, and progesterone three. Elsewhere in this issue Professor H. de Watteville and Drs. S. Salinger and R. Borth discuss the clinical value of sex-hormone determinations.

The chemical knowledge acquired in studying the sex hormones has proved useful in the investigation of the nature of the active constituents of Swingle and Pfiffner's adrenal cortical extract. This too was found to contain many compounds having the same four-carbon-ring skeleton as had been found in the sex hormones, the variation again being mainly in the attached groups. A large number of such substances have been isolated from adrenal extracts and from urine, in which they are present in much smaller amounts. Only a few of these compounds have much physiological activity—desoxycorticosterone, with its powerful action on salt and water metabolism, being the best known and most widely used. Another group is characterized by the presence of an oxygen atom on the eleventh carbon atom of the ring skeleton and a reducing group similar to that of fructose on the seventeenth carbon atom. Compounds of this group have little or no action on salt and water metabolism, but have a great influence on carbohydrate metabolism—causing glycogen to be deposited in the liver, increasing body resistance to the action of insulin, and hastening recovery of muscle from fatigue. It is to this group that the now famous "compound E" ("cortisone") belongs, a substance which, although not yet available in this country, has already been the subject of much discussion because of its dramatic effect in certain rheumatic diseases.[1]

Addison's brilliant analysis one hundred years ago led to the development of the now flourishing science of endocrinology, but only now are the many problems connected with the secretions of the adrenal gland beginning to be unravelled. The importance of future discoveries can only be surmised. The effect of cortisone on rheumatoid arthritis is indeed extraordinary, but there are hints that the adrenal cortex has other important actions. Many conditions of "stress" are now known to increase the activity of the cortex, and if the stress is long continued adrenal exhaustion can be induced in

[1] *British Medical Journal*, 1949, 1, 812, and 2, 24 and 221.
[2] *J. clin. Endocrinol.*, 1946, 6, 117.

animals. Selye[2] believes that such exhaustion may lead by adrenal dysfunction to a wide variety of diseases. Injections of desoxycorticosterone in animals have caused such varied conditions as myocarditis, arthritis, nephritis, Aschoff's nodes, and periarteritis nodosa. In man the urinary excretion of the carbohydrate-active adrenal hormones is found to be increased after such stress as pregnancy, surgical operations, burns, and heart failure, and a fall in their excretion has been observed shortly before death. In experimental animals these hormones increase ability to survive low oxygen tensions. This action is especially interesting, for it was a rumour, probably unfounded, that the German Luftwaffe was using cortical extracts to increase the high-flying ability of its pilots which did much to stimulate official interest in the U.S.A. in these hormones during the last war.

There is urgent need for a wide trial of these new and active compounds in therapeutics, but here again the adrenal gland presents its challenge. The amounts of these hormones stored in the gland are small compared with the quantities produced and used by the body daily. Extraction of glands is thus an inefficient method of obtaining them, and it is to be hoped that chemical synthesis will soon be achieved. Desoxycorticosterone has been produced commercially for a number of years, but the comparable production of the allied carbohydrate-controlling compounds presents problems likely to tax the ingenuity of organic chemists for many years to come. Cortisone has been obtained by partial synthesis from a bile acid, but the yield after a long series of chemical processes is less than one-thousandth part of the theoretical. A great expenditure of effort and money soon led to the mass production of penicillin, and it is now certain that a comparable effort will be required if the needed hormones of the adrenal cortex are to be produced in sufficient quantity. There is little doubt that during the next decade or two we shall witness some startling developments in adrenal physiology and that clinical medicine will be greatly influenced by them. The pioneer work of Addison will then be seen to have possessed an even greater significance than has been apparent hitherto.

HISTOPLASMOSIS

If the history of histoplasmosis were to be written in popular instead of what has recently been called clinical journalese it would undoubtedly be described as intriguing. In 1906 Darling[1] in Panama reported the occurrence of a disease characterized by visceral symptoms and the presence of small intracellular bodies in the cytoplasm of mononuclear cells. Since Darling was a protozoologist and the condition had some similarities to leishmaniasis, it was naturally thought to be due to a protozoon. Not until twenty years later was a comparable case reported from the continental United States, and only in 1934 did de Monbreun[2] successfully cultivate the organism from the blood of an infant and by demonstrating the mycelial forms clearly prove that it was a fungus and not a protozoon. Later he was able to inoculate monkeys and mice and to infect puppies by feeding them with the mycelial forms, thus showing that the fungus may enter the body by way of the gastro-intestinal tract. By 1939 only 4 cases had been recorded in the United States, but one year later Meleney[3] managed to collect no fewer than 32.

The fungus responsible for histoplasmosis is known as *Histoplasma capsulatum* and is probably unique, since it is the only fungus pathogenic for man which is primarily an intracellular parasite of the reticulo-endothelial system. In tissue sections or smears the parasites appear as round or oval bodies 1 to 5 μ in cross section with chromatin irregularly distributed at their centre and with colourless refractile capsules. They can be stained with haematoxylin and eosin, though Giemsa's method is preferable. The mycelial forms grow readily on blood-agar or Sabouraud's medium, though from three to four weeks at room temperature may be necessary before growth is visible[4 5]; 50 units of penicillin and 50 units of streptomycin per ml. should be added to the culture medium when attempts are made to isolate the fungus from ulcerating lesions. As would naturally be expected, the organs specially involved are those containing abundant reticulo-endothelial tissue: liver, spleen, lymph nodes, and the lymphoid structures of the pharynx and intestines are not uncommon sites of this somewhat chronic granulomatous condition.[6] Ulcers of the skin, bowel, pharynx, and mouth may constitute the most important lesions. According to Weed and Parkhill[5] the ulcers have rolled edges, and are associated with fever, sweating, and loss of weight. Only cartilage and the cortex of bone invariably escape, as they are devoid of reticulo-endothelial cells. Greyish-white nodules or ulcerations may be seen on the surface of the affected organs. Histologically there is proliferation of the lymphoid tissues with considerable cellular destruction; the causal organisms can be seen within the mononuclear cells. Granulation tissue with macrophages containing

1 *J. Amer. med. Ass.*, 1906, **46**, 1283.
2 *Amer. J. trop. Med.*, 1934, **14**, 93.
3 Ibid., 1940, **20**, 603.
4 Parsons, R. J., and Zarafonetis, C. J. D., *Arch. intern. Med.*, 1945, **75**, 1.
5 Weed, L. A., and Parkhill, E. M., *Amer. J. clin. Path.*, 1948, **18**, 130.
6 Conant, N. F., *et al.*, *Manual of Clinical Mycology*, 1945. Philadelphia: W. B. Saunders Co.
7 Levy, B. M., *J. Amer. dent. Ass.*, 1945, **32**, 215.
8 Dailey, M. E., *Amer. J. digest. Dis.*, 1947, **14**, 363.
9 *J. Pediat.*, 1946, **28**, 275.
10 *Amer. J. trop. Med.*, 1946, **26**, 273.
11 *J. Amer. vet. med. Ass.*, 1948, **113**, 60.
12 *Publ. Hlth Rep., Wash.*, 1947, **62**, 1642.
13 Ibid., 1945, **60**, 513.
14 Emmons, C. W., Olson, B. J., and Eldridge, W. W., ibid., 1945, **60**, 1383.
15 Ibid., 1947, **62**, 1711.
16 *Proc. Soc. exp. Biol., N.Y.*, 1947, **66**, 342.
17 Mendoza, J. T., *Mon. Bull. Bureau of Hlth, Manila*, 1947, **23**, 33.
18 *Arch. Biochem.*, 1947, **12**, 395.

the parasites is present outside the necrotic zone, and in addition there are giant cells, polymorphonuclear leucocytes, eosinophils, lymphocytes, and plasma cells. The parasites are capsulated and basophilic.

The signs and symptoms of histoplasmosis are, as is to be expected, very varied. In general it develops as a systemic febrile disease, associated with loss of weight, anaemia, leucopenia, and enlargement of lymph nodes, liver, and spleen. Gastro-intestinal symptoms, including diarrhoea, have been mentioned in nearly two-thirds of the reported cases; oral lesions, when present, closely resemble those seen in leukaemia. Hodgkin's disease may be suspected at first, and in fact Hodgkin's disease, noma, or carcinoma has been present in 14 out of 70 cases.[7] When the suprarenals are affected Addison's disease may be produced. Pulmonary spread, as shown by *x*-ray examination, is characterized as a rule by multiple small foci, frequently subpleural, but Meleney[3] regards the lungs as more often the sites of secondary infection than the portal of entry of the fungus. It is thus obvious that no typical clinical picture of histoplasmosis exists; it may simulate many systemic diseases, and one case of endocarditis due to *H. capsulatum* has been reported. Possibly it may occur in a subclinical form.

Although histoplasmosis has so far been recorded mainly from the New World, it has been seen in members of various races. The sex incidence is approximately equal, and there is no correlation with any occupation. No less than a quarter of the cases in one series were in children under the age of 13 years. The outcome of clinically recognizable disease has usually been regarded as invariably fatal, the duration having been from one to eight months, though some adults have been infected for a year or more. There is now, however, evidence from Kansas City and elsewhere that non-fatal cases may occur.

Very little is yet known of the epidemiology of histoplasmosis. Though widely distributed in the United States, it is particularly prevalent in the south-eastern area, but at least one case has occurred in California.[8] McLeod and others[9] reported the only instance in which there was contact between proved cases; since the patients were siblings, the disease may have been transmitted either from one to the other or from possibly a common source of infection. Pará[10] described one case where there was possible contact between an infant and a dog with histoplasmosis. Harmon[11] collected 10 cases of the disease in dogs in the United States, and has now added two further cases seen by himself. Emmons and his colleagues,[12] in an area in Virginia where four human and three canine cases of histoplasmosis had occurred, examined the tissues of 1,620 fur-bearing animals, mostly small rodents. *H. capsulatum* was grown from the tissues of one mouse and five rats (*Rattus norvegicus*); in a further note isolation from five other rats is recorded. No gross lesions were seen in the tissues of the infected animals, only small foci. In this connexion it is of interest that white mice and guinea-pigs commonly recover from the acute phase and survive indefinitely, but so does the fungus, since the liver and spleen continue to yield positive cultures. It is thus not improbable that rodents and dogs are the source from which human beings are infected.

The final diagnosis of histoplasmosis can be made only in the laboratory. The parasites may be seen in thick smears within monocytes in the peripheral blood stream. Puncture of the spleen, sternal bone-marrow, or superficial lymph nodes may reveal the organisms, as may biopsy material taken from accessible sites of infection. Inoculation of guinea-pigs with blood, or cultivation of the parasites on suitable media, may provide an answer. A recent method of diagnosis is skin testing with histoplasmin, which is simply a sterile broth filtrate of *H. capsulatum*. It appears, however, that a number of persons who have no previous history of infection with histoplasma give a positive reaction with histoplasmin. Related to this is the finding that in a proportion of these individuals there is evidence of pulmonary calcification and at the same time no reaction to tuberculin. Palmer,[13] for instance, in a survey of 3,105 student nurses found calcification present in 31.1% of those positive to histoplasmin but in only 10.4% of those positive to tuberculin. Some other fungi may be responsible for positive reactions to histoplasmin,[14] and in certain areas in California it is suggested that coccidioidomycosis may be the cause of such calcifications. Furcolow and his colleagues[15] also emphasize that in regions of the United States where histoplasmin sensitivity is widespread not only calcifications in the lungs but also diffuse patchy infiltrations are very frequently non-tuberculous. Various attempts have been made to use complement fixation for diagnosis. Histoplasmin as an antigen has not proved very specific, but Salvin[16] has obtained far better results with the intact formalin-fixed, yeast-like forms of the fungus cultivated on a special medium—an antigen which he terms "Y.P." While the majority of cases of histoplasmosis have been seen in North and Central America, reports are now coming in that the disease exists also in the Philippines.[17] It is probable that the disease is much more common than was originally supposed and probably not nearly as fatal.

Treatment of histoplasmosis during the acute phase has so far proved unsuccessful. Penicillin, the sulphonamides, potassium iodide, arsphenamines, quinquevalent antimonials, and radiation therapy have all proved valueless. Recently Fontaine and his co-workers[18] have found that an antibiotic isolated from young tomato plants and

at first called lycopersicin, but now tomatin, has an inhibitory action on the growth of cultures of *H. capsulatum*. Since tomatin has a low toxicity in animals, a description of its action on this fungus infection *in vivo* would be of considerable interest.

CARCINOMA OF THE GALL-BLADDER

The prognosis in cases of carcinoma of the gall-bladder is gloomy, and inevitably surgeons have sought means of preventing this condition. There can be little doubt that cholelithiasis is a predisposing factor of the greatest importance, and a number of authors report the presence of stones in from 70 to 100% of cases of carcinoma of the gall-bladder.[1-4] This variety of malignant disease is not so uncommon as is generally believed; Kirschbaum[2] places the incidence at 3% of all carcinomata, while Graham[1] gives a higher figure of 8–10%. A further point of interest is that carcinoma of the gall-bladder is found at operation in some 1–5% of cases of cholelithiasis, and the former condition has generally never been suspected.

With the above considerations in mind Sainburg and Garlock[5] have reviewed 75 cases of carcinoma of the gall-bladder. Abdominal pain, a history strongly suggestive of gall-bladder disease, loss of weight, and jaundice were the most important features of these cases, but the authors stress that at this stage the disease is generally advanced and incurable. Only 65 of their patients were subjected to operation. The group in which the best results were obtained consisted of seven cases in which the diagnosis was made by the pathologist and was not suspected by the surgeon: one patient in this group was still alive after 13½ years, but the average period of survival of the others was less than one year. In the remaining cases the average period of survival varied between 2–3 months in the frankly inoperable group and 6–7 months in those cases where it was believed that complete excision had been done. From these figures it can be seen that surgery is virtually useless when the disease is established, though an occasional very early case may survive. As the incidence of carcinoma in gall-bladders containing stones is far from negligible—Kirschbaum mentions a figure of 3% and Graham one of 5–14%—and as the overall mortality of cholecystectomy is unlikely to exceed 3% there would seem to be a strong case for "prophylactic" cholecystectomy in all cases of cholelithiasis.

As a result of a 10–20-year follow-up of 112 cases of silent gall-stone, Comfort and his colleagues[6] at the Mayo Clinic adopt a somewhat different attitude to the problem of gall-stones. Sixty-one patients had no symptoms during the ensuing years, while 24 of the 51 patients developing symptoms had had a cholecystectomy. There was no record of cancer of the gall-bladder in any of the 28 patients who had died, but it should be noted that this follow-up was undertaken by post and the information obtained was incomplete. At first glance these findings may appear to be completely at variance with those of Sainburg and Garlock, but the risk of carcinoma i perhaps less in those cases of gall-stones without symp toms. It might be reasonable to suggest, therefore, firs that all cases of cholelithiasis with symptoms should b treated surgically unless there is some definite contra indication to operation; secondly, that cases of silent gall stones in fit and young patients should also be treate surgically, for, although the work of Comfort may sugge the relative immunity of such cases from carcinoma, ther is no means of telling how long the stones will remai silent; and, finally, that in elderly patients with silent gal stones a conservative attitude might be adopted, since th risk of malignant change in their few remaining years ma well be less than the risk of operation. The evidence i favour of gall-stones being the most important predisposin factor in carcinoma of the gall-bladder is overwhelmin and it is clear that the removal of gall-stones is th surgeon's most effective method of preventing carcinom of the gall-bladder.

1 *Ann. Surg.*, 1931, 93, 317.
2 *Surg. Gynec. Obstet.*, 1941, 73, 740.
3 Warren, R., and Balch, F. G., *Surgery*, 1940, 7, 657.
4 Finney, J. M. T., and Johnson, M. L., *Ann. Surg.*, 1945, 121, 425.
5 *Surgery*, 1948, 23, 201.
6 *Ann. Surg.*, 1948, 128, 931.

ANIMAL INFECTIONS AND PUBLIC HEALTH

Delegates from 53 countries have been attending discussion on animal health and disease control during the fourteent International Veterinary Congress in London, whic met this week. The theme of the Congress was th world food situation—"the most important scientif and practical question of the day"—and Lord Boy Orr was the principal speaker at the opening discussio The fact that no less than eight papers were read o public health subjects is a reminder that medical men an veterinarians have many interests in common. It has course long been recognized that comparative patholo affords a meeting-place for medical and veterinary scienc but the need for co-operation between medical pract tioners and veterinary surgeons has only recently receiv much attention. It might be thought that the limitatio in value of animal, as opposed to human, life would restri the use of laboratory services for diagnosis in veterina medicine. To a certain extent this is true, but an increasi number of veterinary surgeons regularly use a microsco in their work, and the veterinary pathologist is never sho of material.

The first human infection with *Leptospira canico* in this country was reported three years ago,[1] and a recent paper McIntyre and Stuart[2] stated that t medical profession "might be helped here by veterinaria who were actually diagnosing the disease in dogs and in cating to the owners the risk run by human contact They described one case where diagnosis of infection a dog had led to its discovery in the owner. The sa observations apply also to tuberculosis, which is not u commonly found in the dog—more often affecting t abdomen than the chest. Tubercle bacilli are frequen present in the nasal discharge of cats brought for veterina attention because of "catarrh." The cat, unlike the d has a relatively high degree of resistance to the hum bacillus, but is more susceptible to the bovine. Wheth the disease happens to have been transmitted from t animal to the owner or vice versa, the veterinary surge

1 Baber, M. D., and Stuart, R. D., *Lancet*, 1946, 2, 594.
2 *Vet. Rec.*, 1949, 61, 411.
3 Jordan, C. F., *Indust. Med.*, 1948, 17, 176.
4 Davison, G., and Neubauer, C., *Lancet*, 1948, 2, 453.
5 Le Roux, P. L., *Vet. Rec.*, 1949, 61, 87.

makes a contribution to public health when he diagnoses the disease and advises the destruction of the animal. Here again the medical practitioner may sometimes be glad to be acquainted with the veterinary findings. Brucellosis,[3] salmonella infections, louping-ill,[4] anthrax, and erysipelas are seen in both medical and veterinary practice, and the apparent increased incidence[5] in this country of the beef tapeworm—*Taenia saginata*—is of common concern to doctors and veterinarians.

THE NUFFIELD FOUNDATION

In its first year of activity—1943—the Nuffield Foundation laid plans for the future, and the next five years were devoted to grant-giving. During this period grants of considerably over £2,000,000 have been distributed, of which nearly £600,000 has been allocated to the medical sciences. The major grants have included an endowment with £100,000 of the Nuffield Chair of Child Health, which was the Foundation's contribution to the creation of the Institute of Child Health in the University of London; grants of £70,000 to Manchester University and of £40,000 each to the Universities of Durham and Glasgow for the development of departments of industrial health; grants of £90,000 to four university schools for dental research and teaching; and a grant of £100,000 over 10 years from 1947 to the University of Manchester for research in chronic rheumatism. The fourth report[1] of the trustees is interesting not only as a record of past achievement but as a statement of future policy. The aim which has guided the trustees in their choice of projects in the medical sciences has been to promote the proper understanding, definition, and maintenance of health rather than, as a rule, to seek cures for established diseases; the research on rheumatism is and will remain for the present the principal exception.

The grants just quoted may seem large, but they are not large in comparison with State expenditure on research. In the Civil Estimates for 1949–50 a total of over £100,000,000 is shown for Government expenditure on research and development and on the universities. Elsewhere in this issue the work of the Colonial Research Council is reviewed, and here the annual allocation of grants runs into seven figures. With the State so large a paymaster, private patrons, however great their resources, might well be discouraged. Yet private benefactions, which are not subject to State audit, have the vital function of ensuring that the "creative minorities," to which Mr. Arnold Toynbee in his *Study of History* attributes the genesis of civilized progress, get at least a first hearing and the chance of commanding wider support. Moreover, the comparative smallness of privately provided funds imposes a more critical selection of projects for support. The Nuffield Foundation sets itself to try out the unique person or project, but, as a rule, supports that person or project only through the medium of an established institution, so that if the value of the venture is proved the work can be continued after the Foundation's necessarily limited support has had to cease.

With this as its general policy the Foundation intends during the next five years to devote more attention to biological and social studies. These have been, if not the Cinderellas of research, rather poor relations in the family. They do not offer the excitement to be found in research in physics. The investigator is apt to feel that nothing very remarkable remains to be elucidated and that his work is mainly a question of classifying what is already vaguely known. In the field of biological studies the normal mechanism of growth, differentiation, and self-maintenance of living things will have attention, and in the social sciences an attempt will be made to bring such subjects as social anthropology and sociology up to the level of the more highly developed science of economics. In addition the Foundation will encourage greater co-ordination of research. Hitherto this has been to a large extent individualistic. The experts in various subjects should be brought together, and they should work out their problems by joint effort. The great work of the Foundation on behalf of old people will be continued, and so will the system of medical and other fellowships.

DENTAL CARIES

In 1885 Miller[1] drew attention to the fact that acid-producing organisms were common inhabitants of the mouth, and that if they were incubated with sugars they produced acids capable of dissolving the enamel covering a tooth. This led to what became a generally accepted hypothesis about the cause of dental decay, which, briefly stated, is that food debris such as carbohydrates, if allowed to stagnate in the mouth, is broken down by bacteria with an organic acid as an end product. This acid acts directly on the calcium phosphate which forms the bulk of the enamel, producing a soluble calcium salt. Many attempts have been made without success to reproduce the carious process *in vitro*, for although the enamel can be disintegrated in this way the appearance bears no resemblance to that of caries when produced in the mouth. The theory, however, seems to be supported by the fact that caries commonly starts in a tooth in sites where food stagnates, and, conversely, very rarely occurs on a surface that is kept clean and free from food and debris by the action of the tongue or lips. A diet containing an excess of carbohydrates, particularly if its consistency is such that it adheres to the teeth, also predisposes to rapid caries.

On theoretical grounds the fact that chemical analysis shows that inorganic salts compose about 99% of enamel, calculated by weight, suggested that the organic compound was too small to be of importance. The destruction of enamel, therefore, would appear to be a process of decalcification. No satisfactory explanation has, however, been put forward to explain why acids formed on the surface of a tooth should combine with the fixed calcium of the enamel rather than with the more freely available calcium ions in the saliva, and little account has been taken of the buffering properties of the saliva. Latterly, more attention has been paid to the organic component of the

[1] *The Nuffield Foundation.* Report of the Trustees for the year ending March 31, 1949. Oxford University Press.

[1] *Independent Pract.*, 1885, 6, 289.
[3] *J. Amer. Coll. Dent.*, 1944, 11, 243. *J. Dent. Res.*, 1947, 26, 181.
[5] *Anat. Rec.*, 1947, 99 (2), 133-144.
[4] *Brit. dent. J.*, 1937, 63, 511.

enamel, and it is now recognized that, although it forms an apparently insignificant part when assessed by weight, when account is taken of the different density it is found that by volume it forms about 5% of the enamel. Until recently histological investigation has been limited to the examination of hard-ground sections, because the organic matrix is also freely soluble in acids and was lost when attempts were made to prepare a decalcified section by ordinary methods. But Frisbie[2] at San Francisco and Sognnaes[3] at Harvard have now overcome this difficulty and, using special methods of fixation, have demonstrated that the organic matrix of the enamel can be preserved in decalcified sections. Frisbie and his co-workers have thus been able to produce convincing histological evidence that the initial stage in enamel caries is the result of a bacterial attack on the organic matrix, but so far they have not succeeded in isolating any mouth organism that will attack enamel *in vitro*.

In 1937 Dr. P. Pincus[4] demonstrated that certain proteolytic bacteria could bring about the disintegration of enamel in a media that remained above *p*H 7 and contained no carbohydrate. They presumably did this by breaking down the organic matrix. In this issue of the *Journal* he describes more recent work which suggests a double action. He considers the enamel matrix to be a mucoprotein containing mucoitin sulphuric acid, and he claims to have isolated from the mouth an organism that produces an enzyme, sulphatase, that can break down a mucoprotein and at the same time liberate sulphuric acid ; the latter combines with the calcium phosphate and forms a more soluble salt. That caries is, in fact, the result of such a process awaits further proof. So far no one has succeeded in isolating an organism from a carious lesion that will attack the organic matrix of intact enamel. The problem would now appear to rest with the bacteriologist. A solution is urgently required, for until it is found it is impossible to plan the prevention of caries in a rational way.

PENICILLIN IN PSITTACOSIS

The first indication that penicillin had a therapeutic action in any virus disease was the work of Heilman and Herrell[1] on the treatment of experimental ornithosis in mice. Using a strain of virus derived from a pigeon, they were able by penicillin treatment to reduce the mortality from 87.5% to 5% when inoculation of the virus was intraperitoneal, although the disease produced by intracerebral inoculation was little affected, presumably because of the inability of penicillin to pass the blood-brain barrier. Since then there has been further experimental evidence that penicillin has an action on this virus, and there have also been clinical reports of the penicillin treatment of human psittacosis. These are reviewed in this issue on p. 362 by Dr. J. R. Tasker, who adds a report of a further case of peculiar significance. The circumstances of its occurrence enabled the diagnosis to be made at an exceptionally early stage, and the attack was evidently a severe one. The large doses of penicillin which have been calculated on the basis of animal experiments to be necessary for controlling this infection were given from the first, and the rapid abatement of fever and the general clinical improvement which followed can have been due only to the treatment.

This comparatively rare form of virus pneumonia is the only one for which penicillin is of any value—in primary atypical pneumonia it is without effect. For the treatment of this and perhaps certain other virus diseases the drug of choice is "aureomycin"—the new antibiotic which has so astonishingly enlarged the effective range of chemotherapy. The successes achieved by this drug have in part falsified the general belief in the insusceptibility of viruses as a whole to the action of antibiotics. On the other hand, it should not be supposed that there is any immediate prospect of effective chemotherapy for the majority of virus diseases: among those on which no known drug has any effect are poliomyelitis, influenza, and the common cold.

[1] *Proc. Mayo Clin.*, 1944, 19, 57.

CHEMOTHERAPY OF LEUKAEMIA

Many drugs have been used in the treatment of leukaemia, but, since palliative effects only have been obtained, assessment of their value is very difficult. Arsenic and benzene had the disadvantage that when given in adequate doses they often caused toxic reactions. In cases of chronic leukaemia prolonged remissions have been reported after treatment with urethane[1] and nitrogen mustards,[2] though no permanent cure has been obtained with any of these compounds. Until publication of the work of Farber and his colleagues[3] acute leukaemia was thought to be uninfluenced by drug therapy. These American workers, however, found that the extremely potent anti-folic-acid agent 4-aminopteroylglutamic acid or "aminopterin" caused remissions in children suffering from acute leukaemia. Although aminopterin is most effective in children there was an indication that it might sometimes be beneficial in cases of acute leukaemia in adults. Aminopterin has been used in this country during the past year, and temporary remissions in the course of acute leukaemia in children have been obtained. The drug is very toxic, and for this reason treatment cannot usually be continued for any length of time. A new folic acid analogue, 4-amino-N^{10}-methylpteroylglutamic acid, appears to be more effective than aminopterin in the treatment of leukaemia in mice.[4] A few cases of monocytic anaemia in adults have been treated with aminopterin ; its action in bringing about temporary remissions is remarkable. One such case is described in this issue of the *Journal* by Dr. P. L. de V. Hart, and other case reports are being prepared for publication. These results are important, for they should lead to a better understanding of the nature of leukaemia and also, perhaps, to effective chemotherapy of the disease.

Lord Horder has been appointed an Extra Physician, Sir James Walton an Extra Surgeon, and Sir Morton Smart an Extra Manipulative Surgeon to His Majesty's Medical Household.

[1] Paterson, E., ApThomas, I., Haddow, A., and Watkinson, J. M., *Lancet*, 1946, 1, 677.
[2] Burchenal, J. H., Myers, W. P. L., Craver, L. F., and Karnofsky, D. A., *Cancer*, 1949, 2, 1.
[3] *New Engl. med. J.*, 1948, 238, 787.
[4] Burchenal, J. H., Burchenal, J. R., Kushida, M. N., Johnston, S. F., and Williams, B. S., *Cancer*, 1949, 2, 113.

THE WORLD HEALTH ORGANIZATION AND TUBERCULOSIS*

BY

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From the earliest meetings of the World Health Organization tuberculosis was regarded as one of the subjects to be given the highest priority in its deliberations. An international committee was set up by the World Health Assembly to lay down certain principles as a general guide for future action. In the first report of the committee, which was accepted by the World Health Assembly in 1948, a number of techniques recommended for adoption were set out briefly. I propose to enumerate the most important of these and to refer to the action which has so far been taken to implement them.

It is necessary first to determine the extent of the problem of tuberculosis in each country, the facilities at its disposal, the manner in which they are being used to tackle the problem, and the additional facilities required. Officers from the tuberculosis section of WHO have already visited Poland, Belgium, Hungary, Switzerland, Greece, and Ethiopia and have studied all aspects of the tuberculosis problem. Other officers are conducting similar surveys in South-East Asia, the Eastern Mediterranean, and Central and South America. A schedule has been prepared which ensures that the information obtained from each country is as uniform as possible. In this way it is hoped that comparable facts will soon be available from a very large number of countries.

A second important problem is recruitment and training. In most countries there are not enough trained workers in the tuberculosis field. Travelling fellowships in four special fields —administration, epidemiology, laboratory work, and clinical work—are being awarded to the countries most in need. For the present year the number of fellowships in tuberculosis alone is limited to 34, but in 1950 it is hoped that at least 50 will be available. The policy here is to select the more senior officers who are already in key positions in their Government's service and who can be spared for periods of from four to six months to obtain a wider view of the work they are normally called upon to do.

Next, it is felt that the best way to get a new programme started or to improve a poor one is by means of field services in one of the special fields of tuberculosis control. Well-trained teams even with limited supplies and equipment can demonstrate what should be done and how to do it. The size of the team and the length of its stay vary, but the object is to keep the team small and to limit the period of stay to a minimum. These teams take their own supplies and equipment, and it is an essential condition that the country shall agree beforehand to take over the project as soon as sufficient of its own personnel have been trained.

Thus in China a small team has trained local doctors in the miniature film method for mass surveys. Seven centres have been established in the country at Shanghai, Peking, Tientsin, Nanking, Mingpo, Hangchow, and Canton, and the entire tuberculosis dispensary organization has been overhauled. The techniques of tuberculin-testing and B.C.G. vaccination have also been demonstrated, and some 70,000 cases have been examined during the past year. Assistance has been given in the formation of a new national tuberculosis association. In addition WHO arranged with the authorities for 12 Chinese doctors to visit Europe and the United States during 1947 and 1948. Those doctors have now returned to their native country to continue the work started by WHO.

In Poland, the Government has been advised on the establishment of a model tuberculosis scheme for the province of Lodz, and during 1948 one of our x-ray technicians was working constantly in the country, erecting and often repairing apparatus which had been given by Unrra. The same technician trained over 100 students in elementary technical work, and as a result apparatus which was previously of no value to the country is now functioning well.

In Greece, the efforts of the Unrra team which was in the country in 1945–6 were continued through 1947 and 1948, though on a smaller scale. Even so, some 300,000 people have been x-rayed and, after careful checking, a morbidity rate of nearly 3% of clinically significant cases has been established as common to most urban communities. A new chest hospital has been set up, and it is fair to say that in Athens especially progress in diagnosis and treatment has gone on apace. Unfortunately, however, work in the provinces has suffered owing to the civil war.

Another WHO team visited Madras in the summer of 1948 with the object of establishing a B.C.G. laboratory which would serve South-East Asia. Between May and December, 1948, the laboratory was equipped, and vaccine of the required potency was available at the end of the year.

International Children's Emergency Fund

Perhaps the most important work undertaken has been in association with the International Children's Emergency Fund, which has as its special responsibility the B.C.G. vaccination campaign in many parts of the world. WHO takes no direct part in the field work of this activity but confines itself to giving technical assistance and advice on the research aspects of this project.

Already in Europe some 8,000,000 persons have been tuberculin-tested and 3,000,000 vaccinated, and at this moment a campaign is extending into India, Ceylon, Morocco, Algiers, and Tunisia. Shortly it will be further extended in China, and requests for assistance have also come from Mexico, Ecuador, and Bolivia. A research group is trying to obtain more precise data on details of technique and results, and to evaluate the B.C.G. vaccination programme in the prevention of tuberculosis morbidity and mortality. Some indication of the importance which the executive board of WHO attaches to this research is reflected in the proposed estimate for 1950, when a sum of approximately £75,000 will be available for this work.

Perhaps one of the most difficult and yet most valuable functions of WHO is that which aims at developing and recommending uniform procedures, whether it be in tuberculin testing, classification, laboratory diagnosis, or in the evaluation of new chemotherapeutic agents such as streptomycin. Already a streptomycin subcommittee has met in New York and has published its recommendations. The International Children's Fund has given supplies of streptomycin to some countries in Europe, and a WHO expert is supervising the clinical trials and endeavouring to get some uniformity in the documentation of cases. So far as the classification of tuberculosis is concerned WHO has requested all member Governments to express their opinion on the simplified classification by the four-digit code method which has already found favour in Denmark and the U.S.A.

This brief review of the initial work of WHO would be incomplete if I did not refer to the great desire which the organization has to work in the closest possible harmony with the International Union against Tuberculosis. WHO is essentially an inter-governmental agency and makes no direct contact with national organizations. The policy is to contact national voluntary organizations only through the accredited international agency. In view of the vast amount of work which has been done, and is still being undertaken, by voluntary agencies in many parts of the world, it seems imperative that there should be an efficient and powerful international voluntary agency to collaborate with the innumerable voluntary and private agencies in many parts of the world which are interested in stemming the death rate from this disease. The recent suggestion therefore that the present International Union should be reorganized to assume its rightful responsibility in this work is welcomed by WHO, and the fact that the present director-general of the Union, Professor Etienne Bernard, is also a member of the Expert Committee of WHO on tuberculosis

*Summary of an address given to the British Tuberculosis Association at Cambridge on April 6.

does something to ensure that there will be a close co-operation between the two organizations.

The international approach to tuberculosis control is one which I believe must be encouraged. Not only is this missionary work welcome, but I do not hesitate to say that those who go into the back lanes and alleys of the globe learn more about tuberculosis epidemiology than they had ever known. It is the very magnitude of the task which attracts.

The function of an international organization in countries with undeveloped programmes must be to guide and direct, not with a view to the duplication of the schemes which may be successful in Western Europe or North America, but only in directions in which we feel sure these countries will be able to follow within the limitations of their own economy and available personnel. International assistance must never be substituted for national effort, for in the long run the destiny of any country's programme must be established by its own workers, and in no sphere does this apply more than in tuberculosis, with its numerout social and economic ramifications, which are best known only to those who are intimately familiar with local conditions.

STABILITY OF THE NATION'S HEALTH

ANNUAL REPORT OF THE MINISTRY

In the report of the Ministry of Health just issued for the year ending March 31, 1948,[1] the comments of the Chief Medical Officer, Sir Wilson Jameson, and his staff relate only to 1947, a year of exceptional trial for the British people. During the first three months the country was visited by one of the severest winters on record, and fuel restrictions were added to scarcity of food. This was followed by the heaviest floods for half a century, which denuded the sheepfolds and threatened the harvest. Then came a period of economic crisis and dollar deficiency. Bread and potatoes were rationed, the meat allocation was reduced, the bacon ration halved, and other foodstuffs increased in price.

It is a tribute to the resilience of the people that the nation's health, which had been good during the war, also withstood the rigours of the second full year of peace. The death rate rose slightly, chiefly owing to increased mortality in the diseases of old age and the severity of the winter. But infant mortality fell to its lowest figure, notwithstanding the highest birth rate for a generation, and there were further falls in maternal mortality and in the stillbirth and neonatal death rates. There was no abnormal rise in the number of sick people, though the average number of days of incapacity of those who became ill increased. The frequency of colds and respiratory disorders in the January–March quarter of 1947 was not greater than in the previous year, except among old people.

The Epidemiological Picture

Deaths from diphtheria were barely half those of the year before as the result of the intensive campaign which brought 450,000 children to be immunized. Scarlet fever showed a new low record both for infections and deaths. Cases of measles were numerous, but the fatality rate, already exceptionally low, fell once more. The deaths ascribed to influenza were fewer than in any year (save one) since the middle of the first world war. Cases of typhoid and paratyphoid fever were fewer than in 1946, although two considerable paratyphoid outbreaks occurred, one in Bedfordshire and the other in Cambridgeshire. There was a new fall in reported cases of syphilis and gonorrhoea, suggesting that the wartime tide of venereal infection might now have turned. Another wartime manifestation, epidemic hepatitis, declined almost to vanishing-point. Cases of dysentery were reduced by 50%. It had been expected that the resettlement in this country of large numbers of people who had served abroad in malarious areas would lead to a sharp rise in the number of cases of indigenous malaria, but only five notifications were received.

The figures for whooping-cough remained high—over 90,000 notifications and 900 deaths, almost exactly a repetition of the year before. Vaccination against whooping-cough has not yet reached the status of immunization against diphtheria. In 1947 there were more cases of smallpox than in any year since 1934. An unsatisfactory feature was that 6 of the 78 cases were in persons who should have been protected by recent vaccination—a doctor, a sanitary inspector, a nurse and kitchen maid in a hospital, a medical student; and a man working on a disinfection plant. Three of them had received vaccination in infancy, but the others had not been vaccinated at all.

Poliomyelitis

A feature of 1947 was the outbreak of acute poliomyelitis, which reached the unprecedented incidence of 18 per 100,000—four and a half times that of the highest epidemic previously recorded (1938). Fortunately the case fatality of 9.1% was the lowest on record. During the years 1913 to 1946 the case fatality varied between 20 and 30%, except in 1918, when 100% case fatality was recorded. This was probably due to some confusion with deaths from influenza and encephalitis lethargica in that year of great epidemics.

The report gives an account of the measures taken to limit the outbreak. No disease, as Sir Wilson Jameson says, presents more numerous or difficult problems, or causes more family or communal distress. The change in age distribution is noted. Roughly about one-third of the cases were under five, one-third between five and fifteen, and one-third over fifteen, and it was among those over fifteen that two-thirds of the deaths occurred. In 1938 less than a quarter of the cases were over fifteen. The point of constancy about poliomyelitis is its seasonal behaviour—its summer rise and its decline with the fall of the year—but in 1947 the summer rise started before May was out and the peak was reached in early September.

Cancer and Tuberculosis

Deaths from cancer have recently advanced by something like 2,000 a year. It is now an understatement to say, as a lecturer in a cancer campaign some years ago told his audience, "One in every seven of you will die of cancer." The digestive organs and peritoneum are in both sexes the principal sites of attack. There are about as many cases involving those sites as all the other cases put together. Preparations were being made during the year to merge the work under the repealed Cancer Act with that of the forthcoming National Health Service, and a warning is given that with each Regional Hospital Board having its own cancer advisers the existing useful degree of centralization might be lost.

An increase of 4% was shown in deaths from respiratory tuberculosis. This was related to the first quarter of the year, when climatic conditions were exceptionally bad. The number of newly diagnosed cases showed an increase, explained in part by the activity and awareness of general practitioners and tuberculosis officers. Some particulars are given of the mass miniature radiography units. The number operating in England and Wales in 1947 was 23, and up to the end of that year just over two million persons had been examined. Of these more than 94% were found to have no abnormal chest condition.

The National Health Service

Many pages of the report describe the preparations for the National Health Service that was introduced the following year. But this is now ancient history. National Health Insurance saw its last year in 1947, and the service closed with a clean slate. During the year there were only six cases in which money was withheld from practitioners for breach of the terms of service, and the total sum kept back was only £130. No representations were made that the continuance of a practitioner on the medical list would be prejudicial to the Service. Although the figures are now overshadowed by those of the National Health Service, they did relate to twenty million insured persons and to the issue of 67 million prescriptions. The average cost of the prescriptions was 1s. 1¼d.

[1] *Report of the Ministry of Health for the Year ended March 31, 1948, including the Report of the Chief Medical Officer on the State of the Public Health for the Year ended December 31, 1947.* Cmd. No. 7734. H.M. Stationery Office. 1949. 5s. net.

The amount of short-term sickness which was not reflected in the vital statistics and notifications is the subject of a note from the Government Actuary's department. A sharp rise in the level of short-term sickness during the war became general in 1942, perhaps owing to war fatigue, and was maintained until the middle of 1945. Since the end of the war there has been a gradual downward trend. The social survey, in which representative samples of the population are visited in their homes, tells the same story. Medical consultations, excluding those concerned with patients in hospital, averaged 4.5 per person between the ages of 16 and 64 during the whole year, and 7.1 per person aged 65 and over. The average proportion of people over 65 who said that they had been free from illness or injury during the three months preceding the interview was 27%.

The nutritional state of the people remained satisfactory. Although there was rationing of bread and potatoes the allowance was generous. Special attention was paid by the school medical service to the nutrition of adolescents, and in various surveys from 93 to 96% of this section of the population were found to be in good nutritional condition. In 17 areas there was a slight but definite decline in weight in children in 1947 as compared with 1945. The rations and allowances of the school child were still sufficient for his needs, and the number of children taking school meals and milk had increased.

Mental Health and Other Services

For the first time the report includes a chapter on mental health, a subject formerly discussed in the annual reports of the Board of Control. There is still considerable overcrowding in public mental hospitals, in comparison with recognized standards. The overcrowding is serious enough in itself, but it has been kept within limits partly because many mental hospitals have decided to limit admissions to certified cases and have declined to receive voluntary patients. This is detrimental to the whole system of voluntary treatment and involves great hardship to people in the early stages of their illness. Nevertheless, the proportion of voluntary admissions continues to increase, and in 1947 more than half the total admissions were voluntary.

The report contains an immense amount of information on other subjects. It tells the story of the National Blood Transfusion Service, under which, in 1947, 235,492 ½-pint bottles of blood and 64,407 bottles of dried plasma were distributed. There is a chapter on hospital planning, though the Ministry does not commit itself deeply on the question of standards. It is pointed out that standards discourage experiment, and that it is impossible to foresee the conditions that will prevail when building can be freely undertaken.

The work of the Public Health Laboratory Service is described. This service was greatly expanded during 1947. A point of importance mentioned in this section is the increased number of food-poisoning outbreaks, which reached 765 in 1947. Most of these outbreaks were due to salmonella infections, and attention is drawn to the part which imported spray-dried egg may have played in their propagation. But it is clear that in many cases of food poisoning it is the human element that introduces bacteria into the offending food. The two precautions enjoined are that those who handle food should observe scrupulous cleanliness, and that food should be eaten as soon as possible after preparation. Reheating of food, which often takes place in canteens with the left-over dishes, does not destroy staphylococcal enterotoxin.

Dr. Melville Mackenzie gives an account of the work of the interim commission of the World Health Organization and its eleven expert committees. Dame Katharine Watt describes the efforts to overcome the shortage of nurses. Dr. Stock reviews the problems that confront port health authorities. The Ministry's activities in connexion with housing are discussed in another section. Despite the difficulties of the national economic situation a quarter of a million families were provided with new homes during the year. A sidelight is thrown on the Ministry's public relations department when it is mentioned that telephone inquiries by journalists during the year numbered 10,000.

This is probably the most comprehensive document ever issued from the department. It deals with the end of an era, and the next report will describe new incursions by the State in the field of health and medicine. Perhaps it is appropriate to close this review with Sir Wilson Jameson's tribute to voluntary services: "This country has always been fortunate in having at its disposal the help of experienced voluntary organizations and of an army of able and enthusiastic voluntary workers. Never was voluntary service more welcome than it is now, and I would make special acknowledgment of the great assistance the medical side of the Ministry has received from such sources during my term of office."

ALCOHOLISM IN SWITZERLAND

KELYNACK MEMORIAL LECTURE

Dr. HENRI REVILLIOD, of Geneva, gave the third Kelynack Memorial Lecture to the Society for the Study of Addiction at the Medical Society of London on July 12. His subject was "Some Aspects of the Problem of Alcoholism in Switzerland." Discussing the drinking habits of his countrymen, Dr. Revilliod said the Swiss drinks 100 times more wine and four times less beer than the Englishman. The wine habit had an obvious relation to the agricultural economy of the country, and the vine had been cultivated in French Switzerland since the time of the Romans. The vineyards to-day, however, covered less than half the area they did 45 years ago.

Spirits had been distilled in Switzerland since the sixteenth century, at first in the form of cherry and plum brandy. Since the beginning of the nineteenth century "schnapps" had been made from potatoes, and the moral and material misery that this liquor produced among the peasants resulted in the introduction of the federal alcohol monopoly in 1885. The effects on the descendants of the schnapps drinkers were shown by the number of abnormal children and young men unfit for military service now seen in the country. In 1930 the monopoly was extended from potato distilling to that of seed fruits, and the consumption of spirits fell from about 6 litres to 2.5 litres per head. Aperitives were drunk widely, especially in the French-Swiss towns.

Beer, nearly all of which was brewed in the country, occupied an important place among the alcoholic beverages of Switzerland. At an establishment for patients in an advanced stage of alcoholism, beer-drinking alone was responsible for 48% of the cases. Fermented cider was drunk in some quantity in north-east and central Switzerland.

Dr. Revilliod remarked that a relatively slowly developing form of alcoholism was seen in his country. In observations made during the four-year period 1933–7, Professor M. Roch, head of the medical clinic at the Hospital of Geneva, demonstrated that alcoholism occurred in 48% of male patients coming under his care for various illnesses. Similar observations were reported from Zurich. Cirrhosis of the liver, detected at necropsy, was more frequent in Switzerland than in any other country. It occurred in about 7 to 10% of post-mortem examinations. The yearly admissions to Swiss mental institutions of patients suffering from psychoses due exclusively to alcoholism numbered 20 to 25% of male entrants and 3 to 5% of females. These figures declined during the war but rose in the period 1946–8.

Measures Against Alcoholism

In Switzerland, as elsewhere, said Dr. Revilliod, legislative measures against alcoholism were preceded by the action of groups of private citizens. In 1876 a young Swiss pastor, L. E. Rochat, launched the "Blue Cross" movement for reclaiming drunkards. Twenty-five years later this society, which was based upon total abstinence, had about 38,000 members in Switzerland and other countries. Auguste Forel, the psychiatrist, introduced the "Good Templar" order, which had the same object as the "Blue Cross" but no religious associations.

As another means of preventing the abuse of alcoholism the production of non-fermenting fruit juices, such as apple juice or grape juice, was encouraged. The taxation of alcohol in

Switzerland was at present very much lower than in other countries and did not amount to even 10% of the Swiss people's expenditure on drink, compared with 40% in Great Britain. The cantons were obliged, however, to allocate at least 10% of the revenue derived from the alcohol monopoly to the assistance of inebriates and the support of organizations engaged in this task. The cantons possessed the right to pass licensing laws, to restrict the number of public houses, and limit the serving of drinks to minors. The majority of the cantons also possessed a law which permitted the authorities to intern alcohol addicts for four to 12 months in a rehabilitation establishment. In Switzerland there were 75 anti-alcoholic dispensaries, in which alcoholics received advice, aid, and free treatment. If the gravity of their case required it, they were placed in a rehabilitation establishment or in a medical or psychiatric clinic. There were nine homes for inebriates—six for men and three for women—all free institutions subsidized by the State. Since 1947 a consultative commission of legislators and medical experts had been created to co-ordinate the efforts of the cantons and the associations in treating alcoholism.

The treatment of alcohol addiction by apomorphine had given good results in the department of neurology of the Hospital of Geneva. Intravenous injections of alcohol appeared to be efficacious for calming the delirium tremens. "Antabuse" had also been used in Switzerland, but was considered by the speaker to be not without danger.

BEIT MEMORIAL FELLOWSHIPS FOR MEDICAL RESEARCH

Report of Trustees for 1948–9

Sir Alfred Beit resigned his seat on the board of trustees in October, 1948, the trustees accepting his resignation with great regret. Sir Alfred had been a trustee since the death, in December, 1930, of his father, Sir Otto Beit, the founder of the Trust. Mr. R. A. Hornby has been elected as a trustee in his place. In April, 1949, the death of Lord du Parcq, who had been a trustee since 1947, was announced. The Right Hon. Lord Simonds, P.C., has been elected a trustee in his place.

The trustees noted with great satisfaction that during the year two of their Fellows, Dr. W. T. J. Morgan (1927–9) and Professor F. G. Young (1932–6) have been elected to the Fellowship of the Royal Society; and that the newly appointed secretaries of the Medical Research Council and the Agricultural Research Council—namely, Professor H. P. Himsworth and Dr. W. K. Slater, respectively—were Fellows in the years 1932–5 and 1923–8. Professor Himsworth was a member of the Advisory Board, and in view of his new appointment asked the trustees to accept his resignation. The trustees have appointed Professor G. W. Pickering in his place.

Elections to Junior Fellowships (normal value £600 per annum) have been made as follows: D. V. Bates, M.B., B.Chir., to carry out research on respiratory function, at the Dunn Laboratory, St. Bartholomew's Hospital, London; D. B. Carlisle, B.A., to study the mechanism of the production of the anterior pituitary hormones, at the Department of Zoology and Comparative Anatomy, University of Oxford; B. Cinader, Ph.D., to investigate the formation of multiple antibodies to a single antigen and to examine their properties, at the Lister Institute of Preventive Medicine, London; J. T. Davies, Ph.D., to investigate the nature of the excitation of living cells by examining the closely similar case of built-up films of materials which recent work suggests to be responsible for the permeability of cell walls, at the Royal Institution, London; D. T. Elmore, B.Sc., to examine the hydrolysates of nucleic acids, at University Chemical Laboratory, Cambridge; A. S. Jones, Ph.D., to study the immunochemistry of bacterial nucleic acid complexes, at A. E. Hills Laboratories, Chemistry Department, University of Birmingham; June Lascelles, M.Sc., to study the metabolic function of folic acid and para-aminobenzoic acid, at the Department of Biochemistry, University of Oxford; E. Reid, B.Sc., to study the pituitary growth hormone in relation to metabolic processes, at the School of Biochemistry, University of Cambridge; B. D. Wyke, M.B., B.S., to carry out quantitative studies on the electrical activity of the brain in patients with various types of central nervous system disorders of both organic and functional type, at the Department of Surgery, University of Oxford, and at the Radcliffe Infirmary, Oxford.

Nova et Vetera

AN ELIZABETHAN SURGEON

The Selected Writings of William Clowes, 1544–1604. Edited, with an Introduction and Notes, by F. N. L. Poynter, B.A., F.L.A. (Pp. 179. 15s.) London: Harvey and Blyth, Ltd.

William Clowes is a familiar figure in the medical history of this country, but few have any acquaintance with his actual writings. This is regrettable, since Clowes was not only one of the founders of British surgery but a writer whose works—in English, not in Latin—embody the spirit of the Elizabethan age. The reason certainly is that the works themselves are now amongst the scarcest of English medical works, and Mr. Poynter therefore deserves gratitude for his charming selection from Clowes's writings and for his scholarly introduction and editing.

Clowes was born in 1544—and not in c. 1540, as the editor shows convincingly—and, after serving as a surgeon to Leicester's expedition to Normandy, became full surgeon to St. Bartholomew's Hospital and surgeon to Queen Elizabeth. He had great experience of military surgery, and quotes freely from the practice of the father of that branch of surgery Ambroise Paré. Of his three books the last, dealing with Struma or the King's Evil, appeared in 1602 and was not again reissued. His other two works, on the *Morbus Gallicus* and his *Prooved Practise for all young Chirurgians*, are a bibliographer's nightmare. They both went through several editions, changing their titles from time to time.

The work on surgery is the better-known and probably the more important from the medical aspect. This work is written in the form of a series of case reports, in which the author sets out in vigorous prose the cause of the conditions, the patient's relations with his doctors, and the treatment adopted by Clowes himself. Some of his operations are a great credit to his knowledge and experience. For the arrest of haemorrhage after amputation he employed a styptic powder which he tried out thoroughly before making it available for the use of others. He was not keen on the cautery, and in one passage he refers to "the hot glowing irons, which are very offensive to the eye." His instruments were on the whole those of Paré, modified to suit his own needs. These were rough days, and a surgeon who failed to cure—or even to please—a powerful patient stood a good chance of being maltreated by the household servants. At that date the surgeon had not become emancipated from astrological beliefs, and in one report Clowes says that one of his patients was in greater danger because he got his wound very near the full of the moon. He despised and hated all quacks, and he had no illusions about the hard work required before a man could become a good surgeon. "For anyone to suppose or dream that the art comes to a man by succession, because happily his father was a good surgeon, it is a paradoxical opinion, very foolish, absurd and fantastical."

In the time of Clowes syphilis was rife in this country. He says that at St. Bartholomew's half of all patients seen were suffering from that disease, and in five years over a thousand patients had treatment for it. In one passage he describes the tragic effect of inhalations of brimstone and mercury used in treatment. His small book on the King's Evil is of great interest also to the social historian. It contains an interesting account of the treatment which a patient adopted after having been "touched" by the Queen. "I never applied any medicine at all, but kept it [the lesion] clean with sweet and fresh clean cloths, and now and then washed the sore with white wine." A flight from the doctrines of Guy de Chauliac!

This book, carefully edited and well produced, should be of value to all who are interested in the history of surgery.

E. ASHWORTH UNDERWOOD.

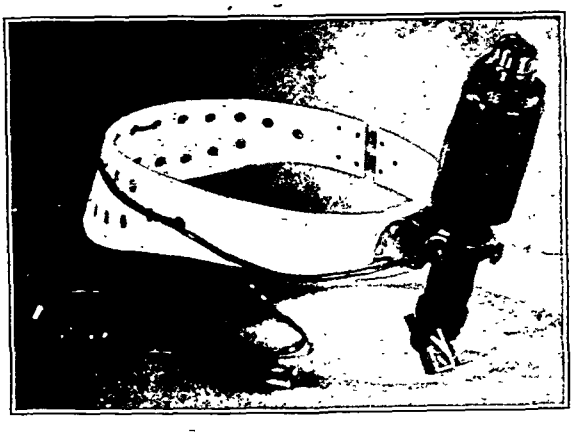
Preparations and Appliances

HEADLAMP FOR E.N.T. SURGERY

Mr. G. W. MOREY, of Lincoln, writes: The problem of designing a satisfactory headlamp is a most difficult one which has interested me for more than ten years. In order to be efficient, such an instrument must conform to the following standards: (1) the light must be of high intensity; (2) the beam must be either coincident with, or parallel to and in line with, the visual axes; (3) the light must be focused into a clear homogeneous circle; (4) the whole apparatus must be light in weight and not be too bulky; (5) it must not get too hot.

Bulbs varying from 2 to 24 volts have been manufactured for my experiments. Unfortunately, though the higher voltage lamps gave considerably more light, they were unsuitable because of their size and heat. The present lamp employs an optically correct bulb of 12 volts, and has a specially wound horizontal filament giving 12 watts. The size of this bulb necessitates a rather bulky lamp-housing, but with an outer casing for heat dissipation the instrument is light and well balanced, and has been worn continuously for more than three hours without discomfort.

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means of which the beam can be directed horizontally (when, for instance, it is desired to do a tonsil dissection from the sitting position) or slightly downwards. Since the light axis is roughly parallel to and between the visual axes it is quite possible to use this instrument for endoscopy. If desired a hole may be made in the centre of the mirror so that, when adjusted over the eye, the operator may look along the beam itself. The barrel of the headlamp may be moved up or down or rotated after slackening off a clamping screw. Once adjusted to the user's individual requirements it need not be moved again. For certain ear, nose, and throat operations it may be found necessary to use magnifying spectacles. These fit comfortably under the mirror.

The headlamp is carried on a standard vulcanite headband and is connected by a convenient length of thin lightweight plastic wire to a small resistance. The shorter wire from the resistance to the mains terminates in a combination plug which will fit three varieties of sockets. It is fitted with a "through" switch, and this, when pinned by means of a towel clip under his gown, gives the surgeon complete control of his light. A small connecting plug-and-socket situated just below the switch allows the wire to be "broken" through the gown.

The lamp is manufactured by Theodore Hamblin, Ltd.

Correspondence

Distinction Awards

SIR,—As chairman of the medical committee of a teaching hospital I have recently received a signed circular letter from the chairman of the Distinction Awards Committee appointed by the Minister of Health, inviting recommendations for the grading of the consultant staff into those eligible for distinction awards and those not, and for the further classification of the first category into those meriting highest, second, and lowest awards respectively.

The letter also indicates that the Awards Committee would not regard with disfavour the delegation of this task by the medical committee to three or four of its number, these latter then to report their recommendations confidentially to the Awards Committee without notifying their colleagues what these are. The reason given for this invitation is the explicit admission that by itself the Awards Committee cannot satisfactorily discharge the responsibilities its members have undertaken, owing to lack of local knowledge.

Few, indeed, would dispute that the Awards Committee has a wholly impossible task, but many will regard it as being so not from any simple matter of lack of local knowledge but from its very nature, and likely to remain so no matter how freely the Awards Committee may farm out its responsibilities to small bodies reporting confidentially. It is one thing to grade a series of posts but quite another to seek to grade professional distinction, and it passes my comprehension that anyone who has spent his working life in medicine—unless as an administrator—could suppose that a grading of this order can be rationally and equitably accomplished. Even the assessment of purely scientific achievement in men of science, such as may be needed, for example, in the matter of election to membership of learned societies, is difficult enough, though here no vexing questions of money values arise. How utterly illusory, therefore, must be the hope of pricing "distinction" in the profession of medicine, where so many diverse factors of personality and achievement are involved and there are so many red herrings to be drawn across the trail.

It is idle to discuss this question unless we are candid about it. I ask, therefore, What constitutes "distinction" in medicine? Is it aptitude in the variegated arts of worldly success? Is it clinical wisdom, therapeutic fervour, or the acceptable usage of the forms of sickroom politeness? Is it the gift of training students or fruitfulness in original research? Is it the acquisition of seniority by lapse of years or a flair for planning the activities of one's colleagues? Is it to be a Mary or a Martha in medicine? How are these incommensurables, these diverse qualities of mind, heart, and worldly wisdom, to be comparatively assessed in terms of sterling? What are we to feel about a committee, apparently so unaware of the essential nature of what it is setting out to do that it can suppose that no more is necessary for its successful accomplishment than sufficient local knowledge?

I submit that there is no practical answer to these pertinent questions and that no committee can achieve a grading of a congeries of diverse human qualities, arbitrarily dubbed "distinction" for the occasion, that will satisfy the demands of reason or equity on the one hand or fulfil the natural desires of 96% of the consultant body on the other. Indeed, what more sure way of sowing discord amongst the members of hospital staffs could be devised than this setting up of an *ad hoc* body to price them as though they were professional soccer players; and, if university professors are to be differentiable like the rest of us, the invidious distinctions that are inevitable must make the most hardened cynic sorry for them.

Surely we may see in this another revelation of where the central control of medicine is leading us—namely, from the free status of a learned profession to that of a sub-group of that drab and alien abstraction "economic man." Is it too sanguine to hope that before this irrational affair has gone any further there will be some protest against it, and that some of the



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Cases such as those quoted are common in all communities. The series was of interest and value in describing briefly the personality and background of the type of patient to develop such symptoms. But all these patients might under different circumstances equally well have developed locomotor, effort-syndrome, neurological, or abdominal symptoms, or persistent headache, or any other of the myriad complaints that we are beguiled with. The diagnosis in each case was psychoneurosis, and the presumptive diagnosis of rheumatism was wrong.

This may seem a small point. But it is of first importance that all medical training should be directed towards recognizing the group of the psychoneuroses as a disease entity in whatsoever form it presents itself. The authors of the paper use their valuable material to show that psychogenic rheumatism is an entity by itself—which is nonsense—instead of to show that the difficulty of diagnosis between rheumatism and psychoneurosis is extremely difficult—which is all too true.—I am, etc.,

Emsworth, Hants. E. B. MCDOWALL.

SIR,—With reference to the article by Drs. William Tegner, Desmond O'Neill, and Anna Kaldegg (July 23, p. 201), surely an attempt to define "psychogenic rheumatism" as a clinical entity is somewhat unprofitable in the present state of knowledge of psychodynamics. While no one will be disposed to deny that "significant psychiatric abnormality" is more likely to be found in patients who show no evidence of an organic aetiological factor, it is certain that a considerable proportion of patients who do show organic pathology show in addition the operation of emotional factors (in spite of the authors' claim that in 13 controls the onset of illness appeared to be fortuitous). Detailed life histories of the control group would therefore have been of at least as much interest as the case histories of the test group.

A psychosomatic affection, as defined by Halliday,[1] is "a bodily disorder whose nature can be appreciated only when emotional disturbances . . . are investigated *in addition to* physical disturbances"; and, since the authors explicitly say that they are trying to formulate a psychosomatic condition, it is unreasonable of them to take as a diagnostic criterion "failure to conform to an established organic syndrome." It must be emphasized and re-emphasized that the psychological and physical approaches to diagnosis—and treatment—are not mutually exclusive. They are complementary. To say that a syndrome is either psychogenic or organic in origin is to oversimplify to a dangerous extent. It would be of considerable interest if the authors were able to correlate the complaint of rheumatic pain—with or without organic changes—with any particular type of personality or with any particular kind of emotional reaction-pattern. The short case histories published are of little help in this respect.

There are two other questions to which the answers would be interesting. (1) Would not group psychotherapy of the control group be worthy of study? Even if this is considered to be therapeutically valueless, it might help to clarify the personality pictures and emotional reactions of members of the group. (2) Is there any evidence that sufferers from rheumatism who have organic pathology regard their suffering as less "important, interesting, and worthy of sympathy" than those in whom no organic lesion is found?—I am, etc.,

Glasgow. JAMES R. MATHERS.

REFERENCE

[1] *Psychosocial Medicine*, 1948, London, p. 45.

SIR,—The article by Drs. William Tegner, Desmond O'Neill, and Anna Kaldegg (July 23, p. 201) is interesting in its content and clearly the result of painstaking work. Nevertheless, it suffers from a lack of precision in the definition of the precise syndrome under investigation. If the term "psychogenic rheumatism" is to serve any useful diagnostic purpose it must be clearly differentiated from psychoneurosis with accompanying somatic symptoms. Otherwise the whole trend of the argument is merely to prove the existence of something that is already widely accepted and described in standard textbooks.

The crux of the matter appears to be the use of the word "rheumatism." As far as can be seen it is being used because this group of patients display somatic symptoms of apparent skeletal origin that cannot be rationalized to a recognized pathology. But can this be accepted as a reason for the introduction of a new syndrome? Is there anything in the clinical description or diagnostic criteria that is not equally applicable to a psychoneurosis with somatic manifestations? Are we therefore to jettison the term psychoneurosis completely except in those patients where the somatic symptoms are absent?

It is hard to see what has been gained and easy to see the difficulties added to an already confused diagnostic picture. For the picture is confused. At one end of the scale there is the frank psychoneurosis with diffuse, sometimes contradictory, somatic symptoms. At the other end there is the "organic" non-articular rheumatism; the "neuralgia" of approximate segmental distribution; the fibrositis conforming to a recognized anatomical and physiological pattern. In between there is every shade of variation in the clinical picture presented.

Others may feel with me that an either/or approach to the problem is a fallacious simplification and that the approach should be in terms of the whole organism, psyche and soma, in relation to its environment.

The authors give five diagnostic points under the heading "Diagnosis and Treatment." I feel it would be wrong to pass over without comment the fifth point they list—"lack of response to physical treatments." Surely the essence of diagnosis is that it should be made on positive evidence, and this is generally recognized to be of particular importance in the psychoneuroses. Initial fruitless treatment based on an error in diagnosis undermines the confidence of the patient when the error is corrected and may tend to fix the somatic pattern more firmly. In addition subsequent treatment is rendered more difficult. We all make such errors frequently, but it should always be recognized primarily for what it is, an error, and not be elevated to the false dignity of a justifiable diagnostic "point." Furthermore, if we accept the validity of this view, the converse is equally acceptable. That is that the success of organic therapy in the relief of symptoms can be accepted as satisfactory proof that the organic diagnosis was correct. It only needs to be stated for the weakness of the reasoning to be apparent. The physiotherapy departments to-day bear witness to this faulty logic.—I am, etc.,

London, W.2. A. F. KENNEDY.

"Fibrositis" and Rheumatism

SIR,—It is a great pleasure to me to find Dr. W. S. C. Copeman (July 23, p. 191) ranging himself on the side of those who, like myself, no longer believe that the fibrous tissue in the muscles of the trunk becomes inflamed for no apparent reason and a disease called "fibrositis" results.[1] This support indeed helps, as Dr. Copeman claims, to turn over a fresh page. The question is, however, whether in connecting pain at the posterior aspect of the trunk with fatty lobules there he is turning the page backwards or forwards.

The fatty lobule idea arose in the following way. Finding that healthy young men were apt to suffer "fibrositic" pain in the lower back, Copeman and Ackerman[2] carried out post-mortem dissections on the lumbar muscles in a number of young soldiers, whether they had previously had backache or not. Had their assumption been securely based all might have been well. They found the muscles normal, but discovered lobules of fat in and about them, to which they then related "fibrositic" pain. Their article does not mention any investigation of the joints of the lower back. Their work thus rested on the dubious postulate that lumbar pain results not from articular but from muscular disorders and that it is in the muscles that the cause must be sought. Since Dr. Copeman now mentions disk lesions as a possible cause of lumbar pain he must be aware of the criticism invited by this muscular hypothesis.

The article, so exhaustive in other respects, mentions no physical signs whereby those cases can be distinguished in which tender deposits in muscle are and are not causing symptoms. Tenderness is stated to be considerable over lobules causing symptoms, less so over those that are not. This is not much help, and invites deception in cases of functional pain, when great tenderness is usually a prominent feature.

In fact there exists a very simple clinical test distinguishing between pain originating from a joint and from adjacent muscle. The function of muscle is to contract; if it does so fully and painlessly it cannot be causing the patient any pain, however tender or nodular it happens to be.[1] If a muscle is made to contract against such resistance that no movement takes place the tension on the muscle alters, but the joint remains stationary. If this attempt at movement causes or aggravates pain a muscle lesion is present. Since it is clearly desirable in any case of backache, before proceeding to palpation, to find out whether the lesion is muscular or articular, the joints and muscles should be tested separately first. This is the more important since referred pain, referred tenderness, myalgic spots, and trigger points are all commonly present at the site of pain in the dural and nerve-root lesions set up by disk protrusion. Trigger points, etc., result from the lesion causing pain; they are not primary.[4]

The clinician's only safeguard is to test each muscle individually against resistance; this singles out the muscle at fault—if there is one. This is the only way to find out whether or not to disregard the tender fat lobules that Copeman and Ackerman's own dissections, no less than everyday clinical experience, have shown to exist in many normal subjects without interfering with muscle action.

I have spent many years examining muscles and joints in this way and warmly commend it to those who would like to know at what structure to look for the lesion in cases of pain in the trunk or indeed about any part. Another virtue of this method is the quick detection of functional symptoms that it provides. When the active, passive, and resisted movements at a joint are tested, patients who have no local lesion must answer at random, and a self-contradictory pattern soon emerges. This system, so quick and simple to use by the examiner, confuses only those patients whose pain possesses no organic basis. We have found it, in reverse, a valuable criterion for detecting genuine local lesions in patients obviously neurotic; a common injustice is thus avoided. Dr. Tegner and his colleagues (July 23, p. 201) have done us a great service in emphasizing the frequency of functional symptoms in patients sent for physiotherapy.

Every layman knows what "rheumatism" is, but there exists no acceptable medical definition. If it is to mean anything at all (except of course in rheumatic fever) it must indicate some non-specific lesion of moving parts, chiefly of muscles and joints. My disagreement with Dr. Tegner is therefore only on nomenclature. Psychogenic "rheumatism" is self-contradictory, for if the lesion lies in the patient's sensorium the word rheumatism becomes inappropriate. "Functional" or "psychogenic pain" avoids all attempt at fusion of two incompatible words and provides an unambiguous alternative.—I am, etc.,

London, W.1. JAMES CYRIAX.

REFERENCES

1 Cyriax, J., *British Medical Journal*, 1948, **2**, 251.
2 *Quart. J. Med.*, 1944, n.s. **13**, 37.
3 Cyriax, J., *Rheumatism and Soft Tissue Injuries*, 1947, London.
4 —— *St. Thomas's Hospital Reports*, 1949, in the press.

Strains of Bact. coli

SIR,—It seems quite likely that whenever a new publication appears on the subject of *Bact. coli* in relation to gastro-enteritis it will be found that the authors have coined a fresh name for the bacteria or the strains which they have isolated, although these may in fact be *Bact. coli* of the same serological type. Giles and Sangster[1] have stated that the strains they isolated in Aberdeen were identical serologically with those originally isolated at Hillingdon by Bray.[2] Drs. Joan Taylor, B. W. Powell, and Joyce Wright (July 16, p. 117) say that their strains are identical serologically with those of Giles and Sangster. It follows therefore that the D 433 strains of Dr. Joan Taylor and her colleagues are identical with Bray's original strains—a point which they did not make in their paper.

A summary of the nomenclature up to date is as follows. (1) Bray, 1945, and Bray and Beavan,[3] 1948, referred to these bacteria as *Bact. coli neapolitanum*, and the two strains in circulation among bacteriologists are called Lindsay and G. R. (2) Giles and Sangster, 1948, and Giles, Sangster, and Smith,[4] 1949, refer to the bacteria as *Bact. coli neapolitanum* type *alpha*. The *beta* type described by them, also in association with gastro-enteritis, is a serologically distinct type. (3) Taylor, Powell, and Wright, 1949, refer to the bacteria as *Bact. coli* D 433. I shall also immodestly add (4): in Holland, where these bacteria are being found (personal communication by Dr. ten Seldam), they are even referred to as *Escherichia coli bray*.—I am, etc.,

London, N.W.1. JOHN BRAY.

REFERENCES

1 *J. Hyg., Camb.*, 1948, **46**, 1.
2 *J. Path. Bact.*, 1945, **57**, 239.
3 Ibid., 1948, **60**, 395.
4 *Arch. Dis. Childh.*, 1949, **24**, 45.

Zoster and Varicella in the Same Patient

SIR,—I was interested to read letters from Dr. A. Courts (June 11, p. 1052) and Dr. C. E. Taylor (July 9, p. 100) on the coexistence of herpes zoster and varicella. This combination cannot be considered rare and is in fact not uncommon in a hospital admitting infectious diseases from a considerable catchment area.

I have had five such patients under my care at the Neasden Hospital during the last three months. In one case the two manifestations appeared concurrently. In four cases the varicella developed in periods of 2–15 days after the appearance of herpes zoster and before it had healed. The nervous lesions involved the area of the first, second, third, and fourth lumbar roots in one case, and the second, third, and fourth sacral roots in another; in the remaining three cases it was the ophthalmic division of the fifth cranial nerve.—I am, etc.,

London, N.W.10. W. F. TWINING MCMATH.

SIR,—Further to the letters on this subject in the issues of June 11 (p. 1052) and July 9 (p. 100) we record particulars of another instance of this occurrence.

A male patient aged 84 years was recently admitted with well-marked herpes zoster involving the distribution of the posterior root of the second cervical nerve, accompanied by a typical attack of mild chicken-pox with characteristic distribution. No contact history with either complaint could be established, and he had no recollection of a previous attack of chicken-pox. The herpes zoster had preceded the onset of the varicella by six days.

As some of the immature varicellous lesions presented a haemorrhagic appearance and the base of some of the mature lesions was unusually hyperaemic, the possibility of vitamin-C deficiency was considered likely, especially as the patient admitted he seldom partook of fresh fruits. The ascorbic acid saturation test showed a considerable deficiency of vitamin C, although no other clinical evidence of deficiency was apparent.

Apart from the relative infrequency of this concomitance of chicken-pox and herpes zoster the case is additionally interesting in view of the very advanced age of the patient.—We are, etc.,

Ilford, Essex. J. H. WEIR. G. LAING BROWN.

Eclampsia and Peritoneal Haemorrhage

SIR,—I have read with much interest the article entitled "Rupture of Liver Associated with Parturition" by Dr. Jean R. C. Burton-Brown and Dr. J. A. Shepherd (May 28, p. 941). The prophetic suggestion of Rademaker that sudden death during eclampsia may sometimes be due to a ruptured liver was rejected by the writers of the article. The following brief notes of a case may prove of interest to your readers.

An East Indian woman of 30, para 8, was admitted to hospital with a history of having had a fit at 6 a.m. on Feb. 4. In the ward she had two fits—the first at 7.30 a.m., and the second at 9.30 a.m. At 4 p.m. her condition was satisfactory. The patient died suddenly at 5.15 p.m. Post-mortem examination revealed that the peritoneal cavity was full of fluid blood and blood clot. This had come from a very large subcapsular haemorrhage on the upper surface of the left lobe of the liver, which had ruptured the capsule at one point. The liver showed advanced eclamptic changes. The kidneys were pale and the cortex swollen. Nothing else abnormal was noted. Death was attributed to peritoneal haemorrhage and eclampsia.

—I am, etc.,

Port of Spain, Trinidad. JAMES A. WATERMAN.

The M.R.C.P.

SIR,—In the annotation "The M.R.C.P." (Aug. 6, p. 327) you ask a pertinent question, but do not suggest an answer. Thus you write, "When the College states that membership 'should signify a knowledge of general medicine that justifies further training as a consultant' the question must be asked, What further training is to be considered necessary, and who is to decide at the end of such training that the possessor of the M.R.C.P. is or is not 'a failed consultant'?" May I suggest several answers to your question?

First, it would be well if the M.R.C.P. were really considered to have the significance suggested by the Comitia of the R.C.P., because it would then be a qualification open to the general practitioner whose interests are mainly in general medicine, while it would also be a jumping-off place for the future consultant. If this were admitted there should then be a further examination for those who consider themselves fit to be consultants; and this examination should be adapted to the desires and capabilities of the individual candidates. Thus, for the men who wish to become general physicians (and let us hope that the race is not to become extinct), the higher examination would be one in general medicine; while for the aspiring specialist the examination would be, primarily at least, in his chosen subject. If the second suggestion were accepted there should be no limitation on the candidates in the matter of their "specialty," although if a man proposed a new subject he would have to justify his opinion that it deserved to be considered as a "specialty."

Such a plan would convert the present M.R.C.P. into a sort of primary examination for the Fellowship (for I suggest that those who passed the second examination should automatically become Fellows), while the whole machinery would be so flexible that there would be no difficulty in establishing new specialties so long as their exponents could convince the College that they were valuable. Details would, of course, have to be worked out. For instance, it might be wise for the regulations for the Fellowship to include a demand for a thesis or for submission of published work, while it would probably be wise to limit admission to the examination to those over the age of 30, or perhaps even over 34.

I am sure that some will ask how the member is to qualify himself for the Fellowship examination, and I feel strongly that he should have complete freedom in the matter, because, although the rudiments of a specialty can be taught, the task of really learning to be a specialist is a matter of personal initiative. Such a procedure would represent a real islet of freedom in our medical system, because each candidate could prepare himself as he thought best, although, of course, if he proposed to be examined in a "new" subject he would first have to convince the College that it was sufficiently important to be regarded as a specialty. I do no more than throw out these few suggestions, realizing that there may be some difficulties in carrying them into effect.—I am, etc.,

London, W.1. A. PINEY.

Mepacrine Dermatitis

SIR,—May I be permitted to suggest a small correction in your annotation (July 30, p. 275) on the above condition? The correction is in reference to the sentence, "It is now agreed that the ingestion of 0.1 g. or more daily of mepacrine for several months was the cause of this condition." I would point out that I stated in the article following that of Peterkin and Hair (*Brit. J. Derm. Syph.*, 1946, 58, 263) quoted in the annotation that I had observed lesions of mepacrine dermatitis in troops newly arrived in India—i.e., who had been on suppressive mepacrine therapy for a few weeks only.

The subject of mepacrine dermatitis has been one of interest to the North of England Dermatological Society in the past year. I have shown a case producing identical lesions—a case of rheumatoid arthritis under gold treatment. Other members of the Society have described similar cases, and Dr. Twiston Davies has mentioned two cases of cardiac oedema taking Guy's pill, producing lesions similar to those of mepacrine dermatitis. It appears therefore that mepacrine is only one of a number of drugs capable of producing this type of skin manifestation.—I am, etc.,

Bradford. ALLAN BIGHAM.

Syringes

SIR,—I observe that Dr. Douglas Gairdner has made a plea (July 30, p. 282) for the standardization of the Luer nozzle or hub fitting on all hypodermic syringes. I would like to reinforce this plea, as these syringes (being of American manufacture) are now unobtainable here and, as I have previously indicated (*Proc. R. Soc. Med.*, 1946, 39, 460), have particular advantages for ophthalmic work. This has been brought home to me with considerable force recently, as the few in my possession are wearing out and the contrast with the standard British fitting which I am compelled once again to use is very great.—I am, etc.,

Leeds. JOHN FOSTER.

Treatment of Stress Incontinence

SIR,—I join with my colleague Mr. Keith Vartan (July 9, p. 99) in admiring the technique of Mr. Wilfred Shaw's operation for the cure of stress incontinence. I do assert, however, that these arduous and technically difficult fascial sling operations are unnecessary. My operation[1] for the cure of this condition restores, underneath the urethra and particularly the neck of the bladder, those tissues which support these structures under stress, and is thus physiological in principle.

But it is results which count. In over 150 operations for the cure of stress incontinence (either for this condition alone, or combined with cystocele, or even vault prolapse) I have had two failures, one of course being in a "private" case. It has once been successful in "virginal" stress incontinence, and in another case where three attempts elsewhere had been made to cure this condition. These figures almost bring their own condemnation, for they show a success rate higher than in almost any constructive operation. They are, nevertheless, true. The fact remains, however, that, in my hands at least, the operation I have devised is so eminently successful that I can see no necessity for any form of sling operation. May I suggest that my operation be tried first, and if it be true that I am suffering from "the optimism which affects all inventors of operations for stress incontinence" I shall be only too glad to abandon my operation and join with Mr. Vartan in his enthusiasm for slings.—I am, etc.,

London, W.1. MORTIMER REDDINGTON.

REFERENCE

1 *Brit. J. Urol.*, 1948, 20, 77.

Growth of Foetal Head

SIR,—In a recent paper by Blair Hartley[1] on the radiological detection of foetal abnormalities there occurs a very important paragraph which asks a question and carries a challenge demanding answer. He writes:

"A point to which further attention should be given is the statement which has been repeated in the past, that the foetal head continues to enlarge at the same rate during the later months of pregnancy. The late R. E. Roberts, for example, based his method of estimation of foetal maturity upon this assumption, but I have long had doubts regarding its correctness, and I have recently had the opportunity of examining the work of Dr. Sydney Josephs, who has already measured many foetal skulls by precision *x*-ray methods at 36 weeks and at birth, and he has been unable to show in the foetuses examined any increase in the diameter of the foetal head during the last four weeks of gestation. Indeed, is there any precise evidence to the contrary? It is important to emphasize the point that this applies only to normal-looking foetal skulls. It does not apply in hydrocephalus."

Now this appears to be a question to which a definite answer should be expected. Either the foetal skull increases its diameters by one-tenth of an inch (0.25 cm.) each week after

the thirty-sixth week or it does not. In all humility I suggest the radiologists are the only people who can answer the question accurately. If, as Blair Hartley suggests, the foetal head does not enlarge during the last four weeks, then all those who induce labour prematurely for apparent disproportion, either in primigravidae or in multiparae, will need to have a very clear idea of what they hope to achieve thereby. For, apart from the size of the skull, the mere bulk or weight of the foetus is the only other factor which can helpfully be reduced by premature induction of labour. And while it can be argued that such reduction in bulk is of great importance in breech delivery it can hardly be considered of common importance in cephalic delivery. It is for this reason that I suggest that this question is of no little significance.—I am, etc.,

London, S.E.18. ARCHIE G. MURRAY.

REFERENCE

1 *Proc. R. Soc. Med.*, 1949, 42, 301.

What is Social Medicine?

SIR,—In the *Journal* of July 16 (p. 125) you published a paper by Professor W. Hobson entitled "What is Social Medicine"? I happen to be one who has spent a lifetime in the Public Health Service and in the study and practice of preventive medicine, and I confess I have been somewhat mystified by the term "social medicine" which has become so fashionable in recent years, wondering in what way it differed from the public health work with which I had been connected. So, with the hope of having my doubts answered by Professor Hobson, I read his paper with great interest and expectation.

Although I must say I found the paper admirable in many respects, I could not find in it anything to show that social medicine in its objects and practice is very different from the old public health or preventive medicine as practised in this country during, say, the last 25 years. Social medicine is defined by Professor Hobson as the study of those environmental factors which affect health and the application of that study to the benefit of man. Surely this is nothing new, for such study and application have always been the role of public health work. Indeed, by quoting a sentence from the Memorandum of the Ministry of Health on the duties of medical officers of health to the effect that he, the medical officer of health, should endeavour to acquire a knowledge of the influences—social, environmental, and industrial—which may operate prejudicially to health in his district, Professor Hobson himself shows that all these factors were not overlooked in the old public health.

Professor Hobson says that the term "social medicine" is necessary because the older terms—public health and preventive medicine—are too limited in their scope, and that there are many factors not mentioned in the Public Health Acts which affect health. This is quite true, for the Public Health Acts deal mainly with requirements which can be enforced by law, but surely it is not true to say that public health work in the past has been confined to the enforcement of these Acts. Indeed, Professor Hobson himself supports this view when he quotes as an example of the need for studying factors outside the physical environment the researches of the late Dr. M'Gonigle on the health of people transferred from slums to new housing estates, but Dr. M'Gonigle was a medical officer of health, and no doubt he regarded these inquiries as part and parcel of his official duties. A study of the annual reports of medical officers of health for many years past, or the annual reports of Arthur Newsholme, George Newman, and their successors at the Ministry of Health, will demonstrate that many and varied researches have been made by these officers and their staffs into matters now considered to be the particular concern of social medicine.

It is true that during the last century and in the earlier years of this century public health work, apart from infectious diseases, was almost wholly concerned with drainage, water supplies, nuisances, and the like, but with the introduction of maternity and child-welfare and school medical services, followed by those for tuberculosis and venereal diseases, a great change came over the scene, and public health became infused with new interests, largely social in character. I have been concerned in this letter only to vindicate, if that is not too strong a word, the work of "public health" in the past, for I see clearly that great changes are impending, and are indeed unavoidable. I can see a great break-up of the environmental work of the medical officer of health, and if social medicine can infuse new life into a service which is threatened with death by inanition then I say, God speed to social medicine.

I hope Professor Hobson will forgive me the few mild criticisms which I have submitted, for I really enjoyed reading his paper and agreed with much he had to say, particularly where he pleads for a closer integration between preventive and curative medicine.—I am, etc.,

Torquay. THOMAS GIBSON.

Intrauterine Manipulations

SIR,—With reference to the "overglove" for intrauterine and other manipulations described by Dr. J. A. Moyse (July 23, p. 230) I should like to mention a similar device designed by me and described in *Ginekologia, Polska* (1933) under the title "Sterile Access to the Uterine Cavity."

It consists of a rubber cuff about 4½ in. (11 cm.) long which extends at one end into a flattened shield with a metal frame attached to its edge. The longitudinal silk threads inside the rubber prevent stretching of the cuff lengthwise while the transverse stretch remains unhampered. The cuff is lined with gauze, the folds of which allow the cuff to be stretched transversely but not longitudinally. When in use the metal frame is attached with clips to the sterile sheet covering the operating field in such a way that the flat rubber shield covers the perineum and the surrounding skin of the vulva and the opening of the cuff comes opposite to the introitus of the vagina. Then the cuff may be inverted into the vagina when the hand passes through the vagina, or by a tubular or any other vaginal speculum.

Because the cuff is non-stretchable lengthwise, it cannot slip over the surface of the vaginal membrane when inverted, and it thus prevents the transfer of the bacterial flora from the lower to the upper part of the vagina. The gauze lining, which is turned towards the skin of the vulva and the membrane of the vagina, absorbs the mucous secretion which otherwise would be spread over the rubber surface of the cuff, and it thus prevents the transfer of organisms to the upper part of the vagina. The grasp of rubber in the frame takes the place of the hand pulling the "overglove" in Dr. Moyse's diagram, and thus the left hand is free. This is important, as the free hand should be placed on the abdomen over the fundus of the uterus when passing the other hand through the vagina to the uterine cavity.

The usefulness of the instrument was confirmed by the bacteriological examination of the pieces of the gauze lining taken from several places corresponding to the different levels of the vagina after the instrument had been used.

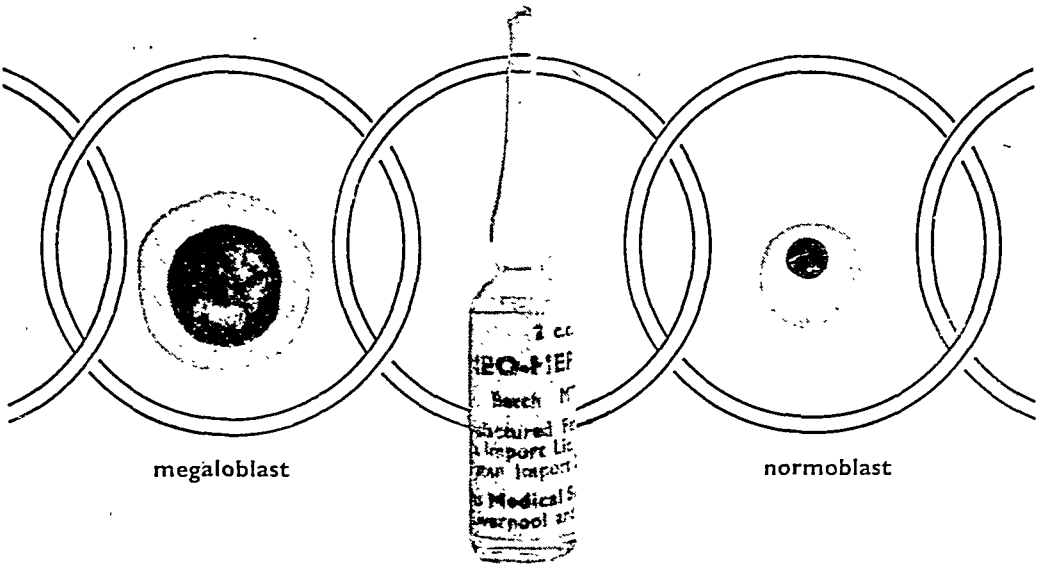
This instrument can be used for vaginal examination before or during labour, and for all obstetrical operations done by hand or instruments inside the uterine cavity. Although the consequences of infection are less dangerous now in the era of sulphonamides and penicillin, there is no doubt that Dr. Moyse is right in his opinion that the problem of the sterile access to the uterine cavity will always be one of great importance.—I am, etc.,

London, W.3. C. UHMA.

Breast-feeding

SIR,—Dr. F. H. M. Dummer will not mind an observation on one sentence of his excellent article (July 2, p. 14) from a classmate and fellow breast-feeding supporter. He says, "The number of babies completely breast-fed at 6 months was estimated at the low figure of 13.2%." Now rightly or wrongly this gives the impression that a higher figure would have been considered more desirable. If it is correct that it is necessary to give a breast-fed baby vitamin supplements from an early age, then presumably Nature, which could not have foreseen the generosity of the Ministry of Food, must have intended

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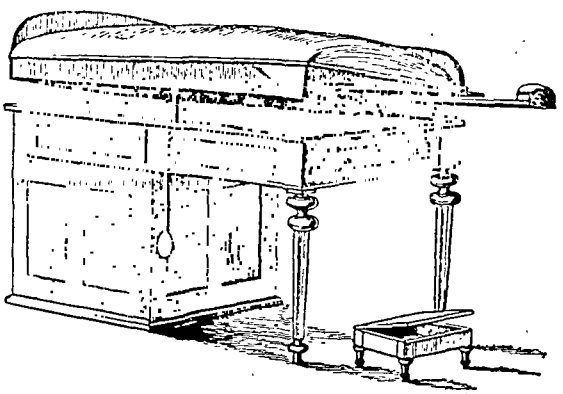
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that mixed feeding should begin much earlier than is the common practice.

The opponents of unconditional breast-feeding are, I believe, more opposed to breast-feeding being carried on too long, and to breast-feeding insufficient in quantity and not assisted by bottle-feeding after each breast-feed, than to breast-feeding in general. Possibly some reconciliation of the two viewpoints could be achieved along these lines, and, much more important, more mothers might be willing to breast-feed if they were told that weaning might be commenced at 4–5 months and completed at 6–7½ months, depending on health and size, instead of begun at 6 and finished at 9 months, as seems to be the common practice, quite unnecessarily, with bottle-feeding.—I am, etc.,

Saxmundham, Suffolk. JOHN SLEIGH.

Child-guidance Clinics

SIR,—According to your report (July 9, p. 90) of the meeting of the Sections of Child Health and Preventive Medicine on June 30, Dr. D. D. Payne suggested that reference of pupils to a child-guidance clinic should be by the school medical officer. His reported statement infers that other sources of reference should be closed. Not long ago, at a formal meeting arranged to discuss child guidance, a county medical officer of health said that in his opinion (an influential one) there was no need for child guidance in his county, and that in any case he did not believe in it.

My own experience of child-guidance clinics during the past six years has been that the majority of cases were referred by the family doctor, who surely is in the best position to know of the need for this highly specialized treatment.—I am, etc.,

Wimborne, Dorset. J. S. HORSLEY.

The Children Act

SIR,—Dr. John Dale (July 30, p. 284) does not appear to have read the Children Act. The Act is designed to enable local authorities, through their children's committees, to stand *in loco parentis* to children who for one reason or another fall into public care and thereby lose home background. In implementation of the Children Act the local authority children's committees are empowered to find individual children suitable substitute homes. It is also their responsibility to form proper liaison with the health and education committees of the council, and to ensure that children have adequate medical care and educational opportunity.

Dr. Dale can be assured that the care of children deprived of normal home life is not restricted to "health and hygiene," which still remains the prime concern of the health authorities.—I am, etc.,

Birmingham. HELEN MURTAGH.

Memorial to Sir John Fraser

SIR,—There must be many who would be eager to contribute to a memorial to Sir John Fraser, Bart., the late Principal of the University of Edinburgh. These would include his old students, his patients, and all those who had the pleasure of working with him in the course of the many public duties to which he gave himself so unsparingly.

With the consent of Lady Fraser and her family, a small committee has been formed to receive donations to a fund for this purpose. The form which the memorial might take is a matter for suggestion and discussion; it is felt, however, that the income of the fund might be applied in the provision of a scholarship, prize, or travel grant to be awarded annually to some young surgeon or surgeons of promise.

Contributions, which should not exceed ten guineas, should be sent to Mr. John Bruce, C.B.E., F.R.C.S.Ed., Department of Surgery, Teviot Place, University of Edinburgh, not later than Dec. 1, 1949.—We are, etc.,

EDWARD V. APPLETON.
F. E. JARDINE.
J. M. GRAHAM.
JAMES LEARMONTH.

Edinburgh.

POINTS FROM LETTERS

Petroleum Jelly as a Dressing

Dr. R. E. HOPE SIMPSON (Cirencester) writes: Sterilized petroleum jelly is much used as a dressing on raw areas in the belief that it will prevent gauze, lint, or other material from sticking. In fact it does no such thing, and dressings of this type adhere at least as firmly as dry dressings. There may be virtues in soft paraffin dressings, but not that of non-adhesion, and removal of such dressings after 24 hours is tedious and painful.

Mind, Machine, and Man

Dr. J. B. ELLISON (London, S.W.17) writes: While much entertained by Dr. J. A. V. Bates's letter (July 16, p. 177) on the alleged powers of electric computing machines, I must confess I was puzzled. It is not hard to see how, given the first move, an "electric brain" might always succeed in such a contest as the old game of nim. This game has an exact mathematical basis, so that actions needed to win could no doubt be transformed into mechanical operations which a machine would infallibly perform; juggling with rows of 0s and 1s is just what it does so well. But play chess? Can one envisage any machine on, say, the sixth move of a queen's pawn opening hazarding an advance of the king's pawn to its fourth square in order to avoid the "Cambridge Springs" variation because it knows that old Lobcockski (needing one point for first prize) has made a profound analysis of this variation and will be put off by such unorthodoxy? That is what I would call *playing* chess. And what would the poor machine do when confronted with a deep sacrificial combination? Could it refuse an offered queen (surely one of the highest priorities of "value"), foreseeing mate in the offing by "Philidor's Legacy"? This I do not believe—to speak of a machine playing a game is a fallacy of equivocation. But when it comes to the sonnet I am still more puzzled. First, as to these relative values. I wonder why Dr. Bates thinks that Miss Rita Hayworth on an alp is more "sonnetogenic" (to coin a word by analogy) than a Japanese soldier in Shoreditch. I know of a dozen modern poets who would certainly think the reverse. And how does the wretched machine know that it is looking at Miss Hayworth in the Alps rather than at Miss Lana Turner in the Himalayas or Miss Betty Grable in the Dolomites, and how would it assess the relative merits of such a galaxy? Of course it could decide nothing of the kind: the decisions are all made by the human mind outside that feeds the brute (that ghost horse of a recent radio discussion).

Mr. A. R. JORDAN (Dover) writes: As one interested in both chess and the ideas suggested by these new calculating machines I am intrigued by the letter of Dr. J. A. V. Bates (July 16, p. 177). I have some misgivings about the electronic chess player. No doubt it could play a legally correct game, but the difficulty would lie in the correct "instructions as to value." The standard openings have all been analysed for a few moves in this way, and invariably the limit is reached when a number of situations arise between which the greatest masters cannot decide the values. If the machine went on playing over to itself every possible sequence I have an idea that it would sooner or later find one where it went on for ever without a checkmate unless a new rule were introduced limiting the number of moves, and this would defeat the whole business. It still could not discover which was the "better" move. However, I have no doubt at all that a machine could be constructed which could solve any chess problem. . . . But could a machine be constructed to compose chess problems? I should say undoubtedly not. It would merely produce a series of end-games out of which some "mind" would have to select those which contain those elements of "difficulty" and "beauty" which constitute a true chess problem, and I do not see how such values could be put into the machine.

*** This correspondence is now closed.—ED., *B.M.J.*

Harrogate Appreciated

Mr. PHILIP GAUNT (Chairman, North Eastern Local Board of the Chartered Society of Physiotherapy) writes: On behalf of the members of the Chartered Society of Physiotherapy in this area, may I, through your *Journal*, offer our sincerest thanks for the generous concession made by the responsible committee in permitting us admission to the meetings of the Scientific Sections during the recent Annual Meeting of the B.M.A. in Harrogate? This was appreciated by all the members who were able to attend. The meetings were felt to be of real value and a help in keeping us scientifically equipped to enjoy our place as members of the team in which the medical profession plays the senior role. By example of the generous gesture of the Association during that week the right team spirit will always be maintained. Our thanks are also due to Dr. J. V. Wilson, Honorary Local Science Secretary, for the arrangements he made for us and for the patience he showed at a busy time in answering any requests and queries.

Obituary

T. STACEY WILSON, B.Sc., M.D., F.R.C.P.

Dr. Theodore Stacey Wilson, who died in Birmingham on July 30 at the age of 88, was the senior consulting physician of the United Birmingham Hospitals, sixty years having elapsed since he was appointed assistant physician to the General Hospital in 1889.

Stacey Wilson was educated at Grove House School, Tottenham, and at Edinburgh University, where he obtained the B.Sc. in 1881 and the M.B., C.M. and M.R.C.S.Eng. in 1883. In 1892 he proceeded M.D., and was awarded the Gold Medal for his thesis. After study in Vienna and Berlin he became resident medical officer of the Birmingham General Hospital in 1885, assistant physician in 1889, and honorary physician in 1892. In 1917, under the old rule which permitted only twenty-five years on the full honorary staff, he retired when only 56 years old, although he continued as extra physician until the end of the 1914–18 war. In 1919 he became consulting physician, and continued in active consulting practice until the last war. Wilson was lecturer in medicine to dental students and consulting physician to West Bromwich and other hospitals and institutions. He was twice married, and had one daughter.

An exact contemporary of Almroth Wright and Gowland Hopkins, Stacey Wilson displayed the enthusiasm of each but the scientific inhibitions of neither, though he exhibited the enterprising outlook of genius. Nervous in manner, quick in step and in speech, he was tall and spare and had brown hair and a moustache which turned to grey only in the last decade. Though he was a gentle and earnest physician who had lived for forty years in the Victorian era, retaining his frock coat until far into the present century, he never lost the sparkling optimism of youth, which, gleaming through his spectacles, induced him to observe new clinical signs and symptoms, to deduce hypotheses which appeared more attractive than likely, and to retain his interest and his convictions until some fresh observations drew his thoughts on to new trails. In the old-fashioned arts of palpation, percussion, and auscultation he was expert, though sometimes he claimed to perceive more than others could agree to. Chronic disorders of the stomach, the colon, and the heart interested him most.

He set out his views, with unfortunately little reference to the findings of other workers, in treatises on *The Early Diagnosis of Heart Failure, Thought Transference: Speculations upon Psychology and Religion, The Tonic Colon,* and other books. For those who gathered the grains of wheat from the mixed corn and chaff the exercise was stimulating and not without reward, but little that he did has survived the test of research and time, for the medical pendulum has swung from the qualitative region of clinical observation and speculation to the quantitative assessments of the laboratory, the machine, and the statistician. He did not tire of his patients nor they of him, and rewards in money or in status did not appeal to him. In earlier days he excelled at skating, and he was a competent golfer; until an advanced age he enjoyed the rod and the gun.

As a kindly physician he will long be remembered with appreciation by students and colleagues, who were stimulated by his untiring enthusiasm. Sufferers from chronic disease found in him a sympathetic attendant when other doctors had come to the end of their resources and of their patience.—H.W.F.

RALPH PEMBERTON, M.D.

Dr. Ralph Pemberton, professor of medicine at the Graduate School of the University of Pennsylvania and Honorary Fellow of the Royal Society of Medicine, London, died suddenly on June 17.

Dr. Pemberton was born in Philadelphia in 1877, and graduated at the university there successively B.S., M.S., and M.D. While still a hospital resident he became deeply interested in, and distressed by, the plight of the many chronic rheumatic patients for whom so little was done. His research and writings on the various aspects of chronic arthritis soon made him well known both in America and also internationally. After the first world war, in which he served as a major in the U.S. Army Medical Corps, he returned to his home town as Woodward Research Fellow in physiological chemistry, working for subsequent periods in Berlin and Strasbourg. On his return his wide and novel outlook and great energy inspired a group of younger men to join him, and resulted in the formation of his well-known arthritis clinic at the Abingdon Hospital, of which he was senior physician at his death.

In 1938 he became president of the Ligue Internationale contre le Rhumatisme. His illness tragically prevented him from attending its recent congress in New York, for which he had worked so hard. He was also National Consultant in Rheumatism, and ex-president of the American Rheumatism Association. In 1946 he was awarded the Gold Key of the American Congress of Physical Medicine in recognition of his research on arthritis and his contributions to physical medicine. A true "internationalist," he had friends all over the world, and was a great pioneer in the difficult field of medicine which he made his own.

W. S. C. COPEMAN.

HARRY HORSMAN McNABB, M.D.

The death on July 28 of Dr. Harry Horsman McNabb, of Manchester, is a great loss to ophthalmology, and especially to Manchester, where he practised for nearly fifty years.

Dr. McNabb graduated M.B., Ch.B. in 1898 at Owens College, Manchester, and proceeded M.D. in 1902. After spending a short time in general practice he started his ophthalmic training as junior and senior house-surgeon at the Manchester Royal Eye Hospital. He later became assistant honorary surgeon and then honorary surgeon. Nine years ago he was appointed consulting honorary surgeon and was active in hospital duties and a busy practice until a few weeks before his death. Among his appointments were those of clinical lecturer in ophthalmology at Manchester University and consulting honorary surgeon to many local hospitals. For many years he was surgeon to the Henshaw's Blind Asylum, and he was also vice-president of the Section of Ophthalmology at the Annual Meeting of the B.M.A. at Manchester in 1929. He was a member of many learned societies and often contributed to ophthalmic literature. One of these papers—on an "Alternative to Excision of the Sac in Dacryocystitis," in the *Transactions of the Ophthalmological Society of the U.K.*—advocated a simple, direct, and effective method as compared with the usual operation for excision of the lacrimal sac.

Everyone knew "Sandy" McNabb, and his social qualities were loved by so many that wherever he went he knew somebody and was known by somebody. He was very quiet in his manner and speech, but was always cheerful and had a twinkle in his eye. Dapper and helpful to everyone who asked for his advice or help, he never criticized anyone harshly, said an angry word, or lost his temper. The remarkable beauty of his hands was reflected

in his operative ability, which was a joy to watch. His operating, which was done very quietly, was perfect in its execution and ingenuity. A clinician all the time and a diagnostician of the first class, he was a mine of information on old and new ocular therapeutics, but never forgot the old methods, which often triumphed when modern treatment had proved inconclusive. As an expert ophthalmic witness he had few if any rivals, and his mere appearance in court carried weight for his client's case.

His persistent courage when in the middle period of his life he was smitten by phthisis, and how he announced it to his friends and fought it to a successful conclusion, was the admiration of all. When the tragic illness which caused the death of his elder son hit him sorely he never complained, but we all knew how afflicted he was. His married life was ideally happy, and his Scottish wife and he were both expert fishermen. To be entertained in their house was always a delight. The loss of "Sandy" McNabb is the loss of a friend, mentor, teacher, and colleague. His host of friends will sympathize deeply with his widow and son in their tragic loss. He was a perfect and gentle person of humour and understanding.—W.S.

WILLIAM ROBERT ACKLAND, M.R.C.S., M.D.S.

The death of William Robert Ackland on July 26 at the age of 85 years in a nursing-home at Clifton, Bristol, removes the last of five brothers distinguished in dentistry. He was the second son and last surviving child of the late Mr. and Mrs. Ackland, of Exeter. All the brothers qualified in medicine and dentistry, practising the latter. Each became one of the leading practitioners in London, Bristol, Bath, Exeter, and Bournemouth.

On leaving school W.R., as he was affectionately known, entered Charing Cross Hospital Medical School and the Royal Dental Hospital School, where he carried all before him. He obtained the Saunders Scholarship at the Royal Dental, and every prize it was possible to win—proving the most brilliant student of his year. He qualified L.D.S. R.C.S. in 1884, and took the M.R.C.S. in 1886, before the formation of the Conjoint Board. After acting as house-surgeon and demonstrator in operative dental surgery at the Royal Dental Hospital he joined one of the leading practitioners in Harley Street and was appointed assistant dental surgeon to Charing Cross Hospital. In 1888 the Bristol Royal Infirmary decided to establish a dental department with an honorary visiting dental surgeon. After some persuasion Ackland applied for the post. He was appointed, and returned to his beloved West Country, setting up in private practice at 5, Rodney Place, Clifton. His ability and charm soon won him a special place in the locality. Ackland may be looked upon as the father of the Bristol University Dental School. He was appointed lecturer and internal examiner in dental surgery at the Bristol University College. He retired from the staff in 1924, and was appointed consulting dental surgeon to the Royal Infirmary and the Minehead Hospital.

A member of various professional and learned societies —the British Medical and Dental Associations, the Bristol Medico-Chirurgical Society, and the Odontological Society of London—he took a keen interest in all their activities, delivering some interesting and original papers. His special interests were focal sepsis and its relation to systemic disease, and drainage of the maxillary sinus, for which he devised a special drainage tube. During his active years he occupied the chair of the Bristol Medico-Chirurgical Society, and was also president of the Odontological Society of London. In 1914–15, and again in 1933–4, he served as president of the Bath, Bristol, and Somerset Branch of the B.M.A., and in 1931–2 as president of the West Somerset Division.

After the passing of the 1921 Dental Act he was elected one of the original members of the Dental Board set up by the Government, and he was appointed an examiner to assess the fitness to practise of the unqualified practitioners. He also served on the General Medical Council. The University College of Bristol was granted its charter as a university in 1909. Ackland received the Service degree of M.D.S. in 1913 as a mark of appreciation of his work in the Dental School. During the 1914–18 war he served as major in the R.A.M.C. and acted as second in command of the 2nd Southern General Hospital in Bristol.

W.R. was deeply interested in the arts, and gathered together some beautiful specimens of china, antique furniture, and paintings. His waiting-room in Clifton was of perfect Georgian period. Among other interests was a love of horses: he spent most of his spare time hunting. A serious fall when out with the Beaufort Hunt resulted in concussion, and he had to give up his beloved sport. In 1917 he married the widow of Judge Buckle.

He retired from practice in 1937. When his wife died in 1945 her last surviving child, Mrs. Cotterell, and her husband came to live with him, caring for him in his last years. He died peacefully in his sleep, and his friends mourn the loss of a charming and most lovable man.

Medico-Legal

SALE OF PENICILLIN

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

The Penicillin Act, 1947, was passed in order to restrict the sale of penicillin to qualified persons. Section 1 provides that no person shall sell or otherwise supply penicillin unless he is (*a*) a duly qualified medical practitioner, or a person acting in accordance with the directions of any such practitioner, or (*b*) a registered pharmacist or an authorized seller of poisons selling or supplying under the authority of a medical prescription. A shopkeeper, Mr. C. J. Coombs, who was neither a registered pharmacist nor an authorized seller of poisons, sold drugs and surgical appliances in his shop. On four occasions in August, 1948, he supplied penicillin ointment under a National Health prescription signed by a qualified medical practitioner. An inspector of the Pharmaceutical Society, Mr. W. R. Roberts, preferred informations against him for contravening the Act, but the Middlesex justices dismissed them, finding that the defendant was "acting in accordance with the directions" of a practitioner, that he sold or supplied the drug in accordance with the directions of a practitioner on each occasion, and that therefore he had committeed no offence. The inspector of the Pharmaceutical Society appealed, and the Divisional Court reversed the decision and remitted the case to the justices with the intimation that the offences had been proved.[1]

Lord Goddard, Lord Chief Justice, said in giving the judgment of the Court that if anyone could sell penicillin on a prescription under provision (*a*) there would be no object in provision (*b*). If the justices were right, a registered pharmacist would be at a disadvantage compared with an unregistered one. The words "in accordance with the directions of" a medical practitioner in paragraph (*a*) of Section 1 must, to be intelligible, include such cases as that of a doctor who told his dispenser to make up a penicillin preparation; but if the doctor gave a prescription to a patient that prescription must be made up by a registered pharmacist. A prescription, in other words, was not "directions" within the meaning of Section 1 of this Act.

[1] *Roberts* v. *Coombs*. *The Times*, May 5, 1949.

Medical Notes in Parliament

PENSIONS

Mr. BLENKINSOP on July 20 moved that the draft National Health Service (Superannuation) (Amendment) Regulations, 1949, be approved. He said these regulations cleared up minor difficulties which had shown themselves in the first year of the working of the superannuation scheme for the staff of the National Health Service. He understood that the various staff organizations were fully in agreement with them. The main provision was one under Regulation 10 designed to encourage those who had already retired on pension or were eligible to do so to continue in employment up to a further five years and thus earn an increased pension when they finally retired.

Mr. WALTER ELLIOT said it might be that further amendments would be necessary in the immense volume of regulations to which these amendments were proposed. In July, 1948, it had been estimated that the superannuation scheme covered 300,000 persons. This scheme obviously covered more people. He thought it covered the employees of the regional boards, the employees of the medical bodies, teaching hospitals, executive councils, and other bodies set up under the Act. He was informed that it also covered medical practitioners and dental practitioners, although not ophthalmic practitioners or chemists. He asked whether Regulation 10, in which employees were encouraged to continue in employment up to ten years beyond the possible retiring age, also covered those who returned to the Service, and what rebates or allowances were granted to those who had been out of the Service for a period. The strain on the Service just now was very great, and one of the simplest ways of relieving it was to recruit from those who had already been fully trained in one branch or another.

He remarked that Mr. Blenkinsop had not touched on the cost of the regulations. The estimated gross total for the Health Service this year was some £352,000,000, against which appropriations in aid amounted to £92,750,000. The contributions paid to the insurance scheme were only one-ninth of its cost. The insurance contribution of 6% paid by contributors towards the cost of the superannuation scheme amounted to a substantial sum. The appropriations made last year had been estimated at £44,000,000 for England and Wales, but rose to £62,000,000 when the estimates had been completed. Through these superannuation benefits there had accrued to the Exchequer in England and Wales £30,694,000. The only payment at present under the superannuation regulations was a sum of just under £2,000,000 for England and Wales. The Exchequer had a temporary surplus of over £30,000,000, which would run off as the liabilities began to accrue.

Apply to Specialists

Sir HUGH LUCAS-TOOTH said Regulation 16 (*c*) was applicable to specialists. Regulation 16 (*c*) of the original regulations enabled general practitioners within the Service to choose if they preferred to continue with a privately arranged insurance scheme to obtain benefit from the employing authority equal to the amount that the executive council would have had to put aside for their benefit if they had come within the general scheme. He thought the House would welcome the extension of this proposal to specialists. Under the original arrangements doctors who wished to continue their own insurance schemes had to give notice within three months of the appointed day in the original Act. Under the National Health Service (Amendment) Bill now passing through Parliament a number of general practitioners might come in at some future appointed day and might have insurance schemes which they wished to continue after the new appointed day. He feared this class might fall between the two regulations. They were not specialists, they were not covered by the new regulations, and they had not been within the schemes on the original appointed day.

Mr. BLENKINSOP pointed out that these amending regulations did not extend the scope of the scheme or bring in further groups with the exception of the small number of chaplains. They made the provision of the regulations more acceptable to those concerned but did not involve extra expense. Replying to Mr. Walter Elliot's questions, he said the new regulations covered those who would return to the scheme after a short break of service. The Government was providing for those who continued for an extra five years or for a shorter period under the scheme, for those who returned to the Service after a break, and for those who entered the Service after leaving some other superannuated service. The period was five years. Regulation 6 brought the injury provisions into line with the Civil Service provisions. Previously the Ministry of Health had followed the local government provisions. Persons who came back into service after a gap were covered in Regulation 10.

The provisions in Regulation 16 (*c*) of an option for part-time specialists to contract out had been made to meet a point raised by the British Medical Association. Practitioners coming in after the appointed day were not covered. The provision in Regulation 16 (*c*) was a special concession, and he doubted whether it could be extended. He did not deny there might be points worthy of consideration as the Ministry's experience extended. It would obviously be necessary to consider from time to time further amendments to the regulations.

Mr. WALTER ELLIOT trusted that Mr. Blenkinsop would look at the National Health Service (Amendment) Bill to see whether it was not possible in subsequent stages to bring in medical practitioners who would enter the scheme at a second appointed day and make it possible for them to be covered by the regulations. In view of Mr. Blenkinsop's pledge that this was not the occasion on which books were to be closed and no further amendments introduced the Opposition was willing to approve the regulations.

The draft National Health Service (Superannuation) (Amendment) Regulations were then approved.

Scottish Superannuation Regulations

The draft National Health Service (Scotland) (Superannuation) (Amendment) Regulations, 1949, came before the House of Commons on July 27. Mr. WALTER ELLIOT said these regulations covered large sums of money and considerable numbers of employees. For Scotland alone something like £2,500,000 was being brought in to diminish the apparent cost of the National Health Service, and the only payment out was a sum of £140,000. He inquired how the number of employees was related to the original number estimated. It was time the Government became more precise on these matters.

Mr. WOODBURN said these regulations amended the original regulations, but the adjustments were slight and the money involved was negligible. Nothing was added to the cost of the scheme. About 50,000 employees were covered, but there was no increase there.

The House agreed to the draft regulations.

Parliament Adjourned

Parliament stands adjourned till Oct. 18. The Report and Third Reading of the National Health Service (Amendment) Bill are set down for Oct. 19 in the House of Commons. The Second Reading of the Nurses (Scotland) Bill is down for the following day.

Barnet Victoria Hospital

Mr. SPEARMAN asked the Minister of Health whether he knew that local concern had been caused by the decision of the North-West Metropolitan Regional Hospital Board to convert the Victoria Hospital, Barnet, into a maternity department for the Wellhouse Hospital, Barnet.

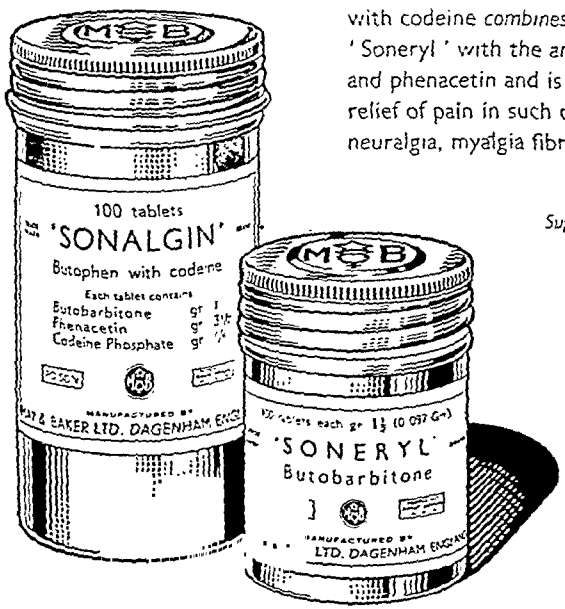
Mr. BEVAN replied on July 29 that if a petition was sent to him he would certainly consider it. It would be more appropriate if, in the first place, it was addressed to the regional hospital board, who had delegated powers for the planning and development of hospital services in their area which did not require them to obtain approval before they made changes in the use of particular hospitals.

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Cancer Research

Brigadier MEDLICOTT on July 28 asked Mr. Herbert Morrison whether, in view of the serious increase in deaths from cancer during the last 30 years, he would make a statement on the research now being conducted under the auspices of his department, or with his encouragement; and, in particular, say what joint research or co-operation with America was taking place.

Mr. MORRISON replied that research on cancer formed a very important part of the programme of the Medical Research Council. It was also promoted, with official encouragement, by bodies such as the Imperial Cancer Research Fund and the British Empire Cancer Campaign. There was particularly close co-operation in this field between British workers and their colleagues in America. The Medical Research Council's expenditure on cancer research was estimated at £145,000 for 1948–9 and at perhaps £200,000 for 1949–50. Mr. Morrison declared that real progress was being made in research and that the limiting factor was not finance.

Free Drugs for Private Patients

Mr. H. D. HUGHES asked on July 28 what would be the increased cost of allowing private patients to obtain drugs recommended by their doctor free of charge.

Mr. BLENKINSOP said that if the estimated annual rate of expenditure on the pharmaceutical services were proportionately increased in respect of the 5% of the population of England and Wales not on doctors' lists the increase would amount to about £1,000,000.

Pneumoconiosis

Mr. JAMES GRIFFITHS states that from Jan. 1, 1949, to June 25, 1949, assessments under the Industrial Injuries Act of disablement due to pneumoconiosis were made at 100% in about 20 cases, and at less than 100% in about 1,900 cases. In addition, in the same period 276 men who had left the industry before July 5, 1948, were certified under the Workmen's Compensation Acts; of these 134 were found to be totally disabled. During the corresponding period of 1948, 843 men were certified under the Workmen's Compensation Acts, of whom 87 were found to be totally disabled. These figures are not strictly comparable with those for 1949.

Tuberculosis Examinations.—Foreign workers recruited under official schemes for which the Minister of Labour is responsible are required to undergo a general medical examination and an x-ray examination to detect tuberculosis before they are accepted and brought to this country. In proportion to the numbers recruited cases of serious sickness have not been numerous, but as these workers are mostly displaced persons the privations which they have undergone may have resulted in some cases in breakdown in health after their arrival.

Glasses and Wigs.—At a rough estimate about 4,500,000 pairs of spectacles have been supplied under the Supplementary Eye Service. Between 3,000,000 and 4,000,000 pairs are on order. No information is available as to the number of dentures. Up to May 20, 8,000 wigs were ordered, and 2,600 supplied, through the Ministry of Pensions on the advice of specialists.

Dental Emergencies.—Procedure for emergency treatment under the Health Service by dentists of patients who are in pain is being used for over 25,000 patients a week.

Bristol Patients.—The average number of patients on the panel of doctors at Bristol on April 1 last was 2,300—the highest something over 4,000, the lowest 2.

Ophthalmic Opticians.—The number of ophthalmic opticians in England and Wales now employed in providing optical treatment within the National Health Service is 5,662. The Government hopes for an increase in the number.

According to a report in *The Times* (June 30), the chairman of the British Tourist and Holidays Board has stated that the "clean food" campaign which the Board began a year ago has been a great success, and efforts will be continued to raise the standard of hygiene in hotels, restaurants, and cafés. "The problem of hygiene in the catering industry," the chairman said, "is more than 70% a problem of personal hygiene."

Universities and Colleges

UNIVERSITY OF LONDON

Dr. John Thomas Aitken has been recognized as a Teacher of Anatomy at University College, and Dr. Robert Douglas Harkness has been granted probationary recognition as a Teacher of Physiology at University College for a period of two years from June, 1949.

Shenley Hospital, St. Albans, has been added to the list of recognized mental hospitals for the degrees of M.B., B.S.

The Mary Scharlieb Research Studentship for 1949 has been awarded to George Philip Arden, F.R.C.S., for one year in the first instance. The studentship, which is of the value of £250, is tenable for one or two years and is offered to graduates of the University who are either registered medical practitioners or in possession of qualifications which in the opinion of the Senate would enable them to undertake postgraduate medical research.

The A. H. Bygott Scholarship for 1949 has been awarded to Howard Temple Phillips, M.B., B.S. The scholarship, of the value of approximately £100 and tenable for one year at the London School of Hygiene and Tropical Medicine, is offered annually for the course for the Academic Postgraduate Diploma in Public Health. Candidates must be registered medical practitioners who are serving in public health departments or who intend to enter or have already entered the Public Health Service either at home, in the Dominions, or in the Colonies.

Robert Knox, M.D., M.R.C.P., has accepted an invitation to the University Chair of Bacteriology, tenable at Guy's Hospital Medical School, from Oct. 1.

The title of Professor of Bacteriology in the University has been conferred on Frederick Robert Selbie, M.D., Ph.D., D.Sc., in respect of the post held by him at Middlesex Hospital Medical School.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a meeting of the Council of the College held on July 28, with Sir Cecil Wakeley, President, in the chair, it was decided on the recommendation of the Faculty of Dental Surgery to institute an annual Dental Lecture to be entitled the "Lord Webb-Johnson Lecture" to commemorate the indebtedness of the dental profession to Lord Webb-Johnson.

Dr. J. Hall Best, President of the Twelfth Australian Dental Congress, was elected to the Fellowship in Dental Surgery.

The Hallett Prize for 1949 was awarded to Graham Roland Anderson (Queensland).

The date of the annual meeting of Fellows and Members was arranged for Wednesday, Nov. 9.

Diplomas of Membership were granted to the 117 recipients of the L.R.C.P. whose names were printed in the report of the meeting of the Royal College of Physicians of London in the *Journal* of Aug. 6 (p. 340).

Diplomas in Public Health, in Tropical Medicine and Hygiene, and in Medical Radio-Diagnosis were granted, jointly with the Royal College of Physicians of London, to the following successful candidates:

DIPLOMA IN PUBLIC HEALTH.—A. Bashir, B. A. Bhatti, Mary Brooks, T. H. Elias, J. E. Francis, Joan K. Griggs, W. E. Hadden, D. G. Levis, G. K. Lim.

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—J. P. Satterwhite, A. F. H. Stewart, S. W. W. Terry.

DIPLOMA IN MEDICAL RADIO-DIAGNOSIS.—D. Chisholm, J. J. Wallis.

The following hospitals were recognized under paragraph 23 of the Fellowship regulations: Poplar Hospital, London (resident medical officer, resident surgical officer, and senior house-surgeon); St. Stephen's Hospital, London (two surgical registrars and one house-surgeon); Maidenhead Hospital (resident surgical officer).

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the final examinations, have been admitted L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P.S.Glas: A. E. Barr, Margaret H. Batty, Constance E. Belton, W. E. Bennie, M. C. Berenbaum, L. H. Berman, D. G. Brown, E. L. R. Brown, W. F. Blair, Diana P. M. S. Cargill, S. L. Chinchin, L. I. Davidson, G. M. Daya, J. Devine, D. J. Docherty, F. Doherty, Helen E. Ferguson, L. M. Foegal, V. Gallone, G. T. W. Gowdie, Joan F. Greaves, Muriel S. Hill, D. D. Hillier, J. B. M. Hirst, H. Jackson, J. Jackson, R. G. Jacomb, Ruth W. Joelson, Valerie Jones, H. Justitz, J. D. Keir, Rosemary C. Kennedy, R. C. Lamberty, V. K. Moodaley, D. B. Murray, R. McNeill, G. S. C. Nzegwu, Rosemary A. Page, B. Raeburn, Gwyneth Richards, Helen M. Roberts, F. Starer, C. Stewart, M. Stock, Christina E. C. Taylor, T. H. Walker, B. T. Walters, D. B. S. Watt, D. Ll. Williams.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 23. [No. 29

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949					1948 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	28	1	10	—	2	25	4	10	1	1
Deaths		2	—				—	—		
Diphtheria	76	12	24	8	1	139	19	32	15	2
Deaths	—	—	1	—	—	2	—	1	—	—
Dysentery	90	6	54	1	—	108	45	52	1	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	3	—	1	1	—	—	—	—	1	—
Deaths		—					1			
Erysipelas			17	10	4			34	9	3
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				53					30	
Deaths	31	4	3	4	3	34	4	8	2	1
Measles*	5,052	379	92	140	64	8,501	552	70	103	53
Deaths†			—	1	—			—	—	1
Ophthalmia neonatorum	37	4	11	1	—	54	5	19	—	—
Deaths										
Paratyphoid fever	54	—	9(B)	—	—	9	—	1(B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	329	16	1	5	8	385	20	3	4	6
Deaths (from influenza)‡	10	2	—	—	—	5	1	—	1	—
Pneumonia, primary			114	17				122	30	
Deaths	129	23		5	7	127	22		4	6
Polio-encephalitis, acute	3	—				6	1			
Deaths										
Poliomyelitis, acute	96	7	7	1	—	39	5	3	2	2
Deaths§	6	1				4	1			
Puerperal fever		—	5				1	17		1
Deaths										
Puerperal pyrexia‖	95	12	9	—	2	121	10	13	1	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,157	91	89	74	31	1,747	93	245	68	41
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	8	—	3	3	—	13	1	3	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	2
Deaths				—	—				—	—
Whooping-cough*	2,004	86	29	54	82	3,359	274	14	99	7
Deaths	3	—	—	1	1	5	1	1	—	—
Deaths (0–1 year)	254	33	30	18	15	253	35	45	14	14
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,926	659	530	154	112	4,187	651	533	157	101
Annual death rate (per 1,000 persons living)			10·6	9·5				10·8	9·8	
Live births	7,295	1225	980	401	228	7,863	1370	1012	385	251
Annual rate per 1,000 persons living			19·7	24·8				20·4	24·1	
Stillbirths	152	24	28			199	24	31		
Rate per 1,000 total births (including stillborn)			28					30		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales, Eire, and Northern Ireland.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

The total numbers of notifications in England and Wales for the week ended July 30, 1949, were: poliomyelitis 147 (96), polio-encephalitis 22 (3). (Figures for the previous week are shown in parentheses.) Counties reporting more than one case (poliomyelitis and polio-encephalitis together) were: London 20 (7), Bedford 2 (0), Berkshire 2 (3), Cambridge 2 (1), Chester 6 (0), Cornwall 8 (1), Dorset 2 (0), Durham 2 (1), Essex 8 (4), Gloucester 3 (2), Hertford 3 (1), Kent 3 (0), Lancashire 12 (8), Leicestershire 5 (6), Lincolnshire, Lindsey 4 (1), Middlesex 13 (11), Nottinghamshire 3 (1), Oxfordshire 2 (0), Southampton 7 (8), Suffolk West 4 (3), Sussex West 4 (1), Warwick 6 (1), Westmorland 2 (0), Yorkshire East Riding 2 (1), Yorkshire West Riding 24 (17), Denbigh 2 (0), Glamorgan 3 (0), Monmouthshire 2 (0).

The rise in notifications this week has been considerable, and it is unlikely that a consistent fall can be expected yet. However, in comparison with 1947 the rise this year has been irregular, and in the week ended July 26, 1947, corresponding to the week under discussion, there were 302 notifications of poliomyelitis and 34 of polio-encephalitis. In 1947 the peak was reached in the week ended Sept. 6 (thirty-sixth week), but notifications in the week ended Aug. 16 (thirty-third week) were almost as high, and there was a small recession in the two intervening weeks.

The geographical distribution of the notifications underwent little change. The largest centres of infection were Yorkshire West Riding 17; Middlesex 10 (Hornsey M.B. 5, Finchley M.B. 4); Southampton 8 (Southampton C.B. 4); Lancashire 7; London 7; Devonshire 7.

Quarterly Returns for England and Wales

The birth rate during the March quarter was 17.4 per 1,000 compared with an average of 18.2 for the first quarter of the five years 1943–7. The infant mortality was 40 per 1,000 live births and was the lowest rate ever recorded for a first quarter, being 1 below the rate for the first quarter of 1948 and 24 below the average rate of the 10 preceding first quarters. The general death rate was 15.0 per 1,000, and was 3.7 above the rate for the March quarter of 1948 and 0.2 above the five-years average of 1943–7.

Quarterly Return for Northern Ireland

The birth rate during the March quarter was 21.8 and was 1.0 below the average rate for the five preceding first quarters. Infant mortality was 55 per 1,000 registered births and was 2 above the rate for the corresponding quarter of last year but 16 below the five-years average. The general death rate was 14.0 per 1,000—an increase of 1.2 on the rate for the March quarter of 1948 but 1.6 below the five-years average. There were 118 deaths from the principal epidemic diseases; they included 49 from influenza, 45 from diarrhoea and enteritis, and 13 from whooping-cough. Deaths from pulmonary tuberculosis numbered 197, and there were 34 from other forms; these were 39 and 31 respectively below the average for the five preceding first quarters.

Quarterly Return for Eire

A birth rate of 21.9 per 1,000 was recorded during the March quarter. This was 0.3 above the rate for the preceding first quarter. Infant mortality was 55 per 1,000 registered births and was 8 below the rate for the March quarter of 1948. The general death rate was 14.7 per 1,000 and was 0.5 above the rate for the preceding first quarter. Deaths from the principal epidemic diseases numbered 125, and included 72 from diarrhoea and enteritis, 35 from whooping-cough, and 12 from measles. Deaths from pulmonary tuberculosis numbered 631, from other forms 153; these were 61 and 11 respectively below the totals for the first quarter of 1948.

Discussion of Table

In *England and Wales* decreases in the number of notifications were reported for measles 324, whooping-cough 180, diphtheria 28, and acute poliomyelitis 16, while increases were notified for scarlet fever 114 and dysentery 22.

The largest falls in the notifications of measles were London 111, Lancashire 68, and Devonshire 61, while the largest rise in incidence was Kent 56. The only large variations in the local trends of scarlet fever were rises in Yorkshire West Riding 31 and London 25. The chief features of the returns of diphtheria were decreases in London 10 and Warwickshire 9 and a rise of 8 in Cheshire due to an outbreak of 7 cases in Birkenhead C.B. The only fluctuation of any size in the returns for whooping-cough was a decrease of 30 in Lancashire.

The chief centres of paratyphoid fever were Lancashire, Liverpool C.B. 25, and Cheshire, Birkenhead C.B. 11. The rise in dysentery was mainly due to Lancashire, where the notifications rose from 5 to 26 (Oldham C.B. 12 and Liverpool C.B. 11). A further 33 cases of dysentery were reported from the outbreak in Warwickshire, Warwick R.D. Of the 172 cases of food-poisoning 82 were notified in Yorkshire West Riding.

In *Scotland* a decrease occurred in the number of notifications of measles 57 and scarlet fever 16; increases were reported for dysentery 21 and diphtheria 8. The rise in dysentery was contributed by Glasgow, where the notifications rose from 15 to 45.

In *Eire* decreases were recorded in the number of notifications of measles 64, whooping-cough 46, and diarrhoea and enteritis 18. An outbreak of 23 cases of measles was notified from Kerry, Listowel R.D.

In *Northern Ireland* the only fluctuation of any size in the returns for the country was a decrease of 38 for measles.

Week Ending July 30

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,045, whooping-cough 1,795, diphtheria 98, measles 4,266, acute pneumonia 263, cerebrospinal fever 27, acute poliomyelitis 147, dysentery 94, paratyphoid fever 50, typhoid fever 3.

Medical News

Visit to Canada and the U.S.A.

Sir Lionel Whitby, Past President of the B.M.A., is visiting Canada and the U.S.A. from the middle of August to the beginning of October, and will attend a number of Divisional Meetings of the Canadian Medical Association, including the Maritime States.

Contaminated Pears

The Ministry of Food states that some pears now arriving from Italy still retain a slight trace of an antiparasitic spray. We understand that the spray contains a small amount of arsenic. It can be removed by wiping with a cloth, and the health authorities are examining all the pears now arriving to ensure that this is done where necessary before the fruit is offered to the public. The Italian authorities have taken steps to prevent further affected fruit from being exported.

New Diploma in Psychological Medicine

The Royal Medico-Psychological Association will hold the first examination for its diploma in psychological medicine in November this year. Applicants should apply before Sept. 1 to the Registrar, Southfield, Shipton Road, York. Applications for recognition as training schools for the diploma should be sent to the Secretary of the Association, 11, Chandos Street, Cavendish Square, London, W.1. Further information about the examination may be obtained from the same address.

British Society of Periodontology

This society has recently been formed for the purpose of promoting the study of periodontology. Dr. E. W. Fish has been elected president. The society will provide the means for those interested to meet and discuss their problems. It will meet during the winter months, and papers, communications, or demonstrations will be presented. The initial membership is about forty. Correspondence may be addressed to the hon. secretary at the Institute of Dental Surgery, Eastman Dental Clinic, Gray's Inn Road, London, W.C.1.

N.A.P.T. Scholarship for Scottish Nurse

A scholarship of £100 to £150 will be awarded by the National Association for the Prevention of Tuberculosis to a registered female nurse working at the time of her application in a hospital in Scotland. The scholarship will enable her to spend a period of from three to six months in postgraduate study in hospitals or clinics in (*a*) Scotland, (*b*) England, or (*c*) Scandinavia. Candidates should state age, qualifications, previous experience, and reasons for wishing to do postgraduate work in tuberculosis, and should affirm their intention to continue in tuberculosis work after attaining the scholarship. Application should be made by Nov. 1 to Miss A. J. Weir, Scottish Secretary N.A.P.T., 65, Castle Street, Edinburgh, 2.

Second Century

The *Registrar-General's Return* for the quarter ended March 31, issued on Aug. 5, is No. 401, and inaugurates the second century of its publication. The statement which appeared in the first of these *Returns* is of even more significance now than it was then: "The present arrangement will show, at short intervals, how many marry, how many are born, and how many die in England; and will thus appear in time to enable the public and the Legislature to take the indications which the returns may furnish into account in the conduct of affairs." Some results of the sample Sickness Survey included in it are published in the *Supplement* at p. 79.

Rationalist Press Association

The fourth Annual Conference of the Rationalist Press Association was held at Oxford on Aug. 5–9. Dr. Alice M. Stewart said that during the last five years a few medical schools in this country had established departments of social medicine in an attempt to bridge the gap between hospital and domiciliary medicine. At present over 90% of the teaching was done by specialists who were concerned with the minutiae of disease but need have no first-hand experience of general practice. There was a tendency for medical students, the majority of whom were destined to become general practitioners, to overrate the importance of diagnosing and treating established disease, and to underrate the importance and also the interest of preventive medicine. Departments of social medicine provided a setting in which clinicians might work outside hospitals and yet retain contact with medical students. They should therefore be in a unique position to institute new lines of research and to explore new methods of teaching. At present they were finding difficulty in obtaining full co-operation from other departments which are slow to recognize the need for fundamental reform. Dr. C. P. Blacker said that recent preoccupations with declining fertility had closed their eyes to the fact that over much of the world the Malthusian dilemma still pressed. The possible effects of birth control methods in backward countries must be considered. Parental instincts, dissociated from their sexual precursors, would increasingly determine fertility. Few social innovations were unreservedly beneficial, and new problems might emerge. Surgeon Vice-Admiral Sir Sheldon F. Dudley said that our boasted and boosted National Health Service was in reality a medical or ill-health service, an institution for taking care of the sick and unhealthy at the expense of the healthy. It would require years of experimental research by sociologists and psychologists before we could hope to discover what degree and kind of social security would produce the greatest health and energy for the greatest number of the citizens.

Institute of Venereal Disease Technicians

The inaugural conference of the Institute was held at Manchester on July 23, and was attended by representatives from each regional hospital area. Mr. R. A. Henderson, the honorary secretary, said that the primary function of the Institute would be the recruitment, training, and setting of professional examinations for selected State-registered nurses, with the object of producing a highly skilled V.D. technician of a standard and quality which venereologists would have confidence in. Before they could get recognition they must have the support and approval of the venereologists.

Diabetics and Sweet Rationing

When sweet rationing is started again on Aug. 14 diabetic patients will still be able to obtain packets of glucose tablets for use in emergency without surrendering personal points. These tablets are prepared specially for medicinal use, and chemists should reserve them for customers whom they know to be diabetic. By the terms of the new Ministry of Food Order patients will not be able to have glucose barley sugar ordered for them on Forms E.C.10. A doctor may, if he wishes, give a patient an "approved order" (not being an E.C.10), which may be taken to a chemist only and the barley sugar obtained on payment by the patient.

Medical Library Association

The 48th annual meeting of the Medical Library Association was held at Galveston, Texas, on April 10–14. It was announced that an "Interim List of U.S.A. and Canadian Holdings of German Medical and Dental Periodicals, 1939–48" would be ready for distribution within a few months. Officers elected for the year 1949–50 were: president, Dr. Sanford V. Larkey, librarian, Welch Medical Library, Baltimore; vice-president (president-elect), Miss Marjorie J. Darrach, librarian, Medical Science Department, Detroit Public Library; honorary vice-president, Admiral George W. Calver, physician to Congress, Washington, D.C.; secretary, Miss Helen Hlavnac, New York University, College of Dentistry Library; treasurer, Mrs. Edith Dernehl, librarian, Marquette University Medical Library, Milwaukee, Wisconsin. The 49th annual meeting will be held at Boston in June, 1950.

Medical Sickness Society

The annual general meeting of the Medical Sickness, Annuity and Life Assurance Society, Limited, was held in London on July 25. Mr. R. J. McNeill Love, chairman of directors, said that the society had been able to help many of its members both by advice on the difficult questions which arose out of the Superannuation Regulations and by devising new policies to meet the altered conditions. Their widow's protection and pension protection policies had solved the problems of many doctors who were concerned with the lack of provision for their wives and children under the new Service. They had decided to abolish the war clause in all their policies. They had also decided to abolish extra premiums for residence overseas in any capacity, save in very exceptional circumstances. There was now no extra premium for those serving in H.M. Forces. These remarks applied only to life assurance policies, ut they had also made substantial concessions as regards sick- ss insurance for those who reside overseas. In approved ses, although the policy limited benefit to residence in the nited Kingdom, they were allowing full cover in other parts of the world, subject to reconsideration at the end of five years. A private limited company, the Medical Sickness Finance Corporation, Ltd. (see *Journal*, July 23, p. 239), had been *incorporated with a capital of £25,000 in £1 ordinary shares.* The corporation operated from the society's offices. The facilities were available not only for members of the society but for all medical and dental practitioners, and in approved cases those connected with the professions. Advances were made on cars and on medical and dental equipment, and it would be found that the rates of interest charged were far lower than those usually required by ordinary commercial companies.

COMING EVENTS

International Union of Nutritional Sciences

In connexion with meetings of the Committee of the International Union of Nutritional Sciences, to be held in Copenhagen on Sept. 12 and 14, some scientific sessions will be held, as well as visits to institutes near Copenhagen of interest to nutritionists, between Sept. 12 and 16 inclusive. Those interested are invited to communicate with Professor H. Dam, Biology Department, Polytechnic Institute, Ostervoldgade, 10 L II, Copenhagen, Denmark, or with Dr. Torben K. With, Rigshospitalet, Copenhagen, Denmark.

Bengué Memorial Lecture

Professor René Sand, Professor of Social Medicine in the University of Brussels, will deliver the Bengué Memorial Lecture at the Royal Institute of Public Health and Hygiene, 28, Portland Place, London, W., on Thursday, Sept. 15, at 3 p.m. His subject is "World Trends in the Teaching of Social Medicine and Public Health."

Symposium on Amino-acids and Protein Hydrolysates

The Food Group of the Society of Chemical Industry has arranged a symposium on amino-acids and protein hydrolysates to be held at Senate House (William Beveridge Hall), University of London, Bloomsbury, W.C., on Sept. 28, 29, and 30. The programme is as follows: Sept. 28, 6 p.m., opening address by Professor E. C. Dodds, F.R.S. Sept. 29, 10.30 a.m., Mr. K. Bailey, Ph.D., "Some Features of the Amino-acid Composition of Proteins"; Dr. A. Neuberger, "Properties of Proteins"; Mr. G. R. Tristram, Ph.D., "Amino-acid Analysis." 6 p.m., Mr. E. C. Barton-Wright, D.Sc., "The Microbiological Assay of Amino-acids"; Mr. R. L. M. Synge, "Chromatographic Methods in Amino-acid Analysis"; Mr. C. H. Lea, Ph.D., "The Role of Amino-acids in the Deterioration of Food—the Browning Reaction." Sept. 30, 10.30 a.m., Messrs. C. Ockrent, Ph.D., R. O. Atkinson, and C. Simons, Ph.D., "Methods for the Manufacture of Amino-acids"; Mr. S. M. Partridge, Ph.D., "Displacement Chromatography as a Preparative Method for Amino-acids." 2.30 p.m., Messrs. G. M. Dyson, Ph.D., and E. M. Bavin, B.Sc., "The Preparation of Protein Hydrolysates"; Mr. H. G. Rees, Ph.D., "Applications of Amino-acids and Protein Hydrolysates in the Food Industry." 6 p.m., Dr. D. P. Cuthbertson, "Amino-acids and Protein Hydrolysates in Human and Animal Nutrition." An open discussion will follow each session. The registration fee for participation in the whole symposium is 10s., payable to the Society of Chemical Industry, 56, Victoria Street, London, S.W.

Course in Public Health and Industrial Health

The Royal Institute of Public Health and Hygiene announces that the next course of instruction for the Certificate in Public Health and for the Diploma in Industrial Health (Part 1) will commence on Sept. 30. Full details may be obtained from the secretary of the Institute, 28, Portland Place, London, W.1.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Conway.—On July 19, 1949, at Glasgow, to Dr. Lilian I. Conway (née Donald), wife of Dr. Hugh Conway, M.R.C.P., a daughter.

Johnson.—On July 7, 1949, at Kuala Belait Hospital, Brunei, Borneo, to Betty Jane (née Powell), wife of Dr. A. W. Johnson, a son.

Nauth-Misir.—On July 25, 1949, at Oldchurch Hospital, Romford, Essex, to Iris (née Hall), wife of Dr. T. N. Nauth-Misir, M.B., M.R.C.P., D.C.H., a son—Nigel Isridutt.

Seward.—On July 10, 1949, at the Charlton Nursing Home, Plymouth, to Margaret Mary (née Vaughan), wife of F. W. R. Seward, M.R.C.S., L.R.C.P., of Redlands, Bridgetown, Totnes, Devon, a daughter—Suzanne Margaret Linda.

MARRIAGES

Evans—Mitchell.—On July 31, 1949, quietly, at the Church of the Ascension, Blackheath, Dr. Carlton John Evans, of Lewisham, to Dr. Alexa Mitchell, of New Cross.

Harris—Burr.—On August 2, 1949, in London, Nigel H. Harris, B.A., M.B., B.Chir., of Grimsby, Lincs, to Elizabeth Burr, of Hallingbury, Herts.

DEATHS

Butler.—On July 29, 1949, Hedley Ormonde Butler, M.B., B.Ch., late of Chiswick.

MacKenzie.—On July 25, 1949, at Croit Mhairi, Tain, Ross-shire, Colin MacKenzie, M.B., Ch.B.

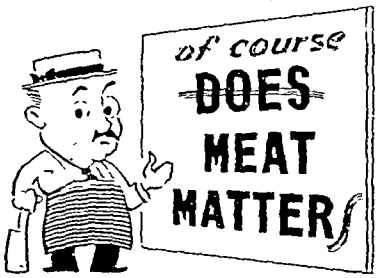
O'Neill.—On July 27, 1949, at North Cheam, Surrey, William O'Neill, M.B., B.Ch., D.M.R.E., aged 57.

Rosser.—On July 25, 1949, Richard Picton Rosser, M.B., Ch.B., of 3, Royal Chase, Tunbridge Wells, Kent, formerly of Darlington.

Southey.—On July 21, 1949, at 111, Tonbridge Road, Maidstone, Herbert Watson Southey, M.R.C.S., L.R.C.P., aged 81.

Wagstaff.—On July 25, 1949, at a nursing-home, Charles Bertrand Wagstaff, M.R.C.S., L.R.C.P., of 15, Huntly Road, Bournemouth.

Williamson.—On July 23, 1949, at Grimsby and District General Hospital, Jessie, the dearly loved wife of Dr. Joshua Williamson, of Cleethorpes, Lincolnshire, aged 71.



You can hear how much it matters by listening in the shopping queues!

Well, everyone's working hard, and the harder people work the more they hanker after good satisfying meals. And "a good satisfying meal" to most people means a meat meal. Nothing else (they feel) can give the same fine sensation of well-being. Nothing else (they think) can keep them in hard-working trim.

Of course medical experience shows that this is only subjectively true—that although most people are accustomed to *enjoy* meat, and miss it when they can't get it, other foods can supply, and, in fact do supply the amino-acids in which meat's nutritional value lies.

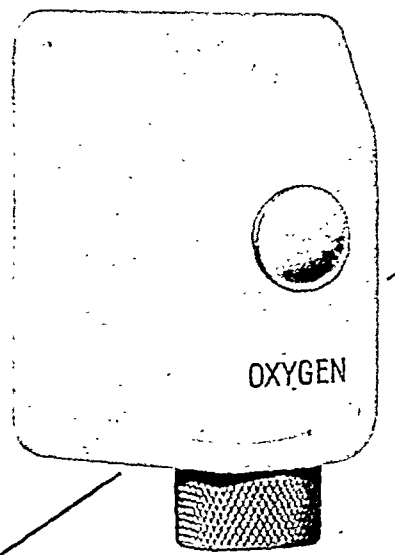
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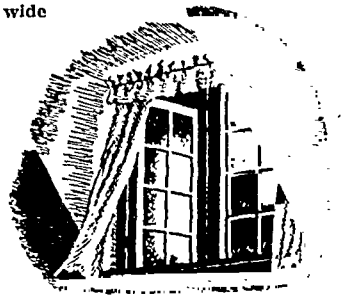
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Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Blood-Brain and Meningeal Barriers

Q.—*What is meant by the "blood-brain barrier," and in view of the rich capillary ramification present in the brain how does it interfere with the entry of antibiotics to the nerve cells? Also, what does the term "meningeal barrier" mean?*

A.—The blood-brain barrier is the physiological mechanism which determines which substances can pass from the blood to the brain parenchyma and in what concentration. Oxygen and glucose are examples of substances which cross the barrier readily, while the bile pigments circulating in the blood in obstructive jaundice are an example of those that cannot. Akin to, but distinct from, the blood-brain barrier is the blood-cerebrospinal-fluid or "meningeal" barrier. This determines which substances can pass from the blood to the cerebrospinal fluid.

The mode of action of neither the blood-brain nor the blood-cerebrospinal-fluid barrier is as yet fully understood. Experimental work with dyes, however, suggests that the electrical charge on the ionized molecule plays an important part. Thus certain basic dyes, bearing a negative charge, when injected into the blood stream will stain the cerebrospinal fluid but not the brain, while acid dyes, carrying a positive charge, will stain the brain but not the cerebrospinal fluid. This factor is probably more important than the actual size of the molecule.

Most of the work on antibiotics has been concerned with their ability to pass the blood-cerebrospinal-fluid or "meningeal" barrier. This ability has proved to be very variable. For example, sulphadiazine passes the barrier more readily than does sulphathiazole, while the threshold for both penicillin and streptomycin is extremely high. Again, active inflammation of the meninges tends to increase the permeability of the blood-cerebrospinal-fluid barrier, but in different degrees for different substances. Thus, in active meningitis the passage of arsenicals from blood to cerebrospinal fluid is slightly facilitated, that of streptomycin is considerably increased, while that of penicillin is not significantly affected. The ease with which antibiotics can cross the blood-brain barrier is technically much more difficult to estimate; there is accordingly very little accurate information available on this subject. It seems possible, however, that penicillin may enter brain tissue more readily than it enters the cerebrospinal fluid.

Transitory Retrobulbar Neuritis

Q.—*What may be the cause, apart from disseminated sclerosis, of a transitory attack of retrobulbar neuritis?*

A.—In cases of transitory retrobulbar neuritis the differential diagnosis is from functional disease, local pressure on the nerve, or a vascular lesion either local or intracranial. Various authors differ in ascribing causes for retrobulbar neuritis, one stating that nasal disease heads the list, another that focal sepsis is the main cause, and a third that disseminated sclerosis overshadows all others. It is important to remember that there is a natural tendency to spontaneous recovery, and so the application of any remedial measure may be followed by recovery, suggesting a wrong aetiology. A transitory retrobulbar neuritis may result from either a rapid spontaneous recovery or transitory activity of the causative factor. The usual causes of the condition may be given as disseminated sclerosis, alcohol and tobacco, diabetes, pernicious anaemia, syphilis, plumbism, post-partum haemorrhage, sepsis, inflammation of surrounding orbital tissue, disturbances in nutrition, pregnancy, and menstrual disorders. Some attempt has been made in this list to indicate the frequency of the causes, but this is not put forward as incontrovertible.

Deficiency of 11-Corticosteroids

Q.—*A woman suffering from Addison's disease appears to have a deficiency of the 11-corticosteroids, and perhaps the as yet not isolated group of adrenal hormones. In her case salt and water balance is easily upset, and she develops symptoms of potassium deficiency on low doses of cortical extract. Are the synthetic 11-corticosteroids yet available?*

A.—This clinical picture is not infrequently met with—that is, one in which hypoglycaemia and lack of well-being appear to be more important than the salt and water depletion. The pure 11-corticosteroids are not available as such. They are present in some degree in the usually obtainable cortical extracts, and they occur in much higher concentration in a relatively new lipid adrenal extract made in the U.S.A. but not yet commercially available in this country, probably because of currency exchange difficulties.

Fertility with Advancing Years

Q.—*Is there any basis for the belief that the fertility of woman decreases progressively after a certain age, usually placed in the region of 30? As ovulation occurs only once in each menstrual cycle, and as this normally continues to about 45 or later, one would expect the chances of conception to be the same throughout the years of normal menstruation.*

A.—Observations carried out among various races all go to show that fertility decreases progressively long before the menopause, and, moreover, it is not fully developed for some considerable time after puberty. In white women fertility is relatively low until the age of 17 or 18 years, reaches a maximum at 20 to 25 years, falls slowly up to the age of 35 years, and thereafter rapidly. Although such statements are based largely on a study of the marriage-conception interval at different ages, without allowance always being made for other factors which may be concerned, and although there are individual exceptions, they are generally accepted.

Contrary to the implication in the question, regular menstruation does not necessarily mean regular ovulation, and it seems likely that all women occasionally have anovular cycles. The frequency of this phenomenon remains uncertain, but it is common, if not the rule, during the years immediately after the menarche, and it occurs more often after the age of 40 than during the more fertile years. Sometimes it appears to be the cause of sterility in young women, and it is generally assumed to be the main cause of physiological low fertility at the extremes of reproductive life. Nevertheless, other factors may be concerned—alterations in the function of the cervix and the body of the uterus, the age of the husband, the decreased frequency of coitus with advancing years, etc. The subject of physiological infertility as it affects animals and the human being is dealt with by M. F. Ashley Montagu in *Adolescent Sterility* (1946, Illinois).

"Irritable Eyelids"

Q.—*A professional woman aged 44 has been suffering for over eight weeks from "irritable eyelids." The itching is particularly marked at night, but during the premenstrual period it is very intense even during the day. There is a history of other allergic manifestations and vasomotor disturbances. Calcium injections have proved ineffective; "benadryl" has given only occasional and temporary relief. Can you suggest further treatment? Is any hormonal therapy indicated, in view of the premenstrual exacerbations?*

A.—One would suggest in the first place a complete ophthalmological examination, as astigmatism, early presbyopia, and other eye conditions may sometimes cause this condition. If these are excluded, skin reactions to the common inhalants (pollens, house dust, feathers, orris root, and moulds) and to the common and seasonal foods should be tested as a guide to the possibility that the irritation is due to the atopic type of allergy. Contact dermatitis might also be considered. Hazen (*Arch. Derm. Syph.*, 1944, 49, 253), in a series of 36 cases of dermatitis confined to the eyelids, found the following to be offenders: nail lacquer, orange peel, carbon

paper, wave-setting lotion, hair dye, face powder, dog hair, cold cream, sulphur ointment, ammoniated mercury, and soap powder. Premenstrual exacerbations of allergic reactions are not unusual, and are presumably due to increased oedema of the tissues at this time. Hormonal therapy is in general disappointing, but stilboestrol is worth a trial. Symptomatically, one of the other antihistaminic drugs, such as "phenergan" ("3277 R.P.") or "anthisan" (pyranisamine maleate), might be worth trying.

Medical Treatment of Myopia

Q.—*Is there any evidence that calcium lactate and parathyroid extract are of use in preventing the progress of myopia in children? If so, what dosage should be given, and for how long should treatment be continued? Is the parathyroid extract likely to cause any glandular disturbance?*

A.—The medicinal treatment of myopia was in vogue several years ago but is not now much used. It would appear that the results in the past with calcium and parathyroid extract have not been encouraging. In these days chief reliance is placed on ordering a full correction at as early an age as possible. The glasses should be worn all day long.

Toxic Effects of "Diparcol"

Q.—*Are there any dangers associated with the administration of the new drug "diparcol" in the treatment of Parkinson's disease?*

A.—Toxic effects which have been noted with "diparcol" (diethylaminoethyl-N-thiodiphenylamine) are somnolence, a slight feeling of drunkenness, and sometimes, though rarely, severe vertigo. These call for a reduction, possibly only temporary, in the dosage of the drug. A more distressing complaint, again rare and a sign of overdosage, is a temporary or almost complete paralysis, but this passes off in a matter of an hour. The drug sometimes also produces a temporary aggravation of Parkinsonian symptoms. The French workers who introduced this drug reported a fatal case of agranulocytosis, but considered this to be due to other drugs used at the same time; nevertheless, an occasional check on the leucocyte count is probably desirable. In debilitated patients, if the drug is stopped suddenly some degree of "collapse" may occur, and for this reason its administration should always be tailed off gradually. The same applies to its substitution for any of the solanaceous alkaloids: the change-over should be gradual. The two may safely be given together for a time. *It is best to* follow accurately the gradually increasing scale of dosage recommended by the makers.

Pus Cells in Semen

Q.—*The semen of a man aged 36, married ten years but with no children, is coloured yellow; motile sperms are absent, but there are a number of pus cells. The colour change is only recent. There is no history of venereal disease or trauma, but six months ago the testicles ached continuously for three weeks. There are no other signs and symptoms and the urine is clear. What is the cause? What investigations do you advise, and is there any treatment?*

A.—An attempt must first be made to discover the source of the pus cells in the semen. These may come either from infection of the prostate or vesicles, or else from a low-grade infection of the seminiferous tubules themselves. To exclude the former, cultures should be made of the urine passed after prostatic and vesicular massage. If nothing is grown from this, the semen itself should be cultured and the infecting organisms identified. But it is quite likely that what have been regarded as pus cells are actually spermatocytes exfoliated from the tubules. The cause of this may be some systemic or constitutional departure from health, which may be discovered by a careful medical overhaul. If nothing is revealed, a biopsy should be carried out to discover the exact state of the testicle. The outlook is poor, but, should the biopsy specimen reveal healthy testicular tissue, an attempt may be made to stimulate spermatogenesis by injections of chorionic gonadotropin prepared from pregnant mare's serum.

NOTES AND COMMENTS

Vaccination.—Dr. F. W. A. FOSBERY (Bristol) writes: I beg a small amount of your space to comment on the practice of vaccination as done by too many qualified doctors. Vaccination is compulsory for entry into the U.S.A. Too often have I to treat badly swollen, septic arms, caused by bad technique. The method of choice is: (1) to cleanse the skin; (2) drop (by any means, even gravity) a small bead of vaccine lymph on the chosen site; (3) puncture the skin through the bead, and wipe off excess; (4) do not cover. This is all that is required to produce immunization and avoids the crippling, unnecessary secondary sepsis favoured by covering the site. The international certificate requires a notation of the "reaction" (and this is more important than the fact of vaccination for entry into the U.S.A.), and the wording of the certificate should be quite accurate—i.e., (1) reaction of immunity; (2) vaccinoid; or (3) typical primary vaccinia. The term "successfully vaccinated" merely means that a needle has been passed over the skin. A certificate of "no reaction" is a reflection on the powers of observation of the doctor who certifies it.

Deafness after Penicillin Injection.—Dr. JOHN S. MEIGHAN (Bridge of Weir, Renfrewshire) writes: I recently had a patient, a man in early middle age, who complained of transient deafness and faintness following the intramuscular injection of a half mega unit of the sodium salt penicillin dissolved in 1.5 ml. of apyrogenic water. Three subsequent injections had no such effect, but he was made to lie down immediately after them. I would be very interested to know if anyone else has had this experience.

Bee-stings.—Dr. ALFRED R. HARGREAVES (C.M.S. Hospital, Gaza, Palestine) writes: Having been a bee-keeper for nearly 50 years I was interested in the question and answer on bee-stings ("Any Questions?" June 11, p. 1061). I would like to add to your expert's advice by suggesting that the best way to remove the sting, which, by the way, is barbed, is to scrape it out with the edge of a pocket knife. To pick it out with the fingers would only squeeze more of the venom into the victim. I always keep my open pocket knife handy when manipulating them. For treatment of the sting itself I find a drop of honey on the spot is very effective. I can imagine that there is more to this than mere hypertonicity and osmosis.

Adrenaline and Blood Pressure.—Professor HENRY BARCROFT and Dr. H. KONZETT write from St. Thomas's Hospital, London, S.E.: In the answer in "Any Questions?" (July 9, p. 111) it is stated that isopropyl-*nor*-adrenaline ("aleudrin," "aludrin," "neo-epinine," "neodrenal") causes a fall of blood pressure even when injected intravenously. This is so in anaesthetized animals[1]; in man (unanaesthetized), however, it caused a rise in the systolic pressure and a fall in the diastolic without much change in the mean pressure.[2] *During inhalation* of therapeutic doses of isopropyl-*nor*-adrenaline the arterial blood pressure is usually unchanged. In the isolated perfused dog's lung, administration of isopropyl-*nor*-adrenaline by means of an inhaler caused a slight fall of pulmonary arterial pressure.[3] Whether this happens in man is not yet known.

REFERENCES

1 Konzett, H., *Klin. Wschr.*, 1940, **19**, 1303.
2 Barcroft, H., and Konzett, H., *J. Physiol.*, 1949. (In press.)
3 Hebb, C., and Konzett, H., *J. Pharmacol.*, 1949. (In press.)

Corrections

The editor of the *Medical Directory* has pointed out that his address should have been given in the letter published in the *Journal* of July 30 (*p.* 284). Doctors who have mislaid or not received the schedule can obtain a duplicate by writing to the *Medical Directory*, 104, Gloucester Place, London, W.1.

The price of Bailey and Love's *Short Practice of Surgery* is 52s. 6d. per set, and not 32s. 6d. as stated.

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SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 13 1949

SURVEY OF SICKNESS

The Registrar-General's return for the quarter ended March 31 publishes the results of investigations carried out by the Social Survey into the rates of sickness and of medical consultation, comparing the figures for part of 1946 and the whole of 1947 and 1948. The samples interviewed consisted of about 3,000 people aged 16 and over "so selected as to be representative of the adult population of England and Wales." A different sample is chosen each month. At the interview the person is asked about his or her health during the two previous calendar months, the number and nature of the illnesses and injuries he suffered, the number of days of incapacity they caused, and the number of times he consulted a doctor.

Table I shows monthly sickness rates in the form of numbers reporting some illness or injury in the month per 100 people interviewed. The rates are higher for those over 65 than for those under 65, and in both age groups are higher for women than for men.

TABLE I.—*Monthly Sickness Rates*

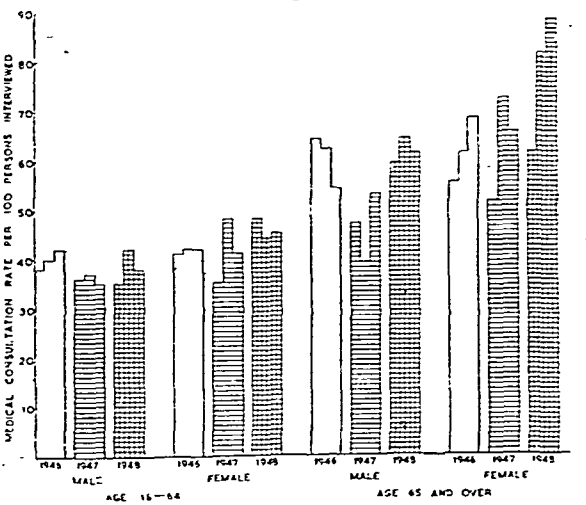
		16–64		65+		16+
		M	F	M	F	Persons
1946	October	65	74	78	87	72
	November	63	75	83	89	72
	December	67	75	82	89	73
1947	January	65	74	77	88	72
	February	65	71	80	86	70
	March	60	69	79	84	67
	April	55	67	81	85	65
	May	57	67	75	85	65
	June	54	64	73	87	62
	July	53	62	72	84	61
	August	53	62	72	84	61
	September	58	68	74	84	66
	October	62	71	81	87	70
	November	62	72	79	87	70
	December	62	72	78	89	70
1948	January	60	68	79	87	68
	February	60	69	81	85	68
	March	58	69	77	84	66
	April	55	66	75	85	64
	May	55	67	73	84	64
	June	56	66	70	81	64
	July	55	67	74	84	64
	August	53	66	75	85	63
	September	57	69	77	84	66
	October	61	72	76	88	69
	November	64	73	78	88	71
	December	65	75	83	88	73

Monthly medical consultation rates are shown in Table II. These rates are the number of visits made in the month to or by a doctor per 100 people interviewed. The doctors include ophthalmologists and other specialists. The figures exclude attention whilst an in-patient in hospital, and dental attention. The rates are similar between men and women of the same age, but are considerably higher for the elderly than for younger adults. The consultations referred to are mainly between patients and their family doctors.

Changes in the rates since July, 1948, indicate how the Health Service has influenced adults in seeking medical advice, comparison being made between the same seasons of the years. A comparison for the quarter October–December, 1946, 1947, and 1948, is illustrated in the figure below.

TABLE II.—*Monthly Medical Consultation Rates*

		16–64		65+		16+
		M	F	M	F	Persons
1946	October	38	41	64	55	43
	November	40	42	62	61	44
	December	42	42	54	68	45
1947	January	48	45	63	79	50
	February	45	38	64	89	46
	March	40	41	68	73	45
	April	37	39	60	73	42
	May	33	38	61	60	39
	June	28	35	49	46	34
	July	32	35	64	48	37
	August	31	34	50	48	35
	September	32	33	44	46	34
	October	36	35	47	51	37
	November	37	48	39	72	45
	December	35	41	53	65	41
1948	January	36	39	71	59	42
	February	39	41	80	69	45
	March	41	42	73	61	45
	April	33	36	80	57	39
	May	34	35	59	62	39
	June	35	39	49	47	39
	July	32	39	58	73	40
	August	31	35	42	65	36
	September	29	41	43	52	37
	October	35	48	59	61	45
	November	42	44	64	81	47
	December	38	45	61	88	47



For the December quarter the consultation rate for all adults in 1948 increased by 12% over that for the December quarter, 1947, and by 5% over that for the same quarter of 1946 among men aged 16 to 64, though with little difference between the rates for the corresponding periods in the three years. Among

women the rate for the December quarter, 1948, was 12% and 10% higher respectively than for the December quarters, 1947 and 1946.

For elderly men the rate was 30% higher in the December quarter, 1948, than it was in that period of 1947, but only 2% higher than two years before. The rates for elderly women in the December quarter, 1948, were 22% higher than those in 1947, and 26% higher than those in 1946 in the same period.

The report comments that since this section of the population has on economic grounds been most prone to go without sufficient medical attention in the past, this increase under the new health service is not surprising.

HELP FOR WAR DISABLED

MINISTRY OF PENSIONS SERVICE

Though most of the hospitals in the country now come under the Ministry of Health, the Ministry of Pensions still retains its own hospitals, regional examination centres, appliance clinics, and limb service centres. It provides medical services specially for the war disabled—services that are additional to, but do not replace, those of the National Health Service.

The Minister of Pensions has recently written to all the war disabled for whom his department is responsible, informing them of the benefits available and asking them to make sure that they are getting all they are entitled to. He has also sent them a pamphlet giving advice on obtaining medical treatment, telling the pensioner that he should first consult the doctor with whom he is registered under the N.H.S. If the treatment needed exceeds what his own doctor can supply, the local office of the Ministry can help. The Minister hopes that doctors will establish contact as necessary with the regional commissioners of medical services of the Ministry, whose names and addresses are given below.

London (South)	Dr. T. Sheedy	Sanctuary Buildings, 20, Great Smith Street, London, S.W.1
London (North)	Dr. T. H. Sims	25, Gordon Street, London, W.C.1
Tunbridge Wells	Dr. J. H. T. Harrington	Forest Road, Hawkenbury, Tunbridge Wells
Bristol ..	Dr. W. A. Date	Government Buildings, Vassal Road, Fishponds, Bristol
Reading ..	Dr. S. Vatcher	Whiteknights Road, Wokingham Road, Earley, Reading
Cambridge ..	Dr. G. P. Thorold	Brooklands Avenue, Cambridge
Birmingham ..	Dr. W. L. Fulthorpe	Dalton House, 94, Corporation Street, Birmingham
Nottingham ..	Dr. T. M. Bellew	35, Carrington Street, Nottingham
Manchester ..	Dr. W. L. Nicholson	Sunlight House, Quay Street, Manchester, 3
Liverpool ..	Dr. G. S. Swan	Orleans House, Edmund Street, Liverpool, 3
Leeds	Dr. A. L. McCreery	Government Buildings, Lawnswood, Leeds, 6
Newcastle ..	Dr. J. W. James	81, St. Mary's Place, Newcastle-upon-Tyne, 1
Cardiff ..	Dr. J. W. Davies	Dumfries Place, Cardiff
Edinburgh ..	Dr. J. W. McCagie	17, Rothesay Place, Edinburgh
Glasgow ..	Dr. A. S. Henderson	134, Sauchiehall Street, Glasgow
Belfast ..	Dr. H. Emerson	Tyrone House, 13, Ormeau Avenue, Belfast
Dublin ..	Dr. G. S. Moran	24, Merrion Square, Dublin

TREATMENT OF MERCHANT SEAMEN IN PORT

The Ministry of Health has informed executive councils that their responsibilities under the National Health Service extend to arranging for all necessary medical treatment given to seamen on shore in their area, including vaccination and inoculation for whatever purpose required. Seamen, unless on the list of the doctor providing the treatment, will be entitled to apply to be treated as temporary residents. Where a ship, British or foreign, lies at a wharf or within a port area controlled by a port authority, a doctor on the list of the council may agree to treat cases on board, and if so the temporary resident arrangements apply there also. Services for merchant seamen have in the past been given by doctors employed by the Shipping Federation; most of those doctors are also engaged part-time in the provision of general medical services, and in so far as this is the case it is thought that they will be included on the medical lists of executive councils and will continue to provide the treatment under the National Health Service. A small number of doctors have, however, been employed whole-time by the Shipping Federation; their position is being separately considered. It may sometimes be necessary for a number of seamen to be vaccinated or inoculated together, and in these cases it would clearly not be appropriate for the doctor to be paid on the basis of the usual fees for temporary residents. Sessional fees for such cases will be arranged instead, and are under consideration. Examinations by Shipping Federation doctors to decide on a seaman's fitness to go to sea remain the responsibility of the Federation and no claim will be made on the council. The question whether the Central Practitioners Fund includes an adequate amount to cover the expense of treating foreign seamen is being discussed, and additional information will be issued by the Ministry later.

REPEAT PRESCRIPTIONS

The Minister of Health has decided that a doctor, in order to avoid unnecessary calls on his time, may give patients two or more prescriptions, or carbon copies of the same prescription (all bearing original signatures), dated at suitable intervals. The type of case referred to is when the doctor considers that the patient's treatment should continue for longer than the first supply of medicine will last, and does not think it necessary to see the patient again or for a considerable time. These arrangements apply also to dressings—e.g., for chronic patients.

This decision has been made in accordance with advice by the Standing Medical and Pharmaceutical Advisory Committees of the Central Health Services Council.

HEALTH SERVICE IN LIVERPOOL

Addressing the Liverpool Executive Council recently the chairman, Mr. A. J. Murnaghan, said that the number of persons on doctors' lists—namely, 795,000—was equal to the estimated population. These lists were inflated owing to some previously insured persons making fresh applications, and the registers were being examined to correct it. The amount paid to 344 doctors was, in round figures, £665,000, of which £5,000 was for maternity services.

There were 165 dentists, who dealt with 85,000 patients and had been paid £543,000. This sum would have been greater by £34,000 but for the restriction that any amounts over £400 per month were to be reduced by one-half for a period of six months.

So far as the Supplementary Ophthalmic Service was concerned the list included 28 ophthalmologists, 116 ophthalmic opticians, and 13 dispensing opticians. No fewer than 164,000 persons had had sight tests at a cost of £139,000, and the cost of glasses so far supplied was £224,000.

Eight doctors had been allowed to have a trainee assistant; 31 had been given a basic salary of £300, and one an inducement grant of £200. Twelve medical practices had become vacant during the year, and with one exception they had been filled with the concurrence of the Medical Practices Committee.

SICKNESS BENEFIT CERTIFICATES

LONGER INTERVALS

Draft regulations that came into operation on Aug. 4 allow medical certificates for sickness benefit to be given at longer intervals in cases of prolonged illness. Before that date a chronically sick person submitted special intermediate medical certificates at maximum intervals of eight weeks if he was not seeing his doctor for examination or treatment at more frequent intervals. One effect of these provisions was that a patient who had to see his doctor every week for a renewed prescription or an injection was obliged to submit weekly certificates although both the doctor and the patient might know that the illness was going to last a long time.

The new regulations extend the intervals from eight weeks to 13 weeks and enable these certificates to be given even though the sick person is being examined or treated by the doctor at more frequent intervals.

The regulations have been made provisionally pending the report on them by the National Insurance Advisory Committee. The committee will consider objections to them which are sent before Aug. 26 to the Secretary, National Insurance Advisory Committee, 6, Curzon Street, London, W.1.

HOSPITAL BOARD APPOINTMENTS

The Minister of Health has made the following appointments.

To Regional Hospital Boards

Oxford.—Professor T. POMFRET KILNER, in succession to Professor A. W. Ellis.

South-West Metropolitan.—Mr. R. Chick, in succession to the late Alderman Wooley.

Leeds.—Mr. Henry J. Bambridge, to be chairman.

To Boards of Governors of Teaching Hospitals

Charing Cross Hospital.—Miss Kathleen Proud, in succession to Sir Sydney Parks.

Eastman Dental Clinic.—Mr. C. F. BALLARD, L.D.S., and Mr. G. A. MORRANT, L.D.S. R.C.S., in succession to Miss R. Caseley and Mr. C. Endicott.

National Hospital for Nervous Diseases.—Dr. MACDONALD CRITCHLEY, in succession to Dr. J. Purdon Martin.

Hammersmith, West London, and St. Mark's Hospitals.—Dr. L. COMYNS, M.P., in succession to Mr. R. Poots.

Royal Free Hospital.—Miss E. Burton, in succession to Mrs. F. E. Cayford.

London Hospital.—Mr. S. F. Johnson, in succession to Mr. W. H. Butler.

Leeds United Hospitals.—Mr. H. J. Bambridge, in succession to the late Mr. J. E. Fattorini.

HEARD AT HEADQUARTERS

Charities Ball

The Charities Ball held by the Metropolitan Counties Branch in May was a great success. A cheque for £500 has been sent in, of which £150 is to go to the Dain Fund, £150 to the Sir Charles Hastings Fund, £100 to the Royal Medical Benevolent Fund, and £100 to the Medical Foundation of Epsom. All those who worked so hard to make the evening enjoyable for the guests and so successful for medical charities are to be congratulated, particularly Dr. J. W. McCarthy, who was chairman of the Ball Committee.

The Press and Harrogate

The Public Relations Officer of the Association has had an amusing tilt with the *New Statesman and Nation*, which had stated that the whole tenor of the Harrogate meeting was "so grossly distorted by some Right Wing papers that the B.M.A. had to send protests to the editors of two of them." Actually no protests at all were sent by the B.M.A. to any paper—Right Wing, Left Wing, or Middle Wing. The Press, as the Public Relations Officer points out, can safely be left to look after itself. A number of interesting sidelights were obtained at Harrogate on the way the Press does its work. One newspaper correspondent told us at the end of the week that he had sent out as many as 80 "stories" from the meeting. In obtaining his "stories" the pressman has his own technique. In one of the Sections a woman doctor read a highly technical paper, which, like the whole of the discussion, could have no interest for the popular press. But at one point she broke off to relate a personal experience. Immediately after the meeting she was tackled by pressmen with their intimidating notebooks, and the first question which one of them asked her—asked in so many words, without the slightest apology or hesitation—was, "How old are you?" Rather taken aback, instead of boxing the ears of an impertinent young puppy, she said that she was 36. When the reporter was remonstrated with afterwards by one who was offended by this method of approach, he said that inquiry into the exact age of any person concerned in a news item was now the rule, and he maintained that the method was preferable to giving a vague impression of "young" or "middle-aged." But the thing for a doctor to do if he is betrayed into making a remark at a public meeting which has any news value is to run away afterwards with all speed unless he is prepared to disclose his age, his habits, and his domestic circumstances. Incidentally, there used to be a rule forbidding admission of the lay press to Sections except Medical Sociology and the like which have a certain public interest.

Not So Much a Problem

At conference after conference on the care of the elderly we hear it discussed how old people are to be "dealt with"—an infuriating phrase. The people who talk in this way are very earnest and public-spirited, but it might be useful for them to hear the comments of those who are discussed. A much sounder note was struck at a conference on this subject the other day by Dr. C. A. Boucher, a medical officer of the Ministry of Health, when he said that, although it was customary to talk about the "problem of the aged," he was not at all sure that there was such a problem. There was a much greater danger, he said, that we might be creating a problem for ourselves by trying to do more for the aged than they wanted us to do for them. He reminded his audience that the old are independent people who want to keep their individuality, and, while they are grateful for help and guidance, they do not want to be extracted out of the general pool or to feel that they themselves are not contributing to that pool.

Questions Answered

Appointed Factory Doctor

Q.—*What are the duties, and by whom is the appointment made, of (a) Certifying Factory Surgeon, (b) Appointed Factory Doctor. I believe that (b) is the correct designation as stated in the N.H.S. Act, but have no means of checking this; it is, I take it, a new office.*

A.—It is not a new office. "Appointed Factory Doctor" is the new name given by the Factories Act, 1948, to the Examining Surgeon (formerly known as the Certifying Factory Surgeon). The appointments are made by the Chief Inspector of Factories, Ministry of Labour. The Appointed Factory Doctor carries out certain statutory medical examinations, including examinations of young persons (under 18) entering industry as to their fitness for employment, follow-up examinations of young persons, and periodic examinations of persons engaged in certain dangerous processes. His other duties include the investigation of and reporting on certain cases of gassing and industrial disease. He has no statutory duties under the National Insurance (Industrial Injuries) Act, 1946, but his services are used by the Ministry of National Insurance for the diagnosis of cases in which injury benefit is claimed under this Act.

The South Caernarvonshire Medical Society, which was established early in 1948, states in its first annual report that it has constantly pressed for (and will continue to do so) some provision towards heavy telephone costs, free postage on Health Service matters, adequate payment for treating temporary residents, a Government contribution towards the costs of surgery maintenance, and other improvements. Appeals have been made to the Minister of Health, the B.M.A., and other bodies, and the society has emphasized that the capitation fee must be satisfactory to general practitioners. Medical practitioners all over the country, it states, must unite in strong and definite action.

MEDICINE IN NIGERIA

REPORT ON PRIVATE PRACTICE

Under a commission appointed on July 24, 1948, Sir Sidney Phillipson was appointed "to review the present system relating to the private practice of medicine and surgery by officers of the Department of Medical Services (Nigeria), and in the light of that review to make recommendations regarding future policy and the most suitable means of giving effect thereto." The report has been published.[1]

Sir Sidney Phillipson found that Government medical officers recognized the need for a material change in present arrangements, though their views on how they should be changed differed widely. On Aug. 31, 1948, there were 200 officers in the Department in the higher professional grades, including dental officers and assistant medical officers. Of these, 50 were debarred from private practice and received no staff pay, 18 were debarred from private practice but received staff pay, 81 were allowed private practice, and 51 were temporarily allowed private practice by local dispensation.

There were two main divisions of private practice. The first comprises that system under which officers of the Department are allowed by their conditions of service to charge directly patients who do not come within the categories of patients for whom they are required by the terms of service to provide free medical attention.

Injection Practice

The second division is "injection" practice. This practice, "at one time very extensive in certain parts of Nigeria and still largely followed," consists in giving injections "more or less on demand, normally without clinical examination, to those who ask for them, a fee being recovered for each injection given."

He discusses injection practice in a separate part of the report. Many people in Southern Nigeria have great faith in the efficacy of injections for all human ills. This faith is said to have originated some 20 or so years ago when N.A.B. injections were used in the treatment of yaws. The remarkable effect of a single injection in clearing up the symptoms deeply impressed the people. Since then injection practice has enormously increased. Sir Sidney concludes that it is undesirable and should be regulated.

He recommends that injection practice should be brought under rigorous and comprehensive control for both Government medical officers and private practitioners. No injections should be given by Government medical officers on tour at points other than Government hospitals and dispensaries. Fees for injections should be paid into Government revenue if the injections are given at a Government institution, or into Native Administration revenue if they are given at a Native Administration institution with drugs supplied by the Native Administration. "All measures savouring of advertisement of injections shall be strictly forbidden."

Prescribed Scale of Fees

Among his recommendations on ordinary private practice conducted by Government medical officers he says that fees for professional services (including operations) rendered in public institutions should be in accordance with an officially prescribed scale. The scale should provide for adjusting fees according to the means of the patient, and it should be worked out in consultation with representatives of the unofficial private practitioners. Of the fees prescribed for certain non-routine operations performed within Government institutions 50% should be paid to the medical officers who performed them.

Government medical officers should be allowed the fees prescribed for consultations in respect of cases referred to them by unofficial private practitioners. These payments should be made from a special medical fund. The medical fund would be created from the fees for professional services rendered in public institutions.

[1]Government Printer, Lagos. Obtainable in England from the Crown Agents for the Colonies, 4, Millbank, London, S.W.1.

Health Insurance Scheme

He also recommends that some form of health insurance scheme should be studied in relation to large employers of labour. The scheme would provide for contributions by the firms and their employees. The employee would have the right to select his own private practitioner from a panel drawn up after consultation between the Government, the private practitioners, and the firms concerned.

GENERAL MEDICAL SERVICES COMMITTEE

At the meeting on July 28 of the General Medical Services Committee, part of which was reported in the *Supplement* of Aug. 6 (p. 74), certain questions relating to dispensing for temporary residents were referred to the Rural Practitioners Subcommittee.

The committee considered the treatment of seamen as temporary residents by doctors engaged in the Service. The Deputy Secretary reported on a meeting convened by the Ministry of Health at which representatives of the Shipping Federation were present. A point which arose concerned the temporary-resident fee in the case of persons in ships which port medical officers were required to visit. The visit sometimes necessitated a long boat journey. The Federation's representatives undertook to explore the possibility of settling the matter by an internal adjustment. The further question arose whether a doctor under his terms of service was required to visit a vessel at sea and, if so, at what distance out. The area of an executive council includes rivers, but wide estuaries and ships some distance from shore seem to open up new problems. A cognate question concerned boys in training on board ship and their status as temporary residents. Here, however, it was pointed out that they were a picked class, having undergone routine examination (which examination would be outside the terms of service), and that if any did fall ill they were likely immediately to be sent home or to hospital.

Liaison with Dentists

The British Dental Association had accepted the suggestion that there should be an exchange of observers on committees representing the common interests of general medical and dental practitioners. The committee appointed Dr. F. Gray as observer on the corresponding committee of the B.D.A.

Resolutions of A.R.M.

The committee examined the many resolutions of the recent Annual Representative Meeting which had been referred to it, and decided on appropriate action to be taken. A number of them were listed to be taken up with the Ministry of Health at the next meeting with the Ministry's officers. On the question of the resolution which was carried by the narrowest of majorities at Harrogate, declaring that a defendant doctor before a Medical Services Committee should be represented by a paid advocate or solicitor if he so desired, the general feeling of the committee was that in view of the narrow vote this question should be deferred until the next session and reconsidered in the light of experience, when the constitution of Medical Services Committees might also be considered. The chairman pointed out that one objection to paid legal advocacy which occurred to him was that the other side might retain a specialist lawyer who would go from place to place cross-examining with a certain facile skill in a way which might put an innocent practitioner in a difficulty.

The resolution protesting against the steady exclusion of general practitioners from work in hospitals was referred for immediate action, the chairman remarking that in contacts with practitioners from other countries it appeared that they were all associated with some hospital.

On the resolution supporting the principle that general practitioners should be able to order stock drugs on Service prescriptions, Dr. Jope said that the Ministry itself was anxious to introduce this on the ground of economy. Dispensing fees

had been fixed on the assumption that there would be 140 million prescriptions annually; in fact there had been 200 million.

Filling of Practice Vacancies

Dr. Howie Wood brought forward the unfortunate case of a doctor who had travelled a return journey of 500 miles on the strength of a letter from an executive council which suggested that he was the only candidate for a vacancy invited to attend. He had asked beforehand for information about accommodation should he be appointed to the practice, but received no reply, and on attendance at the interview he discovered that there was the most unsatisfactory and indeed untenable position with regard to accommodation, and withdrew his application. The practitioner whose retirement had created the vacancy had sold his house, from which the practice was conducted, and apparently the only hope of accommodation for the newcomer was a nursing-home shortly coming on to the market and not well placed in relation to the practice. He felt that applicants should be supplied with full information before being put to the trouble and expense of an interview.

The committee, while expressing sympathy with the practitioner concerned, felt that the case was wholly exceptional. It was explained that it arose owing to the illness of the clerk of the executive council and the misunderstanding of a deputy, and the committee decided to take no action.

NORTH WALES BRANCH CENTENARY

The North Wales Branch of the Association celebrated the centenary of its foundation on July 20, and Dr. Leslie Jones was elected president. In his address[1] he emphasized the enthusiasm with which the pioneers of medicine contributed to the foundation of the Branch. The early meetings had been attended by doctors who rode in forty miles on horseback.

The celebrations opened with a service at Bangor Cathedral, which was taken by the Bishop of Bangor.

Speaking at a dinner given in the evening Sir Henry Morris-Jones, M.P., said that Wales had made greater contributions to medicine than to any other profession. Rural practitioners in Wales were among the finest types of country doctors in the Kingdom. Dr. Leslie Jones said that the rural practitioner, though hard-worked, had many compensations. One was the intimate relationship between patient and doctor which did not exist in the towns. Colonel R. D. Briercliffe emphasized the need for a medical school at Bangor as well as a large up-to-date hospital. Professor G. I. Strachan, of the Welsh National School of Medicine, said he was in sympathy with the need for a better hospital and a medical school at Bangor, but they should remember that the question was a big one and delicate. He was afraid that much water would flow under the bridges before a medical school could be established at Bangor.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

[1] *North Wales Chronicle*, July 22.

The Minister of Health has decided that travelling and subsistence allowances of the two members appointed by the university to attend meetings of the local medical committee at which applications for training grants for assistants are considered may be regarded as administrative costs of executive councils.

Correspondence

Grading of Hospital Staff

SIR,—Your leading article (*Journal*, July 23, p. 220) rightly voices the widespread dissatisfaction that exists over the grading of specialists, but it also raises several other points of considerable moment to those of us in the depressed class of trainee specialist.

Your sympathy with those of registrar status is appreciated, but it is a little surprising that you single out for particular mention those who have been qualified for four or five years only. Such men even before the war, when their 'prentice period was not interrupted by a year and a half of National Service, could hardly have expected to find their way into consultant or specialist work at the age of 27 or 28. There must be a very much larger number of would-be specialists who graduated before the war or in its early years and who were in the Forces for five or six years, some of them attaining specialist status.

Those of us in this group were encouraged to specialize by the repeated forecasts of great expansion in specialist services under the N.H.S. and by the provision of Class III grants. We have been grateful for the latter, without which specialization for most of us would have been impossible, and (particularly that majority of our number who have hostages given to fortune in the shape of wife and family) have borne with comparative equanimity a necessarily straitened standard of living and a deepening furrow on the brows of our bank managers in the hope of eventually finding ourselves freed from financial anxieties and congenially employed in the work for which our training and laboriously acquired qualifications have fitted us.

We have been repeatedly advised to hang on until hospital establishments are settled, but are now left with the impression that few, if any, additional specialist posts are to be created. The proverbial, if unphysiological, cardiac emetic action of *hope deferred leaves us* wanly facing the question whether or not the time has come to cut our losses and enter general practice, in the role of assistants perforce, along with and under the same conditions as recent graduates (and at a very considerable financial disadvantage compared with our newly qualified dental colleagues). No sneer is intended at general practice, which has its own satisfactions, but a shotgun wedding is inevitably disquieting, even though the union prove a joyful one.

The hope expressed in your leading article that retiring general-practitioner consultants may be replaced by outstanding general practitioners from the district has caused immense surprise among trainee specialists of my acquaintance and has occasioned reflections on whether it is an inspired indication of B.M.A. policy. Is it tacitly indicated that the outstanding general practitioner chosen will relinquish his practice and undergo a period of intensive training before assuming his new responsibilities? It is felt that the technique and complexities of modern medicine and surgery as specialties are such that a direct transition from outstanding, and presumably very busy, general practitioners to consultants is hardly likely to be successful.

It would be greatly appreciated by all trainee specialists, I am sure, and would relieve their universal chronic anxiety state if information could be given about whether there is likely to be any significant increase in the present number of specialist posts, particularly as general physicians and surgeons, and, if so, if some rough indication could be given of what proportion of the existing triers are likely to succeed. It has been estimated that pre-war about one registrar or trainee in three or four eventually reached consultant status. The odds against would now appear to be considerably larger.—I am, etc.,

Edinburgh. W. A. L. MACFADYEN.

SIR,—"Qualified Consultant" (*Supplement*, July 16, p. 50) has put into words what I have felt for some time. The profession has been split into castes, with the teaching hospitals

loath to associate themselves with the non-teaching groups, and the consultants determined to keep apart from their lesser-graded brethren.

That this is so can be seen by the arbitrary way in which *all* the visiting staff in teaching hospitals were "unanimously" graded as consultants, irrespective of the fact that some were indulging in private general practice and N.H.S. general practice and some had no higher qualification, yet in the case of those on the less-exalted hospitals these three factors were vehemently stressed.

"Qualified Consultant" asks who has let us down. The answer is our own colleagues. The gradings were performed by members of our profession who, contrary to all expectations and to frequently stressed guarantees, reversed the Ministerial rulings and supported dead-end grades, and almost with enthusiasm demoted their colleagues and trampled on the lifelong devotion to a specialty which these down-graded—and to some this spells degraded—doctors had so unselfishly given, in most cases in a purely honorary capacity, prior to July, 1948.

Even local consultants advisory committees have excluded some of their colleagues, sometimes their senior colleagues, from participating in their present deliberations.

Don't you feel, Sir, that if those responsible for gradings had stood firm and unselfishly behind their colleagues and the committees referred to had refused to accept any contrary gradings, and the B.M.A. had staunchly defended and supported the principle of the "job determining the grade and the remuneration" the whole bitterness and shattering of ideals which this affair has caused would have been avoided, and many of those merrily at work now would carry on equally merrily in the future? Do you honestly think, Sir, that a down-graded man, *if* he does remain in the Service as such, would be happy knowing his ambitions have been crushed, and crushed by his fellow men?

To quote "Qualified Consultant's" last paragraph, "Never in the history of medicine in any country has such a situation been imposed by a Government on an honourable profession"; may I add, "And implemented by members of that profession themselves"?—I am, etc.,

"K."

SIR,—Although your leading article on the above subject (July 23, p. 220) casts a useful ray of light upon the subject, it is to be hoped that you will be able to elaborate one of its comments further. You say: "There would seem to be a case for the grade of S.H.M.O. in mental hospitals, tuberculosis sanatoria, and fever hospitals."

I personally find it a little difficult to stomach this discrimination. A substantial group of us, including not a few who served in the Forces during the war, and many of whom are married and have families, have laboured diligently and been at great pains to acquire higher qualifications appropriate to our specialties, or are at present conscientiously doing so. Would you have each of us accept it that because he has chosen psychiatry, tuberculosis, or infectious diseases he must ultimately expect lower professional status than would be the case if he specialized in dermatology, orthopaedics, or general medicine?

Your next sentence seems to imply that a child suffering from diphtheria is a less valuable life than is an older subject afflicted by cardiac decompensation, that an intelligent executive afflicted by an obsessional neurosis matters less than a (usually duller) individual the victim of gonorrhoea, or that a promising career threatened by tuberculous infection is less to be considered than his friend who is in the throes of a spinal caries. Else why is it suggested that the assistant in the fever hospital cannot be designated as a specialist, when presumably his equally well qualified colleague in general medicine, dermatology, orthopaedics, or anaesthetics presumably can?

I shall hand it to you, if you wish, that the specialist surgeon has a right to consideration above all other groups, although I gravely doubt the wisdom of any such distinction; but to relegate the practitioners of three specialties to subordinate status is, in the event, to degrade the specialties themselves. If the practitioner in one of these branches who aspires to the D.P.H., the M.R.C.P. or M.D., or the D.P.M. must accept lower status than the holder of M.R.C.P. or M.D. in general medicine, then he may as well save himself the trouble of the necessary study or else deny his services to the branch of medicine for which he is most fitted.

I hope that you will comment further, so as to clarify the position and to relieve psychiatry, etc., of any special stigma.—I am, etc.,

Leicester. DAVID T. MACLAY.

SIR,—Dr. Arthur S. Wigfield (*Supplement*, July 23, p. 58) complains of the shabby treatment of the specialty of venereology in Liverpool. Yet on his own figures Liverpool has been treated absolutely fairly, and received the only possible grading—if I understand the present basis of grading.

Unfortunately those responsible for grading seem to have fallen into the trap set by a too simple nomenclature.

When a doctor holds a whole-time appointment he is clearly a hospital doctor. When he is head of his department he is clearly the senior hospital doctor. Since he has a whole-time appointment he is not available for consultation for any few remaining valued private patients. He can, then, scarcely be a consultant, but is clearly senior hospital medical officer. Q.E.D.

The part-time man, who is available for consultation anywhere, unfortunately is not senior to his chief, so could not possibly be graded higher. Q.E.D.

When I was a schoolboy Q.E.D. meant "Quite Easily Done." I am afraid it will not be quite so easily undone. We shall need to define professional status as distinct from qualifications or appointments.—I am, etc.,

Crowthorne, Berks. H. D. FORBES FRASER.

SIR,—May I use your columns to make a plea on behalf of those specialists working in the tuberculosis service and particularly those in sanatoria?

By the large-scale use of the grades of S.H.M.O. and J.H.M.O., never envisaged by the Spens Committee but introduced by the Ministry of Health with the obvious intention of obtaining the services of specialists on the cheap, many doctors in the tuberculosis service find that they will be very much worse off than they were led to believe they would be when the Government announced their acceptance, in principle, of the recommendations of the Spens Committee.

My case is, I think, judging from the opinions expressed at a meeting held recently in this region, fairly typical of what is happening to doctors in the tuberculosis service.

I have been qualified nearly eight years and have been working whole-time in a sanatorium for almost four years, and I hold a higher degree obtained on the strength of my specialized experience. I have just been graded as a J.H.M.O., and this grading has been confirmed on appeal. I may therefore expect to receive a salary of £850 per annum rising to a maximum of £1,000. This compares with a salary of £1,200 in terms of 1939 money recommended by the Spens Committee for a Grade I potential specialist in his fourth year. But comparison of grades and salaries offered bear little relation in many cases to the recommendations of the Spens Committee, for their proposals, although accepted in principle by the Government, have been largely discarded by the Government in its search for cheap specialist services.

Much protest has been raised against the grade of S.H.M.O., but I feel that much more protest can fairly be raised against the grade of J.H.M.O. This grade is, I submit, entirely unnecessary, as all the practitioners placed in it could fairly be placed in one of the registrar grades and promoted to S.H.M.O. or consultant in due course, with the advantage that appointments in the registrar grade are limited in time in almost all cases, and promotion may be expected to follow in due course. On the other hand, the grade of J.H.M.O. appears to be a complete dead-end with little or no prospect of promotion, as it is reasonable to assume that appointments to the grade of S.H.M.O. and consultant will be made from the registrar groups. It thus seems highly probable that a practitioner in the J.H.M.O. grade is likely to stay in that low grade

indefinitely, for appointments in this grade do not appear to be limited by time.

In this region this grade appears to have been freely used in grading members of the staff of sanatoria, and its use can hardly be calculated to encourage practitioners to enter this branch of medicine; and those already in this field must consider whether or not they should change to a branch of medicine where their experience and capabilities will obtain higher recognition.—I am, etc.,

"J.H.M.O."

SIR,—From time to time in the past you have been good enough to allow me a little space to express my views on some clinical matters. In common with many other practitioners at this time my mind has turned from the patient to a consideration of what is happening to medicine and those who practise it. It is on this subject that I hope you will allow me some further space. I refer, particularly, to your leading article (*Journal*, July 23, p. 220) on the grading of specialists.

The policy of the B.M.A. appears to be to resist all attempts to make further additions to the grade of senior hospital medical officer. But then one goes on to read that those doctors working in "mental hospitals, tuberculosis sanatoria, and fever hospitals" are not generally thought to be on sufficiently specialist work to be graded as consultants.

My own specialty being psychiatry, I am unable to make any suggestions about tuberculosis sanatoria and fever hospitals. It would seem, however, that practitioners in other branches of medicine are even less enlightened than the general public when it comes to the growing front of psychiatry. I would like to point out that at present only a comparatively small proportion of psychiatric work is carried out outside mental hospitals or the mental health services run by mental hospitals. To relegate the majority of psychiatrists to a lower status must mean either that they are regarded by the rest of the profession as having less professional skill and experience, or, which is more likely, that the mental hospital is still regarded as the place for custodial care of the chronic insane. We know that there are many who would like to see this happen and would prefer early and recoverable psychiatric cases to be treated outside mental hospitals.

I am quite certain that this development would be a disaster for the mental health of the country and would result in the best psychiatrists in the profession being driven out of the mental health services.

It does not seem to be sufficiently realized that the practice of psychiatry requires a degree of devotion and a peculiar kind of skill scarcely to be found in any other branch of medicine. Perhaps this is why many doctors have worked unceasingly and uncomplainingly in the past in mental hospitals under poor conditions and on inadequate pay.

In future, when the desire for adequate pay and status is becoming a collective urge which few of us can resist, one can only look forward to progressive diminution of the numbers of those training in psychiatry, unless others in our own profession are prepared to give us their support. The lay Committees of Visitors to mental hospitals have, of recent years, accorded to recent advances in treatment some of the recognition which they deserve. The development of insulin treatment, the discovery of electric convulsion treatment, and the operation of prefrontal leucotomy have all arisen in mental hospitals. There are many who feel that, without being fanatical, E.C.T. ranks with penicillin as a medical development. These discoveries have been mostly made by younger men. Is it too much to ask that young psychiatrists who have contributed to their own specialty shall be graded as consultants at 32, as Spens anticipated? To put the question in another way: What is expected of the doctor of 32 in the way of qualifications and experience so that he can be graded as a consultant?

It is time, therefore, that our own colleagues, and in particular those on the Council of the B.M.A., gave some recognition and acknowledgment to this work, bearing in mind recent estimates that up to 30% of the population suffer from neurosis at some time or other during their lives.—I am, etc.,

Warlingham, Surrey. R. A. SANDISON.

Doctors and Midwives

SIR,—Dr. Thomas B. L. Bryan (*Supplement*, July 16, p. 51) surely overlooks two important points. One is that the British midwife has, over a long period of time, won for herself the position which the midwife in this district quite rightly claims as hers—namely, that all normal confinements should be undertaken by the midwife, and that a doctor should be called in only for emergencies. This position is supported by Acts of Parliament as well as by the agreement of most medical practitioners.

Secondly, if this position is reversed and the midwife merely becomes a maternity nurse, or the doctor's handmaid, not only will this be, in our opinion, to the detriment of the patient, since few medical men have the necessary time to spare to remain with the patient as long as does the midwife, but it will discourage well-qualified women from entering the profession. On all grounds, therefore, it would seem that Dr. Bryan's suggestion is a completely retrograde one.—I am, etc.,

London, S.E.1. J. ELISE GORDON, *Editor, Nursing Mirror.*

SIR,—Dr. Thomas B. L. Bryan (*Supplement*, July 16, p. 51) and one of the midwives in his district do not seem to be working in harmony, the bone of contention being whose is the responsibility for normal midwifery.

This antagonism between doctors and midwives is no new thing, and I cannot do better than quote from the historical section of the report of the Working Party on Midwives, which I commend to Dr. Bryan, in which it is written: "The obscene invective which professional men directed at female competitors during the nineteenth century is well matched by that which women midwives directed against male competitors in the eighteenth."

We may be more gentlemanly and ladylike nowadays, but the difficulty remains unless both sides can take the wide view. It is not in the patient's interest that either the midwife or the doctor should monopolize the case. They must work together as a team. For abnormal cases the doctor obviously must be in charge. For normal cases a satisfactory apportion of duties is that the midwife conducts the actual delivery and that the doctor, if he wishes to be present, supervises any analgesia or anaesthetic required.—I am, etc.,

Manchester. C. SCOTT RUSSELL.

The New Civil Servants

SIR,—Dr. William Morton (*Supplement*, July 16, p. 50) states that one of H.M. Inspectors of Taxes has stated that a whole-time specialist is a Civil Servant.

This is surely quite wrong, as I know for a fact that officials previously employed by a Government department had to resign from the Civil Service on accepting employment with the regional hospital board.—I am, etc.,

ARCH. R. MILLER.
Hon. Sec., Glasgow and West of Scot and Branch.

Manor House Hospital

SIR,—It was a little surprising to hear on Sunday, July 24, a broadcast appeal by Lord Uvedale on behalf of Manor House Hospital and especially to hear him say that "the restoration of the poor and crippled to health is an object worthy of sacrifice and effort." Perhaps Lord Uvedale will explain why, in view of its intimate association with the trade unions, this hospital scorns inclusion in the National Health Service, from which it could obtain all its needs, and prefers to rely for support on a method which the Labour Party believes to be unnecessary, undignified, and unworthy of a great nation.—I am, etc.,

Cambridge. FF. ROBERTS.

Domiciliary Midwifery Service

SIR,—The new statement on the domiciliary midwifery service (*Supplement*, Aug. 6, p. 74) has made a very tardy and unfortunate appearance. Unfortunate in this way: that when people

realized that they could book the doctor for their confinement—having, for financial reasons, had the district nurse before—they not unnaturally expected to have *all* the antenatal examinations, the doctor to be in attendance, at any rate during the second and third stages of labour, and to put in post-natal visits. And even though the fee is not over-generous one felt that it was only right to undertake these services, which one did.

Now one is supposed to say, "I'm sorry, Mrs. Blank, but you won't be having your pethidine and scopolamine, and your whiffs of chloroform at the end, which were such a boon to you before; and I shan't be coming near you for six weeks, unless Nurse sends for me."

I have no intention of letting down my patients—and my profession—in such a manner.—I am, etc.,

Aylesbury, Bucks. W. A. BELLAMY.

Regional Consultants and Specialists

SIR,—I should be grateful for the hospitality of your columns to announce that the Regional Hospitals' Consultants and Specialists Association has instituted associate membership of the association for the following classes of medical practitioners in the hospital service:

(1) Those who are graded as registrars by a regional board.
(2) Those who hold a post of registrar status, whether that post is recognized by a regional board or not.
(3) Those who, in the opinion of the council, are of similar status.

The membership fee is 10s. 6d., payable on joining and carrying associate membership until the termination of the calendar year next after the date of joining. Associate members will have representation on the regional committees of the association but will have no vote.

A list of the regional representatives from whom, in each region, further information should be sought by prospective associate members is as follows:

Newcastle: Mr. R. E. Jowett.
Leeds: Mr. Donald Watson, Mr. A. R. Lister, Mr. R. R. Simpson.
Sheffield: Mr. L. Dougal Callander, Dr. J. W. Brown, Dr. P. H. O'Donovan.
East Anglia: Mr. J. M. Ridley Thomas.
N.W. Metropolitan: Miss A. H. Baker, Mr. C. Hope Carlton, Mr. A. Clifford Morson, Mr. Harold Dodd.
N.E. Metropolitan: Dr. F. Murgatroyd, Mr. J. B. M. Green, Dr. R. B. Niven.
S.E. Metropolitan: Mr. J. R. H. Turton, Mr. I. Monro Robertson, Dr. H. A. Treble, Mr. T. Meyrick Thomas.
S.W. Metropolitan: Mr. Nigel Cridland, Mr. N. Ross Smith, Mr. H. S. Taylor-Young, Mr. G. N. Golden.
South-western: Mr. C. E. Kindersley, Mr. L. Henry, Mr. W. H. Bradbeer, Dr. F. D. M. Hocking.
Welsh (North): Dr. H. S. Bell.
Welsh (South): Dr. W. Esmond Rees.
Birmingham: Dr. A. I. Cheyne, Mr. B. G. Scholefield.
Manchester: Dr. F. M. Hilliard, Dr. Hugh Selbourne.
Liverpool: Mr. A. W. Holgate.

—I am, etc.,

45, Lincoln's Inn Fields, London, W.C.2. NIGEL CRIDLAND, Honorary Secretary, Regional Hospitals' Consultants and Specialists Association.

B.M.A. LIBRARY

The following books have been added to the Library:

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Association Notices

Diary of Central Meetings

AUGUST

31 Wed. General Medical Services Committee, 11 a.m.

SEPTEMBER

9 Fri. Joint Committee on Fees for Part-time Work under Local Authorities, 2 p.m.
13 Tues. Proprietary Medicines Committee, 11 a.m.
15 Thurs. General Medical Services Committee, 11 a.m.
16 Fri. Committee on Psychiatry and the Law, 2 p.m.

BRITISH MEDICAL JOURNAL

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THE SURGERY OF PULMONARY STENOSIS*

BY

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The relief by operation of certain forms of cyanotic congenital heart disease (*morbus caeruleus*), especially those associated with pulmonary stenosis, has aroused widespread interest during the last two or three years, and this seems a suitable time to review the present position. In addition to assessing the results and value of the usual operation for this condition (the Blalock–Taussig operation), a preliminary account will be given of an entirely new operation which has so far proved successful and which may offer certain great advantages.

Human and Clinical Problem of Congenital Pulmonary Stenosis

The problem of the "blue baby" has always been a tragic one in which the doctor has hitherto been powerless to offer relief either to the sufferer or to the distracted parents. Although the plight of these children has been well known, it is only since the prospect of relief by operation has been available that the incidence and full tragedy of the condition has really come to light: those of us to whom these patients are brought for advice have been almost overwhelmed by the numbers and have been very impressed by the large amount of suffering and human misery that has been revealed. Many of these children have been almost hidden away in all parts of the country, not through any deliberate policy of concealment, but because many are necessarily, from their disability, confined to the house or to their room for the whole or the greater part of their lives. A few are able to get about out of doors moderately well under favourable conditions; some can manage to walk a short distance (10–100 yards); a number more must be wheeled in a "pram" or carried by their parents if they are to leave the house at all.

In extreme cases the child is very blue and dyspnoeic even while sitting or lying in bed and cannot move about at all; we have seen children as old as 6 years who have never walked. Some have been able to get about in a restricted fashion for a few years, and with the steady increase in their disability they finally become completely immobilized.

The strain on the parents and on the family life is considerable. The mother can rarely if ever leave the child, who not only occupies most of her attention but may give rise to periods of intense anxiety if, as often happens, it is subject to attacks of loss of consciousness and deep cyanosis and distress in which it appears to be near to death, or may indeed die. The burden on the mother is so great that she may abandon any idea of having more children, a situation that only heightens the tragedy when the blue child eventually dies. It is worthy of remark that the father always accompanies the mother when the child is brought for consultation; much of the carrying about of the child falls on the father, and it is in any case quite impossible for him not to be intimately involved in the management and anxiety of the grave family and domestic problem that the disabled child constitutes.

The more severely afflicted children die young; the mortality in the first few years of life is high. A number of children reach the early or even the late "teens," but usually with increasing disability. It often happens that a bright or intelligent boy or girl who has done well at school and even won scholarships becomes increasingly handicapped by the physical disability that prevents the fulfilment of what might otherwise be a promising and useful career. Only few patients are seen in the twenties who are able to carry out any useful occupation or employment.

The prognosis is poor, and this is strikingly shown by an analysis of the age of patients with cyanotic heart disease who have attended the congenital heart clinic at Guy's Hospital, which is under the care of Dr. Maurice Campbell. An analysis of the age incidence in 340 patients seen by Dr. Campbell over a period of some 15 months shows a rapid falling off which admits of no other general conclusion than that the prognosis is bad and becomes worse as the years pass. Campbell sums it up by stating that only one in two children is likely to survive till the age of 7 years; only one in four is likely to reach the age of 14, and less than one in 10 will reach 21. Moreover, 24 of these patients died while awaiting admission to hospital. These observations of Campbell's not only are of value to us in assessing the gravity and prognosis of the disease, but are also of assistance to the parent in making their difficult decision whether to agree to submit their child to the dangers of an operation.

The Place of Surgery

Although operation on these cases carries a considerable risk, the risk is in most cases far less than that of leaving the condition untreated. Moreover, operation alone offers a prospect of relief, and, as will be shown later in a discussion of the results, it offers a very good chance of striking and dramatic relief. It is now fair to say that surgery has fully justified itself by its results.

It is scarcely necessary to emphasize that operation in these cases is both difficult and dangerous. It is a type of surgery that is not for the lone operator. The problems involved are so numerous and complex that teamwork is essential if good results are to be obtained. It is not enough for the surgeon to acquaint himself merely

*The Alexander Simpson-Smith Lecture, delivered at the Medical Society of London on June 15.

with the technical details of vascular anastomosis and to think that he can then embark upon operations with safety and success. Team-work is of course essential in the operating theatre, where in addition to the surgical and nursing assistants the anaesthetist plays a part of fundamental importance which deserves a special tribute. Rink, Helliwell, and Hutton (1948) have recently published an account of their anaesthetic experiences.

Even more important, however, than team-work in the theatre is team-work before the operation, for much must be done in the diagnosis and selection of the correct cases for operation. Although it is almost a fashion to-day to speak of the need for team-work, it is difficult to overemphasize the need for it in the problem before us. Close co-operation with a cardiologist is self-evident; good radiology is essential, and we are fortunate at Guy's Hospital in having the valuable and whole-hearted co-operation of Dr. T. Hills in this; the physiologist and clinical research worker can contribute much in the study and application of the various tests and investigations of respiratory and circulatory efficiency; the anatomist and the pathologist are also valuable helpers. At Guy's Hospital there is a body of some 15 people actively engaged in the management of these cases, and all play their part in the efficiency and success of the service.

DIAGNOSIS AND METHODS OF INVESTIGATION

Until recently there was little general interest in the differential diagnosis of cyanotic heart disease, although a few enthusiasts have made invaluable studies and presentations of these cases. Until the advent of surgery great accuracy in diagnosis was rather an academic refinement of interest to the occasional clinician, as to the pathologist. Once the possibility of relief by operation arises it becomes essential to make the diagnosis as complete as possible before operation so as to avoid the hopeless case and to recognize the ones that can be helped. Careful clinical assessment, aided by routine radiography, is clearly of first importance, and for complete accounts of the clinical presentation it is best to consult the book by Helen Taussig (1947) or the comprehensive article by Campbell (1948). To arrive at a more exact diagnosis, especially in the very difficult cases, it is necessary to use cardiac catheterization and angiocardiography, both of which afford very valuable information.

The Blalock–Taussig Postulate

In considering a case for surgery it is of fundamental importance to realize what one seeks to achieve by operation. Blalock and Taussig (1945) have pointed out that the cyanosis is due to two things—namely, mixing of venous and arterial blood and an inadequate supply of blood to the lungs. The most important element of their contribution is the conception of the part played by the second feature—an inadequate pulmonary blood flow. As a result of this they postulated that the cyanosis and disability could be relieved by improving the blood supply to the lungs by anastomosing a systemic artery to a pulmonary artery. The proof of the correctness of their postulate lies in the good results of their operation: cyanosis is often completely relieved and is always greatly lessened when a satisfactory anastomosis is possible; the disability is also greatly relieved. As the venous-arterial shunt persists it may be impossible, except in the slighter cases, to relieve the cyanosis completely, at any rate after exercise.

It follows from this that the most important matter to be considered in the assessment of a case is in regard to the pulmonary blood flow; we must try to determine whether this is decreased or not.

Radiography and Radioscopy

Radiography and radioscopy are of first importance, for by their use it is possible at once to exclude those cases in which there is evidence of a plentiful or excessive blood flow to the lungs as shown by the degree of vascularity of the lung fields and visible pulsation of the pulmonary arteries. Atrial septal defect and perhaps Eisenmenger's complex are the common examples of this; transposition of the great vessels may present a similar picture.

In contrast, a typical case of Fallot's tetralogy has clear lung fields due to poor vascularity, and there is no visible pulsation in the hilar vessels. Careful radioscopy should give the necessary information, although in a doubtful case a direct reading of the pressure in the pulmonary artery will be decisive. This can be done during cardiac catheterization.

Cardiac Catheterization

A catheter passed along a vein into the right atrium can also be manipulated into the right ventricle and thence into the pulmonary artery and into its right and left branches. If septal defects are present the catheter may pass into the left atrium and then into a pulmonary vein, or from the right ventricle into the aorta (when the aorta is overriding). Pressure readings are taken in the various positions of the catheter, and also blood samples for estimating the oxygen content. In this way a great deal of valuable information is obtained. For instance, in pulmonary stenosis the pressure in the right ventricle is raised but that in the pulmonary artery is very low. As mentioned above, in Eisenmenger's complex the pulmonary arterial pressure will be high. By noting the exact level at which the drop in pulmonary blood pressure occurs it may be possible to obtain evidence concerning the site of the pulmonary stenosis—for example, whether it is valvular or infundibular.

The information afforded by cardiac catheterization is essentially complementary to other investigations and especially to angiocardiography.

Angiocardiography

This examination is of great value, and our policy at Guy's is to use it on all patients unless there is a grave contraindication. For instance, it is occasionally waived in the case of a small child who has severe cyanosis and in whom it is felt that the examination involves a considerable extra risk. Otherwise we feel that, quite apart from the diagnostic value of the test, the anatomical information it affords the surgeon is indispensable and of a character that is otherwise revealed only by thoracotomy.

It is easy, by angiocardiograms, to demonstrate the presence of a right-to-left shunt, because the aorta and its branches may be opacified after two to three seconds, simultaneously with the pulmonary arteries. Indeed, when there is a large shunt and a severe degree of pulmonary stenosis most of the contrast medium passes rapidly into the systemic circulation and so little enters the pulmonary circulation that the pulmonary arteries may be poorly shown.

By studying the anatomical arrangement of the great vessels the surgeon can form an idea whether they are likely to be suitable for making an anastomosis. It may, for instance, be shown that the aorta is very high and the subclavian artery so short that it could not be brought

down to meet the pulmonary artery; in such a case the surgeon would know that he had to use the aorta itself for the anastomosis (Potts's operation: Potts *et al.*, 1946). It is also valuable to know if both pulmonary arteries are present or whether one is absent or so small as to be useless. Conversely, if there is no deficiency of the pulmonary circulation, or even an excessive blood supply, this also will be revealed by the angiocardiograms.

SURGICAL METHODS

Having satisfied the first postulates—namely, that there are a deficient blood supply to the lungs, a pulmonary artery to receive the blood, and a suitable systemic artery to provide it—it is necessary to consider the most suitable age for operation and the most suitable type of procedure.

Blalock does not recommend operation before the age of 2 years unless the patient's condition is so grave that he is unlikely to survive long without it. The drawback to operating on young children is that the vessels may be too small to allow an efficient anastomosis to be made, or the anastomosis may cease to be adequate as the child grows up. Our policy at Guy's has been not to operate much before the age of 5 years unless for special reasons. This is partly because we feel that the older children on our waiting-list cannot with safety wait as long as most of the younger children can. The youngest child in our series was aged 2 years 11 months. Blalock also prefers not to operate on a patient over 20 years of age if possible. With this we strongly agree, for in these older patients the operative risks are far greater. The oldest patient we have operated on successfully was aged 29 years.

Certain general technical features of the operation need brief discussion, and for a fuller consideration I would advise reference to the article by Baker, Brock, Campbell, and Suzman (1949). Most of the points raised introduce important practical problems that should concern the surgeon undertaking this work.

Blalock's Operation or the Potts Modification

The Potts-Smith modification of aortic-pulmonary anastomosis has attracted enough attention to make it desirable to discuss its advantages and disadvantages first. It does not introduce a new principle, but is a technical modification based upon the original principles laid down by Blalock and Taussig. They postulated that certain cases of cyanotic congenital heart disease in which pulmonary stenosis existed could be improved by anastomosing a systemic artery to a pulmonary artery in order to increase the blood flow to the lungs, and in their preliminary discussions mentioned the use of the aorta as a possibility in place of one of its branches. It remained for Potts and his colleagues to introduce the ingenious clamp that made this possible. There has been a tendency on the part of a number of surgeons to use the Potts operation because it seems to be quicker and easier than the Blalock operation. It is true that Potts's operation may be preferable in a small child in whom the aortic branches are too small, or indeed in any patient in whom they are too small or too short. Moreover, it is possible to vary the size of the stoma at will. On the other hand, if it is possible to use the subclavian artery to make an effective anastomosis it would appear to be unjustifiable to choose deliberately to use the aorta instead. It cannot be good surgery to interfere with a structure of the importance of the aorta if it can be avoided. If any mishap occurs while the subclavian artery is being used it should be possible to control the situation by ligating the artery. If trouble occurs when the aorta is used it may not be possible to retrieve the situation.

There would seem to be a very real danger in the size of the stoma that is made when aortic-pulmonary anastomosis is used; if it is made too large a great extra strain is thrown on the heart. Acute pulmonary oedema may appear soon after the operation, or congestive heart failure may supervene later. I have already seen one case of severe congestive heart failure after the operation.

The great advantage of the Potts operation lies in those cases in which the subclavian artery is too small or too short and in which it has been suggested that the carotid or innominate artery should be used. The use of the aorta avoids interfering with these vessels, and thus spares the patient the greatly increased mortality (33%) and also the danger of severe paralysis from cerebral ischaemia. The use of the carotid or innominate artery is no longer justified in view of the high mortality and morbidity that have occurred.

Antero-lateral or Postero-lateral Incision

Blalock's practice of using the antero-lateral intercostal incision was followed almost exclusively in our first 50 cases, but has been departed from since then. In a very ill patient the antero-lateral approach may throw a smaller strain on the lungs and circulation than a postero-lateral. In general, however, the exposure provided by the antero-lateral intercostal incision may be rather cramped, and if the ribs are awkwardly shaped so as to make a high narrow chest the difficulties of dissection and ligation of the highest branches of the subclavian artery may be extreme. In such cases the exposure commits one to a set of circumstances that really constitutes faulty surgery.

My present practice is to use the antero-lateral approach only in those cases in which it may be necessary to operate upon the right ventricle itself. For all other cases a postero-lateral incision is used, with resection of the whole length of the fourth rib from transverse process to costal cartilage. By resecting a rib instead of incising the intercostal space there is much less bleeding at the time and less risk of oozing afterwards; post-operative pain is also lessened by avoiding the need for pericostal sutures. The exposure afforded by the long postero-lateral approach is a great advantage and allows a much more easy, rapid, and safe exposure of the vessels, and inspires the surgeon with much greater confidence that he has more complete control of the situation. The performance of the actual anastomosis is rather easier than from the front. Moreover, the postero-lateral incision allows use of either the subclavian artery or the aorta according to the conditions found. I have even, on one occasion, performed a direct operation on the right ventricle through a postero-lateral incision, but it is unusual to be able to do this with ease and safety; an anterior incision is preferable.

Right or Left Side

Blalock's earlier recommendation was to use the side opposite to the aortic arch in all but adults or patients in the later teens—that is, when the aorta is left-sided a right-sided incision should be made. This is in order to use the subclavian artery as it arises from the innominate artery; when turned down it forms an easy T-junction with the parent trunk, whereas if the subclavian artery is used as it arises from the aorta it may be kinked and flattened. In his latest paper Blalock (1948) states that he uses the right side (when the aorta is left-sided) in all patients between the ages of 2 and 12, but prefers the left approach in children under 2 and in patients over 12 who have attained

most of their growth or who are more than 5 feet (1.52 metres) in height.

After using the right-sided approach in nearly 50 cases I have abandoned it except in exceptional circumstances. In spite of increased familiarity and experience with the operation the dissection of the systemic artery on the right side may be extremely difficult, not a little dangerous, and certainly very exacting; especially so when the superior vena cava is large and dilated. If the innominate artery branches high up, the subclavian may be too short to reach the pulmonary artery; hence an anastomosis is possible only if the carotid artery is divided or the innominate artery is used. As already mentioned, this is no longer considered justifiable.

Another disadvantage of the right-sided approach is that it does not permit a proper examination of the heart and origin of the pulmonary artery and aorta in order to make as complete a diagnosis as possible. When the left side is used for the approach a very thorough examination can be made if the pericardium is opened.

In no case that I have so far done from the left side has the subclavian artery been so kinked or flattened that it jeopardizes the efficiency of the anastomosis. In any case in which the artery is found to be too short to use without tension, kinking, and flattening I either employ direct end-to-end anastomosis between the subclavian artery and the pulmonary artery or use the Potts operation of aortic-pulmonary anastomosis.

Post-operative Haemorrhage

We have found that there is a great tendency for bleeding to occur into the chest after operation in older patients who are severely cyanosed and polycythaemic and in younger patients with complete pulmonary atresia who have been submitted to exploration. This tendency is extremely dangerous, and severe bleeding occurs even after every care has been taken with haemostasis. The patients may appear to be progressing satisfactorily, and then collapse and die within a few minutes. The condition is insidious and rapid in its development. The best safeguard is the use of an intercostal drain which enables the bleeding to be recognized early and spares the patient the cumulative mechanical effects of the haemothorax. Even frequent examinations and radiography may not prevent rapid deterioration, especially during the night hours.

In the average young patient we have not, until recently, used a drainage-tube, because usually one or two aspirations are all that is needed and often aspiration is never wanted. However, our 99th patient, a boy of 7 years in whom operation was straightforward, died suddenly six hours later from the same cause; we therefore now make it a rule to drain every case.

These operations can be difficult and very exacting, demanding all one's patience, skill, and endurance; they may be made more anxious by deterioration of the patient's general condition. Nevertheless, we have found that it is best to press on quietly even when things seem almost desperate, and not to give up until it becomes quite clear that success is impossible. This applies not only to anatomical difficulties but to physiological ones as well. On several occasions the anaesthetist has reported the patient's condition as very grave, and the temptation to abandon the operation has been great. In almost all of these cases continuance with the operation after a short wait has been rewarded by final success.

The most striking example of the soundness of this policy came in the case of a very ill child of 5, who was deeply cyanosed, with severe recurrent pain in the chest even when resting in bed; she was incapable of any activity at all. During induction of anaesthesia her breathing stopped, and her heart also. The heart's action was restored after intracardiac injection of adrenaline. Spontaneous respiration did not return for over 40 minutes. Her condition was of course desperate. At the end of an hour her condition had begun to improve and it was decided to proceed with the operation. This was completed with success. The child made an excellent recovery and has continued to do well; she walks and runs about easily, a thing she was quite unable to do before.

Results

In his latest paper Blalock (1948) reports 610 cases treated by operation in which the overall mortality was 17%. The mortality ranged from 9% when the subclavian artery was used to 33% with the carotid or innominate. In the first 50 cases from Guy's (Baker, Brock, Campbell, and Suzman, 1949) seven deaths occurred, a mortality of 14%. The total number of cases in which the Blalock or Potts operation has been done or attempted at Guy's is now 83, and 13 of these patients died—a mortality of 15.5%. Among these 83 were many severely ill patients who were very poor risks; also included were a number in the late teens and the twenties.

Blalock states that the result was excellent in about 75% of his cases. The first 50 of our cases have been carefully followed and assessed by Campbell, who states that, in addition to the seven who died, in three there was no improvement and in four the result was only "fair." "This leaves 33 (66%) in which the result was almost perfect. The patients' capacity was enormously increased, up to walking several miles instead of a few hundred yards, or getting about all day instead of being an invalid mainly in the house. To the parents the improvement seemed almost miraculous."

The results in the good cases are indeed strikingly dramatic; in addition to the banishment of disability the cyanosis is usually changed to a good normal pink, although in some a mild cyanosis remains or can be noticed after exercise. It should be realized that the right-to-left shunt persists, and so it is not surprising that some degree of cyanosis may remain in the more severe cases, especially after exercise.

It would be possible to cite case after case of really dramatic improvement in the amount of activity possible. A typical case may be mentioned of a boy of 14 years who could walk only some 20 yards before becoming distressed and squatting down. Within a few months of operation he was able to walk several miles, could ride a horse, was learning to ride a motor-cycle, and is hoping to become a dirt-track rider.

It is a regular and rather heartening experience to receive letters from parents who state that they feel they must write and say what a joy and relief it is for them to watch their child setting off happily to school or playing with other children without distress, whereas before the operation such activities were quite impossible. In not a few cases a steady deterioration with increasingly frequent attacks of deep cyanosis and unconsciousness and the probability of death within a few months has been changed for apparent good health with no cyanosis or disability and complete cessation of the alarming attacks.

DIRECT ATTACK UPON THE STENOSIS

Although the Blalock-Taussig operation is brilliant in its conception and results, it has certain possible disadvantages, at any rate in theory. It is, in effect, a short-circuiting operation in which an obstruction is by-passed,

and in this respect is comparable in the soundness of its conception and the excellence of its results to the other classic short-circuiting operations in surgery such as gastro-jejunostomy for pyloric obstruction.

It differs from these operations, however, in that by creating an arteriovenous leak it actually imposes a new burden upon the body; in effect it gives the patient an artificial ductus arteriosus, a condition which, when it occurs naturally, we prefer to treat by operative closure.

On the other hand, there can be little doubt that in many cases this is the lesser of two evils, and, as Blalock and Taussig themselves say, there is no justification for letting a patient suffer and die from anoxaemia to-day just because he may develop trouble from his artificial ductus arteriosus in later years. Moreover, they suggest that in the presence of the interventricular septal defect and the overriding aorta the arteriovenous leak may not have the same significance as in an otherwise normal heart.

Whatever the answer to that question is, and time alone can tell, it is certain that surgery is not static, and that we must try to assess the feasibility and efficacy of direct operations upon the pulmonary stenosis in an attempt to relieve it. When one contemplates the small hole through which all the blood to the lungs must pass, whether the obstruction be at the pulmonary valves or lower down, it seems as if surgery should be able to offer relief to this mechanical obstruction.

Valvular Stenosis

In its simplest form the pulmonary stenosis may consist of a pure valvular stenosis with no interventricular septal defect, a condition that can be recognized clinically and can be confirmed by appropriate investigations. In most of these cases cyanosis is absent or slight in early life and appears later, usually during the teens; this is probably due to the effects of an increasing obstruction which in the presence of a patent foramen ovale causes a right-to-left atrial shunt to develop. In this type of stenosis it is certain that Blalock's operation is wrong, because it merely imposes an extra strain on the left ventricle and does nothing to relieve the strain on the right ventricle.

In a certain number of cases of Fallot's tetralogy (the exact proportion as yet being unassessed) the stenosis is also valvular in type.

The correct treatment for this condition is relief of the valvular obstruction by valvulotomy, an operation which I recorded a year ago (Brock, 1948) and which I have performed with success in five cases. In one of these not enough time has elapsed to assess the final result, although so far it would appear to be good; in two the result is moderately satisfactory and in two it is excellent. The valve is divided by inserting a special valvulotome through the wall of the right ventricle and passing it up into the pulmonary artery; haemorrhage from the heart is controlled by two rows of interlocking mattress sutures.

The actual valvulotomy is formidable, perhaps alarmingly so, but is not technically very difficult. The difficulties in the way of successful operation lie in the liability of the heart to fail quite suddenly soon after the chest is opened or as soon as it is touched. This is probably directly due to the extremely small size of the pulmonary outlet; while the heart is beating efficiently the circulation is maintained, after a fashion, but as soon as any fall in peripheral pressure occurs, with a corresponding fall in cardiac output, too little blood passes through the pinhole valve orifice to maintain the circulation. The coronary circulation suffers; the heart's action deteriorates further and soon ceases altogether.

Pulmonary valvulotomy was attempted in 10 cases, but in three the heart failed soon after the chest was opened and all three patients died. In the last of these three, as it was clear that the heart was making no response to all efforts at resuscitation, valvulotomy was performed in order to relieve the strain on the right ventricle and to enable blood to pass to the lungs. The effect was dramatic, for the heart at once revived and its powerful action was fully restored. Unfortunately the circulation had been arrested too long for the brain to have escaped injury, and, although the blood pressure was well maintained, death occurred six hours later from cerebral damage. From my experience with these three cases I am convinced that when a pulmonary valvulotomy is planned one must be prepared for the heart to fail soon after it is exposed, and if this occurs it is essential to perform valvulotomy *at once* and then to concentrate on reviving the heart; for unless this is done the heart is not likely to respond at all, or not before fatal cerebral damage has occurred.

Of the remaining two deaths, one occurred on the table from heart failure after the valve had been divided, but it was a badly chosen case of a woman in the twenties with a rigid calcified valve; the other patient (a woman aged 27) died from a haemothorax some hours after operation.

One of the patients in whom the result is classed as excellent is one of the three cases previously reported (Brock, 1948; Case H 107, Case 2). This patient, a girl aged 11, is a normal colour and leads a normal life. One other of the successful cases is worthy of special mention.

The patient, a married woman aged 26 (Ref. No. 0207), was deeply cyanosed and could walk only a few yards; her condition was deteriorating rapidly and she obviously had little time to live unless something could be done to help her. She was even unable to eat an adequate amount of food because of the severe dyspnoea that followed a meal. All her symptoms have been relieved; she is an excellent colour and leads a normal life; she has gained over a stone in weight since her operation in December last. Also significant is the fact that, although she had been married for several years and wanted children, she had never conceived. Although warned against an early pregnancy, she has become pregnant. In view of her good general condition the pregnancy is being allowed to continue. It will indeed be gratifying if she is safely delivered of a live child.

Infundibular Stenosis

Although valvular stenosis does occur in Fallot's tetralogy it is certain that infundibular stenosis is more common, and the more cases one sees and operates upon the clearer it becomes that if direct relief of the obstruction is to be at all widely applicable to these cases it must include direct attack upon the infundibular stenosis itself. This is, of course, a far more complicated matter than relief of a valvular stenosis by valvulotomy, since it involves resection of a portion of the actual wall of the active ventricular muscle and not simple division of a narrowed valve at the exit of the ventricle: it has been said that even if it were possible to operate upon the infundibular obstruction it would probably recur after the operation. It has also been suggested that since we have such an effective procedure as the Blalock–Taussig operation it is scarcely justifiable to embark upon a more elaborate intracardiac one.

It has already been pointed out that surgery is not static and therefore the feasibility and efficacy of direct relief of the infundibular stenosis must be considered carefully and critically. A moment's reflection shows that if it were possible to relieve this infundibular stenosis it would be far better than short-circuiting it as in Blalock's operation. The obstruction would then be relieved directly and no

new strain would be thrown upon the heart by the creation of the artificial ductus arteriosus.

Moreover, another important advantage would be conferred by the operation. In Fallot's tetralogy the cyanosis and disability are due to two things—the pulmonary stenosis which allows too little blood to go to the lungs, and the septal defect with an overriding aorta which allows a mixing of venous with arterial blood. The Blalock operation increases the blood supply to the lungs but does not relieve the right-to-left intracardiac shunt (except in so far that it pays back into the pulmonary circulation imperfectly oxygenated blood that has failed to enter the pulmonary artery and has passed into the aorta). I wish to emphasize that these two factors are to a great extent interrelated, a fact to which insufficient attention has been given.

If the degree of pulmonary stenosis is severe, the blood, in ventricular systole, cannot pass quickly enough into the pulmonary artery and must be diverted into the overriding aorta; if the degree of pulmonary stenosis is slight, a far greater portion of the blood ejected during ventricular systole can pass into the pulmonary artery and a correspondingly smaller amount passes into the aorta (Fig. 1).

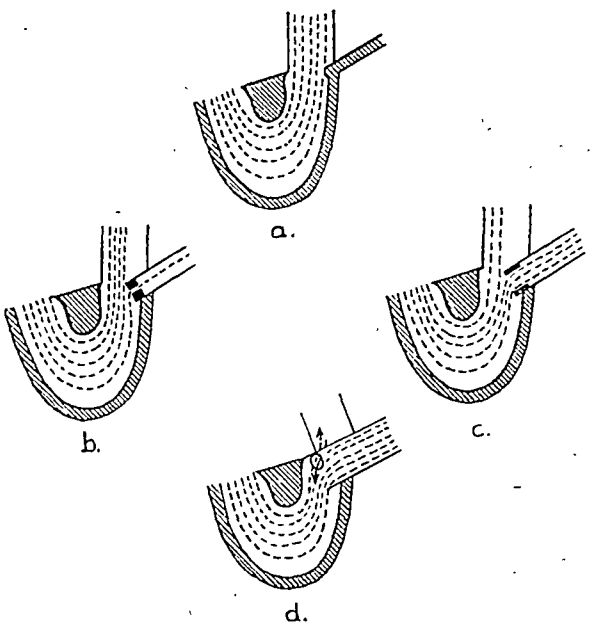


FIG. 1.—Diagrams illustrating the importance of the degree of pulmonary stenosis in determining the amount of right-to-left shunting that occurs in the presence of an overriding aorta. In *a* there is complete pulmonary atresia, and all the blood passes into the aorta. In *b* there is a high degree of pulmonary stenosis and most of the blood from the right ventricle enters the aorta. In *c*, in which the pulmonary stenosis is less or has been relieved by operation, more blood enters the pulmonary artery and correspondingly less escapes into the aorta. In *d*, in which there is no pulmonary stenosis and only a small interventricular septal defect, there is no appreciable mixing.

Nature itself provides us with instances of the two extremes: on the one hand we have the example of complete pulmonary atresia in which the exit of blood from the right ventricle into the pulmonary artery is completely prevented (Fig. 1*a*); on the other hand we have pure interventricular septal defect with no pulmonary stenosis ("maladie de Roger"), in which no apparent right-to-left mixing occurs (Fig. 1*d*). It is true there is no overriding aorta.

In the case of complete pulmonary atresia, if we imagine opening up even a small lumen to the pulmonary artery, instead of all the blood passing through the right-to-left shunt some could pass into the pulmonary arteries. Conversely, if we imagine a pulmonary stenosis supervening in the "maladie de Roger," it is clear that a proportion of the blood normally ejected by the right ventricle into the pulmonary artery would pass through the septal defect, the exact amount being directly proportional to the degree of the pulmonary stenosis; if the pulmonary artery were narrowed down to complete obliteration the only exit for the right ventricular blood would be through the septal defect and thence into the aorta.

It is not unreasonable to assume that in Fallot's tetralogy there is a similar correlation between the severity of the pulmonary stenosis and the severity of the right-to-left shunt. As the years pass by, the stenosed channel becomes more rigid, warty vegetations appear, and the lumen is further diminished. As the passage to the lungs becomes more difficult, correspondingly more blood escapes into the systemic circulation, and cyanosis and disability become worse. The pulmonary obstruction functions rather like the sluice-gates of a river, regulating the amount of flow that occurs in the main stream or is diverted to a side stream. The effect of direct operation upon the pulmonary stenosis and of relieving the obstruction to the outflow of the right ventricle will be not only to increase the amount of blood going to the lungs but to lessen the amount passing through the shunt and causing venous arterial mixing (Fig. 1*c*).

The same mechanism is seen, although it functions in a more roundabout manner, in pulmonary valvular stenosis without an interventricular septal defect but with a patent foramen ovale. There may be little or no cyanosis in early life, but as the stenosis becomes more severe the pressure behind the obstruction rises and the effect is eventually felt on the right atrium, with consequent passage of blood from right to left through the interatrial septum. By dividing the stenosed pulmonary valve one not only allows more blood to go to the lungs but the back-pressure effect is also relieved and the interatrial right-to-left shunt is corrected. The cyanosis and disability are thus relieved by a dual mechanism.

This correlation between the degree of the pulmonary stenosis and the amount of right-to-left shunt appears also to offer a very reasonable explanation for the severe attacks of cyanosis, often with loss of consciousness, that are apt to afflict these patients. They occur with slight exercise or even when the patient is at rest. Although in older patients the walls of the stenosed infundibular canal may become very fibrous and rigid, in most patients, and certainly in young children, there is much more muscle than fibrous tissue surrounding the narrowed channel. One of the functions of muscle, in addition to that of contraction, is to exhibit tonus, and this tonus can vary. It is not improbable that variation of tonus of the encircling muscle may affect the functional lumen of the already narrowed infundibular channel, diminishing further the blood flow to the lungs and also causing more blood to be diverted into the systemic circulation through the intracardiac shunt.

This concept of variations in the tonus of cardiac muscle resulting in corresponding variations in the distribution of blood through the various anomalous channels, even though largely theoretical, provides a satisfactory explanation for the dramatic variations in the patient's cyanosis and general condition. It is, in fact, difficult to picture a more satisfactory explanation. Moreover, in the heart of Fallot's tetralogy, as the cardiac output increases with exercise, the narrowed pulmonary canal is too small to take advantage of the greatly increased blood flow, most of which is

inevitably diverted into the systemic circulation, thus rapidly increasing the cyanosis and disability.

If these arguments are true it follows that by a direct operation on the stenosis, which relieves the obstruction to the blood flow to the lungs, we increase the flow of blood to the lungs and at the same time diminish the escape of venous blood into the systemic circulation through the intracardiac shunt. During exercise the pulmonary circulation is further able to avail itself of the increased cardiac output. The procedure, therefore, would appear to be superior to a simple short-circuiting operation that neither relieves the obstruction nor lessens the shunt. The only way to stop the venous-arterial shunt completely would be to close the interventricular septal defect and correct the overriding of the aorta. It would seem very difficult to achieve both these things by operation; at present we can only hope to lessen the degree of the shunting by opening up the pulmonary channel.

Observation of the types of patient presenting themselves for treatment has impressed me that it is possible to separate out two rather rough groups. Not all patients fall into these two groups; some are intermediate, but they do reveal two extremes. In one group are the very blue and disabled patients, in particular the younger children with severe heart lesions; the other group is composed of older patients, in the middle or late teens, who have less cyanosis and disability and are often bright and intelligent, have done well at school, and are held back by their cardiac condition. In the first group it is of first importance to save life. Most of the patients in it are threatened with an early death unless they are relieved in some way by operation; they are quite unable to make any use of educational facilities and are unlikely to become useful citizens. Nobody can question the justification for using the Blalock–Taussig operation to relieve these patients; the operation is life-saving and confers great benefits in the relief of severe disability.

I am always more worried about the use of the Blalock–Taussig operation in the second group—not because it will not lessen cyanosis and disability and enable the patient to make full use of his educational and mental attainments, but because of the uncertainty of the later prognosis attached to the artificial ductus arteriosus. It is for this reason that I have always felt a lurking doubt when viewing the present good result after a Blalock's operation on these patients. It would be so much more satisfactory if there was not in the background the uncertainty that in another five to ten years serious effects of the artificial ductus arteriosus will appear. It would be much better if one could feel that a bright and intelligent boy or girl of 10–18 could be spared this doubtful future.

By direct operation on and relief of the obstruction in the pulmonary channel one might be able to achieve this, and I feel that this provides another powerful argument in favour of operative relief of the infundibular stenosis; certainly so in the older and less disabled group, but by no means excluding the more severe or most severe cases.

If these arguments are correct the advantages of direct operation upon the infundibular stenosis are manifest. I am happy to be able to state that the operation is certainly possible, because I have already performed it successfully in five cases. It is as yet too early to know whether there will be a tendency for the stenosis to recur, but up to now there seems to be progressive improvement rather than regression with the passage of months. The newly made wider channel seems to be progressively increased by the improved circulation; it is of course possible that the passage of years may tell a different story, but so far the results have been extremely encouraging.

The development of an operation of this sort must be based, among other things, on a clear conception of the surgical and pathological anatomy of the condition. A complete description of this is impossible here and must be dealt with in a separate report. It must suffice to say that there are considerable variations in the position and character of the stenosis, which may be placed a short distance below the pulmonary valves or as much as several centimetres lower down in the ventricle. Fig. 2 shows diagrammatically the position and form of most of the usual types; and Fig. 3 shows two types similar to those in Figs. 2*c* and 2*d* but with a muscular outer wall to the infundibular chamber. Especially important is the variety seen in Fig. 2*d*, in which the stenosis is situated low in the ventricle and there is a large infundibular chamber separated from the main ventricular chamber by a small ostium.

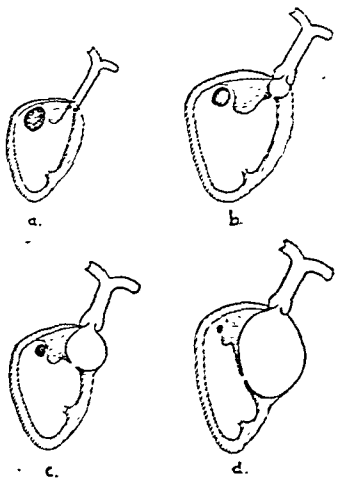


FIG. 2.—Diagrams illustrating certain forms of the commoner types of infundibular stenosis. In *a* there is a high degree of pulmonary hypoplasia with a bicuspid valve and stenosis lying just below the valve in a narrow muscular channel. In *b*, the commonest type, there is a high infundibular stenosis. In *c* there is a small infundibular chamber with a very thin fibrous wall. In *d* the thin-walled infundibular chamber is large.

This type is usually easily recognized radiologically before operation by a well-marked convex projection on the left border of the heart shadow just below the pulmonary artery; it is thrown into greater prominence in the right anterior oblique view, and the chamber itself is clearly demonstrated by angiocardiography. In view of the ease of recognition, and the considerable clearance below the pulmonary valves afforded for operative manipulations, this was the type chosen for the first resections. This resection was done by inserting a special punch through an incision in the wall of the right ventricle below the stricture. In some cases a finger has been passed into the heart, both to examine the local state of affairs more exactly and to dilate further the pulmonary canal. In one case finger dilatation was all that was done, and a good result followed.

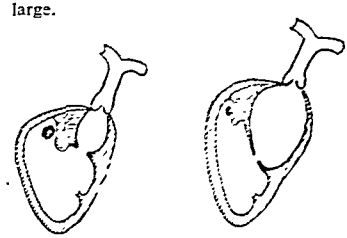


FIG. 3.—These two types are similar to those shown in Figs. 2*c* and 2*d*, except that the outer wall of the infundibular chamber is muscular.

A complete clinical account of the five successful cases will be given elsewhere in conjunction with Dr. Maurice Campbell.

In addition to these five successful cases there was one patient who died. This was a very blue woman aged 35 who, like all these patients over the age of 20, was an

extremely bad risk; an operative diagnosis of a valvular stenosis was made and a valvulotome was passed, although as soon as it was introduced it became clear that a more complicated condition existed. She died, and post-mortem examination revealed an infundibular stenosis situated just below the valves. Although not strictly an example of infundibular resection, it was felt that this fatal case should be included in the series.

Comment upon Direct Cardiac Operation

These direct operations upon the heart involve considerable anxiety, and many difficult and complex problems arise. This is not surprising, as they constitute virtually an entirely new field of surgical endeavour. Even more than in the case of the Blalock–Taussig operation they are definitely not for the lone operator, but demand the work and attention of an enthusiastic, loyal, and courageous team. Quite apart from the technical details of the actual operation upon the heart itself, there are the abstruse problems that arise in connexion with the avoidance or treatment of cardiac arrest or of the various severe arrhythmias that may occur during the operation; in addition there is the ever-present danger of temporary or permanent damage to the brain occurring as a result of arrest of, or interference with, the cerebral circulation. The various problems are being elucidated, and answers to them are being sought and found; progress is being made all the time, and we hope that the final results will justify the efforts. It is certain that by this means alone can we settle the question of the feasibility or otherwise of direct operations upon the heart for the relief of pulmonary stenosis.

It has been suggested that all this hard, anxious, and difficult work is scarcely justified for patients with congenital cyanotic heart disease, since so many of them are poor lives in any case and do not merit the effort. Morally, of course, this attitude is quite indefensible, but apart from this it must be emphasized that the issue is a far larger one and should be recognized as such. Although at present most of our efforts are being directed towards the surgical relief of congenital heart abnormalities, there is also the much vaster and more important field of the acquired heart lesions. Up to now very little has been achieved in their surgical relief, but the knowledge and experience gained by direct cardiac surgery for the congenital cases must help the development of successful operations for acquired heart lesions. We have, in fact, already at Guy's one successful case of the operative relief of post-rheumatic mitral stenosis.

Both these operations upon the heart itself and the indirect operations of the Blalock–Taussig type are tiring and anxious procedures, involving much care, responsibility, and hard work. Fortunately they have their happier side, and we are in large part recompensed for the long and difficult hours by seeing the almost miraculous change in the children themselves and in witnessing the joy and relief of the parents when they see their children running about happily and without effort like other children.

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SOME ASPECTS OF POLIOMYELITIS IN NEW ZEALAND

BY

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From the study of poliomyelitis in different parts of the world it seems apparent that the clinical picture of the disease varies from country to country and from time to time in a given locality. The occasional case of endemic poliomyelitis with a minimal prodromal illness and sudden onset of paralysis, as is common in the United Kingdom, is poles apart from the type of case which occurs in epidemic form in New Zealand, where there is a high mortality and the prodromal illness is often an acute influenza-like affair with marked muscle spasm. As a result, concepts of the disease and methods of treatment in the U.K. and those of New Zealand and the North American continent are widely divergent, and we have the paradox of skilled observers in the U.K. stating that they have never seen muscle tightness in poliomyelitis, whereas competent observers in other countries aver that muscle tightness occurs in every patient with poliomyelitis. Treatment has varied accordingly.

In the United Kingdom in the past, apart from occasional minor epidemics, the disease has been endemic, but there has been a rising incidence in the last two years, and it seems probable that poliomyelitis may be about to shed its cloak of endemicity and appear in full-dress epidemic form. Whether such a change is a result of a rising virulence or is due to the advent of a new strain of poliomyelitis is not yet apparent, but if severe epidemic poliomyelitis does occur in the U.K. it seems probable that the clinical picture will be different from what it has been in the past. In view of this it might be of value to place on record some aspects of an epidemic of poliomyelitis which occurred recently in New Zealand, where poliomyelitis has been endemic since 1887 but where in addition there have been major epidemics at regular intervals, as in 1916, 1925, 1937, and 1948 (Department of Health, New Zealand, 1938).

The New Zealand Epidemics

Seasonal Incidence.—In the recent epidemic in Auckland (population 354,000), 250 patients were admitted between November, 1947, and September, 1948 (Hughes, 1949), and thereafter occasional cases occurred up till April, 1949. The onset and main intensity of the epidemic occurred in the summer, in the first three months of the outbreak. Thereafter the epidemic smouldered for 14 months. Previous epidemics in New Zealand have occurred in the summer months, whereas in an epidemic among New Zealand troops in Egypt (Caughey and Porteous, 1946) the incidence was highest in the months of January and April, unlike that of other epidemics in the Northern Hemisphere, which tend to fall in the summer months, between July and October.

Age Incidence.—The 250 patients admitted comprised 188 children and 62 adults. A study of the age incidence of notified cases in this and previous epidemics (Table I) shows a steady increase in the incidence of patients over 16 years and a fall in the 0–5 age group, in keeping with the definite shift to the higher age groups noted in the poliomyelitis statistics of New York City and elsewhere.

TABLE I.—*Age Incidence in New Zealand Epidemics*

Age (Years)	1916		1924–5		1936–7		1947–8	
	Cases	%	Cases	%	Cases	%	Cases	%
0–5 ..	200	59·3	641	55·3	245	27·3	86	34·4
6–10 ..	65	19·3	273	23·6	291	32·5	70	28·0
11–15 ..	27	8·0	115	9·9	177	19·8	32	12·8
16 + (adult)	45	13·3	130	11·3	209	20·4	62	24·8

Age and Severity of the Disease.—Study of Table II shows that the severity of the disease was greater and the mortality rate higher in the older age groups, while the morbidity rate was higher among the younger age groups.

TABLE II.—*Age Groups*

Years:	Under 1	1–5	6–10	11–15	16–
No. of patients ..	6	80	70	32	62
Deaths	0	0	1	2	9
% mortality ..	0	0	1·4	6·3	14·5

Contact Cases and Multiple Cases.—For the correct assessment of "multiple" cases consideration must be taken of mild poliomyelitis (stage 1), but it is of interest to note that of those cases regarded as severe enough for admission to hospital 16 came from seven families. A nurse and a medical officer who were working in direct contact with patients developed the disease, and 17% of the patients admitted were known to have had contact with positive cases.

Severity of Disease in Relation to Onset of the Epidemic.—During the first three months of the epidemic the cases were more severe, with a more acute onset, greater febrile disturbance, marked muscle spasm, and more paresis. The incidence of respiratory paralysis and bulbar palsy was higher, as was the mortality rate, 10 out of the 12 deaths occurring in the first two and a half months of the epidemic. Thereafter the severity of the cases steadily declined, many presenting with a mild upset with muscle stiffness, and often with a normal spinal fluid.

Portal of Entry.—Interest in tonsillectomy as a possible portal of entry for poliomyelitis was stimulated by the report by Francis *et al.* (1932) of a family of five children in Ohio who all had tonsillectomy performed on the same day. All developed poliomyelitis a few days later and three died. From the outset of the epidemic in Auckland the local health authorities and doctors advised against tonsillectomy and nasal operations while the epidemic was raging. The first 125 patients admitted were studied with this matter in mind, and in no case could recent tonsillectomy be held to be a factor in the development of the disease. One patient had undergone a nasal operation several days before the onset of the disease, and one patient had had a tooth extracted two weeks before admission.

Clinical Manifestations

The clinical picture of acute poliomyelitis in the past has been divided into a pre-paralytic and a paralytic stage or into "abortive" and paralytic poliomyelitis. In this study we have found it convenient to regard the disease as developing in three stages: stage 1, a stage of "minor illness"; stage 2, a stage with evidence of muscle spasm, with or without changes in the spinal fluid; and stage 3, in which the disease has progressed to definite paresis.

Stage 1: "Stage of Invasion"; "Minor Illness" of Poliomyelitis; "Abortive" Poliomyelitis.—During the epidemic a large number of adults and children presented with evidence of a minor febrile upset lasting two or three days and then settling without residual upset. Paul, Salinger, and Trask (1932) investigated a group of these patients among household contacts of cases of undoubted poliomyelitis and studied comparable control homes. They found a high incidence of so-called "minor illness" in the positives as compared with the contacts, and in comparable communities the incidence of "minor illness" was six times more common where poliomyelitis cases were occurring. The "minor illness" took one of two forms—acute febrile illness with sore throat, headache, and vomiting, settling after 24 to 36 hours, or mild upsets referable to the upper respiratory or the gastro-intestinal tract, with "cold" or diarrhoea. An investigation was carried out on 12 of these patients, and in two the diagnosis of poliomyelitis was established by monkey inoculation of nasopharyngeal material.

In the New Zealand epidemic Thompson (1948) carried out a careful investigation to discover how the epidemic started and how much minor illness related to the poliomyelitis had occurred (*a*) among household contacts, (*b*) in other persons residing in the same neighbourhood, and (*c*) in those parts of the urban area least affected by the epidemic. The investigation showed that the epidemic was preceded and accompanied by a large number of cases of "minor illness" of varying severity characterized by fever, headache, sore throat, vomiting, and diarrhoea. The ratio of this suspect minor illness to positive cases was very high—300 to 1. These patients were seldom admitted to hospital. They presented with an illness more or less characteristic but not specific. Most of them were probably suffering from stage 1 poliomyelitis.

Stage 2: "Pre-paralytic Poliomyelitis"; "Abortive Poliomyelitis."—Of the first 224 patients admitted to hospital 114 were in stage 2 and had had the "minor illness" of stage 1, but in addition they had developed pain and stiffness of muscles of the limbs and back and showed evidence of muscle spasm but no paresis. In the earlier days of the epidemic this type of patient usually had changes in the spinal fluid, but in the later months many stage 2 patients had a normal spinal fluid.

Stage 3: Paralytic Poliomyelitis.—Of the first 224 patients admitted 110 had evidence of paresis—76 moderately severe and 34 severe, 12 of whom died.

Signs and Symptoms

Headache.—Headache was a common presenting symptom. In a previous epidemic among New Zealand troops in Egypt (Caughey and Porteous, 1946) headache occurred in 39 out of 40 patients. In the present epidemic 45.4% of the patients complained of headache, which was usually throbbing in character and generalized or frontal in situation; but the series contained a large number of children below 5 years old, which made accurate record-taking on this point difficult. In some, headache first appeared three days after the onset, and might have been connected with the invasion of the central nervous system. Vomiting accompanied the headache in 17.4%.

Fever.—A study of the temperature charts of 115 patients (31 adults and 84 children) shows that, in general, the temperature range was highest in cases in which death or severe paralysis occurred (Table III).

Most of the patients had been ill for a number of days before admission, making estimation of the duration of fever difficult. The duration of fever after admission tended to be longer in those with severe paralysis than in those with slight or no paresis.

Table III.—*Height of Fever and Relation to Mortality and Severity of Paralysis (115 Patients)*

	Cases	Range Max. T.	Av. Max.	In Hosp.	Total
Adults (31):					
Fatal cases ..	5	101·4–104·6° F. (38·55–40·3° C.)	103·1° F. (39·5° C.)	2	4
Severe „ ..	13	99–103·4° F. (37·2–39·7° C.)	101·8° F. (38·8° C.)	5·5	8·5
Mild „ ..	7	98·4–103° F. (36·9–39·4° C.)	100·1° F. (37·85° C.)	4·5	7
Non-paralytic	6	98·6–105° F. (37–40·6° C.)	102·6° F. (39·2° C.)	3	5·5
Children (84):					
Fatal cases ..	3	102–104·2° F. (38·9–40·1° C.)	103·1° F. (39·5° C.)	3	4
Severe „ ..	24	100–104·4° F. (37·8–40·2° C.)	102·2° F. (39° C.)	4·5	7
Mild „ ..	24	99·4–104·8° F. (37·4–40·45° C.)	101·7° F. (38·75° C.)	3·7	6
Non-paralytic	33	99·6–103·8° F. (37·55–39·9° C.)	101·5° F. (38·6° C.)	4·7	6·7

Evidence pointing to a gastro-intestinal invasion was scanty. Diarrhoea developed in 6.4% at the onset and vomiting occurred in 32%. In 20% there was complaint of sore throat and evidence of nasopharyngeal congestion, which might point to a respiratory-tract invasion.

Pain.—Discomfort in the form of aching muscles, sometimes amounting to pain, was often a feature in the acute stage of the illness; and pain on movement, palpation, or muscle-stretching was frequently severe. This discomfort caused irritability and exhaustion, and prevented sleep. It was relieved by hot packs in practically all cases.

Hyperaesthesia of Skin.—This was sometimes a feature in the early phase of the illness. One adult complained of tenderness of the calf, and on light massage the skin was found to be extremely tender. The latter persisted for two days, but tenderness of the muscle persisted for five days. No weakness developed, but the ankle-jerk was lost. A nurse on the fourth day of her illness was hyperaesthetic over the abdominal wall and lumbar region, and when admitted to the sick bay was found to have tenderness of the right deltoid and in the abdominal and lumbar muscles. An adult male noticed that when he rubbed the extensor surface of his left forearm "the skin tingled and felt as though it had been slightly burned." This hyperaesthesia persisted. In four days he developed weakness of the left arm, more pronounced in the flexor muscles of the forearm.

Muscle Spasm

When our means of examination for this sign was adequate we detected muscle spasm in 100% of patients. A careful search was made for muscle spasm by inspection and palpation and by taking muscle groups through their full range of movement in order to observe the effect of stretch. This examination was more easily carried out with the patient in shorts, lying on a plinth.

Muscles in a state of spasm were often very tender, and were firmly contracted, bringing about deformity such as head retraction, deviation or rotation of the head, elevation of the shoulder, lordosis or scoliosis, flexion at the knees, or plantar flexion of the foot.

Muscle spasm was induced by stretching the muscles. The spasm developed at the onset of a phase of painful stretch as though pain had set up an abnormally active stretch reflex. Electromyographic studies tended to confirm this (Caughey, in the press). Once spasm had developed, further stretch was prevented by pain and the degree of spasm. The common sites of muscle spasm were the extensors of the neck and back and the hamstring muscles, the trapezius muscle, the muscles round the shoulder girdle, the quadriceps, and the gastrocnemius.

Muscle spasm was aggravated by massage, premature weight-bearing or other unsuitable motor activity, exposure to cold, and infection such as virus influenza. It was relieved by heat: this will be discussed later.

Duration of the Pre-paralytic Period

The duration of this period is important from the point of view of prognosis regarding the onset of paralysis. In this epidemic it was estimated from the first sign of the disease, and the average was 4.7 days, with a range of 1–18 days. In a previous epidemic among adults in the Middle East the average was 4.6 days. Another useful guide to prognosis of paralysis was fever; it was found that while fever persisted prognosis in respect of paresis had to be guarded.

Stage 3: "Paralytic Poliomyelitis"

Apparent paresis in poliomyelitis may be due to muscle spasm, to reflex inhibition or involvement of the anterior horn cells, or to a combination of these. Much of the recovery from paresis which occurs after it has developed is due to removal of reflex inhibition and abolition of spasm.

The onset of paralysis at the height of the epidemic was usually heralded by muscle-tightness and pain, muscle fasciculation, and occasionally hyperaesthesia of the skin. The incidence of paresis was much higher in the early months of the epidemic. Reflexes were variable; in some patients they were exaggerated in the early stages of the disease, and at times were absent or reduced without paresis. Where deep reflexes were preserved in the presence of paresis, the weakness was usually due to reflex inhibition or muscle spasm.

As a rule paralysis was maximal within 48 hours of its onset—the weakness being localized to one muscle group of one limb—and at times there was generalized weakness, with or without a more local weakness. The paralytic cases could be divided into spinal, bulbar, and encephalitic groups, with considerable overlapping. In the spinal type the weakness more often involved the lower limbs and was usually asymmetrical. Transitory retention of urine occurred in some, but this invariably cleared up after a few days. In the bulbar cases the reticulum wherein lie the 9th, 10th, 11th, and 12th nuclei was at times picked out in pinpoint fashion so that cardiac and respiratory centres were partially spared while the 9–10 complex was affected, causing difficulty in deglutition, choking, and nasal regurgitation. In other bulbar patients there was early nasal regurgitation and a nasal voice; mucus accumulated in the throat, the nasopharynx and the palate became intensely hyperaemic, the pulse was rapid and temperature high, the blood pressure was low, the respirations were jerky and irregular, fasciculations developed about the face, there was cyanosis, and finally coma ensued, with death.

Five patients who were diagnosed as cases of polioencephalitis were seen among the children; they passed from the pre-paralytic stage into a comatose state. Recovery from the comatose state occurred in two to seven days, the patient being left with a residual paralysis of a limb or involvement of the cranial nerves, and twice there was no residual paresis, making the diagnosis uncertain.

Clinical Pathology

A study of the blood picture yielded little useful information. The total white blood cells ranged from 2,000 up to 20,000. In general it could be said that the cases with a high leucocyte count had a high polymorphonuclear count in the cerebrospinal fluid.

The cerebrospinal-fluid pressure was usually moderately high. The fluid at times was crystal-clear, but in cases in which the count was high it was slightly hazy or even turbid, and occasionally developed a fine fibrous clot on standing. The C.S.F. cell count was found to vary enormously, and ranged from 5 to 2,000 or more. In the first day or two there was usually a preponderance of polymorphs or, rarely, the cells were all lymphocytes. This was probably determined by the stage of the disease at which lumbar puncture was done. After seven or eight days the count usually fell and became entirely lymphocytic in type, and after two to three weeks it returned to normal. The height of the cell count was no guide to whether paralysis was likely to develop. The protein content at the outset was normal or slightly raised. In what has been described as the classical picture, the protein content rises as the cell count falls. This was not borne out in our experience. the average protein in 41 cases was 56 mg. per 100 ml., with a range of 12–174 mg. The glucose level was undisturbed and chlorides were unchanged. However, as with other aspects of poliomyelitis, the cerebrospinal fluid changes were variable, and paralysis occurred with a normal fluid, or, on the other hand, marked changes occurred in the fluid without paralysis.

Management of the Outbreak

When it seemed likely that the outbreak in Auckland would assume epidemic proportions the local health authority and the hospital made plans to handle the situation.

Health Department.—All practitioners were circularized and instructed in preventive measures, such as the avoidance of tonsillectomy, nasal operations, and teeth extraction. To this, in future, should be added detailed information concerning the diagnosis of the suspect minor illness (stage 1) and the importance of treating any such suspect "minor illness" by complete rest to avoid unnecessary aggravation of muscle spasm and paresis by activity during the pre-paralytic period.

In addition, a panel of doctors with experience of poliomyelitis was set up to screen all suspect cases before admission to hospital. Only in exceptional circumstances were patients admitted to hospital without first being examined by one of this panel. This kept the admission rate to hospital down to reasonable proportions and ensured that suspect illnesses were carefully handled.

Hospital Preparations.—Beds were set aside in the infectious-disease block; the number of these could be readily expanded. Convalescent wards were also set aside to which patients could be transferred after three to four weeks. The medical care of all patients was in the hands of a paediatrician and a neurologist, the orthopaedic surgeons and otolaryngologists being called in consultation if necessary. Ultimately patients passed to the care of the physician in charge of the physiotherapy department. Three Kenny-trained technicians were brought to the country to assist other physiotherapists in the management and treatment of patients. A number of lay women were engaged as "packers"; with instruction they quickly became efficient and rendered invaluable service.

Treatment

In the acute stage of the illness all patients were nursed on a firm flat mattress with a low pillow, and a small one under the knees, in a position of comfort, the feet up against a foot-board at the bottom of the bed. If necessary sandbags were used to control rotation of the legs, and the pressure of bedclothes was taken by a cradle. Apart from these measures no splinting was employed.

Hot Packing.—From the outset treatment was directed to the relief of muscle spasm. In severe cases full packs to the trunk and all four limbs were used. In less severe cases packs were sometimes applied to the part affected. Packs were made of fine woollen material cut suitably for each part. They were immersed in boiling water, were wrung dry in an extractor, were applied at high temperature, and were then covered with blanket material and pinned in position. An efficient extractor was an important adjunct to treatment, as packs could then be applied at high temperature without burning the patient. Packs were applied at hourly to four-hourly intervals, dependent upon the severity of the case. At night packing was stopped, although occasionally packs were then used for the relief of pain. In the event of excessive sweating in the packs, saline was given to avoid salt depletion. The results of this treatment have to be interpreted with caution, but certain benefits undoubtedly accrued. Patients who were unable to sleep on account of pain and restlessness were relieved of their discomfort and usually slept soundly after a day of hot packing. Muscles in a state of tightness were relieved of their spasm, and re-education and passive joint movement could be carried out almost from the outset. The skin remained in a healthy state and was soft and pliable; this was especially apparent in the skin of the chest wall in patients with severe intercostal and respiratory involvement.

Passive Movement.—This was usually begun one or two days after the onset of treatment. Joints were gently taken through their range of movement once or twice a day after muscle relaxation had been attained by hot packs. Where relaxation of a muscle group was incomplete after hot packing for several weeks more forcible stretching of the tight muscle group was carried out daily.

Re-education.—This was usually started after three or four days, dependent upon the severity of the illness. Any unaffected muscles were gently exercised, and affected muscles were trained in order to correct any reflex inhibition and disturbance of reciprocal innervation which may have arisen. Ambulation in general was begun as soon as possible, making free use of elbow crutches and giving careful instruction in walking.

Treatment of Patients with Respiratory Paralysis.—Having decided that a patient was likely to require treatment in a respirator, the sooner the step was taken the better. Such cases invariably were endangered by aspiration of fluid, food, vomitus, or mucus. If it was not possible to keep the throat clear by suction, tracheotomy was carried out, all fluids were stopped by mouth, and the patient was fed by the intravenous route, using glucose and saline and daily a bottle of protein hydrolysate or plasma. Prophylactic penicillin was given. By this means patients could tide over a week or two, by which time the general condition had often improved. We feel that these measures were life-saving on three or four occasions.

Results of Treatment

A review of the first 224 patients treated in this manner shows that the mortality rate was 5.4% (12 patients); 22 were severely paralysed, 76 moderately paralysed, and 114 had no paresis. Of the 76 moderately paralysed 64 had completely recovered and 5 were still moderately paralysed at the end of one year. At the end of nine months 5 were still moderately paralysed, and at the end of three months 2 were moderately paralysed. Of the 22 severely paralysed

8 were completely recovered, 7 still moderately paralysed, and 5 severely paralysed.

Hence out of 224 patients 12 died and after 12 months 32 (14.2%) still had residual weakness. The remainder had made a complete recovery.

It is a pleasure to express one's appreciation of Dr. Elizabeth Hughes, with whom I worked in this epidemic; Dr. Rowatt Brown, the Director of Physiotherapy; Dr. Hunt and Dr. Barker, and the house-physicians, physiotherapists, and nursing staff, whose skill and devotion made this work a pleasure.

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FAILURE OF AUREOMYCIN IN EXPERIMENTAL MELIOIDOSIS*

BY

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No satisfactory agent for the treatment of melioidosis has yet been described. The disease in its generalized form is almost invariably fatal, but recovery in cases with localized superficial abscesses in which serious constitutional symptoms were absent have been reported. These reports have recently been reviewed by Green and Mankikar (1949), who also summarize the literature relating to the treatment of melioidosis with sulphonamides and antibiotics, and describe experiments made with certain of the newer drugs.

The evidence suggests that sulphadiazine is the most promising of the sulphonamides, and that a full course of this drug should be given. Penicillin, in concentrations attainable in the blood, is ineffective, but may be of value for injection locally. Streptomycin and "polymyxin" have no inhibitory effect on *Pfeifferella whitmori*, but chloramphenicol in concentrations obtainable in the blood (60 μg. per ml.) is highly inhibitory *in vitro* and is suggested for clinical trial. No report of the effect of chloramphenicol *in vivo* is yet available.

Through the courtesy of Messrs. Lederle a quantity of "aureomycin" was made available to the Medical Research Council, and since there seemed to be no data relating to the use of this antibiotic in infections with *Pf. whitmori* it was considered worth while to carry out a small laboratory trial. The strain used had been isolated from an abscess of a severe human case of melioidosis.

*A report to the Medical Research Council.

In-vitro Tests

Tests of the inhibitory action of aureomycin *in vitro* were made by the method recommended by Paine, Collins, and Finland (1948). A series of tubes was set up, each containing 0.5 ml. of heart broth and a concentration of aureomycin falling from 200 μg. per ml. by twofold dilutions to 0.8 μg. per ml. To each tube was added 0.5 ml. of a broth culture of *Pf. whitmori* standardized by opacity to 10 million organisms per ml. The concentration of aureomycin now ranged from 100 μg. per ml. to 0.4 μg. per ml. A standard loopful from each tube was inoculated on the surface of an agar plate containing the same concentration of aureomycin.

Strains of *Str. pyogenes* and of *Bact. coli* (faecal type), regarded respectively as typical sensitive and resistant bacteria, were simultaneously tested in broth-tubes and on parts of the same plates. The tubes and the plates were incubated for three days at 37° C. The results are shown in Table I. It will be noted that *Pf. whitmori*, which was inhibited by 12.5 μg. per ml. of aureomycin in broth and by 6.3 μg. per ml. on the plate, lies more closely to *Bact. coli* in its sensitivity than to the haemolytic streptococcus. According to Schneierson and Toharsky (1949) levels of up to 2 μg. per ml. are attained in the blood four hours after a single oral dose of 500 mg. in healthy subjects, falling after 12 hours to levels of the order of 0.49 μg. per ml.

In-vivo Tests

Although the tests made *in vitro* did not show great promise, it was decided to make a trial of the antibiotic in experimental infection in guinea-pigs. The orthodox procedure in a trial of this kind would be to estimate the average lethal dose of the infecting strain with adequate numbers of animals, and to proceed to a trial of the therapeutic agent, observing treated and untreated animals inoculated with a suitable infecting dose. It was considered wise, however, to arrange in the first instance a small-scale trial which could be completed quickly. If aureomycin showed any promise a fuller trial would then be made. One advantage of this arrangement was that it reduced the number of persons required to handle the animals infected with *Pf. whitmori*, which is reputed to be a highly dangerous organism in the laboratory. A special animal-room was set aside and a technique devised to minimize the hazards associated with the possible development of ulcerative lesions and the scattering of infected litter.

As the virulence of the strain was unknown, nine different infecting doses, falling in decimal series from 500 million to 5 organisms, were injected in suspension in quarter-strength Ringer solution intramuscularly into the leg of groups of either four or two guinea-pigs (average weight, 400 g.). Half the animals in each group were treated by the intraperitoneal injection of aureomycin morning and evening. Treatment was started at the same time as infection and continued throughout the period

TABLE I.—*Sensitivity of Pf. whitmori, Str. pyogenes, and Bact. coli to Aureomycin*

Organism		Concentration of Aureomycin in μg. per ml.									
		100	50	25	12·5	6·3	3·1	1·6	0·8	0·4	0·0 (control)
Pf. whitmori	Broth	−	−	−	−	+	+++	+++	+++	+++	+++
	Agar plate	−	−	−	−	−	+	++	++	+++	+++
Str. pyogenes	Broth	−	−	−	−	−	−	−	−	−	+++
	Agar plate	−	−	−	−	−	−	−	−	+	+++
Bact. coli	Broth	−	−	−	+	++	++	++	++	+++	+++
	Agar plate	−	−	−	−	−	+++	+++	+++	+++	+++

Degrees of growth: +++, ++, +. No growth: −

of observation. The dosages, which varied from 1 to 4 mg., are shown in Table II. The time to death was recorded, and each animal was submitted to post-mortem examination.

TABLE II.—*Treatment with Aureomycin of Experimental Melioidosis in Guinea-pigs*

Infecting Dose of *Pf. whitmori*	Days to Death					
	Untreated		Treated			
			Daily Dosage of Aureomycin			
			1 mg.	2 mg.	4 mg.	
500,000,000	4	4	4	5	–	–
50,000,000	4	4	4	6	–	–
5,000,000	4	5	4	4	–	–
500,000	5	–	–	–	8	–
50,000	4	–	–	–	5	–
5,000	5	–	–	–	9	–
500	7	7	–	–	5	10
50	4	7	–	–	4	7
5	8	11	–	–	8	10

Aureomycin was given intraperitoneally in divided doses morning and evening beginning on the day of infection and continuing until all the animals were dead

It will be observed that the strain proved to be of very high virulence. With the larger infecting doses death usually occurred on the fourth day, but with the smaller doses it might be delayed as long as the 11th day. The lesions observed were typical of experimental melioidosis, and consisted of a large abscess at the site of inoculation, suppuration of the regional lymph glands, general subcutaneous congestion, peppering of the liver and spleen with yellow necrotic areas, and multiple abscesses in the lungs. It is clear that there is little difference between the treated and the control group. There were no survivors in either group, and the slightly longer survival-time of some of the treated animals may well have been due to chance. The lesions in the treated animals did not differ from those in the controls, and the infecting organism was readily isolated from the spleen and glands.

Although it is possible that larger doses of aureomycin might have had some beneficial effect, the results of *in-vitro* tests do not suggest that this is probable, and the dosage and spacing were in fact the same as those found effective by other workers in the treatment of such infections as Weil's disease.

Summary

Pfeifferella whitmori was found not to be inhibited *in vitro* by concentrations of aureomycin lower than 6.3–12.5 μg. per ml. The course of experimental melioidosis in guinea-pigs was not materially influenced by treatment with aureomycin started at the same time as infection.

I have to thank Mr. B. Madge for efficient technical assistance.

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The biennial conference of the Transport and General Workers' Union recently carried a resolution (*Scotsman*, July 14) requesting the Government to keep all aspects of their administration under constant review, with particular reference to pensions and the National Health Service, with the object of introducing improvements on a progressive basis as and when opportunity offered. The national secretary of the union's Government and municipal group said they had informed the Minister of Health of instances where they knew that certain people had been taking advantage of the National Health Service to benefit themselves, their friends, and their poor relations.

INTRACTABLE PAIN*

BY

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It is impossible to embark on a discussion on pain without being brought up with a bump against the insoluble body–mind problem. All experience, of course, has its origin in sensory data. Sensation becomes perception; percepts are further elaborated into concepts; concepts cluster together to form ideas and ideational constellations; and all these events undergo mnemic engramatization—i.e., the formation of memory traces. So far, it will be noted, I have been able to summarize experience in psychological terms only, without any reference to the material apparatus involved in the process. Nevertheless it is a common habit of mind to think of pain in physical terms and to draw an artificial distinction between what one is pleased to call "real" and imaginary pain, oblivious of the fact that all pain, whatever its most peripheral source of origin, is in the final analysis a psychic event.

If the words "pain" and "suffering" are mentioned outside any given context it is impossible to decide whether mental anguish is meant or pain arising direct from the body; and this is not a case of one *noumen* or descriptive category being correct in one context and in another being used as an analogue. The term "pain" covers both kinds of experience with equal justification, indicating, I would maintain, that, phenomenologically and semantically, mental and physical pain are so closely allied as to be almost identifiable one with another.

If one is compelled to think monistically it is wiser to regard pain from the psychic aspect and to disregard its material substratum, and to reserve for consideration in neuro-physiological terms the *type* of pain experienced. One can talk of a burning sensation, a boring sensation, a sensation of weight or pressure, a shooting or radiating sensation, a vibrating sensation, and a host of other sensations, all of which can be registered as painful, but not necessarily so. What converts such a sensation into a pain is, in a specially narrow sense, psychic rather than somatic, whatever fibres conduct the original stimulus. In other words, pain is an emotional as well as a sensory experience. Pain divorced from its emotional component is very different from the total experience, as is well shown after leucotomy. The emotional appreciation of pain probably depends on intact memory and unimpaired foresight; therefore leucotomized persons may be said to feel pain in the same way as an undomesticated animal does. When we empathetically suppose that the experience of pain in humans and animals is identical, we are likely to be guilty of the pathetic fallacy.

I believe that there is another important difference between pain as a sensory experience and pain as an emotional one. Pain as sensation is correctly located in the somatic segment in which it is generated in accordance with intact neural pathways. Pain as an emotional experience depends for its localization on the nature and integration of the body-image, in Schilder's sense. When the body-image is fragmented, the strangest things may happen: for example, one paraphrenic patient of mine complained that he heard voices in his stream of urine, and that the experience was extremely painful.

*A paper read in the Section of Neurology and Psychiatry at the Annual Meeting of the British Medical Association, Harrogate, 1949.

Message of Psychogenic Pain

There is no need for me to say anything here of the biological purpose of pain, except to remind you that, regarded teleologically, pain is a message to the total organism that all is not well and that a new adjustment is demanded. When the message has been delivered and adequately interpreted, pain has served its purpose and should be eliminated by all the means in our power. Psychogenic pain, using the word "psychogenic" in its narrowest sense, has a similar message to deliver—namely, that all is not well with the psyche—but the correct interpretation of the message, once it has been projected on to the body-image, is more often than not a matter of some difficulty.

Psychogenic pain, therefore, is likely to go on and on like a telephone bell that nobody answers because no one knows how to answer the telephone except a few trained psychotherapists, many of whom unfortunately, instead of answering the 'phone intelligently, go on repeating, parrot-like, a few stock phrases such as: "I am sorry you have been troubled . . . by the Oedipus complex." It is for that reason that a severe pain which does not respond to analgesic drugs is likely to be psychogenic or emotionally over-determined. On the other hand, a pain which is abolished by the subcutaneous injection of sterile saline is much more likely to be somatogenic, since physical pain, like any other sensation, is easily influenced by suggestion.

The terms "pains" and "penalties" go naturally together; in other words, there is a powerful emotional link between the ideas of suffering and of punishment. From this we can correctly adduce that the idea of pain is bound up with man's most primitive organization as a moral being. It is not only from sadistic motivations that people still cling so obstinately to the notion that corporal punishment possesses a value all its own.

The adult type of conscience is nothing more than the faculty of reason judging applications of moral values. However, there is another form of conscience which acts directly on the psyche—the unconscious conscience (i.e., the conscience with its roots in the unconscious, the *super-ego* of the Freudian schema). The super-ego, however speciously it may disguise itself, is archaic, ruthless, superstitious, pleasure-pain-governed, and swayed by Talion law. We are all influenced by our super-egos as well as by our conscience, but in mental health there is a reasonable degree of correspondence between these two regulators of conduct.

Problem of Guilt

All psychopathologists stumbled across the problem of guilt very early in their investigations. The very helpful concept of the super-ego was formulated by Freud with the idea of providing some kind of account of the "mechanics" of guilt and its resolution. Since few of us are saints—and, incidentally, the greatest saints have always been endowed with what the theologians call a "sense of sin"—the super-ego is constantly engaged in the task of restoring endopsychic harmony by means of "guilt-cancelling" devices. That is the reason, I think, why nearly all psychoneurotic symptoms are unpleasant (i.e., "painful" in the widest sense). I can think of no agreeable hysterical syndrome, with the possible exception of hysterical trance-states, and hysterical trance is amongst the rarest of psychic disorders. Even the habit of alcoholism, which is subjectively pleasant for the time being, is punished by agonies of alcoholic remorse and finally by painful social degradation.

Strangely enough, psychogenic pain as an isolated symptom of conversion hysteria is not very common. When it does occur it as often as not covers an underlying encapsulated psychosis. I well remember at the Cassel Hospital treating a man for the single symptom of agonizing pain in the tongue. I was successful in abolishing his pain by analytical methods, and patted myself on the back for my psychotherapeutic skill. I was less complacent when I heard that three months after he left hospital as a "cured" patient he committed suicide in a state of galloping involutional melancholia. Neurologists not uncommonly come across cases of psychogenic trigeminal neuralgia, and the patients have at one time or another been treated by injection of the Gasserian ganglion. In my experience it is often wiser to allow these people to continue with their pain rather than to seek to remove it by analytical psychotherapy. Some people require a hair shirt or need to go through life with peas in their shoes.

Another complication of pain, regarded from its psychic aspect, is that the differentiation between pleasurable and painful stimuli is very indeterminate and variable, and that the point where pleasure passes over into pain (and vice versa) is therefore by no means constant. When the pleasure taken in pain is sexually tinged, even though the sexual factor is repressed and hence unconscious, the term "masochism" is applied. Persons endowed with an asthenic attitude to life—usually schizothymes—are more inclined to exhibit masochistic tendencies; persons with sthenic temperamental attributes are potentially more sadistic.

We can see, then, that pain of purely central origin can perform two sets of psychobiological functions: (1) regulate the balance between guilt and innocence by (unconsciously) self-imposed punishment, and (2) satisfy the conflicting claims of the masochistic and sadistic components of the personality-structure. From this it follows, as has already been inferred, that by no means all cases of psychogenic pain respond well or should be submitted to psycho-analysis.

The persistence of psychogenic pain or the psychically determined perpetuation of pain that was originally somatogenic not infrequently covers an already established drug addiction. In other words, people stick to their pains in order to provide a subjective justification for continuing to take the drug to which they have become habituated. This consideration should make every doctor very cautious in prescribing analgesic drugs. Pethidine, it will be remembered, was ushered in with a great flourish of trumpets on the grounds that it was non-habit-forming. A few months later, reports were coming in of grave pethidine addiction. Our attitude to pain is for the most part ambivalent; we wish to suffer (unconsciously, it is true), and at the same time we jib at pain and seek to avoid it. This ability to have one's cake and eat it is well shown in states of religious ecstasy—e.g., in the case of dancing dervishes who cut themselves with knives—when self-injury is accompanied by analgesia.

It must be remembered that many pains which are primarily psychogenic are secondarily somatogenic. For example, the colic associated with spastic colon is innervated in the usual way through the autonomic nervous system, although the spasticity of the colon itself may be psychically determined. The pain associated with nervous dyspepsia is another example; and there are innumerable others. It is for that reason that there is no incongruity in or scientific objection to treating these states pharmacologically as well as psychologically at one and the same time.

Two Other Factors

There are two more psychological factors which ought, perhaps, to be considered in connexion with the psychology of pain: (1) the influence of the pattern of culture, in the anthropological sense, on pain tolerance, and (2) individual differences. In many cultures—North-American Indian, for instance—the ability to bear pain without psychomotor expressions of suffering is regarded as an essential virile quality; and it would seem that in days gone by few males failed to pass the test. Among primitive peoples most initiation ceremonies for young boys include the infliction of pain, such as circumcision without an anaesthetic; and the boys are not allowed even to whimper. It would appear, too, that the Russians and the Chinese are traditionally somewhat insensitive to pain and suffering of all kinds.

The converse is equally true: certain patterns of culture permit psychomotor extravagance in the presence of pain. This is true, I think, of Jewish and Latin peoples. This in no way implies a characterological weakness in the individual, who is acting in accordance with his traditional reaction-pattern. I have already inferred that an individual's personality-structure determines his attitude to pain. Evidence of individual differences is also provided by the study of the psychoses.

I remember one schizophrenic boy who attempted suicide in the most bizarre and painful way: he procured a pound of meat (it was in the days when meat was unrationed), let it rot until it stank, expressed the juice, and injected it into his liver with a large, blunt, rusty hypodermic needle. When I questioned him after the long and painful illness which followed he denied that he had experienced anything unpleasant, although his pre-psychotic temperament had been hyperaesthetic. In depressive psychosis physical pain is often welcomed as a counter-stimulus to mental anguish; and manic patients are often so insensitive to pain that they have to be protected from injuring themselves just for the fun of the thing.

Hypnosis

Paradoxically enough, psychiatry has more to offer in the alleviation of physical suffering than in the treatment of psychogenic pain. Pre-frontal leucotomy as a means of abolishing the emotional factor of the pain experience has already been mentioned; and I do not propose in the limited space at my disposal to discuss the advantages and disadvantages of this procedure. It is to the much-neglected practice of hypnosis that I would turn your attention.

The treatment of the psychoneuroses by hypnotism had no sooner come into its own than it was eclipsed by Freudian psycho-analysis and allied methods of therapeutic procedure. And yet hypnotism still has much to offer, especially in the treatment of pain. In my student days there was a boy in hospital suffering from severe osteomyelitis whose daily dressings were so painful that he required a general anaesthetic on every occasion. I obtained permission to hypnotize him, and found that he was susceptible to deep hypnosis. Afterwards he had painless dressings daily under hypnosis.

It is, however, to Salter's work in America that we must look for further advances, provided, of course, that his work can be confirmed and repeated at will. Salter (1944) rejects the views of the psycho-analysts, who regard hypnosis as an artificially induced hysteria, and who suppose that the hypnotist must be unconsciously identified with one or other of the parental figures and that the hypnotized person automatically regresses to a state of infantile dependence.

According to Salter the hypnotic trance itself and all hypnotic and post-hypnotic phenomena are nothing more than conditioned reflexes, and he builds up a very strong case to support this thesis. If Salter is right the hypnotist's "*suggestions*" are to be regarded merely as conditioned stimuli. There is thus no reason why a person should not be trained to provide his own conditioned stimuli, thereby eventually eliminating the need of a "hypnotist" and abolishing the somewhat mystical concept of *rapport*. Salter has, it would seem, elaborated methods of training people in autohypnosis—in other words, self-conditioning—which seem to be sound and relatively simple. He defines autohypnosis as "the ability to induce upon oneself the trance of sleeping hypnosis together with such of its phenomena as may be desired."

The advantages of autohypnosis over heterohypnosis are at once apparent: it is extremely useful for a person to be able at will to abolish existing pain (once its nature has been diagnosed), to cure himself of insomnia, to render himself completely deaf to disturbing noises, to increase his inclination to work, to eliminate stage-fright and other crippling forms of self-consciousness—and all this without having to establish a dependence on any psychologist.

In a world which is becoming increasingly totalitarian, when political-police investigators employ third-degree methods involving physical and mental torture as a matter of course, it may well be that the time has come for all Government "agents" to be trained "autohypnotists." Such an agent, when captured and "investigated," could make himself insensitive to pain of all kinds, could at will be deaf to all sounds, including the sound of his interviewer's voice, could send himself to sleep in all circumstances, and induce amnesia for matters which he did not wish to reveal in such a way as even to circumvent the use of "truth-drugs." It would indeed be extremely difficult, even with the most refined modern methods of "*persuasion*," to extract bogus *confessions from political* opponents.

Disregarding this last rather fanciful and sensational suggestion, it would at least seem that autohypnosis offers some people with intractable pain an easy and legitimate way out of their suffering without the necessity of having their brains pithed.

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Unesco proposes to publish later in the year a manual on the international exchange of publications. It intends to publish as an annex to this manual a classified list of institutions, including libraries, universities, scientific institutions, learned societies, etc., throughout the world, which are willing to exchange either their own publications or other publications which they have regularly at their disposal. Unesco has obtained a considerable amount of information concerning the availability of exchange material, but considers that it is still far from complete. All institutions which have so far not sent to Unesco details of their exchange material in one form or another are therefore asked to communicate immediately the following information to the Unesco Clearing House for Publications, 19, Avenue Kléber, Paris, 16e: (*a*) Name and full address of institution. (*b*) Exact titles of publications offered. (In the case of duplicates offered for exchange purposes actual lists of duplicates are not required, but only a statement that lists of duplicates are available. Institutions possessing a catalogue of their own publications available for exchange are asked only to send a copy of the catalogue or to give a full bibliographical description of the catalogue.) (*c*) Institutions which wish to exchange their publications only under certain conditions are asked to state what these conditions are. Only information which reaches Unesco before Oct. 1 can be used in the manual.

BANTI'S DISEASE

POSSIBLE RELATIONSHIP TO Rh FACTOR

BY

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Clinicians and research workers were quick to grasp the significance of the discovery of the Rh factors, and their combined labours have shed a flood of light on many hitherto perplexing problems. Not a little of the work was done in the Birmingham Children's Hospital, where Sir Leonard Parsons (1933) and his co-workers helped to establish the essential unity of icterus gravis, haemolytic anaemia of the newborn, and hydrops foetalis, and where the subject of kernicterus was investigated. Even before the role of Rh incompatibility in those conditions became known ever-increasing inquiries were being made into the possibility of haemolytic disease being at the root of other

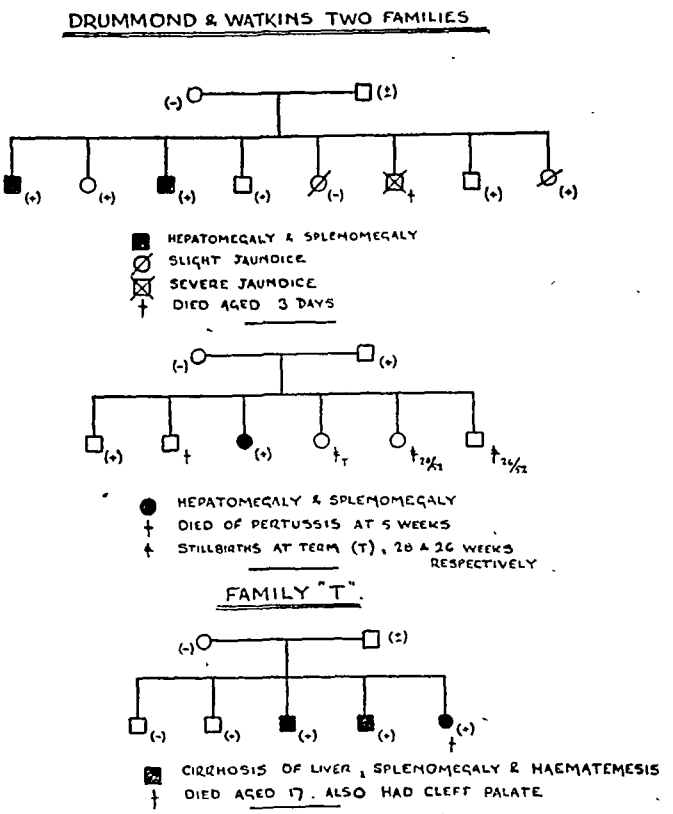


FIG 1 Genealogical tree of Drummond and Watkins's two families and of Family T.

ills which befall mankind, and now they include studies of the genetic make-up of families of imbeciles and mental defectives, those with chorea-athetosis, Wilson's disease, and congenital obliteration of bile ducts, and of some individuals showing enlargement of liver and spleen.

No convincing proof has so far been found that either mental defect in the broad sense or Wilson's disease is caused by Rh incompatibility; but Skelton and Tovey (1945) reported congenital obliteration of the bile ducts in association with haemolytic disease. It is generally known that in severe haemolytic disease of the newborn, in addition to jaundice, there may be an enlargement of liver and spleen, and that this enlargement may persist for some time after the jaundice has subsided. It is therefore natural that when we find young patients with enlargement of the liver and spleen of seemingly unknown aetiology we should ask ourselves whether Rh incompatibility may not have had something to do with it.

No doubt this question has occurred to many clinicians, but, surprisingly enough, only one paper could be found in which an endeavour was made to answer it. Drummond and Watkins (1946) record three families with hepatomegaly and splenomegaly. They make it clear that in only two of these families could the Rh factor have played a part, and for the sake of brevity the main details of these are summarized here in the form of family trees (Fig. 1). Drummond and Watkins state that in neither of their families did the mother have a transfusion, and one is struck straight away by the fact of the firstborn being affected in No. 1 family, while the disease, after skipping the next Rh-positive child, caused the same condition in the third one, and thereafter was probably responsible only for the death of the sixth child. Family No. 2 conforms more with our conception of how Rh incompatibility works—the first one or two, in this case two children, being responsible for sensitizing the mother and seemingly escaping, while those who follow bear the brunt of the disease. In both these families the mothers had no Rh antibodies when examined, but suffered severe reactions when transfused with 50 ml. of Rh-positive ABO compatible blood, and subsequently showed abundant Rh antibodies.

Details of Family T.

In the family about to be described the possibility of Rh incompatibility playing a part in the incidence of hepatomegaly and splenomegaly stands out even more clearly. The genetic make-up of the family for the various blood groups is set out in the accompanying table.

Table Showing the Various Blood Groups of Family T.

Name	Age	Group	Antisera				Rh Genotype	M	N	P
			C	D	E	c				
Father ..	52	A	+	+	−	+	CDe/cde	+	+	−
Mother ..	51	A	−	−	−	+	cde/cde	−	+	+
Arthur ..	28	A	−	−	−	+	cde/cde	+	+	+
John ..	26	O	+	+	−	+	CDe/cde	+	+	+
Frank ..	23	A	+	+	−	+	CDe/cde	+	+	+
Edward ..	19½	A	+	+	−	+	CDe/cde	+	+	+
Kathleen ..	17	A	+	+	−	+	CDe/cde	+	+	+

Here, then, an Rh-negative woman, who had never had a transfusion, married a heterozygous Rh-positive man and had five children. The parents, who have been examined, are normal clinically. The first child of the marriage, Arthur (28), who is Rh-negative, is perfectly normal. The next one, John (26), is Rh-positive, and he too is normal, which is quite understandable considering he must have been the first in a position to sensitize his mother against the D antigen. The next three children, all Rh-positive, revealed enlarged spleens and palpable livers, and their more detailed history is as follows.

Case 1

Frank, now aged 23, was sent to the Children's Hospital, Birmingham, in 1936 on account of abdominal discomfort. There his liver was found to be moderately enlarged, firm, and smooth, and his spleen very large. Liver-function tests were within normal limits, he was not anaemic, and his white blood count was normal—8,000 (71% polymorphs, 1% eosinophils, 1% basophils, 14% lymphocytes, 13% monocytes).

A diagnosis of Banti's disease was made, and later in the same year he was readmitted for splenectomy. Dr. H. S. Baar very kindly looked out the original sections of the spleen, and his comment on them and on those of the other two affected sibs is that they are typical of Banti's disease.

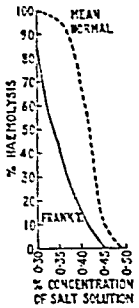


FIG. 2.—Graph showing decreased fragility of red cells in Case 1.

This lad remained well for over a year after the splenectomy, and early in 1938 he was admitted to this hospital following his first haematemesis. A second haematemesis at the end of 1938 necessitated a blood transfusion. In all he was admitted on ten occasions because of haematemeses, the last one being in April, 1949. At no time, however, was his condition really desperate, and transfusion had to be carried out on only three other occasions. Liver-function tests which were repeated here showed no evidence of serious dysfunction.

Examination of his blood and urine did not point to any excessive haemolysis, and in fact there was a small but significant decrease in the fragility of the red cells (Fig. 2), a point also noted by Drummond and Watkins (1946) in their patients. His white cell and platelet counts were within normal limits, too. This patient's liver is now only just palpable and he himself is reasonably well and earning a living as a bakelite moulder.

Case 2

Edward, now 19½, was brought to this hospital in August, 1938, following his first haematemesis. His spleen was appreciably enlarged, while the liver exceeded the normal limit only slightly. Again Banti's disease was diagnosed. This boy's bleeding and clotting times and his white cell count were normal. In September, 1938, Mr. James Gore performed a splenectomy on him; recovery was uneventful. The pathologist's report states: "The spleen shows fibrosis extending through the organ, slight thickening of capsule, and dilated sinuses. Hyaline swelling present in endothelial layers of the vessels of the Malpighian bodies."

Fifteen months after splenectomy this patient had a further haematemesis, and by July, 1948, he had had eight haematemeses in all. He also showed remarkable recuperative powers, though at one time in 1945 his condition was critical. His liver-function tests were normal, too, and he showed no evidence of excessive blood destruction.

Case 3

I saw Kathleen, the fifth child, for the first time in October, 1947, when her brother Frank was an in-patient with haematemesis. It was then that I began to make tentative inquiries into the possibility that we were dealing here with a familial affection due to Rh incompatibility. Clinical examination of the girl revealed an enlarged spleen and a cleft palate but no anaemia. Till then she had never had any overt bleeding, and although somewhat delicate was able to work as a box-maker.

She was not seen again till June 27, 1948, when she was brought into hospital as an emergency case following haematemesis. Her blood count showed 8.4 g. % Hb, 3,220,000 red cells, 5,100 white cells, with 64% polymorphs. At first her condition did not give rise to anxiety, but on July 2 she rapidly became very ill following a severe melaena and haematemesis. There was a temporary rally after a transfusion of 3 pints (1.7 litres) of blood, but next day she collapsed again and became almost moribund. A further 3½ pints (2 litres) of blood was given, but profuse melaena continued and she died on July 4.

Post-mortem examination showed varices at the cardio-oesophageal junction, and on the greater curvature of the stomach about 1 in. (2.5 cm.) from the cardiac sphincter an acute ulcer which had eroded one of the dilated veins. The mucosa round the ulcer was injected, but, apart from this and much altered blood in the small intestine, no other abnormality was found in the gut. The spleen, which weighed 13¼ oz. (383 g.) and was about 6 in. (15 cm.) long, contained localized patches of fibrosis in the capsule, and was partly adherent to the diaphragm. Its pulp was beefy and showed an increase in fibrous tissue. The liver, which weighed 45 oz. (1,276 g.), had a finely granular surface. It showed great increase in fibrous tissue, grey strands of which were visible to the naked eye. Sections of the liver and spleen are shown



FIG. 3.—Section of liver in Case 3, showing cirrhosis.

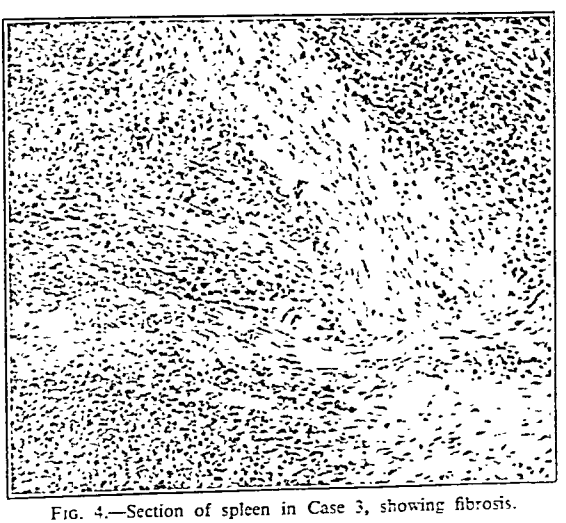


FIG. 4.—Section of spleen in Case 3, showing fibrosis.

in Figs. 3 and 4. No other gross abnormalities were found, and in particular the basal ganglia of the brain showed no degenerative changes.

Discussion

The parents in our family never noticed any jaundice in their children either at birth or subsequently. This is in conformity with the findings in the cases of Drummond and Watkins (1946), and does not, of course, rule out the possibility that a considerable degree of neonatal anaemia may have been present in these patients. In this connexion it is worth recalling the statement by Vaughan (1946), who found no correlation between the incidence of kernicterus and the degree of blood destruction—in other words, the symptoms we associate with kernicterus may occur in children who have never been jaundiced. This too was

pointed out long ago by Sir Leonard Parsons and his associates.

All this raises the question whether Mollison *et al.* (1948) are right in maintaining that the evils which flow from Rh incompatibility can be put down to the effects of blood destruction or whether the Rh antibody is able to fasten on fixed somatic cells and wreak damage there. Support for the second view is given by Boorman and Dodd (1943), who have shown that the Rh factor is a general characteristic of many tissues, and consequently many if not all tissues are likely to be susceptible to injury by Rh antibodies. The Birmingham school (Baar, 1946) also produced evidence of what we may term primary hepatic damage by Rh antibodies.

Another point of interest is that the mother of our patients showed no Rh antibodies and failed to produce them after an injection of 0.05 ml. of Rh-positive blood obtained from one of her sons, but showed them after injection of 5 ml. of her husband's blood. Something similar was found by Drummond and Watkins (1946), and the assumption is that the antibodies which the mother had originally died out with the passage of time, only to reappear under suitable stimulation. On the other hand, Gerrard (personal communication, 1949) found blocking antibodies in a woman 18 years after she had given birth to a child with icterus gravis. The child concerned died of cirrhosis of the liver at the age of $3\frac{1}{2}$, and the case was reported by Braid and Ebbs (1937).

If, from the fate of my patients, I may be allowed to draw any conclusions about the outlook in similar cases, I may be tempted to say that splenectomy improves the prognosis, but cannot be sure that this is the case when I recall that Frank did not bleed until after his splenectomy, and that Kathleen's death was almost certainly the result of a fortuitous gastric erosion superimposed on a dilated vein. Whitby and Britton (1946), however, are of the opinion that splenectomy influences the prognosis favourably. It may be that in future instead of a simple splenectomy some form of porto-caval anastomosis will be undertaken in similar cases.

The three patients described, though they showed no leucopenia or progressive anaemia, would qualify for inclusion in the so-called Banti's syndrome. What Banti (1894, 1910) had in mind when he described the disease to which he gave his name is not absolutely plain, and subsequent commentaries have not helped to clarify the issue. It has been obvious for some time, however, that the name Banti's syndrome has been used as a cloak for a variety of diseases. It may be that further work will sort out one of the entities lumped together under the title of Banti's disease by confirming that fibrosis of the spleen and liver, with enlargement of these organs, and especially of the former, occurring in the young and young adults and accompanied by a tendency to haematemesis, is at times due to Rh incompatibility.

Summary

A family is reported in which three out of five sibs were affected with hepatomegaly and splenomegaly and a tendency to haematemesis.

Reasons are given why this may have been caused by Rh incompatibility.

It is suggested that the condition observed may eventually be segregated from the Banti syndrome.

Grateful thanks are due to Dr. W. Weiner, Director of the Midland Region Blood Transfusion Service, for details of the table setting out the various blood groups of family T. and for his helpful advice; and to Dr. H. S. Baar for his opinion on the pathological sections.

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MIKULICZ'S SYNDROME

BY

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A considerable number of cases of combined lacrimal and salivary glandular enlargement have been reported since Mikulicz (1888) first described the syndrome which now bears his name. Nevertheless the condition is rare enough to prompt the recording of a recent case seen in the Western Infirmary, Glasgow. Since this hospital was opened in 1873 there apparently have been only two other in-patients in whom this diagnosis has been made, both in 1936. On fuller investigation, however, it seems that neither showed enlargement of the lacrimal glands, and their cases can hardly be considered to fall into this syndrome. One was a boy aged 7 with acute myeloid leukaemia and moderate enlargement of the salivary glands, and the other a man of 26 who had bilateral parotid enlargement but no other abnormality. It would seem, therefore, that this is the first case of Mikulicz's syndrome to be seen, at any rate as an in-patient, in the Western Infirmary in 75 years.

Case Report

The patient, a man aged 73, was admitted for the first time on Sept. 30, 1947, complaining of swellings in front of both ears, under the lower jaw, and above both eyes. These had appeared gradually over a period of 12 months, and for a month before admission vision had been much impaired by the presence of the large supraorbital swellings. Apart from these swellings there was no complaint, and the patient had given up his job as a forester only on account of difficulty in seeing. He could remember no previous illnesses. Both parents died when over 90, and all siblings had survived to similar ages.

Examination revealed a well-built healthy-looking man. The most striking abnormality was the symmetrical enlargement of all salivary and both lacrimal glands (Fig. 1). Chemosis of the conjunctivae of both upper lids was present, but neither xerophthalmia nor xerostomia was a feature. In addition there was generalized enlargement of all groups of



FIG. 1.—Appearance on Oct. 6, 1947—before treatment.

superficial lymph glands and also of those of the mediastinum as shown on *x*-ray examination of the chest. The superficial glands ranged up to ¼ in. (1.25 cm.) in diameter and were moderately firm, mobile, discrete, and painless. The spleen was enlarged to 4 in. (10 cm.) below the costal margin.

Blood examination (see Table) showed normal values for haemoglobin, erythrocytes, and total leucocytes, but a neutropenia and lymphocytosis were features of the differential count

Table of Blood Findings

Date	Hb (g.%)	P.C.V. (%)	R.B.C. (10^6)	W.B.C.	Neut. (%)	Eos. (%)	Bas. (%)	Lymph. (%)	Mon. (%)
30/9/47	14·0	40·0	5·42	3,500	33·0	2·0	1·0	55·0	9·0
16/10/47	13·0	39·0	—	6,800	42·0	1·0	0·5	46·5	10 0
30/10/47	12·9	40·0	—	6,200	35·0	0·5	0·5	60·0	4·0
4/11/47	13·9	41·0	—	7,200	42·0	3·0	1·0	51·0	3·0
26/11/47	13·2	38·0	—	4,080	59·0	0	0	29·0	12·0
6/2/48	14·4	43·0	4·59	6,240	62·5	0	0·5	29·0	8·0
13/4/48	12·0	40·0	4·93	5,840	39·5	1·5	0·5	53·0	5·5
20/4/48	12·5	39·0	4·65	6,440	37·5	3·5	0·5	54·0	4·5
19/5/48	13·4	41·0	4·51	6,080	38·0	0	0·5	57·0	4·5
18/8/48	12·2	38·5	4·72	5,240	36·5	1·0	0	59·0	3·5
26/8/48	12·5	42·0	4·63	6,600	34·0	0·5	0	57·0	8·5

before treatment. Sternal-marrow examination revealed normal erythroid and myeloid series with possibly a slight increase in lymphocytes. The Wassermann reaction was negative. The erythrocyte sedimentation rate was never more than 5 mm. in one hour by Wintrobe's method. Plasma protein levels were albumin 4.04 g. %, globulin 1.81 g., and fibrinogen 0.47 g.

A lymph-gland biopsy was carried out and Professor D. F. Cappell reported as follows: "The lymph node shows general overrunning of the architecture with small lymphocytes, which infiltrate the capsule and extend from the hilum into the surrounding fat. Only traces of a follicular structure are identifiable. The condition is one of the ill-defined systematized lymphoid hyperplasias. The association with lacrimal and parotid enlargement suggests Mikulicz's disease, of which the lymphoid form is one variety. It would not be surprising if this condition terminated with lymphatic leukaemia."

Following this report an attempt was made to alleviate the patient's main symptoms by deep *x*-ray therapy, applied both generally and locally. Within a fortnight of beginning treatment there was obvious diminution in the size of the salivary and lacrimal glands and to a smaller extent of the cervical lymph glands. By Nov. 29 there was very pronounced regression of salivary (especially parotid) and lacrimal glands, but the spleen and lymph glands were not greatly altered. The patient was discharged at this time.

When seen again on Feb. 6, 1948, he looked and felt extremely well. Lacrimal and parotid glands were no longer visibly enlarged (Fig. 2). The submandibular glands were still palpable and the spleen and lymph glands unchanged. Blood examination showed essentially normal values, the previously noted lymphocytosis having disappeared.



FIG. 2.—Appearance on Feb. 6, 1948—three months after first course of treatment.

The patient was seen again on April 12; there was then moderate recurrence of the swelling of both lacrimal and submandibular glands. Neither parotid was palpably enlarged and the condition of lymph glands and spleen was unaltered. Blood examination showed a slight fall in haemoglobin and a return of the lymphocytosis, although the total white count remained normal. A further sternal-marrow examination, however, showed gross infiltration with lymphocytes, which comprised about 90% of the total nucleated count. *X*-ray therapy was reinstituted on April 14, and a month later complete regression of lacrimal and submandibular glands had taken place, but other findings, including the leucocyte picture, remained unchanged.

By Aug. 17 there had been sufficient recurrence of the lacrimal swellings to cause difficulty in seeing, and the patient was readmitted. An interesting feature on this admission was the presence of considerable swellings in both lower eyelids, presumably consisting of lymphoid tissue. These swellings were some distance from the free margin of the lids and appeared to be close under the skin; they were certainly not connected with the tarsal glands. Parotid glands were visible and palpable but not grossly enlarged. The submandibular glands could not be felt. Lymph glands generally were still enlarged and the spleen now reached 6 in. (15 cm.) below the costal margin. Otherwise there was no change and the patient felt and looked well. Blood examination showed values for haemoglobin, red cells, and total white cells to be still within normal limits, though the differential white count showed a persistence of the lymphocytosis and neutropenia that had been a feature of previous examinations. A further sternal-marrow film showed the presence of large numbers of lymphocytes, comprising some 95% of the total nucleated cells.

Further local *x*-ray therapy resulted in rapid regression of the swellings around the eyes, but the lymphocytosis persisted. It may be remarked here that the only occasion on which this latter feature was modified by treatment was during the initial course of *x*-ray therapy, when the whole body was irradiated.

The patient was discharged to his home on Aug. 26, and thereafter his general condition seems to have deteriorated fairly rapidly. He was confined to bed from mid-September and died on Sept. 27. His practitioner, Dr. W. D. McLellan, wrote to say that the lacrimal and parotid glands remained of normal size, but there was a rapid and enormous increase in the size of the spleen, which became very tender. Cough and a blood-stained sputum became troublesome symptoms, and there were signs of an increase in size of the mediastinal glands, with collapse of the left lung and a pleural effusion. Blood examination could not be made and a post-mortem examination was not possible; it cannot therefore be said with any certainty that he developed a terminal leukaemic phase, but such an event seems not improbable.

Discussion

Various classifications of Mikulicz's syndrome have been proposed, notably those of Howard (1909), Thursfield (1914), and Schaffer and Jacobsen (1927). Howard's classification, based on four personal and 51 reported cases, has the merit of simplicity, all cases being divided into three groups: (1) Mikulicz's disease proper, (2) pseudo-leukaemia, and (3) frank leukaemia. Thursfield, who described only one case, made an intensive study of the literature and put forward a scheme differing somewhat from Howard's and including tuberculosis, syphilis, and gout as aetiological agents. Schaffer and Jacobsen, with personal experience of ten cases, proposed a classification into Mikulicz's disease (familial and acquired) and Mikulicz's syndrome (due to leukaemia, tuberculosis, syphilis, lymphosarcoma, toxic agents, gout, and other diseases).

The study of these and numerous other papers reporting solitary examples leads to the conclusion that Mikulicz's syndrome is a manifestation of a general involvement of lymphoid tissue rather than a disease of the lacrimal and salivary glands themselves. The involvement may be due to lymphatic leukaemia, but in many cases, as in the present one, there has been only a moderate lymphocytosis in the blood or no deviation at all from normal. It would appear likely that many of these will eventually develop the full picture of chronic lymphatic leukaemia. In the present case, despite the development of a grossly abnormal marrow picture, the peripheral blood showed only a slight absolute lymphocytosis even after a course of at least two years.

Many, if not all, examples of this syndrome described in the past as being due to tuberculosis (e.g., Garland and Thompson, 1933) would probably now be classified as examples of sarcoidosis, while a study of the clinical features of those ascribed to syphilis leaves the impression that in many the syphilitic state may have been purely coincidental. Why Mikulicz's syndrome should be so rare when the pathological states which give rise to it are relatively so common does not appear to have been explained.

Summary

A record is presented of the findings in a case of Mikulicz's syndrome (enlargement of lacrimal and salivary glands) followed from the initial hospital admission until death 14 months later. Many of the features of chronic lymphatic leukaemia, including lymphocytic infiltration of the sternal marrow, were present, but the total leucocyte count was not raised during the period of hospital observation. Swelling of the lacrimal and salivary glands was treated by *x*-ray therapy with satisfactory though temporary results.

Brief reference is made to the more important literature on the subject.

I should like to express my thanks to Professor J. W. McNee, in whose wards the patient was investigated and treated, for permission to publish this account, to Professor D. F. Cappell for permission to include his report on the gland section, and to Miss M. M. Todd for the photographs.

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A SIMPLE EMERGENCY METHOD FOR ESTIMATION OF BLOOD SUGAR*

BY

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AND

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A simple and accurate method for estimating blood sugar, either in the ward or in the patient's home, has long been required. The technique of Haslewood and Strookman (1939) as described by King (1946), when used in conjunction with some simple apparatus we have designed, would seem to satisfy these criteria. This apparatus can easily be made by any competent glass-blower. No colorimeter or photometer is necessary.

Apparatus

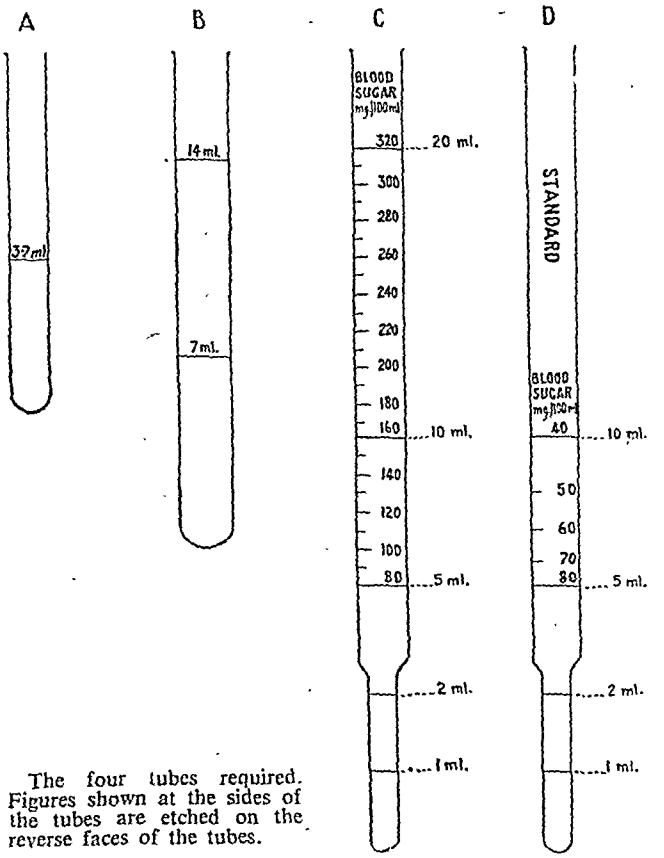
The following apparatus is required: (1) a number of clean and dry teat-end pipettes; (2) one blood pipette calibrated to contain 0.1 ml., for measuring the blood sample; (3) one pipette calibrated to contain 0.2 ml., for measuring the solution of 10% w/v sodium tungstate; (4) a 1-in. (2.5-cm.) glass funnel and a supply of 5.5-cm. Whatman No. 41 filter papers; and (5) four tubes as shown in the accompanying diagram.

Tube A has an internal diameter of approximately 10 mm. and is calibrated to contain 3.7 ml. It is fitted with a rubber bung.

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Tube B has an internal diameter of approximately 13 mm. and is calibrated to contain 7 ml. at the lower mark and 14 ml. at the upper. It is fitted with a rubber bung.

Tube C has a narrow portion approximately 5 cm. long with an internal diameter of approximately 8 *mm.*, and a wider portion approximately 16 cm. long with an internal diameter of approximately 13 mm. It is calibrated by ring markings to contain 1, 2, 5, 10, and 20 ml. The length between the 5- and 20-ml. calibrations is further subdivided into 24 equal portions by alternate short and long etched lines. The long lines from below upwards are marked 100,



The four tubes required. Figures shown at the sides of the tubes are etched on the reverse faces of the tubes.

120, 140, and so on up to 320, which coincides with the 20 ml. mark. These markings represent mg. of glucose per 100 ml. of blood.

Tube D is similar to tube C and of identical measurements. It also has ring calibrations at 1, 2, 5, and 10 ml., the length between its last two markings being subdivided into four portions. These are determined by adding calculated volumes of water, namely:

At calibration	70	the tube contains a total volume of	5.7	ml.
,,	,,	60	,,	,,	,,	,,	,, 6.7	ml.
,,	,,	50	,,	,,	,,	,,	,, 8	ml.
,,	,,	40	,,	,,	,,	,,	,, 10	ml.

Solutions Required.—These are exactly as described by King (1946). The standard solution contains 2 mg. of glucose per 100 ml. and is prepared fortnightly by suitably diluting the stock solution containing 0.1 g. of glucose per 100 ml. with saturated benzoic acid.

Method

Tube A is filled to the mark with the isotonic sodium-sulphate–copper-sulphate mixture by means of a teat-end pipette. Blood obtained by capillary puncture is collected in a tube of internal diameter about 8 mm., which contains a small quantity of neutral potassium oxalate to prevent coagulation.

The 0.1-ml. blood pipette is filled to the mark with this blood and the outside of the pipette carefully wiped free of blood with clean cotton-wool. The measured quantity of blood is delivered into the solution in tube A and the inside of the pipette rinsed into the solution by sucking some of the fluid into the pipette up to the mark and then blowing it back again. This is repeated twice. Tube A is gently shaken to ensure thorough mixing, and 0.2 ml. of 10% sodium tungstate is added. The tube is closed with a rubber bung and inverted several times to get thorough mixing. After standing a few minutes the precipitate which forms is filtered off through a dry 5.5-cm. No. 41 Whatman filter paper. Tube C is filled to the 1-ml. mark with this protein-free blood filtrate and tube D to the same mark with the standard glucose solution. For each of these manipulations separate teat-end pipettes are used which are long enough to deliver direct into the narrow ends of the tubes.

The alkaline copper solution is now prepared by filling tube B to the lower mark with solution A and adding solution B to the upper mark. Again teat-end pipettes are used. The tube is closed with a rubber bung and shaken well to ensure mixing. Tubes C and D are further filled to the 2-ml. mark with the alkaline copper solution so prepared, using a clean teat-end pipette. The tubes are carefully shaken to ensure thorough mixing, are placed in boiling water for exactly 10 minutes, and then rapidly cooled by immersion in a relatively large volume of cold water or under the tap. Both tubes are filled with the phosphomolybdic reagent exactly to the 5-ml. mark, the open end is closed by the thumb, and the contents are mixed by inversion. The small amount of fluid adhering to the thumb is restored to the tube by wiping the thumb across its edge.

If the blood sugar is above 80 mg. per 100 ml. the blue colour in the wide portion of tube C below the 5-ml. mark will be darker than that in tube D. In this event small quantities of distilled water are added to tube C and the contents mixed by inversion after each addition, using the thumb technique already described. When the two colours match, the level of the bottom of the meniscus in tube C indicates the blood sugar. If the level has reached the top mark (320 mg. per 100 ml.) and the colour in tube C is still darker than that in tube D, the former tube is emptied exactly to the 10-ml. mark and further diluted until correct matching is obtained. In this case the final reading obtained must be doubled in order to give the correct blood sugar. In this way values up to 640 mg. per 100 ml. of blood can be determined. For higher levels the tube is again emptied to the 10-ml. mark and the final reading multiplied by four.

If the original blue colour in tube C is lighter than in tube D the blood sugar is less than 80 mg. per 100 ml. It can be determined by suitably diluting the fluid in tube D until the colours match and reading the calibrations on this tube.

Results

The accuracy of the method has been tested by the usual procedure of recovering known amounts of glucose added to blood, the blood sugar being determined before and after the addition. The results, shown in Table I, can be seen to be remarkably good.

The method has also been used on a number of blood samples by a medical graduate with no special chemical training. All matching was done by artificial light in order to simulate ward emergency conditions, as, for example, in the diagnosis and treatment of a patient in a diabetic coma admitted at night. A parallel series of determinations was also carried out by a trained laboratory technician, using the method of Herbert and Bourne (1930). The results are shown in Table II. The findings speak for themselves.

TABLE I.—*Recovery of Glucose Added to Blood*

Blood Sugar (mg. per 100 ml.)	Added Glucose (mg. per 100 ml.)	Calculated Total	Found	% Error
85	100	185	185	0
85	200	285	290	+2
85	300	385	380	−1
85	400	485	500	+3
70	100	170	170	0
70	200	270	260	−4
70	300	370	380	+3
70	400	470	450	−4
120	100	220	240	+9
120	200	320	340	+6
120	300	420	420	0
120	400	520	490	−6
65	100	165	165	0
65	200	265	255	−4
65	300	365	390	+7
65	400	465	480	+3

TABLE II.—*Comparison with Laboratory Findings*

Blood Sugar (mg. per 100 ml.)		Blood Sugar (mg. per 100 ml.)	
Emergency Method	Laboratory Method	Emergency Method	Laboratory Method
107	120	115	125
104	115	140	140
195	190	70	70
110	120	250	280
70	85	240	260
120	135	235	250
159	180	70	65
210	210	240	220
225	220	400	420

A sufficient degree of accuracy for most clinical requirements could no doubt be obtained by the provision of a dropping pipette which delivers 0.1 ml. of blood in a known number of drops. This, in conjunction with a similar method for delivering the sodium tungstate, would simplify the method still further.

Summary

With the use of easily constructed apparatus the method of Haslewood and Strookman has been converted to a simple dilution technique, requiring neither colorimeter nor photometer.

Estimations have proved accurate in the hands of a medical graduate with no special training in biochemical methods.

We wish to thank Dr. W Jack, who carried out the determinations in Table II.

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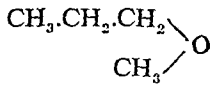
The housing progress summary for May, presented to Parliament as a White Paper (Cmd. 7723), shows that the number of permanent houses completed in Great Britain during May was 16,866, compared with 15,110 in April. This brings the number of permanent houses completed during 1949 to date to 84,688. The total number of houses completed since the war is 667,656 (510,408 permanent and 157,248 temporary). Of the permanent houses, 379,016 were built by local authorities and 86,492 by private enterprise. During May homes were provided by new building, repair of uninhabitable houses, conversion, and requisitioning for 18,469 families, compared with 16,587 in April. This brings the total number of families rehoused by these methods under the post-war programme to 957,113.

METHYL N-PROPYL ETHER

BY

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Methyl n-propyl ether, known also as "metopryl," is a clear, colourless, volatile liquid having a characteristic smell which is not unpleasant. It has the chemical formula of



and is isomeric with diethyl ether and isopropyl-methyl ether (isopryl). Methyl n-propyl ether was first used as an inhalational anaesthetic on the human subject on Oct. 3, 1945, at the South Baltimore General Hospital for appendicectomy and uterine suspension.

Carr *et al.* (1947) give the following information concerning these ethers:

TABLE I

	Diethyl Ether	Metopryl	Isopryl
Boiling-point	35° C.	39° C.	31° C.
Solubility in water (ml. in 100 ml. at 25° C.)	8·6	5·0	9·9
Oil/water coefficient	4 ± 0·4	10 ± 1	2 ± 0·2

The inflammability range is identical with that of diethyl ether (White *et al.*, 1946). The specific gravity is 0.726 at 16° C.

In their series of cases White *et al.* found that, compared with diethyl ether, methyl n-propyl ether was less irritating to the respiratory tract, the pulse rate was not as rapid, the blood pressure rose and returned to normal more quickly, and muscular relaxation was more easily achieved. Post-operative nausea and vomiting were less and there were no pulmonary complications. The physical signs of varying depths of anaesthesia do not vary greatly from Guedel's classification. They also found that the potency of methyl n-propyl ether when measured on the dog is approximately 25% greater than that of diethyl ether.

Fisher and Whitacre (1947) from a series of 500 cases concluded that decreased irritation of the respiratory tract is the drug's only advantage over diethyl ether.

Krantz *et al.* (1947) consider that methyl n-propyl ether has a wider margin of safety than diethyl ether. They state that if it be assumed that to induce anaesthesia with diethyl ether the volume per kg. of body weight is 1 ml., and to produce respiratory arrest the volume per kg. is 2 ml., the corresponding volumes of methyl n-propyl ether are 0.84 and 2.1 ml. Therefore methyl n-propyl ether has a higher potency but a wider margin of safety than diethyl ether. Rochberg (1947) showed that in 86 cases 52.8% had nausea or vomiting.

Clinical Trial

I obtained a small amount of methyl n-propyl ether for clinical trial, though the scarcity of the drug made it impossible to carry out the investigation on as large a scale as one would have wished. Table II shows the list of cases included in the series. In all except Cases 16, 17, and 18 the ether was placed in the ether container of a Mushin closed-circuit apparatus, while in those three instances the ether was placed in the chloroform bottle of the Boyle apparatus.

In my hands the induction period was not much shorter than with diethyl ether, though, contrary to expectations, it was shorter in those cases in which the ether was in the chloroform bottle. Cases 16 and 17 were powerfully built men who settled quickly and quietly. The diminished irritation of the respiratory tract was very noticeable. Relaxation was satisfactory, but not more so than with diethyl ether. The post-operative period was most satisfactory.

TABLE II

Case No.	Sex	Age	Operation	Duration in Minutes	Complications	
					Vomiting	Pulmonary
1	M	53	Partial gastrectomy	125	No	Yes
2	M	19	Trendelenburg operation	37	No	No
3	M	33	Herniorrhaphy	45	No	Yes
4	M	44	For hydrocele	20	No	No
5	F	41	Bilateral cervical sympathectomy	80	No	No
6	F	18	Appendicectomy	25	No	No
7	F	64	Herniorrhaphy	30	No	No
8	F	25	"	60	No	No
9	F	16	"	90	No	No
10	F	17	"	35	Yes	No
11	F	27	"	24	Yes	No
12	F	64	"	15	No	No
13	M	25	Meniscectomy	27	No	No
14	M	29	Reamputation end of fibula	22	No	No
15	F	42	Keller's operation	25	No	No
16	M	41	Removal os calcis spur	15	No	No
17	M	46	Meniscectomy	25	No	No
18	M	42	For dislocated scaphoid	20	No	No
19	F	24	Tonsillectomy	18	No	No
20	F	43	Herniorrhaphy	60	No	No

Case 1 was a nervous man who had a high abdominal incision—the type of case in which pulmonary complications would be expected. Case 3 had a rise in temperature, and on *x*-ray examination was found to have tuberculous cavities in his apices and a positive sputum which had been missed in the pre-operative examination. Cases 10 and 11 each had a slight amount of vomiting on one occasion.

Apart from these cases all patients made an uninterrupted recovery and had no complaints to make about the anaesthetic. Other members of the surgical teams concerned noticed the unusual smell of the methyl n-propyl ether but made no adverse comments. In 10 cases there was a fall in the pulse rate during administration of the anaesthetic, in five a rise and later a fall, in four a rise which did not return to the former level, and in one case a fall which did not return.

Summary

Methyl n-propyl ether is described. The results of a clinical trial of this inhalational anaesthetic in 20 cases are given. The chief points of interest are the lack of irritation of the respiratory tract and the small percentage of post-operative pulmonary and gastric complications.

I wish to express my thanks to Messrs. Duncan, Flockhart and Co for their kindness in providing me with the sample of methyl n-propyl ether used in this test.

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SIGNIFICANCE OF CONVULSIONS IN INFANCY

BY

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There are two opinions about the significance of convulsions in infancy. One is that convulsions within the first two years of life are of no serious significance, that many children have them, and that these children are no more likely than others to have convulsions later in life. This view is often held by parents and general practitioners. Peterman (1939) supports this view, as follows: "The young child is subject to certain hazards and diseases These diseases are characterized by a tendency to produce convulsions. Once these hazards have been safely passed. the child is no more susceptible to seizures than is the adult under similar circumstances." The second opinion is favoured by neurologists. They usually hold that infantile convulsions are the early manifestation of epilepsy. Turner (1907) found in his series of 1,000 epileptics that the greatest number beginning in any single year occurred in the first year of life.

The purpose of this paper is to present some evidence which may contribute to the formation of an opinion on the significance of these convulsions.

Present Investigation

The evidence is based on observations obtained from two groups—a group of 200 patients attending hospital as out-patients on account of epilepsy, and a control group. Each group is subdivided into two according to age—namely, one to contain subjects aged 2 to 15 years, and the other to contain those from 15 to 35. The 100 controls aged 2 to 15 were out-patients at the Hospital for Sick Children or at the Leicester Royal Infirmary, which they were attending for disorders other than epilepsy; the 100 controls from 15 to 35 were acquaintances of one of us (P.W.N.), and included a large number of hospital workers, nurses, technicians, and doctors. The 200 epileptics were out-patients attending the National Hospital on account of this disorder

It will be understood that in the epileptic groups there is selection to the extent that no one is included who has to live in an institution—such as an epileptic colony, an institute for mental defectives, or a mental hospital. The epileptics are those who remain within the normal community, living in their own homes, attending London schools, and working; and those in the control groups are their counterparts, but having no fits. No one was admitted into the control group unless he was able to find out from his parents whether he had had infantile convulsions; also, in the epileptic group the history was always obtained from a parent, who was asked about the occurrence of any convulsions, fits, faints, sudden stiffenings with loss of consciousness, or facial expression of vacant staring.

Of the control subjects, two (2%) in each age group had had infantile convulsions. Of the 100 epileptic subjects from 2 to 15, 34 had had infantile convulsions. and of the 100 from 15 to 35, 14 had had infantile convulsions.

This pronounced difference—2% in the control groups and 14% and 34% in the epileptic groups—makes it clear that convulsions within the first two years of life are to be taken as a manifestation of epilepsy, and that the subject so afflicted is likely to have a recurrence of fits in later years. It also seems that the recurrence is likely to show itself before the fifteenth year. It is of interest that this percentage of those having a recurrence of fits before the age of 15 is so much higher than that of those having a recurrence after the age of 15. This may indicate that the longer the child lives free from convulsions the less likely he is to have any.

The question arises, If convulsions within the first two years of life indicate that the child is an epileptic, should some treatment be started? General neurological opinion holds that the longer the subject remains free from attacks the less likely he is to have further attacks. The lower percentage in the older epileptic group supports this belief. This observation upholds the view that any child having convulsions should be treated with anticonvulsant drugs for a prolonged period, and possibly for years.

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Medical Memoranda

Bilateral Hydrosalpinx with Torsion of Both Tubes

Torsion of the Fallopian tube is an uncommon condition, but cases are reported in the literature fairly regularly. Anspach (1912) was able to collect 95 cases, and in 62 of them the lesion of the tube was a hydrosalpinx. Eastman (1927) brought the number of cases of torsion of hydrosalpinx up to 91, and Goldberg and Olim (1938) increased the figure to 108. The condition, therefore, is not excessively rare, but bilateral torsion is extremely uncommon. Anspach records seven instances in his paper, and since then additional cases have been described by Sénéchal (1932), Pineda and Campagnoli (1934), and Ficklen (1938).

CASE REPORT

A nulliparous married woman aged 24 was admitted to the West Middlesex County Hospital on May 31, 1948, complaining of a sharp knife-like pain in the right loin, radiating round to the front of the abdomen and down to the pubes, of twenty-four hours' duration. There had been nausea but no vomiting. Her bowels had been regular and micturition had been normal apart from slight difficulty in initiating the act since the onset of the pain. Her periods took place every 23 days and lasted seven days. She experienced some backache on the first day. Her next period was expected on the day after her admission, and in fact it began that day. She complained of some yellow vaginal discharge which was most pronounced on the two days before the onset of menstruation. Her previous health had been good; she had never experienced a similar attack of pain in the past. She had undergone two minor operations for the correction of a narrow introitus.

On physical examination her temperature was 100° F. (37.8° C.), pulse rate 92, and respirations 20. The tongue had a moist white coat. The abdomen moved fairly [illegible] respiration, and there was slight tenderness and [illegible] in the lower quadrants of the abdomen, greater [illegible] side than on the left. Rectal examination revealed [illegible] of two cystic swellings (or one bilobular swelling)

of Douglas, each about the size of a tangerine and attached to the back of the uterus. They were moderately tender. This finding was confirmed on vaginal examination. The white cells numbered 15,000 per c.mm., of which 77% were polymorphs. A radiograph of the pelvis showed the presence of a cluster of teeth in front of the sacrum and a little to the left of the midline. A diagnosis of twisted or infected dermoid ovarian cyst was made.



Above—the right hydrosalpinx. Below—the left hydrosalpinx with the associated dermoid cyst, opened to show teeth and hair.

Operation.—On June 4 the abdomen was opened through a midline subumbilical incision. The left ovary was replaced by a dermoid cyst the size of a large pear. There was a left hydrosalpinx the size of a hen's egg which had undergone torsion about one and a half times in a clockwise direction. It was blue in colour and had a congested appearance which improved when the torsion was undone. On the right side there was also a hydrosalpinx which had undergone torsion. It was the size of a duck's egg and was purplish red. It was clearly the seat of strangulation. The twist was also about one and a half times in a clockwise direction. The point of torsion was at the junction of the normal and cystic portions of the tube about 1 in. (2.5 cm.) from the cornu of the uterus. At this point the tube was constricted by a narrow omental adhesion. The right ovary was about the normal size, but was studded with small cysts. A left salpingo-oophorectomy and a right salpingectomy were performed, the severed end of the right tube being left open. The appendix was removed and the abdomen closed.



Convalescence after operation was uneventful and the patient returned home on June 17. Her customary menstrual cycle has continued since the operation.

The specimens have been mounted for preservation in the hospital museum, and consequently no histological examination of the tubes has been made.

COMMENT

The left hydrosalpinx was in a state of simple torsion without gross interference with the blood supply, while the right tube had undergone torsion with strangulation, converting the hydrosalpinx into a haematosalpinx. The patient's symptoms were produced by the lesion of the right tube; the twist of the left tube was a coincidental finding. The omental adhesion around the point of torsion of the right tube may have been an important factor in producing the twist by constricting the area of attachment of the hydrosalpinx. The dermoid cyst of the left ovary had not taken part in the torsion of the left tube and did not seem to have had anything to do with its production.

A study of the recorded cases of torsion of the Fallopian tube reveals that in the majority of cases the tube is the seat of disease, although a normal tube may undergo this complication. The commonest lesion is a hydrosalpinx, and this fact is well shown in the figures quoted above from Anspach's paper. A hydrosalpinx satisfies the conditions required for torsion of an organ—namely, a freely mobile tumour attached to a more or less fixed base by a pedicle. A pyosalpinx, on the other hand, is much less likely to undergo torsion because of surrounding adhesions which limit its mobility.

The clinical picture of torsion of the tube resembles that of torsion of an ovarian cyst, for which it has often been mistaken, but differs in that the symptoms are much less severe, and also in that shock is not a feature of the condition.

I wish to thank Mr. John Scholefield, under whose care the patient was admitted, for guidance and for permission to publish this case.

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Leiomyosarcoma of the Stomach

Leiomyosarcoma is one of the rarest tumours of the stomach, comprising only 10% of all gastric sarcomas. Ewing (1940) estimated that 1% of malignant tumours of the stomach were sarcomatous. At the Mayo Clinic in one year, however, of 298 malignant lesions of the stomach 3.3% were sarcomas (Counseller *et al.*, 1946). Edwards and Wright (1933) thought the condition more common than the number of reported cases indicated.

CASE REPORT

The patient was a Bantu woman aged 21. She had four years' history of attacks of severe epigastric pain, which was unrelated to meals but worse before her periods. For the last six months she had continuous pain and frequent vomiting, the vomitus being pale and never coffee-ground in appearance. Her appetite was good, but she had lost a great deal of weight and was becoming progressively weaker. Her diet was predominantly carbohydrate, and her home conditions were poor.

On examination she was cachectic and too weak to stand. The temperature was 100° F. (37.8° C.) and pulse 120. In the abdomen a hard, tender mass was felt occupying the costal angle; there was a second mass under the left costal margin which appeared to be connected with the liver. Both masses were felt only on deep inspiration. There were no other physical signs.

The patient stopped vomiting on the day of admission. She exhibited a remittent temperature which frequently reached 102° F. (38.9° C.). A chest radiograph showed clear lung fields but a raised left diaphragm. She was too ill for screening.

The blood count demonstrated a hyperchromic anaemia, with metachromasia and anisocytosis. The r.b.c. was four million, the Hb 77%, and the colour inde[illegible]. The w.b.c. was [illegible] of which 79% were polymorphs [illegible] of the marrow showed a macronormo[illegible] test meal revealed complete abs[illegible] acidity in the resting juice, and

meal. Blood was present in one specimen. The sugar tolerance curve for hepatic function showed a fasting level of 80 mg.% and a rise of blood sugar after 50 g. of dextrose to 200 mg.%, followed by a lagging fall. There was no glycosuria. The E.S.R. was 31 mm./hour (Cutler technique).

Ten days after admission the patient passed a stool consisting of a large amount of red clotted blood. Proctoscopic examination revealed no abnormality. After this haemorrhage the blood count was: r.b.c. 2,400,000, w.b.c. 7,000, Hb 20%, colour index 1.1. The patient was free of abdominal pain, vomiting, and diarrhoea, and felt better, but showed some oedema of the feet. She was given 5 ml. of liver extract intramuscularly daily, and received two blood transfusions of 250 ml. each on successive days. There was no reticulocyte response to the liver therapy after nine days. She became somnolent and died five weeks after admission.

In view of the long history, the macronormoblastic bone marrow, the lower bowel haemorrhage, the oedema, and the macrocytic anaemia which failed to respond to liver, she was considered a case of post-necrotic fibrosis of the liver.

At necropsy a large pedunculated neoplasm, fungating and foul-smelling, was found arising from the lesser curvature and posterior wall of the stomach and infiltrating the left lobe of the liver, which was in contact with it. There were no other deposits in any part of the body. The liver itself was large and fatty. Microscopic examination of the mass revealed it to be a leiomyosarcoma.

I am indebted to Dr. Dormer, medical superintendent of King George V and Springfield Hospitals, for permission to publish this case.

ELIZABETH GREATHEAD, M.B., Ch.B.,
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Hydatid Cyst and Cirrhosis

The following is a case of hydatid cyst associated with gross cirrhosis of the liver, an association which has rarely been reported.

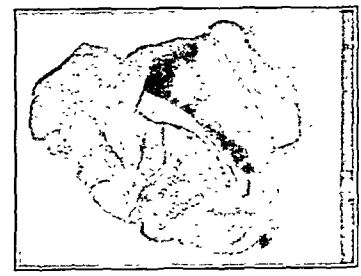
CASE REPORT

A woman aged 68 was admitted to Edgware General Hospital on Sept. 27, 1947. She had been well and on holiday until that morning, when she vomited a small quantity of blood; during the day she vomited blood several times, in all about half a pint (284 ml.). She was seen by her doctor about 7.45 p.m. and had difficulty in giving her history, as she seemed dazed. She received an injection of morphine and was transferred to hospital. On arrival at 9 p.m. she was semi-conscious and unable to give any history. Her relatives could add little to the above account except to say that she had had two abdominal operations in early life, the first of these at 13 years, and a third in 1931. The only notes available concerning the last stated: "Laparotomy—hydatid cyst." In 1944 she had a haematemesis from which she entirely recovered. She had lived all her life in Lancashire except for pilgrimages to Lourdes, and she was not an alcoholic.

Examination showed a semi-conscious woman, moderately pale and sweating slightly, who was vomiting blood clot. A few purpuric spots were present on the limbs, and on the abdominal wall there were enlarged veins and two upper abdominal laparotomy scars. The liver edge was 2 in. (5 cm.) below the costal margin; it was smooth and hard, with one large rounded eminence. A firm spleen was palpable 1 in. (2.5 cm.) below the costal margin. She also showed bilateral corneal opacities, depressed tendon reflexes, and a right extensor plantar response. The pulse rate was 110 and blood pressure 100/60. She was afebrile and free from jaundice. There were no other significant findings.

On admission her urine contained protein but was otherwise normal. Blood count showed: haemoglobin, 68%; red blood cells, 3,360,000 per c.mm.; white blood cells, 14,400 per c.mm. *Plasma proteins*: Total, 5.75 g.%; albumin 3.4 g.%, globulin 2.35 g.%. The cerebrospinal fluid was normal in all respects. She was transfused with one litre of blood and 800 ml. of 5% glucose, but failed to improve, and died 36 hours after admission.

Post-mortem Examination (Dr. H. C. Moore).—The body was generally obese. There were large oesophageal varices, and the stomach and intestines contained fresh blood. There was no ascites. The liver weighed 1.95 kg. (normal, 1.2–1.4 kg.) and the right lobe was replaced by a cavity, 18 cm. in diameter, which contained turbid fluid. The walls were composed of a 4-mm. layer of fibrous tissue and compressed liver tissue with a shaggy fibrinous inner surface (see photograph). There was no calcification. The remainder of the liver showed a multilobular cirrhosis with nodules of hyperplastic liver tissue; there were no remnants of other cysts elsewhere in the liver. Gall-bladder and ducts were normal. The spleen was four times its normal size, and firm. Apart from oedema of the lungs there were no other macroscopic abnormalities. Microscopically the liver showed a multilobular cirrhosis. The wall of the cyst consisted of vascular collagenous tissue in which normal bile ducts could still be seen, but no liver parenchyma was present.



The posterior wall of the cyst has been opened; the liver is cirrhotic.

COMMENT

The cause of death appeared to be liver failure due to multilobular cirrhosis, precipitated by a haematemesis from oesophageal varices. Morphine may have slightly hastened death. The large thick-walled cyst which was found at necropsy had existed for many years, and was almost certainly hydatid in origin. Instead of becoming shrunken and calcified after the death of the parasite, as is usual, it had remained distended. Its relationship to the cirrhosis is uncertain.

All authors are agreed on the frequency with which compensatory hyperplasia of the liver cells occurs when part of the liver is destroyed by hydatid disease, but most consider that cirrhosis and hydatid disease occur together merely by coincidence. Dew (1928), for example, states that in view of the great difficulty of excluding other causes it seems that the existence of a true hydatid cirrhosis remains to be proved. A biliary cirrhosis due to obstruction of the bile ducts by hydatid material has been described. It is hard to believe, however, that in the above case multilobular cirrhosis and a thick-walled cyst were present together only by chance. Stevens (1901) described a similar case—that of a man aged 63—in which two cysts were present. Both in his and in my case the cysts had probably existed since childhood, and their great age and survival after the death of the parasite may have had some bearing on the development of cirrhosis.

I am indebted to Dr. G. H. Jennings for his advice and to Miss M. H. Shaw for the photograph.

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Reviews

MANUAL OF PUBLIC HEALTH

Hygiene. By J. R. Currie, M.D., Ll.D.Glas., D.P.H.Birm., F.R.C.P.Ed., and A. G. Mearns, M.D., B.Sc.(Public Health), D.P.H.Glas., F.R.S.Ed. Third edition. (Pp. 724; 212 illustrations and 4 plates in colour. £1 15s.) Edinburgh: E. and S. Livingstone. 1948.

This is the second edition since the war of the textbook known affectionately in Scotland as "*Currie and Mearns.*" Rapid changes have occurred since the publication of the 1945 edition, and in bringing the book up to date the authors have considerably enlarged it and greatly increased its value to both undergraduate and postgraduate students. Currie and Mearns has joined the ranks of standard textbooks on both sides of the border, and is by no means confined in its application to Scotland. The book covers the vast domain of public health and hygiene in 26 chapters. The broad picture presented portrays in considerable detail modern public health as a study of the environment and of the community which inhabits that environment. The personal health services are well represented, and the last chapter, entitled "The Social Vista," is an interesting outline of the history of social medicine, including its post-war developments. Great care has been taken with the chapters on food, community diseases, and infestation; personal hygiene and health education are dealt with by an author who has made a special study of these subjects.

It is curious how, even in the most carefully revised textbook, old phrases linger on as though in response to tradition. In chapter 4, for example, it is stated (p. 49) that "main latrines should be placed outside the school building." This is at least a generation out of date. Again, some of the statements about housing and, more particularly, ventilation require reconsideration in the light of recent investigations. In chapter 10 (p. 295) there is over-emphasis on cubic space and consequent under-stressing of the importance of floor area in small houses. Further, it is stated that 8 ft. is too low for a habitable room and that in ordinary houses the height of ceilings may range up to 11 ft. These statements will not stand up to obstinate questioning on grounds of either health or expense.

Nevertheless, the teaching is generally up to date and the subjects are presented in an attractive manner. The paper is excellent for a post-war production, and the book is extensively illustrated with more than 200 well-chosen diagrams, tables, and photographs. It is good to see the return of colour illustrations, which are very effective.

The student of hygiene, and especially candidates for the Certificate and Diploma in Public Health, will find in Currie and Mearns an excellent textbook which gives them all that is required for a well-balanced groundwork. For undergraduates it is easy to read and not difficult for reference. Medical officers of health, sanitary inspectors, and other officers engaged in the practice of preventive medicine are recommended to take it as a refresher course covering the whole field of their work.

J. M. MACKINTOSH.

PUBLIC HEALTH IN THE U.S.A.

Essentials of Public Health. By William P. Shepard, B.S., M.D., M.A. With the collaboration of C. E. Smith, M.D., R. R. Beard, M.D., L. B. Reynolds, A.B., Sc.D. With foreword by R. L. Wilbur, M.D., LL.D., Sc.D. (Pp. 600; illustrated. £1 10s.) Philadelphia and London: J. B. Lippincott Company. 1948.

As the dust-cover states, this book points out the place of the physician in to-day's public health activity and shows clearly where his support is essential. It is written for the practising doctor in the United States; I think it will appeal to a larger public, and that the public health officer in this country will find it stimulating. In the United States much still depends upon voluntary agencies and the enlightenment of public opinion (broadly speaking, public health education), and this aspect is prominent in the work. Health education is one of the new functions of the medical officer of health and that is why the volume may well find a place on his bookshelf. The legal and administrative aspects of public health in this country and in America present considerable differences, and the book will be found stimulating to thought for precisely this reason.

The section on tuberculosis is of particular interest. A letter from a High Court judge to the superintendent of a sanatorium, explaining why he had not caused a tuberculous child to be compulsorily committed to the institution, is an unusual item and one indicating that this is not just another textbook of public health.

There is a statement in relation to activated sludge which requires some elucidation. Among the advantages of this method of sewage treatment is mentioned low operating cost, but the next line gives among its disadvantages that of high operating cost; one may well ask how this can be. There are some excellent illustrations of American sewage disposal plant in this section.

Anyone who has produced a book dealing with an advancing subject will know how soon it is out of date, but it was very unkind of fate that in the excellent brief classification of the value of minerals in water there should occur, relative to nutritive trace elements, the statement, "All except cobalt are necessary to human nutrition." And now cobalt has been found to be a constituent of vitamin B_{12}, the anti-pernicious-anaemia factor.

C. O. STALLYBRASS.

FACTORY AND MINE HYGIENE

History of Factory and Mine Hygiene. By Ludwig Teleky, M.D. (Pp. 342. 25s.) Columbia: University Press. London: Geoffrey Cumberlege. 1948.

Written by an acknowledged authority, and with an introduction by Dr. Alice Hamilton, this book raises more hopes than it fulfils. Too much has been attempted, and the main argument is obscured by detail.

The author's thesis is an important one, and has been fully established. It is that "laws and regulations (thoroughly worked out) are indispensable to industrial hygiene." As a rider, the need for the active co-operation of all parties is insisted upon. Dr. Teleky stresses and proves the necessity for a scientifically trained Civil Service inspectorate, free from political influences and capable of determining in specific detail the regulations required for every hazardous process.

The book opens with a historic survey of the development of industrial hygiene, particularly in Britain, Germany, and the U.S.A. British practice started "from an outraged national conscience," and German practice from a special concept of the rights and duties of the State. American practice, with its virtues and anomalies, arose from the interaction of three forces—the demands of the workers, employers' interests, and the uncertain influences exerted by both central and local State authorities.

Written primarily with an eye to the contemporary American situation, the author covers an immense field in less than three hundred pages. The history (in three countries) of industrial legislation, co-operating agencies, medical, scientific, and research services, of injury and hazard prevention, of education, and of some special problems such as dust, compressed air, and skin diseases, is surveyed.

Special attention is devoted to the problems of mines and miners. Dr. Teleky is most successful in this part of his book. The section is followed by a chapter on the effects of industrial hygiene, and a summary concludes the text. There is a full bibliography and an adequate index.

Those who are concerned with the legislative aspects of industrial hygiene and are not already familiar with the history of the subject, or those who are interested in the history of industrial medicine, will value this comprehensive survey. As a book of reference it will prove valuable to medical libraries.

H. E. COLLIER.

ALLERGY

Practice of Allergy. By Warren T. Vaughan, M.D. Second edition. Revised by J. Harvey Black, M.D. (Pp. 1,132; 333 illustrations. $15.00 or £3 15s.) St. Louis: The C. V. Mosby Company. London: Henry Kimpton. 1948.

The investigation of allergy has suffered in the past from the uncritical claims of its enthusiastic adherents. This excessive enthusiasm, together with the difficulty of cure, has caused its study to be regarded too lightly by the medical profession in this country. The plain truth is that the allergic diseases are psychosomatic conditions in which the pattern of the mental and allergic processes are so interrelated that truly objective investigation is extremely difficult. This, however, does not detract from the interest or importance of the subject, which is so ably discussed in the new edition of this work.

Readers of this book cannot fail to be impressed by the vast amount of experimental work and the accumulation of clinical observation which it presents. It contains full information on every aspect of allergic diseases. The first 130 pages are devoted to theoretical considerations of the possible mechanism of allergy; the remainder deal with its more practical aspects. Over two hundred pages are devoted to food allergy. This subject has always received more attention in the United States than in this country, and it is not easy to decide whether it is overdiagnosed there or overlooked here, or if there is a real difference in incidence in the two countries. There can be little doubt, however, that if the patient and detailed investigations recommended by the authors were carried out in suspected cases here many more of that vague group of dyspepsias labelled "functional" would be found to be due to food sensitivity. On the other hand, it is difficult for us to believe that approximately 50% of Americans have some form of allergy to food.

There is a well-documented chapter on so-called physical allergy. This condition also receives scant attention in this country, although there is evidence that physical factors are responsible for the precipitation of attacks of asthma, urticaria, and similar illnesses far more commonly than is generally recognized. Little reliable work has been done to explain the way in which these factors produce their effects, and it may be that use of the term "allergy," by appearing to offer an explanation, has served only to obscure it.

The sections relating to drug allergy and contact allergy are of exceptional interest. Detailed information is also supplied for preparing extracts of all the important allergens (atopens).

An extensive bibliography is provided at the end of the volume. It is unfortunate that not all the papers referred to in the text are included.

This is an excellent book in which one of the leading American exponents of allergy has set down the results of his extensive experience. It contains a critical and up-to-date review of the literature, and this makes it a valuable reference book. It can be whole-heartedly recommended to all interested in the subject.

R. S. BRUCE PEARSON.

BLOOD SUBSTITUTES

Blood Derivatives and Substitutes. By Charles Stanley White, M.D., Sc.D., and Jacob Joseph Weinstein, B.S., M.D. (Pp. 484; illustrated. £2 1s.) London: Baillière, Tindall and Cox.

This book gives a description of current American practice in the preparation and administration of plasma and plasma substitutes. Most aspects of the subject, both practical and theoretical, receive comprehensive treatment, and it can be said that this is a valuable work of reference to what has been and is being done in this field in the United States, written by workers with much experience of what they describe. British methods differ considerably from American ones, and the book cannot therefore be used as a routine guide in this country. The historical section is, on the other hand, refreshingly broad-minded in giving credit to the pioneers of transfusion in all countries.

There is a good account of the physiology and biochemistry of plasma, but it may be questioned whether it is needed in a book of this type. The techniques of preparation, storage, and administration of liquid and dried plasma are treated extensively and well, but with a totally unnecessary wealth of photographic illustrations, many of them simply representing labelled bottles, or even the cutting of a rubber tube with a pair of scissors. There follow chapters on plasma fractions, on by-products of plasma preparation, and a somewhat inadequate section on plasma substitutes in which little is said of the extensive work done in the past on gum saline; nor is there any reference to the important recent Swedish research on dextran. Further sections discuss human serum, blood preservation and transport, and the clinical results of plasma administration.

In a final chapter on reactions the account of homologous serum jaundice is totally inadequate. Less than a page is devoted to what is in practice, both in the United States and England, the most dangerous of all sequels to plasma administration; nor is any useful guidance given for the prevention of this complication. The mere avoidance of donors with a history of jaundice gives little protection. The recommendation regarding donors who may have run the risk of yellow fever infection is not relevant unless they have received vaccine prepared with human plasma.

The book will thus be of greater interest to those concerned with the administration of blood collection, processing, and transfusion than to clinicians.

A. E. MOURANT.

HAEMOSTATIC AGENTS

Hemostatic Agents. By Walter H. Seegers, M.S., Ph.D., and Elwood A. Sharp, M.D., Sc.D. (Pp. 131; 27 figures. $4.75 or £1 5s.) Springfield, Illinois: Charles C. Thomas. Oxford: Blackwell Scientific Publications. 1948.

This small book provides a useful review of the haemostatic agents which have been developed as a result of the study of blood coagulation and fractionation of the plasma proteins. Professor Seegers is well known for his work on the physiology of coagulation, and Dr. Sharp has been largely responsible for the development of haemostatic materials by Parke, Davis, and Company.

The first section describes the process of clotting on conventional physiological lines, although greater stress than usual is laid on fibrinolysin. The chapters discussing the practical uses of the haemostatic agents will be of greater interest to clinicians. The value of thrombin solution in the control of haemorrhage in prostatectomy and other surgical operations is reviewed, although no mention is made of its use in the arrest of haemophilic bleeding. Fibrinogen solutions have been employed for the fixation of skin grafts and for nerve suture. They have provided an ingenious method of pyelolithotomy, whereby the ureter is occluded and the renal pelvis filled, through a small incision, with fibrinogen and thrombin solutions. The resulting coagulum is withdrawn through the usual incision, and enmeshed in it are all the stones lying free in the renal pelvis. The final chapters deal with the absorbable materials which may be used as haemostatic agents, alone or in combination with thrombin. Oxidized cellulose and fibrin foam are familiar to most surgeons in this country, but gelatin sponge, which has uses similar to those of fibrin foam, is less well known.

This book is an opportune résumé of the newer methods of obtaining haemostasis. It is, moreover, a tribute to the fertile co-operation of physiologist, clinician, and manufacturing chemist.

R. BODLEY SCOTT.

ADVANCES IN PSYCHIATRY

Modern Trends in Psychological Medicine, 1948. Edited by Noel G. Harris, M.D., F.R.C.P., D.P.M. (Pp. 450; 25 figures. £2 10s., plus 1s. 6d. postage.) London: Butterworth and Co. 1948.

The editor undoubtedly had a difficult task in choosing the subjects to be covered in an account of modern trends in

psychiatry, for these are diverse and chaotic. Nevertheless, much of the interest this work will arouse will come from the fact that psychiatry has so many growing points, for the first time included in a comprehensive book.

Psychiatry is changing under our eyes, and what seems to be a dominant trend to-day may in twenty years be looked on as a blind alley, an eccentricity of our age which led nowhere. Dr. Harris says in his introduction that the most important requirement in psychological medicine is a narrowing of the gap between this and other branches of medicine. Yet an exactly opposite view could equally well be taken. Fissiparous tendencies get stronger rather than weaker with the years. The gap between psycho-analysis and the older psychiatry has widened since the days when Bleuler formulated the concept of schizophrenia, and he and his collaborator Jung used psycho-analytic ideas in the interpretation of psychotic symptoms. Psycho-analysis itself is splitting into warring camps, and the American school, which attributes the cause of psychiatric syndromes almost entirely to "sociogenetic" factors, has moved far from the position taken by Freud and still maintained by his more orthodox followers. The psychodynamic school branches and proliferates, and has now invaded industrial medicine, sociology, anthropology, and at last politics, economics, and statecraft. Reflections of these developments are found, as is proper, in this book.

In all, six chapters are given to psychosomatic medicine, the physiology of emotion, constitution, causation, electrophysiology, and physical treatment. The remaining thirteen chapters are allotted to social and psychodynamic aspects. As in all such collections of contributions from many authors, some chapters are excellent and others less meritorious, some are informative and factual and others speculative and dogmatic. The opinions voiced in some sections are in direct contradiction to those expressed in others. The reader may make his own choice. No doubt the views he adopts will be determined less by rational than by emotional considerations, but, whatever they are, if he looks diligently he will find authoritative support.

ELIOT SLATER.

COMMON SENSE ON CHILDREN

The Child: An Adult's Problem. By Anthony M. Ludovici. (Pp. 288. 10s. 6d.) London: Carroll and Nicholson.

Mr. Ludovici is a cynical and dogmatic writer who will no doubt shock many people; nevertheless there is a great deal of sound common sense in what he says. He deprecates the conventional child-worship based on Wordsworth's conception of the innocent child trailing clouds of glory. This is part of what he regards as a retreat from adulthood, seen especially in women who desire power over children, pet animals, and the poor. Adults pretend they remember the innocence of their own childhood; but the child is prevented only by his muscular weakness and incoordination from behaving in the most asocial or antisocial way. This tendency can be counteracted only by the imposition of proper discipline, which is not synonymous with punishment. Corporal punishment should never be needed if mutual love and respect between parent and child have been established from the earliest years. A spoilt child generally reflects narcissism in the mother, which is likely to be greater the older she is. In this sex-phobic society the child is venerated because he is supposed to be sexless; but to parents, and especially to fathers, he is a manifestation of their sexual potency. He is a means of achieving ascendancy, yet each parent tries to win his love. There is therefore considerable confusion in relation to the child, which may be reflected in the present confusion of the world. The elders are gradually losing the respect of the child and dominance over him, and this is responsible for much delinquency. The proper way to train the child is discussed, and there is a sensible final chapter on sex education. This is a provocative and well-written book which should prove of interest to a large circle of readers, and certainly to the medical profession.

R. G. GORDON.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

Tuberculosis Reference Statistical Yearbook, 1947. (No price.) New York: New York Tuberculosis and Health Association. 1948.

Illustrations of Surgical Treatment. By E. L. Farquharson M.D., F.R.C.S.Ed., F.R.C.S. 3rd ed. (Pp. 390. 25s.) Edinburgh: E. and S. Livingstone. 1949.

An Account of the Schools of Surgery: R.C.S., Dublin 1789-1948. By J. D. H. Widdess, M.A., L.R.C.P.&S.I. (Pp. 107. 17s. 6d.) Edinburgh: E. and S. Livingstone. 1949.

Understanding Ourselves. By M. Macaulay. (Pp. 148. 7s. 6d.) London: Routledge and Kegan Paul. 1949.

Trial of James Camb. Edited by G. Clark. (Pp. 255 15s.) London: William Hodge. 1949.

Poliomyelitis. Papers and discussions presented at the First International Poliomyelitis Conference. (Pp. 360. 30s.) London: J. B. Lippincott. 1949.

Fundamentals of Internal Medicine. By W. M. Yater, A.B., M.D., M.S., F.A.C.P. 3rd ed. (Pp. 1,451. $12.) New York: Appleton-Century-Crofts. 1949.

Manual for Laboratory Work in Mammalian Physiology. By F. E. D'Amour and F. R. Blood. (Pp. 50. 15s.) London: Cambridge University Press. 1948.

Estreptomicina y Meningitis Tuberculosa en la Infancia. By J. M. S. Ginabreda and A. E. M. de Larramendi. (Pp. 135. No price.) Barcelona: Byp. 1949.

Lehrbuch der Haut- und Geschlechts-Krankheiten. By G. A. Rost. 2nd ed. (Pp. 162. M. 12.) Berlin: Springer. 1948.

Medicina Psicosomatica. By E. Weiss and O. S. English. (Pp. 699. No price.) Buenos Aires: Lopez and Etchegoyen. 1949.

Répercussions sur L'Enfant des Maladies Infectieuses de la Mère Pendant la Grossesse. By F. Bamatter. (Pp. 60. 7.50 Swiss francs.) New York and Basle: S. Karger. 1949.

La Vectocardiographie. By P. W. Duchosal and R. Sulzer. (Pp. 172. 25 Swiss francs.) New York and Basle: S. Karger. 1949.

Notfallchirurgie. By A. Ritter. 2nd ed. (Pp. 514. M. 46.) Stuttgart: Ferdinand Enke. 1949.

Annales Instituti Obstetricii et Gynecologici. Edited by M. Rauramo. Vol. 23. (No price.) Helsinki: Mercatorin Kirkjapaino. 1949.

Le Stilboestrol. By E. Daubresse and others. (Pp. 181. 140 francs.) Paris: Masson. 1948.

Röntgendiagnostik des Herzens und der Grossen Gefässe. By E. Zdansky. 2nd ed. (Pp. 434. 93s.) Vienna: Springer. 1949.

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HYPNOSIS IN TREATMENT

The position of hypnotism in medical practice is ambiguous: only a small minority of doctors take an interest in it, or make any practical use of it, and the majority of their colleagues are sceptical of the value of the results obtained. Owing to public displays of hypnotism on the music-hall stage, the atmosphere that gathers about the hypnotist, even the medical hypnotist, does not provide the sort of climate in which most medical practitioners feel at home. The practice of hypnotism is ancient. Priests of all religions have at times employed it to produce apparently occult effects. It was introduced to medicine by Franz Anton Mesmer, a physician who practised in Vienna 150 years ago, and Mesmer himself is said to have learnt the technique from a Catholic priest who used it to exorcise devils. Mesmer applied the method to the cure of patients and, discarding any notion of divine intervention, tried to explain his results by the theory of a "magnetic fluid" which was supposed to flow from the hypnotist into his subject. Disease was due to an abnormality in the flow of the magnetic fluid, and could be cured by correcting its flow. Finding medical scepticism and resistance in Vienna, Mesmer moved to Paris, only to meet the same fate there. His spectacular successes and a technique which was not lacking in some charlatanry caused ill feeling in his colleagues, and a commission adjudged him a fraud.

Mesmer died in obscurity, but his practices found other adherents, and since then a series of honest and respectable medical men and psychologists have developed the technique of hypnotism, simplified theoretical explanations, and added to our knowledge of its physiological nature. Better known among these names are those of Forel and Moll on the Continent, of Braid and Bramwell, and, in recent years, of Brown and McDougall in this country. Surgical operations under hypnotic anaesthesia are first known to have been performed in France in 1821. Isolated instances of the use of hypnotism for this purpose have been reported in the medical and general press ever since. A field in which it is said to be particularly valuable, and which has attracted some recent notice, is the reduction or abolition of the pain of childbirth. One of the greatest difficulties in the practice of hypnotism is the unreliability and unpredictability of its effects: it is likely that the mother in the early stages of labour is in a more than usually suggestible state, and so is an exceptionally good subject for hypnotism.

The principal use of hypnotism has been for the relief and cure of neurotic, especially hysterical, symptoms. Hypnotic and hysterical states are closely allied, and both depend largely on suggestion and on a mechanism, which is not fully understood, of functional dissociation in the central nervous system. Effects can be produced both by hypnotism and in the course of hysterical illnesses which are beyond the capacity of the organism in ordinary circumstances. Estabrooks,[1] for instance, has reported that with the same electrical apparatus and methods of securing contact normal subjects found 15 volts painful and 20 volts unbearable, while 120 volts were taken without flinching under hypnotic anaesthesia. The cataleptic and paretic phenomena which can be induced by hypnotism also seem to be beyond serious question. Rather more doubtful are the claims which have been made that under hypnotism a direct suggestion can alter the rate of the heart or cause local dilatation or constriction of blood vessels, or that the central nervous system can be made more efficient by the production of a so-called hyperaesthesia or hypermnesia. Even with its admitted possibilities it is clear that hypnotism could be of service in the treatment of hysterical anaesthesias, pareses, spastic conditions, and amnesias, and that it might prove of value in the treatment of such single symptoms as headache, insomnia, tics, stammer, or enuresis.

The value of hypnotherapy is increased by the possibility of post-hypnotic suggestion. After waking from the hypnotic trance the subject has no recollection of the suggestion which the hypnotist has given him until it arises in his mind, apparently *de novo*, at the stated time or occasion. This is very frequently used in stage displays, and then often has a most unconvincing quality. At the appropriate signal the subject does indeed carry out the hypnotist's command, but, it appears to the observer, only by his own consent. The stage subject has himself a desire to make a good "show" and is no doubt prepared to co-operate in performing at the right time any action which is not too ridiculous or humiliating. The value of post-hypnotic suggestion for therapy lies almost entirely in its enabling the patient to do something which he badly wants to do but which he is ordinarily prevented from doing, and not in compelling him to do something which he does not wish to do.

There is very great variability from subject to subject in the ease with which a hypnotic state is induced, and also in the same subject from time to time. There are

[1] *Hypnotism*, 1943, New York.

also interesting differences from subject to subject in the neurological and psychological pattern which is induced. Some subjects fall at once, without any suggestion given to this effect, into a cataleptic and anaesthetic state, and others show few, if any, signs of this. Some patients, while hypnotized, seem to have a general clouding of consciousness, whereas in others there is a much greater degree of dissociation between one function which is depressed and others which are maintained in normal alertness and responsiveness. It is, however, probably true that all normal individuals, if fully co-operative, are capable of being put into a hypnotic state, and that with practice the state can be induced more and more easily and made progressively deeper.

To a certain extent, therefore, the main difficulty in the way of a more extensive use of hypnotism both for surgical anaesthesia and for psychotherapy might be overcome by greater medical interest in the subject. There is no evidence that in capable and conscientious hands hypnotism, repeated as many times as is desired, carries with it any physical or psychological danger to the patient. It is, however, most unlikely that more than a small proportion of doctors will be tempted to make any extended use of hypnotism in their practice. The technique of inducing the hypnotic state consists in telling the subject with the greatest conviction and impressiveness something that is not strictly true—for instance, that his limbs are feeling heavy, his lids droop, and he is becoming sleepy. Such things are said, and have to be said, in the hope that their saying will make them come true. Certain temperaments will find actions of this kind either antipathetic or ridiculous, and the technique cannot then be carried through with the inner certainty and self-assurance which are imperative for success.

Despite this and other limitations, however, hypnotism might well be more widely employed than it is at present, both as a harmless local anaesthetic in suitable subjects and in suitable circumstances and for the relief of psychoneurotic symptoms. Effective short cuts in psychotherapy are very urgently required. No one would now claim that psycho-analysis is the treatment of choice for more than a small minority of neurotic patients: the time it requires is a very practical difficulty. Nevertheless there is a large amount of neurotic illness which is not as yet effectively treated but is of its nature capable of treatment. For some of these sufferers hypnotism might offer substantial relief. Above all it seems desirable that hypnotism should be investigated more thoroughly along neurophysiological lines. The systematically applied interest of trained and critical minds might do much to clear up present obscurities, remove unfavourable impressions, and increase understanding of higher cortical activity in the brain.

TREATMENT OF PULMONARY STENOSIS

The surgical treatment of congenital heart disease has proved to be one of the most spectacular of recent therapeutic advances. It is only 10 years since Gross[1] first successfully ligated a patent ductus arteriosus, and the passing of this landmark led to attacks on the problems of coarctation of the aorta and pulmonary stenosis. In the latter condition the object of surgery must be to increase the oxygen saturation of the blood, which fails as a result of the stenosis to be fully exposed to the oxygen in the lungs. The "blue" blood from the right ventricle passes in part through the defect in the interventricular septum into the overriding aorta, thence into the systemic circulation. Experimental work in which the subclavian artery was used to make an artificial channel in coarctation of the aorta pointed the way to the successful treatment of the "blue baby." If some of the systemic blood could be deflected by an artificial "ductus arteriosus" into the pulmonary artery then oxygenation would be improved and some amelioration of the general condition might be expected. Eventually Blalock and Taussig[2] devised a brilliantly successful operation: this was the anastomosis of a systemic vessel, usually the subclavian, with the corresponding pulmonary artery. It has fully justified its conception, for it has provided relief for many patients suffering from a most distressing and hitherto incurable disability.

The technical skill and experience required for this form of surgery are apt to overshadow the careful work of investigation that must be carried out when assessing the suitability of patients for operation. To obtain successful results closely integrated team-work is necessary, and, in addition to the surgeon and anaesthetist, physicians, radiologists, and physiologists all have an important part to play. The recent publications in this country by Campbell,[3] by Baker, Brock, Campbell, and Suzman,[4] and by Rink, Helliwell, and Hutton[5] describe the problems which must be faced by those who undertake the surgical treatment of congenital heart disease, but clearly the results amply justify the risks taken. In the opening pages of this issue Mr. R. C. Brock makes another important contribution to the literature on the subject. In discussing the surgery of pulmonary stenosis he gives instances of the enormously increased capacity for exercise in children who have had operative treatment. Out of the first 50 patients operated on in Guy's Hospital two-thirds were benefited to an extent that was regarded as "almost perfect." This more than offsets a mortality of 14% and a similar proportion of indifferent results.

[1] Gross, R. E., and Hubbard, J. P., *J. Amer. med. Ass.*, 1939, **112**, 729.
[2] Ibid., 1945, **128**, 189.
[3] *Guy's Hosp. Rep.*, 1948, **97**, 1.
[4] *Brit. Heart J.*, 1949, **11**, 170.
[5] *Guy's Hosp. Rep.*, 1948, **97**, 48.
[6] *Surg. Gynec. Obstet.*, 1948, **87**, 385.
[7] *British Medical Journal*, 1948, **1**, 1121.
[8] *Lancet*, 1948, **1**, 988.

Blalock[6] has published a much larger series (610 cases) and reports a slightly higher death rate (17%); in three-quarters of his cases the results were described as excellent. If surgery required any further justification it would be given in Campbell's observations that only one in two "blue babies" will survive to their seventh year and that less than one in 10 will reach the age of 21.[3]

There are many technical problems in this branch of surgery. The standard Blalock operation has now been frequently described, but individual surgeons have modified the procedure in certain respects. Brock now prefers a left postero-lateral approach, for it has the advantage of permitting full exposure of the pericardium, and it allows a choice of a subclavian-pulmonary or pulmonary-aortic (Pott's operation) anastomosis. Stenosis of the pulmonary valves themselves has been recognized, and deliberate division of the valvular obstruction has been successfully carried out by Brock,[7] who reported three cases in this *Journal* last year, and by Holmes Sellors.[8] This has required an intracardiac approach, and Brock has now developed the operation further by punching out or dilating the narrowed channel in selected cases of infundibular stenosis. This method of establishing a more normal circulation may prove to have advantages over the "artificial ductus." The surgery of pulmonary stenosis is now well established, for the immediate results are more satisfactory than anyone with knowledge of the condition could reasonably have hoped for, but time will decide whether the full benefits of either type of operation can be maintained indefinitely as the growth of the patients progresses.

DIPHTHERIA IN SCOTLAND

The advantages of the co-operative form of inquiry are many, among them being the fact that investigations by several teams of workers permit the most to be made of what might individually have formed a relatively useless experience. In recent years the Infectious Diseases Subcommittee of the Scientific Advisory Committee of the Department of Health for Scotland has produced two reports on cerebrospinal fever, and in a third it has accumulated statistics on the behaviour of diphtheria in Scotland during 1942.[1] Such analyses are to be encouraged, for, despite the great changes that have occurred in the severity and mortality of infectious diseases in the last 20 years, readers still have to depend too often upon the descriptions of the disease enshrined in such canons as Ker's earlier editions.

A total of 4,272 cases—about 46% of all those admitted to hospital with diphtheria in Scotland during 1942—came under review, and the first point to be noted is that despite the high prevalence (70%) of gravis infections the mortality was less than 3%; even in the youngest age groups (0–4 years) the mortality was only 6%. The type of organism was certainly important, for in gravis infections the fatality rate was 4%, whereas the rates for intermedius and mitis infections were 0.8% and 1.5% respectively. The low incidence of toxic complications and the infrequency of extensive membrane formation were also indications of the comparative mildness of the disease. Nerve palsies occurred in 4% and circulatory complications in a further 7% of the patients. The former figure is indeed surprisingly small, though it could be argued that in young patients mild degrees of palatal and ocular paralysis might escape attention. Nevertheless, the rate in children under 10 years was twice that in the older patients. The fatality rate in patients who developed circulatory complications was 22%, and in patients with nerve palsies only the rate was 4%. The acquisition of some basic capacity to withstand diphtheria as age advanced was shown by the steady reduction in toxic complications in each succeeding age group; in fact, over 70% of the affected patients were under the age of 10 years.

Membrane was confined to the tonsils in nearly 75% of the cases, and the fatality rate in this group was 1%—a result in accordance with experience, for such cases are not usually severe. When membrane extended to the pharynx the rate increased to 13%. Further analysis of the data collected about the site of infection brought to light two interesting facts. In the first place the gravis types produced the highest proportion of pharyngeal cases—a surprising result, since it conflicts with McLeod's[2] suggestion that membrane formation is greatest in mitis infections. But perhaps of greater interest was the differential increase in mortality produced by the different types when membrane extended beyond the tonsils. In pharyngeal infections with intermedius and mitis organisms the mortality was 26 times greater than in the relatively innocuous tonsillar infections. On the other hand, with the gravis organism the mortality of pharyngeal infections was nine times that of tonsillar infections. Thus the tonsils were much less able to resist toxin when the gravis organism was present. When infections with the gravis type extended beyond the tonsils the fatality rate was 17%.

In the second part of the report the course of the disease in inoculated and uninoculated patients is compared. In 1942 diphtheria immunization had only recently become a matter of national importance, and the number of patients who had been inoculated was only one-quarter of the total, the majority of them being children of or below school age. With the disease taking a comparatively mild form, it might have been expected

[1] *Diphtheria*. Report by the Infectious Diseases Subcommittee of the Scientific Advisory Committee, Department of Health for Scotland, 1948. H.M.S.O.
[2] McLeod, J. W., Orr, J. W., and Woodcock, H. E. de C., *J. Path. Bact.*, 1939, 48, 99.

that the benefit of immunization would not be very obvious; neyertheless, the inoculated patient fared better in every way. Perhaps the most noticeable effect was the reduction of the fatality rate in patients with toxic complications from 27% to 9%. The occurrence of such complications was of course less frequent in the inoculated group, and yet the incidence of gravis infections was actually higher, especially among the younger children.

Public health workers will be glad to have further evidence of the efficacy of diphtheria immunization; but they may think that the great merit of this report is the authentic information given about the character of an infectious disease at a particular time. If the Scottish Committee is searching for fresh work it might well undertake to supply similar information on the behaviour of other infectious diseases.

THE MANAGEMENT OF INTRACTABLE PAIN

While the commoner analgesics generally control pain in acute illnesses, their use in more chronic conditions often presents many obvious disadvantages, chief of which is the development of tolerance and addiction. In the treatment of such disorders as inoperable malignant disease, causalgia, painful amputation stumps, and crippling arthritis it is natural that attempts should have been made to provide relief by surgical interruption of nerve pathways, and operations such as neurectomy, sympathectomy, procaine nerve-block, and chordotomy have all had some success in the past. In a proportion of patients treated surgically, pain is apt to return after a variable interval, either because pain impulses utilize alternative pathways or because the operation itself established new foci of irritation in the central nervous system.[1] Following Rowbotham's[2] treatment of facial pain by intramedullary tractotomy, Crawford[3] has used this operation to control persistent pain in other conditions, chiefly inoperable cancer. In a series of 11 cases there were three deaths, two of which occurred in the only patients subjected to the bilateral operation. The chief limitations of this method are that the operation is a severe one, demanding highly skilled neurosurgery, and it must be bilateral to provide relief in many cases—e.g., visceral growths. For the present, therefore, this operation will probably be confined to those cases of severe intractable pain in which more conservative methods have proved inadequate.

Approaching the problem in another way, Freeman and Watts[4] have found that prefrontal lobotomy helps these patients. They emphasize that pain is essentially a psychosomatic phenomenon—a sensory perception which, signalling a threat to the safety of the organism, produces profound and distressing psychic reactions. While the actual threshold of perception for pain impulses is fairly constant in all normal people,[5] this psychic reaction varies widely with individual make-up. Prefrontal lobotomy leaves pain pathways intact, so that pain perception remains. The normal physical reactions to pain, such as pupillary dilatation, elevation of blood pressure, pallor, and sweating—responses mediated through the sympathetic nervous system—still occur, as may be demonstrated by the muscle-ischaemia test performed on patients who have been subjected to lobotomy.[6] But the operation largely abolishes foresight, concern for the future, preoccupation with self, and the dreadful anxieties which so often accompany severe pain. The patient continues to feel his original pain, but that pain is no longer of greater significance than the appreciation of any other sensory stimulus. The emotional colouring which makes pain so distressing is eliminated, and with it the patient's fear of the future consequences of his disease. The operation had the same effect on incapacitated depressive psychotic patients who complained of pain out of all proportion to the somatic disorders present, examples of what Freeman and Watts call "psychalgia."

Though the technique of the operation is relatively simple, frontal lobotomy causes profound temperamental changes, some of which are socially undesirable. This treatment, therefore, must be recommended with caution, unless the patients are definitely psychotic, such as those in Freeman and Watts's second group.[7] However, the effects of prolonged pain for which no radical relief is possible and the anxieties inseparable from incurable disease are in themselves almost certainly more destructive than the effects of this admittedly imperfect operation. More widespread trial of the method is therefore justified, particularly in patients suffering from inoperable cancer.

Elsewhere in this issue Dr. E. B. Strauss again stresses that all pain is, eventually, a psychic event and an emotional experience. Psychogenic pain—that is, pain which continues in the absence of organic disease—is often an important factor in the persistence of an unstable psychic equilibrium. Its removal by psychotherapy may therefore precipitate the development of a previously latent psychosis in which the guilt factor is prominent. In the same way pain persisting after its original cause has apparently been cured may conceal an already established drug addiction. The diagnosis of psychogenic pain should not be loosely employed, for it is dangerous unless all possibility of organic disease has been carefully eliminated. Prolonged pain from any cause can lead to the development of psychic changes and increased susceptibility to all painful stimuli: resistance is diminished by suffering. In such cases good response to suggestion and innocuous injections may appear to confirm the diagnosis of psychogenic pain, whereas such behaviour really indicates that the pain has a somatic origin. Paradoxically, as Strauss mentions, organic rather than psychogenic pain is the more amenable to psychotherapy, particularly to hypnosis. Salter[8] maintains that hypnotic and post-hypnotic phenomena are conditioned reflexes. If this view is confirmed there is no reason why an individual should not be trained to provide the appropriate stimulus himself. Thus by autohypnosis any sensory perception, including that of pain, could be abolished at will. These are novel concepts, but they are worth considering, for the relief of suffering without the disadvantages of mutilating surgery or disintegration of the personality would be a true conquest of pain.

[1] Bingham, J. A. W., *British Medical Journal*, 1948, 2, 334.
[2] Ibid., 1938, 2, 1073.
[3] *Arch. Surg., Chicago*, 1947, 55, 523.
[4] *Ann. intern. Med.*, 1948, 28, 747.
[5] Hardy, J. D., Wolff, H. G., and Goodell, H., *Proc. Ass. Res. nerv. ment. Dis.*, 1943, 23, 1.
[6] Craig, J. Donaldson. Personal communication.
[7] Ström-Olsen, R., and Tow, P. M., *Lancet*, 1949, 1, 87.
[8] *What is Hypnosis?* 1944, New York.

FAMILIAL HEPATIC CIRRHOSIS

In 1903[1] Parkes Weber described two cases of hepatic cirrhosis in the same family, and since then many examples of familial cirrhosis have been reported.[2-4] In most instances the disease affected siblings born of healthy parents. Débré[5] recognized three clinical variants of the disease, the first being characterized by ascites, the second by biliary cirrhosis and jaundice, and the third by splenomegaly and portal hypertension. The third type, in which the clinical course resembles that of Banti's syndrome, is sometimes referred to as "familial anicteric anascitic cirrhosis." Elsewhere in this issue Dr. A. M. Nussey reports a family in which three of five children suffered from this disease, and he adduces convincing evidence that the cirrhosis in these cases was a manifestation of Rh isoimmunization. The father of the family was heterozygous Rh-positive and the mother Rh-negative. The eldest child, who was Rh-negative, and the second child, who was Rh-positive, were healthy. The remaining three children were Rh-positive, and all three had splenomegaly and repeated haematemeses. None of the patients had been jaundiced in the neonatal period.

It is conceivable that there was a fortuitous genetic link between the inheritance of the Rh factor and the liver defect in these children, but the sparing of the first Rh-positive child is much more in keeping with the natural history of haemolytic disease of the newborn. Many of the families reported before the discovery of the Rh factor showed similar freedom in the firstborn.[2-5] Moreover, it is known that Rh immunization gives rise to liver disease. Henderson[6] described diffuse hepatic cirrhosis in macerated foetuses and regarded this as being the most severe form of haemolytic disease, and later workers have confirmed that liver damage is by no means uncommon.[7-10] It has also been shown that congenital obliteration of the bile ducts[11] and hepato-splenomegaly in childhood[12] may develop after haemolytic disease of the newborn. It seems probable, therefore, that familial anicteric cirrhosis may well prove to be a manifestation of Rh incompatibility. This discovery may help to separate cases of non-familial congestive splenomegaly from the mixture of entities labelled Banti's syndrome.

ANTHRAX AND AUREOMYCIN

The potentialities of the newer antibiotics are now being rapidly explored. We have recently published a report by Drs. J. F. L. Walley and T. V. Cooper[13] of a case of undulant fever treated by chloramphenicol ("chloromycetin") and an account of the treatment of urethritis with "aureomycin" by Drs. R. R. Willcox and G. M. Findlay.[14]

In this issue of the *Journal* Professor J. C. Cruickshank describes work which indicates that aureomycin does not control experimental melioidosis. In Mexico, Ruiz Sanchez and his colleagues[15] have brought forward evidence to show that anthrax can be readily controlled by the oral administration of aureomycin. Tests *in vitro* on six strains of anthrax bacilli show that aureomycin inhibits the growth of the anthrax bacillus in concentrations of 5 μg. per ml. Penicillin *in vitro* is more active, for the inhibitory concentration is 0.02 μg. per ml.; that of streptomycin is 0.5 μg. and of chloromycetin 50 μg. In doses of 10 mg. per kg. of body weight aureomycin protected guinea-pigs from a fatal infection by anthrax. In two human patients suffering from malignant pustule good results were obtained. The doses used were 100 mg. per kg. of body weight by mouth for 3½ to 5 days, followed by 50 mg. per kg. of body weight for a further two days. The administration of aureomycin was followed by a rapid improvement in the clinical condition and a prompt fall in temperature. Anthrax bacilli could not be isolated from the lesions three and four days after the beginning of aureomycin treatment.

LUPUS ERYTHEMATOSUS

Acute lupus erythematosus was first described by Kaposi[1] in 1872, and for twenty or thirty years thereafter it was regarded as a primary dermatological condition, the accompanying general symptoms being put down to the toxic effects of severe skin involvement. Morbid anatomical definition of the disease was difficult, since necropsy findings were very variable, but Libman and Sacks[2] made the valuable discovery of an unusual form of endocarditis characterized by flat pinkish vegetations occurring at the base of the valves, usually beneath the posterior cusp of the mitral valve. Small necrotic foci are found in the myocardium, but it is difficult to assess the severity of the cardiac condition during life because of the many symptoms. In a recent review Humphreys[3] has suggested that electrocardiographic studies are useful, though the results may be confusing if a pericardial effusion is present. In 1935 Baehr, Klemperer, and Schifrin[4] demonstrated widespread lesions of blood vessels and serous surfaces, particularly degenerating and necrotic lesions associated with thrombosis and haemorrhage. They noted a glomerular change in the kidney, with a peculiar hyaline thickening of the basement membrane known as the "wire loop" lesion. In all areas of the body there are changes in the collagenous portions of fibrous tissue, but the exact nature of these is undetermined. Klemperer[5] believes that they are an important feature of the disease.

Widespread connective tissue changes occur in generalized scleroderma, rheumatic fever, and periarteritis nodosa, as well as in lupus erythematosus. This suggests the possibility of a common cause, but the evidence in favour of

1 *Edinb. med. J.*, 1903, **14**, 114.
2 Byrom Bramwell, *Clinical Studies*, 1910, **8**, 347.
3 Langmead, F., *Proc. R. Soc. Med.*, 1934, **27**, 939.
4 Bateman, D., ibid., 1934, **27**, 1327.
5 Ibid., 1939, **32**, 1173.
6 *Arch. Dis. Childh.*, 1942, **17**, 49.
7 Baar, H. S., *Brit. med. Bull.*, 1946, **4**, 178.
8 Wiener, A. S., *Amer. J. Dis. Child.*, 1946, **71**, 14.
9 Cappell, D. F., *Glasg. med. J.*, 1944, **142**, 125.
10 Parsons, L., *Lancet*, 1947, **1**, 815.
11 Skelton, M. O., and Tovey, G. H., *British Medical Journal*, 1945, **2**, 914.
12 Drummond, R. J., and Watkins, A.G., ibid., 1946, **1**, 984.
13 *British Medical Journal*, 1949, **2**, 265.
14 Ibid., 1949, **2**, 257.
15 *Medicina*, 1949, **29**, 211.

1 *Arch. Derm. Syph., Wien*, 1872, **4**, 36.
2 *Arch. intern. Med.*, 1924, **33**, 701.
3 *Ann. intern. Med.*, 1949, **23**, 12.
4 *Trans. Ass. Amer. Phys.*, 1935, **50**, 139.
5 *Ann. intern. Med.*, 1948, **23**, 1.
6 *Arch. Derm. Syph., Chicago*, 1933, **23**, 765.
7 Wu, T. T., *Virchows Arch.*, 1937, **300**, 373.
8 *Arch. Path.*, 1926, **1**, 1.

such a theory is slender. Bacteriological examination of many tissues before and after death has not revealed any organism as the immediate cause of the disease, and the suggestion that it was tuberculous in origin—seriously considered over many years—was finally disproved by Keil[6] in 1933. Some authors have considered hypersensitivity to bacteria or bacterial products as a probable cause. The fibrinoid collagen changes so frequently found in lupus erythematosus are held to be evidence for this theory, but such changes have long been known to occur in bacterial infections, in inflammations due to chemical and physical irritation, in compensated hypertension, and even as a result of simple trauma such as squeezing the skin.[7] Fibrinoid collagen alteration cannot therefore be regarded solely as an expression of hypersensitivity.

Another microscopic change which is a feature of both lupus erythematosus and generalized sclerodermia is an alteration in the homogeneous ground substance, which is composed of a variety of mucoproteins. This change may prove to be a guide to the cause of the disease. It is known that the colloidal state of the ground substance is affected by hyaluronidase and that various female sex hormones seem to exert an opposite effect. Wolbach and Howe[8] have studied the action of ascorbic acid on the ground substance and its relation to collagen fibrin formation. But such evidence as there is about the cause of lupus erythematosus is fragmentary and obscure; there is ample scope for further investigation.

RESECTION IN PULMONARY TUBERCULOSIS

During the past few years pulmonary resections have been successfully carried out in an increasing number of cases of tuberculosis, and it is now agreed that such operations have a restricted but important place in the treatment of this disease. The concept of excision is not new; Macewen[1] removed a tuberculous lung in 1895, the patient being alive and well forty years later, but only sporadic cases were reported until those of Jones and Dolley[2] in 1939. Since then several papers on the subject have been published, chiefly in the American literature, a recent example being a review of 39 cases by Clagett and Seybold.[3] These authors carried out 14 lobectomies and 15 pneumonectomies; four patients have died and five have active tuberculosis, but 19 are apparently well. In most of these cases the follow-up period has been short, but it has been as long as four years in some. No other effective treatment was available for the majority of the patients. More recently Holmes Sellors and Hickey[4] in this country have described their results in a series of 78 patients, of whom 11 died. They performed pneumonectomy in 33 cases and lobectomy in 45. Follow-up histories are not available, but there is no evidence of further tuberculous infection in the surviving patients.

There are two groups of cases in which resection is indicated. The first are those in which collapse therapy has failed. Examples in the series of Clagett and Seybold include a patient with a thick-walled cavity in the upper lobe persisting in spite of a satisfactory artificial pneumothorax, and a patient with a dorsal cavity in the lower lobe not responding to pneumoperitoneum and phrenic crush: for both of these a lobectomy was found adequate. In another patient the sputum remained persistently positive in spite of an adequate revised thoracoplasty; there was no tracheobronchial ulceration, disease in the opposite lung, or recognizable cavitation, and a pneumonectomy was performed.

The second group consists of those cases in which experience has shown that collapse therapy is unlikely to succeed. The dangers of pneumothorax with its attendant atelectasis in cases with bronchial stenosis are well known, and this relatively unusual manifestation is perhaps the most widely accepted indication for resection; it was present in 13 patients in this series. Cases of tuberculoma, of tuberculous bronchiectasis, and of associated carcinoma are included in the series, but in such conditions the diagnosis of tuberculosis can usually be made only on the results of histological or bacteriological examination of the excised specimen, and the operation is performed either as an exploration or without knowledge of the accompanying tuberculous infection. In cases with giant cavities, large tension cavities, much destruction of lung tissue, or repeated severe haemoptyses, excision is a desperate resort often giving gratifying results. None of the cases in this series were in children, but before growth is complete resection may occasionally be the operation of choice, since thoracoplasty leads to such severe deformity. The indications accepted by Holmes Sellors and Hickey are very similar.

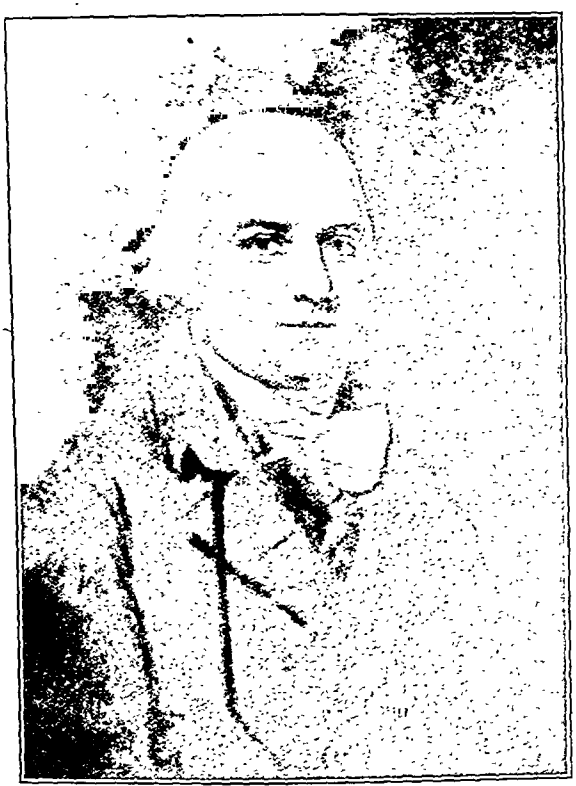
Complications are frequent. As after any pulmonary resection, a broncho-pleural fistula is serious. Ulceration of the bronchial stump commonly occurs, with a positive sputum as a result, but it usually responds to treatment with local silver nitrate or systemic streptomycin. More important, and indeed the greatest drawback to this method of treatment, is spread of disease to remaining lung tissue or reactivation of quiescent tuberculosis. This may occur either early, immediately after operation, or several months later. In recent cases streptomycin has been used as a prophylactic and has given encouraging results, but it seems unlikely that it will greatly diminish the incidence of late spread, especially as resistant strains of bacilli develop after prolonged treatment. In this connexion the figures of Bailey[5] are remarkable: only one patient out of 100 given streptomycin developed contralateral spread. It seems likely that one of the most valuable uses for streptomycin will be as a cover for surgical treatment: its property of reducing the complications of resection should be particularly welcome.

The Queen has graciously consented to accept the Honorary Fellowship of the Royal College of Obstetricians and Gynaecologists, of which she is the Patron, and has intimated that she will attend the College in the autumn to be formally admitted. Her Majesty has sent a donation of £1,000 to the appeal which is being made by the College for funds urgently needed to meet the financial demands of its ever-widening activities.

[1] *British Medical Journal*, 1906, 2, 1.
[2] *J. thorac. Surg.*, 1939, 8, 351.
[3] *Proc. Mayo Clin.*, 1948, 23, 81.
[4] *Thorax*, 1949, 4, 82.
[5] Quoted by H. Morriston Davies in *Thorax*, 1948, 3, 211.

ROBERT WILLAN, DERMATOLOGIST

The London County Council has affixed to No. 10, Bloomsbury Square, now part of a hotel, a tablet commemorating the residence there of Dr. Robert Willan (1752–1812), physician and dermatologist. Dr. Willan, who was a native of Yorkshire, was educated at Sedbergh Grammar School and received his medical training in Edinburgh. After some practice in Darlington, during which he wrote a treatise on the sulphurous waters of Croft and Harrogate, he came to London and was appointed physician to the public dispensary in Carey Street, Lincoln's Inn, on its establishment in 1783. He held this appointment



The portrait of Dr. Robert Willan is reproduced from *British Masters of Medicine*, edited by the late Sir D'Arcy Power, by kind permission of the publishers, *The Medical Press*.

for twenty years, after which he was made consulting physician and life governor.

Willan was the first physician in this country to classify the diseases of the skin in a clear and intelligible manner and to place their nomenclature on a satisfactory basis. His classification gained him the Fothergillian medal of the Medical Society of London in 1790. In 1791 he began a series of monthly reports on the weather and prevailing diseases of the metropolis, continuing this for several years. His great work, however—and one of lasting value—was his *Description and Treatment of Cutaneous Diseases*, the first part of which was published in 1798, and the last, posthumously, in 1814.

Willan lived in Bloomsbury Square, then the abode of nobility and fashion, until 1810, when symptoms of pulmonary tuberculosis and dropsy developed and he went to Madeira, where he died in March, 1812. In the *Gentleman's Magazine* for that year he is described as "one of the best and noblest of human kind, possessed of every virtue that can ennoble or adorn. . . . In his profession he was beloved almost beyond example. . . . He possessed almost every intellectual attainment that can be comprised within the finite compass of the human mind."

INTERNATIONAL VETERINARY CONGRESS

ANIMAL DISEASES COMMUNICABLE TO MAN

An International Veterinary Congress was held in London during the second week in August under the presidency of Sir DANIEL CABOT, formerly Chief Veterinary Officer of the Ministry of Agriculture. Delegates from 53 countries attended, and the discussions covered the whole field of animal health, including the control of bovine tuberculosis, foot-and-mouth disease, vaccination, virus diseases of cattle and horses, nutritional factors, veterinary surgery, and animal husbandry in relation to public health. The addresses included one by Lord BOYD-ORR on the world food situation. He declared that modern agricultural and engineering science could double world food production in less than twenty-five years, provided governments would co-operate in a world plan. Loss in human food due to preventable animal diseases probably ran to millions of tons a year. The veterinary profession, which had here a great opportunity, needed a strong international organization on the lines of the World Health Organization through which governments could co-operate in the elimination of preventable diseases on a world scale.

Diseases of Household Animals

One of the sessions, which was shared with the National Veterinary Medical Association, discussed diseases of household animals communicable to man. Dr. J. WINSSER, of Leiden, said that tuberculosis of dogs and cats was rather frequent in the Netherlands, and every animal suffering from this disease was a potential danger to human health. Large dogs were more susceptible, not on account of breed but because of the likelihood of under-nutrition. Among cats Siamese were most susceptible. Infections with the human type of tubercle bacillus predominated in dogs, whereas in cats infections of this type were rare. Both dogs and cats might spread enormous numbers of bacilli by coughing, by their faeces and urine, and by the secretion products of skin ulcers. Therefore it was important that members of the veterinary profession should diagnose the disease as early as possible and get the owner's consent to the destruction of the animal.

Leptospirosis was an important disease in man and dogs in the Netherlands. He mentioned in particular *L. canicola* infections. During the last fifteen years 49 human cases of this infection had been recognized at the Institute for Tropical Hygiene, Amsterdam, and of these six (including one fatal case) showed jaundice. Salmonella infections occurred frequently in dogs, less so in cats. The infected dog during disease and convalescence was a transient carrier, spreading salmonella organisms by means of faeces and urine, and every strain of salmonella was a potential danger to human health. In Sweden two workers had isolated salmonella organisms from the faeces of seven members of a family suffering from gastro-enteritis and from the blood of the family dog. Streptococcosis was a not uncommon infection in dogs and cats both in England and in Holland. There was strong evidence that milk-borne "sore throat" epidemics in man were caused by the *streptococci* residing in the cow's udder.

Among parasitic skin diseases he mentioned microsporum infections (*M. canis*), more common in cats than in dogs, and communicable to man. Dr. Winsser had observed a stubborn infection among Persian cats, from which some adult persons had contracted the disease. Tricophytia was not a rare disease in dogs.

A condition frequently met with food animals as well as in dogs was echinococcosis. The disease was contracted not only by direct contact between animal and man but by contamination of market produce with dogs' faeces. The worm eggs were resistant and might remain fertile for at least a year. Meat inspection regulations had diminished the prevalence of the disease, and there was a continuous decrease in the number of cases in the Netherlands.

In some discussion on this paper Mr. H. W. SMITH, formerly of the London School of Hygiene and Tropical Medicine, mentioned that in 500 specimens of canine faeces salmonella

organisms were isolated from 1%, and from 1.4% of a similar number of samples of feline faeces. Household animals should always be considered as possible sources of outbreaks of salmonella infection, and the practice of leaving cats in shops where there was uncovered food was strongly to be deprecated. Mr. L. K. WHITTEN, of New Zealand, mentioned the serious problem of hydatid disease in that country, both in man and in animals. In a population of 1¾ millions about 100 human cases were seen every year. Some 12% of these were fatal. A campaign had been started to spread knowledge of the cause and control of the disease.

Dr. MARGRIT SCHEITHLIN (Zurich) referred to the prevalence in Switzerland of microsporum infections derived from small animals. Dr. JOAN JOSHUA said that, while transmissibility of disease from animals to man was certainly established, the danger should not be exaggerated. Tuberculosis in small animals in this country was decreasing with the increase in the pasteurization of milk. Leptospirosis had a public health significance, as had salmonellosis, but it was a common experience of practitioners dealing with small animals to be told that children had contracted "worms" from a cat or dog and that the animal must be destroyed, whereas it was often entirely free from parasites. Ringworm contracted from a cat, particularly a blue Persian, was always a possibility. Dr. OLGA UVAROV said that during the last fifteen years she had encountered six cases of sarcophytic mange in women and one in a child as a result of handling dogs, and had also come across one case of ringworm transmitted by an animal.

Tapeworm Infestation

Dr. JOH PETERS (Rotterdam) said that during the invasion of his country the German soldiers often brought with them dogs from the eastern parts of Europe, and these animals frequently harboured tapeworms which contaminated Dutch livestock. The clandestine slaughter on the black market fostered the spread of the parasites. This had now been cleared up, but in man the results of this heavy infestation from dogs could not yet be assessed.

Dr. R. F. MONTGOMERIE, closing the discussion, said that he wondered whether the title of it might not be turned round so they could consider diseases of man communicable to animals. The glass shields at the Zoological Gardens were not designed to protect visitors from animal infection, but to protect the animals from the visitors.

The same subject of transmissibility figured in other papers at the Congress. A Californian delegate, Mr. W. R. HINSHAW, spoke of ways in which the veterinary surgeon could assist in reducing human as well as animal loss from salmonellosis. Those engaged in small animal practice should devote some time to studying this group of diseases as possible sources of illness in cats and dogs, both to reduce loss from salmonellosis in the animals and to prevent human cases by transmission from carriers. Dr. J. N. RITCHIE, of Edinburgh, discussed tuberculosis in cattle from the public-health aspect. In 1948 the number of cattle in tubercle-free herds in Great Britain was 1,704,000 and the amount of milk sold from such herds was 354 million gallons, as compared with 141.6 million gallons five years ago. In another paper Mr. F. BLAKEMAN discussed the relation between human and porcine influenza. He said that the possibility of an exchange of viruses between pigs and the human population must be seriously considered. "Hog flu" was first recognized as an entity at the time of the 1918 pandemic of human influenza. Neutralizing antibodies to the pig virus were later demonstrated in human beings, and the possibility of a relationship between the two conditions must not be lightly dismissed.

Political questions were not in order at the Congress or the N.V.M.A. meeting which followed it, but one session of the latter was devoted to the organization of veterinary practice. Emphatic and uncontested views were expressed against the nationalization of the profession. One speaker declared that that would be the direst calamity that could befall them. He was certain that there were other ways of developing a service which would retain professional freedom and yet enable the practitioners to fulfil their obligations to the utmost.

MORTALITY TRENDS IN THE WAR YEARS

REGISTRAR-GENERAL'S STATISTICAL REVIEW

Two volumes from the Registrar-General's office complete the medical statistical review of the war years. One of them is the medical text for the six years 1940–5 and the other the medical tables for 1944[1] (the tables for 1945–7 have already been published). The period covered by the first volume corresponds, except for a few months at each end, with the period of the war. The time was an abnormal one from a statistical viewpoint, owing to evacuation and other movements of population, to the continued call-up of males, and later of females, and, at the close, to demobilization.

All of the deaths, except some 57,000, were of civilians. Enemy attack accounted for 23,268 deaths in 1940 and nearly as many in 1941, but after that the number was comparatively small, except for 9,000 deaths in 1944 due to long-range projectiles.

One result of the war was the alteration of the sex ratio in the mortality rate. The ratio of male to female mortality has been rising for a hundred years. A century ago it was 109; it rose steadily to 134 in 1939, but the increase was greatly accelerated during the war years. The continued call-up of young fit males and the subsequent discharge of the unfit meant a lowering of the physical standard of certain groups of the male civilian community. This was reflected in a higher mortality as compared with other groups and with females. Thus, if the female mortality be taken as 100, the male mortality for ages 20–25 approached 200.

The standardized (as opposed to the crude) death rate fell from 9.8 per 1,000 living in 1938 to 9.0 in 1945 in the case of males, and from 7.4 to 6.4 in the case of females. The number of people who were over 65 when the war began was 897 per 10,000 at all ages, and when the war ended the number had risen to 1,146. During the war 111 male and 528 female centenarians died. Three of the females were reputedly 108, and a male (who died in Greater London in 1941) was 112.

The war had little effect on diseases of the heart. Deaths from acute and subacute bacterial endocarditis averaged 1,016 annually during the five years before the war and 868 during the war years. The deaths due to rheumatic fever in the four years immediately before the war showed an annual average of 1,000; during the war this figure fell to 638.

Among other wartime effects is to be noted the sharp decline in deaths from alcoholism. Deaths attributed to alcoholism, or to disease said to be due to alcoholism, were 144 in 1940. In the last year of the war they numbered only 26, and deaths to which alcoholism was a contributory cause fell during the same period from 286 to 105. Suicides also declined—a familiar tendency in wartime.

Maternity and Child Welfare

The reduction in the number of deaths from causes connected with pregnancy and child-bearing continued uninterruptedly throughout the war. A remark is made on age as affecting maternal risk. At ages under 25 the risk of death from a complication of childbirth or the puerperium is one in a thousand; by 35 it has reached two in a thousand, and by 40 three. The pronounced improvement in infant mortality which occurred in 1942 was confined to two distinct age periods, the first week and the second half of the first year. Measles, scarlet fever, and whooping-cough had low death rates during the war years. The number of deaths from diphtheria, which in 1935–9 averaged nearly 3,000 annually, fell progressively during the six years of war from 2,480 to 722. It is mentioned that to the immunized child aged 1–5 the risk of dying from diphtheria is less than one-thirtieth of the risk to the non-immunized, and at ages 5–15 the risk is one twenty-fourth.

Acute poliomyelitis and polio-encephalitis notifications continued evenly during the war years. There was no epidemic year such as immediately preceded and immediately followed the war.

[1] *The Registrar-General's Statistical Review of England and Wales for the Six Years 1940–5.* Text, Vol. I, Medical. 6s. 6d. net. *The Registrar-General's Statistical Review of England and Wales for the Year 1944.* Tables. Part I. Medical. 5s. 6d. net. London: H.M. Stationery Office. 1949.

It is pointed out that from 1926 to 1943 there was a progressive change in the age distribution of deaths from this disease. An increasing proportion occurred amongst adults and a diminishing proportion amongst young children. This change was intensified in 1944–5, when only 17% of the deaths were of children under 10, compared with 57% in 1926–30, and the proportion at ages over 25 rose to nearly one-half.

In connexion with the deaths of children, it is startling to note the large proportion due to violence, most obviously road accidents (deaths from war operations are excluded from these figures). For children between 5 and 10 during the war years the rate of deaths from road accidents was something like 250 per million living in the case of boys and 120 in the case of girls. In the medical tables the number of deaths of children up to 15 caused by motor vehicles in 1944 is given as 1,133, slightly less than the number of deaths from scarlet fever, whooping-cough, and diphtheria combined. Nearly one-third of the pedestrians killed on the roads were children under 10. In 1945 violence accounted for more deaths of boys of 10–15 than any other cause. Among girls of the same age, violence, which was fourth in frequency as a cause of death before the war, took second place and was exceeded by tuberculosis.

Death Certification

Much is said in the review about defects in certification of causes of death. In one year something like 14,000 inquiries had to be sent out to medical practitioners to clarify the cause of death for the purpose of statistical classification. Improvement of quality, says the compiler of the review, is to be sought first in accuracy of diagnosis by improving the diagnostic services during life and by performing necropsy more frequently in doubtful cases after death. An important cause of error is the omission from the certificate of the real cause of death because its appearance might be unpleasant or inconvenient to relatives. This problem will have to be tackled boldly if real statistics of syphilis and diseases of syphilitic origin are to be secured. Deaths from syphilis have declined progressively from 1938, when they numbered 3,463, to 1945, by which year they had fallen to 2,395. Deaths under or associated with anaesthesia during the six years numbered 4,775, but it is impossible from the certificate to distinguish between deaths due to the operation and deaths caused by the anaesthetic itself.

Defects in certification of causes of death by coroners are also mentioned, especially failure to state whether a fatal accident occurred in a house, a public building, or out of doors, so that the compilation of the number of accidents in the home has to be based on assumptions and conjectures.

BRITISH PHARMACOPOEIA COMMISSION

APPROVED NAMES

In order to avoid the difficulties which arise from the multiplication of names for the same medicinal substance, the General Medical Council has adopted the practice of recognizing as approved names certain non-proprietary names which may be used freely by manufacturers. The approved names are devised or selected in the first instance by the British Pharmacopoeia Commission, and should any of the drugs to which these are applied be eventually described in the *British Pharmacopoeia* the approved name would be its official title. On the other hand, the recognition of an approved name does not imply that the substance will necessarily be included in the *British Pharmacopoeia*.

The Pharmacopoeia Commission is prepared to consider requests from manufacturers and others for approved names for products which appear likely to come into established use. Such requests should be accompanied by reports of pharmacological and clinical investigations on the drug concerned and suggestions for a suitable name, having regard to the need to avoid similarity with existing trade marks and other current names. In the selection of an approved name the Nomenclature Committee of the Commission will be prepared to consult with authorized representatives of the manufacturer concerned, but the final decision will rest with the Pharmacopoeia Commission. If a manufacturer should desire to issue under a proprietary name a drug for which an approved name has been provided, it is strongly recommended that the label shall bear the approved name in letters as conspicuous as those in which the proprietary name is printed or written.

The following general principles are stated for guidance in devising new names: (1) Names should preferably be free from any anatomical, physiological, pathological, or therapeutic suggestion. (2) An attempt should first be made to form a name by a combination of syllables from the scientific chemical name, in such a way as to indicate the significant groupings of the compound. (3) Names should not exceed four syllables. (4) Names should be distinctive in sound and spelling, and should not be liable to confusion with names already in use. (5) Names which are difficult to pronounce or to remember should be avoided. (6) The addition of a terminal capital letter or number should be avoided. (7) Names used in the *United States Pharmacopoeia*, the *British Pharmaceutical Codex*, or in *New and Non-Official Remedies* should receive preferential consideration. (8) The following terminations should be used: -ine (Latin -ina) for alkaloids and organic bases; -in (Latin -inum) for glycosides, glycerides, and neutral principles; -ol for alcohols and phenols (-OH group); -al for aldehydes; -one for ketones and other substances containing the CO group; -barbitone or -itone for drugs of the barbiturate group; -caine or -aine for local analgesics.

Communications relating to approved names should be addressed to the Secretary, British Pharmacopoeia Commission, 44, Hallam Street, London, W.1.

Reports of Societies

ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION

MENTAL HOSPITAL ORGANIZATION

Delivering the Presidential Address to the Royal Medico-Psychological Association at York on July 20, Dr. J. IVISON RUSSELL said that whereas the extramural psychiatric services were at one time sadly neglected, and they quite rightly used every endeavour to increase out-patient clinics, psychiatric units, and early-treatment and neurosis centres, there was a possibility that the pendulum might swing too far and that these facilities might be regarded by regional boards as all-sufficient in a scheme of preventive psychiatry.

The task of fitting psychiatry into a regional hospital service would not be quite satisfactory until a pattern of key hospitals and their relationship with associated extramural centres were clearly defined. Was it possible to create in every management area a base hospital that would embrace all aspects and serve as the main centre of a group of treatment units for all types of psychiatric disorder? Could the mental hospital be that base? And, if so, would its present form require to be modified? He believed that could be done if the workers in this field strove individually and collectively to that goal.

How should they plan the mental hospital of the future? If they followed the pattern of general medicine they would have relatively small hospitals to provide curative treatment, and larger infirmaries for the care of long-stay cases. By a process of screening at out-patient clinics and diagnostic units patients would be selected for admission to the hospital appropriate to the nature of the case. But in such a scheme there must always be a last resort to deal with the failures, and some were a little concerned lest this final resting-place might be called the mental hospital.

The modern trend was to evaluate both the physician and the hospital in terms of production and according to the industrial potential of the patient. With that yard-stick psychiatry might sometimes seem to give short measure. It was all the more important that they should guard against an uneven distribution of experienced clinicians which might divert them from the long-stay in-patients.

Aged Patients

At present they had all got in mind the need for special hospital accommodation for aged patients. Some of these old people should not have to be sent to mental hospitals. A more simple type of hospital with good nursing would be adequate and ought to be made available.

While they could not accept the view that the senile patient did not suffer from any psychiatric malady, they would agree that the mental hospital might well hand over its habitual practice of providing large senile infirmaries. Their association would keenly co-operate in any effort to provide alternative care and comfort for the aged.

Group of Units

The mental hospital proper should not be an isolated institution but an extensive group of widely dispersed units, of which the nuclear centre or headquarters hospital would deal with the reception, treatment, and, if necessary, the prolonged treatment of all types of acute and difficult cases, regardless of duration. It would supply the medical and nursing staff for all the subsidiary units and out-patient clinics. Suitable cases would be treated by the same specialists in the psychiatric departments of the general hospitals and at neurosis centres, but these would not be used as screening centres for the main hospital.

Remote from the headquarters hospital, and situated in rural surroundings, relatively small resettlement homes would accommodate those who no longer required active treatment. Some of them would gradually become dispersed in the surrounding villages when the community learned the value of their labour and knew that the hospital would be ready to deal immediately with any difficulty that might arise. On this pattern, and with adequate geriatric units and mental deficiency colonies providing independently for their respective cases, the problem of overcrowding in mental hospitals would be solved, and here and there some ancient blocks could be demolished.

"Royal College of Psychiatry"

Proposing the toast of "The Royal Medico-Psychological Association" at the annual dinner held on the same day, the Sheriff of York, Councillor A. S. Rymer, hoped that the association would endeavour to awaken public interest in the progress that had been made in recent years in the treatment of mental illness and make it known that it was no different from physical illness. In reply, the president said the association looked back with satisfaction on its work of training nurses. The first certificate was awarded in 1890, and since that time more than 54,000 had been issued. In some years there had been as many as 4,000 entries for the examination. This activity would soon be terminated, and it would then be possible to concentrate on the postgraduate training of medical officers. He hoped that the new D.P.M. might some day have a Royal College of Psychiatry behind it, and perhaps, in a future not far distant, students would be taking systematic courses of study at a University of York.

SOCIETY OF BRITISH NEUROLOGICAL SURGEONS

The Society of British Neurological Surgeons held its 40th meeting in London on July 22 and 23 under the presidency of Professor Lambert Rogers. The delegates included representatives of the United States, South Africa, Australia, and several European countries. Dr. Ernest Sachs, of St. Louis, was made an honorary member of the Society.

Discussions were held at the National Hospital, Queen Square, and at University College Hospital Medical School, and included a consideration of the neurophysiological studies of the Research Unit under Dr. Carmichael at the National Hospital. Dr. PAUL BUCY, of Chicago, spoke on the surgical treatment of involuntary movement. He said that Parkinson's disease was incurable by operation and the most that could be hoped for was the abolition or diminution of tremor. His own experience and that of almost all United States neurosurgeons had shown that involuntary movements could not be stopped without excising the motor area, which naturally produced profound weakness or paralysis of the affected limb. Dr. KRYNAUW, of Johannesburg, gave an interesting account of his experiences of removing the damaged hemisphere in hemiplegic epileptic children.

At the Society's dinner Dr. ERNEST SACHS gave his reminiscences of Sir Victor Horsley, under whom he had studied neurosurgery, and Dr. FRANCES GRANT, of Philadelphia, spoke about the organization and present trends of neurosurgery in the United States.

Preparations and Appliances

METHOD OF GIVING "V.A.M."

Dr. C. G. BLAKELEY, specialist anaesthetist, Royal Halifax Infirmary and Halifax General Hospital, writes: For nearly three years I have employed "V.A.M." (1 vol. divinyl ether and 3 vols. ethyl ether) in the Coxeter–Mushin apparatus by the convenient method illustrated in the accompanying photograph. The apparatus consists of an ether container from the



Walton Mk. 2, from which the large glass bottle has been removed and replaced by a Boyle apparatus chloroform bottle, thus allowing freedom of movement for the handle of the concertina bag when plugged into the respiratory side of the apparatus. The gas passages are of adequate bore, and clinical experience as well as experiment upon myself give no evidence of embarrassment to the respiration. The virtues of V.A.M. may find a wider application if this simple method is more generally known.

To stimulate public interest in nursing as a profession a mobile nursing exhibition is touring Northern Ireland from Aug. 15 to Sept. 10. The exhibition was opened in Belfast on Aug. 15 by the Parliamentary Secretary to the Ministry of Health and Local Government. It includes photographs illustrating all branches of nursing and midwifery, a small model operating theatre, a display of nursing decorations, nurses' badges, medals, etc., models of nurses' uniforms, and a panorama of nursing through the ages.

Correspondence

Broncho-pulmonary Segments

SIR,—Credit has been rightly given to Drs. J. Hardie-Neil and W. Gilmour, of Auckland, in your annotation (Aug. 6, p. 326) for their valuable contributions to lung anatomy. But it is a matter for some surprise that excellence in one aspect of their work should be marred by the simple *naïveté* of their approach when they embark on comparative anatomy.

In their article (Aug. 6, p. 309) they refer to the results of some dissections published by them in 1946. In themselves the data have some value, but they are wholly inadequate to sustain the conclusions they deem so "obvious" in respect of the homologies of the various bronchi. They examined lungs of only 11 species of mammals, and these belong to five different orders and three different subclasses or infraclasses. No argument is offered as to whether they may be considered generalized representatives of their orders, save their reference to the platypus as "one of the earliest mammals" with an "upper lobe closely resembling that of the human." One of the animals is merely identified as "a monkey," regardless of the fifty-odd modern genera and more numerous species of "monkey" with their very diverse grades of organization.

Now a proper utilization of the comparative anatomical approach demands some attempt to determine the course of phylogenetic modification in the various orders and smaller groups. When some account can be given of the probable course of evolution of lung structure within the orders of primates and artiodactyla respectively we shall be in a better position to judge whether the authors are correct in finding "obvious homologues of the apicals" (of man) in certain minor bronchi of the black buck, or in identifying as an "anterior" bronchus and as "apicals" (using the terms in the human sense) certain bronchi in the dog (in many respects a highly specialized member of the order carnivora). So far as the primates are concerned the authors could have widened the basis for their argument by integrating their findings with those of Narath,[1] who has provided beautiful figures of the bronchial tree and pulmonary vessels in a considerable number of animals. Their claim that "branches"—i.e., bronchi—may fuse is in effect a claim that recognizable primordia in the embryo do indeed coalesce. This is a phenomenon which yet remains to be demonstrated; and it appears to be improbable unless in very early phases of development, since cartilage blocks are laid down at the keels where bronchi join before the human embryo is 2 in. (5 cm.) long.



Human embryo, 20 mm. C.R., transverse section. This shows lateral and medial bronchi of (right) middle lobe, which is separated by the oblique fissure from the apical segment of the lower lobe; and the lingular bronchi of the left lung. Mesenchyme demarcates broncho-pulmonary segments. Reproduced by kind permission of Professor W. J. Hamilton.

A misleading statement regarding development requires comment. The authors state that "a broncho-pulmonary segment . . . is surrounded by connective tissue derived from the visceral pleura." Now "visceral pleura" is generally understood to refer to the covering of the lung which is derived from the coelomic mesothelium of the embryo together with a thin layer of adjacent loose connective tissue which is derived from the splanchnopleur. A lung bud consists in its earliest stage of three layers of tissue: (1) pulmonary epithelium; (2) splanchnopleuric mesenchyme; and (3) coelomic mesothelium. Of these the mesenchyme has long been recognized as the source of the "connective tissue" of the lung, and there is no evidence of its derivation from the visceral pleura.

The general course of subsequent changes is also well known. Substantial quantities of mesenchyme persist for a considerable time between the major bronchi and their derivatives; thus the broncho-pulmonary segments are demarcated from one another even more clearly than in the adult. At this time the mesothelium of the visceral pleura forms a well-defined layer, and it intervenes between segments only where fissures are developing. These fissures very early assume patterns similar to those found in adult lungs, and there is no evidence that secondary closure of fissures takes place on a large scale (though postnatal adhesion of the cardiac lobe is a possible exception).—I am, etc.,

Institute of Animal Physiology, Agricultural Research Council. ARTHUR B. APPLETON.

REFERENCE

1 *Der Bronchialbaum der Säugethiere und des Menschen*, 1901, Stuttgart.

Treatment of Rodent Ulcer

SIR,—As one who in common with many other dermatologists in Australia sees and treats in any one year more than double the number of basal-cell carcinomata quoted by Sir Cecil Wakeley and Mr. Peter Childs (April 30, p. 737) as having been seen in 35 years, I would like to make the following comments on their paper.

1. No conclusions of proved value can be made from the treatment of such a small number of cases (237).

2. The writers classify basal-cell carcinomata into three main types, whereas here in Sydney we recognize nine different clinical types. But possibly, from the small numbers quoted, they have not encountered some of these types.

3. The choice of therapy in general does not lie between irradiation and excision. With the exception of lesions on the back of the hand or dorsum of the foot the choice of treatment for the great majority of small lesions (where the treated area does not have a diameter greater than 5 cm.) is a combination of the cautery, curette, and *x* radiation (with a half-value layer of from 1 to 2 mm. of aluminium); this gives by far the best cosmetic results. This is obvious when it is considered that only the actual lesion is destroyed and removed with the cautery and curette and not the wider area necessary if the cautery alone or even surgery were used. Also, only 1,800 r of *x* rays are delivered to the base and 1 cm. wide of the visible or palpable margin instead of from 2,500 r upwards if *x* rays alone were used.

4. From the cosmetic point of view the results obtainable by surgery do not even begin to compare with those obtainable by irradiation in the treatment of lesions on the eyelids, nose, or ears. I have yet to see the plastic surgery which can, on the average, re-create a completely normal-looking ear, nose, or eyelid after surgical excision of a relatively large area. When a basal-cell carcinoma involves the cartilage of the ear or nose a very much more normal-looking organ with regard to shape and contour can be left after treatment with radiation.

5. The "attendant disadvantages" are considerably less with irradiation than with surgery in the treatment of large areas (as also with small areas), particularly in regard to cosmetic effect, economy (loss of time and money by the patient through being hospitalized), and pain and discomfort at the time of treatment.

6. I wonder if Sir Cecil Wakeley and Mr. Peter Childs would still say that "surgical excision is the method of choice for the deeper basal-cell carcinomata" if they saw, as we frequently do, patients with from one to two dozen or more lesions on the face alone.

7. The average patient, particularly if elderly, will almost invariably prefer removal of a lesion with irradiation in preference to surgery because of the natural aversion to "the knife" inherent in most people. For this and many other reasons the term "condemned to radiation" would be very appropriately replaced by "condemned to surgery."

8. I agree that the amenities for surgery, etc., are more generally available than adequate radiation facilities, but this fact is to be deplored rather than used as an argument for recommending surgery for all basal-cell carcinomata.

9. Irradiation is also "directed to the area involved and no more." Owing to the inverse square law and radiation quality employed very little radiation need go much deeper than a treated lesion, and not all or the main bulk of it as is inferred by Sir Cecil Wakeley.

10. I have seen a far greater proportion of recurrences after surgery than correctly applied irradiation, not only in Australia but in Great Britain and the U.S.A. Also I would be more than interested to know how "the extent of the excision" or area to be treated is more readily gauged with surgery than irradiation.

11. Sir Cecil Wakeley states that "the extent of a growth may not be appreciated without surgical excision." How can any man or his knife appreciate, see, or find every individual cancer cell and its distance from the clinically visible and palpable margin of any tumour? In point of fact an inadequate area is far less likely to be irradiated than excised, and the cosmetic result is generally far superior with irradiation.

12. The majority of small lesions can be treated with one dose of *x* rays in a matter of ten to fifteen minutes with no pain or even discomfort. Compare this with a local anaesthetic, the inherent distaste for the knife in almost every individual, and the presence of sutures which have to be removed later, and I think the issue of mental trauma needs no further comment. For larger and deeper lesions patients should be admitted to hospital if they receive surgical treatment, whereas they can be treated as out-patients by fractionated *x* radiation. Here again I would ask which method would occasion the most mental trauma.

—I am, etc.,

Sydney. JOHN C. BELISARIO.

Portal Hypertension

SIR,—In an annotation (July 30, p. 273) you quote Dr. R. R. Linton's operative mortality for spleno-rectal anastomosis in patients with hepatic cirrhosis as 71% (*Surg. Gynec. Obstet.*, 1948, 87, 129). He kindly sent us his figures up to the end of 1948, which I quoted at the recent B.M.A. meeting at Harrogate. As they have improved very considerably since the publication you quote, I give them hereunder in tabular form.

Condition	No. of Cases	Deaths	Mortality
Cirrhosis	21	7	33⅓%
Portal obstruction (extra-hepatic) ..	14	0	0%
Total	35	7	20%

During 1948 Linton operated on 20 patients with two deaths. I can testify that both these had very advanced hepatic failure.

May I raise one more point? The deficient coagulation of the blood is usually attributed to the introduction of sodium citrate. I do not know the evidence for this. We do know that many of these patients are deficient in prothrombin, and also that stored blood is deficient in this factor. As the prothrombin cannot be corrected in the presence of advanced hepatic disease, it would seem wise to use freshly drawn blood still potent in prothrombin when large transfusions may be needed. I believe therefore that the absence of the prothrombin is at least as important as the presence of citrate in the blood.—I am, etc.,

London, E.1. J. E. RICHARDSON.

Stress Incontinence in the Female

SIR,—Since the appearance of the article by Mr. Wilfred Shaw on the treatment of stress incontinence (June 18, p. 1070) I have watched your columns carefully for adverse comment. That none has appeared may be because I am alone in believing that this condition can be cured by less formidable procedures than that described. With all the respect due to an accepted authority I suggest that Mr. Wilfred Shaw's operation is unnecessarily formidable both for patient and surgeon, although I am prepared to accept the opinion of those who have tried it that it is less so than it sounds. An operation is not to be rejected because it is difficult, but it should not be adopted unless it has been shown that simpler, safer procedures fail. Mr. Shaw produces no evidence that this has been done, nor in fact could he or anyone else do so, as there are several operations too recent in origin for any opinion yet to be given as to their efficacy.

No one who has followed up cases treated only by vaginal plastic operations doubts that some are never cured and many recur, but excellent results have been obtained by the Aldridge type of operation and also by the simpler retropubic fascial grafting procedures described by Millin and by Marshall. For the comparatively short time in which I have been practising it I have had no failures and no recurrences with the 20-minute bladder-neck fixation operation of Everard Williams. I shall regard this as the operation of choice if these results continue. In the meantime I use a suburethral fascial graft, except in those cases where dense adhesion of the urethra to the vaginal wall makes attempted separation dangerous, when the graft is jettisoned and the Everard Williams operation carried out.

Mr. Wilfred Shaw's note on the selection of cases is brief. If prolapse has been successfully treated by colporrhaphy but incontinence remains, an operation of the type under discussion is indicated. If the result as regards the prolapse is not good a further attempt by anterior colporrhaphy often cures the incontinence also. One of the newer operations is indicated as a primary procedure in cases of stress incontinence without generalized prolapse, always assuming, of course, that neurological cause has been excluded.—I am, etc.,

Manchester. WALTER CALVERT.

Stress Incontinence in Disseminated Sclerosis

SIR,—In April, 1949, I was asked to see a patient aged 54 with disseminated sclerosis. In addition, probably as part of the disease, there was urinary stress incontinence which was getting worse. This was brought on by any effort, especially by coughing and sneezing. However, the patient stated she rarely passed a night without a wet bed, the bladder emptying itself during sleep. Her husband was very keen to have something done for her; he pointed out that as long as he lived she would be all right, but she was now becoming older and if he died before her it might be difficult to find someone willing and able to look after a patient with her great disabilities.

She had been under treatment for her disseminated sclerosis at intervals for the past 33 years. In 1938 or 1939 she was examined by a surgeon and told nothing could be done, and was fitted with a special apparatus to hold the urine. This proved useless, however. Earlier in 1949 a ring pessary was fitted, and she had also been given six weeks' electrical physiotherapy to the lower abdomen in the hope this would stimulate control, but neither treatment produced any improvement.

On examination, she was found to have a slight cystocele which was accentuated by coughing. Her pelvis appeared otherwise normal. On May 2 an Aldridge-type sling operation was performed without difficulty. The self-retaining catheter was kept in until the eleventh day after operation. After its removal there was rather more difficulty with micturition than usual after this operation. Frequent passage of a catheter caused a certain amount of infection, which responded to treatment. Filling of her bladder caused acute discomfort, no doubt partly due to the many years during which her incontinence prevented any bladder distension. At the end of one month, however, she had complete control. A severe cold and cough six weeks after operation caused a recurrence of frequency and bladder discomfort, but her incontinence remained controlled and, as she said, proved to her and her husband that she really was cured.

This case is reported so early after the operation because of the apparently very satisfactory result obtained by the treatment of this one disability in a patient with this distressing nerve disease.—I am, etc.,

Bristol. M. F. POTTER.

Spermatolysis

SIR,—Dr. Cafer Yildiran (April 2, p. 575) reports the occurrence of lysis of spermatozoa in the semen of five out of 75 men he examined. Spermatolysis resulting in disappearance of all spermatozoa from the ejaculate was described as occurring after two hours in two cases, after five hours in one, and after six hours in the remaining two cases. The fluid obtained by prostatic massage in two of these cases caused lysis of spermatozoa in normal control specimens. It is suggested that spermatolysis may be a cause of male sterility.

A series of 314 successive seminal specimens submitted to the Family Planning Association laboratory for routine analysis were examined for this feature. Twenty-two of these were "repeat" tests—i.e., the ejaculate of 292 men was examined. As Dr. Yildiran suggests that the factor causing spermatolysis might also be the cause of other seminal abnormalities, special attention was directed to a group of specimens showing oligozoospermia and other gross defects.

The quality of specimens in this series was as follows: group 1, total azoospermia, 24 cases; group 2, oligozoospermia

(under five million/ml.), 37 cases; group 3, subfertile and border-line, 187 cases; group 4, normally fertile, 44 cases. The age of specimens was as follows: group 1, six specimens produced at laboratory and inspected immediately, six specimens less than 1 hour old, and 12 specimens 1–2 hours old; group 2, 13 specimens produced at laboratory, and 24 specimens 1–2 hours old; groups 3 and 4, 61 specimens produced at laboratory, and 170 specimens 1–2 hours old. These specimens were kept under observation from the time received for periods of 6–24 hours. Specimens showing total azoospermia were mixed with part of others containing spermatozoa and kept under similar observation.

No spermatolysis was observed in any of the above 292 cases. In view of this finding, and in view of the fact that we cannot recall seeing a case suggesting spermatolysis in more than 5,000 previous semen analyses, we conclude that if spermatolysis occurs in this country it must be very uncommon. However, spermatolysis might be a phenomenon confined to other racial or climatic conditions, and it would be of great interest to hear whether Dr. Yildiran's findings have been confirmed elsewhere.—I am, etc.,

London, S.W.1 H. A. DAVIDSON.

B.C.G.

SIR,—Dr. W. Norman Taylor (April 30, p. 778) asks, "What are the facts?" And then, after discussing the significance of a positive reaction to the Mantoux test, concludes that by analogy with other diseases we can suspect that it may indicate resistance but that we can be by no means certain as yet.

Is not the case for B.C.G. much stronger than Dr. Taylor's letter implies? Heimbeck[1] was the first to show that healthy tuberculin-positive young adults were less susceptible to tuberculous disease than were those initially tuberculin-negative. Both Heimbeck[2] and Ferguson[3] have significantly lowered the incidence of clinical tuberculosis in tuberculin-negative nurses as compared with unvaccinated controls. In Ferguson's series there was actually less disease among the vaccinated than among those initially Mantoux-positive (those who "have been tried in the fire and not found wanting," according to Dr. Taylor).

Owing partly to the difficulties of conducting a perfectly controlled experiment over a period of many years in civilized communities, both these studies have been open to criticism, but on different grounds. However, Aronson's[4] study amongst 3,000 young Mantoux-negative American Indians appears conclusive to most critics. Nearly all those vaccinated became Mantoux-positive within a few weeks, and only six of them had died from tuberculosis after nearly 10 years, as against 53 of the unvaccinated controls.

It has been asked, "Could the same spectacular results be expected in civilized countries?" Studies like those of Heimbeck and Ferguson and the clinical experience of eminent Scandinavian physicians like Wallgren[5] indicate the answer. The Danes, who practise B.C.G. vaccination more extensively and thoroughly than any other people, have the lowest tuberculosis mortality in Europe (about 30, as compared with more than 50 per 100,000 in Great Britain).—I am, etc.,

Melbourne, Australia. E. A. NORTH.

REFERENCES

1 *Tubercle*, 1936, 18, 97.
2 Ibid., 1948, 29, 84.
3 *Amer. Rev. Tuberc.*, 1946, 54, 325.
4 Ibid., 1948, 57, 96.
5 *British Medical Journal*, 1948, 1, 1126.

Treatment by H 11

SIR,—I wish to protest strongly against the grossly unfair references to H 11 made by Dr. P. H. Phipps (July 9, p. 100). Reprints of articles published in the medical press have been sent to selected members of the medical profession, and in most cases the doctors concerned already have had experience of H 11 therapy.

A case is quoted in which she states that H 11 was tried out in hospital and failed. The truth is that H 11 was first given to this case on Sept. 2, 1943, and 13 days later, on Sept. 15, was stopped. The patient died 5 days afterwards on Sept. 20. Obviously this was no trial or failure of H 11. Indeed, on Sept. 24 the assistant medical officer wrote, "As his period of survival was so short one can hardly express any opinion as to the effect of the H 11 injections."

Further, the allegation is made that these Laboratories refused personal investigations and treatment of the patient. The facts are that the necessary supplies of H 11, with instructions, were dispatched to the hospital on the same day that a telephoned request was received for a supply. The Hosa Laboratories requested further details about the patient, and the correspondence, which can be seen, demonstrates the personal and detailed interest of these Laboratories throughout the brief period under review, as well as the helpful and courteous collaboration of the medical staff of the hospital.

Lastly, although many cases of inoperable cancer have recovered under H 11 treatment, no claim or even suggestion has ever been made by these Laboratories that H 11 is as yet the cure for cancer. The only claim made is that in advanced inoperable cases with an expectation of life of over two months an inhibitory action is demonstrable in 66% of cases treated—which claim can be verified by any careful and full investigation of our records.—I am, etc.,

Hosa Research Laboratories, Sunbury-on-Thames. J. H. THOMPSON.

SIR,—I received to-day, with the compliments of the Director of Research, Hosa Research Laboratories, a reprint of an article from the *Medical World* by Dr. Gordon Ward entitled "The Truth about H 11." Among other things discussed in this article is a list of 12 cases "selected by the Hosa Laboratories . . . as the most favourable in their files."

There are apparently between 3,000 and 4,000 histories of cases treated with H 11 in the files of the Hosa Laboratories. Survivals in the 12 cases cited have been for 7, 6, 4½, 4, 3, 3, 3 years, 18, 16, 16, 13, and 13 months respectively. If all these cases are accepted as cured (and this is not claimed) the cure rate would be between 0.3 and 0.4% of cases treated, while the 5-year survival rate would be 0.05 or 0.06%. Before one can judge the value of such survivals it is essential to know whether similar survival rates exist among untreated "inoperable" cancer cases.

It is a curious feature of almost every new method of treatment for cancer that has been advocated that a few cases have given apparently successful results while the great majority show no benefit. It would be interesting to know of any cases of cancer, classified as inoperable, of unexpectedly long survival which have had no further treatment or only symptomatic treatment. In the absence of knowledge on this point it is clearly impossible to form a fair judgment as to the possible value of treatment with H 11.—I am, etc.,

Glasgow. P. R. PEACOCK.

Parotid Emphysema During Labour

SIR,—A brief report of a somewhat unusual case of parotid emphysema might be of interest.

The patient, a primipara aged 20 years, was in bed in a maternity home suffering from a mild toxaemia of pregnancy. At 11.30 p.m. on June 25 she went into labour. She did not ring for the midwife until 5 a.m. on June 26, when she was found to be fully dilated. She therefore had no sedation or analgesia. By 7 a.m. she had made no further progress and she was delivered easily by forceps following episiotomy. She had gross bilateral swelling of the parotid glands when I saw her at 7 a.m. This was subsiding in 24 hours and was clear by June 28. Associated with this swelling was marked bilateral conjunctival haemorrhages. The patient was afebrile, had had mumps previously, and there had been no possible contact during the previous four weeks. This girl must have undergone very considerable physical effort, and in the course of this air must have been forced up Stensen's ducts.

As a footnote, I met a case of self-induced parotid emphysema during the late war. A soldier, on draft for overseas, attempted to evade the issue by blowing strenuously into a gingerbeer bottle, inducing parotid swelling, and then reporting sick, complaining with considerable craft of pain in his testicles. Such an effort almost deserved to succeed.—I am, etc.,

Bournemouth. ALAN S. OGDEN.

Urea for Migraine

SIR,—Dr. Nevil Leyton (Aug. 6, p. 335) pleads for a serious attempt to treat sufferers from "*migrainous*" headaches, and mentions urea as a remedy to be tried in obstinate cases. May I go further and suggest the use of this drug as a first line of preventive treatment in every case, whether of recent origin or of long standing? It is surprising how many patients will derive considerable benefit, if not complete relief, from attacks.

The dosage advised is as follows: 20 gr. (1.3 g.) of urea in water three times a day for a week, followed by the same dose twice a day for two weeks and further treatment with a daily dose of 20 gr. for an indefinite period.—I am, etc.,

Birmingham. J. A. BROWN.

POINTS FROM LETTERS

Retained Placenta

Dr. W. D. G. TELLAM (Penzance) writes: You have published many letters on the treatment of retained placenta, but it appears to me that such an emergency need never arise—unless it is that very rare placenta accreta. In a semi-rural domiciliary practice I have found the intravenous injection of 0.25 ml. of ergometrine given as soon as the head is born and the anterior shoulder delivered, followed 30 seconds later by the delivery of the posterior shoulder, results in the delivery of the placenta immediately afterwards—leaving a firmly contracted uterus. Our breech deliveries have received a similar intravenous dose as soon as the head is born, followed 30–45 seconds later by an intact placenta and membranes. I would like to know if this treatment of the third stage has failed or has caused any complications.

New Problems of Rheumatism

Dr. THOMAS ROBERTSON (Glasgow) writes: In your leading article (July 23, p. 221) you quote Hench as stating that there are 200 arthritic and musculo-skeletal conditions called rheumatism. This raises a number of important questions. By what criteria are these differentiations made? In such a context as the above, does the word rheumatism signify anything? Apparently one can develop any of the 200 types either as a disease in the body ("soma") or in the "psyche." Dr. W. S. C. Copeman (p. 191), who now comes forward with another aetiological variety of rheumatism, provides a quasi-mechanical explanation concerned with water metabolism and fatty tissue. He suspects, probably rightly, that the hypothalamus may be at fault. But what relation exists between the hypothalamus and this mysterious "psyche"? However—to come to earth—as a physician of the baser sort I am delighted to find (1) that fibrositis no longer exists, (2) that most cases of rheumatism met with in practice cannot be either understood or adequately treated unless the patient is not only physically but psychologically examined, as Halliday pointed out in the *Journal* (1937, 1, 213 and 264), and (3) that physiotherapy frequently does more harm than good.

Psychogenic Rheumatism

Dr. I. ERNST REICHENFELD (Birmingham) writes: Drs. William Tegner, Desmond O'Neill, and Anna Kaldegg (July 23, p. 201) gave an interesting analysis of a number of those unfortunate people with vague but for them very real complaints who are familiar to the G.P. Valuable as their paper is, I found the title "Psychogenic Rheumatism" rather misleading. In my opinion the expression "rheumatism" ought to be reserved for the two conditions which are more or less well defined entities—viz., rheumatic fever and rheumatoid arthritis. If we call every painful condition for which we cannot find a cause rheumatic we follow the rather vague nomenclature of the lay public and confuse the latter even more. That a cervical rib is being called a "rheumatic complaint" obviously is an oversight.

Percussion Finger

Dr. A. NIVEN ROBERTSON (Edinburgh) writes: For thirty years of my life I was engaged continuously in the examination of chests, and therefore I was daily percussing the dorsum of the middle phalanx of the middle finger of my left hand. As a result of this constantly recurring trauma I noted a distinct smooth, low, and firm swelling had been created on the dorsum of that phalanx. The swelling was scarcely noticeable to the eye, but it was quite obvious to palpation. It had a convex surface and shaded off on to the bone at its upper and lower curved ends. It was never painful. For the last seven years I have rarely done any percussion and the swelling has to all appearances disappeared. I shall be interested to know if other percussionists have found the same thing. The swelling was obviously a fibrous hypertrophy due to constant mechanical trauma.

Obituary

SIR ALAN NEWTON, M.S., F.R.C.S., F.R.A.C.S., F.A.C.S.

On Aug. 3 Australia lost one of her most distinguished sons—a great surgeon—Sir Alan Newton.

Hibbert Alan Stephen Newton was born on April 30, 1887, and was educated at Haileybury College, Melbourne, and at the University of Melbourne. He was a brilliant student, and in his final year was placed first in a distinguished company. He was very early attracted to surgery, which was to give scope not only for his natural and acquired manual dexterity, aided by a splendid visual knowledge of anatomy, but for his sound judgment and the decisive quality which characterized all his thinking.



He qualified in 1909, and after a year as resident at the Royal Melbourne Hospital and a further period as surgical registrar he became associated with Mr. Fred Bird, who had operated on him early in his course and from whom he learnt much of the art of surgery. He took the M.S. in his own university in 1912. In 1913 he was appointed an out-patient surgeon at the Royal Melbourne Hospital. The period immediately before this appointment was spent not in acquiring further qualifications but in postgraduate study and research in England, where he came under the influence of Sir Victor Horsley and saw much of his friend, the late Dr. Gordon Clunes Mathieson, who was then working with Professor Starling at University College Hospital.

Apart from this brief absence and a longer one during the 1914–18 war, all his working life was spent in close association with the Royal Melbourne Hospital until he retired from the active staff and became an honorary consultant surgeon. During the first world war he served in France as a surgeon in the Australian Army Medical Corps. In 1919 he became a Fellow of the Royal College of Surgeons, England. Subsequently, he was elected a Fellow of the American College of Surgeons, an Honorary Fellow of the British Association of Surgery, and an Honorary Fellow of the Royal Society of Medicine.

Newton's ancestry, with many distinguished lawyers in his family tree, might have led him to the practice of law, but indeed his talents were such that he would have made a success of any profession. He was a splendid teacher—a master of lucid exposition. Always a ready speaker, for any special occasion he would carefully prepare his speech and in doing so memorize it. This gift of oratory was displayed on many occasions, notably in his Stawell Oration and in an address to his colleagues and friends at the Royal Melbourne Hospital dinner on "The Spirit of the Place."

Newton was keenly interested in the teaching of student and after his return from the first world war, in additio to his regular hospital clinics, he became a lecturer i surgery at the University of Melbourne, and at a lat stage took the chief position as Stewart Lecturer orgar izing the surgical teaching. He had a strong belief i

the importance of carefully planned clinical lectures in which people of experience could provide for the students material not readily to be obtained in textbooks. He was deeply interested not only in undergraduate but also in postgraduate teaching, and played an important part in forming the Melbourne Permanent Postgraduate Committee, whose object was to increase the facilities for postgraduate teaching in all departments of medicine and surgery. He was a Foundation member of the Royal Australasian College of Surgeons, and in its early years was Censor-in-chief and subsequently its President. His unselfish and unsparing efforts to improve the status of the surgical profession in Australia were extremely fruitful. For his work for the College he was knighted in 1936.

During the second world war Sir Alan served with the rank of colonel in the Australian Army Medical Corps, being consulting surgeon to Army Headquarters for two years. From 1940 to 1945 he was chairman of the Medical Equipment Control Committee, Department of Defence, and in this capacity he made a major contribution to the Australian war effort. He brought to bear on the problem of medical equipment and drug supplies a clear analytical mind that saw the position in its true perspective and assessed priorities in their right order. In January, 1942, the paramount importance of immediately getting more quinine out of Java was realized by the Australian military authorities, who had just arrived there. Within 24 hours of Sir Alan Newton's receiving this secret information a very large sum was made available by the Australian Government in a Dutch bank in Batavia to procure 120 tons of quinine: such was his capacity for rapid decision and prompt action and the influence he exerted at the highest level even as early as 1942. His co-operation with Army Headquarters in speeding up the manufacture of essential drugs like sulphaguanidine was of the utmost value to both the South-west Pacific and the South-east Asia Commands. Nor were his activities limited to the field of surgery. His status stood almost as high in the financial as in the surgical world. His reputation for probity, sound judgment, and business acumen, and his wide knowledge of men and affairs, made him much sought after, and he was later on the board of directors of several of the leading companies of Australia.

Be surgical technique never so great, reputation outlives the man by very little. The only immortality for physicians and surgeons lies in the extent to which they lay foundations for their students and their successors. Alan Newton followed what was best of tradition but had no patience with its "dead hand." He saw that hospitals and medical schools could be too self-contained, that it should be possible to share what was best in one with others, and that this might be reciprocal. After the second world war, despite chronic ill-health, he attempted to apply these principles to the three teaching hospitals of the Melbourne Medical School, and this remained his chief interest until the end of his life.

Alan Newton was a dynamic person. His character was solid as a rock. He never sat on a fence, and for him there were no grey shadows. His clear insight and objective approach to problems made his opinion much valued. In him imagination and vision were blended with the capacity to adapt them to practical ends. Though intolerant of stupidity or muddle-headed thinking, he had the virtue of being intensely critical of his own conclusions and was always prepared, on the rare occasions on which events showed him to be wrong, to admit his mistakes. He would never undertake anything unless he could do it well, and everything he did was superlatively well done.

He married in 1919 Mary Cicely, daughter of J. Hartley Wicksteed, of Weetwood, Headingley, Yorks, who, together with a son and a daughter, survives him.—T.P.D., N.H.F., and C.H.K.

Dr. Isaac Jones and Mr. E. T. C. Milligan write: Many to-day in this country and Australia will have a sad sense of loss with the passing of Sir Alan Newton, but there will come a greater sense of gratitude and satisfaction for the gift of such a man in our life and generation. He was a wise and warm friend, an inspiring leader, and a stirring example. He inherited, and acquired through his home training, high moral standards, the art of creative human relationships, and a strong sense of selfless duty and responsibility. He began as a leader in his academic career, and with his outstanding abilities he naturally took the lead even amongst a unique generation of leaders and talented men. He ever maintained this leadership in the wider sphere of professional and social life. This pioneering leadership gave him an air of austerity and dignity, but it was a thin veneer over an open and affectionate heart, which it was the delight of all his friends to discover. How he raised Australian surgery by his vision, example, and planning to the high place it now holds in British surgery will for ever place him among the leaders and prophets of that young country; but those of us who were trained with him and lived alongside him will ever be grateful for the man, his standards, and his inspiration and encouragement.

His main vocation in life was to help his fellow men in the inevitable hour of suffering and personal crisis. In recent years he too had to face the common ordeal of suffering and death, the ultimate test of a man's philosophy of life. In recent letters there was the unmistakable fighting note of triumph and hope, revealing that the inspiration of his whole life came from his knowledge and possession of the same spiritual resources and verities which inspired his notable ancestors.

An Australian colleague writes: By the death of Sir Alan Newton, Australia has lost one of her leading surgeons and a man who did all in his power to follow and teach in his own land what he felt to be best in British surgery. After qualifying and holding several house appointments at the Royal Melbourne Hospital he visited England and worked with Sir Victor Horsley at University College and Queen Square on shock injuries to the spinal cord, at the same time studying the advances of British surgery. When the first world war drew to a close he was one of the selected men brought to this country to do postgraduate work in addition to their Army responsibilities: he obtained his F.R.C.S. in 1919. The two periods of work in England had a great effect on Newton's future life and work, for he carried home with him an admiration for what he had seen and learnt and a determination to reproduce in his own country and hospital those things which he felt were true, honest, just, and of good report. Thus in later years he became a prime mover in establishing, and was a Foundation Fellow of, the Royal Australasian College of Surgeons, filling the positions of Censor-in-chief, Vice-president, and finally President in 1942–5. Between the wars Newton steadily built up a wide reputation as a careful and skilled surgeon and was perhaps best known for his work on goitre. As a teacher, in classroom or in ward, he was clear, accurate, and concise, and had no difficulty in holding his audience. In addition to many contributions to scientific journals he was much sought after as the speaker on special occasions. The Lister Oration on toxic goitre in 1938, and his tribute to his old teacher Sir Richard Stawell in October, 1947, will remain in the memory of

those who heard them. He said of Stawell that he was at times "perhaps a little unrestrained in his criticism . . . but nobody minded this much." The same could be said with equal truth of Newton. Honest endeavour pleased him, but he could not suffer slackness in silence. The beginning of the second world war found Australia in a dangerous position as regards medical and surgical supplies, dependent as it was on overseas shipments. Newton was appointed chairman of the Medical Equipment Control Committee and did a fine piece of work. Under his enthusiastic guidance a workshop built to make railway equipment produced surgical forceps, scissors, and the like. He was trusted by the members of his profession, and they put up cheerfully with the restrictions he imposed, for all recognized his honesty of purpose and fairness. Tall, trim, and alert, he commanded respect, but his patients and those he honoured with his friendship experienced kindness beyond the ordinary, courtesy, consideration, and good humour on all occasions. He will be sorely missed, and he leaves many cherished memories behind him in addition to admiration for his services to his country and his profession, for he was a big man in every way.

W. G. WILLOUGHBY, M.D., D.P.H.

Dr. W. G. Willoughby, Past President of the British Medical Association and formerly medical officer of health for Eastbourne, died on Aug. 13 at the age of 83.

Until William George Willoughby was introduced at the Annual Business Meeting of the British Medical Association in London in 1930 his name was little known to the medical profession outside Eastbourne. He was content with a local reputation, but that was a very high one. By the practitioners of Eastbourne, whose unanimous choice he was for the presidency of the Association, no man was more highly regarded. His election as President was something new in Association history, for he was the first whole-time medical officer of health to be its titular head. But he himself, as he said in his address at the Eastbourne Meeting in 1931, was anxious that not too much should be made of that singularity, for he thought it emphasized a cleavage which should have no real existence. Probably he would have described himself as a general practitioner as much as any of them, and equally he would have called his colleagues in general practice practitioners of preventive medicine. For him medicine was not bisected into the curative and the preventive, and it was his vision of its wholeness—a vision he had translated into administrative detail during nearly half a century—which accounted for much of his popularity among the medical profession in his area.



W. G. Willoughby was a son of Devon, but he had been for so long associated with Sussex as to be a part of its personality. He received his medical training at St. Bartholomew's (where his younger brother, the late Dr. W. M. Willoughby, M.O.H. for the City of London, followed him) and qualified in 1888. After a resident appointment at his hospital and some period of study in Vienna he became, within five years of his qualification, medical officer of health for Eastbourne, in which post he remained for forty-five years. On his retirement in 1939 he was the senior medical officer of health for any county or county borough as regards length of service. He had seen Eastbourne grow from a small place of not more than five thousand inhabited houses to a spreading resort with more than three times that number.

At the time he began his work few public health services were in existence or were in more than rudimentary form. Indeed, Eastbourne came in for a good deal of criticism just when Willoughby was getting into the saddle. This *Journal* had an acid note in 1896 that Eastbourne had rather too good a conceit of herself in respect of her sanitary conditions. It was said to be more by good luck than by intelligent management that she had escaped a visitation of smallpox that would have brought her growth to a premature end. It was also suggested that an improvement in the quality of her water supply and the purification of her sewers "might profitably engage the attention of those who have the public health of the place in their keeping." Under W. G. Willoughby's guidance Eastbourne became from the sanitary point of view one of the most progressive places in the kingdom.

The long years of service for Eastbourne were broken only by the war of 1914–18, in which, after serving in Egypt, he became malaria officer in Macedonia and eventually Acting A.D.M.S., Sanitary, to the 12th Army Corps. After the war he gradually took a more prominent place in the central affairs of his profession. He became President of the Society of Medical Officers of Health and of the Medical Officers of Schools Association, as well as of the Eastbourne Medical Society. He was called to the presidency of the British Medical Association at its ninety-ninth meeting, and in the preparations for the Centenary he took a prominent part. Some of the ceremonial of the Centenary celebrations fell to him, notably the unveiling of the tablet on the Sir Charles Hastings house during the Worcester Pilgrimage. After his presidency he continued for eight years to be a member of the Council, interesting himself in many Association concerns, but especially those which bore on public health. He was a member of the Public Health Committee for many years and chairman of the special committee which dealt with the relation of alcohol to road accidents. At the Annual Meeting at Winnipeg in 1930 he was vice-president of the Preventive Medicine Section, and at Oxford in 1936 of the Section of Medical Sociology. He had also served as chairman of his Division in 1928–9 and president of his Branch in 1929–30. He was twice an M.D., having taken the London degree in 1889 and the M.D. in State Medicine in 1894. While his main interest was in public health and in balneology it extended also to other fields—to psychology, for example, on which he contributed several articles to Tuke's *Dictionary of Psychological Medicine*.

Like other public servants whose principal work is to prevent, his achievements are not among those that leap to the eye, but they were appreciated in the place where he laboured, and by none more than his medical colleagues. They subscribed to a handsome testimonial on his retirement, on which occasion he was also presented with the freedom of the borough. In his valedictory, addressed to the mayor and corporation of Eastbourne, he said: "Without the good will of the medical profession it is not possible for the public health services of the country to be carried out satisfactorily. I am very grateful, therefore, that in Eastbourne there has been full co-operation between medical practitioners and the public health department."

Those who had the happiness to be associated with him will long remember a most kindly and modest personality.

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'PYRIDIUM' TABLETS

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JOHN PHILLIP HENRY DAVIES, of Elgin, Llanishen, near Cardiff, died suddenly on July 19, while on holiday. A member of one of the oldest and best-known medical families in South Wales, he was born in Ystrad Rhondda in 1883, the son of Dr. I. Naunton Davies, who practised there for many years and who was an outstanding public figure. Dr. Davies received his medical education at Cambridge University and St. Bartholomew's Hospital, qualifying in 1910. A year later he took the D.P.H., and in 1914 the Cambridge degree of M.B. After a term as house-physician to the London Chest Hospital he was appointed assistant medical officer of health for the Rhondda Urban District Council. In the first world war he served in the R.A.M.C. in the Second Welsh Field Ambulance with the rank of captain. After demobilization he went into general practice in Llanishen, succeeding the late Dr. Shiach there, and very soon he gained the confidence and high regard not only of his many patients but also of all his professional colleagues. Among the appointments that he held were those of medical officer to the Post Office and clinical assistant to Cardiff Royal Infirmary, while he was honorary surgeon to St. John's Ambulance Brigade and an Officer of St. John of Jerusalem. He was secretary of the Section of Pharmacology and Therapeutics at the Annual Meeting of the Association at Cardiff in 1928. In all of these offices he gave of his best. A conscientious and able practitioner, he was of a singularly simple, direct, and attractive disposition, while his temperament was remarkably equable, so that he was never ruffled or out of temper. His ethical sense was of the highest, and in this and in other aspects of his character there was much of that strict sense of duty that we associate with the "old school." No one ever had a hard word to say about "J.P.H.," as he was affectionately known. His genial personality will long be missed. He leaves a widow, one son who recently graduated in medicine from Bart's, and two daughters. The deep sympathy of a wide circle of friends and admirers is extended to them in their great bereavement.

Dr. ALFORD WILLIAM ANDERSON died at his home at Dalbeattie, Kirkcudbrightshire, on July 25 at the age of 81 after an illness of several months' duration. He graduated M.B., C.M. at Edinburgh University in 1891, and after serving as resident medical officer at Fife and Kinross Mental Hospital he took up general practice at Dalbeattie in 1894. In 1908 he proceeded M.D. For almost forty years he carried on an extensive country practice single-handed, and retired in 1935, when he was honoured by a public banquet. The welfare of his patients was always his first consideration, and his kindly manner, added to his very considerable experience and skill, was a constant comfort in this widely scattered community. From his earliest days in Dalbeattie the local volunteers claimed his attention, and he received a commission shortly after going there; he was instrumental in raising the company to full strength. In August, 1914, he was mobilized with his battalion, the 1/5 K.O.S.B., but was later transferred to the R.A.M.C., attaining the rank of lieutenant-colonel. On return to civilian duty he became an enthusiastic member of the British Legion, and was the first president of the local branch, an office he held with distinction for many years until illness supervened. It was largely due to his efforts that the Dalbeattie branch of the Legion received the gift of the allotment grounds and entrance gate. During the recent war he was Medical Examiner of Recruits and Troop Relation Officer in the area. His recreations were shooting and fishing, in which he was an expert, and his congenial company and good sportsmanship were ever an asset. He was a pioneer in motoring and one of the first in Dalbeattie to own a car. Predeceased by his wife, he leaves a family of two sons and three daughters. The profession has lost a fine representative of the old type of general practitioner, who will be much missed by all who knew him.

Professor CAMILLO WIETHE, director of the Second University Clinic for Otorhinolaryngology in Vienna, died on July 10 at the age of 60. From 1927 to 1936 he had been assistant to Professor Hajek, the well-known laryngologist, and was in private practice from 1938 to 1945, when he was appointed director of the clinic. He had contributed to the medical press on many subjects, including burns of the oesophagus, the surgery of the larynx, and allergic conditions.

Universities and Colleges

UNIVERSITY OF LONDON

The following candidates have been approved at the examinations indicated:

M.D.—*Branch I (Medicine):* G. M. Bailey, D. H. Bennett, A. C. Boyle, H. W. Bunje, N. R. Butler, J. A. Chamberlin, C. E. Dent, H. E. de Wardener, I. R. Gray, K. G. Green, T. A. Grimson, K. J. Gurling, M. Hamilton, J. N. Harris-Jones, M. F. Hart, M. S. R. Hutt, Madeline K. Keech, D. R. Laurence, G. de J. Lee, G. H. T. Lloyd, J. Marks, D. B. Morgan, F. W. Nash, F. T. Page, Diana G. Paradise, R. G. Pitman, N. Ponnampalam, T. A. J. Prankerd (*University Medal*), D. L. Rees, T. A. Richards, M. Steel, S. J. Steel, P. G. Swann, D. M. E. Thomas, N. A. Thorne, L. H. Turner, E. Waddington, R. S. Walker, J. R. Wilson, W. J.-S. Wilson. *Branch II (Pathology):* Rosemary P. Biggs (*University Medal*), F. N. Ghadially, C. L. Greenbury, R. F. Jennison, Sylvia D. Lawler (*Mark of Distinction*), W. D. Linsell, C. F. Ross, C. H. Smith, H. E. Vickers, K. W. W. H. Walton, F. Whitwell. *Branch III (Psychological Medicine):* J. H. Rey, A. Shapiro, Fede M. Shattock (*University Medal*). *Branch IV (Midwifery and Diseases of Women):* J. D. Martin, N. F. Morris, A. C. Pearson. *Branch V (Hygiene):* Doris A. Craigmile, M. T. I. Jones. *Branch VI (Tropical Medicine):* D. Lawrence.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL

The following scholarships have been awarded: *Anatomy and Physiology Scholarship,* J. S. H. Lodge (Emmanuel College, Cambridge); *Burney Yeo Bequest Scholarship,* H. T. Thomas (Jesus College, Cambridge); *Epsom College Scholarship,* Michael Dulake (Clare College, Cambridge); *Seaman Bequest Scholarship,* T. M. O. Morris (Trinity College, Cambridge).

UNIVERSITY OF MANCHESTER

William Sayle-Creer, M.Ch.Orth., F.R.C.S., has been appointed Honorary Clinical Lecturer in Orthopaedic Surgery.

The Council of the University has accepted the sum of over £200 from the subscribers to the fund raised in memory of the late Dr. William Susman, Lecturer in Morbid Anatomy and Histology from 1926–48. It is proposed to establish an annual prize in pathology, the first offer of which will be made in 1950.

UNIVERSITY OF WALES

WELSH NATIONAL SCHOOL OF MEDICINE

The Council of the Welsh National School of Medicine has appointed William Ferguson Anderson, M.D., M.R.C.P., F.R.F.P.S., to the post of Senior Assistant in the Medical Unit of the Welsh National School of Medicine. Dr. Anderson is at present Lecturer in Materia Medica and Therapeutics in the University of Glasgow and Assistant Physician at Stobhill Hospital, Glasgow.

The Services

The President of the Czechoslovak Republic has conferred the Czechoslovak Military Medal, 1st Class, upon Air Marshal Sir Harold E. Whittingham, K.C.B., K.B.E., R.A.F., retired, in recognition of valuable services rendered in connexion with the war.

A notice appeared in the *London Gazette* dated Nov. 19, 1948, and in the *Journal* of Dec. 11, 1948 (p. 1043), stating that the King of the Hellenes had conferred the decoration of Commander of the Royal Order of the Phoenix upon Captain A. M. Boyd, R.A.M.C. The name should have read Lieutenant-Colonel (temporary) Alexander Michael Boyd, R.A.M.C.

The Efficiency Decoration has been conferred upon Major (Acting Lieutenant-Colonel) C. K. Sconce and Major J. M. Lees, R.A.M.C., T.A.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended July 30. [No. 30

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949					1948 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	27	4	13	2	3	40	2	17	4	—
Deaths		—	—				—	—		
Diphtheria	98	8	21	4	5	125	15	28	18	5
Deaths	—	—	—	—	—	2	—	—	—	—
Dysentery	94	10	40	2	—	77	24	35	—	—
Deaths*				—	—				—	—
Encephalitis lethargica, acute	—	—	—	1	—	2	—	2	—	—
Deaths		1								
Erysipelas			14	6	—			33	6	—
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				102					18	
Deaths	25	1	3	5	1	40	2	2	3	1
Measles*	4,266	303	63	145	85	8,211	457	59	87	59
Deaths†			—	1	—			—	—	1
Ophthalmia neonatorum	47	4	2	—	2	54	4	10	1	—
Deaths										
Paratyphoid fever	50	—	10 (B)	3 (B)	—	35	1	2 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	263	14	—	5	—	355	23	2	3	1
Deaths (from influenza)‡	2	—	—	—	—	4	1	1	—	—
Pneumonia, primary			94	20				93	29	
Deaths	103	18		5	11	195	31		10	6
Polio-encephalitis, acute	22	4				1	—			
Deaths										
Poliomyelitis, acute	147	16	15	—	—	38	6	4	—	1
Deaths§	11	3				2	—			
Puerperal fever		—	10				1	5		2
Deaths										
Puerperal pyrexia‖	99	9	9	1	2	122	9	8	1	1
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,045	91	112	59	31	1,329	83	208	64	18
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	3	1	—	4	1	9	—	1	1	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,795	84	33	110	77	3,309	275	8	78	10
Deaths	6	1	—	1	—	8	—	—	1	1
Deaths (0–1 year)	248	32	30	21	8	297	23	29	13	11
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,205	680	493	162	93	4,830	781	587	175	107
Annual death rate (per 1,000 persons living)			9·9	10·0				11·8	10·9	
Live births	7,876	1232	850	325	207	8,011	1230	913	409	228
Annual rate per 1,000 persons living			17·0	20·1				18·4	25·6	
Stillbirths	176	24	29			211	22	39		
Rate per 1,000 total births (including stillborn)			33					41		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis and Polio-encephalitis

The notifications of these diseases were 70 more than in the preceding week. The largest returns during the week were: Yorkshire West Riding 24 (Leeds C.B. 5, Dewsbury C.B. 4, Colne Valley U.D. 2, Spenborough U.D. 2); London 20 (Camberwell 4, Kensington 3, Hampstead 2, Paddington 2, Southwark 2, Wandsworth 2); Middlesex 13 (Hornsey M.B. 6, Enfield U.D. 2); Lancashire 12 (Liverpool C.B. 6); Cornwall 8 (Camborne–Redruth 3, Penzance M.B. 2, West Penwith R.D. 2); Essex 8 (West Ham C.B. 2); Southampton 7 (Portsmouth C.B. 2); Warwickshire 6 (Birmingham C.B. 2, Coventry C.B. 2); Cheshire 6 (Winsford U.D. 3); Suffolk 5 (Bury St. Edmunds M.B. 2); Leicestershire 5 (Leicester C.B. 2).

In the week ended Aug. 6, 1949, notifications of poliomyelitis numbered 164 (147) and of polio-encephalitis 22 (22). (Figures for the preceding week are shown in parentheses.) Counties with multiple cases (poliomyelitis and polio-encephalitis together) were: London 31 (20), Bedford 5 (2), Berkshire 3 (2), Chester 3 (6), Cornwall 9 (8), Derby 2 (0), Devon 6 (1), Essex 7 (8), Gloucester 5 (3), Hertford 3 (3), Kent 3 (3), Lancaster 12 (12), Leicester 5 (5), Lincolnshire, Lindsey 4 (4), Middlesex 15 (13), Somerset 2 (0), Southampton 9 (7), Stafford 2 (1), Suffolk West 6 (4), Surrey 7 (1), Sussex West 2 (4), Warwick 5 (6), Yorks East Riding 2 (2), Yorks North Riding 2 (1), Yorks West Riding 17 (24), Glamorgan 5 (3), Monmouth 2 (2).

Some outbreaks with high attack rates in comparatively small communities are still being reported, but there is also a generalized rise in prevalence like that of 1947. Fortunately the notifications in the week under review are 301 fewer than those of the corresponding week of 1947. The figures are:

	Poliomyelitis	Polio-encephalitis
1947 week ended Aug. 2	448	39
1949 „ „ Aug. 6	164	22

Discussion of Table

In *England and Wales* a decrease occurred in the number of notifications of measles 786, whooping-cough 209, scarlet fever 112, acute pneumonia 66, while a rise was reported for acute poliomyelitis 51, acute polio-encephalitis 19, and diphtheria 22.

The largest decreases in the notifications of measles were Warwickshire 115, Lancashire 94, London 76, Cheshire 72, Kent 72, while the only exception to the general decreasing trend was a rise of 51 in Norfolk. A small fall in the incidence of scarlet fever occurred in every region of the country except in the eastern region, where there was a slight rise. No changes of any size were reported in the local trends of whooping-cough. The chief features of the returns of diphtheria were increases in Staffordshire, where the cases rose from 0 to 11 and involved eight administrative districts; Warwickshire, with a rise from 4 to 10 (Birmingham C.B. 9); Yorkshire West Riding, with a rise from 1 to 8, where the cases were spread through six administrative areas.

An outbreak of dysentery involving 18 persons was notified in Buckinghamshire, Amersham R.D. A further 14 cases of dysentery were notified from Warwickshire, Warwick R.D., bringing the total cases during the past three weeks to 81. The other large returns of dysentery were Lancashire 11 and London 10. Of the 50 cases of paratyphoid 30 were notified in Lancashire (Liverpool C.B. 21).

In *Scotland* decreases were recorded in the number of notifications of measles 29, acute primary pneumonia 20, dysentery 14, while an increase of 23 was reported for scarlet fever. Fifteen cases of poliomyelitis were notified, an increase of 8 on the number of the preceding week. The rise in the incidence of scarlet fever was mainly due to the northern and north-eastern areas.

In *Eire* rises occurred in the number of notifications of diarrhoea and enteritis 49 and whooping-cough 56, and a fall of 15 was recorded for scarlet fever. An increase of 56 occurred in the notifications of diarrhoea and enteritis in Dublin C.B.

In *Northern Ireland* an increase of 21 in the number of notifications of measles was the only change in the trends of

infectious diseases. The rise was contributed by the counties of Londonderry and Tyrone.

Week Ending August 6

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 854, whooping-cough 1,566, diphtheria 89, measles 3,683, acute pneumonia 220, cerebrospinal fever 19, acute poliomyelitis 164, acute polioencephalitis 22, dysentery 45, paratyphoid fever 37, typhoid fever 5.

Medical News

Awards by N.A.P.T.

The N.A.P.T. has awarded the following scholarships to Colonial medical personnel to enable them to spend a period in Britain studying anti-tuberculosis methods. Scholarships of £120 each to: Dr. R. K. Richardson (Trinidad), Dr. A. W. E. Moreira (Federation of Malaya), Dr. Abbas bin Haji Alias (Federation of Malaya), Dr. Mohd Din bin Ahmad (Federation of Malaya). Scholarships of £80 each to: Miss W. C. Jones, matron (Jamaica), Mr. See Ho Meng, male nurse and hospital assistant (Singapore). A prize of 100 guineas for an essay on the control of tuberculosis in a British Colony by a medical officer in the service of a Colonial Government has been awarded to Dr. Vincent Hetreed, of Northern Nigeria.

Scientific Films

The Third International Scientific Film Congress will be held in Brussels on Sept. 30–Oct. 5. In conjunction with the congress there will be a Scientific Film Festival at which medical films will be shown. The Scientific Film Association of Great Britain is considering the films to be submitted as the British entry in the festival. While the association knows of most of the important films, it would appreciate information about privately produced films suitable for inclusion. Full details should be sent to the office of the association at 4, Great Russell Street, London, W.C.1.

Pharmaceutical Conference

The Pharmaceutical Society of Great Britain will be represented at the Assembly of the International Pharmaceutical Federation in Amsterdam on Aug. 29–Sept. 2 by the president, Mr. H. Clement Shaw, Professor Brindle, Professor Todd, Dr. J. M. Rowson (who will read a paper at the Assembly), Mr. E. A. Brocklehurst, Miss M. A. Burr, Mr. J. F. McNeal, and Mr. F. W. Adams (secretary and registrar).

Tuberculosis Appointments in Italy

A number of appointments at the Ospedale Sanatoriale "Forlanini" in Rome and at the Ospedale Sanatoriale "Forlanini" in Naples are open to British medical practitioners who wish to learn Italian methods of treating tuberculosis. The appointments are tenable from Nov. 1, 1949, to June 30, 1950. Those holding them will receive full board and lodging at the hospital, but must pay their return fares and supply their own pocket money. Candidates should send their applications before Sept. 15 to the Controller, Education Division, British Council, 3, Hanover Street, London, W.1, giving particulars of their age, medical training and experience, and the names and addresses of two referees.

Progress Report on Cancer Research

A series of 15 articles on cancer research have been prepared by Mr. Lester Grant, a science writer on the staff of the *New York Herald Tribune*. They are designed to be an authoritative progress report on work in this field, and the United Nations Educational, Scientific, and Cultural Organization, 19, Avenue Kléber, Paris, 16e, has purchased them and is willing to make the whole series available freely to any journal or individual on request.

Manchester Paediatric Club

At the fifth meeting of the Manchester Paediatric Club on July 18 Professor Alton Goldbloom, professor of paediatrics at McGill University, Montreal, Canada, delivered an address on "Pitfalls in Paediatric Diagnosis." The second annual general meeting of the club will be held on Sept. 27.

National Institute for the Deaf

At the annual general meeting of the National Institute for the Deaf, held on July 6, the president, the Duke of Montrose, referred to the greatly increased work of the N.I.D., much of it due to the introduction of the Health Service. Thousands sought advice on all kinds of problems relating to new legislation. He emphasized the improvements necessary in the supply of hearing-aids under the Government scheme, and said that new and improved hearing-aids would soon be available. The chairman of the council, Mr. R. Scott Stevenson, said that the institute had become an active information bureau, with an average mail of some 400 letters a week. The institute was in constant touch with Government departments and organizations of many kinds. Mr. Edward Evans, M.P., vice-chairman of the N.I.D. and chairman of the National Advisory Council for the Welfare of Handicapped Persons, set up by the Minister of Health, pointed out that the Minister had stated categorically that welfare work could not succeed without the help of the voluntary societies. The State had therefore accepted the ultimate responsibility for the care of the handicapped, but left the human administration to those who by long experience and devoted service, coupled with technical efficiency, were best suited to administer that great conception of social service.

Funds for Peckham Health Centre

Lord Nuffield has offered £5,000 to Peckham Health Centre if other subscribers give the same amount. The health centre states that subscriptions have now nearly reached the required figure, but further contributions are urgently needed. One way in which funds can be raised is through the health centre's *Bulletin*, since the costs of publication and postage have been defrayed by a friend. The *Bulletin* costs 7s. 6d. a year, and is obtainable from 8F, Hyde Park Mansions, Marylebone Road, London, N.W.1.

Health Education

At the 22nd annual general meeting of the Central Council for Health Education, held on July 28, Lord Woolton was re-elected president and Sir Allen Daley and Dr. Charles Hill vice-presidents. Dr. E. K. Macdonald, medical officer of health for the City of Leicester, was reappointed chairman of the council, and Dr. W. A. Bullough, formerly county medical officer of health for Essex, and Dr. Robert Forgan were also re-elected as vice-chairman and honorary treasurer respectively. In his report for the year Dr. Macdonald said that in spite of the reduction in the grant from the Ministry of Health the council had been able to maintain its equilibrium and to introduce several promising and significant developments. During the year the Central Council had organized three series of short refresher courses at 12 university centres in England, Wales, and Northern Ireland. They had proved so successful that the council proposed to make them a permanent feature of its free services and to extend their scope considerably. The council had also considered what it might do to relieve the very heavy burden on general practitioners working under the Health Service. It was planning a series of small leaflets on specific disorders, which general practitioners would be able to hand to patients at consultation. These leaflets would contain information about diet, etc., which would supplement the physician's verbal instructions, and which the patient could keep for reference. The scheme would be operated in conjunction with local authorities. He also referred to possible changes in the constitution of the council, which would probably give a predominant influence to local authorities. It would perhaps mean the severance of some old ties, but it would give the council a more official standing and greater financial stability and thus enable it to continue to exercise a growing influence on the development of health education.

Commendation for Bravery

Dr. Eric Buchanan Ross, general medical practitioner, Cambois, Northumberland, has received the King's Commendation for brave conduct for services when an accident occurred in a mine.

Wills

Dr. Ronald Edgar French, of Burgh Heath, Surrey, left £135,119. Dr. William George Harnett, of Hadley, Barnet, left £43,785, including £100 to the Royal Medical Benevolent Fund. Dr. Kenneth Rogers, of Bournemouth, left £12,758. Dr. James Nowell Richardson, of Halton, Leeds, left £12,064. Dr. Frank Spiller Locke, of Tunbridge Wells, Kent, formerly Reader in Physiology, King's College, London, left £232,538, with the request that, after certain bequests had been made, part of the residue go to the Royal Society, to be utilized for endowing "Locke" fellowships for research in experimental physiology and pharmacology. Sir James Purves Morisson Purves-Stewart, of London, W.8, left £57,478, including £2,500 each to the University of Edinburgh and Westminster Hospital Medical School, the income to be used in assisting senior medical students and young graduates who would benefit by temporary financial assistance.

COMING EVENTS

Annual Meeting of the British Association

The 111th annual meeting of the British Association for the Advancement of Science will be held at Newcastle-upon-Tyne from Aug. 31 to Sept. 7. Sir John Russell, F.R.S., will speak on "World Population and World Food Supplies" in his presidential address. Among the subjects to be discussed by the physiology section, of which Professor R. A. Peters is the president, are adolescent nutrition, relations of brain to mind (joint meeting with the Section of Psychology), and folic acid and anaemia.

French Congress of Electroencephalography

The Second International Congress of Electroencephalography will be held in Paris on Sept. 1–3. Information may be obtained from Dr. H. Gastaut, 149, Promenade de la Corniche, Marseilles.

French Congress of Neurology

The 4th Congress of Neurology will be held in Paris on Sept. 5–10. Information may be obtained from Dr. Raymond Garcin, 19, Rue de Bourgogne, Paris, 7e.

Photographic Exhibition

The 94th annual exhibition of the Royal Photographic Society will be held at 16, Princes Gate, London, S.W.7, from Sept. 9 to Oct. 26. The scientific, including medical, section is from Oct. 8 to Oct. 26. Particulars may be obtained from the secretary of the society at the address given above.

Physiotherapy

The Annual Congress of the Chartered Society of Physiotherapy will be held at the Assembly Hall, St. Pancras Town Hall, Euston Road, London, N.W.1, on Sept. 14–18. Particulars may be obtained from the society at Tavistock House North, Tavistock Square, London, W.C.1.

Infertility

The Family Planning Association will hold an annual conference on infertility at Edinburgh on Sept. 17–18. Particulars may be obtained from the association at 69, Eccleston Square, London, S.W.1.

Exhibition for Rheumatic Patients

The British Rheumatism Association will hold an exhibition for rheumatic patients at the Town Hall, Chelsea, on Sept. 27–30. Concurrently there will be a two-day conference on (1) the welfare of the rheumatic patient, and (2) the interests of the handicapped rheumatic. Tickets for the conference cost 10s. Information may be obtained from the Association at 5, Tite Street, Chelsea, London, S.W.3 (telephone: FLAxman 2957).

Middlesex Hospital Medical School

The annual dinner of the Middlesex Hospital Medical School will be held at the Savoy Hotel on Friday, Sept. 30, at 7 for 7.30 p.m.

SOCIETIES AND LECTURES

Tuesday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At Anatomy Lecture Theatre, Edinburgh University, Aug. 23, 4.30 p.m., "*The Conducting System of the Heart*," by Professor Thomas Walmsley.

Friday

NATIONAL HOSPITAL: INSTITUTE OF NEUROLOGY, Queen Square, London, W.C.—Aug. 26, 5 p.m., "*Topectomy: Cortical Ablation for Treatment of Mental Illness*," by Professor J. Lawrence Pool.

APPOINTMENTS

The following have been appointed to the Civil Consulting Staff of King Edward VII Convalescent Home for Officers at Osborne, East Cowes, Isle of Wight, as from June 4: Sir Francis Fraser, M.D., F.R.C.P., Sir James Paterson Ross, K.C.V.O., M.S., F.R.C.S., W. D. W. Brooks, D.M., F.R.C.P., D. E. Bedford, M.D., F.R.C.P., D. H. Brinton, D.M., F.R.C.P., H. Osmond Clarke, C.B.E., F.R.C.S., A. E. Porritt, C.B.E, M.Ch., F.R.C.S., R. Marnham, M.Ch., F.R.C.S.

BUNTING, F. W., M.B.E., M.D., D.P.H., Medical Officer of Health for Prescot Urban District Council.

CASSON, F. R. C., M.B., B.S., D.P.M., Clinical Assistant to Department of Psychological Medicine, Charing Cross Hospital, London, W.C.

FENTON-RUSSELL, D., M.D., D.P.H., D.P.M., Consultant Psychiatrist, Stanley Royd Hospital, Wakefield, Yorkshire.

HOLLAND, C. B., M.B., Ch.B., D.A., Consultant Anaesthetist in the Ipswich Area, East Anglian Regional Hospital Board.

JONES, JOHN FRASER, M.B., B.S., House-surgeon, the Royal Hospital, Wolverhampton.

KEEPING, JOYCE AUDREY, M.D., M.R.C.P., Physician to Paddington Chest Clinic, London, W.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Crabtree.—On August 5, 1949, at the Queen Elizabeth Hospital, Birmingham, to Joyce May "Maimé" (née Airey), wife of Norman L. Crabtree, F.R.C.S., of 14, Church Road, Edgbaston, a brother for Valerie and Jennifer—John Rawcliffe.

Herford.—On August 6, 1949, at Cliveden Memorial Hospital, Bucks, to Mary (née Crago), wife of Dr M. E. M. Herford, D.S.O., a daughter.

Lambert.—On August 5, 1949, at Hillingdon Hospital, to Sadie, wife of Dr. E. Vivian Lambert, of Uxbridge, a son.

Leslie.—On July 11, 1949, at the Duke of York Nursing Home, Bradford, to Frances, wife of Dr. William Leslie, a daughter.

Murley.—On August 12, 1949, at 43, Newlands Avenue, Radlett, Herts, to Daphne (née Garrod), wife of R. S. Murley, M.S., F.R.C.S., a son—David Peter.

Ounsted.—On August 5, 1949, to Margaret Ounsted, B.M., wife of Christopher Ounsted, B.M., a son.

MARRIAGE

Eason—Towler.—On August 6, 1949, at St. Paul's Presbyterian Church, Croydon, Thomas John Eason, F.R.C.S., to *Ruth Willand Towler*, M.B., Ch.B.

DEATHS

Ashby.—On August 6, 1949, at 127, Roundhay Road, Leeds, J. E. Ashby, M.R.C.S., L.R.C.P., aged 59.

Battiscombe.—On August 4, 1949, at 29, Drakes Avenue, Exmouth, Eric George Battiscombe, M.R.C.S., L.R.C.P., aged 76.

Campbell.—On July 7, 1949, at 20, Daneswell Drive, Leasowe, Cheshire, Thomas Graham Campbell, L.R.C.P.&S.Ed., L.R.F.P.S.Glas., aged 79.

Charles.—On August 2, 1949, at Bournemouth, Rhys Pendrill Charles, T.D., M.D., of 9, Dean Park Road, Bournemouth.

Crisp.—On August 12, 1949, at 2, Hillside Road, Cheam, Surrey, Thomas Crisp, M.D., late of St. George's House, Chorley, Lancs, and Tinterfield, N.S.W.

Foster.—On August 5, 1949, at Danby, Yorks, John Robert Foster, M.B., C.M., F.R.C.S.Ed., formerly of West Hartlepool, aged 81.

Hopkinson.—On July 31, 1949, at 6, Adams Road, Cambridge, Albert Hopkinson, M.B., B.Ch., aged 85.

Kaufmann.—On August 2, 1949, Walter Kaufmann, M.D., of 18, Danes Court, Wembley Park, Middlesex.

Macneill.—On August 6, 1949, at 64, Hook Road, Surbiton, Surrey, Robert Archibald Macneill, M.B., Ch.B., aged 74.

McNabb.—*On July 28, 1949, Harry Horsman McNabb, M.D., of 8a, St. John Street, Manchester, and Butley Close, Prestbury, Cheshire, aged 74.*

May.—On August 3, 1949, at Torquay, Harry John May, L.S.A., of Chudleigh, Devon, aged 84.

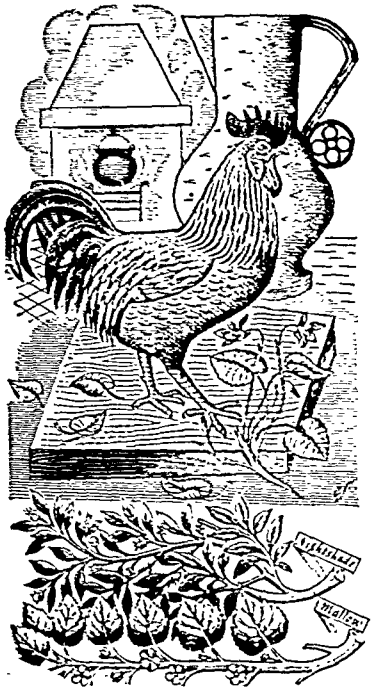
Mitchell.—On July 29, 1949, at the Royal Hospital, Wolverhampton, Nevil Robert Kennedy Mitchell, F.R.C.S.Ed.

Newton.—On August 3, 1949, in Melbourne, Australia, Sir Alan Newton, M.S., F.R.C.S., aged 62.

Palmer.—On July 28, 1949, at Accra, Gold Coast, Ralph Winnall Palmer, M.R.C.S., L.R.C.P., aged 35.

Parkhurst.—On July 27, 1949, at Rathan, Lewes Road, Newhaven, Sussex, Rodie Parkhurst M.B., C.M.Ed., aged 80.

Wilson.—On July 30, 1949, at 76, Farquhar Road, Edgbaston, Birmingham, *Theodore Stacey Wilson*, M.D., F.R.C.P., aged 88.



IN ANALGESIA

1540: *"Take a fatte piece of veale or ellse a fatte capon and boyle it in water or ellse white wyne and strayne it from the fleshe, and sett the saide lycor over the fyre agayn, and putt therto these things folowing, of mallowes ii. unces, of violett leaves, of night shade ana ℥ i. lett them boyle untyll they be very softe and tendre, and powre awaye the licor from them, and putt therto barley water as shall suffise to make it a pulthes".*

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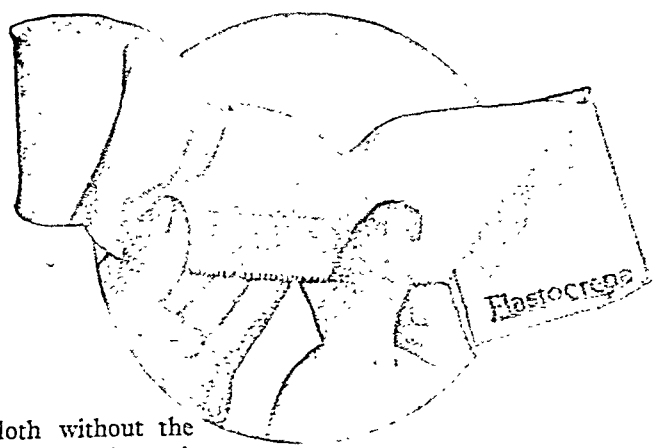
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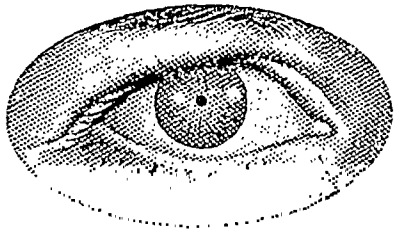
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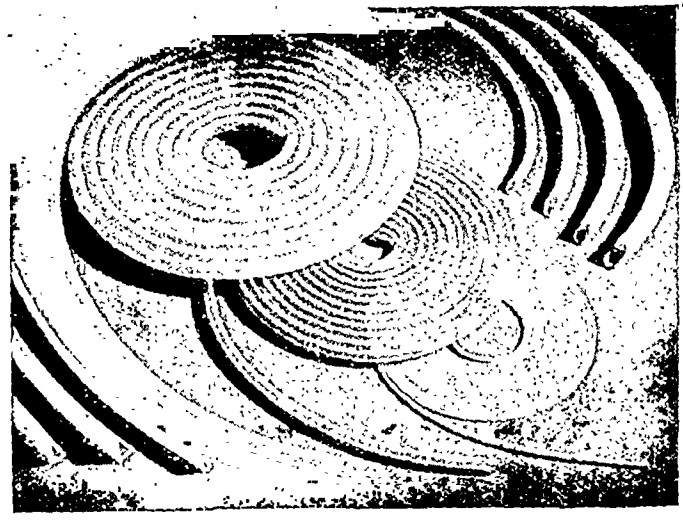


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Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Infection from Ducks' Eggs

Q.—*What is the toxin sometimes present in ducks' eggs? Is there less danger of infection if the duck is kept in a pen and given fresh water daily, with no access to dirty water? What precautions should be taken in cooking ducks' eggs?*

A.—The retention of the term "food-poisoning" to describe a variety of conditions, some due to toxins, some to infection by living bacteria, evidently explains the misconception in this question. The noxious agent present in a small proportion of ducks' eggs is not a toxin but a living organism, usually *Salmonella typhi-murium* ("*B. aertrycke*"), sometimes *Salm. enteritidis* ("Gaertner's bacillus"). These organisms cause an infection in the bird itself and are actually within the egg when it is laid. They are closely related to the enteric group but produce a very different type of disease, with a short incubation period (one to two days) and an acute onset. The condition takes the form of an acute catarrh of the entire alimentary tract, with fever and diarrhoea, and its duration is commonly only three days. Birds free from the infection will not acquire it if kept under clean conditions, and particularly away from ponds and other dirty water. Possible sources of infection, apart from other birds, are pigs and rodents. No form of cooking which fails to coagulate the whole of the egg protein is likely to destroy the organism—that is to say that eggs lightly boiled or poached will be infective; they should be safe when boiled hard or when used in cake-making.

Bleeding Nipples

Q.—*What is the cause of exudation of blood from both nipples of a nursing mother? In the case I have in mind—in a primipara aged 32—bleeding started immediately after parturition, and for a week blood mixed with colostrum could be expressed from the nipples.*

A.—This phenomenon is well known but is comparatively rare. It is associated with the enormously increased blood supply and congestion of the breasts which develop very quickly after childbirth, and is presumably the result of some inherent fragility of the capillaries around the alveoli. It has nothing to do with the character of the labour. Sometimes the blood is not fully mixed with the colostrum or milk—suggesting that the trouble is limited to certain ducts and alveoli. In other cases it is intimately mixed, giving the appearance of "brown" milk. The occurrence may be only transitory, subsiding gradually after the first few days, but sometimes it persists long enough to justify discontinuing breast-feeding. Although the writer has no experience of it, it would seem worth while trying the effect of 5 mg. stilboestrol twice daily for 24 to 48 hours, during which time suckling or expression of the milk should be continued to avoid suppression of lactation.

Persistent Sinus after Fractured Coccyx

Q.—*A woman of 28 had a fall 10 years ago resulting in fracture of the coccyx. A loose piece of bone was removed, but the wound healed slowly and a shallow sinus formed. Several sequestra have since been removed, but the sinus persists with a slight clear discharge. The chest is clear. For the past few years the sinus has periodically shown a tendency to close, and this is accompanied by photophobia, headache, and irritability. These symptoms do not appear to be neurotic. What treatment do you advise?*

A.—From the history it appears that there was infection of the fracture haematoma, leading to osteitis of the coccyx. Persistence of the sinus suggests either that infection is still active in the remaining bone or that there is a further sequestrum. In general, the treatment of such cases would depend on the clinical course and the radiographic appearances. If evidence of residual bone infection were found on x-ray examination, excision of the coccyx would be indicated. If the radiographs were inconclusive, a decision would have to be made on clinical grounds alone; but, unless the clinical course suggested that continued progress was being made towards final spontaneous closure, excision of the coccyx—preferably under penicillin and sulphonamide control—would usually be advisable. Local and general symptoms after temporary closing of a sinus—particularly when accompanied by pyrexia—often indicate local pocketing of pus. In the absence of pocketing it is difficult to understand how such symptoms as are described in this case could arise.

Sleepwalking in Childhood

Q.—*A boy of 7 walks in his sleep. Is he likely to come to any harm if he should wake to find himself out of bed? Should one talk to him, or should one attempt to lead him back to bed—or merely follow and allow him to return in his own time? He will be moving shortly to a house at the seaside. Would he be likely to walk out of the house to the beach, which is only a short distance away? What do you advise?*

A.—It is generally agreed that, although sleepwalkers seldom come to harm, this does sometimes happen. In childhood somnambulism is not uncommon, the child often acting out a dream in which he is looking for his mother to comfort him. The stimulus may be anything emotionally upsetting, such as worry over school or home relationships; if this can be detected and resolved, sleepwalking usually ceases unless there is a general disturbance of personality involving great anxiety. It is better to let a child find his way back to bed, if possible, giving him a tucking-up that even in a dazed state he may find reassuring. It is advisable to avoid over-excitement and alarming reading at bedtime, which should be made a specially pleasant time so that he goes off to sleep feeling happy and safe. Phenobarbitone can also be a useful preventive. It is just possible that the boy, if he knows of the forthcoming move to the sea, may be disturbed by fantasies about the change of house, and will settle down when this has actually taken place.

Fat Legs

Q.—*An otherwise attractive spinster of 25 is socially handicapped by "over-sturdy legs." The distribution of fat is normal above the waist but massive below; periods are scanty, and there is some hypothyroidism. Can you explain the localization of fat to this site, and suggest a remedy?*

A.—Fat distribution below the waist, with absence of fat above the waist, is characteristic of the disorder known as lipodystrophy, and the cause is unknown. However, in idiopathic adiposity it is by no means uncommon for this distribution to be present in milder degree, or for the fat to be located in the abdomen and hips, and perhaps the upper arms, leaving the face thin. In Cushing's syndrome the face and neck, in contrast, are fat. No one has yet been able to explain the cause of the many varieties of fat distribution met with. The treatment is that of adiposity in general, and unfortunately the fat depots are sometimes more resistant than the areas where fat is normal. As regards "over-sturdy" legs, this has a constitutional genetic basis, and is probably not of endocrine origin. It is certainly not amenable to endocrine therapy.

Thrombo-angiitis Obliterans

Q.—*How should one treat thrombo-angiitis obliterans in a man of 50 years who has been suffering from intermittent claudication in both legs for two years? Is vitamin E of any value?*

A.—It is not easy to prescribe suitable treatment when so few details are given. The fundamental indications are to improve the collateral circulation and to minimize the risks of gangrene by scrupulous attention to the toilet of the feet. The various methods of improving the circulation include the use of

vasodilator drugs, saline and ether–saline injections, intermittent venous occlusion, and lumbar sympathectomy. Specific indications for these various measures can be found in the standard textbooks. Vitamin E and similar substances, especially α-tocopherol, have recently been employed in the treatment of peripheral vascular disease; early reports were enthusiastic, but these have not been endorsed by subsequent experience.

Enlarged Liver after Amoebic Dysentery

Q.—*A European living in an area where amoebiasis is endemic, and who has had amoebic dysentery in the past, suffers from a painful enlarged liver with moderate pyrexia. No protozoa have been found in the stools, and malaria was excluded. The total leucocyte count did not rise above 7,400 per c.mm., and no jaundice was present. By the time anti-amoebic treatment was started (after eight days) the temperature had settled. Pain and liver enlargement persisted through a full course of emetine injections, though diminishing in severity. The patient is now free from signs and symptoms. Is amoebiasis the probable diagnosis? According to the text-books, leucocytosis and a rapid response to emetine are characteristic of amoebic hepatitis. Is liver biopsy simple and safe? Could you refer me to a description of the technique?*

A.—The problem of hepatic enlargement after amoebic dysentery is a difficult one. There is a group of patients in whom the textbook criteria of amoebic hepatitis exist and who rapidly recover after injections of emetine. There is another group with which medical officers serving in the Middle East and Italy during the war became familiar. In these patients there is complaint of pain in the right hypochondrium and the liver is moderately enlarged and tender; there is no improvement with injection of emetine, and biopsy usually shows the liver tissue to be normal. Symptoms disappear over a period of weeks or months without specific treatment. The nature of this syndrome, and, indeed, whether it is related to amoebiasis, are uncertain. Liver biopsy is simple and safe, but inadvisable if active amoebic hepatitis is suspected. A description of the technique appeared in this *Journal* recently (1949, **1**, 657).

Aspirin and Haematemesis

Q.—*Is there a real risk of haematemesis following the continued administration of aspirin? Can you give references to the literature on this subject?*

A.—The danger of haematemesis following the taking of aspirin is not related so much to the continued use of the drug as to individual susceptibility. In certain persons aspirin produces inflammatory reaction when it comes in contact with the mucosa of the lesser curvature of the stomach. Aspirin in solution has been shown by Douthwaite and Lintott (*Lancet*, 1938, **2**, 1222) to be non-irritant. The difficulty experienced hitherto has been that calcium aspirin has tended to break down with the liberation of salicylic acid. A preparation is now sold which overcomes this disadvantage.

Angioneurotic Oedema

Q.—*What are the prognosis and treatment of angioneurotic oedema in a man aged 68? He is allergic to strawberries and other foods, and at the age of 36 he had severe pruritus which cleared up under x-ray treatment. He now seems to be in constant fear of "choking." Is there anything better than adrenaline, which appears to have been effective in previous attacks? Would desensitization be worth while?*

A.—Since adrenaline was effective in previous attacks, this patient might be supplied with a syringe and adrenaline; he could then give himself an injection as soon as an attack started. "Neo-epinine" ("aleudrine") could be used instead of adrenaline, and one of the antihistaminic drugs, such as "phenergan" ("3277 R.P."), "anthisan" (pyranisamine maleate), or "benadryl," could also be given. The most careful history should be taken for possible food or drug allergens, and a food diary might help. Unusual foods, and foods taken in excess at times corresponding to the attacks, as well as the occasional headache powder, hypnotic, or purgative, should be especially inquired for. Skin testing is rarely if ever of value in this condition. Trial eliminative measures must include not only the suspected food as usually eaten, but all foods which contain any trace of the suspected allergen. Specific and non-specific desensitization are of doubtful value. A thorough search should be made for a focus of infection. The prognosis depends very largely on finding the cause, which is often difficult and frequently unsuccessful.

NOTES AND COMMENTS

Muscae Volitantes.—RANA IN FAUCIBUS and RENIS FLUITANS (Mr. Frederick Ridley, amanuensis) write: We write on behalf of our sisters the Muscae Volitantes, who are much distressed by the article so headed in "Any Questions?" (July 23, p. 241). Ever since God in His wisdom caused light to pass through a living jelly so that beauty might illumine the soul of man these charming and entertaining translucent threads, whorls, and dots have cast their shadows upon the retinal image. Normally mankind has ignored them; often, under favourable conditions of lighting, he has been delighted by their antics. They have excited the poet's fancy and helped to while away many an idle hour. Loved by most, they have always been an annoyance to microscopists and, we admit with some regret, they have from the earliest times provided a focus of anxiety for humans of sick mind. Our sisters have consoled themselves with the thought that many people have chosen less pleasant natural phenomena on which to focus their mental illness. To us, of course, it is no new thing for humans to seek to "cure" natural phenomena and to "invent" disease (first they imagine a pathology and from that, with much word-spinning, is deduced a logical treatment—preferably an operation), but for our sisters this is a new experience. Maybe magic is as young, as we know it to be as old, as man. So uvulae have been amputated, the frenulum linguae cut, kidneys "fixed," nipple strings "broken," and now muscae volitantes are to be treated both medically and, God help us, surgically. It may be argued that disease processes can give rise to optical phenomena simulating our sisters' appearance, but we doubt it. In such cases gross, ugly, opaque monsters may be seen, but surely these could hardly be confused with our delicate sisters. Moreover, the normal person recognizes at once that such appearances are new—muscae he has had with him always. We beg you to publish our letter: first, because it is both inaccurate and unwise to use the same name for the effects of disease processes as is used by Everyman to describe a perfectly normal experience; secondly because, as we have said, many humans of sick mind are already worried by our sisters, and these people should be comforted, not alarmed and confused; and, lastly, because we are quite sure that the right attitude towards our sisters, apart from affection or indifference, is that of *Punch*, who calls them "flying mice," and of the late Harrison Butler, who wisely said, "Muscae Volitantes are things we can all see but only the damn fools look at 'em."

Family Planning.—The Family Planning Association state that they are often asked by members of the public for the names and addresses of medical practitioners who give advice on family planning. Medical men who wish to undertake this work or to obtain information about it are invited to write to the Family Planning Association at 64, Sloane Street, London, S.W.1.

Disturbed Micturition in Disseminated Sclerosis.—Dr. E. LEDERGERBER (St. Gallen, Switzerland) writes: The answer given to the question under this heading ("Any Questions?" May 7, p. 832) is not very hopeful. I have had fair success in such cases with a testicular extract containing the hydrosoluble and liposoluble principles (not the artificial product) in women and oestrone in men.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY AUGUST 20 1949

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Dr. F. Clayton, Leamington.
Dr. R. G. Gordon, Bath.
Dr. L. J. Prosser, Harrogate.
Dr. R. W. Stewart, Buxton.
Dr. D. Wilson, Bognor Regis.
Dr. W. Yeoman, Harrogate.

TUBERCULOSIS AND DISEASES OF THE CHEST GROUP COMMITTEE

Shortly to be elected.

VENEREOLOGISTS GROUP COMMITTEE

Mr. R. C. L. Batchelor, Edinburgh.
Dr. A. H. Harkness, London.
Colonel L. W. Harrison, London.
Mr. A. J. King, London.
Dr. S. M. Laird, Ipswich.
Dr. R. Lees, Leeds.
Dr. V. E. Lloyd, London.
Dr. A. E. W. McLachlan, Bristol.
Dr. W. N. Mascall, London.
Dr. I. N. Orpwood Price, London.
Dr. Mary Michael Shaw, London.
Dr. C. H. Wilkie, Leicester.

III. OTHER COMMITTEES

ADVISORY COMMITTEE RE SALARIES OF WHOLE-TIME PUBLIC HEALTH MEDICAL OFFICERS

Dr. C. Metcalfe Brown, Manchester.
Dr. G. F. Buchan, London.
Dr. R. G. Cooke, Derby.
Dr. J. Fenton, London.
Dr. F. Gray, London.
Dr. F. Hall, St. Annes-on-Sea.
Dr. R. H. H. Jolly, Wolverhampton.
Dr. Jean Mackintosh, Birmingham.
Dr. Charles Hill.

REPRESENTATIVE BODY AGENDA COMMITTEE

Dr. E. A. Gregg, London (*Chairman of Council*).
Dr. J. A. Brown, Birmingham (*Acting Chairman of Representative Body*).
Dr. R. W. McConnel, Wendover, Bucks.
Dr. S. Noy Scott, Plympton, Plymouth.
Dr. R. Cove Smith, London.
Dr. W. Woolley, Bristol.

BUILDING COMMITTEE

Dr. C. W. C. Bain, Harrogate (*President*).
Dr. E. A. Gregg, London (*Chairman of Council*).
Dr. J. A. Brown, Birmingham (*Acting Chairman of Representative Body*).
Dr. A. M. A. Moore, London (*Treasurer*).
Dr. Alexander Brown, Linton, Cambs.
Mr. L. Dougal Callander, Doncaster.
Dr. O. C. Carter, Bournemouth
Dr. H. Guy Dain, Birmingham.
Dr. P. J. Gibbons, Liverpool.
Dr. D. F. Hutchinson, London.
Dr. J. G. Thwaites, Brighton.
Dr. H. Vickers, Uxbridge, Middlesex.

COMMITTEE ON THE CARE AND TREATMENT OF THE ELDERLY AND INFIRM

Dr. Janet K. Aitken, London.
The Rt. Hon. Lord Amulree, London.
Dr. A. Greig Anderson, Aberdeen.
Dr. E. B. Brooke, Carshalton.
Sir Ernest Rock Carling, London.
Dr. L. Z. Cosin, Orsett, Essex.
Dr. Mary Esslemont, Aberdeen.
Dr. R. G. Gordon, Bath.
Dr. J. A. Gorsky, London.
Dr. G. MacFeat, Douglas, Lanarks.
Dr. A. T. Rogers, Bromley, Kent.
Dr. W. D. Steel, Worcester.
Dr. F. R. Sturridge, London.
Dr. Marjory Warren, Isleworth, Middlesex.
Chairmen or nominees of the Private Practice, Central Consultants and Specialists, General Medical Services, and Public Health Committees, together with one representative each of the Institute of Almoners, the National Old People's Welfare Committee, and the Queen's Institute of District Nursing.

COMMITTEE ON CONSTITUTIONAL POSITION OF BRANCHES OF THE ASSOCIATION OVERSEAS (OTHER THAN CORPORATE BRANCHES)

Dr. C. W. C. Bain, Harrogate (*President*).
Dr. E. A. Gregg, London (*Chairman of Council*).
Dr. J. A. Brown, Birmingham (*Acting Chairman of Representative Body*).
Mr. A. M. A. Moore, London (*Treasurer*).
Three members appointed by the Organization Committee:
Dr. F. Gray, London.
Dr. J. A. Pridham, Weymouth.
Dr. D. S. Saklatvala, West Bromwich.
Together with three members to be appointed by the Colonies and Dependencies Committee, with power to co-opt.

JOINT COMMITTTEE ON ASSOCIATION OF GENERAL PRACTITIONERS WITH HOSPITALS

Three representatives appointed by each of the following Committees: Health Centre, Private Practice, Public Health, and General Medical Services.
Six representatives appointed by the Central Consultants and Specialists Committee.

COMPENSATION AND SUPERANNUATION COMMITTEE

Three members to be appointed by the General Medical Services Committee.
Three members to be appointed by the Public Health Committee.
Three members to be appointed by the Central Consultants and Specialists Committee.

CORONERS ACTS COMMITTEE

Six members to be appointed by the Private Practice Committee.
Chairman or nominee of the Pathologists Group Committee.
Together with four members appointed by the Coroners' Society for England and Wales.

FILM COMMITTEE

Dr. C. W. C. Bain, Harrogate (*President*).
Mr. A. Lawrence Abel, London.
Sir A. Biggam, Edinburgh.
Mr. V. Zachary Cope, London.
Dr. J. Cotterell, Grimsby.
Dr. J. A. Gorsky, London.
Dr. P. Hansell, London.
Professor H. C. Hewer, London.
Dr. R. P. St. L. Liston, Tunbridge Wells.
Dr. R. C. Mackeith, London.
Professor G. P. Meredith, Leeds.
Mr. R. L. Newell, Manchester.
Dr. R. G. Ollerenshaw, Manchester.
Mr. H. Reid, Liverpool.
Dr. J. B. Wrathall Rowe, Wealdstone, Middlesex.
Dr. C. M. Seward, Exeter.
Mr. A. Dickson Wright, London.
Chairman or nominee of the Science Committee, together with two representatives of the B.M.S.A.

HEALTH CENTRE COMMITTEE

Dr. C. W. C. Bain, Harrogate (*President*).
Dr. E. A. Gregg, London (*Chairman of Council*).
Dr. J. A. Brown, Birmingham (*Acting Chairman of Representative Body*).
Mr. A. M. A. Moore, London (*Treasurer*).
Dr. G. O. Barber, Dunmow, Essex.
Dr. A. Beauchamp, Solihull, Warwicks.
Professor J. S. English, Newtownards, Co. Down.
Dr. P. J. Gibbons, Liverpool.
Dr. J. A. Gorsky, London.
Mr. A. Staveley Gough, Watford.
Dr. C. F. R. Killick, Williton, Somerset.
Mr. G. Lowe, Tiverton, Devon.
Dr. G. MacFeat, Douglas, Lanarks.
Dr. T. W. Morgan, New Malden, Surrey.
Mr. A. E. Porritt, London.
Dr. A. Talbot Rogers, Bromley, Kent.
Dr. J. A. Scott, London.
Dr. H. R. Youngman, Cambridge.
Together with a representative of the General Medical Services Committee and observers of the Ministry of Health.

INTERNATIONAL RELATIONS COMMITTEE

Dr C. W. C. Bain, Harrogate (*President*).
Dr. E. A. Gregg, London (*Chairman of Council*).
Dr. J. A. Brown, Birmingham (*Acting Chairman of Representative Body*).
Mr. A. M. A. Moore, London (*Treasurer*).
Mr. A. Lawrence Abel, London.
Dr. J. Clayre, Southampton.
Dr. Alfred Cox, London.
Dr. H. Guy Dain, Birmingham.
Dr. S. C. Dyke, Wolverhampton.
Dr. J. C. Matthews, Downton, Wilts.
Dr. G. de Swiet, London.
Chairmen or nominees of the Organization, Journal, Science, General Medical Services, and Colonies and Dependencies Committees, Chairman or nominee of Committee of Management of Empire Medical Advisory Bureau, together with a representative of the British Council and of the B.M.S.A.

COMMITTTEE ON NURSING

Dr. C. W. C. Bain, Harrogate (*President*).
Dr. E. A. Gregg, London (*Chairman of Council*).
Dr. J. A. Brown, Birmingham (*Acting Chairman of Representative Body*).
Mr. A. M. A. Moore, London (*Treasurer*).
Dr. E. B. Brooke, Carshalton.
Dr. Mary Esslemont, Aberdeen.
Dr. A. F. Foster-Carter, Aldershot.
Dr. J. A. Gorsky, London.
Mr. A. Staveley Gough, Watford.
Dr. C. G. Martin, London.
Dr. W. G. Masefield, Eastbourne.
Dr. J. B. Wrathall Rowe, Wealdstone, Middlesex.
Dr. Alexander Smith, East Kilbride, Lanarks.
Mr. J. P. Wetenhall, London.
Chairmen or nominees of the Public Health, Scottish, Central Consultants and Specialists, Private Practice, and Occupational Health Committees.
Two members nominated by the Royal College of Nursing.
One member nominated by the King Edward's Hospital Fund for London.
With power to co-opt four members.

PARLIAMENTARY ELECTIONS COMMITTEE

Dr. C. W. C. Bain, Harrogate (*President*).
Dr. E. A. Gregg, London (*Chairman of Council*).
Dr. J. A. Brown, Birmingham (*Acting Chairman of Representative Body*).
Mr. A. M. A. Moore, London (*Treasurer*).
Dr. S. F. L. Dahne, Reading.
Dr. H. Guy Dain, Birmingham.
Dr. H. R. Frederick, Port Talbot, Glam.
Dr. F. Gray, London.
Dr. J. G. Thwaites, Brighton.
Dr. S. Wand, Birmingham.
Representative of Medical Women's Federation.

JOINT COMMITTEE ON FEES FOR PART-TIME WORK UNDER LOCAL AUTHORITIES

Appointed by Central Consultants and Specialists Committee:
Mr. A. Lawrence Abel, London.
Mr. R. L. Newell, Cheadle, Cheshire.
Mr. A. Dickson Wright, London.

Appointed by Public Health Committee:
Dr. G. F. Buchan, London.
Dr. James Fenton, London.
Dr. R. H. H. Jolly, Wolverhampton.

Appointed by Private Practice Committee:
Dr. E. W. Goodwin, Leicester.
Dr. J. A. Gorsky, London.
Dr. I. D. Grant, Pollokshields, Glasgow.

COMMITTEE ON NUTRITION

Dr. C. W. C. Bain, Harrogate (*President*).
Dr. E. A. Gregg, London (*Chairman of Council*).
Dr. J. A. Brown, Birmingham (*Acting Chairman of Representative Body*).
Mr. A. M. A. Moore, London (*Treasurer*).
Mrs. M. C. Bowley, Harpenden, Herts.
Dr. G. F. Buchan, London.
Dr. Harriette Chick, Cambridge.
Professor S. J. Cowell, London.
Professor G. P. Crowden, London.
Sir Jack Drummond, Nottingham.
Professor R. W. B. Ellis, Edinburgh.
Dr. R. G. Gordon, Bath.
Mrs. E. Hedley-Prole, London.
The Rt. Hon. Lord Horder, London.
Dr. F. Avery Jones, London.
Dr. Jean Mackintosh, Birmingham.
Professor J. R. Marrack, London.
Professor V. H. Mottram, Shaftesbury, Dorset.
Dr. R. A. Murray Scott, Leeds.
Dr. H. M. Sinclair, Oxford.
Dr. R. E. Smith, Rugby.
Dr. Donald Stewart, Birmingham.
Dr. J. G. Thwaites, Brighton.
Professor John Yudkin, London.
Together with observers from certain Government Departments.

COMMITTEE ON PATENTING IN THE MEDICAL FIELD

Three members to be appointed by the Science Committee.
Three members to be appointed by the Central Ethical Committee.
With power to co-opt.

COMMITTEE ON THE POSTGRADUATE EDUCATION OF GENERAL PRACTITIONERS

Dr. C. W. C. Bain, Harrogate (*President*).
Dr. E. A. Gregg, London (*Chairman of Council*).
Dr. J. A. Brown, Birmingham (*Acting Chairman of Representative Body*).
Mr. A. M. A. Moore, London (*Treasurer*).
Mr. A. Lawrence Abel, London.
Dr. Janet K. Aitken, London.
Dr. J. T. Baldwin, Penicuik, Midlothian.
Dr. G. W. Bamber, Liverpool.
Dr. G. O. Barber, Great Dunmow, Essex.
Sir Alexander Biggam, Edinburgh.
Mr. Norman Capener, Exeter.
Professor Sir Henry Cohen, Liverpool.
Mr. V. Zachary Cope, London.
Dr. H. Guy Dain, Birmingham.

Dr. Hugh Davies, London.
Dr. R. G. Gordon, Bath.
Dr. K. H. C. Hester, Harpenden, Herts.
Dr. R. P. Liston, Tunbridge Wells.
Professor Hilda N. Lloyd, Birmingham.
Mr. J. D. McLaggan, London.
Miss Ida Mann, London.
Dr. J. I. Milne, Manchester.
Dr. C. E. Newman, London.
Sir Philip Panton, London.
Sir Leonard Parsons, Birmingham.
Dr. I. C. B. Pearce, Diss, Norfolk.
Dr. C. M. Seward, Exeter.
Dr. Donald Stewart, Birmingham.
Mr. J. W. Tudor Thomas, Cardiff.
Dr. C. W. Walker, Cambridge.
Professor B. W. Windeyer, London.
Professor G. M. Wishart, Glasgow.

PROPRIETARY MEDICINES COMMITTEE

Two Representatives of Central Ethical Committee:
Dr. E. C. Dawson, Derby.
Dr. N. E. Waterfield, Little Bookham, Surrey.

Two Representatives of Journal Committee:
Dr. O. C. Carter, Bournemouth.
Dr. S. Noy Scott, Plympton, Plymouth.

Two Representatives of Private Practice Committee:
Dr. R. Forbes, London.
Dr. H. H. D. Sutherland, London.

Two Representatives of Science Committee:
Mr. V. Zachary Cope, London.
Dr. R. P. St. L. Liston, Tunbridge Wells.

Together with: Dr. G. R. Boyes, London. Mr. W. K. Fitch, London. Dr. F. H. K. Green, London. Professor A. A. Moncrieff, London.

PUBLIC RELATIONS COMMITTEE

Dr. E. A. Gregg, London (*Chairman of Council*).
Mr. A. M. A. Moore, London (*Treasurer*).
Dr. H. Guy Dain, Birmingham.
Dr. James Fenton, London.
Dr. F. Gray, London.
Dr. J. T. McCutcheon, Glasgow.
Six Representatives to be appointed by the General Medical Services Committee.

COMMITTEE ON RELATIONSHIP OF AUTONOMOUS BODIES

Dr. E. A. Gregg, London (*Chairman of Council*).
Mr. A. Lawrence Abel, London.
Dr. J. A. Brown, Birmingham.
Dr. O. C. Carter, Bournemouth.
Dr. H. Guy Dain, Birmingham.
Dr. James Fenton, London.
Dr. R. G. Gordon, Bath.
Dr. F. Gray, London.
Dr. W. Jope, High Blantyre, Lanarks.
Dr. J. B. Miller, Bishopbriggs, Lanarks.
Mr. R. L. Newell, Cheadle, Cheshire.
Dr. J. A. Pridham, Weymouth.
Dr. S. Wand, Birmingham.
Dr. N. E. Waterfield, Little Bookham, Surrey.
Sir Lionel Whitby, Cambridge.

COMMITTEE ON SALARIES OF MEDICALLY QUALIFIED TEACHERS, ETC.

Dr E. A. Gregg, London (*Chairman of Council*).
Dr. Janet K. Aitken, London.
Dr. James Fenton, London.
Professor A. C. Frazer, Birmingham.
Dr. G. W. Harris, Cambridge.
Dr. P. D'Arcy Hart, London.
Professor A. St. G. Huggett, London
Dr. M. C. G. Israëls, Manchester.
Dr. I. Rannie, Newcastle-upon-Tyne.
Dr. S. Cochrane Shanks, London.
Dr. R. D. Stuart, Glasgow.
Sir Lionel Whitby, Cambridge.

WAR MEMORIAL COMMITTEE

Dr. C. W. C. Bain, Harrogate (*President*).
Dr. E. A. Gregg, London (*Chairman of Council*).
Dr. J. A. Brown, Birmingham (*Acting Chairman of Representative Body*).
Mr. A. M. A. Moore, London (*Treasurer*).
Dr. R. W. Cockshut, London.
Dr. H. Guy Dain, Birmingham.
Together with the Chairmen or nominees of the Building, Armed Forces, Charities, and Organization Committees.
With power to co-opt.

COMMITTEE ON PSYCHIATRY AND THE LAW

Dr. F. Bodman, Bristol.
Dr. Denis Carroll, London.
Dr. R. G. Gordon, Bath.
Dr. Hermann Mannheim, London.
Mr. Claud Mullins, Petworth, Sussex.
Dr. Doris Odlum, London.
Dr. T. P. Rees, Warlingham, Surrey.
Dr. J. G. Thwaites, Brighton.
With Representatives of the Magistrates' Association.

JOINT COMMITTEE OF B.M.A. AND T.U.C.

Mr. A. Lawrence Abel, London.
Dr. R. W. Cockshut, London.
Dr. H. Guy Dain, Birmingham.
Dr. F. Gray, London.
Dr. E. A. Gregg, London.
Dr. J. A. L. Vaughan Jones, Leeds.
Mr. R. L. Newell, Cheadle, Cheshire.
Dr. S. Wand, Birmingham.

JOINT COMMITTEE OF B.M.A. AND NATIONAL VETERINARY MEDICAL ASSOCIATION

Mr. A. Lawrence Abel, London.
Dr. C. Metcalfe Brown, Manchester.
Dr. W. A. Bullough, Colchester.
Dr. James Fenton, London.
Dr. J. M. Gibson, Huddersfield.
Dr. J. Kelman, Perth.
Dr. Wyndham Parker, Worcester.
Professor G. S. Wilson, London.

JOINT COMMITTEE OF B.M.A. WITH PHARMACEUTICAL SOCIETY

Dr. E. A. Gregg, London (*Chairman of Council*).
Three members appointed by the Private Practice Committee.
Three members appointed by the General Medical Services Committee.
One member appointed by the Scottish Committee.

JOINT FORMULARY COMMITTEE OF B.M.A. AND PHARMACEUTICAL SOCIETY

Four representatives appointed by the General Medical Services Committee, two by the Central Consultants and Specialists Committee, two by the Science Committee; together with two representatives appointed by the Royal College of Physicians (Dr. P. Hamill and Dr. D. Hunter), and representatives appointed by the Ministry of Health, and Service Departments.
With power to co-opt.

B.M.A. AND ROYAL COLLEGE OF NURSING LIAISON COMMITTEE

Dr. E. A. Gregg, London (*Chairman of Council*).
Mr. A. Staveley Gough, Watford.
Dr. H. Joules, London.
Mr. M. P. Reddington, London.
Chairman or nominees of the Central Consultants and Specialists, Private Practice, Central Ethical, Occupational Health, Nursing, and Public Health Committees.

MEDICAL CERTIFICATES IN PREGNANCY

With a view to reducing the amount of medical certification the Ministry of National Insurance has changed the procedure for dealing with cases where sickness benefit is claimed on the grounds of incapacity due to pregnancy.

Broadly speaking, these cases fall into two classes—namely, those women who claim sickness benefit from the sixth week before expected confinement and those who claim sickness benefit at an earlier stage. In the former class of case the fact that pregnancy is so advanced is normally acceptable as sufficient evidence of incapacity for work. In the latter it is necessary to consider whether her pregnancy causes the woman to be incapable of work.

It may happen that the woman, in order to claim maternity benefit, has obtained and lodged with the M.N.I. local office a medical certificate of pregnancy on Form B.M.4 or B.M.4(Rev.) (Claim to Maternity Benefit) at some time up to 11 weeks before the expected confinement. If her claim to maternity allowance fails because she does not satisfy the insurance-contribution conditions and, as an alternative, she then claims sickness benefit in the period beginning six weeks before the expected confinement, the one medical certificate—either on Form B.M.4 (or B.M.4(Rev.)) or on an ordinary medical certificate—will be accepted as sufficient evidence of incapacity until two weeks after the actual confinement. Therefore in the cases

during the whole of this period beginning with the sixth week before expected confinement and ending two weeks after the actual confinement there will be no need for weekly medical certificates.

Where the woman claims sickness benefit because of incapacity due to pregnancy at any time earlier than six weeks before the expected week of confinement, the usual weekly medical certificates of incapacity will be required only until the sixth week before the expected date of confinement, when, provided that she sends in a claim on Form B.M.4 or B.M.4 (Rev.), the woman will get either maternity allowance or sickness benefit according to the particular insurance qualifications in her case.

When issuing medical certificates of incapacity due to pregnancy it will help the woman in claiming benefit if the doctor gives the expected date of confinement and a brief note of the kind of work which the woman normally does. This information is particularly helpful in the case where the woman claims sickness benefit at any time earlier than six weeks before expected confinement.

SURVEY OF GENERAL PRACTICE

The Medical Practices Committee has issued the following amendments to the four schedules compiled from its survey (*Supplement*, Aug. 6, p. 70).

Schedule 1

Counties

ADDITIONS

Essex.—Barking, Chelmsford with Great Baddow, Chingford, Dagenham, Dovercourt and Harwich, Dunmow, Grays, Hornchurch with Harold Wood and Upminster, Laindon, Purfleet, Rainham, Rayleigh, Romford and Gidea Park, Seven Kings, Tilbury, Walthamstow, Wickford and Pitsea, Writtle.

DELETIONS

Soke of Peterborough.—Whittlesey and Market Deeping.

Schedule 2

Counties

ADDITIONS

Essex.—Abridge, Billericay, Braintree, Brentwood and Shenfield, Brightlingsea, Buckhurst Hill, Burnham-on-Crouch, Canvey Island, Chigwell and Chigwell Row, Clacton-on-Sea, Colchester, Hadleigh, Halstead, Harlow, Higham's Park, Ilford with Chadwell Heath, Barkingside, and Goodmayes, Kelvedon, Leyton, Leytonstone, Maldon, Manningtree, Newport, Ongar, Rochford, Sible Hedingham and Castle Hedingham, South Benfleet, Stanford-le-Hope and Corringham, Tiptree, Waltham Abbey, Wanstead, West Bergholt, Witham, Wivenhoe.

Oxford County and City.—Kidlington.

Carmarthenshire.—Newcastle Emlyn.

DELETIONS

Isle of Ely.—Long Sutton, Mildenhall, Peterborough, Ramsey, Upwell.

Cardiganshire.—Newcastle Emlyn.

CORRECTION

Yorkshire (West Riding).—Morley should be borough and not rural district.

Schedule 3

Counties

ADDITIONS

Essex.—Epping, Frinton-on-Sea and Walton, Great Wakering, Loughton, Saffron Walden, Stansted, Thorpe-le-Soken, Tollesbury, Woodford and Woodford Green, Woodford Bridge, Woodford South.

DELETIONS

Oxford County and City.—Kidlington.

Warwickshire.—Alcester Rural District.

Schedule 4

Counties

ADDITIONS

Devon and Exeter.—Combe Martin.

Essex.—Earls Colne, Great Bentley, Hockley, Hatfield Broad Oak, Ingatestone and Stock, Roydon, Southminster, Thaxted, Tillingham, West Mersea.

Warwickshire.—Alcester Rural District.

SUPERANNUATION FOR PART-TIME SPECIALISTS

OPTING OUT

The Ministry of Health has issued a leaflet (No. SDDA) setting out the circumstances under which part-time specialists in contract with hospital boards may opt out of the N.H.S. superannuation scheme.

The option is limited to *part-time* specialists, and those who wish to contract out must do so before Nov. 1, 1949, by giving written notice to the Ministry of Health, Health Services Superannuation Division, Honeypot Lane, Stanmore, Middlesex, on Form S.D.28A, which is obtainable from regional hospital boards or boards of governors of teaching hospitals. Copies of the leaflet SDDA, which is reproduced below, may be obtained from the same authorities.

Option Available to Persons Rendering Part-time Specialist Services who hold Life Assurance Policies

The option already given to medical and dental practitioners is now available to officers who joined the National Health Service on July 5, 1948, as persons rendering part-time specialist services and who were, at that date, committed to paying substantial premiums on life assurance policies.

The choice lies between (*a*) paying contributions and qualifying for benefits under the Health Service scheme, and (*b*) contracting out of that scheme and receiving as from Aug. 1, 1949, an amount equal to 8% of remuneration as a part-time specialist towards the maintenance of approved assurance policies.

The exercise of this option will be subject to the following conditions, which are substantially as discussed with representatives of the medical and dental professions when the option was given to practitioners. The object of these conditions is to secure that the payments are related to current policies giving cover broadly equivalent to that in the Health Service scheme:

(*a*) The policies must be endowment assurances or deferred annuity policies.

(*b*) The policies must not mature at an earlier age than 60. Where a policy would under its original terms have matured before age 60 it can be accepted if its terms are modified so that it matures at or after age 60.

(*c*) (i) The premiums (or total premiums) must not be less than £150 per annum. (ii) Alternatively, if the total annual premiums on existing policies are less than £150 per annum but not less than £50 per annum, these policies will be recognized on condition that the part-time specialist takes out, when requested to do so by the Ministry, a further policy which will bring the total premium to at least £150 per annum on policies satisfying the conditions set out in (*a*) and (*b*) above.

(*d*) The policies must not be assigned to any other person, or surrendered before maturity.

(*e*) Payment by the Minister of an amount equal to 8% of the remuneration as a part-time specialist will continue only so long as the premiums on the policies continue to be payable, and in any case it cannot continue later than the specialist's 70th birthday.

(*f*) The policies must be produced for inspection on a request by the Minister, or by the regional hospital board or board of governors on his behalf. Alternatively, a statement from the assurance company as to the nature of the policies may be submitted.

(*g*) Premium receipts must be submitted to the Minister, or to the regional hospital board or board of governors, for examination within one month after the date on which each payment of premium falls due.

Comparison of Advantages.—Before deciding whether or not to exercise this option a part-time specialist will wish to weigh the relative advantages of the courses open to him. Attention is therefore invited to the booklet "Superannuation Scheme for Those Engaged in the National Health Service—An Explanation," a copy of which was given to all entrants to the Service. Sections B and C of that booklet outline the contributions and benefits, and paras. 1, 5, 7, 16, and 25 deal with special conditions applicable to practitioners and part-time specialists who are subject to the scheme. Para. 16 of the booklet shows how benefits are calculated in the case of part-time specialists and should be borne in mind when reading the other paragraphs in Section C. Amending regulations now enable years of service up to five years after "pensionable age" to count towards pension, to a maximum of 45.

How to Exercise the Option.—A part-time specialist who wishes to contract out of the Health Service scheme may do so by giving written notice on a form (Form S.D.28A) obtainable from the regional hospital board or board of governors before Nov. 1, 1949.

If the option is exercised the part-time specialist will remain out of the Health Service scheme in respect of all future work either as a part-time specialist *or* as a practitioner on the list of the executive council.

A part-time specialist who is also a practitioner on the list of an executive council may already have elected to remain out of the Health Service scheme in his work as a practitioner. If that election was accepted he will now automatically be out of the scheme in his employment as a part-time specialist, and to ensure that he is paid the "employer's 8%" in respect of that employment he should inform the regional board or board of governors of his position.

Part-time specialists who hold appointments with more than one board need complete one form only.

Contributions Already Paid.—Any contributions already paid into the scheme by a part-time specialist who now comes out of the scheme will be refunded.

SICKNESS BENEFITS FOR IN-PATIENTS

Under regulations which come into force on Sept. 5 the National Insurance sickness benefit of a patient with a dependant will be reduced by 5s. a week (instead of the 10s. as at present) after he has been maintained free of charge under the National Health Service or by the Ministry of Pensions in a hospital for two months. There will be no further reduction if the beneficiary has arranged for all but 5s. of his benefit (which can be paid to him for personal expenditure) to be paid to the dependant. If he has no dependants his benefit will be reduced by 10s. a week after two months in hospital. After a year his benefit will be reduced to 5s., but on discharge a resettlement sum will be available. After the second year his benefit will be finally reduced to 5s. a week. Patients suffering from any form of respiratory tuberculosis will be able to receive 10s. (instead of 5s.) while they are in hospital, but the amount which is paid over to their dependants, or which can be paid on discharge, will be correspondingly reduced.

TRAINING OF ASSISTANTS IN SCOTLAND

The Department of Health for Scotland announces that general medical practitioners who wish to undertake the training of assistants in their practices, and claim special payments on this account, will shortly be invited to apply for recognition as trainer-practitioners. Recognition for this purpose will be given by regional selection committees appointed by the Secretary of State in consultation with the representative organization of the profession.

A practitioner who has been recognized by the selection committee will himself engage his assistant, and will claim a training grant from his local executive council. The grant will comprise :

(1) A training fee for the practitioner himself at the rate of £150 a year;

(2) Recoupment (up to a maximum of £700 per annum) of the salary paid by the practitioner to the assistant; and

(3) If necessary, an allowance for a motor-car for the assistant.

A grant will be payable only where a practitioner undertakes the training in general medical practice of a recently qualified doctor, and no increase in the number of patients on the practitioner's list will be permissible on account of the engagement of the assistant.

Applications for recognition will be made to the Regional Medical Officers of the Department of Health for Scotland, at Edinburgh, Glasgow, Dundee, Aberdeen, and Inverness, who will act as secretaries to the various regional selection committees.

These arrangements do not apply to the employment of an assistant, whether experienced or inexperienced, in a practice under ordinary conditions. No grant will be payable in such a case, and the practitioner concerned will not require to be recognized by the regional selection committee.

The conditions governing the training of assistants in England and Wales were published in the *Supplement* of Oct. 30, 1948 (p. 149).

RETURNING MEDICINE BOTTLES

CONTAINER ALLOWANCE REDUCED

The container allowance on medicine bottles, boxes, etc., will be reduced from 2½d. to 1½d. per prescription from Sept. 1. It is estimated that this measure will save the Exchequer at least £800,000 a year, but it will mean a corresponding loss to chemists unless the public co-operate by returning medicine bottles. The Minister of Health has taken this decision in agreement with the Central National Health Service (Chemist-Contractors) Committee.

A publicity campaign will be held to encourage the public to return to their chemists used medicine bottles in a clean condition.

HOSPITAL ORGANIZATION

HOUSE COMMITTEES

The Minister of Health has asked hospital boards to set up house committees, which will be committees of boards of governors or subcommittees of management committees. It will be for the parent body to decide whether it will delegate functions to its house committee—that is, give it final responsibility for decisions in defined spheres; or make decisions or recommendations of the house committee subject to confirmation by the parent body; or combine the two methods.

The Minister says that the value of house committees lies mainly in the field of overseeing the daily conduct of the hospital and making recommendations to the management committee or board of governors for those bodies to decide. The committee should also act as a link between the local community and the hospital and provide an opportunity for those interested to take part in hospital work. He considers that the powers delegated to house committees should not exceed the following :

General.—(i) Visiting, supervising the *welfare* of patients and staff, and making recommendations to the management committee or board on the day-to-day running of the hospital (but not taking executive action). (ii) Recommending developments or new policy to the management committee or board.

Financial.—(i) Managing the individual hospital's share of the management committee's or board's "free" money. (House committees cannot, however, legally accept or hold gifts, etc., under sections 59 (1) and 60. These must be held in the name of the management committee or board of governors.) (ii) House committees should not be empowered to incur on their own authority any expenditure from Exchequer funds.

When appointing members of house committees, the parent body should consult appropriate local organizations—for example, local authorities, trades councils, and women's and other voluntary organizations.

MEDICAL AUXILIARY WORKERS

ADVISORY COMMITTEES

Vacancies on the committees recently set up (*Supplement*, July 9, p. 44) by the Minister of Health and the Secretary of State for Scotland to review questions of recruitment, training, and qualifications of medical auxiliary workers in the National Health Service have now been filled by the following appointments :

Laboratory Technicians.—Professor L. P. GARROD, Dr. J. E. MCCARTNEY.

Almoners.—Professor C. WILSON.

Speech Therapist.—Miss E. Macleod.

Mr. T. C. L. Nicole, of the Ministry of Health, has succeeded Mr. J. G. Paterson as secretary of the eight committees, which are under the chairmanship of Mr. V. Zachary Cope, and Miss Gaffney, also of the Ministry, has been nominated as assistant secretary.

MARRIAGE ALLOWANCES OF NATIONAL SERVICE OFFICERS IN THE ARMED FORCES

A reply has now been received to the Association's protest at the Government's decision that National Service officers should not be eligible to receive the increased marriage allowances which have been payable since November, 1948, to regular and short-service officers.

The Ministry of Defence states that this decision was made because officers called up for service under the National Service Acts since Jan. 1, 1947, are eligible for National Service grants. The object of these grants is to relieve, within certain limits, cases of financial difficulty where the ordinary Service emoluments of officers serving compulsorily are insufficient to enable them to meet their obligations to their families and other dependants. For example, a wife and family whose living standards before service began cannot be maintained on marriage allowance and a reasonable allotment from the husband's Service pay. (It is also open to single officers in appropriate circumstances to apply for National Service grants.)

The maximum grant awarded is £3 a week, and a grant is treated as taxable income. The scheme is administered by the Ministry of Pensions. Application for a National Service grant must be made on Form N.S.G.21, which is obtainable by the officer from his unit.

PRACTICE OF ORTHOPTICS

VIEWS OF B.O.A.

The council of the British Optical Association has issued a reply to the memorandum on orthoptics prepared by the Faculty of Ophthalmologists and reported in the *Supplement* of June 18 (p. 349). The B.O.A. states that the Faculty's memorandum purports to compare the training of holders of the Diploma of British Orthoptists with that for the Diploma of Orthoptics of the British Optical Association (D.Orth.), and that it implies the former has certain advantages for three main reasons: (*a*) length of training; (b) clinical experience; (*c*) experience with surgical cases.

The British Optical Association says that the D.B.O. course until very recently was of only 12 months' duration, and consequently very few holders of the D.B.O. would have taken the present two-years course—the time referred to in the Faculty's memorandum. Moreover, the student for the D.Orth. must already have qualified in ophthalmic optics before entering for the examination. The standard of entry to the optical profession is that of the school certificate or its equivalent. The minimum requirement for training for the B.O.A. and similar examinations occupies at present three years full-time and will be extended to four years full-time from the autumn of this year, when one year will provide clinical experience.

The B.O.A. contends that the present D.Orth. course is a postgraduate one for practitioners who have already covered much of the subject, and that the diploma cannot be gained under four years, five years being a more general minimum period. Most opticians do not enter for it until they have obtained considerable experience in practice. At the last examination the average age of entrants was 36.8 years. The B.O.A. lists some medical men, including ophthalmic surgeons, who have acted as examiners for the D.Orth. and Fellowship examinations. "Thus every D.Orth. candidate has had to satisfy a medical examiner in some section of his examination."

Discussing clinical experience, the B.O.A. states that the Faculty's memorandum ignores the fact that ophthalmic opticians have organized their own orthoptic clinics. For the past 20 years the London Refraction Hospital has had its own orthoptics department. The hospital was founded in 1922, reconstituted by order of the Charity Commission in 1938, and is registered under that name. It was bombed during the war, but has now been re-equipped, and work has never ceased there. Children's attendances there at the two weekly children's clinics numbered over 2,700 in 1948, a large proportion of these being cases of squint. Considerable numbers attended on other days, and many older patients had squint or oculomotor anomalies.

The B.O.A. considers that it might be inferred from the Faculty's memorandum that ophthalmic opticians never refer squint cases for surgical treatment, but this is far from the truth. In training, considerable attention is given to the selection of cases for orthoptic training, to contraindications, and to the advantages of surgical treatment in certain cases. There is a substantial degree of cordial co-operation with ophthalmic surgeons. If facilities are forthcoming the B.O.A. is willing to consider making it a requirement that candidates, before examination, shall attend, for an agreed number of sessions, medical clinics where the surgical treatment of squint and heterophoria is carried out.

The B.O.A. complains that the importance of refraction in the treatment of orthoptic cases is not mentioned in the Faculty's memorandum, and it finds it difficult to understand why the memorandum does not refer to the orthoptic treatment of heterophoria "until it is remembered that heterophoria and refraction are so closely related in many cases that the one cannot be considered without the other, and that therefore the optician is the practitioner best equipped to deal with such cases."

The best interests of the public, says the B.O.A., will not be served by assigning the direction and control of ophthalmic opticians to medicine and making the optician orthoptist a medical auxiliary. "If proof were needed of the danger of such a step it is provided by the Faculty's memorandum itself, in which the medical aspect is not merely given precedence over, but is stressed almost to the complete exclusion of, all other methods used in orthoptics."

HEARD AT HEADQUARTERS

Telling the Americans

The theme of Sir Luke Fildes's picture, "The Doctor," which went to the heart of the British public half a century or more ago, has been adopted by the Americans in their campaign against socialized medicine. Mammoth reproductions of the picture—even, we believe, illuminations of it in the Piccadilly Circus style—have made their appearance, carrying the slogan, "Keep Politics out of this Picture." Our colleagues in the States can be trusted to exploit the arts of the publicity campaigner to the full. When Mr. Lawrence Abel went over there a month or two ago he delivered an address on the Health Service in Great Britain. On the following day he was required to deliver it again with three or four microphones in front of him, and a record was made of it so that his speech could be heard all over the States. One of the records is in this country, and we have heard Mr. Abel's voice putting the case with fervour.

Questions Answered

Retirement of Partner

Q.—*I am in partnership with my father. Half of our patients are on his list and half on mine. What happens to the patients on my father's list on his retirement or death? Do they automatically come on to mine, or are they told to choose any G.P. they wish?*

A.—Much would depend on the circumstances, but, on the assumption that the total list does not exceed the maximum of 4,000, and that another partner or assistant would not be required, the usual procedure would be that notification would be sent to patients on the retiring partner's list informing them that unless they select another doctor within one month they will be placed on the list of the continuing partner.

Correspondence

Distinction Awards and Grading

SIR,—As a member of a regional consultants committee and of the medical committee of a specialist postgraduate medical school I have been unable to obtain satisfactory information on certain problems which seem to me important.

The Spens Report divides medical men into general practitioners and specialists or consultants; it provides steps by which consultant status may be achieved; it grades the individual and recommends distinction awards. The distinction awards are to be granted to 34% of consultants in fixed proportions. The Spens Committee states that part-time service is to be assessed on a sessional basis; it appears to have overlooked the fact that a distinction award cannot be granted to a fraction of a person, and strange possibilities arise from this omission.

If we suppose that there are 100 consultants and give the awards to 34 whole-time workers, the remainder each doing one session a week, the distinction awards so given will cost the Treasury about 33.5% of the total salaries for the group of one hundred if the whole-timers each receive £2,500 a year salary and each of the part-timers $\frac{4}{44}$ of that amount. If, however, the 34 distinction awards are given to consultants doing one session a week and the rest of the hundred are whole-time workers, the cost of the distinction awards to the Treasury is about 2.3% of the total basic salary for the group. Either of these interpretations would seem to be in accord with the Report.

It seems elementary that consultants who have to look to these awards as the only means of recognizing exceptional ability should be protected by a clear understanding. The awards represent 14% of the total basic salary if only whole-time workers are considered, and this fraction of the total basic salary paid to consultants, both sessional and whole-time, might be set aside as a fund out of which the distinction awards are to be paid. This would secure that the profession actually receives the money to which it is entitled. It might also provide a pool out of which these awards could be paid uniformly in the future. Otherwise, once the distinction awards are given, we may find ourselves "waiting for dead men's shoes."

An aspect of distinction awards causing anxiety is the belief that these are to be distributed globally, so that it is thought possible that the smaller specialties may not receive the share of awards which is due to them on a numerical basis. If this should happen it seems inevitable that the more able consultants will shun the less favoured specialties. Another disturbing belief is that awards are to be made on a regional rather than a national basis. This might nullify the intention that the awards should be made in recognition of individual distinction and would make them, in effect, a political weapon forcing the best men away from the recognized centres of medical learning. This has even been acclaimed as desirable. But medical culture and science exist in "schools" for the very reason that in the association of exceptional minds is to be found the key to progress. An official statement on these matters is surely overdue.

The Spens Report grades the individual, not the post, and this principle has been reiterated by the Ministry: "Proper assessment can be arrived at only after consideration by professional advisers of the qualifications and experience of each practitioner." There can be no escape from the assumption that an individual, on his own merit, is or is not a consultant. In grading a man as an S.H.M.O. the assessors are stating quite definitely, "This man is not of consultant status." It follows logically that no one can be both a consultant and an S.H.M.O., yet in ophthalmology this anomaly occurs frequently. If a consultant obtains a distinction award, will the award be payable in respect of those sessions in which he is graded S.H.M.O.? And if not, why not?

In ophthalmology there will be scope for only about one in ten whole-time specialists to undertake operating. By custom this small group has come to have exclusive charge of ophthalmic beds in hospitals. Ophthalmology is essentially a clinical specialty, and the practitioner who has done one or more year's postgraduate training and obtained a diploma in ophthalmology, and who devotes his whole professional life to his subject, may fairly claim to be a specialist and to be entitled to monetary recognition of his postgraduate work.

Yet the application of this simple formula would create something like anarchy. It would mean that in our eye hospitals the surgical staff, usually with higher qualifications and bearing full responsibility, would receive the same remuneration as the permanent clinical assistants in out-patients.

To make these "clinical specialists" "registrars" would be dishonest: there will never be surgical posts for them. To make them S.H.M.O.s degrades them from the rank of specialist to which they believe themselves entitled by "qualifications and experience." Not only so, but as S.H.M.O.s, unless they are at the top of the salary scale, they are actually paid less than a general practitioner doing an occasional ophthalmic clinic. Unless this problem is solved ophthalmology will not attract the specialists—1,000 is the number officially envisaged—necessary for the N.H.S. to function effectively.

It is impossible to make the facts of ophthalmology fit the present scheme. At least two separate groups must be provided for: Registrars taking the Fellowship with ophthalmology, whose numbers must be related to the consultant posts available (and these may be less than 100 on a whole-time basis, with a replacement rate of five or less per annum); and a second registrar group taking the D.O. whose professional life will be that of clinical specialists in ophthalmology. It is urgently necessary that provision be made for the second and much larger group; at present both recognition of specialist status and adequate remuneration are lacking.

Ophthalmologists, and, I suspect, other specialists, cannot all be fitted into the Procrustean bed provided without such serious mutilation as may endanger their professional survival. It is necessary to modify this rigid framework, and this may well be achieved, since the modern Procrustes is concerned that his victims should survive.—I am, etc.,

London, W.1. FREDERICK RIDLEY.

Qualifications of Specialists

SIR,—In your leading article (*Journal*, July 23, p. 220) entitled "The Grading of Specialists" it is written, "Could it be said, for example, that an assistant medical officer in an isolation hospital should be designated as specialist and be paid in the terms of the Spens Report? The same question may also be asked of men similarly placed in sanatoria and mental hospitals."

May I submit that nobody in any branch of the hospital service would wish that an assistant medical officer should be so designated and paid, for, being an assistant medical officer, he would not have attained to the necessary experience and skill. It becomes an injustice, however, when the claims of senior and more experienced officers are ignored. It becomes a grave injustice when junior medical staff are graded higher than such senior officers at the same hospital or their more experienced colleagues in the same specialty in the same region, but this is what is being done by assessment committees in many regions if my information is correct, and I have no reason to doubt its being so.

It is because of differences in interpretation that your correspondents have written asking that the B.M.A. "should act to put matters right." To whom else can they appeal? These differences in interpretation would not have arisen if simple standards, openly declared and generally agreed to, had existed for the observance of all assessment committees. In the absence of such standards all kinds of weird rumours tend to appear.

Now that the Joint Committee has settled its differences with the Ministry it should turn seriously to the setting of its own house in order. The present discontents revolve around the burning question as to who should or should not be graded as specialists. It would be the rightful responsibility of the Joint Committee to publish its considered standards

in the matter, and to ask all assessment committees to review their gradings in the light of those standards.

I believe the present dissatisfaction would disappear if some such authoritative statement was made as to the qualifications of specialists; nor would it matter how high the standards were, provided they applied equally to everyone and were not altered in any way to suit any particular case.

As an illustration of what I mean, may I submit, with all due deference, that the Joint Committee should recommend and the assessment committees agree that no medical practitioner should be graded as a specialist unless

(1) In the case of the medical specialties he holds all three of the following qualifications—namely, (*a*) a doctorate in medicine of any university; (*b*) a fellowship of any Royal College of Physicians; (*c*) a specialist diploma granted by any university, faculty, or royal college;

and (2) in the case of the surgical specialties he holds all three of the following qualifications—namely, (*a*) a mastership in surgery of any university; (*b*) a fellowship of any Royal College of Surgeons; (*c*) a specialist diploma granted by any university, faculty, or royal college, the specialist qualification being in the case of obstetricians and gynaecologists either the M.M.S.A. or the M.R.C.O.G.;

or unless (3) he has had twenty years' experience in the actual practice of his specialty *in a senior capacity*.

As the hospital services developed, and the existing senior men retired, the number of specialists graded in group (3) would diminish steadily until eventually all specialists would be graded under either (1) or (2). Accordingly, it should be considered as essential for the future welfare and satisfactory progress of the hospital service that no medical practitioners should be graded as specialists under either (1) or (2) unless they hold, or until they obtain, *all three* of the fundamental qualifications specified for each of these groups.

I believe that some such scheme as this would be welcomed by the profession throughout the country as being concrete and definite, impersonal and just. If such a scheme was adopted and applied before the disputed gradings were confirmed it would banish at once and for all time those ugly spirits of suspicion and distrust which always appear when everything is dark and nebulous, secret and occult.

As we all know, in the latest issue of the "Terms and Conditions" the "specialist grade" has been omitted and a "consultant grade" introduced. It therefore becomes all the more important to ensure that the prestige of our consultants is not injured nor their quality lessened by the hasty and irregular grading of improperly qualified persons as "consultants."

As many of us are aware, provision has been made in the "Terms and Conditions" for the appointment of consultants "at age 31 or earlier." Generally, however, medical practitioners "at age 31 or earlier" cannot be expected to possess that wide experience which always has been associated with and commonly is required of those called "consultants," so that it seems to "old buffers" like myself that the careers of many promising young men and women might be damaged prematurely and unnecessarily by the invoking of this somewhat provocative provision.

There appears to be a case here for the reintroduction of the "specialist grade" for medical practitioners between the ages of 30 and 45, the title of "consultant" being reserved for specialists over the age of 45. If the Joint Committee were able to arrange this with the Ministry the old relationship and long association of specialists and consultants would be preserved, and incidentally assessment committees would be able then to solve some of their more tiresome problems.—I am, etc.,

SIC VOS NON VOBIS.

Grading of Hospital Staff

SIR,—I have been shocked by the many serious anomalies in the recent gradings and saddened by the apparent indifference of those more fortunate in what appears to be a lottery. Personally, I know six medical people who have been downgraded, so the condition must be widespread. They were all on the staffs of large voluntary hospitals before the Act, they were all freely elected to their positions, they all hold higher specialists' qualifications, and they are all recognized as specialists by their colleagues. Now they are made to suffer loss of prestige, and unless they are regraded they will suffer loss of income. They will certainly suffer unnecessary mental anxiety.

I am sorry to have noted throughout the whole of the recent business of regrading a certain meanness of behaviour on the part of certain regional boards. Roughly, all grading has been done by two bodies: (*a*) the groups of teaching hospitals, and (*b*) the regional boards. Those of us who serve on committees of both must be struck by the marked difference, not only in matters of grading, and have had pin-pointed the meanings of the words "profession" and "business."

I have called this grading a lottery; I am sorry to state that it is a dishonest lottery, for of the six cases to which I have referred three are graded as consultants by another board for exactly the same work and responsibility. What a farce. Fourteen days' leave to appeal is granted. This at the height of the holiday season, when there must be many who will not read of their downgrading until after this period has elapsed.

Now what are we to do? I write as one who was once proud to be a London specialist and who is now a National Health consultant. We must make our views known. We must speak with one voice. Injustice to a colleague affects us all. I know that a good doctor is a busy, tired doctor and that it is an effort to write a letter. But in a welfare State we are paid by the hour, and our prestige with our masters will not be in the hours of unpaid overtime we do but how vocal we are. It is only in this way that societies, professional or otherwise, can know the feelings of their members.—I am, etc.,

London, W.1. EDWARD CAREW-SHAW.

SIR,—I consider that the letter of "Quousque Tandem?" (*Supplement*, Aug. 6, p. 76) urging the lifting by the B.M.A. of the veil of secrecy which has hung over the whole apparatus of grading is a matter on which individual consultants and medical staff committees should press their local representatives to take action.

So far the B.M.A.'s Central Consultants and Specialists Committee appear perfectly content to allow some 50% of those whom they have been elected to represent to be professionally degraded and financially ruined without a murmur of public protest. At first the chairman advised consultants not to sign any contracts proffered, but now, because certain other matters such as arbitration have been adjusted, contracts are to be signed without a fight being put up on behalf of these unfortunates.

Unless we find leaders with the courage to fight our battles instead of giving them away we are doomed to sink lower and lower into the mire. Even now really vigorous action by the B.M.A. could save the situation, but if this is not forthcoming I hope every down-graded specialist or consultant will attend every business meeting of his B.M.A. Division and Regional Consultants and Specialists Association and there work unceasingly with the support of all the fair-minded amongst the favoured few who are now consultants for the overthrow of our present leaders and their replacement by men we can trust not to let us down again.—I am, etc.,

Taunton. R. F. WINCKWORTH.

Conduct of the A.R.M.

SIR,—The conduct of the business at the recent A.R.M. left much to be desired. Much time was wasted on non-essentials, while reports of committees were rushed through with indecent haste. On the first day about half an hour was spent discussing the *Formulary*—all very amusing—but the time could not be spared; while at the end of the meeting reports of twelve committees were rushed through in less than fifteen minutes. For the finance of the Association we could not spare fifteen minutes at a time in the history of the Association when this subject merits the most earnest consideration.

The report of the Health Centre Committee, the result of two years' work, had no chance of being discussed. The result of this is that the Association still has no health-centre policy.

Members of executive councils have no yardstick by which to measure local authorities' proposals for health centres, nor can they have such a yardstick for another twelve months. They cannot tell the lay members what is the considered opinion of the profession on health centres.

It is admitted at the outset that the chairman of the R.B. had his difficulties as did the Agenda Committee, but the chairman of the R.B. is responsible for the conduct of the meeting. Members of that body would welcome a fuller appreciation by the chairman of the relationship between the time available and the work to be done. The members of the R.B. must be prepared to submerge their own pet speeches for the good of the meeting, and the chairman should try to sense the feeling of the meeting so that he will know when they have heard enough on a particular subject.

Now that the agenda has become so much bigger we must either spend more time or use the same time economically: the latter course will probably appeal to most representatives. In order to spend the time more economically it will be necessary to ration the time available. It is therefore suggested that a definite time should be allotted to each committee's report, to start at a definite time on a definite day, and that business not covered by reports should also be taken at a definite time. The standing orders should be amended to allow the time limit for chairmen presenting reports to be fifteen minutes, other speeches ten and five. It is agreed that we all must play our part in making our A.R.M. efficient.

The essence of good chairmanship of such a body as the R.B. is quite different from the chairmanship of committees or Council. It is to be able to know what the meeting feels and apply this knowledge rigorously and justly. The time must be rationed by the Agenda Committee. Time of speeches must be limited.—I am, etc.,

Birmingham. ARTHUR BEAUCHAMP.

Domiciliary Midwifery Service

SIR,—I am not altogether surprised that you find the Ministry of Health statement (*Supplement*, Aug. 6, p. 74) on the domiciliary midwifery service discouraging (*Journal*, Aug. 6, p. 328). At the same time you must agree that their recommendations are very similar to the recommendations of the B.M.A. in "A General Medical Service for the Nation," published in 1938, which you quote. The difference is one of emphasis.

Before my colleagues in general practice start shooting, I should like to indicate the right target.

(1) It is certain that there are not enough G.P.s in this country at present to carry out all the antenatal and post-natal examinations and confine all the women at present attended by midwives. There would seem to be sense in continuing to use antenatal clinics and midwives, while giving every patient a chance of seeing her doctor before and after labour. More, it is reasonable for the Ministry not to offer financial inducement to the doctor to be too free with chloroform and forceps in the second stage. Normal midwifery should surely be normal.

(2) A large section of the Royal College of Obstetricians and Gynaecologists hold strong views about allowing any G.P. to do midwifery. They are appalled by the danger run by a woman who engages a G.P. to confine her. In their view no one but a specialist should be allowed to treat any abnormality in midwifery. For them it is the midwife for normals and the specialist for abnormals.

(3) I know that the G.P. has a contribution to make to normal midwifery. The G.P., at least, realizes that we are just beginning to understand what normal midwifery should be like.

(4) There is nothing in this Ministry of Health statement which prevents a G.P. from taking full charge of his patients if he wishes. Some rivalry as well as co-operation with midwives, antenatal clinics, and maternity hospitals will do us no harm—in fact, will act as a spur.

Let us not be discouraged. We can show the others that our standards are higher, not lower, than theirs. We can prove our value to the community by our work, and in the end we might even persuade the Royal College that a G.P. can be a good midwife.—I am, etc.,

Cambridge. CLEMENT W. WALKER,
Member of the Maternity and Midwifery Standing Advisory Committee.

Financial Bond

SIR,—The members of the Consett Division feel that the profession should make a very earnest attempt to co-ordinate the action of all doctors, especially those in the general medical service of the National Health Service, and to this end they suggest that a fighting fund should be introduced not only to provide some financial backing to the profession as a whole but also to act as a sort of guarantee that the majority decision will be adhered to under all circumstances by those subscribing to the fund. They feel that unless doctors bind themselves together by some financial bond, unified action is almost unattainable, and they therefore suggest that all general medical practitioners should be asked to bind themselves together in this way.

It is tentatively proposed that subscribers be asked to make over some percentage of their N.H.S. fees—say 2–3% per annum—to the fund, and that they should forfeit these contributions if they fail to adhere to the policy as adopted by majority vote.

I have been instructed by the members of this Division to write to you in order that you may publish this proposal in the *British Medical Journal* with the object of stimulating some interest in this subject and of obtaining the reaction of the profession to such a proposal.—I am, etc.,

Lanchester, Co. Durham. B. S. ALDERSON,
Hon. Secretary, Consett Division.

Freedom of the Citizen

SIR,—Your correspondent, "Lieut.-Col., R.A.M.C." (*Supplement*, July 16, p. 51) at least knew who had made the decision that he would not be "embodied." I merely received this information on a form from the Labour Exchange, and until I read his letter I was not aware that local medical committees had sat in judgment on us and decided our fate. Like your correspondent, I have given a large portion of my life to voluntary service in the Army, and continue to devote a great deal of my spare time to the training of the unit I command.

Now it appears that some committee of medical colleagues has decided, with no reference to me whatsoever, that I shall not be allowed to serve with my unit in the event of a future emergency. Apart from its discourtesy, this is an intolerable interference with the liberty of the subject. Further, unless prompt action is taken to rectify blunders of this nature, the effects on the undernourished Territorial Army, which is already causing great disquiet, are liable to have fatal consequences. But perhaps the powers that be are not really interested in the form of voluntary endeavour that the Territorial Army represents.—I am, etc.,

NOT TO BE EMBODIED.

Association Notices

Diary of Central Meetings

AUGUST

31	Wed.	General Medical Services Committee, 11 a.m.

SEPTEMBER

9	Fri.	Joint Committee on Fees for Part-time Work under Local Authorities, 2 p.m.
13	Tues.	Proprietary Medicines Committee, 11 a.m.
15	Thurs.	General Medical Services Committee, 11 a.m.
16	Fri.	Committee on Psychiatry and the Law, 2 p.m.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Dehton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

BRITISH MEDICAL JOURNAL

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GOETHE, AN APPRECIATION

BY

Sir CHARLES SHERRINGTON, O.M., G.B.E., F.R.C.P., F.R.S.

A cultivated public our civilized world over is now celebrating the bicentenary of the birth of Johann Wolfgang von Goethe. It would be difficult to find a happier event for commemoration. It had become Germany's turn for a literary heritage. America was still a stripling; the East was for Europe still a region partly fabulous. Our own continent rang the changes on itself. In *belles lettres* France and ourselves divided the honours. In our own case an era had supervened when the heroic couplet was supreme; even Homer's rush and flow were subject to it by the skill of Alexander Pope; and Thomson's *Seasons* offered a rural counterpoise to it with a commanding Continental following. Then it was that the German tongue in literature began to be heard—Herder, Schiller, and, as its head and front, Goethe.

Looking back in 1824, Goethe wrote, "I was fortunate. Shakespeare had left in English nothing else to do; but in German I soon got in front of what there was." The new era hailed not from Vienna or Berlin but from a provincial Court, Saxe-Weimar. It brought an engaging air of freshness; it derived from native springs. In some respects it had cousinship with ourselves, Burns, and the Percy *Reliques*. As an invasion it was transient, but its result was lasting. It affected Coleridge but touched little if at all the Romantics—Keats and Shelley and Wordsworth. Byron did not react to it, though it reacted to him. Its influence, of course, had in foreign travel to meet the drawback of using an alien tongue, and that difficulty was enhanced by a further circumstance—that the spear-head of the invasion came in the form of the lyric, and the great lyric is especially refractory to translation. It is often in short lines employing rhyme and a condensed felicity which ... yet be simple. As examples, and taking recourse to ...ory and to comparison, "Wer nie sein Brot mit Thränen ass," runs with "Fear no more the heat o' the sun"; and then again, "Liebchen, kommen diese Lieder jemals wieder dir zu Hand?" runs with "Who is Sylvia, what is she?" or de Musset's "Elle était belle, si la Nuit." The word-music is so wedded to the sense that no other words will do. Its audience is limited therefore to a native audience consisting of those to whom its language is their home tongue, and to a relative few outside that circle. Shakespeare's songs illustrate this and so do Goethe's *Gedichte*. Their native magic is incomparable, but it is not for export. This is a strong plea for a common language. The old monkish chants were in Latin. Esperanto? No, no; not until Esperanto has been lived in, laughed in, wept in, rejoiced in, sobbed in, can it be an adequate vehicle for a great lyric. Will such a day ever dawn?

Of all the major works of Goethe, I should suppose the dramatic poem, *Faust*, Part I, is the one most read to-day. I once visited the exceptionally complete Goethe library at Yale, and an impression which I received there was that of all his works *Faust*, Part I, is that which has called for most editions. It suffers somewhat less as to width of audience from the translation difficulty than do the lyrics. The story's general outline is so well known that even a reader not fully skilled in German can open it practically at any page and pick up something of the beauty of the text. We in English have the added zest of the echo of Marlowe's *Faustus*: "Was this the face that launch'd a thousand ships, and burnt the topless towers of Ilium? Sweet Helen, make me immortal with a kiss!" As imaginative poetry those lines are scarcely to be excelled, but Goethe's *Faust* is far richer in sustained intellectual dialectic. It is a poem in drama rather than an acting play: it is, however, given on the stage, especially in Germany, where it has the added appeal of being German. In it Goethe is thought to have succeeded in characterization better than anywhere else in the young girl Gretchen of Part I. Perhaps it is a pity that we readers should be asked to find a continuation of her in the somewhat wearisome Helen of Troy of Part II. Goethe is at his weakest in this respect in Part II. Of course he was when composing Part II already an aged man. As to the other *personae* of Part I, the restraint exercised in the delineation of Mephisto is a notable inspiration, a sort of mischievous "God's ape," too aloof for delight in the cruelty of what he does—a rebel against heaven, but of the meaner class. Anything more remote from Milton's Satan is not to be conceived. *Faust*, Part I, also instances what is not frequent in Goethe, humour—the garden scene with Martha.

As we think back to Goethe's masterpieces they strike us by their variety. During much of his career he was a literary sounding-board for the Europe of his time. *The Sorrows of Werther*, is a case in point. It has, I suppose, passed over into unreadability. But a romance which once took the reading world by storm cannot be altogether devoid of lasting merit. It reflected wholesale the sentimentality of a period when society lived on the brink of war, when domesticity in woman was a universally admired virtue and middle-class domesticity yearned for the romance attaching to the class above it. Sentimental romance is sadly at the mercy of satire, even from the good-natured. In halcyon times which we now call Victorian, Thackeray rallied the dear high-waistcoated Charlotte of Goethe. He remarked that even after her lover had killed himself "she, like a well-conducted person, went on cutting bread-and-butter." Goethe in his later years said that in Werther he was like the pelican drawing blood from his own breast. Is there not a Werther period in most young men, even to-day?

by the classical signs. In some cases it resembled pneumococcal meningitis. The cerebrospinal fluid was usually frankly purulent and the organism could be recovered from it. But the fluid may be clear, with only a lymphocytic reaction and a raised albumin to suggest the possibility of meningitis. In three cases the cerebrospinal fluid was normal in all respects, although severe suppurative meningitis was revealed at necropsy. Of the 25 cases only four were cured, and four became chronic.

Cure seems to be possible only in cases that are treated promptly: two who were eventually cured were treated when the cerebrospinal fluid was still clear and showed only an increase in lymphocytes and albumin. If treatment is insufficient or too late the patient may die or the disease may become chronic and hydrocephalus may appear. One of our patients, on whom we had decided to operate, developed hydrocephalus. A ventricular puncture revealed at first a clear fluid, which became opaque at the end of the aspiration and was found to contain *Bact. coli*. These findings precluded further intervention. These cases of hydrocephalus are rapidly progressive and call for operative treatment, but we have not yet seen a case in which this has been successful.

TABLE I.—*Treatment of Septicaemia without Meningitis*

Case No.	Age	Organism	Previous Illness	Sensitivity *in vitro*	Treatment (Units of Streptomycin)	Clinical Progress	Result	Necropsy Findings
1	5 months	Bact. coli	—	—	300,000 I.M.	Slow improvement	Recovered	
2	7½ ,,	,, ,,	—	—	600,000 I.M. and sulphonamides	Rapid improvement	,,	
9	8 ,,	,, ,,	—	Blood, 2,000 γ	300,000 I.M. and sulphonamides	,, ,,	,,	
11	1 year	Str. pneumoniae	—	—	1,000,000, later 500,000 I.M.	Improvement then rapid deterioration	Died	
12	2 months	Bact. coli	—	—	600,000 I.M.	Rapid improvement	Recovered	Fatty degeneration of liver; no meningitis
15	2 ,,	,, ,,	—	Blood, <5 γ	250,000 I.M.; 100,000 orally; sulphonamides	Progressive deterioration	Died	
20	1 year	,, ,,	—	Blood, 1,000 γ	700,000 I.M.; 100,000 orally	Rapid improvement	Recovered	
25	6 months	S. typhi-murium	—	Blood, 30 γ	400,000 I.M.; 100,000 orally; sulphonamides	Two successive attacks	,,	
26	3 ,,	S. enteritidis	—	Blood, 40 γ	400,000 I.M. and sulphonamides	Favourable	,,	
27	3 ,,	Bact. coli	—	Blood, 2,000 γ	600,000 I.M.; 300,000 orally; sulphonamides	Slow, with relapses	,,	
31	1 month	Ps. pyocyanea	—	—	300,000 I.M.	Very rapid improvement	Died	
33	2½ months	,, ,,	—	—	—;	Rapid deterioration	Died	
34	2 ,,	Bact. coli	—	—	,, ,, ,,

TABLE II.—*Treatment of Meningitis with or without Septicaemia*

Case No.	Age	Organism	State on Admission	Delay in Treatment	Sensitivity *in vitro*	Treatment (Units of Streptomycin)	Bacteriological Progress	Clinical Progress	Result	Necropsy Findings
3	18 days	Proteus vulgaris	— — —	3 days	C.S F. <5 γ	500,000 I.M. 100,000 I.V.	Good	Hyperpyrexia; convulsions	Died	Suppurative arachnoiditis
4	8 months	Str. pneumoniae	— —	1 month (relapse after sulph.)		300,000 I.M. 100,000 I.V. 50,000 I.T.	,,	Bad	Hydrocephalus; died	
5	1 year	,, ,,	—	0		900,000 I.M. 50,000 I.T. 4,000 I.V. sulphadiazine	Improvement then relapse	Improvement then deterioration	Died	
6	10 days	Str. pneumoniae, Proteus vulgaris	— — —	4 days	C.S.F. 20 γ	300,000 I.M. 100,000 I.V. 50,000 I.T.	Good	Bad	,,	Ventricular collapse; pus in two ventricles
7	1 month	Str. pneumoniae	— —	1 month	C.S F. 3–5 γ	300,000 I.M. 100,000 I.V. 50,000 I.T.	,,	Bad; pneumococcal superinfection	Hydrocephalus; died	Purulent arachnoiditis
8	6 weeks	N. meningitidis, Bact. coli	— —	0	C.S.F. 4 γ	800,000 I.M. 100,000 I.V. 100,000 I.T.	Rapid	Improvement then deterioration	Died	,, ,,
10	1 month	Str. pneumoniae, Bact. coli	— — —	5 days	Blood 1 γ C.S.F. 30 γ urine 50 γ	450,000 I.M. 50,000 I.T.	Rapid improvement then relapse	,, ,,	,,	
13	6 months	Bact. coli	— — —	0	Blood <5 γ stools and urine >2,000 γ	500,000 I.M., sulphonamides	Rapid	Bad	,,	Meningitis found
14	10 days	Proteus vulgaris	—	10 days		200,000 I.M. 30,000 I.T., sulphonamides		Improvement then rapid deterioration	,,	
16	2 months	Bact. coli	— —	0	C.S.F. >2,000 γ blood 5 γ urine >2,000 γ	300,000 I.M. 30,000 I.T.	,,	Slow improvement	Recovered	
17	17 days	Bact. coli, Str. pneumoniae	— — —	6 days		600,000 I.M.; penicillin 600,000 I.M., 25,000 I.T.	No improvement	Rapid deterioration	Died	Pus at base of skull
18	19 ,,	Str. faecalis	— —	0	Blood 100 γ	200,000 I.M. 50,000 I.T.	Nil	Bad	,,	
19	27 ,,	Bact. coli	— — —	2 days		300,000 I.M.		,,	,,	Meningitis found
21	7 weeks	,, ,,	— — —	4 ,,		150,000 I.M.		Progressive deterioration	,,	,, ,,
22	17 days	S. typhi-murium	—	8 ,,	C.S.F. 80 γ	200,000 I.M. 50,000 I.T.	Nil	Bad	,,	
23	5 months	Ps. pyocyanea	— — —	15 ,,	C.S.F. 40 γ	1,000,000 I.M. 100,000 I.V. 50,000 I.T.	Rapid	,,	,,	Purulent arachnoiditis
24	1 month	Bact. coli	—	1½ months	C.S.F. <50 γ stools 500 γ	300,000 I.M. 25,000 I.T., sulphonamides	,,	Relapse, then deterioration	Hydrocephalus; died	
28	4 months	Str. pneumoniae	— — —	0	C.S.F. 7 γ	500,000 I.M. 25,000 I.T. 100,000 orally	Good	Toxic relapse	Recovered	
29	2 ,,	Bact. coli	—	15 days		400,000 I.M. 12,000 I.T. 12,000 I.V.	Rapid in C.S.F., slow in ventricular fluid	Cachexia; hydrocephalus	Died	Hydrocephalus; suppurative ependymitis of 4th ventricle
30	3 ,,	Ps. pyocyanea	— — —	15 ,,	C.S.F. 3 γ	800,000 I.M. 25,000 I.T., sulphonamides	Rapid, then reappearance of organisms	Improvement, then relapse	,,	
32	27 days	,, ,,	— — —	4 ,,		400,000 I.M. 15,000 I.T.		Rapid deterioration	,,	
36	1½ months	Bact. coli	— — —	0		300,000 I.M. 15,000 I.T. 100,000 orally, sulphonamides	Rapid	Rapid improvement, then relapse	Recovered	
37	1 month	Salmonella	— — —	5 days	C.S.F. 150 γ	400,000 I.M. 25,000 I.T. 25,000 I.V.	Nil	Rapid deterioration	Died	Pus on vault, base, and spinal cord
38	15 months	Ps. pyocyanea	—	0	C.S.F. 2,000 γ	800,000 I.M. 200,000 orally 25,000 I.T. sulphonamides	Rapid	,, ,,	Recovered	
39	4½ ,,	Bact. coli	—	6 days	Blood 50 γ urine 2,000 γ	500,000 I.M. 200,000 orally 20,000 I.T. sulphonamides		Progressive deterioration	Died	Brain congested, thin fibrinous film at the base

I.M. = Intramuscular. I.V. = Intraventricular. I.T. = Intrathecal.

tivity of the organism *in vitro* and the clinical progress of the disease. We have proved this by centrifuging in five cases the clear (and therefore apparently sterile) tubes and culturing the deposit on agar. Although the five cultures originally appeared to be sensitive to concentrations of streptomycin of 1 γ, 10 γ, 20 γ, 40 γ, and 200 γ, respectively, it was demonstrated that the newly cultured organisms were still living and could grow in media containing 10 γ, 50 γ, 20 γ, and 500 γ of streptomycin. The organisms had therefore not been destroyed, but their development had been inhibited. The sensitivity of the organisms varied greatly from case to case, according to whether they were recovered from the urine, the blood, or the cerebrospinal fluid. The sensitivity of those affecting the meninges is obviously the most important.

It was not possible to estimate the resistance of the organisms in all our cases, but our results show that there is no clear relation between the resistance of the organisms and the clinical progress of the case. The progress of the patient is determined not only by his response to streptomycin but also by anatomical lesions and the obstruction they present to the diffusion of antibiotics. This is, in our opinion, the reason for the difference between the relatively favourable prognosis in cases with septicaemia and the extreme gravity of those with meningitis. All the necropsies on cases of meningeal infection have shown a purulent arachnoiditis at the base of the skull which was almost always associated with marked ventricular distension whether there was clinical hydrocephalus or not. It does not seem to us that these lesions acted by the simple

mechanism of producing ventricular block, but it is certain that they affected the circulation of the cerebrospinal fluid and the diffusion of streptomycin injected subthecally.

Comment

We cannot close this paper without remarking on the relative frequency of infection by intestinal organisms in infants. In many circumstances saprophytic organisms in the digestive tract of the newborn become pathogenic and produce bacteriaemia, septicaemia, and meningitis. It is significant that in 18 months we have been able to observe in the Clinique Médicale des Enfants 41 cases of this type of infection, 25 of which developed meningitis. The signs of these infections are often obscure at first sight, and many of the cases can be discovered only by the careful examination of infants suffering from toxaemia and subacute fever with alimentary disturbances.

A search must be made for the organism in blood, marrow, stools, urine, pus from the ear, cerebrospinal fluid, nasopharyngeal secretions, and pus from any metastatic suppuration in the skin. Repeated blood culture is extremely important. The occurrence during a gastro-intestinal illness of an inexplicable alteration in the patient's general condition or, as we have shown, a polymorphonuclear leucocytosis, is a diagnostic sign of great importance. The possibility of meningeal infection must always be considered, and lumbar puncture, repeated if necessary, must be done as a routine measure. At the same time it must be remembered that the cerebrospinal fluid may be normal or be little changed.

Summary

An account is given of 41 cases of infection in the infant by intestinal organisms, seen over a period of 18 months. Of these cases 16 had septicaemia alone and 25 developed meningitis.

The clinical features of the condition are discussed, and an account is given of treatment with streptomycin given by the intramuscular, oral, intrathecal, and intraventricular routes.

A method of assaying the sensitivity of organisms to streptomycin *in vitro* is discussed.

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The family allowances scheme has now been in operation for three years. The Ministry of National Insurance states that about 2,941,000 families of two or more children are receiving allowances varying between 5s. and £3 5s. a week at a total cost of £60 million a year. Family allowances are a payment of 5s. a week for every child after the elder or eldest below the age limit, which is usually 15 (school-leaving age), but is extended to July 31 following the sixteenth birthday where full-time education is continued and in cases of apprenticeship. During the three years the Ministry has received nearly three and a half million claims to family allowances, of which fewer than 100,000 have had to be rejected. The 2,941,000 families receiving allowances contain children within the qualifying ages as follows: two children, 1,850,000; three children, 688,000; four children, 247,000; five or more children, 156,000. The family drawing the largest allowance of £3 5s. a week consists of 14 children within the age limits. In the last year over 290,000 new claims to allowances resulted in payments for over 300,000 children. In the same period the total number of allowances in payment and the number of children for whom allowances are paid increased in each case by over 100,000.

STREPTOMYCIN TREATMENT OF INFANTILE DIARRHOEA AND VOMITING

BY

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Crowley *et al.* (1941), in a survey of the literature and from their own findings, concluded that no single specific aetiological agent could be incriminated in infantile diarrhoea and vomiting. A wealth of facts relating to the clinical and metabolic changes arising in that condition has been accumulated and has made treatment more rational and effective; none the less, modern medical science has not yet provided the answer to the challenge of this illness. It is therefore not surprising that almost every chemotherapeutic agent introduced during the last decade has been tried in the treatment of infantile diarrhoea and vomiting in the vain hope that it might offer a satisfactory solution to the problem.

Recently streptomycin has been used and a number of encouraging results have been published. James, Kramer, and Armitage (1948) treated 30 children aged from 6 days to 13 months with streptomycin by mouth, on the basis of their finding in the stools *Proteus vulgaris*, to which they attributed pathogenic significance. They pointed out that some of their cases not associated with *Pr. vulgaris* also improved on streptomycin. There were no deaths in their series, and convalescence was particularly rapid. In a control group of eight cases *Pr. vulgaris* was isolated from the stools of five infants; all recovered, though at a slower rate. The total dose of streptomycin was 2 g., given over a period of seven days. No toxic effects were noticed, and *Pr. vulgaris* was rapidly cleared from the gut as a result of treatment.

Pulaski and Amspacher (1947) reported an epidemic involving 13 infants, three of whom died; the successful outcome in the ten who recovered was attributed directly to streptomycin. The dosage used in all the cases was 0.1–0.2 g. of streptomycin per kilogram of body weight by mouth for two to ten days. Loeschke and Cochlovius (1949) attributed recovery from infantile gastro-enteritis to streptomycin in 9 of 13 cases. They gave 25–75 mg. five to eight times daily by mouth. Their bacteriological findings were *Bact. coli*, *Pr. vulgaris*, *Pseudomonas pyocyanea*, and *Streptococcus faecalis*. A reduction in the number of Gram-negative organisms isolated generally followed the oral administration of streptomycin. Leisti (1947) recorded his results in 46 infants suffering from diarrhoea; 38 were full-term babies, eight of whom died; 8 were premature infants, all of whom recovered. Streptomycin was given in a dosage of from 40,000 units (40 mg.) to 160,000 units (160 mg.) intramuscularly daily for one to eight days. Goettsch, Cobley, and Mulloy (1948) obtained excellent results in 44 cases of parenteral gastro-enteritis. There were three deaths in their group, which they felt could not be attributed to failure of streptomycin. Their dosage was 0.5 g. intramuscularly and 0.5 g. orally for seven to ten days

In the present investigation special attention was given to the presence in the stools of a serological type of *Bact. coli* var. *neapolitanum* (abbreviated in this paper to B.C.N.) and *Pr. vulgaris*, the object being to correlate the clinical effects of treatment with bacteriological findings. Organisms of the *Salmonella* and *Shigella* groups were absent in this series of cases. Bray (1945), Bray and Beavan (1948), Giles and Sangster (1948), and Taylor, Powell, and Wright (1949) have all described this particular serological type of *Bact. coli* associated with a high percentage of cases of infantile diarrhoea and vomiting. Dr. C. Giles kindly placed at the disposal of one of us (G.M.) antisera and subcultures of his alpha and beta types of *Bact. coli*, from which our own antisera were prepared (the alpha type corresponding to B.C.N.). Full details of the bacteriological investigations and findings will be published later.

Stools were cultured before streptomycin was given and just before or after the end of treatment. No case was considered to be negative for B.C.N. until at least 30 colonies had been tested specially. The streptomycin sensitivity of B.C.N. strains was tested on plates, using strips of filter-paper soaked with 1 mg. per ml. of streptomycin.

Results of Treatment

Cases of non-specific infantile diarrhoea and vomiting admitted to hospital, as well as those developing the disease after admission, were divided into three groups. One group was treated with streptomycin by intramuscular injection, a second group by oral administration, while every third case, regardless of its severity, acted as a control and formed the third group.

Two standard schemes of dosage were employed for both the intramuscular and the oral route of administration. The first was to give 20 mg. of streptomycin per lb. body weight per day, divided into doses given at four-hourly intervals day and night for five to seven days; the second was to administer 100 mg. at four-hourly intervals for 24 hours and 75 mg. at four-hourly intervals for the remainder of the period, which varied from four to six days. The total dosage used for a single case therefore rarely exceeded 3 g. Five to seven days' treatment was regarded as adequate for assessment of failure or success.

All patients were given fluids, whether receiving streptomycin or not. The following fluids were used: plasma, blood, 5% glucose in N/5 saline, Hartmann's solution, 2.5% or 5% casydrol intravenously, according to the requirements of the individual infant. Feeding was started after 24 or 48 hours with a diluted skimmed lactic acid milk, gradually increasing the concentration of the formula if improvement was maintained. During the starvation period Hartmann's or Darrow's solution was given by mouth.

The clinical condition of each patient was classified as mild, moderate, or severe, according to the degree of dehydration, character of stools, persistence of vomiting, and initial loss of weight. The existence and the nature of parenteral infection were noted.

The effect of treatment was assessed by the clinical response. Some cases improved rapidly and recovered during the course of streptomycin treatment, and it was these which had to be considered as possibly benefiting from streptomycin therapy. Others showed no improvement during the period when streptomycin was given, but recovered eventually; these were considered not to have responded to streptomycin. Fourteen (19%) of the patients died.

Two levels of dosage have been mentioned, but as there was no apparent benefit from the higher dosage no differentiation has been made in analysing the results.

Table I sets out the number of cases, classed according to clinical severity and the response to treatment. The control group and the cases as a whole are included for comparison.

The details of individual cases are shown in Tables II, III, and IV.

Bacteriological Observations

Of the 79 cases in this series, B.C.N. was isolated from the faeces at the first examination in 50 (63%). It was more commonly present in severe cases (76%) than in moderate and mild cases (50%). The difference is statistically significant, as it is just over twice the standard error. Of severe cases in which the organism was found, 42% ended fatally (13 of 31 cases). In comparison, of the severe cases which did not have the organism 10% were fatal (1 of 10 cases). This difference is also significant statistically, being more than twice the standard error.

One may therefore conclude that in this series there was a significant correlation between severity of case and the presence of B.C.N., and also between the probability of death in severe cases and the presence of this organism.

TABLE I.—*Details of Cases showing Clinical Severity and Response to Treatment*

	Intramuscular Treatment				Oral Treatment				Control				Total			
	Total Cases	Rapid Improvement	Delayed Improvement	Died	Total Cases	Rapid Improvement	Delayed Improvement	Died	Total Cases	Rapid Improvement	Delayed Improvement	Died	Total Cases	Rapid Improvement	Delayed Improvement	Died
Clinical condition of all cases:																
Severe	16	3	8	5	14	5	3	6	11	8	—	3	41	16	11	14
Moderate	7	6	1	—	10	8	2	—	14	14	—	—	31	28	3	—
Mild	1	1	—	—	2	2	—	—	4	4	—	—	7	7	—	—
Total	24	10	9	5	26	15	5	6	29	26	—	3	79	51	14	14
Cases with parenteral infections:																
Severe	7	2	3	2	4	2	—	2	3	3	—	—	14	7	3	4
Moderate	3	3	—	—	3	3	—	—	4	4	—	—	10	10	—	—
Mild	1	1	—	—	1	1	—	—	2	2	—	—	4	4	—	—
Total	11	6	3	2	8	6	—	2	9	9	—	—	28	21	3	4
Cases without parenteral infections:																
Severe	9	1	5	3	10	3	3	4	8	5	—	3	27	9	8	10
Moderate	4	3	1	—	7	5	2	—	10	10	—	—	21	18	3	—
Mild	—	—	—	—	1	1	—	—	2	2	—	—	3	3	—	—
Total	13	4	6	3	18	9	5	4	20	17	—	3	51	33	11	10

TABLE II.—*Intramuscular Streptomycin Treatment of Infantile Diarrhoea and Vomiting*

Case No.	Age	Sex	Clinical Condition		Bacteriology of Stools		Result
				Parenteral Infection	Before Treatment	After Treatment	
3	6 weeks	F	Severe		B.C.N. (S.)	B.C.N. (S.)	N.I.*
8	11 months	M	Moderate	Upper resp. infection	*Pr. vulg.*	*Pr. vulg.*	Improved
9	3 weeks	F	,,		B.C.N. (R.)	Negative	N.I.
10	10 weeks	F	Severe		*Pr. vulg.*	*Pr. vulg.*	N.I.
11	3 ,,	M	,,		B.C.N. (R.)	B.C.N. (S.)	Died
12	3 ,,	F	,,		B.C.N. (S.)	B.C.N. (S.)	Improved
17	3 ,,	M	,,	Otitis media	B.C.N. (S.)		Died
18	10 ,,	F	Mild	Upper resp. infection	*Pr. vulg.*	*Pr. vulg.*	Improved
19	3½ months	F	Moderate		*Bact. coli* (beta) (S.)	Negative	,,
23	4 ,,	F	Severe		*Pr. vulg.* *Bact. coli* (beta) (S.)	No *Proteus* *Bact. coli* (beta) (R.)	N.I.
26	2½ ,,	M	,,	Otitis media	*Pr. vulg.* *Bact. coli* (beta) (R.)	Negative *Pr. vulg.*	Improved
27	5 weeks	M	,,	,, ,,	B.C.N. (S.)	B.C.N. (R.)	N.I.
32	1 year	F	,,	,, ,,	B.C.N. (R.)		Died
34	4 months	F	Moderate		B.C.N. (R.)	B.C.N. (R.)	Improved
45	7 ,,	M	,,	,, ,,	B.C.N. (S.)	B.C.N. (R.)	,,
47	3 weeks	M	Severe		B.C.N. (S.)	B.C.N. (R.)	N.I.
50	5 months	F	,,	Mastoiditis	B.C.N. (S.)		Improved
54	2 ,,	F	Moderate		B.C.N. (R.)	B.C.N. (R.)	,,
59	4 weeks	F	,,	Pneumonia	Negative	Negative	,,
67	2 months	M	Severe		Negative	Negative	N.I.
76	5½ ,,	M	,,		B.C.N. (S.)	B.C.N. (R.)	Died
77	6½ ,,	F	,,	Pyelitis	B.C.N. (R.)		N.I.
84	2 ,,	M	,,		B.C.N. (R.)		Died
86	18 ,,	F	,,	Otitis media, pyelitis, pink disease	B.C.N. (S.)	B.C.N. (R.)	N.I.

* N.I. = Not improved, but recovered later on routine treatment. S. = Streptomycin-sensitive. R. = Streptomycin-resistant.

These findings may not, however, apply generally, and in themselves may not indicate a causal relationship.

The organism was often found in mild and moderate cases. It also persisted in recovered cases, even those which had been clinically severe. Of 50 recovered cases it was found in 27 (54%), which was a very small reduction compared with the initial incidence of 63% if a causal relationship existed.

About half the cases from which the organism was isolated before treatment yielded streptomycin-resistant strains (24 of 50 cases, 48%). Strains which were initially sensitive often became resistant during treatment, a change which was noted in 12 of 16 cases (Tables II and III). Five of these 12 cases recovered satisfactorily.

The findings as a whole may be regarded as not supporting an aetiological relationship of this organism to infantile diarrhoea and vomiting. They indicate, too, that streptomycin therapy had little effect in eliminating the organism from the bowel.

Pr. vulgaris was isolated initially in 10 cases, in 6 cases being associated with B.C.N. or the beta type of *Bact. coli*. Seven of the 10 cases were classified as severe. This organism appeared to have a minor significance in this series. It was not present in any of the patients who died.

Discussion

Our investigations confirm the frequent occurrence of a special type of *Bact. coli*, referred to as B.C.N., in the stools of infants suffering from infective gastro-enteritis, though this association was less common in our cases than in the series reported by Bray and Beavan (1948), Giles, Sangster, and Smith (1949), and Taylor, Powell, and Wright (1949). No evidence has yet been forthcoming to prove the pathogenic importance of any of the varieties of *Bact. coli* shown to be associated with infantile diarrhoea.

B.C.N. was isolated from 25 of 32 cases arising after admission to hospital; in all probability these were the result of cross-infection, a conclusion that was supported

TABLE III.—*Oral Streptomycin Treatment of Infantile Diarrhoea and Vomiting*

Case No.	Age	Sex	Clinical Condition		Bacteriology of Stools		Result
				Parenteral Infection	Before Treatment	After Treatment	
2	2 weeks	F	Severe		B.C.N. (S.)	B.C.N. (S.)	Died
5	5 months	F	Moderate		Negative	Negative	Improved
13	5 ,,	M	Mild	Otitis media	B.C.N. (S.)	B.C.N. (R.)	,,
15	7 weeks	M	Severe	Bronchitis	B.C.N. (R.)	B.C.N. (R.)	N.I.*
28	3½ months	F	,,		B.C.N. (S.)	B.C.N. (S.)	N.I.
30	3 weeks	M	Moderate	Pneumonia	Negative	Negative	Improved
31	2 months	F	,,		B.C.N. (R.)	B.C.N. (R.)	,,
40	5 ,,	M	Severe		Negative	Negative	,,
46	6 weeks	M	Moderate	Bilateral otitis media	B.C.N. (S.)	B.C.N. (R.)	,,
48	5 ,,	M	Severe		Negative	B.C.N. (R.)	N.I.
49	3 months	M	,,		B.C.N. (R.)	B.C.N. (R.)	Improved
51	14 days	M	Moderate	Upper resp. infection	B.C.N. (S.)	B.C.N. (R.)	,,
53	3 weeks	F	Severe		B.C.N. (R.)	B.C.N. (R.)	Died
55	4 ,,	M	Moderate		Negative	B.C.N. (R.)	N.I.
57	3 ,,	F	,,		Negative	B.C.N. (R.)	Improved
58	9 ,,	M	,,		B.C.N. (S.)	B.C.N. (R.)	,,
60	5 ,,	M	Severe		B.C.N. (R.)	B.C.N. (R.)	,,
62	6 ,,	M	,,		B.C.N. (R.)	B.C.N. (R.)	,,
63	3 ,,	M	Moderate	Bronchopneumonia	B.C.N. (R.) *Pr. vulg.*	B.C.N. (R.) No *Proteus*	,,
64	9 months	M	Severe	Bronchitis	B.C.N. (R.)		Died in 24 hrs.
65	3½ ,,	F	,,	Pneumonia	B.C.N. (R.)	B.C.N. (R.)	Improved
68	14 days	M	Mild		Negative		,,
72	7 months	F	Severe	Bilateral otitis media	B.C.N. (R.)		Died
74	4 weeks	M	,,		B.C.N. (R.)	B.C.N. (R.)	,,
75	11 ,,	M	Moderate		B.C.N. (S.)	B.C.N. (R.)	N.I.
79	6 ,,	M	Severe		B.C.N. (S.)	B.C.N. (R.)	Died

*N.I. = Not improved, but recovered later on routine treatment. S. = Streptomycin-sensitive. R. = Streptomycin-resistant.

TABLE IV.—*Control Cases of Infantile Diarrhoea and Vomiting on Routine Treatment*

Case No.	Age	Sex	Clinical Condition		Bacteriology of Stools		Result
				Parenteral Infection	Before Treatment	After Treatment	
4	1 year	M	Moderate		*Bact. coli* (beta) (S.)		Improved
6	3½ months	F	"		B.C.N. (S.)		"
7	9 "	F	"	*O.R.I.*	Negative	B.C.N. (R.)	"
14	3½ "	F	"	Otitis media	B.C.N. (S.) + *Bact. coli* (beta) (S.)	Negative	"
16	10 weeks	M	Severe	" "	Negative + *Pr. vulg.*	Negative + *Pr. vulg.*	"
20	15 months	M	Moderate		Negative	Negative	"
22	7 weeks	F	"		B.C.N. (R.)		"
25	4 months	M	Severe	" "	B.C.N. (S.)	B.C.N. (S.)	"
29	1 month	F	"	" "	Negative		"
35	6 months	F	Moderate		B.C.N. (S.)	Negative	Died
37	6 "	F	"	Pyelitis and pneumonia	Negative	"	Improved
39	2 "	M	Mild		*Bact. coli* (beta) (S.)		"
42	5 weeks	M	Moderate		B.C.N. (S.)		"
43	10 "	F	"	Upper resp. infection	Negative		"
44	9 months	F	Mild	Pneumonia	Negative		"
52	9 "	M	Severe		B.C.N. (R.)		Died in 24 hrs.
56	3 weeks	F	Mild		Negative		Improved
61	4 months	F	Moderate		B.C.N. (S.)	"	"
66	10 "	M	Severe		B.C.N. (R.)	"	"
69	7 "	F	Mild	Bronchopneumonia	Negative	"	"
70	8 "	M	Severe		B.C.N. (S.)		"
71	5 "	M	"	Upper resp. infection	*Bact. coli* (beta) (S.) + *Pr. vulg.*		"
78	8½ "	M	Moderate		B.C.N. (R.)		"
80	11 weeks	F	Severe		B.C.N. (R.)		Died
81	4 months	F	Moderate		B.C.N. (S.)		Improved
82	4 "	M	Severe		Negative		"
83	4 weeks	F	Moderate		*Bact. coli* (beta) (R.)	"	"
85	2 months	M	Severe		B.C.N. (S.) + *Pr. vulg.*	Not received	"
87	3 weeks	M	"		B.C.N. (R.)	B.C.N. (R.)	"

S. = Streptomycin-sensitive. R. = Streptomycin-resistant.

by the more frequent isolation of streptomycin-resistant strains later in the investigation. This may be accounted for by survival of resistant strains only in patients under treatment or by cross-infection with a B.C.N. strain originally sensitive but resistant after treatment.

Bacteriological investigation thus would not seem to justify streptomycin therapy, though the presence of B.C.N. in a severe case of infantile diarrhoea and vomiting may be regarded as a warning signal and a pointer to a more serious prognosis.

Clinical improvement in some patients receiving the antibiotic seemed to be attained at a more rapid pace than in those treated by standard measures. Especially was this so in cases associated with a parenteral infection: stools returned to normal in a shorter time and the upward trend in the patient's general condition appeared steeper. In agreement with this are the favourable results recorded by Goettsch, Cobley, and Mulloy (1948) in their cases of parenteral gastro-enteritis.

In a number of our cases streptomycin was followed by a spectacular improvement—in others it failed completely. Even detailed analysis of the case histories has not furnished clinical or bacteriological indication for the use of the antibiotic. In each individual case the result of streptomycin therapy was also unpredictable.

Summary

The results of streptomycin treatment of infantile diarrhoea and vomiting are discussed.

Streptomycin was given to 26 cases orally, and to 24 intramuscularly, while a control group of 29 cases received no antibiotic.

The dosage of streptomycin was either 20 mg. per lb. body weight per day for five to seven days, or 600 mg. for the first 24 hours, followed by 450 mg. daily for a further four to six days.

The results do not indicate that streptomycin exerts any specific therapeutic effect.

The frequent association of a special type of *Bact. coli* (B.C.N.) with infantile diarrhoea and vomiting was confirmed, being found before treatment in 50 out of a total of 79 cases, but no evidence was obtained that it was of any aetiological significance.

Our thanks are due to Professor Gaisford for his encouragement and valuable criticism; to Professor Maitland for allowing facilities in the department of bacteriology and for help with bacteriological problems; and to Drs. S. K. Guthrie, R. I. Mackay, and N. Wells for permission to include some of their cases in our investigation

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Food Investigation, 1947, is a report from the Department of Scientific and Industrial Research (H.M.S.O., price 6d.) which is written for the non-specialist. It describes work which has been done on whalemeat during an expedition to the Antarctic by the factory ship *Balaena*. It was found that the whalemeat was much improved in quality if the whale was bled and cooled down rapidly. The practice recommended was to make an incision in the main blood vessels in the neck and to slit the belly wall so that the cold sea-water could circulate. In this way the meat could be kept in good condition for 18 to 24 hours. Research on meat, fruit, and potatoes continued during the year, and at the Torry Research Station quicker and more convenient methods of freezing were studied. Lobsters are apparently better frozen cooked than raw. Rapidly frozen cooked lobsters can be stored for eight months with little change in flavour and texture.

THE AETIOLOGY OF GRAVITATIONAL ULCERS OF THE LEG

BY

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The term "gravitational ulcer," first used by Dickson Wright (1931), refers to those chronic ulcers which occur on the lower half of the leg associated with one or more of the following: oedema, cyanosis, induration, sclerosis, pigmentation, loss of hair, eczema, and varicose veins of the affected limb. These are signs of chronic impairment of the venous drainage of the leg. The importance of gravity in the cause of this condition was stressed by Brodie (1846) and by Hilton (1863). Brodie called such ulcers "varicose," and they have long been thought to be due to varicose veins. Gay (1868) was probably the first to show, by clinical observation and careful dissection, that many were due to obstruction of trunk veins, deep and superficial, and that varicose veins often play no part. Gay's work seems to have been forgotten or has been neglected, and the view that varicose veins are the main or only cause has persisted (McPheeters, 1928). Dickson Wright (1931) and Homans (1939) held this opinion, though both believed that some gravitational ulcers were due to thrombosis of deep veins. However, in a series of 432 patients with leg ulcers Birger (1941) found that thrombosis was the chief factor. Nilzén (1945) thought that certainly 41% or possibly 56% of such ulcers were caused by previous thrombosis, Bauer (1946) that 80–90% and Birger (1947) that 40% were due to this cause.

The belief that varicose veins play a major part in the aetiology of these ulcers has affected treatment, which until the last few years has concentrated attention on such superficial varicose veins as might be present.

Allen, Barker, and Hines (1946) considered that chronic venous insufficiency or stasis of the venous blood flow was due to obstruction of one of the main veins of the limb, particularly the ilio-femoral, as the result of thrombophlebitis, neoplastic invasion, or external pressure; incompetency of valves of the ilio-femoral vein resulting from thrombophlebitis without permanent obstruction of the vein; or varicose veins of primary type (i.e., developing spontaneously), particularly those of long standing or considerable extent.

The chief manifestations of chronic venous insufficiency are in the skin and subcutaneous tissue, and are thought to result from venous stasis rather than from increased venous pressure. As a result of stasis the venous blood has a low content of oxygen and a high content of carbon dioxide and other products of metabolism (Dickson Wright, 1931). The nutrition of the tissues is impaired and oedema and necrosis may result. Ulceration of a limb with venous stasis may occur at the site of a local thrombosis of small superficial veins or it may follow trauma with broken skin. The healing power of the poorly nourished tissues is affected and trauma may not be followed by repair. Hence ulceration is a common complication of chronic venous insufficiency. Infection plays little or no part in ulceration (though it may cause thrombosis). There is no relation between the type of infection or the bacteria in the ulcerating area and the slowness or rapidity with which the ulcer heals. Those ulcers which heal most rapidly often contain the most bacteria (Löwenfeld, 1924).

The importance or otherwise of varicose veins in causing chronic venous insufficiency and ulceration is still a matter of dispute. Certain it is that many individuals with severe varices do not suffer from either. Furthermore, patients with chronic venous insufficiency and ulceration of the leg are seen not uncommonly with no varicose veins visible or palpable.

The venous circulation of the limbs can be investigated by clinical examination, including the patient's history, the condition of the limbs, certain special tests (the Brodie-Trendelenburg, Perthes's, etc.), phlebography, venous pressure estimations, examination of veins after surgical removal, and post-mortem dissection.

Present Investigation

This investigation was undertaken to try to determine the cause of ulceration in a series of 270 unselected patients examined and treated personally. The methods employed were clinical, with phlebography in a few patients.

The term "thrombosis" is used here to denote thrombosis of one of the deep veins of the lower limb, and is assumed to have taken place if there is a history of chronic oedema of the leg of sudden onset, with or without pain and tenderness in the calf and with other signs of persistent venous stasis. Symptoms of pulmonary embolism at the onset and the appearance of varicose veins soon after are taken to indicate that thrombosis occurred.

There were 192 female and 78 male patients. Their age at the onset of ulceration varied greatly. One woman who had suffered from osteomyelitis of the left leg when aged 7 first developed an ulcer in that leg after slight trauma at the age of 13, and another first developed an ulcer at 17 years while suffering from congenital haemolytic icterus. Ulceration occurred in one youth of 17 a year after Trendelenburg operation. Most ulcers appeared during the fourth and fifth decades, but in one patient not until the eighth.

Family History.—Patients were questioned about the presence of varicose veins or ulceration of the legs in their parents, brothers, sisters, or children. Twelve patients were uncertain and 140 (54%) of the rest gave a positive family history.

Illustrative Cases.—Three sisters (unmarried) had gravitational ulcers. Their mother, one of their four brothers, and another sister (married, with five children) had ulcers. Four other sisters were unaffected.

A tram driver had gravitational ulcers. Both his parents had varicose veins and two maternal aunts had ulcers.

Heredity may play a part in the aetiology of ulceration of the legs associated with purpura haemorrhagica, sickle-cell anaemia, congenital haemolytic icterus, splenic anaemia, Gaucher's disease (Witts, 1942), or Cooley's anaemia (Este, Farber, and Stickney, 1948); otherwise its importance in this condition is not well established. Weber, Rast, and Lutteroti (1930), however, described chronic ulceration of the legs following pneumonia in a man of 25 with thrombo-angiitis obliterans whose father had suffered from similar ulcers, and Carleton (1948) showed a striking family history in two sisters with varicose ulcers. Congenital absence of valves in the veins of the leg as described by Eger and Casper (1943) and Curtis and Helms (1947) may be important in relation to inheritance. Weber (1948) wrote that *there certainly is a constitutional tendency to ulcus cruris* in some families.

Occupation.—Table I shows the occupations followed at the time ulceration appeared. It will be noted that very

TABLE I.—*Occupation*

Men (Total 78)		Women (Total 192)	
Standing		*Standing*	
Fitter or driller	10	Housewife	132
Labourer	8	Shop assistant	14
Farmer	5	Weaver or spinner	11
Shop assistant	4	Office cleaner	5
Warehouseman	4	Canteen worker	5
Joiner	3	Cook or kitchen worker	5
Gardener	2	Hoffman presser	3
Boiler fireman	2	Tailoress (half sitting)	3
Painter	2	Barmaid	2
Boot repairer	2	Landworker	2
Tailor's cutter	2	Hairdresser, laundry hand, varnisher, 1 each	3
Tailor's presser	2		
Baker, bricklayer, circus hand, cleaner, compositor, cook, *dentist, engineer, fur cutter*, grinder, hairdresser, laboratory attendant, miner, motor mechanic, music-hall artist, optical instrument maker, paper maker, plate-layer, porter, roller coverer, scourer, shoeing smith, steward, tea blender, tram driver, tram conductor, washhouseman, watchman, 1 each	28		
Total	74	Total	185
Sitting		*Sitting*	
Unspecified	2	Unspecified	3
Clerk	2	Office worker	2
		Printer	1
		Mender	1
Total	4	Total	7

few patients had sedentary jobs, and that many worked standing with little activity as in fitting, drilling, shopkeeping, weaving, and spinning. Although many miners attend this hospital, only one was seen with a gravitational ulcer. Constant muscular effort while working, standing, kneeling, or lying may prevent venous stasis.

Child-bearing.—Of the 192 women, 37 (19%) were nulliparous. The remaining 155 had 1 to 15 children each (mean 4.1).

Weight.—Obesity has been thought to be of importance in relation to gravitational ulcers (Dickson Wright, 1931; Heller, 1943; Mahorner, 1949). The weight of patients in this series varied between 45 and 132 kg.: a distribution curve is shown in Fig. 1. Nine men and 29 women weighed more than 89 kg., and, of these, four men and twelve women weighed more than 100 kg. One woman weighed 132 kg. It would appear that in the majority of patients with ulcers obesity plays no part in the aetiology.

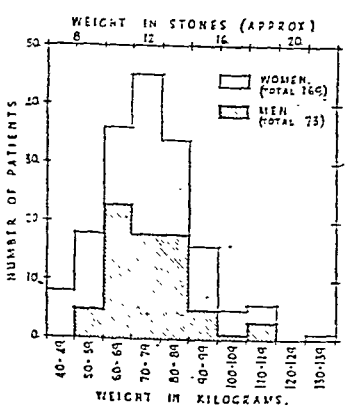


FIG. 1.—Distribution curve of body weight.

Blood Pressure.—The blood pressure of 69 men and 172 women was determined. The readings of the women were classified in age groups. The number with systolic pressures above 140 mm. and diastolic pressures above 90 mm. is shown in Table II, with the total in each age group, in order to compare the results with the figures given by Robinson and Brucer (1939) based on a group of 3,405 American urban women taken at random. The proportion of ulcer patients with hypertension is significantly higher than in the control group. The men with ulcers formed a group too small for conclusions to be drawn from their blood-pressure readings.

TABLE II.—*Proportion of Women with Hypertension (172 Patients)*

Age Group:	25–9	30–4	35–9	40–4	45–9	50–4	55–9	60–4	65–9	70–4
Total in group	3	4	13	17	20	30	23	32	12	13
Systolic hypertension:										
No. in group	0	1	2	9	9	17	19	23	10	11
Percentage of group	—	—	15·3 (5·4)	52·9 (12·3)	45·0 (20·9)	56·6 (21·4)	67·8 (37·6)	87·5 (46·5)	83·3 (57·2)	84·6 (71·4)
Diastolic hypertension:										
No. in group	0	1	2	5	5	11	14	21	10	9
Percentage of group	—	—	15·3 (5·1)	29·4 (9·1)	25·0 (11·5)	36·6 (10·9)	59·0 (19·9)	65·6 (22·5)	83·2 (25·0)	69·2 (12·5)

The figures in parentheses are those of Robinson and Brucer, 1939.

Concurrent Disease.—The following diseases were present in addition to ulceration: pernicious anaemia in one patient, severe anaemia secondary to menorrhagia in one, congenital haemolytic icterus in one, diabetes mellitus in four, hyperthyroidism in one, hypothyroidism in one, thrombophlebitis migrans in one, Paget's disease (osteitis deformans) in two, and syphilis in two. The ulceration of the legs of the last two patients had none of the characters of syphilitic ulceration, and antisyphilitic treatment did not cure the ulcers. The Wassermann reaction was also determined in 68 other patients, and was negative. Some of the aetiological factors as disclosed by the history in the present series are shown in Table III.

TABLE III.—*Aetiological Factors in Patients with Gravitational Ulcers*

	Men	Women	Total
Thrombosis of deep veins:			
1. Post-partum thrombosis	—	69	69
2. Ante-partum thrombosis	—	15	15
3. Conditions affecting the leg:			
Injury without fracture	26	34	60
Injury with fracture	6	5	11
Operation on a leg	2	4	6
Infection of the leg	7	8	15
Treatment of varicose veins	8	7	15
4. Unknown causes	8	11	19
5. Recumbency or inactivity:			
Medical illness	5	7	12
Operation (not on leg)	5	7	12
6. Miscellaneous causes	5	3	8
7. "Silent" thrombosis (proved)	0	1	1
Total	72	171	243 (85·6%)
Venous stasis with no history of thrombosis:			
1. Varicose veins as only cause found	5	24	29
2. Miscellaneous causes	1	1	2
Total	6	25	31 (11·4%)
Grand total	78	196	274

Note.—Four women are entered in more than one group

Stasis due to Thrombosis of Deep Veins

1. Post-partum "White Leg"

Sixty-nine (36%) women gave a history of post-partum "white leg" (phlegmasia alba dolens)—28 after the first confinement. In the remainder the "white leg" occurred after confinements varying from the second to the thirteenth. Most of the women were multiparae (mean 3.9 confinements), and in six "white leg" occurred after two confinements; in one patient it occurred three times. The mean age at which thrombosis took place was 30.2 years (variation 19 to 46 years). In 27 patients the thrombosis was bilateral and in the others it occurred slightly more commonly on the left side. Only 13 women developed "white leg" after a normal confinement, and one of these got up on the third day, "white leg" developing soon after. Intervention with forceps took place in 18 patients, severe post-partum haemorrhage in 12, a long labour in five, twins in three, abortion at seven months in two, toxaemia of

pregnancy in two, malposition in two, retained placenta in two, ante-partum haemorrhage in one, and triplets in one. Details of other abnormal confinements were not obtained. Matthew (1947) mentioned the raised incidence of "white leg" with high forceps deliveries and stressed the role of infection in some cases. The first ulcers in the present series occurred three months to 27 years after the "white leg" (mean 8.9 years).

Illustrative Case.—This patient was delivered of her only child at the age of 25. Details are not available, but she says that it was a difficult labour and forceps were used. A few days later she had "white leg" and "pneumonia" (probably pulmonary embolism). The swelling of the legs persisted, and ten years later, following slight trauma, the first ulcer developed. There was no family history of varicose veins or ulcers of the legs. Her weight was 85 kg. No varicose veins were found on examination, but the legs were oedematous, indurated, and pigmented over the lower halves.

2. Ante-partum Thrombosis

Fifteen patients gave a history of pain and swelling of one or both legs of sudden onset during pregnancy. Oedema of the affected legs persisted and some of the patients developed varicose veins for the first time. It is assumed that thrombosis of the deep veins of the leg had occurred, and in seven patients ulceration of the leg followed within a few weeks. Ante-partum thrombosis is well recognized as a complication of pregnancy, but, as Matthew (1947) pointed out, it is less frequent than post-partum "white leg."

Illustrative Case.—A spinner had bilateral varicose veins from the age of 18. Her mother also had varicose veins. At the age of 44, at about the sixth month of her eighth pregnancy, she developed "white leg" (left). She spent the remainder of the pregnancy in bed. An ulcer of the left leg appeared a few months later. She weighed 97 kg. and her blood pressure was 240/110 mm. when she was examined at the age of 52.

3. Conditions Affecting the Leg

Injury to Leg without Fracture.—Sixty patients had suffered such an injury to one or both legs. The severity varied from that of a kick to that of a fall from a height, as from a roof or down stairs or through a floor which collapsed (three patients). Other injuries were due to a fall from a tram-car, a superficial gunshot wound of the leg, or wrenching an ankle; many were caused by mild blows such as walking against some firm solid object. In many the skin had not been broken. With most ulcers of the leg the precipitating cause is mild injury with abrasion of the skin. In the group under consideration, patients with a previous history of thrombosis of the leg in whom mild injury produced ulceration are not included. Only those with legs previously normal or with varicose veins with no evidence of chronic venous insufficiency are considered. Of these, 23 gave a history of swelling of the leg after the injury, probably due to thrombosis caused by the injury, and 10 developed varicose veins after the injury, possibly from the same cause. At the time of examination, when ulcers were present, 52 had varicose veins, which in several patients were in the injured leg alone. Slight or moderate injury to the leg with laceration, soft-tissue wounds, or simple haematoma may result in thrombosis. Vance (1934) investigated thrombosis of the veins of the lower extremity and pulmonary embolism as a complication of trauma. He found that even minor injury to the leg may result in thrombosis. Homans (1934), Bauer (1944), Birger (1947), and Mahorner (1949) are in agreement with this view. In Bauer's patients the presence of thrombosis was confirmed by phlebographic examination.

Illustrative Case.—A grinder in good health was injured at the age of 32 by a severe blow from an iron girder which fell against his right leg. There was no fracture and the skin was not broken. Swelling of the leg followed. Varicose veins appeared for the first time, and a year later there was ulceration of the affected leg. At the age of 34 the varicose veins were ligated, but the ulceration was not improved. The Wassermann reaction was negative. His father had suffered from ulcers of the leg.

Injury to the Leg with Fracture.—This had occurred in 11 patients—affecting the tibia and fibula in six, the femur in two, the patella in one, and the ankle (fracture-dislocation) in two. Both direct injury to a vein and immobilization of the limb may have been factors in causing the thrombosis which followed. Ulceration occurred in a period varying from one month to 26 years (mean 4.8 years) after the fracture.

Illustrative Case.—A married woman sustained a fracture-dislocation of the right ankle at the age of 37. The leg was immobilized in plaster-of-Paris for three months, after which it was found to be oedematous and discoloured. These signs persisted, and one month after removal of the plaster ulceration of the leg occurred. There was no family history of ulcers or varicose veins.

Operation on a Leg.—Six patients had undergone operation for knock-knee, for hammer-toe, for deformity of the tibia in Paget's disease, for tuberculosis of bone, for osteoarthritis of the hip, and for an unknown cause. In each patient thrombosis of the affected leg had followed the operation, ulceration occurring later.

Infection of the Leg.—Fifteen patients had infection of the leg in various forms causing thrombosis: osteomyelitis (2—one of the tibia and one of the patella), septic wounds of the leg (12), and abscess of the ankle drained with tubes (1). One of these patients was a diabetic. Ulceration followed the infection in a period varying from a few weeks to 11 years (mean 4.1 years).

Illustrative Case.—A motor mechanic aged 57 caught his left ankle against a sharp piece of metal, an abrasion resulting. This healed, but two weeks later an abscess formed at the site of injury and burst, discharging pus. At the same time the whole leg became swollen, with deep tenderness in the calf. He attended the clinic five months later with an ulcer at the site of the abscess and with oedema and discoloration of the leg. The other leg was normal except for varicose veins, which were prominent in both legs.

Treatment of Varicose Veins.—This appeared to be the cause of ulceration in 15 patients, including two in whom the injection of varicose veins was carried out during pregnancy. In two others thrombosis of the leg had occurred previously, in one after a fracture of the patella and in another after a fracture of the humerus which required rest in bed. Injection of varicose veins seemed to intensify the chronic venous insufficiency already present in these patients and to produce it in the remainder. Ulceration of the legs concerned resulted within a few months. The risk of thrombosis of deep veins after the injection of sclerosing fluids into superficial varicose veins, especially above the knee, was stressed by Boyd and Robertson (1947). In three of the patients in the present series varicose veins had been injected at the same time as the internal saphenous vein was ligated, ulceration following within a few weeks. In none had phlebography been carried out to determine the state of the deep venous circulation of the legs before injection of the varicose veins.

Illustrative Case.—A married woman suffered from "white leg" (left) after her first confinement at the age of 28, when forceps were used. Varicose veins followed, and these were

injected eleven years later. The left leg became even more oedematous, and ulceration occurred shortly after. Her mother had suffered from varicose veins and ulcers of the leg.

4. Thrombosis of Unknown Cause

Thrombosis in the legs from no apparent cause occurred in 19 patients. In several the condition had started in superficial veins, but all gave a history of marked oedema of the affected leg, with pain in the calf in some, which suggests that the deep veins were involved. Thirteen patients had a family history of varicose veins or ulcers of the legs. Phlebography confirmed the presence of thrombosis (of the femoral vein) in one patient.

Illustrative Case.—A nulliparous woman weighing 76 kg. and living an active life suffered from phlebitis of a superficial vein of the left calf for no apparent reason at the age of 36. Within a few days the leg became greatly swollen and pulmonary embolism occurred. Shortly after this the right leg also became swollen. When she was able to walk the oedema increased and ulceration near the left ankle followed. Her mother had suffered from varicose veins and ulcers of the leg.

5. Thrombosis due to Recumbency or Inactivity

Medical Illness.—Some illness, the disease itself or the rest in bed necessitated by it, had caused thrombosis of the legs in 12 patients. In three it was said to have been influenza, in two bronchitis (one with pleurisy), and in two lobar pneumonia. Rheumatoid arthritis with many months in bed, pyaemia following a carbuncle, tonsillitis, scarlet fever, and pyrexia of unknown origin were each responsible in the other patients.

Illustrative Case.—A baker whose mother had varicose veins developed scarlet fever at the age of 17. Three weeks after the onset, while in bed, thrombosis of the left leg occurred. There were no other complications of scarlet fever. An ulcer of the same leg appeared a few weeks later when he got up. The Wassermann reaction was negative.

Operations not on the Leg.—Twelve patients gave a history of "white leg" appearing shortly after an operation. Of these, nine had undergone an abdominal operation—two for appendicectomy (one with drainage), two for removal of ovarian cysts, one for cholecystectomy, one for hysterectomy, one for pelvic abscess, one for abdominal hernia, and one for an operation following an injury, the details of which are not known. Two patients had undergone left inguinal herniotomy and one a perineal operation of unknown type on the bladder for retention of urine. Allen, Barker, and Hines (1946) showed that post-operative thrombosis is more common after pelvic operations than after any other procedure, and more common in the left leg than in the right.

Illustrative Case.—A railway plate-layer underwent an operation for left inguinal hernia at the age of 37. Five days later he suffered from pulmonary embolism and shortly afterwards his left leg became swollen. Ulceration of the leg occurred a few weeks after he got up.

6. Thrombosis due to Miscellaneous Causes

Thrombosis of the leg occurred in a woman aged 29 during intravenous therapy with glucose-saline for hyperemesis gravidarum. An ulcer of the ankle followed at the site of injection. The risk of this complication of intravenous therapy when given at the ankle is now recognized.

A woman weighing 117 kg. had varicose veins for years, for which several injections with sclerosing fluids had been given. Thrombosis and ulceration followed a second-degree burn of the right leg. In another woman, aged 59, these followed a scald of the leg.

A miner aged 39, in bed on account of a slight injury to his back, had a thrombosis of the right leg, and ulceration occurred when he got up. He had injured his right groin when 27 years old and some swelling of the leg had followed.

A joiner aged 57 fractured his pelvis. Thrombosis and ulceration of the right leg followed. His mother had varicose veins and his brother an ulcer of the leg.

A farmer, when aged 22, had both legs severely bruised by a riding accident and varicose veins appeared. A year later Trendelenburg's operation was carried out bilaterally, marked swelling of the right leg occurring afterwards. At the age of 24 the varicose veins, which had reappeared, were injected with sclerosing fluid. Ten years later he fractured his right femur, the limb being immobilized for ten months with a plaster spica. Shortly after the plaster was removed the first ulcer appeared. The Wassermann reaction was negative. There was no family history of varicose veins or ulcers.

A labourer aged 58 had no family history of varicose veins or ulcers. When aged 27, while wearing puttees in the infantry, thrombosis occurred in the right leg with much swelling and aching. Varicose veins appeared for the first time, with ulceration, after a few months.

A Czech fur-cutter, a cigarette smoker, had suffered from thrombophlebitis migrans since the age of 21, with recurrent idiopathic thrombophlebitis of the superficial veins of the legs and right arm. No signs of arterial disease were present. There was marked venous stasis of the legs, with varicose veins. Ulceration first occurred when he was aged 31. His Wassermann reaction was negative and his weight 74 kg. His father and sister had ulcers of the legs.

7. Silent Thrombosis

When a patient has venous stasis, with no history of thrombosis, a silent thrombosis may be suspected if there has been pulmonary embolism; otherwise it may be indicated by phlebography, by surgical exploration, or by post-mortem examination. In this series, in those patients with no history of thrombosis, phlebography was carried out in only one, and of the others some may have had a silent thrombosis.

Illustrative Case.—The mother of 13 children, weighing 82 kg., had bilateral varicose veins for many years, and these were injected when she was 42. Her sister had ulceration of the leg. There was no history of thrombosis at any time and she had never been in bed on account of illness of note or operation, nor had she suffered any injury. The Wassermann reaction was negative. The first ulcer appeared in the right leg at the age of 51. Nine years later a phlebogram showed blockage of the deep veins of the right thigh near the knee

Venous Stasis with No History of Thrombosis

In addition to the patient mentioned above there were others with no history of thrombosis.

1. Venous Stasis due to Varicose Veins

There were 29 patients whose venous stasis and ulceration might have been due to varicose veins. Of these, 24 were women, of whom 17 were parous. In the whole group the family history of two was uncertain, but 17 of the remaining 27 gave a family history of varicose veins or ulcers of the legs or both. The age at which ulceration occurred varied from 20 to 78 years (mean 45.4 years). All but one had suffered from varicose veins for many years before ulceration appeared, and the problem arises whether these are cases of true varicose ulcer—i.e., ulcer due to varicose veins—or whether they are post-thrombotic, the thrombosis having been symptomless. Some of these patients had ulcers "riding" over a vein, to use the description applied by Homans (1939) to true varicose ulcers. The possibility of previous thrombosis in the other patients remains. The question of varicose ulceration is discussed later, but even were it assumed that most of the patients

in this group suffered from varicose ulceration they represent less than 11% of the whole series.

A tram driver weighing 84 kg., with a striking family history of varicose veins and ulcers of the leg, had varicose veins from the age of 12. An ulcer appeared on the right leg when he was 20 and on the left leg when he was 26. There had been no history suggesting thrombosis. Bilateral injection of varicose veins with sclerosing fluid was carried out when he was 20, and ligation and injection of the veins when 26, on both occasions after the ulcers had appeared. The veins were injected again when he was 29. The Wassermann reaction was negative. The early ulcers in this patient would seem to have been true varicose ulcers.

A mother of five children, who had been a baker, developed varicose veins at the age of 26 while bearing her first child. There was no family history of varicose veins or ulcers. One of the veins burst when she was 42 and an ulcer formed at the site. The varicose veins were treated by operation soon after with no benefit to the ulcer, and were injected when she was 50. Tremendous swelling of the leg resulted, no doubt due to a thrombosis of deep veins. She now has calcification of the varicose veins, much induration of the legs, and diabetes. Her weight is 76 kg.

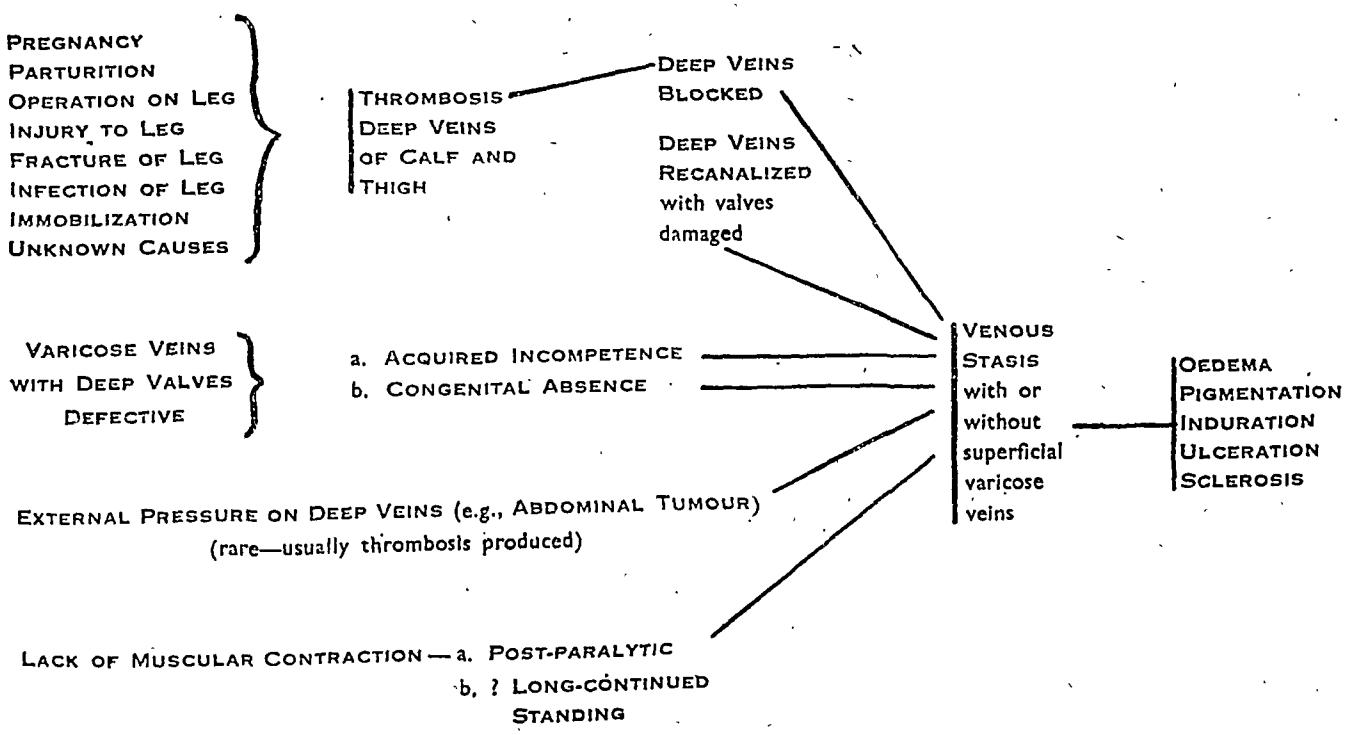


FIG. 2.—Causes of venous stasis in the lower limb.

2. Venous Stasis due to Miscellaneous Causes

A woman with congenital haemolytic icterus suffered from ulceration of the leg from the age of 17. Her mother and two sisters had ulcers of the legs.

A boot-repairer, whose mother had an ulcer of the leg, had suffered from acute anterior poliomyelitis as a child. His left leg was wasted and he wore a walking-calliper. A gravitational ulcer appeared when he was 26. No varicose veins were present and there was no history of thrombosis. The ulcer was probably due to venous stagnation caused by lack of muscular contraction in the leg.

Discussion

The causes of chronic venous stasis, and hence of gravitational ulceration of the leg, are summarized in Fig. 2.

Thrombosis of Deep Veins of the Lower Limb

This had been present in about 89% of patients in the series and seems to have been the most important cause of gravitational ulcer. The pathology of thrombosis will not be discussed here, as the subject has been fully reviewed by Allen, Barker, and Hines (1946), Zilliacus (1946), and Birger (1947). Causative factors may be slowing of the blood flow, alteration in the composition of the blood leading to an increased tendency to clot, and injury to the *intima of the vein. The blood flow in a leg vein may be* slowed by lack of muscular activity, by pressure on the vein from outside, and owing to defective venous valves. Thrombosis may take place with no apparent cause, as in 19 patients in this series.

Homans (1934) pointed out the importance of the deep veins of the calf as the site of origin of thrombosis in the lower limb. In two large series of cases of pulmonary embolism examined post mortem by Rössle (1937) and Neumann (1938) the calf or plantar veins were the site of thrombosis in the majority. This was confirmed by Putzer (1939), Frykholm (1940), Bauer (1941), and Hunter, Krygier, Kennedy, and Sneeden (1945). Only 10% of all thromboses in the femoral veins are not associated with deep thrombosis below the knee (Homans, 1943).

Thrombosis in the veins of the calf may cause pain and deep tenderness (Homans, 1934; Boyd, 1948), but often a "*silent thrombosis*" *has been demonstrated in patients with* pulmonary embolism (Homans, 1943) and by phlebographic examination (Bauer, 1941). The absence of any history of thrombosis in a patient with gravitational ulceration is therefore no evidence that the latter is not post-thrombotic in origin, and probably only by phlebography or dissection can the point be settled in a particular case. It is possible that some of the patients in the present series with no history of thrombosis had suffered from a "silent thrombosis."

Thrombosis originating in the lower part of the leg tends to extend centrally, often into the ilio-femoral vein. As a result of such thrombosis the venous return from the lower limb is impaired, as Gay (1868) observed, the lumen of the deep veins being occluded, though sometimes not

completely. Periphlebitis secondary to an aseptic inflammation of the wall of the veins (phlebitis) may be present (Bauer, 1948). Later, recanalization of the thrombosed vein may take place, but the valves are permanently destroyed (Homans, 1917; Edwards and Edwards, 1937; Bauer, 1948). This recanalization and valve destruction in the popliteal and femoral veins leads to marked venous stasis in the lower limb when the individual is erect. Linton and Hardy (1948) believe that ulceration of the leg does not take place until the thrombotic veins have become recanalized, and that this may take from one to 29 years from the time of venous thrombosis.

Varicose Veins

These may usefully be considered as primary or secondary. The primary type develops spontaneously and is probably due to inherited weakness in the structure of the vein—dilatation of the vein leading to incompetence of the valves (Edwards and Edwards, 1940)—or to congenital absence of valves as described by Eger and Casper (1943) and Curtis and Helms (1947). The secondary type develops as the result of thrombosis of deep veins in the lower limb (Meyer, 1932), though if the latter has been "silent" it may be difficult to distinguish this type from the primary. Post-thrombotic ulcers may be associated with such varicose veins of secondary type.

Do varicose veins of the primary type lead to venous stasis and ulceration? Varices may occur, as Meisen (1932) pointed out, with stasis and without stasis, and stasis may occur without varices (as in 31 patients in this series). The two may be independent. Clinical experience suggests that primary varicose veins, sometimes quite severe, occur not uncommonly without venous stasis. However, stasis and ulceration may be found with primary varicose veins, and the condition is well described by Bauer (1948). A family history of varicose veins is usual, a history of deep thrombosis is absent, women are affected twice as often as men, a bursting sensation is present in the legs on standing, oedema and other signs of chronic venous insufficiency are present similar to those following thrombosis, but phlebography and operative exploration differentiate the conditions. Bauer (1948) believes that idiopathic or non-thrombotic femoral incompetence, as he names it, is due to deficiency of the valves of the femoral and popliteal veins caused by phlebosclerosis affecting the deep veins, and not merely the superficial veins as in primary varicose veins, without evidence of venous insufficiency. Probably a similar result is produced by congenital absence of valves in the deep veins (Eger and Casper, 1943; Curtis and Helms, 1947).

Thus with primary varicose veins ulceration may be present if there is congenital or acquired absence or incompetence of valves of the deep veins. Ulceration may be absent if only the superficial veins are varicose. Thrombosis may occur, however, in the deep veins of patients with the latter condition, following treatment of the superficial varices, or may be due to any of the causes which lead to thrombosis in an individual without varicose veins. A post-thrombotic ulcer may result. In the present series primary varicose veins do not seem to have been a cause of ulceration in many patients, as only 32 (11%) gave no history of previous thrombosis. Three of these did not have primary varicose veins, and of the others some may have had a "silent" thrombosis.

Venous stasis due to complete absence of muscular contraction is rare, only one patient in the series having gravitational ulceration from this cause (previous anterior poliomyelitis), but comparative lack of movement while standing at work may be a secondary factor of note in some patients with ulcers.

Arterial Disease

Gay (1868) and Heller (1943) considered arterial disease to be an important cause of some chronic ulcers of the lower part of the leg. More recently Hines and Farber (1946) have described ulceration of the leg due to arteriosclerosis and ischaemia occurring in the presence of hypertensive disease, with no other vascular or cutaneous disease. Although in the present series no ulcer was thought to be due only to arterial or arteriolar disease, the high proportion of patients with hypertension suggests that this condition may be a factor in the aetiology of gravitational ulcers. Obliterative arterial disease may occur without a rise in blood pressure. The presence of an arterial factor in the causation of some ulcers may account for the beneficial effect of sympathectomy in certain patients (Borrie and Barling, 1948).

The treatment of chronic venous insufficiency and ulcers of the leg will not be discussed here, but it is clear that to be effective an accurate diagnosis of the cause and a knowledge of the aetiological factors involved are important.

Treatment

In this country at the present time the concentration on treatment of superficial varicose veins in patients with venous stasis is neither rational nor useful, and the results, as shown in several patients in this series, may be appalling. More often than not it is harmful, increasing the degree of stasis already present. Progress will be achieved only by a better understanding of the essential causes of the condition. Measures to prevent thrombosis are important, and when venous stasis has appeared the continued use of elastic supports to prevent oedema is essential. Various surgical techniques, such as those of Bauer (1948) and Linton and Hardy (1948), require consideration.

Summary

A series of 270 patients with gravitational ulcer has been investigated. This type of ulcer results from chronic venous stasis of the lower limb. In 88.6% venous stasis was due to previous thrombosis of deep veins in the leg. Varicose veins may be present as a result of thrombosis, but primary varicose veins rarely cause venous stasis and gravitational ulcer. The futility of treatment of the condition by attention to superficial varicose veins is stressed.

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A NEW NEONATAL SYNDROME

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During the ten-months period December, 1946, to October, 1947, a new syndrome affecting infants appeared in the nurseries of the Birmingham Maternity Hospital. Eight cases were observed, the predominant feature being a circulatory disturbance in one or both lower limbs, while some cases in addition showed muscular weakness or palsy. The case incidence was sporadic, and on only one occasion was the interval between cases less than three weeks. The aetiology was unknown, and neither the medical nor the nursing staff could recall similar cases. Search for guidance in standard textbooks proved fruitless, and it was concluded that the syndrome must have been caused by some new factor, such as a new line of treatment, that had never before operated.

Case Reports

Case 1.—On April 6, 1947, a 60-hours-old infant was found to have a flaccid paralysis of the right lower limb with apparently complete sensory loss below mid-thigh; the leg was pale and cold and no arterial pulsation could be detected. The appearance suggested an embolism of the common femoral artery, but the exact time of onset was uncertain. Next day the foot was still pale and cold, but the calf showed a mottled cyanosis and in a short time the whole limb became warm and flushed. Patches of local discoloration persisted on the front of the leg, the heel, and great toe, and desquamation was followed by scab formation and a chronic ulcer over the anterior border of the tibia. At 1 month old there was still a small unhealed ulcer, and considerable weakness in the anterior tibial group of muscles. At 2 years old there was a pes cavus, a limp, and poor dorsiflexion of the foot.

In an attempt to elucidate the aetiology the obstetric history was checked in detail. The mother, a primigravida, had been treated in hospital from the 34th to 38th week of pregnancy for pre-eclamptic toxaemia. Labour had been induced surgically, but after three days' inertia delivery had been effected by lower-segment caesarean section under general anaesthesia. The child was asphyxiated at birth, and was resuscitated with oxygen and an injection of nikethamide into the umbilical cord. It weighed 5 lb. 3 oz. (2.35 kg.). It had not been delivered through the incision by traction on one leg, and *no injection* was recorded as having been given into the buttock. The only conclusion that could be reached was that spontaneous thrombosis or embolism of unknown origin had occurred in the main artery to the limb.

It was then recalled by the ward sister that a somewhat similar though more severe case had occurred a few months previously, and that the child had subsequently died.

Case 2.—On consulting the records it appeared that a child had been delivered spontaneously on Dec. 14, 1946, following surgical induction of labour at 37 weeks for disproportion in a primigravida; the second stage of labour had been prolonged to three hours, and the child, weighing 6 lb. 9 oz. (2.98 kg.), had been born in a state of white asphyxia. Its condition being critical, nikethamide followed by lobeline and a second dose of nikethamide had been injected into the umbilical cord without any immediate effect. Six hours later the right leg was seen to be cyanosed and flaccid, with some oedema of the buttock, and during the next day it became cold and anaesthetic. Gangrene of the extremity developed and the infant died on the eleventh day from peritonitis. Necropsy showed thrombosis of the right common iliac artery and also of the inferior mesenteric vessels; there was gangrene and perforation of the sigmoid colon.

No common aetiological factor could be deduced from these two cases, although it seemed probable that the one was a more severe variant of the other. However, the next three months produced five more cases which, although not so severe, presented sufficient similarity to those preceding to warrant grouping together.

Case 3.—A child was delivered on April 30, 1947, by caesarean section for placenta praevia; a general anaesthetic was used. The child was sleepy and asphyxiated at birth, and three injections of nikethamide were given into the cord before respiration was established. On the second day the left buttock was found to be discoloured and indurated as though severely bruised; there was no concomitant paralysis, and the condition resolved in a few weeks without ulceration. It could easily have passed unrecorded had the previous cases not stimulated interest and observation.

Case 4.—This child was seen on May 25. Labour had been induced at 37 weeks in a primigravida with a posterior position of the occiput, but there was an interval of three days before the onset of labour. Intrauterine infection developed, and eventually a small infant 5 lb. 3 oz. (2.35 kg.) was delivered in a state of white asphyxia. Nikethamide was injected into the cord, and recovery was uneventful until the third day, when an area of discoloration was noticed on the right buttock. This area was indurated as though severely bruised, and the overlying skin became necrotic, to produce an unhealthy ulcer which healed with difficulty in about a month. There was never any demonstrable paralysis.

Two further cases were recorded within 24 hours of each other three weeks later.

Case 5.—A baby born on June 18 was the second child of a woman aged 47; during a difficult forceps extraction of a 9-lb. (4-kg.) infant there was considerable delay in delivery of the shoulders, and the child was born in white asphyxia. Two doses of nikethamide were injected into the umbilical cord. Twelve hours later there was extensive discoloration of the right buttock and right side of the scrotum, and during the next two days the gluteal skin broke down to form an ulcer, and a tense hydrocele developed. Movements of the right lower limb were greatly diminished, and there was temporary palsy of the anterior tibial group of muscles. The gluteal ulcer healed in a month, and leg and ankle movements gradually returned to normal.

Case 6.—The coincident case was less serious. Labour had been induced at 37 weeks for disproportion in a primigravida, and an infant weighing 7 lb. 3 oz. (3.26 kg.) was delivered with forceps for foetal distress; its condition was only fair, and one injection of nikethamide was given into the cord. Three

days later the typical indurated area of discoloration had appeared on the right buttock, and movements were diminished at the right ankle. There was no subsequent ulceration, and recovery was complete in 10 days.

Case 7.—This child was born on July 16. The infant was delivered precipitately through a rachitic flat pelvis after a long delay at the brim, and its condition was so poor that cerebral haemorrhage was presumed. Its life was twice despaired of, but after three separate injections of nikethamide into the cord respiration was more or less established. Six hours later the child was still cyanosed. There was discoloration of the legs: the left showed a mottled cyanosis of the buttock, thigh, and flank, while the right was pale, atonic, and inactive; there was also oedema of the left side of the scrotum. Within an hour the pallor of the right limb had been replaced by deep cyanosis, but the child died within 24 hours and no further changes were recorded. Necropsy revealed cerebral haemorrhage and atelectasis with no demonstrable thrombosis or embolism in the main arterial tree of either lower extremity.

Following this case a tentative diagnosis was propounded, and it was hoped that further cases might be avoided. However, the arrival of a new resident two months later was followed by the eighth and final case.

Case 8.—This child was born on Oct. 1, 1947. Caesarean section had been performed on account of some disproportion and inertia, and the child's condition was poor enough to require nikethamide for resuscitation. Within seven hours the left buttock was cyanosed and mottled, the left side of the scrotum was discoloured, and the left leg was pale and atonic (see Fig.). The leg regained full movement within a few days, but the gluteal skin broke down to produce an ulcer, which healed in a few weeks.



Case 8. The area of discoloration of gluteal and scrotal skin is limited almost exactly by the midline of the body. The marks on the lateral aspect of the right buttock have been produced by pressure from the napkin on which the infant was lying.

Discussion

To summarize these eight cases, we have a neonatal condition that has apparently not been previously recorded: it is probable that cases of little severity have escaped notice in the past, and in fact search in the hospital records has disclosed reference to one such case in 1945. The chief characteristics include the onset of vascular disturbances shortly after birth in one or both lower extremities, with a predilection for the gluteal region, and sometimes a flaccid paralysis of the limb. In one infant there was a fatal issue from cerebral haemorrhage; in another the inferior mesenteric vessels were affected and the child died from peritonitis: in a third there was residual paralysis of the anterior tibial group of muscles. All the remainder recovered fully.

After the occurrence of the seventh case a determined effort was made to establish a diagnosis, and various theories were put forward. The unilateral bruising of the buttock suggested thrombosis or embolism of the inferior gluteal artery, which in foetal life represents the main arterial axis of the lower extremity. It is the chief branch of the hypogastric, which continues as the umbilical artery; the external iliac artery is very much smaller. The inferior gluteal artery contributes the chief blood supply to the sciatic nerve. Embolism was considered improbable on account of the bilateral effect in Case 7 and the mesenteric lesion in Case 1. No cause could be adduced for a primary arterial thrombosis. Injection of vitamin K into the infant's buttock was disproved. The obstetric procedures were so diverse, including spontaneous, forceps, breech, and caesarean deliveries, that there seemed small chance of finding a common factor. However, it was observed that all infants had been born in a state of white asphyxia, and all had required at least one injection of nikethamide for resuscitation. Speculation was aroused upon the possibility of an intravenous injection being responsible for an arterial lesion, when it was suddenly realized that in all probability the injection had been given on occasion into an umbilical artery.

The resuscitation of the newborn is always an emergency procedure, and if it should follow operative delivery the obstetrician may still be engaged in the treatment of the mother. In consequence, the anaesthetist or a junior hospital resident may be instructed to inject "nikethamide into the cord," by which it is intended that 0.5 to 1 ml. of nikethamide shall be injected into the umbilical vein and milked down the cord to the umbilicus. Instead of the familiar engorged cord with a prominent distended vein and two smaller encircling arteries, there will probably be a practically avascular structure in which two dark vessels are dimly discernible. The operator, unfamiliar with the appearance of the cord in states of shock, and anxious to discharge his duty rapidly, may select a vessel and puncture it with difficulty; whichever he selects will be wrong, for the vein is empty, transparent, and practically invisible, and the injection will have been made into an artery

It is my belief that in the past this accident has been by no means uncommon, and that the production of a pathological lesion depends upon three factors. The volume of injected fluid and the vigorous nature of the "milking" process will determine how much nikethamide enters the foetal hypogastric arteries, while the height of the infant's systolic blood pressure will decide how far the retrograde injection advances before being swept peripherally in the arterial stream. The actual pathology might be an arterial spasm with ultimate thrombosis similar to the condition in the upper extremity following accidental intra-arterial injection of anaesthetic solutions. The occurrence of a bilateral case may be explained by the use of both umbilical arteries, while the massive effect in Case 1 followed a triple injection —enough to fill the common iliac artery and overflow into the aorta and inferior mesenteric. It is hardly surprising that the notes record "no immediate improvement."

It may be argued that the above hypothesis is mere conjecture supported by circumstantial evidence, and it must be admitted that proof is still lacking. An attempt has

been made to demonstrate the relevant arterial distribution by injecting methylene blue into the umbilical artery of a living anencephalic foetus, but without success. Experiments have been made elsewhere to reproduce the lesion in cats, but no positive result has been obtained. The difficulty of such experiments lies in the fact that the injection must be made against the full force of the neonatal blood pressure, and the fluid is thus unlikely to travel so far in a retrograde direction as it would when the subject was shocked or gravely asphyxiated. However, it is of some significance that after explanation of the danger of intra-arterial injection to the resident staff no further cases were recorded; and those who are uncomfortably aware of having themselves made such an injection testify to the extreme facility with which it may be made in moments of stress and shortage of sleep. There is no satisfactory explanation of the variable interval between injection and discovery of the lesion (6–60 hours), and an inexplicable fact is the sudden appearance of this series of cases in a hospital in which the use of nikethamide by injection into the umbilical cord has been an integral part of the routine for neonatal resuscitation for several years.

Summary

A new syndrome is described, comprising arterial lesions with occasional paralysis in the lower limb of the newborn.

Eight cases are recorded as having occurred in a period of 10 months at a busy maternity hospital.

The aetiology of the condition remains unproved. It is suspected that the lesions may be due to injection of drugs into an artery in the umbilical cord. The evidence in favour of this theory is discussed.

I am deeply indebted to Dr. Frances Braid for her interest in these babies and her stimulating encouragement. I wish to thank Dr. Hudson, of the Walton Hospital, Liverpool, for details of a similar series of cases, and the staff of the Birmingham Maternity Hospital, under whom the cases were admitted, for permission to publish.

A number of Government scholarships have hitherto been available to selected nurses who wished to train as nurse tutors. The assistance given has covered the training and examination fees and the cost of books, and provided an allowance of £150 for the period of training. The Ministry of Health has decided to end this arrangement and to substitute the following. Nurses, both male and female, who are accepted by training institutions for training as nurse tutors should be granted leave on full pay, including emoluments where appropriate, for the period of the training. The nurse would be required to pay the full cost of the training, including examination fees and books. The courses cover an academic year and begin in the latter part of September or early October. The recognized institutions which will be running courses next term are: Battersea Polytechnic, Battersea Park Road, London, S.W.11 (40 places); King's College of Household and Social Science, Campden Hill Road, London, W.8 (20 places); Royal College of Nursing, 1A, Henrietta Place, London, W.1 (36 places); University College, Hull (12 places). The fees for the courses vary from £20 to £50. Applicants must (*a*) be registered in the General Part of the State *Register*, or the Part of the *Register* for Male Nurses (General Trained); (*b*) have had at least three years' experience in nursing in hospital since registration in any Part of the *Register*, including at least one year as a ward sister (or corresponding rank in the case of a male nurse) in an approved training school; (*c*) satisfy the training institution that their general education is such as to justify taking up training. Where an applicant is registered both as a general trained nurse and as a mental nurse or nurse for mental defectives, but has not had a year's experience in charge of a ward, the applicant must have post-registration experience, satisfactory to the General Nursing Council, in an approved training school for a period of at least four years.

TETRAETHYLTHIURAMDISULPHIDE* IN THE TREATMENT OF ALCOHOLICS

BY

A. E. CARVER, M.A., M.D., D.P.H., D.P.M.

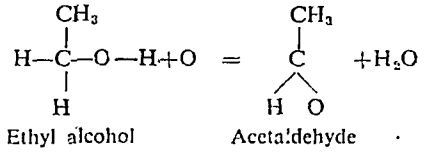
Medical Director, Caldecote Hall

So numerous have been the drugs and techniques used and abused in the age-long struggle against alcoholic excess that one naturally is wary about recommending any new preparation. Yet tetraethylthiuramdisulphide, with the structural formula of $(C_2H_5)_2.N.C(=S).S.S.C(=S).N(C_2H_5)_2$, recently introduced by Dr. Erik Jacobsen, of Copenhagen, shows such promise that it merits extended trial so soon as it becomes readily available to the medical profession in this country. Adequate samples were placed at my disposal upon request, and the following preliminary report shows the advantages derivable from its administration.

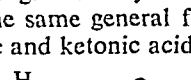
The Drug's Action

Before relating these it will be of interest to expound the pharmacological basis of the drug's action. For many years it has been known that certain substances—e.g., cyanamide and the fungus *Coprinus atramentarius*—though innocuous to man when taken alone, yet gave rise to unpleasant symptoms when alcohol subsequently was consumed. Tetraethylthiuramdisulphide has a similar action, and the work of Dr. Jacobsen and his colleagues in Copenhagen has shown fairly conclusively that these characteristic effects are due to an interference with the normal metabolism of alcohol in the body, so that unusually high levels of acetaldehyde become present in the blood stream. Acetaldehyde is a normal intermediate stage in carbohydrate metabolism, and after alcohol its presence in the blood shows a temporary slight increase. When any member of the sensitizing group of substances now under discussion has been taken before the consumption of alcohol the blood acetaldehyde rises steeply (up to tenfold) and its elimination is slow.

Aldehydes are derived from the simple oxidation of primary alcohols, as is shown by the following equation with structural formulae:



Ethyl alcohol Acetaldehyde

Exactly how tetraethylthiuramdisulphide interferes with the normal metabolism of alcohol is not yet known, but there is an interesting correlation between this and the course of events in vitamin B_1 deficiency. In the latter case pyruvic acid, not acetaldehyde, is the stage at which metabolism goes wrong. Aldehydes and ketones are closely allied, having the same general formulae $C_nH_{2n}O$. Similarly the aldehydic and ketonic acids are closely related, and pyruvic acid,  , is the simplest of the ketonic acids. Later the relation between the mechanism of the two derangements in carbohydrate metabolism will probably be discovered. Possibly some similar if not identical inborn

*This drug has the proprietary names of "antabus," "antabuse," and "antalco."

error of metabolism will be found to account for the hypersensitivity of certain individuals to small doses of alcohol.

Tetraethylthiuramdisulphide has an advantage over other sensitizing drugs in that, though its action is prolonged, lasting several days, there is no evidence of cumulative toxic effects in the dosage usually employed. Moreover, it is easy to carry and to administer orally in tablet form. No symptoms arise unless and until alcohol also is ingested. Then typical symptoms begin with a burning sensation in the face. This is followed by injection of the conjunctival vessels and redness of the face. The loose tissue around the eyes becomes congested and the patient may have difficulty in keeping his eyes open. The pulse increases in frequency and may gradually rise to 150 a minute, but there is little if any change of blood pressure, though most patients complain of a pounding at the heart. Giddiness, hammering in the ears, and headache are next to appear, and the patient complains of a vague generalized anxiety and distress. Finally, if the doses of both substances have been large, he vomits and feels "thoroughly ill." Symptoms begin within a quarter of an hour of the intake of alcohol and last a variable time (up to five hours), then fade away gradually in sleep. On the following day the patient feels lackadaisical and listless, but is capable of carrying on his work.

These typical symptoms, of course, are subject to considerable individual variation in their march and severity, but the above recital affords a general picture of the average patient under close observation. Advantage has in two ways been taken of the disagreeable sequelae of this drug plus alcohol as an aid in the total treatment of excessive drinkers.

Method of Treatment

First, in a special institution for the rehabilitation of alcoholics those patients allowed out on parole receive a dose of 1 g. the previous day and 0.75 g. at breakfast on the morning of the day of *congé*. As a knowledge of the effects of the drug has not yet spread abroad patients do not know the consequences which a breaking of parole will entail. They think that the tablets received are merely vitamins, to which they are accustomed. Should a patient upon his return from an outing complain that queer things befell him his physician draws the obvious conclusion, but, instead of asking awkward questions, explains that the susceptibility of persons under treatment is such that any lapse to alcoholic beverages is likely to be fraught with not unmerited distress.

As patients and public become knowledgeable concerning the properties of these innocent-looking tablets this particular device will cease to have strategic value and the second method must be adopted.

This method is frankly to discuss with the patient the way in which tetraethylthiuramdisulphide can be used to contribute to a cure in his individual case. He is then free to decide whether to co-operate in the plan. Though there is no pretence that the drug of itself can rectify the defective personality structure of which alcoholism is a symptom, it can, by temporarily rendering the lure of alcohol easier to resist, gain a sober interval in which the process of reorientation can be begun. Possibly also, though this is at present not proved, a small daily dose in a patient of good will may establish a permanent distaste for alcohol. Even so, unless those underlying motivations which prompted the patient to excess be adjusted he cannot be regarded as cured. The largely unconscious urges which gained neurotic gratification via alcohol will, if this means of escape be denied to them by pharmacological force alone, break out in some other and possibly more objectionable form. This drug is therefore not recommended as a quack cure, but as a powerful addition to our already existing therapeutic armamentarium.

Before regular administration of tetraethylthiuramdisulphide is begun the patient should be put to a clinical test as follows. After sensitization has been established in the way about to be described, alcohol is administered to the patient according to his usual habit when drinking. His reactions then are carefully studied throughout. The detailed recital of a single typical but rather severe case will be more instructive than any attempt at statistics in illustrating the method adopted during a course of general and psychological treatment.

Illustrative Case

A married man aged 42, with no children, was first admitted in 1947. He was a Cambridge graduate and barrister-at-law, teetotaller until the age of 25, when he began drinking, which rapidly became excessive. His behaviour towards his wife became so brutal that he eventually consented to undergo institutional treatment. Under this he improved and gained considerable insight. He had, however, a suspicion, not altogether unfounded, that his wife meant to leave him when he got cured, and while he was undergoing treatment was only keeping in touch with him from a sense of her moral duty. He showed all the signs of an overcompensated inferiority complex with an overwhelming wish to be in the limelight and the "life and soul of every party."

On his return home renewed quarrels with his wife soon led to relapse. He thereupon left home and took up quarters in a public house at a port, where he drank heavily. While thus disporting himself he received a severe blow on the head in a drunken brawl. This necessitated trephining for removal of a blood clot. After discharge from hospital he went home and for a time refrained from alcohol. Then, without knowing why, he relapsed and kept drinking up to a bottle of gin a day and had superadded acute exacerbations associated with amnesia.

He insisted, however, that he had no real desire for alcohol but wanted to be cured of his uncontrollable habit. His history was already known in detail, as he had by request written an autobiography during his first admission, and this was brought up to date when he of his own wish returned for treatment early in 1949. The advantages derivable from tetraethylthiuramdisulphide were then explained to him, and he readily promised his whole-hearted co-operation. After a few days' rest, sedation, and detoxication a first test with the drug was performed to gauge his individual reactions. A dose of 0·75 g. was given one evening, and was repeated next morning. At 2.30 p.m. he was given a "double" gin (2 oz. (57 ml.) of 70 proof alcohol). Ten minutes later his face became hot and red. His conjunctivae were bloodshot and his lower eyelids puffy. His pulse went up from 68 to 120. Respiration also increased and he complained of a pounding at the heart and in the head. At 2.50 p.m. another double gin was given. Within a few minutes the patient's distress increased, his pulse rose to 130, and he felt so squeamish that he was sure any more gin would make him sick. These symptoms gradually subsided and he felt normal in just over two hours.

That night 1 g. of the drug was taken, and again at 10 a.m. the next day. At 3.45 p.m. he was given 2 oz. of gin. Symptoms as previously described came on more quickly than on the first occasion. A second 2 oz. of gin was given at 3.55 p.m. By 4 p.m. he felt extremely uncomfortable, with all symptoms increasing in severity. He next complained of seeing double and feeling generally ill and confused. At 4.05 p.m. a third 2 oz. of gin was given. (This order of drinking was the man's usual, and without the drug did not upset him, but led to more drinks.) After this third gin he became rapidly confused and felt desperately ill and anxious; pulse 150, respirations 36. Tingling followed by anaesthesia of the left hand developed and he could not move his left ring-finger and little finger. (These latter unusual symptoms probably are associated with his cranial operation.) At this point his face became instead of red, and he complained of feeling cold. At 4·2

he vomited and asked to be allowed to go to bed. He complained of "noises in his head as if an engine were pumping away outside." At 5 p.m. he became sleepy and refused a proffered cup of tea and a cigarette. At 5.40, 5.45, and 6 p.m. he again vomited and complained that the vomit tasted unusually acid. He also felt "icy cold" but otherwise better. At 8 p.m. he vomited for the last time, and thereafter slept fitfully through the night.

Next morning he "felt a bit washed out" and "uneasy in the stomach," but he worked in the garden for two hours, morning and afternoon, as usual. Three days later, according to a previous arrangement, he travelled home (a long journey with two changes and waits, involving a three-days absence) to attend a meeting of directors, before, during, and after which he used on former occasions to indulge freely in drink. On this occasion he was primed with tetraethylthiuramdisulphide, 0.75 g. night and morning over the period. He did not experience any disagreeable symptoms and did not have any inclination to drink. His institutional treatment will shortly be terminated. Then, as an added precaution when in the outer world, a daily dose of 0.25 g. will be prescribed for a month or two with a view to giving him an added sense of security, as it has done to others.

Comment

There is a hope that in milder cases, with the help of tetraethylthiuramdisulphide, the patient may receive enough help and understanding from his environment to dispense with specialized institutional treatment, or at any rate to shorten its duration. This, however, will require careful judgment, and remains for future experience to evaluate. At present one is justified in considering that tetraethylthiuramdisulphide seems likely to occupy a useful place in the treatment of alcoholics, and that it merits extensive but cautious investigation. The reactions of each individual patient under his usual drinking habit should be carefully tested the day after an initial sensitizing dose of the drug. Under out-patient conditions vigilance is required to see that a patient who has been placed on a small regular dose of the drug is not also managing to consume some alcoholic beverage. Should he do so the dose ought immediately to be quadrupled.

Summary and Conclusions

The use of tetraethylthiuramdisulphide is recommended as a useful ancillary, but not as a substitute for, general and psychological methods in the treatment of alcoholics.

The pharmacological action of the drug is discussed. It is innocuous to man unless followed by alcohol, but certain precautions in its administration are advocated.

Details in a severe case of alcoholic addiction are related in order to illustrate the symptoms and technique in treatment.

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Among developments that Governor Dewey has recently announced will be carried out in the New York State mental hygiene programme (*New York Times*, July 20) is the establishment of a new relationship between voluntary hospitals and State mental hospitals; the former will provide preliminary treatment for patients before they become State charges. A second innovation that he described as "my own private brain child" is the creation of a new intern system in which 200 men yearly will serve for two years as interns in every State mental hospital, which would pay interns more than the voluntary hospitals do. "This is a system of which I vigorously disapprove," he said, "unless it is a public necessity, and I think this is a public necessity."

INCIDENCE OF PHYSICAL DISORDERS AMONG PSYCHIATRIC IN-PATIENTS

A STUDY OF 175 CASES

BY

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During my period of duty as resident medical officer to the psychiatric unit I was so impressed by the number of patients needing attention for physical conditions that I reviewed the case records of all those admitted to the unit in 1948 in order to estimate the frequency of such conditions among the patients treated and the relevance of these to their psychiatric conditions.

Material Studied

During 1948 the unit had the use of 28 beds—22 for females and six for males, though, owing to redecorations, not all the former were continuously available. A total of 179 patients were admitted, of whom four did not stay long enough to allow of full examination and so are excluded from this series. The number of patients studied was 175, comprising 124 women and 51 men. All were in need of psychiatric attention, and no purely physical criterion entered into their selection.

The predominant features of the psychiatric conditions found were as follows: affective reactions, 108 (endogenous depression 51, reactive depression 35, anxiety states 16, cyclothymic reactions six); hysterical reactions, 22; schizophrenic reactions, 20; obsessional reactions, 16; organic reactions, five; hypochondriasis, neurasthenia, behaviour disorder, and drug addiction, one each.

Abnormal Physical Conditions

In no fewer than 77 patients (44%) some physical condition needing attention was found. As might be expected, the incidence was higher in those over 40 than in younger patients (61% against 35%).

In four patients serious physical disorders were first discovered during examination in the unit, their presence not having been previously suspected; these comprised one case each of pulmonary tuberculosis, bronchial carcinoma, glioma, and major epilepsy. In two other patients serious physical disorders, not related to the psychiatric condition, developed during their stay in hospital; these comprised one case each of cerebral thrombosis and thrombophlebitis.

In the accompanying tables the various physical conditions found are analysed according to their apparent relevance to the psychiatric conditions for which treatment was required.

TABLE I.—*Physical Conditions Contributing to the Onset of Psychological Illness*

	No. of Patients
Gynaecological conditions (menopause, 6; pregnancy, 4; eclampsia, abortion, sterilization, puberty, 1 each)	14
Disorders of central nervous system (epilepsy, 3; cerebral contusion, glioma, internal carotid aneurysm, poliomyelitis, encephalitis lethargica, 1 each)	8
Disorders of respiratory tract (influenza, maxillary sinusitis, asthma, pulmonary tuberculosis, bronchial carcinoma, 1 each)	5
Orthopaedic conditions (prolapsed intervertebral disk, 2; fracture of tibia, 1)	3
Disorders of vision (cataract, Leber's atrophy, 1 each)	2
Endocrine disorders (acromegaly, hypothyroidism, 1 each)	2
Arteriosclerosis	1
Chronic nephritis	1
Intestinal obstruction	1
Otosclerosis	1

TABLE II.—*Physical Disorders Resulting from Psychological Illness*

	No. of Patients
Lesions resulting from suicidal attempts (of which 4 occurred before admission)	6
Asthma	1
Collapse of lower lobe of left lung	1
Physical sequelae of anorexia nervosa	1
Stomal ulcers	1

TABLE III.—*Physical Conditions Not Apparently Related Aetiologically to Psychological Illness, but Requiring Attention*

	No. of Patients
Disorders of central nervous system (epilepsy, 2; frontal lobe injury, cerebral thrombosis, narcolepsy, migraine, ataxia of unknown cause, tremor of unknown cause, 1 each)	8
Disorders of alimentary tract (dental conditions, 6; stomal ulcers, 2)	8
Disorders of respiratory tract (pulmonary tuberculosis, 3; emphysema, maxillary sinusitis, tonsillitis, 1 each)	6
Gynaecological conditions (pregnancy, cervical polyp, cervical erosion, retroversion of uterus, pruritus vulvae, 1 each)	5
Disorders of veins (varicosity, 2; thrombosis, phlebitis, haemorrhoids, 1 each)	5
Endocrine disorders (thyroid adenoma, 2; diabetes mellitus, hypothyroidism, 1 each)	4
Orthopaedic conditions (cervical rib, scoliosis, pes cavus, 1 each)	3
Anaemias	3
Hernia	2
Skin conditions	2
Rheumatoid arthritis	1
Detached retina	1
Otitis media	1
Chronic mastitis	1

Laboratory Investigations.—The number of patients showing abnormal findings from laboratory and radiological investigations are as follows:

Electroencephalography	13	Cerebrospinal fluid	2
Serum cholesterol	5	Blood urea	2
Chest radiograph	4	Basal metabolic rate	2
Skull radiograph	4	Ventriculography	1
Fractional test meal	3	Bronchography	1
Blood counts	3	Electrocardiography	1
Blood sugar	3	Blood Wassermann or Kahn	1
Barium meal or enema	2		

Summary of Findings.—Out of the 175 patients, 77 (44%) presented some physical condition requiring attention. Of the 10 patients (6%) whose physical condition resulted from psychological illness, there were six in whom the physical lesion was consciously induced in a suicidal attempt. In the other four the physical condition found had a definite psychogenesis. In 39 patients (22%) the physical condition was considered to contribute to the development of the psychological illness. In 26 patients (15%) the physical and psychiatric conditions did not appear to be aetiologically related.

Discussion

The importance of the psychiatric aspect in many patients suffering from undoubted organic disease is now widely recognized, and is reflected in the development of the concept of psychosomatic medicine. This has perhaps led to less emphasis being laid on the physical factors in psychiatric syndromes, especially in those which are not obviously of organic type. The figures given above indicate the importance of this aspect of psychiatry. That this may be underestimated in general wards as well as in psychiatric wards is indicated in a study made by Comroe (1936). He followed up 100 patients who after admission to a medical clinic were diagnosed as suffering from neurosis, and found that 24% of them had definite organic disease within an average period of eight months, and that in most of them evidence of the organic disease was present during the original admission to the clinic.

The variety and gravity of physical disorders present among patients attending for psychiatric treatment are illustrated by the three case histories quoted below.

Case 1.—Man aged 72. A case of endogenous depression with a history of three depressive illnesses in the last 16 years. No physical symptoms, and no abnormal physical signs except glycosuria. A glucose-tolerance test indicated a moderately severe diabetic condition, the patient needing stabilization on insulin as well as electric convulsion therapy for the depressive condition.

Case 2.—Man aged 45. Referred for investigation of attacks of dizziness and fainting, which his doctor was satisfied "were not organic in the main," and a single epileptiform fit a few days previously. The doctor added that the patient had always had some worry—about his job or his mother's health or his own impotence. The left arm had been amputated many years ago following an accident. The clinical findings after admission were summed up thus: "A bad family background and a long history of gastric trouble, probably of emotional origin; evidence of an overconscientious obsessional driving personality. A history of disturbances of consciousness for seven to eight years; these have ranged from transient attacks lasting from a few seconds to a minute, in which he feels his actions are mechanical, to complete loss lasting as long as an hour and followed by vomiting. No physical signs, but sensory disturbances in a phantom left hand may have an organic basis. In the last nine months he has been lacking in libido, has become anxious and depressed, and feels that he is irritable and less efficient than before." After electroencephalography, skull radiographs, and ventriculography a diagnosis was made of glioma in the right frontoparietal region, and the patient was referred for deep *x*-ray therapy.

Case 3.—Man aged 29. Referred on account of three fugues during the previous 18 months. He complained of headaches and dimness of vision in the left eye, and was stated to have become apathetic and irritable since a subarachnoid haemorrhage eight years previously. Skull radiographs showed a shadow having the appearance of a large calcified aneurysm at the bifurcation of the left internal carotid artery. There were a few rales at the bases of both lungs but no other physical signs and no symptoms referable to his chest. The E.S.R. was 40 mm. in one hour. Radiographs of the chest showed extensive infiltration of both lungs with cavitation, and the sputum contained tubercle bacilli.

Full medical and surgical facilities are clearly necessary for the satisfactory treatment of such cases as these. The modern mental hospital is admittedly provided with such facilities, but there are many psychiatric patients for whom admission to a mental hospital is undesirable, particularly in view of popular prejudice and misinformation. Henderson and Gillespie (1944) state: "Recent experience has shown that with modern methods of treatment a considerable range of mental illness can be treated in the wards of a general hospital: but this is on the whole to be regarded as a provisional arrangement pending the establishment of specially constructed and equipped clinics within general hospitals." Treatment in such a unit is not merely a matter of investigation and transfer elsewhere, and the average duration of stay of a patient there is comparable to that in a general ward (Sands, 1948). At this time, when so much hospital planning is taking place, it may not be inappropriate to call attention to the need for such psychiatric units, as exemplified by the facts quoted in this paper.

Summary

The incidence of physical disorders among 175 patients admitted to a psychiatric unit is analysed. In 44% the physical condition required attention. In 22% a physical condition contributed to the psychological illness; in 6% a physical disorder resulted from the psychological illness; in 15% physical and psychiatric disorders occurred together but were not apparently related aetiologically.

The importance of full physical investigation of all psychiatric patients is emphasized. The need for properly equipped psychiatric units in general hospitals is stressed.

I am indebted to Dr. Desmond Curran and Sir Paul Mallinson for their help in the presentation of this paper and for permission to

quote from the records of patients under their charge, and to Dr. J. B. Randell, Dr. H. F. Osmond, and Dr. L. Ford for their help.

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FAMILIAL PERIODIC PARALYSIS

REPORT OF A CASE

BY

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Familial periodic paralysis presents a well-defined clinical picture. It was first described by Cavaré (1853), whose findings have been supplemented by studies of the electrocardiogram (Janota and Weber, 1928), of the electroencephalogram (Watson, 1946), and of rare features such as non-familial incidence, protracted seizures, visceral involvement, and fatal complications (Smith, 1939). Precipitation of attacks has been ascribed to physical exertion and mental strain, indulgence in carbohydrates or alcohol, alimentary disturbance such as overeating, hunger, diarrhoea, or constipation, and exposure to cold or damp. Postulated relationships between this and other conditions —e.g., endocrinopathy (Shinosaki, 1926), migraine (MacLachlan, 1932), muscular dystrophy (Biemond and Daniels, 1934), spinal vascular spasm (Vernon, 1936), chemical defect of the neuraxis (Pudenz, McIntosh, and McEachern, 1938)—are inconstant and indefinite.

The search for an adequate pathology was initiated by suspicion that muscular metabolism was deranged by some transitory autotoxaemia, which was suggested by arrest of gastric digestion and motility during the palsy (Mitchell, Flexner, and Edsall, 1902), and by transient urinary anomalies—e.g., acetonuria (Pastine, 1918), albuminuria (Shinosaki, 1926), and creatinuria (Ferrebee, Atchley, and Loeb, 1938). Recent studies of the blood chemistry of this syndrome have led to a fundamental advance in the state of knowledge as it existed between the review of the literature made by Singer and Goodbody (1901) and that by Schoenthal (1934).

From a casual observation that the potassium content of the blood serum was lowered during the palsy (Biemond and Daniels, 1934) there developed a new line of inquiry (Walker, 1935). A low serum potassium was found in attacks induced by administration of glucose in large quantities and insulin, separately and together (Aitken, Allott, Castleden, and Walker, 1937), and by adrenaline injection (Allott and McArdle, 1938). Attention has been drawn to alterations in the phosphorus balance of the blood (Milhorat, 1937; Allott and McArdle, 1938), variations in electrolyte features of the blood (Ferrebee *et al.*, 1938), and experimental evidence suggestive of a central controlling factor (Pudenz *et al.*, 1938). The pathogenesis of this disease presumably depends upon an excessive call for potassium in the muscles, its consequent withdrawal from the blood and retention in the body, with parallel changes in phosphorus metabolism. Undue lability of the serum potassium and phosphorus in relation to sugar mobilization perhaps conditions some motor dysfunction, such as interference with transmission of nerve impulses or inhibition of the muscular contractile response.

It has long been recognized that this palsy may be averted or arrested by the ingestion of various potassium salts—e.g., the acetate (Singer and Goodbody, 1901), the carbonate, the chlorate (Mitchell *et al.*, 1902), the bromide (Holtzapple, 1905), the chloride (Aitken *et al.*, 1937), the citrate (Herrington, 1937), and the phosphate (Allott and McArdle, 1938). The success of prophylactic potassium medication at night (Allott and McArdle, 1938) is probably related to nocturnal lowering of serum potassium in this malady (Gammon, Austin, Blithe, and Reid, 1939). Symptoms have been controlled also by choline esters (Pudenz *et al.*, 1938), pilocarpine (Guttmann, 1931), and pancreatic extract (Vernon, 1936), and averted by cod-liver oil (G.D.H., 1948).

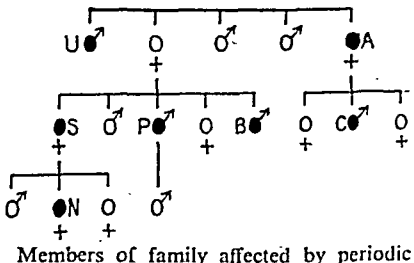
The following case, which illustrates typical familial and clinical features of this rare and remarkable malady, shows a prominent association between muscular exertion and paralytic seizures, a striking hemiplegic distribution of symptoms, and a prompt response to potassium therapy.

Case Report

A South Indian male, aged 24, of a rice-eating race, serving in a labour corps in Ceylon, was referred for neuropsychiatric examination with a history of transient flaccid hemiplegic seizures occurring early in the morning after a hard day's work. A provisional diagnosis of hysteria had been suggested by the relation of these attacks to heavy work, their transitory duration, apparent response to bromides, irregular recurrence, and increasing frequency.

Personal History.—Symptoms had originated at the age of 17 with transient weakness of the lower limbs after strenuous work. As increasing frequency and severity of the disability began to interfere with his work as a cultivator, he had sought *ayurvedhic* treatment (herbals and massage), with apparent relief for several months. After resuming work, however, several relapses compelled him to abandon manual labour and obtain light work in a rural grocery store. This was followed by freedom from the disability. Enlistment in the Indian Army, six months before the time of examination, had been followed by another recurrence of symptoms, this time ranging in intensity from fleeting muscular weakness to profound loss of power lasting 2½ days. The frequency of attacks had increased from one in six to eight weeks to one in two to three weeks, having almost always affected both limbs of the right side, rarely having spread to the opposite side, and never to the trunk, neck, or head. The palsy evidently used to come on insidiously during sleep at night, as it would become apparent on awaking next morning without any premonitory warning. Spontaneous recovery had been the invariable termination of these seizures. Other past illnesses comprised two attacks of intermittent fever suggestive of malaria, and a few diarrhoeic episodes.

Family History.—Six other members of the patient's family, who were of coolie or labourer stock, had been afflicted by disabilities similar to his own, as indicated in the accompanying family tree. A maternal uncle, U, had suffered from occasional paralysis of his legs until his death, by accident, at the age of about 40. A maternal aunt, A, had had intermittent loss of power of her legs, but had gradually become free of her disability after about 25 years. This woman's son, C, was subject to paralytic attacks in his right arm and leg. The patient's elder sister, S, used to suffer from intermittent loss of power of her upper limbs, and one of her daughters, N, had a similar weakness of her legs. The patient's younger brother, B, had died in childhood during a para-



Members of family affected by periodic paralysis are shown in black.

lytic seizure of all four limbs and body. The patient, P, had been married for about three years. His only child had died of convulsions eight days after birth, but had exhibited no manifestations of paralysis. No information was available regarding the patient's maternal grandparents. No paralytic disability was known to have occurred in his father's family.

Investigations.—Observation in hospital for a fortnight revealed no physical abnormality; the urine, faeces, blood, and spinal fluid were normal. Psychiatric investigation disclosed no evidence of a psychogenic basis for the palsy.

As the classical features of familial periodic paralysis were recognizable in the history, attempts were made to induce symptoms. Four ounces (114 ml.) of glucose was given by mouth at 1 p.m. and again at 7 p.m. Weakness of the right arm and leg was reported the next day at 5 a.m., and of the left arm and leg at 6.15 a.m. By 10 a.m. all four limbs were in a state of flaccid paralysis with extinction of reflexes. Paralysis was profound on the right side, but weak movements of the left hand and foot indicated incomplete involvement of the distal muscles of the limbs on that side. Faradic reaction was abolished on the right side and feeble on the left. There was no motor disturbance of the trunk, neck, or head. The cranial nerves, abdominal reflexes, sphincter control, and sensory functions were normal. Urine was voided normally during the paralysis, but the bowel was not evacuated. Transient, mild glycosuria (0.02%), high acidity, and excess of urates were observed during the palsy. Results of systemic examination were otherwise negative. After a static period of about 26 hours, gradual return of power began distally and progressed to complete recovery in about 11 hours. Reflexes were restored later, but remained sluggish for about 18 hours, with coexistent aching and tenderness of the limbs. Four days later an attempt was made, without success, to provoke the palsy by subcutaneous injection of 10 min. (0.6 ml.) of adrenaline, repeated half-hourly from 9 a.m. to 3 p.m.

A spontaneous attack developed a week later, following exercise, the limbs of the right side only being affected. When paralysis was maximal 1 dr. (3.5 ml.) of potassium citrate in peppermint water was given by mouth. Symptoms passed off rapidly, with complete recovery in 3½ hours, leaving slight post-paralytic myalgia for about two hours.

As the patient's seizures were invariably nocturnal in incidence, a dose of ½ dr. (1.75 ml.) of potassium citrate was ordered as a routine prophylactic measure every night. No further recurrences were reported thereafter.

It was unfortunate that wartime conditions precluded biochemical study of this case—e.g., estimations of potassium, phosphorus, and sugar in the blood. I am not aware of a previous record of periodic paralysis affecting several members of an Indian family. The first such instance reported in a family in Britain is accredited to Farquhar Buzzard (1901). One of his three patients has recently described his symptoms, mentioning a persistent attack which had crippled him for three weeks (G. D. H., 1948).

I am grateful to Dr. C. Worster-Drought for his helpful comments and suggestions regarding this paper. He has kindly sent me an interesting note about one of three members of a family afflicted by this palsy who invariably develops attacks after bowling three or four overs at cricket, but never after batting or fielding. I am obliged to my colleague, Captain Oliver Medonza, for assistance in searching the literature available in Ceylon for references to this interesting syndrome.

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Medical Memoranda

Some Presenting Symptoms of Carcinoma of the Bronchus

Carcinoma of the bronchus may give rise to a variety of presenting symptoms due either to the primary growth or to secondary deposits. The table shows the mode of presentation in 17 cases seen during a six months' appointment as house-physician at the Essex County Hospital. In these unselected cases from the medical and surgical wards of a general hospital nearly half presented with symptoms caused by metastases.

Presenting Symptoms	*No. of Cases*
(i) *Caused by Primary Growth*	
Cough, haemoptysis, blood-stained sputum, pain in chest, dysphagia, superior vena caval obstruction	9
(ii) *Caused by Primary Growth but simulating Pleuro-Pulmonary Infection* ..	
Fever and symptoms and signs suggestive of unresolved pneumonia or empyema.	2
(iii) *Caused by Secondary Growth*	
Paraplegia	3
Cerebral tumour	1
Pain in abdomen (ileum)	1
Gross enlargement of liver	1
Total	17

In cases in which carcinoma of the bronchus was diagnosed before secondary growth had caused symptoms death occurred within three months of the onset. Death supervened rapidly in this small series of cases, but some patients survive for two or three years after diagnosis. One case is worth recording in detail because of the unusual mode of presentation.

CASE REPORT

Up to six weeks before admission this woman, aged 39, had been perfectly well. Her first complaint was of swelling of the face and upper part of the trunk. She also had some shortness of breath at that time, but no other symptoms.

On admission, on Sept. 9, 1947, her most distressing symptom was a massive, painful enlargement of both breasts. They were enormous and intensely tender; pitting oedema and peau d'orange was manifest. The right breast was larger than the left, and while she was sitting in bed this breast rested on her thigh. There was no discharge from the nipple; no localized inflammatory or other mass could be detected.

She also had a severe persistent cough, with brown blood-stained sputum. Her temperature was 104° F. (40° C.), pulse 200, and respiration rate 48. She was pale, cyanosed, very dyspnoeic, and obviously moribund. There was oedema and puffiness of her face and both upper limbs. The neck veins were engorged on the right side, but not on the left. Enlarged tender lymphatic glands were palpable in both axillae and in

the right supraclavicular region. Examination of the chest showed consolidation of the whole of the right lung and a pleural effusion. The liver was grossly enlarged and tender.

The diagnosis in this case was not easy. There was obviously superior vena caval obstruction, and carcinoma of the bronchus with large hilar secondaries seemed a likely diagnosis. The gross enlargement of the breasts developing so rapidly and the shortness of the history were both confusing factors. Her condition rapidly deteriorated, and she died three days after admission.

Post-mortem examination confirmed the diagnosis of carcinoma of the bronchus with lymphatic obstruction and obstruction of the superior vena cava. There was a purulent tracheitis, bronchitis, and there were multiple small abscesses containing thick yellow pus in the right lung, which was solid with grey pneumonic consolidation. The right bronchus led into a firm white mass at the hilum of the lung.

This growth invaded the right lung deeply and occupied a considerable part of the mediastinum, being about 6 in. (15 cm.) in diameter. In the mediastinum the mass was a mixture of primary growth and secondary glands. The growth had penetrated through into the right auricle and superior vena cava, which was partially occluded. The left lung was congested; the right pleura contained a large yellow effusion. There was a toxic change in the myocardium and gross "bread-and-butter" pericarditis with dilatation of the neck veins.

On sectioning the breasts, the enlargement was seen to be due to oedema, which was also present in the presternal subcutaneous tissue.

I am grateful to Dr. S. A. Propert, Honorary Physician, Essex County Hospital, Colchester, for permission to publish this case, and to Dr. J. B. Penfold, who performed the post-mortem examination, for his advice and criticism.

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Pethidine as a Supplement to Nitrous Oxide Anaesthesia

The synthetic analgesic pethidine provides an alternative to morphine that possesses certain advantages over the natural alkaloid. The high degree of pain relief without respiratory depression or interference with the cough reflex, and the possession of certain atropine-like properties, have made it justly popular in obstetrics and in the relief of post-operative pain.

On a recent visit to San Francisco one of us saw this drug being administered intravenously as a supplement to nitrous oxide anaesthesia by Dr. William B. Neff, professor of anaesthetics at Stanford University, with excellent results both on the operating table and after. This use of pethidine does not seem to have been previously investigated in this country. We have since used it in upwards of 100 cases, with very gratifying results. It has been usual at the end of a long anaesthesia for the patient to reply to questions before leaving the table, and there has been a noticeable absence of post-operative pain and restlessness, often such a feature of other techniques where rapid recovery of consciousness occurs.

It has been our practice to put the patient to sleep with thiopentone and then administer nitrous oxide with some 30% of oxygen. An intravenous injection of 25 mg. of pethidine is given at the outset. This dose is repeated as often as is necessary to subdue any reflex activity on the part of the patient. We have found that 25 mg. of pethidine is needed about every 20–30 minutes in the average case. In abdominal and thoracic operations we have given occasional injections of "flaxedil" (a synthetic curarizing substance) or curare when the abdomen is tight or when the cough reflex is active. A rising pulse rate or blood pressure, or similar reaction to painful stimuli, is an indication that pethidine is required. The results during and after operation have been so good that we feel justified in publishing this early report, in case our colleagues may not be aware of the method.

We record our great debt to Dr. William B. Neff, who has developed this form of anaesthesia to a high degree.

WILLIAM W. MUSHIN, M.A., M.B., F.F.A. R.C.S., D.A.,
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Splint to Control Dorsal Subluxation of Proximal Interphalangeal Joints of Fingers

In the *British Medical Journal* of Dec. 11, 1948 (p. 1030), Dr. Trevor Howell stated that the problem of deformed fingers with ulnar deviation and subluxation was unsolved. In many of these cases the main deformity is a dorsal subluxation of the proximal interphalangeal joint, and in the Cowley Road Hospital, Oxford, we have introduced a splint which controls the subluxation while allowing free flexion of the finger. The splint is constructed of a single piece of heavy-gauge single-strand galvanized wire, padded and covered with leather. It consists of three transverse arms, one ventral to the proximal interphalangeal joint, and two others dorsal to the phalanges on either side of it. These arms are connected by side pieces, and the splint is so adjusted that the finger in maximum extension is slightly flexed, as in Fig. 1. As shown in Fig. 2, the splint forms



FIG. 1



FIG. 2

no bar to flexion to the limit of the capacity of the joint. The side pieces of the splint should be tight enough on the finger to maintain the splint in position during flexion.

The patients who have been provided with these splints have remarked on an increased range of usefulness of the hand. This is because the finger can no longer "lock" in a subluxated position, and also because the initiation of flexion is carried out with the finger in a much more advantageous mechanical position for the flexors, and therefore with more power. Further, if fixation of the joint is progressing, it will occur in a more satisfactory functional position if the deformity is controlled. None of the splints have been worn long enough to show whether their use can be curative, but it is possible that it might be so after constant wear for a period of several months. The splint is also useful in cases of this deformity arising from other causes.

(Since this note was written one patient suffering from paralysis agitans has undergone a complete cure of this deformity and now has a good functional hand after wearing the splint for nine months.)

My thanks are due to Dr. J. H. Spence, medical officer to the Cowley Road Hospital, for permission to publish this account, and to Mr. Eric Hillsdon for constructing all the splints since production of the prototype.

JOHN L. INSLEY, B.M., B.Ch., D.L.O.

Reviews

ABDOMINAL SURGERY

Abdominal Operations. By Rodney Maingot, F.R.C.S. Second edition. (Pp. 1,274; 468 illustrations. £4 4s.) London: H. K. Lewis and Co. 1948.

In the second edition of his book Mr. Maingot tells us that the considerable advances made in abdominal surgery during the last few years have forced him to revise the whole work thoroughly in order to bring it up to date. This revision is at once apparent, for the original two-volume book published in 1941 now consists of a single volume; and whereas the first edition was Mr. Maingot's own work throughout, with the exception of two chapters by two contributors who no longer appear, the present is the handiwork of eight new contributors in addition to the original author. The modernity of the book may be gathered from the fact that Chapter 16, by Lester Dragstedt, is on section of the vagi in the treatment of peptic ulcer. Certain omissions commented upon in reviews of the first edition have been made good; thus, there is an index of authors as well as of subjects. There is also a chapter by A. J. Cokkinis in which malrotation of the gut is discussed. In this section more reference might have been made to Norman Dott's notable paper on the subject. The historical notes which appear in various parts of the book, such as those in the chapters on subphrenic abscess, appendicitis, and diverticulitis, are excellent, many of them containing quotations from original papers.

In the diagram of various modifications of the Billroth II type of gastric resection (p. 223) I should like to have seen the Moynihan II no-loop, isoperistaltic anastomosis shown, as this has proved highly successful in the hands of many of his disciples and appears to be still popular. There are a few errors in the spelling of proper names—the appearance of Sir William's name as MacEwan (p. 820) may cause distress in Scotland, and that of Rodgers (p. 108) without the third letter lead to discontent in Northern Ireland.

There is an excellent chapter by Mr. R. C. Brock on post-operative chest complications and their management, but except for an article on local analgesia there is still no section on anaesthesia, an omission which was also commented upon in the review of the first edition. Perhaps the distinguished author prefers to leave the selection and administration of anaesthetics entirely to the anaesthetist, but the safety and ease of performance of abdominal surgery and the incidence of post-operative complications are so closely linked with the nature of the anaesthetic and its method of administration that a place might be found for general guidance in these matters in order to make this book complete.

This is a masterly work, the text of which is well arranged, clear, and eminently readable, while the illustrations are outstanding. Special notice should be given to them, since their importance in such a book, which is to be a guide to operating surgeons, cannot be overstated. They are for the most part the work of the Misses Larivière and McLarty and represent fine craftsmanship of which British surgical publishing may well be proud. The figures are clear and accurate as well as realistic, and should be a decided help to the young surgeon in the process of developing his technique or seeking guidance about an operation with which he is not very familiar. Some pathological material is well shown in both coloured and black-and-white plates by well-known medical illustrators such as Thornton Shiells, A. K. Maxwell, and others.

Among a series of textbooks on abdominal surgery Moynihan's two-volume book was outstanding up to the time of his death and for some years later. This is a work which in many respects resembles it, and bids fair to be a worthy successor and as valuable a guide to this generation as that of the great Leeds surgeon was to the generation before it. The author appears to have fully achieved his purpose of presenting a detailed consideration of the technique of modern abdominal operations.

LAMBERT ROGERS.

SURGERY OF THE STOMACH

The Surgery of the Stomach and Duodenum. By T. H. Somervell, M.A., M.B., B.Ch., F.R.C.S. (Pp. 546; illustrated. £2 5s.) London: Edward Arnold and Company.

Mr. T. H. Somervell, whose advocacy of "physiological gastrectomy" is well known, has here collected the results of his exceptionally wide experience of the whole range of gastric surgery. Although he is a complete convert to Hey's operation of vasoligation with, or occasionally without, an associated gastro-jejunostomy, his book is as unbiased an account of the surgical attack upon peptic ulceration as one could wish for; indeed, the description of his favourite method of treatment occupies but eleven pages of the book's total of over 500. His conclusions on this subject are well summed up in the preface: "It is not everyone who can perform an adequate gastrectomy with a low enough mortality to make it a justifiable operation. But many surgeons can do vagotomy, and all surgeons worthy of the name can devascularize the stomach with negligible mortality. All the evidence we have so far collected goes to show that the results of this operation are good." The chapter on vagotomy is written by Mr. Orr, who gives a well-balanced account of this innovation, including descriptions of both the transthoracic and the abdominal supradiaphragmatic operations.

The general outlook of the book is essentially balanced, and in controversial matters the author has been at great pains to present both sides of the question quite fairly; nevertheless, he usually has a definite opinion of his own. For instance, he is not in favour of the non-operative or expectant treatment of perforation except in the very gravest type of bad-risk patient, but he favours the Fowler position after operation provided all air is expelled from the peritoneum. He thinks that in very special circumstances there is a place for gastrectomy in the treatment of perforation. On the debatable question of the surgical treatment of bleeding from ulcers he is less definite, believing that the correct answer depends upon the capabilities of the individual surgeon: "For patients who are in the hands of an experienced surgeon I am in favour of early operation within 24 hours of the bleeding, backed by a transfusion controlled by intelligent observation." But how the surgeon is to assess his own capabilities cannot be told. He is enthusiastic on the transdiaphragmatic and transthoracic routes for access to the cardiac end of the stomach or oesophagus, and gives a good description of these operations. These are a few examples of the valuable conclusions and teaching to be found in these pages.

The book is well and copiously illustrated, the reproduction of radiographs and photomicrographs on the semi-art paper being particularly good. To sum up, this is a volume which can be highly recommended both to the novice and to the more experienced, for it is written modestly and with obvious sincerity.

NORMAN C. LAKE.

RADIOLOGY OF THE GUT

The Digestive Tract in Roentgenology. By Jacob Buckstein, M.D. (Pp. 889; 1,030 illustrations in 659 figures. £5.) Philadelphia and London: J. B. Lippincott Company.

The author's twenty-five years' association with Bellevue Hospital, New York, as a visiting radiologist, have provided him with a wealth of experience in gastro-enterological radiology.

The material presented in this book has been carefully and systematically selected. Each section is prefaced by a short anatomical description, a historical sketch, and a well-illustrated account of the normal appearances of the part under discussion. The method of examination of the part is described briefly in each major section. A short history of any case described is followed by the clinical, operative, pathological, and radiological findings. The radiological opinion is reserved to the end of the presentation. There is no air of infallibility, and where errors were made in the diagnosis the reasons are given without reserve.

Over a thousand illustrations of very fine quality are used, and they are properly keyed to the text so that the reader can follow them with the minimum of page turning. They really do show the points made, which is not true of all books on radiology. Each section has a satisfactory bibliography which is selected from publications in many languages.

Some of the author's statements are open to challenge. Many would not agree with him that "gastritis is a comparatively frequent disease," but they would share his caution in making the diagnosis radiologically. There is no doubt also that air in the duodenal cap is derived from that in the stomach, though the author would only presume so. In the discussion of short oesophagus the condition is considered solely as a congenital abnormality, and the possibility that shortening may occur later as a result of ulceration is not mentioned, even though a case fully described would seem to fit into the acquired category.

These are minor criticisms, and the book is strongly recommended in spite of its heavy cost: it provides a ready source of reference for the experienced radiologist and clinician, as well as being an excellent textbook for the junior radiologist or postgraduate trainee. The printing and paper are good and the bibliographic and general indices are clearly drawn up.

F. PYGOTT.

A SCHEME OF NEUROLOGY

A Textbook of Clinical Neurology. By J. M. Nielsen, M.D. Second edition. (Pp. 699. $7.50.) New York: Paul B. Hoeber, Inc.

Dr. Nielsen says in his preface to the first edition, "The book aims to present the subject of clinical neurology working from the simple to the complex . . . in so concise and clear-cut a manner and in sufficiently small volume that it may be used as a text of the subject during the time allotted to neurology in a general medical course." To this end he has systematically described the pathology and effects of diseases of each part of the nervous system, beginning at the periphery and finally reaching the hemispheres. He has then considered different forms of disease in turn; there are chapters on inflammations, tumours, and trauma, for example, and he has described entities such as the epilepsies, migraine, and intellectual defect in separate sections. Finally, he has an account of such special subjects as electro-encephalography, diseases of bones, and the vitamins. There are also two articles on neuroses and addiction which, though short, are much more useful than in comparable textbooks of neurology.

The presentation of neurology in this book follows the German method, with an emphasis on syndromes and proper names which is now unfamiliar in this country, and which many think undesirable. This is most clearly shown in the chapter on syndromes of the brain stem, which includes not only the Wallenberg syndrome, the Millard-Grubler syndrome, and the Foville's syndrome, but also Avellis's, Schmidt's, Jackson's, and many others. This form of presentation makes a demand upon memory which is beyond the capacity of some students and most neurologists.

The second edition has been brought up to date, particularly the sections on the treatment of infections. It is admirably produced and well illustrated.

DENIS WILLIAMS.

THE BASIS OF DISEASE

Biology of Disease. By Eli Moschcowitz, M.D. (Pp. 221. $4.50.) New York: Grune and Stratton. 1948.

In this collection of 24 essays, previously published in various journals, the author is concerned with the biological processes underlying a variety of clinical syndromes. He feels that too detailed classification of diseases is potentially dangerous, because thereby we may obscure the fact that similar derangements of function are common to several of them. Moreover, he believes that a number of chronic diseases are not separate entities, but represent the same morbid process at different stages of evolution. Thus he regards neuro-circulatory asthenia as the precursor state of Graves's disease, and cites examples where he has had patients under prolonged observation and has watched the transition.

The author displays an eclectic taste in his range of subjects. He discusses on the one hand common conditions such as arteriosclerosis, peptic ulcer, uraemia, Graves's disease, and obesity, and on the other uncommon illnesses such as periarteritis nodosa, Libman-Sachs disease, and follicular lymphoblastoma. Because of his preoccupation with the dynamics of disease rather than with the accompanying diverse morphological changes, however, he achieves unity—which is all the more surprising because the book appears at first sight to be a conglomeration of articles on unrelated subjects.

Dr. Moschcowitz writes with enthusiasm about psychosomatic medicine. As he points out, it is as old as Hippocrates in conception, but recent years have been fruitful in clarifying our understanding of this aspect of disease. Among psychosomatic disorders he defines a group of hyperkinetic diseases which includes essential hypertension, Graves's disease, peptic ulcer, and cardiospasm, in all of which he believes there is a primary exaggeration of function followed by marked anatomical changes. He observes five stages in their evolution: (1) the constitutional, (2) the exaggeration of function, (3) the lability of signs and symptoms, (4) the fixation of this exaggerated function, (5) somatic changes. Unfortunately he does not throw new light on why emotional stress has different effects on different people. He recognizes this important gap in our knowledge, and, though rejecting the Adlerian postulate of "organ inferiority," can only fall back on the all-embracing concept of "constitution" as an explanation.

Not all of us will agree with his opinions, but most of us will enjoy reading his book.

SIDNEY TRUELOVE.

REFLECTIONS ON GENERAL PRACTICE

Cum Notitia: Reminiscences of a General Medical Practitioner. By D. A. Alexander, M.B., Ch.B. (Pp. 395. 12s. 6d.) Bristol: John Wright and Sons. 1949.

An unusual book which left me sorry that no more information is given about the author than can be gathered from the text and the scanty note in the foreword. This introduction merely tells us that it is a collection of medical papers arranged as letters from a father who loved his profession to a son who felt unable to follow it, and that the author died suddenly before the book could be published. It is clear, however, that he was a happy man of wide reading and culture who was intensely interested in his patients. He was old-fashioned in some ways, but curious about new developments which might help him in his work and answer some of the questions about which he was always speculating. He tells us that an editor to whom he submitted a paper said, "You are a born speculator"—a verdict which all readers of this book will endorse.

It is a discursive work. The bulk of it is taken up by many careful and picturesque case histories. There are occasional, and too rare, reminiscences of colleagues and assistants, and a vivid account of his visit to the B.M.A. Annual Meeting at Cambridge in 1920. He had been anxious to meet Sir Clifford Allbutt, for whom he had great reverence, and like most of us who were present was disappointed with Sir Clifford's portrait that was presented to him at the meeting. "In it," he says, "I could not see all that we admired in the Regius Professor." I liked his defence of routine and mechanical work (p. 256).

I hope I have given the impression that this is a book to be dipped into and savoured. It is a worthy record of some aspects of an obviously good man who was a general practitioner far above the average.

ALFRED COX.

MARRIAGE GUIDANCE

Marriage Counselling. By David R. Mace, M.A., B.Sc., Ph.D. With foreword by the Right Hon. Henry Willink, *M.C.*, K.C. (Pp. 167. 8s.) London: J. and A. Churchill. 1948.

The reader of this excellent book need no longer complain he does not know what marriage guidance is or what it tries

to do. Dr. Mace sets out in clear and simple language all that an inquirer seeks to know.

The backbone of marriage guidance is the group of counsellors at the centres throughout the country, who work for the most part on a voluntary basis. These counsellors correspond to general practitioners in medicine, and their function is to sort out the cases, arrive at a diagnosis, and where necessary refer them to specialists (who may be medical, psychological, social, spiritual, or legal). Reference to medical specialists should be through the patients' own doctors. The success of marriage guidance depends on team work, since the causes of unsuccessful marriage are manifold; each case presents an individual problem, and no one counsellor can expect to be able to cope with all.

The work should comprise education for marriage, suitable for all young people over 16, preparation for marriage for engaged couples, and guidance and remedial treatment for those already married. In the past too much of the work has been with desperate cases where the situation has almost or quite passed beyond control. Even so, some measure of success has been achieved, though accurate statistical evidence cannot be obtained. It is hoped that in the future more preventive work may be possible as the public gains confidence in the efficacy of the centres. The help given must be competent, sympathetic, and confidential, and the counsellors must be most carefully selected. The methods used for selection are described. On the whole, married middle-aged people are the best, as they are most acceptable to both husband and wife, who must almost invariably be interviewed separately. The counsellors work for sessions of three hours not more than once a day, often only once a week. The general aims are emotional catharsis, elucidation and explanation, and mediation. With increasing experience less and less recourse to specialists is necessary.

While trying to keep an open and uncritical mind on all problems, there are certain ethical principles which are maintained. Extra-marital intercourse is condemned; contraceptives are permitted and in some cases encouraged. No decision about artificial insemination has yet been reached. Although every effort is made to seek a solution other than divorce, in some cases it is regretfully admitted to be unavoidable. No attempt is made to quote individual cases, but there is a general survey of the causes of marital disharmony.

There is no doubt that marriage guidance has come to stay: it now has Government support as a constructive effort to allay the social menace of the broken home with all its attendant evils, and this book should have a wide circulation in order that the public, who ought to be interested, may learn what it is all about.

R. G. GORDON.

Percival Bailey's *Intracranial Tumors* (second edition; pp. 478, 155 figures, 16 plates; $10.50 or £2 15s.; Springfield, Illinois: Charles C. Thomas; Oxford: Blackwell Scientific Publications, 1948) has been out of print too long, for it is a useful book of an unusual kind. It is written in an authoritative fashion by a man who knows very clearly what he thinks about the brain, its structure, its functions, and the nature and effect of the tumours that grow in it. It is essentially an American book showing little, except inferentially, of British influence on neurology and neurosurgery. The basic plan of the work is pathology, a good starting place and one that befits the author, whose part in the identification and classification of brain tumours is well known. The clinical effects of tumours in various situations are demonstrated by graphic descriptions, often transcripts of what patient and doctor said to one another. The only disadvantage of this is that tumours in the same situation do not produce stereotyped results, so that the inexperienced clinician who expects his patients to make the interesting replies that Dr. Bailey records may fail to recognize the site of the lesion in someone else. This is particularly true of frontal tumours, the typical effects of which are not only frequently absent but may be mimicked by tumours elsewhere. The book is well and plentifully illustrated; the diagrams are good, though some of the more ambitious pictures are not. But, even though it has faults, Dr. Bailey's book retains its place as highly important. It is a statement of his own views, an account of his thoughts on a subject to which he has made many contributions of the greatest interest and importance.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

Operative Technic in General Surgery. Edited by W. H. Cole, M.D., F.A.C.S. (Pp. 951. No price.) New York: Appleton-Century-Crofts. 1949.

Tumors of Bone. By C. F. Geschickter, M.D., and M. M. Copeland, M.D. 3rd ed. (Pp. 810. 105s.) London: J. B. Lippincott. 1949.

Cunningham's Manual of Practical Anatomy. Edited by J. C. Brash, M.D., F.R.C.S.Ed. 11th ed. (Pp. 488. 21s.) London: Geoffrey Cumberlege. 1948.

A Textbook of Practical Nursing. By K. O. Brownell, R.N., B.S. 3rd ed. (Pp. 465. 19s.) London: W. B. Saunders. 1949.

Trends in Nursing History. By E. M. Jamieson, B.A., R.N., and M. F. Sewall, B.S., R.N. 3rd ed. (Pp. 632. 22s. 6d.) London: W. B. Saunders. 1949.

Training for Childbirth. By M. Randell, S.R.N., S.C.M., T.M.M.G., F.C.S.P.(Hon.). 4th ed. (Pp. 142. 10s. 6d.) London: J. and A. Churchill. 1949

Cardiac Catheterization in Congenital Heart Disease. By A. Cournand, M.D., and others. (Pp. 108. 22s.) London: Geoffrey Cumberlege; New York: The Commonwealth Fund. 1949.

Atlas of Roentgenographic Positions. By V. Merrill. Vols. 1 and 2. (Pp. 663. 150s.) London: Henry Kimpton. 1949.

Outline of the Amino Acids and Proteins. Edited by M. Sahyun, M.A., Ph.D. 2nd ed. (Pp. 286. 30s.) London: Chapman and Hall. 1948.

Progress in Allergy. Edited by P. Kallos. Vol. 2. (Pp. 356. 36 Swiss francs.) New York and Basle: S. Karger. 1949.

Cancer of the Uterine Cervix. By F. Truelsen. (Pp. 440. No price.) London: H. K. Lewis. 1949.

Studies on Hookworm Disease in Szechwan Province, West China. By K. Chang. (Pp. 152. $3.) Baltimore: The Johns Hopkins Press. 1949.

Die Tuberkulose des Kindes. By H. Brügger and others. (Pp. 340. M. 16.) Stuttgart: Georg Thieme. 1948.

Medizinische Klinik. By F. Hoff. (Pp. 467. M. 29.60.) Stuttgart: Georg Thieme. 1948.

Semiologia y Patologia de la Articulacion de la Rodilla. By J. A. Pique and C. Khoury. (Pp. 185. No price.) Buenos Aires: Lopez and Etchegoyen. 1948.

Lehrbuch der Inneren Medizin. By T. Brugsch. Vol. 2. (Pp. 818. M. 30.) Berlin: Urban and Schwarzenberg. 1948.

Physiologie du Système Nerveux Central. By G. Morin. (Pp. 267. 950 francs.) Paris: Masson. 1948.

Medizin in Bewegung. By R. Siebeck. (Pp. 520. M. 27.) Stuttgart: Georg Thieme. 1949.

Tos Ferina. By J. P. Diaz. (Pp. 294. No price.) Saragossa: Revista Española de Pediatria. 1949.

I Reticolociti. By M. Ninni. (Pp. 296 No price.) Pavia: Tipografia del Libro. 1949.

Streptomycin und die Behandlung Haematogener Tuberkuloseformen. By O. Ruziczka. (Pp 179. 24s.) Vienna: Springer. 1949.

L'Ultra-Violet, la Lumière Solaire et Artificielle, l'Infra-Rouge. By J. Aimard and H. Dausset. 7th ed. (Pp. 231. 800 francs.) France: L'Expansion Scientifique Française. 1949.

Lehrbuch der Massage und Manuellen Gymnastik. By W. Thomsen. 2nd ed. (Pp. 237. M. 16.50.) Stuttgart: Georg Thieme. 1949.

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THE LAST OF THE GREAT EUROPEANS

Men of science have often been prominent among the great amateurs of the arts. But it is now unusual for poets, painters, or musicians to be serious students of science. In this issue of the *Journal* we are privileged to publish an appreciation of Goethe, whose bicentenary is now being celebrated, from the pen of Sir Charles Sherrington. It is surely fitting that the doyen of British scientists, whose profound knowledge of European literature illuminates the whole of his paper, should pay tribute to a great poet who not only studied science seriously but contributed original observations of his own. Goethe's influence on scientific thought is no longer widespread, but regard for his genius among "a cultivated public our civilized world over" still remains as great as ever.

The German word *Heiterkeit* is untranslatable. Perhaps "cheerful serenity" is as close a rendering as we can contrive in English. Goethe was one of the few great men of the modern age who had a deep sense of tragedy and yet achieved *Heiterkeit*. It was by no means his constant mood, for he was one of the moodiest of men. He was also a man of strong passions. His moods would chase one another with extreme rapidity. His passions were deep-seated and endured until the end—he was 83 when he died. His mind combined to an extraordinary degree the perceptive and creative faculties. Even in the year of his death he was so full of ideas and projects that he felt as though all the world were still before him. Goethe's was a complete and perfectly integrated personality—integrated both in itself and with external Nature, or what we have come to regard as that, for to Goethe, as to the ancient Greeks, Nature was not external. Nature to him was everything. It was for this reason above all that he could not accept Christianity; the doctrine of the Fall, the rupture in Nature, and the ineradicable sinfulness of man were wholly alien to his spirit. He could not accept the mediaeval view as expressed by Chaucer in the line:

> Nature, the vicaire of th' almyghty lorde.

For Goethe, God and Nature were one—complete and perfect. There would be something gruesome in his poem on the skull of his friend Schiller as it lay in the charnel-house, some inappropriate recollection of Hamlet musing over the skull of Yorick, were it not for the grandiose conception which makes the skull the temple of genius (an ancient temple, as it were, that once housed a divine spirit) and for Goethe's deep awareness that the skull is itself a noble structure and organic form. The poem, one of Goethe's greatest, ends with the marvellous—but untranslatable—lines:

> Was kann ein Mensch im Leben mehr gewinnen,
> Als dass sich Gott-Natur ihm offenbare?

All the emphasis lies upon *Gott-Natur*—God-Nature—the organic principle, the essence of all that Goethe believed in, lived and worked for, his religion and his philosophy in one. For theology he cared little, and for systematic philosophy even less, though he deeply revered Spinoza. That God-Nature should reveal itself to a man as it did to Schiller—this is the greatest happiness in life, the only enduring gain, the only fulfilment. Such is the meaning of these two lines which only a great poet could transmute into another language.

Goethe was a man who suffered much, and his "cheerful serenity" was but the aspect—though the inner as well as the outer aspect—of anguish and passion mastered and yet not forgotten. What was most astonishing about him was the immense power of intellect and imagination which enabled him to harmonize all contraries and discords in himself, in history, and in the world of his day. Although one of the deepest of writers, he was one of the least paradoxical. His conception of classical antiquity is out of date from an archaeological point of view, for modern research has disclosed what might be called the ancient underworld—the dark and daemonic forces in Greek religion, and the pessimism of the Greeks to which the great Burckhardt first called attention. Goethe saw "cheerful serenity" above all in the Greeks. And surely it is there; but much is there also of which Goethe had no knowledge. His judgment of Greek sculpture, known to him almost entirely through inferior examples of the late decline, is not our judgment. But even when he was mistaken he was profound and illuminating. We cannot simply discard his perception of classical antiquity. That perception did not merely record certain data—Goethe was little interested in data. Nor was it an *apparatus criticus*. It was a way of looking at things in their totality.

Although, as Sir Charles Sherrington points out, most of Goethe's work as a scientist has been superseded, it has extraordinary merits. Even when it is entirely mistaken it is interesting—and always readable. His work on the nature of colour has a value which made Turner, the greatest of English colourists, treasure it all his life. Goethe as a scientist did not seek for proofs, but propounded organic conceptions. He had an extraordinary sense of significant form.

Goethe despised politics, and yet few writings are as replete with political wisdom as his. The Germans were not yet a nation in his day. He warned them against trying to become a nation, and he told them: Do not on any account try to imitate Napoleon. The French Revolution was repugnant to him, but he had the gift of observing political phenomena *sine ira et studio* and yet with deep understanding, just as he would observe natural phenomena. He admitted that the French Revolution produced a revolution in himself, but the harmony of his own nature prevailed. He hated presumptuous ignorance. "There is nothing," he said, "more terrible than ignorance in action."

Classical antiquity, the Renaissance, and the modern world came together in Goethe. This is evident, above all, in his supreme masterpiece, the second part of *Faust*. Every character in this gigantic architectural poem is a type, every scene is symbolical, every event is significant. The poem contains the most grandiose scene of classical beauty in modern literature—the *klassische Walpurgisnacht*. It has the audacity and the sensuous splendour of the Renaissance and the perplexity, the sense of crisis, that mark our own time. He finished this work just before he died, fully aware that it would not be understood by his contemporaries. Only in our own generation has understanding come.

The period that immediately followed Goethe's was a period of prophetic genius—of Kierkegaard, Dostoevski, and Nietzsche. These great men were Europeans too, though Dostoevski would have disclaimed that title, but they belonged to the Europe that was already breaking apart. They not only stood on the verge of the abyss: they were already of the abyss. Goethe saw the abyss, but he was never of it. He was a prophet, but prophecy was not his vocation. His vocation was not to warn but to fulfil, not to paint the future or recall the past but to contemplate and reveal in symbolical terms—through the medium of poetry, drama, fiction, and science—the living, organic whole which, while it is always changing, is always the same. He would have rejected the evolutionary hypothesis, for to him Nature was complete and perfect, and every change was but a change from one perfection to another. He was a great moralist. He regarded evil as something against Nature, because Nature was not the realm of free and arbitrary impulse but the realm of form, structure, harmony, and law.

His genius was the last embodiment of that organic unity which the modern world has lost. He was the last of the great Europeans. The relevance of his warnings grows with every year. His influence upon his own generation and those that followed was pervasive—a kind of creative radiation, not an impact. He formulated no doctrine that moved the masses. Not one of his ideas stands alone. All his ideas—and they were many and varied—belong organically to one living conception. That the bicentenary of his birth should be celebrated throughout Europe and wherever European civilization has spread is evidence that Europe is not lost.

AN ANTIBIOTIC OF WIDE RANGE

We have referred on several recent occasions to reports from the U.S.A. on the therapeutic properties of "aureomycin."[1] Earlier accounts of this new antibiotic were not encouraging: indeed, its properties as demonstrable *in vitro* are such that an entire absence of therapeutic effect would not have been surprising. It is exceedingly unstable in ordinary culture media, so much so that the method of assay recommended is one in which the results can be read after only four hours' incubation. It is much less active in neutral or alkaline than in acid media, and serum diminishes its activity. That these unpromising characters are for some reason quite unrepresentative of the behaviour of aureomycin in the body is clear from the growing volume of clinical reports on its efficacy in a wide variety of infections. It has in fact a greater range of therapeutic activity than any other antibiotic, and its popularity in the U.S.A., where it is now being used on an enormous scale, is much enhanced by the ease of its administration. It is taken by mouth, and, although sometimes producing nausea, vomiting, and diarrhoea, is apparently free from any risk of more serious toxic effects.

With its action in rickettsial infections we in this country are fortunately not directly concerned, but the fact that there is now an effective treatment for typhus and similar diseases is a therapeutic advance of the first importance: in this the honours are shared between aureomycin and chloramphenicol ("chloromycetin"). Aureomycin has also an action on several viruses, including those of lymphogranuloma venereum and of primary atypical pneumonia. The latter disease was the subject of a very careful study by Meiklejohn and Shragg,[2] who laid down strict criteria in selecting their patients, whose disease was of rather more than ordinary severity. They also treated an exactly comparable control group with penicillin. Although about half the control group recovered fairly rapidly, a prompt therapeutic response was invariable in those treated with aureomycin. A few patients relapsed, but they responded rapidly to further treatment. It is a remarkable fact that aureomycin is a specific for every common form of

[1] *British Medical Journal*, 1948, 2, 1112, and 1949, 1, 763, and 2, 431.
[2] *J. Amer. med. Ass.*, 1949, 140, 391.
[3] *British Medical Journal*, 1949, 2, 257.
[4] *Proc. Mayo Clin.*, 1949, 24, 302.
[5] Ibid., 1948, 23, 569.
[6] *J. Amer. med. Ass.*, 1948, 138, 1145.
[7] *Lancet*, 1949, 2, 326.
[8] *British Medical Journal*, 1949, 1, 1037.
[9] *Ann. N.Y. Acad. Sci.*, 1948, 51, 267.
[10] *Proc. Mayo Clin.*, 1949, 24, 309.

pneumonia, whether due to a bacterium or a virus. Among highly susceptible bacteria are the pneumococcus and other Gram-positive cocci, and *H. influenzae* and certain other Gram-negative bacilli: susceptible viruses are those of primary atypical pneumonia and of psittacosis. It is perhaps unnecessary to point out that the demand for a drug which can justifiably be given on making the clinical diagnosis of pneumonia, without waiting for, or even undertaking, a bacteriological diagnosis, is likely to be considerable.

To pneumonia in general can be added venereal disease in general, as was pointed out recently in this *Journal* by Drs. R. R. Willcox and G. M. Findlay.[3] Lymphogranuloma venereum and granuloma inguinale have both been found to respond, as also have syphilis, gonorrhoea, and, in the experience of the authors quoted, non-specific urethritis associated with the presence of pleuropneumonia-like organisms. It should be understood that the action of aureomycin on gonorrhoea is inferior to that of penicillin, and only likely to be exploited should penicillin-resistant strains of gonococci appear, and that its effects in syphilis require much further study. Information about the latter is confined to a few reports from the Mayo Clinic, in the latest of which O'Leary and his colleagues[4] describe the rapid healing of lesions of late cutaneous syphilis, and the early stages of a study of the treatment of neurosyphilis. It should be remembered that Heilman[5] has already shown experimentally that aureomycin is more effective weight for weight than penicillin in the treatment of relapsing fever and leptospirosis: thus evidence of activity against "spirochaetes" is accumulating.

Aureomycin is now acknowledged to be much inferior to chloramphenicol for the treatment of salmonella infections, including typhoid fever. On the other hand, the evidence is now conclusive that it has a remarkable effect in brucellosis. Spink and his colleagues[6] are among those who have gone to Mexico to exploit the abundance of clinical material of this kind to be found there, and they report enthusiastically on the treatment of 24 patients with bacteriologically proved *Br. melitensis* infections, some being of great severity. Debono[7] also has reported from Malta that the immediate response to treatment was excellent in 24 patients infected with *Br. melitensis*. The successful treatment of a patient with a *Br. abortus* infection was described recently in this *Journal* by Galpine.[8] Among other bacterial infections, nothing conclusive about the action of aureomycin in tuberculosis has yet been reported, though a single observation by Schoenbach and his colleagues[9] suggests that there is such an action. On the other hand, it is already quite clear that a wide field of essential use for aureomycin exists among penicillin-resistant infections due to staphylococci. The increasing prevalence of these organisms has caused much disquiet, and is amply confirmed by Nichols and Needham,[10] of the Mayo Clinic, who found that of 50 recently isolated strains 34 were resistant to penicillin and 14 to streptomycin, but all were sensitive to aureomycin. In the last 15 cases of staphylococcal bacteriaemia treated at the Mayo Clinic the organisms from 12 were penicillin-resistant and from three streptomycin-resistant: all were inhibited by 0.78 μg. per ml. of aureomycin. Six of these patients were actually treated with aureomycin, with successful results in four.

There are so far few references in the American literature to the use of aureomycin in this type of case, but it is now a common practice, and aureomycin rather than streptomycin is generally regarded as the second line of defence when penicillin fails against staphylococci. Indeed, some authorities even go so far as to say that aureomycin should be given in addition to penicillin from the outset in a severe case, pending determination of the penicillin sensitivity of the organism. It remains to be added that, since aureomycin is active against all organisms commonly causing urinary tract infections except *Proteus* and *Ps. pyocyanea*, it is now very widely used in the U.S.A. as a urinary antiseptic, sometimes even before other drugs have been tried. Some of these uses are non-essential, and others, notably the treatment of rickettsial infections, do not concern us in Great Britain. But there remain three diseases in which aureomycin may sometimes be the only means of saving life. The task of those who have to decide how many precious dollars to spend on this new antibiotic and how to distribute such supplies as reach this country can be no easy one.

STREPTOMYCIN IN INFANTILE GASTRO-ENTERITIS

The rational use of chemotherapeutic drugs in infective gastro-enteritis of infants is made difficult by the many varieties of organisms to which aetiological significance has been attributed. A careful bacteriological investigation by Taylor, Powell, and Wright[1] was published in a recent issue of this *Journal*. The wide range of action of streptomycin, especially against Gram-negative bacteria, made it an obvious choice for clinical trial in this disease. Preliminary results indicate that even when no pathogenic organisms are isolated from the stools streptomycin may be effective, and among the earlier reports those of Leisti,[2] who treated 46 infants, all with negative stool cultures, and of James and his colleagues,[3] who isolated *Proteus vulgaris* from most of their cases, are favourable. The latter authors found that oral streptomycin alone was effective whether or not other foci of infection were present, and that even critically ill children were ready for discharge from hospital in from 9 to 12 days. However,

[1] *British Medical Journal*, 1949, 2, 117. See also leading article, p. 141.
[2] *Ann. Med. intern. fenn.*, 1947, 36, 575.
[3] *Lancet*, 1948, 2, 555.

the conclusions of Drs. A. Holzel, G. Martyn, and L. Apter and of R. Debré and P. Mozziconacci in the papers published elsewhere in this issue show that much has yet to be learned.

The former conclude that streptomycin had no specific effect in cases which they studied. Seventy-nine infants were divided into three groups: the first, consisting of 26 cases, was given oral streptomycin; the second (24 cases) received intramuscular streptomycin; and the control group of 29 cases was not given chemotherapeutic treatment. The numbers of deaths in the three groups were 5, 6, and 3 respectively. The presence or absence of parenteral infection made no difference to the outcome. In 63% of the cases a type of *Bact. coli* var. *neapolitanum* was isolated from the faeces, but the authors do not consider that their findings indicate that this organism was necessarily the cause of the infection. The failure of streptomycin treatment in some cases may be attributed either to development of resistance by this organism or to cross-infection with a resistant strain. Although great improvement occurred in some infants, in others the drug had no effect, and the indications for antibiotic therapy in this condition remain obscure.

In the series of 41 cases of septicaemia and meningitis in infants reported by Debré and Mozziconacci the infection was due to intestinal organisms—members of the *Bact. coli* and *Salmonella* groups, *Ps. pyocyanea*, or other Gram-positive organisms. Signs of gastro-enteritis were an important clinical feature in all these cases. Streptomycin was administered intramuscularly and, where appropriate, by the intrathecal or intraventricular routes. Some of the patients received sulphonamide in addition. Twelve out of 16 cases of septicaemia without meningitis recovered, but only four recovered out of 25 cases in which meningitis was a complication. Again, many of the failures might be attributed to resistance of the organism. Strains obtained from blood or cerebrospinal fluid were sometimes sensitive to between 150 and 200 μg. per millilitre—concentrations which are not usually attainable clinically—but the authors were unable to find any relation between resistance and clinical progress, and they emphasize the importance of lesions which interfere with the diffusion of the antibiotic. Evidently the recovery of a streptomycin-sensitive organism from a case of infantile gastro-enteritis is not a reliable indication for streptomycin therapy. There are other, as yet unknown, factors which are important, and until these are elucidated treatment must remain largely empirical.

MEDICAL PROBLEMS IN WESTERN GERMANY

The medical problems of Western Germany are those of the whole of Western Europe writ large but with some special distinguishing features. A great increase in the population followed the exodus from Eastern Europe, and many doctors are among those who have had to leave their homes; some of these are still in displaced-person camps. Medical posts have yet to be found for doctors who were in the Services, or who have returned from prisoner-of-war camps in Russia, or who have fled from intolerable political conditions. Inevitably in a period of readjustment such as the present there are occasional complaints, mostly, it would seem, unfounded, that appointments have been made less on professional than on political grounds. All the medical schools are overcrowded with students and young doctors: a professor of medicine, for instance, will have at least a dozen paid assistants, in addition to a number of voluntary workers. Bomb damage has reduced the numbers of hospital beds, which would in any case have been insufficient to meet the needs of the increased population. In the now disused S.S. barracks, however, space has been found for additional hospitals, and many of these grim buildings have been skilfully converted into hospitals with self-contained cubicles for the nursing of patients with infectious diseases. Outside in the corridors are still the racks for stacking rifles. The bomb-proof underground bunkers constructed in many hospitals are still in use, in some cases as neurosurgical clinics where patients with brain lesions can be given complete quiet and rest. Bed linen at first was scarce, but now, after the devaluation of the mark in June, 1948, everything has become more plentiful. Penicillin is at last being produced on a commercial scale. Streptomycin too is available, and in one children's clinic it was claimed that 36 out of 71 cases of tuberculous meningitis had survived.

Many medical journals before 1939 were printed in what is now the Eastern Zone; arrangements have been made for publishing many of these journals in Western Germany, or, if this has been impossible, a new journal has arisen in place of the old. The *Archiv für Schiffs- u. Tropenhygiene*, for instance, exists no longer, but to replace it there now appears a new *Acta Tropica*. New medical books are also being published embodying the experiences gained during the war. One important work on hunger oedema gives many interesting facts which will be new to medical men in this country. Incidentally, children now seem to be well nourished and full of energy, and, apart from returned prisoners of war, the only signs of malnutrition still visible are in elderly men and women. Despite the difficult conditions under which most German doctors are working, there is a feeling of optimism and an intense desire to learn what has been going on abroad. The medical scholarships provided by the British Council are being eagerly sought. Medical research has never entirely ceased in Germany. Ultracentrifuges and electron microscopes are being produced, and new and remarkable apparatus has been devised for subjecting bacteria and viruses to ultrasonic vibrations.

Apart from outbreaks of diphtheria and paratyphoid B and some increase in indigenous cases of malaria, there has been no serious epidemic in Western Germany, though in 1947 poliomyelitis was more prevalent than for many years. Venereal disease, especially syphilis, increased alarmingly immediately after the end of the fighting, but the incidence is now decreasing.

Last year the Foreign Office published a report[1] prepared by the Medical Research Council entitled "Tuberculosis in the British Zone in Germany." While the 1946–7 figures showed no general fall in the tuberculosis mortality, there were no signs of any alarming increase. In Hamburg, for

[1] See *British Medical Journal*, 1948, 1, 503.

instance, the death rate from pulmonary tuberculosis during the post-war period has declined. It is believed, also, that the numbers of cases of coronary thrombosis and diabetes have not increased. There is much interest in the British National Health Service, especially among those engaged in medical administration, who feel that as soon as a German Government is established an analogous scheme will have to be set up in Germany.

GRAVITATIONAL ULCERS

No doubt the erect posture is responsible for certain weaknesses in the legs of man. The location of many lesions in the leg—for instance, chilblains, erythema nodosum, and the gummatous phases of tuberculosis and syphilis—is determined to a great extent by circulatory and gravitational factors. The necrobiotic, myxoedemic, and other expressions of metabolic disturbance, and the eruptions and ulcerations which may accompany anaemia, deficiency states, and acholuric jaundice, are indications that the aetiology of diseases affecting the legs is not necessarily straightforward. Such factors should not be overlooked when considering the so-called varicose or gravitational ulcers which cause so much serious disability in the community. The condition is not limited to any one section of the community, but the incidence is greatest among those least able to rest and support their limbs—the essentials of treatment.

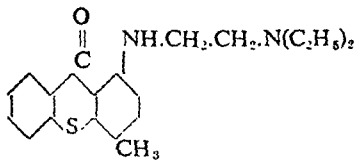
The influence of age, sex, occupation, and heredity is important, and work which entails standing with little activity may be a serious aggravation. Hypertension or arterial disease sometimes plays a part. It should be emphasized that the treatment of gravitational ulcers of the legs is an individual problem: there is no satisfactory rule-of-thumb procedure. Too much attention has been paid to the presence of superficial varicose veins. In a review of the subject in this issue of the *Journal* Dr. S. T. Anning suggests that treatment of such veins is often useless and may indeed be harmful. The value of compression and support—both still of the utmost importance—in expressing stagnant fluids was stressed as long ago as 1676 by Richard Wiseman and again in 1783 by Michael Underwood.[1] "Put the hydraulics right, and the ulcer will take care of itself" was a phrase used by Dickson Wright,[2] whose advocacy of these measures, including the use of elastic adhesive bandages for support, has not had the wide support in general practice which it deserves.

Dr. Anning finds that in the majority of patients (88.6%) the venous insufficiency affects all the tissues of the limb and is a result of thrombosis of the deep veins. This may be followed by recanalization, but as a result of damage to the valves in these veins and in the vessels communicating with the superficial veins there is grave functional incompetence, stasis of lymph and blood, and oedema and consequent devitalization of tissue. Phlebography may indicate much of this and should be undertaken before interfering with any superficial varices. In this condition the ulcer is a complication, not the essential abnormality. There is some place for methods of treatment which assist the ulcers to heal, but most emphasis should be on prevention. Whatever use is made of temporary expedients; effective support of the limb to counter the venous insufficiency and stasis should be an essential part of the permanent routine—for life in most cases. The many books and papers on this subject in the last 20 years have not been very fruitful. Dr. Anning's observations may help to direct attention from the floor of the ulcer and from the superficial veins to the underlying condition.

[1] Quoted by Adamson, H. G., *British Medical Journal*, 1931, **1**, 284.
Wright, A. Dickson, ibid., 1930, **2**, 996.

THE MIRACILS AND SCHISTOSOMIASIS

Until the second decade of this century there was no specific remedy for schistosomiasis, though emetine had for some time been used as a secret remedy in Egypt; then McDonagh[1] and Christopherson[2] independently showed the value of tartar emetic. There was little further advance in the treatment of schistosomiasis for nearly 30 years, though attempts were made to overcome the toxicity of tartar emetic by the introduction of tervalent antimonials such as "stibophen" and "anthiomaline"; these compounds, though less toxic, were less effective. There was much interest, therefore, when at the end of the war it became known that a new series of preparations had been synthesized in Germany by Dr. H. Mauss at Elberfeld. The compounds are known as the miracils—A, B, C, and D. Miracil A is 1-diethylaminoethylamino-4-methylxanthone; in miracil B a chlorine atom is introduced into position 6 of miracil A, and the formula is therefore 1-diethylaminoethylamino-4-methyl-6-chlorxanthone; miracil D, the structural formula of which is here shown, is 1-diethylaminoethylamino-4-methylthioxanthone; and in miracil C the thioxanthone group is replaced by xanthydrol. The most promising of these compounds is miracil D or nilodin, which was shown by Kikuth, Gönnert, and Mauss[3] to be active against *Schistosoma mansoni* in mice. Its pharmacology has been studied by Wood,[4] Hawking and Ross,[5] and Kikuth and Gönnert.[6]



Miracil D cannot be injected, because of the local irritation and necrosis which it causes: by mouth mice tolerate up to 0.3 g. per kg. of body weight, the LD50 (the dose which is lethal for 50% of the animals tested) being 0.5 g. Rabbits tolerate 0.2 to 0.6 g. per kg. without harm, but death occurs after doses of 0.7 to 1.0 g. per kg. In monkeys oral doses of 0.2 g. and 0.4 g. per kg. cause slight diarrhoea, and doses of 0.4 g. and 0.8 g. produce vomiting. Miracils A, B, and C are more toxic for monkeys. In mice infected with *Schistosoma mansoni* miracil B is superior to all the others, but in monkeys it has a curative

[1] *Biology and Treatment of Venereal Diseases*, 1915, London.
[2] *Lancet*, 1918, **2**, 325.
[3] *Naturwissenschaften*, 1946, **33**, 253.
[4] *Quart. J. Pharm.*, 1947, **20**, 31.
[5] *Brit. J. Pharmacol.*, 1948, **3**, 167.
[6] *Ann. trop. Med. Parasit.*, 1948, **42**, 256.
[7] *Acta trop. Basel*, 1947, **4**, 21 and 97.
[8] Vogel, H., and Minning, W., *Ann. trop. Med. Parasit.*, 1948, **42**, 268.
[9] Watson, J. M., Abdel Azim, M., and Halawani, A., *Trans. R. Soc. trop. Med. Hyg.*, 1948, **42**, 37.
[10] Abdel Azim, M., Halawani, A., and Watson, J. M., *Lancet*, 1948, **1**, 712.
[11] Halawani, A., Watson, J. M., Nor El-Din, G., Hafez, A., and Dawood, M., *J.R. Egypt. med. Ass.*, 1948, **31**, 272.
[12] Blair, D. M., Hawking, F., Meeser, C. V., and Ross, W. F., *Brit. J. Pharmacol.*, 1949, **4**, 68.

effect only when given in doses which cause vomiting, and miracil D is the best preparation. Miracil A, which is only slightly active in mouse schistosomiasis, is more active in monkeys, and miracil C takes an intermediate position both in mouse and monkey tests. All the miracil compounds have a remarkably poor action on immature worms. Even with optimum dosage, however, adult worms do not begin to die until about 14 days after the administration of the drug is begun, but egg production is disturbed within a very few days, as is shown by the formation of eggs without shells, of deformed eggs, and of conglomerations of shells and yolk cells, as well as by the excretion of large drops of shell substance. These changes are associated with degenerative changes in the cells of the testes, ovaries, and yolk-glands and are similar in character to those observed by Vogel and Minning[7] in *S. japonicum* when acted on by tartar emetic, stibophen, and emetine. Curiously enough, none of the miracils has any action whatever on experimental infections due to *S. japonicum* in rabbits, hamsters, and monkeys.[8]

Because of the results obtained in animal experiments, miracil D was selected for clinical trials, and tests have now been carried out in Egypt[9-11] and in Southern Rhodesia.[12] In Egypt doses up to 7.5 g. were given in eight days to patients with *S. haematobium*. With the highest doses permanent cures were usually obtained, but there was some evidence of toxicity. The blood concentration of miracil D, and presumably its toxicity, are raised when the renal functions are impaired. In Southern Rhodesia daily doses ranging from 35 to 150 mg. per kg. of body weight were given to boys and young adults for 10 days. Fifteen weeks after the end of treatment 12 of 18 patients appeared permanently cured. For reasons not yet explained symptoms of toxicity were much less pronounced than in Egypt and consisted mainly of abdominal pain, nausea, vomiting, slight disorientation, and cough. The frequency of these symptoms was not related to the size of the dose and seemed to depend, at least partially, on personal idiosyncrasy. Very occasionally herpetiform eruptions are seen both with miracil D and with tartar emetic; possibly, therefore, the condition may be due to allergy from disintegrating schistosomes rather than to drug toxicity.

S. mansoni seems to be less sensitive to miracil D than *S. haematobium*. In Southern Rhodesia only 1 of 14 patients was cured. In Egypt results are difficult to evaluate because of the small number of patients treated and the numerous dose schedules employed. Blair and his colleagues[12] treated a few patients suffering from urinary schistosomiasis with either miracil A or B. No cures were obtained, but the drugs were not toxic and larger doses might have been effective. Because of the poor results in animals infected with *S. japonicum* it is questionable whether the miracils will be of value in this infection. Although the optimum dose schedules for urinary schistosomiasis have not yet been established, it is obvious that, at any rate in the case of miracil D, a satisfactory alternative to antimony has been found. As a result of the ease with which the drug can be given by mouth, trials are now being carried out on a large scale in particular areas in order to try to break the cycle of infection.

PLANT SOURCES OF CORTICAL HORMONES

Although the treatment of rheumatoid arthritis by "cortisone" ("compound E") must still be regarded as experimental,[1] there is naturally great interest in any method of increasing supplies of the substance. Not only is the present output limited to about 200 grammes per month, but the permanent limitations of the present method of partial synthesis from desoxycholic acid can be judged from the fact that it would be necessary to use the bile acid from forty cattle to obtain the 100 mg. needed daily for the treatment of a single patient over one year. The adrenocorticotropic hormone is equally difficult to obtain in quantity. According to the Armour Laboratories in Chicago, approximately 1,360 hog pituitary glands weigh one pound and only about 1½ g. of ACTH can be extracted from this quantity. All the hogs slaughtered in the United States would not yield much over a pound a week. There is also a growing interest in the cortical hormones generally, and an increasing need, therefore, for some alternative source of supply. According to an announcement[2] reported to have been made last week by representatives of the U.S. Public Health Service and the Department of Agriculture such an alternative source has now been found in sarmentogenin, a substance which was isolated in 1915 (but not then determined) by Jacobs and Heidelberger, of the Rockefeller Institute for Medical Research. The discovery was made during the investigation of seed samples from the plant genus *Strophanthus*, from which strophanthin is derived. The sample in question was a commercial one and was wrongly labelled as from the species *S. hispidus*—one of those used by African tribes as a source of arrow poison None of the original seeds had been kept, and it was only after a number of years that another sample was obtained—this time from seeds of *S. sarmentosus*—which yielded the same substance. The plant is a tropical vine which may grow to a height of eighty feet or more. Besides growing in Africa, it is found also in India, Burma, the East Indies, and the Philippines.

More recently it has been shown that with sarmentogenin as the starting-point cortisone can be prepared with 20 intermediate steps instead of the 37 the present method entails, and that a ton of seed could provide enough cortisone to treat one patient for a year. This would be a useful simplification, but still a long way from an ideal method of manufacture. Although both seeds and plants have been collected from Liberia by an expedition led during the present summer by Dr. J. T. Baldwin and sponsored by the Federal Security Agency and the Department of Agriculture, it is pointed out that five years would be needed before plants raised from seed would be in bearing. None the less, the project of large-scale cultivation under equatorial conditions is being contemplated, and a further appropriation is being sought for a wider investigation of plant sources of animal hormones. If the therapeutic value of cortisone as at present prepared is established, then its preparation on a larger scale will become more practicable. Further, the partial synthesis of other cortical hormones may be simplified.

[1] *British Medical Journal*, 1949, 2, 24 and 154.
[2] *New York Times*, Aug. 16 and 17, 1949.

THE MENTAL HOSPITAL POPULATION

BOARD OF CONTROL REPORT

An account of the mental health services of England and Wales was recently for the first time incorporated in the annual report of the Ministry of Health (*Journal*, Aug. 13, p. 381). To satisfy a provision of the Lunacy Act, however, an annual report has to be made by the Board of Control to the Lord Chancellor, and this, which has just been issued, contains some further details. The number of persons under care under the Lunacy and Mental Treatment Acts at the end of 1948 was 144,725, of whom 140,915 were in hospitals now vested in the Minister of Health. The designation of mental hospitals is said to have proceeded smoothly in spite of complications resulting from the fact that many former public assistance institutions were continuing to accommodate mental patients and a good deal of sorting out had to be done and is still continuing. On the basis of recognized standards there is considerable overcrowding in the former county and county borough mental hospitals, and it was worse at the end of 1948 than it had been at the beginning of the year. The main problems are shortage of staff, unreleased beds, and lack of new building. The nursing shortage has been somewhat ameliorated by the recruitment of part-time nurses, though it is hinted that this arrangement is not altogether satisfactory in mental hospitals. But according to the reports of the individual commissioners who have made statutory visits to various institutions the shortages have not adversely affected the welfare of the patients, thanks to the efforts of the medical and nursing staff, to whom the Board pays a tribute.

The death rate in 1948 was 6.26% of the average number resident, being 1.36% below the rate for the previous year. Tuberculosis continues to occur more frequently in mental hospitals than among the general community, and this year, owing to intensified methods of *x*-ray examination, there was a slight increase in the number of cases discovered, but the death-rate from tuberculosis fell from 5.5 per 1,000 patients resident to 4.7. Gastro-intestinal infections, on the other hand, are said to be more rare proportionately in the mental hospitals than outside them. Less than one patient in a hundred is so affected, and the death rate is less than one per 10,000 persons resident.

In the view of the Board the documentation of certified patients continues to be unsatisfactory. In one quarter of 1948 an investigation was made, and it was found that, out of 6,156 documents for temporary and certified patients received, 384 had to be returned for amendment on medical grounds and 1,291 for amendment for technical reasons; ultimately in each category 55 were rejected.

From the tables which appear at the end of this brief report it is shown that in the designated mental hospitals and the teaching hospitals there are 60 Health Service patients to one private patient, but in premises not vested in the Minister the proportion is reversed. There was a large decrease (over 7,000) in the number of private patients during 1948 and a corresponding increase in the number of Health Service rate-aided patients. The number of voluntary patients in hospitals and under care of all kinds was 21,788 and of certified patients 123,464. Of the total number of persons suffering from mental disorder and under care about 57% are females, who predominate in every category, except that of Broadmoor patients. The Broadmoor population is just upon 1,000, of whom only one-fifth are women.

The Ministry of Food has reminded retailers that where an additional quantity of butter and margarine together is specified on Form R.G.48 issued to diabetics the *maximum* amount allowed is 10 oz. of butter and 10 oz. of margarine. This means that diabetics are entitled each week to 6 oz. of extra butter and 6 oz. of extra margarine in addition to the normal weekly ration of 4 oz. of butter and 4 oz. of margarine. Margarine may be taken in lieu of all or any part of the butter ration.

Nova et Vetera

WILLIAM WALWYN, "HEALTH'S STUDENT"

The name of William Walwyn is as familiar to the political and social historian as it is unknown to the medical historian. This is not surprising, for only in recent months has the celebrated leader of the "Levellers," the associate of Lilburne and Winstanley, been identified with the obscure unlicensed practitioner who wrote *Physick for Families*.

Many of our younger historians are making a special study of the English Puritan revolution. One of the most recent products of this revived interest is a book[1] by Dr. W. Schenk, lecturer in economic history at Exeter. The third chapter of this book is devoted entirely to Walwyn, and Dr. Schenk's account supplements and corrects the entry in the *Dictionary of National Biography* in many particulars.

Born in 1600[2] at Newland, Worcestershire, William was the son of Robert Walwyn, gentleman, and of Elizabeth, daughter of Herbert Westfaling, Bishop of Hereford. After apprenticeship with a silkman in Paternoster Row he became a member of the Merchant Adventurers' Company and maintained a large family "in a middle and moderate but contentful condition." One of his daughters married Humphrey Brooke, F.R.C.P., who may have influenced Walwyn in the choice of his later career and whose own written works reflect the influence of Walwyn's social and religious views.

Walwyn's career between 1642 and 1649, when he spent eight months in the Tower with Lilburne, accused by Cromwell of fomenting mutiny in the Army, belongs to English history and is adequately dealt with by Schenk.

"Physick for Families"

While working on his book in the Bodleian Library, Dr. Schenk came across the 1681 edition of *Physick for Families*, by William Walwyn, which has a portrait frontispiece, engraved by R. White, of the author at the age of 80.[3] Collating this with the information given in the Newland parish register and in a published pedigree of the Walwyn family,[4] which states that William Walwyn, M.D. (*sic*), of London, son of Robert Walwyn, of Newland, married and had several daughters and died *circa* 1680, Schenk identifies the author of the book with Walwyn the Leveller. Final confirmation was given by the discovery of Walwyn's will in Somerset House. This is dated 1680 and was proved on Jan. 14, 1681.

Schenk seems to be unaware of any other medical book by Walwyn or of any other edition of the *Physick for Families* (which he thinks was published posthumously and possibly commemoratively), so that his account of Walwyn's medical career is necessarily vague, although there is evidence in the 1681 edition of the *Physick* that Walwyn may have been practising as early as 1665, during the "great Mortality." It is no reflection on the thoroughness of Dr. Schenk's researches that his results were so limited in this respect, for the 1681 *Physick* is indeed the only medical book with Walwyn's name on the title-page. Apart from the Bodleian copy there is one at the Royal Society of Medicine; copies of a 1696 edition are to be found in the British Museum and in the Army Medical Library at Washington. But there *were* earlier editions—one in 1669, presumably the first; and another in 1674. Both editions are in the Wellcome Historical Medical Museum and in the Cushing Collection in Yale Medical Library. In addition, there is a book called *A Touchstone for Physick* published anonymously in 1667, copies of which survive in the British Museum (catalogued

[1] *The Concern for Social Justice in the Puritan Revolution.* London, Longmans, Green, 1948. Pp. 41–63.

[2] According to the Newland parish register he was baptized on Aug. 17, 1600. *The Dictionary of National Biography* has (fl. 1649) and its account does not go beyond the year 1651.

[3] This portrait is reproduced as the frontispiece of Dr. Schenk's own book.

[4] *Visitation of the County of Worcester, 1682–83.* Edited by W. C. Metcalfe. Exeter, 1803, p. 100.

[5] *Dictionary of Anonymous and Pseudonymous English Literature*, 1926–34. Vol. 6, p. 65.

under W. W.) and in the Wellcome Historical Medical Museum. This work is correctly attributed to Walwyn by Halkett and Laing.[5]

It is thus possible to state that Walwyn was practising medicine certainly before 1667, and there is internal evidence that he was practising for some years before his *Touchstone* was published. On page 81 he declares that the value of his medicines had been proved

> "even in the Pestilence it selfe, for though I staid not in London past the increase of two Thousand a Week; but was forced away or must be cruel where all obligations of tenderness lay upon me: yet took I care that nothing of mine should be wanting to any who desired to make use of them; with some liberty of freely helping the necessitous: besides *I had long declined Practice, visited none, nor had then so* much as one Patient under my Hand: and withall had so published the Vertues and Uses of all my Medicines; as sufficed both to encourage and to instruct every one so plainly, as without further direction or attendance, every one might be in a capacity of helping themselves and their relations upon any occasion."

On page 84 he refers to "one who practised much with them [his medicines] long before, and from the beginning to the ending of that sad Mortality." The preface to the book is signed W. W., and at the end is the address, "At the Star in the Postern by little Moorefields, London, 1667."

The 1669 edition of his *Physick for Families* is also anonymous, but the preface is signed "W. W. Healths Student" from the same address. The 1674 edition has his initials and address on the title-page, and begins, without preface: "Having now past through many years Practise, in this my new way of Physick; And with God's blessing in, and upon my peculiar Method and Medicines, been most happily successefull, in abundance of very threatning, dangerous Distempers. . . ."

Walwyn's Method and Medicines

What were his "peculiar method and medicines"? The answer to this question fills the last gap in our knowledge of Walwyn and of his career as reformer and physician. They consisted of an uncompromising repudiation of all the fashionable medical procedures of his day, such as purging, bleeding, vomiting, issues, clysters, and the indiscriminate exhibition of mineral drugs, and the renunciation of polypharmacy and all the evil-smelling and foul-tasting mixtures which made up the greater part of the seventeenth-century pharmacopoeia. He advocated a mild expectant treatment, aided by the patient's co-operation and his own "peculiar medicines," which were 32 in number, each one appropriate for a particular "mark or character of disease." He does not tell us what went into these medicines, but assures his readers that they were all pleasant to the sight, smell, and taste, liquid in form, and generally of a clear and sparkling character.

His books largely consist of case histories in which the virtues of his treatment are vindicated by a successful outcome. He informs us that he declined "the common Road of Physick" (he had no medical qualification) for no other cause "but for its manifest uncertainty in Principles, Roughness, Harshness and Cruelty in Methods, Impropriety, Impotency and danger in Medicines." Instead, he sought to blaze his own trail as a "Healths Student," probably influenced by his son-in-law, Humphrey Brooke, whose book *A Conservatory of Health* (1650) stresses the value of preserving health rather than curing disease.

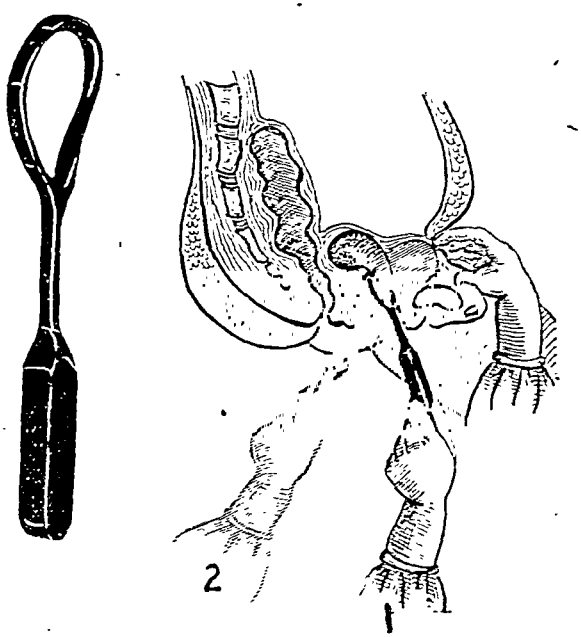
The medical historian, while introducing a new figure into the gallery of medical men who have left their mark on history, and while applauding the originality which led Walwyn to reject the therapy of his day before the scientific reasons for such a rejection were enunciated, may yet criticize the unscientific character of his books. Walwyn gives his own answer: "I conceive my charitable intentions sufficiently justified by the Text: The truly Christian Vertue of *Compassion*, being as essentially needful in a Physitian, as in the most tender hearted Samaritan."

F. N. L. POYNTER.

Preparations and Appliances

UTERINE ANTEVERTOR

Mr. MCKIM MCCULLAGH, surgeon, Samaritan Hospital, London, writes: For those elect few among general practitioners, consultants, and specialists in gynaecology who believe that a fully retroverted uterus can cause such symptoms as backache, dyspareunia, menorrhagia, premenstrual depression, headaches, and even nausea, not to speak of sterility and miscarriage, I can recommend the antevertor depicted in the diagram and made by A. L. Hawkins, Ltd., of 15, New Cavendish Street, London, W.1, as a helpful instrument.



Normally one endeavours to antevert the uterus with the fingers by pushing upwards in the posterior fornix and then changing the finger-tips to the anterior fornix and pushing the cervix backwards. The left hand is kept on the abdomen ready to contact the fundus uteri and pull it forward. For those with short fingers the procedure is difficult, especially in a patient with a long vagina. A long narrow Hodge pessary grasped by the thumb and first two fingers at its lower end is often used to transmit the push to the posterior wall of the corpus uteri, which causes it to move forward and upward from the floor of the pouch of Douglas.

The vulcanite antevertor here depicted saves the patient some of her discomfort and the specialist mental and physical strain. It is easy to introduce and use, and causes no pain or pressure at the vulval orifice. The lift and degree of pressure on the posterior fornix are easily regulated, as the handle of the instrument is well outside the vulva and is used as if it were the handle of a long spoon. The lift and pressure on the posterior wall of the uterus should be as high in the posterior fornix as possible, and it should be slow and gradual and always short of causing appreciable pain to the patient. find anteversion of the uterus much easier to attain with t antevertor than with the fingers or a Hodge pessary. W anteversion is attained and the uterus pulled and flexed forward, a suitable Hodge or ring pessary is inserted. three days a marked improvement in comfort and ment look frequently follows and definitely warrants the ad surgical treatment in the form of a ventrosuspension o

Reports of Societies

FRIENDS OF THE HEBREW UNIVERSITY

London Dinner

The Friends of the Hebrew University held a dinner at the Park Lane Hotel on July 21 to celebrate the opening of the new medical school in Jerusalem. Professor SAMSON WRIGHT, who presided, remarked that the representative gathering reflected the widespread interest in this country in the new institution. He had received many messages of good will, including one from Sir Henry Dale, who had expressed his high hopes of the school. Professor Wright pointed out that the annual budget of the Hebrew University was now some £700,000. The Government of Israel made a grant of £50,000, but the large balance had to be raised by friends all over the world. He referred to the help received from British research funds, and he thanked the British Government for granting the University facilities to acquire surplus scientific equipment on generous terms. He hoped that the dinner would mark the re-establishment of the cordial relationships which had always existed between the Hebrew University and the British scientific, academic, and medical world.

The Minister of Israel, Dr. MORDECAI ELIASH, said there were some 3,000 doctors in Israel to serve a population of less than a million, or roughly three times as many doctors as are required by an ordinary community. During the first five months of this year 500 doctors had arrived in Israel, which, taking full account of the immigration during that period, still maintained the proportion. But most of these doctors had passed the prime, and the number of young practitioners was alarmingly small. On the other hand, the number of hospital beds was still much below the normal requirements of the country, only 3,000 being available instead of the normal eight or nine thousand.

For some years there had existed a pre-faculty of medicine of the Hebrew University of Jerusalem. In the year 1946–7 appreciable progress had been made and a new building was laid down on Mount Scopus. On May 17, 1949, the first 45 students from among 200 applicants were enrolled. They were mainly Israel medical students who were recalled from abroad to serve in the Army. The medical school would be the best memorial to the three men—Dr. Yaski, Dr. Doljanski, and Dr. Ben-David—who were its leading planners and who lost their lives in the Mount Scopus massacre in April of last year.

Sir HENRY COHEN referred to his life-long connexion with the Hebrew University, of which he was a Governor. He paid tribute to the work of the University hospital staff and its scientific workers in coping so successfully with the grave problems resulting from the prolonged siege and military operations in Jerusalem. He commented on the meagre salaries now paid to the academic staff of the University, and hoped that resources would soon be available to enable their remuneration to be raised.

Dr. REDCLIFFE SALANSON, F.R.S., proposed the toast of the guests, who included Lord Horder and Dr. H. E. A. Boldero. Dr. ARTHUR FELIX, F.R.S., responded.

Next month the Manchester Municipal College of Technology is to begin a series of evening courses for laboratory technicians. These courses are intended to supplement their daily work in the laboratory and to help them prepare for their professional examinations. Both scientific and medical subjects will be taught. There will be an intermediate course in the elements of laboratory technique in pathology, bacteriology, chemical pathology, and haematology, and four independent final courses in each of these subjects. At the end of the final course the student will take the corresponding final examination of the Institute of Medical Laboratory Technology.

Correspondence

Distinction Awards

SIR,—The very important letter from Dr. F. M. R. Walshe (Aug. 13, p. 383) is not likely to go unanswered, but the signatories of this letter, all members of the consulting staff of a teaching hospital, wish to express their whole-hearted agreement with everything said by Dr. Walshe. As he pointed out, the Awards Committee has a wholly impossible task, and it seemed only too probable that in an attempt to solve their problems they would be compelled to adopt methods of obtaining information which are both undesirable and invidious. There can be no doubt that consultants are not all of equal merit and that therefore some are worthy of special distinction. We would submit, however, that the academic distinctions of the past will remain in operation (the Member of the College will strive for the Fellowship, the Fellow may be elected to the Council), and private practice still remains at the disposal of those who feel that their merit deserves remuneration.

We hope with Dr. Walshe that it is not yet too late to abandon the idea of distinction awards in its present form.—We are, etc.,

R. BROOMHEAD.
J. LE FLEMING BURROW.
J. M. P. CLARK.
ANDREW M. CLAYE.
DAVID W. CURRIE.
HUGH GARLAND.
F. F. HELLIER.
BRYAN JEAFFRESON.
A. J. C. LATCHMORE.
J. M. LEES.
IAN MACPHERSON.
H. H. MOLL.
MICHAEL C. OLDFIELD.
A. B. PAIN.
LESLIE N. PYRAH.
GEORGE SEED.
H. S. SHUCKSMITH.
H. W. SYMONS.
MAXWELL TELLING.

Leeds.

SIR,—Not only teaching-hospital committees but committees for professional assessment in hospital regions have been asked for recommendations for merit awards, and, difficult as the job is, it is being tackled. What is the alternative? How are consultants to be paid? To reject the considerable sums of money offered would be hard on some men. The method of distribution put forward by the Spens Committee at the suggestion—it is understood—of a distinguished layman is supported in principle by the Consultants and Specialists Committee of the B.M.A.

The range of qualities and skills among consultants is of course vast, and grades do not exist except in the mind of the observer. In the past incomes have been vastly variable also. But can we say, when we look at the incomes tabulated in the Spens Report and remember able men earning much less than they deserved, that the old method was really good? When we remember such men, surely we grade them in our minds, just as we have always graded fellow consultants, though not by finding out who earns the most, when sending our patients—or taking our relatives and ourselves—to them.

In spite of philosophical doubts, then, if we are honest with ourselves we admit we have acted as if grades existed, though we have gone to some trouble to conceal the fact. We are now asked to express the opinions which guided us up to July 5, 1948. It is not easy: if another method of letting consultants get what they need can be produced nobody would be more glad than I. But to reject this scheme without producing one as good, or at least feeling sure that the method that worked before the Health Service began would work better now, is to do something very drastic. All political parties are determined on a health service, and it happens that in the one proposed to us a consultant is rewarded less according to his prestige with the laity and more according to the opinion of his fellows. It is a defensible point of view.

The decisions ought not to be made by only a few, however, and it seems from information given to regions that they will not be. Recommendations will come from several directions and be referred in several directions again. One direction from which they will come (and on this the Consultants and Specialists Committee has been emphatic) must be local. It

is impossible to judge without local knowledge. But this, we understand, is only one source of information: to place sole responsibility there would be too heavy a task altogether, and we do not think it is contemplated.

For this responsibility is deeply felt. People who accept it do so because they believe the profession is faced with political and economic facts which can only be ignored to its certain disadvantage, and they are not prepared to ignore them. If consultants as a whole refuse extra pay then assessment committees can rest at last. But unless consultants do refuse the money the committees must do their best.—I am, etc.,

Hove, Sussex. W. A. BOURNE.

SIR,—Dr. F. M. R. Walshe (Aug. 13, p. 383) has again done a great service to our profession by attacking the whole conception of distinction awards, but he has ignored at least two of its weaknesses. First, if recommendations are to be made by subcommittees of hospital medical committees it seems clear that the members of such subcommittees will have to be chosen from among those who are considered to be unsuitable for a merit award—an invidious task for the chairman of the medical committee. Secondly, as chairman of the medical committee of a non-teaching hospital I have not received one of the signed circular letters. Is it to be assumed, therefore, that only the staffs of teaching hospitals are eligible?

There have been previous attempts to weaken the precarious unity of the medical profession: they failed. Let us be careful that the bait of financial benefit does not split the consultants into envious groups.

If there is, indeed, some money available it could be employed in a much more fruitful way. Thus we were promised that anybody would be allowed to use the whole of the facilities of the N.H.S. or any part of them. Since then the Minister has refused to allow private patients to use that part of the service that consists of receiving free drugs, using as his excuse the nonsensical statement that medical advice and treatment cannot be separated from one another. Oddly enough, he does not hold that this indissolubility holds in surgery: everyone is entitled to be a private patient and yet to be operated on gratuitously in hospital. It is, I think, impossible to escape the conclusion that the Minister thinks that the granting of the right to receive medicines without direct payment for them would wreck his scheme, because so many people would choose to be private patients.

Whether this would be so or not is a matter of opinion and need not be discussed at the moment. What is, however, relevant to my remarks is the reply of Mr. Blenkinsop to Mr. H. D. Hughes (*Journal*, Aug. 13, p. 393). He said that if the estimated annual rate of expenditure on the pharmaceutical services were proportionately increased in respect of the 5% of the population not on doctors' lists the increase would amount to about one million pounds. If this expenditure were undertaken private practice would undoubtedly revive. And consultants would do as they did in the past—they would build up practices. Then the various kinds of "distinction" in medicine would have their chance to add to their possessors' incomes, while the Distinction Awards Committee, having no part to play in assessing the status of members of a learned profession, could be disbanded.—I am, etc.,

London, W.1. A. PINEY.

SIR,—I hope that Dr. F. M. R. Walshe's admirable letter (Aug. 13, p. 383) will rouse us to action. The vast majority of doctors consider the distinction awards a ludicrous suggestion, and it is well recognized that an equitable manner of selection of individuals to receive such awards is a frank impossibility. It seems incredible that members of what has been for so long an honourable profession should become commercialized so rapidly that they may be willing, as Dr. Walshe aptly says, "to be priced as though they were professional soccer players." Must distinction in our profession now be assessed only in terms of pounds, shillings, and pence paid through a Ministry?

In the eyes of the general public our professional prestige has already been sadly dimmed by what appears to be our undue concentration on the monetary side in our negotiations with the Ministry. Are they now to be diverted by the spectacle of those who should be the leaders of our profession sitting in solemn conclave dispensing first-, second-, and third-class distinction awards, payable in cash, to their colleagues? We expect a better moral lead from those in high places.

I have the honour to sit on two committees to which the request from the chairman of the Distinction Awards Committee has been made for guidance. Cynical laughter is the instant reaction in any medical group where the subject is mentioned. Nevertheless, when it is suggested that we shall have nothing to do with this farcical plan, fears are expressed that by inaction we may be doing an injustice to colleagues in our own hospital or specialty and that other bodies may make recommendations although we refuse.

Surely it is high time that we ceased to be guided by such a policy of expediency. These fears of possible consequences have insidiously broken down too many of our defences already; they are all too reminiscent of the successful Nazi method of producing an attitude of cynical defeatism. If, as individuals, we feel a policy is wrong we ought to have no hesitation in making a stand now against a scheme which must lead inevitably to jealousy, suspicion, and discord among members of our profession. As individuals and as members of any professional body to which we may belong we should rouse ourselves from a state of apathetic acquiescence and protest against this attempt to put a financial value on that invaluable and indefinable thing—professional distinction.—I am, etc.,

London, N.W.1. KATHARINE LLOYD-WILLIAMS.

Poliomyelitis Precautions

SIR,—In your leading article (Aug. 6, p. 323) you advise doctors to keep children at home who are suspected of being in the pre-paralytic stage of poliomyelitis. I feel that this is an unwise recommendation, for it is very liable to cause delay in the diagnosis of meningitis, particularly tuberculous, which is very apt to be confused with poliomyelitis in the early stages. The prognosis of tuberculous meningitis depends largely on early diagnosis.

Only last week a child was admitted to this hospital in deep coma as a result of tuberculous meningitis: he had been watched at home for a fortnight as a suspected case of poliomyelitis. In my opinion a case of suspected poliomyelitis, especially if there is meningism, should be admitted immediately to hospital for investigation.—I am, etc.,

The Children's Hospital, Sheffield. J. LORBER.

What is Social Medicine?

SIR,—May I say that I have long shared Dr. Thomas Gibson's uncertainty (Aug. 13, p. 388) as to the meaning of the term "social medicine," and have asked repeatedly and in vain for a satisfactory definition. If Professor W. Hobson's extremely comprehensive description (July 16, p. 125) is accurate, then surely the term "psychosocial medicine," which is already in use, would be the more appropriate.

But my difficulty here is that a few years ago, when a "strong" subcommittee of a famous hospital was considering an appointment in this "new" specialty, neither its department of public health nor its department of psychological medicine was represented on the subcommittee or consulted in any way on the matter.—I am, etc.,

London, W.1. HENRY YELLOWLEES.

Conceptions of Right and Wrong

SIR,—The question of the adequacy of the M'Naghten rules to express or interpret modern knowledge on the subject of responsibility is raised afresh and in a prominent form in your report on the Haigh trial (July 30, p. 286).

As is generally known, the two questions requiring proof in any individual case in which the subject of responsibility is

raised are that the accused person was not aware of the nature and quality of the act he was doing or that he did not know that what he was doing was wrong. I would very much like to be authoritatively informed of the meaning of the word "wrong" in this context. My opinion is that it has been generally employed to signify wrong in the moral sense, the meaning that the average rational individual in this country—i.e., living in our particular form of culture—would give it.

But the prosecuting counsel, Sir Hartley Shawcross, at the Haigh trial gave a different interpretation to the term. He is stated to have put to the medical witness the question: "I am not asking you whether the man decided, in obedience to a higher power, to do what he realized was wrong; I am asking you to look at the facts and tell the jury whether there is any doubt that he must have known that, according to English law, he was preparing to do, and subsequently did, something which was wrong." I submit that this is not the meaning of the word "wrong" intended by the M'Naghten rules. I say this because, in the first place, there have been many trials in which it has been interpreted in the ordinary moral sense. A not uncommon example is the case of the mother who in a state of depression kills her child in order to save it from the suffering she imagines is in store for it. She may be aware of what she is doing, may know that it is against the law and that she will be punished for it, but she considers it right and justifiable in the light of her strong (abnormal) convictions.

In the case of M'Naghten himself, from what is known of his state of mind we can draw the highly probable conclusion that he knew what he was doing when he shot Sir Edward Drummond and also that he knew that "according to English law" what he was doing was wrong. At the same time his judgment of right and wrong was so impaired by his delusions of persecution that it was obvious to the court that he was of unsound mind. If, however, the same test had been applied to him as was applied in the case of Haigh, M'Naghten would not presumably have been found insane at the trial.

In the second place it is to be noted that the statement of the two tests setting out the legal conception of responsibility contains the disjunctive "or" (did he know the nature and quality of the act or (*sic*), if he did know it, did he know that what he was doing was wrong). The disjunctive implies that there is a significant difference between the two tests. But the fact is that in the great majority of cases in which the prisoner knew what he was doing he would also know that what he was doing was wrong "according to English law." He may, nevertheless, firmly believe that what he was doing was right according to his conscience and his own conception of right and wrong.

It is clearly a matter of great importance to know, without equivocation, what is meant by "wrong" as used in the M'Naghten rules. It can hardly be seriously contended that it is justifiable to allow it to signify wrong according to English law in one case and morally wrong in another.—I am, etc.,

London, W.1. FREDERICK DILLON.

Treatment of Infantile Gastro-enteritis

SIR,—Dr. C. Zahra Neumann (July 16, p. 132) is to be congratulated on a novel interpretation of part of the symptomatology of infantile gastro-enteritis, and further work will be needed to substantiate the hypothesis that the histamine bodies are responsible for some of the intoxication seen in this group of diseases.

The paper, however, does not support the claim made that a combination of antihistamine drugs plus sulpha derivatives are more effective than the sulpha derivatives alone. The sedative effect of "benadryl" is central in action, and this, by producing rest and sleep, would in itself reduce the general discomfort, irritating whine, tachycardia, and even prostration (many years ago injections of nepenthe were used for this purpose). No figures are given which could enable one to compare mathematically the reduction in number of stools in the two methods of treatment—the graphs given do not contain sufficient information for statistical analysis.

In the group treated by sulphamezathine alone (method A) there are 3 deaths in 42 cases; in the group treated by sulphamezathine plus benadryl (method B) there is 1 death in 40 cases. Now the percentage difference between A and B is $7\% - 2\frac{1}{2}\% = 4\frac{1}{2}\%$; but the standard error is 5.57%, and as the percentage error is less than twice the standard error there is no statistical significance between these figures. Furthermore, using the exact method of χ^2 for a 2×2 table, it can be shown that the probability is 0.33, which means that we can expect this difference (of 3 deaths in 42 cases and of 1 death in 40 cases) to occur 33 times in every 100 experiments. In other words this difference in mortality is an event quite likely to occur by chance and no conclusions can be drawn from it. It is clear that much larger numbers of cases will need to be investigated before this claim can be substantiated.—I am, etc.,

London, W.9. C. A. ROYDE.

Syringes

SIR,—Anyone contemplating the initial expense of a syringe service should note that the British Standards Institution has recommended the Luer fitting, and the specification in British Standard 1263 covers metal-and-glass as well as all-glass syringes. As a consequence, at least one manufacturer is now marketing syringes only of standard specification, and it seems likely that the Record fitting will be superseded and that in a few years replacements in bulk may be difficult.

The general adoption of the Luer fitting is obviously desirable, as pointed out by Dr. D. Gairdner (July 30, p. 282), and I am told that an attempt was made to adopt it after the 1914–18 war. The market was soon flooded, however, with cheap Record syringes from Germany, and English manufacturers had to conform in order to compete. A repetition of this is unlikely, and anyone making a stock of syringes should begin with the Luer pattern, for economic reasons as well as those given by Dr. Gairdner.—I am, etc.,

Broxbourne, Herts. T. C. BEARD.

Essential Hypertension in Pregnancy

SIR,—Mr. John Sophian's letter (Aug. 6, p. 335) is of interest. The idea that "functional vascular spasm" is the primary change inducing hypertension, and that it is the cause of "renal cortical ischaemia" in pregnancy, when the renal arterioles are affected—or that it is the cause of the anuria occurring in elderly men with enlarged prostate in whom the greatly distended bladder has been emptied too rapidly—is unsatisfying. Attributed in the former to "sympathetic overactivity," the cause of this overactivity remains unexplained. Nor can I understand how in puerperal anuria Bowman's capsules and the renal tubules should become so greatly distended—with urine—if the condition is caused by a primary occlusion due to vascular spasm of renal arterioles. A picture of this change was given twenty years ago by Clifford White (*Proc. R. Soc. Med.*, 1919, **12**, 29), and his sections were shown on the screen at an R.S.M. meeting in January of this year. Those seeking an explanation of the cause of the acute changes in the kidney associated with oliguria or anuria, whether in the pregnant or not, should take this distension into account. My criticism of the work of Trueta and his colleagues is that nowhere in *Studies of the Renal Circulation* have I found any reference to the effect of the secretion of urine on the blood flow through the kidney. It is of fundamental importance.

Very interesting is Mr. Sophian's comment on Dr. Hingson's treatment of eclamptic patients by means of controlled spinal analgesia. In 1928 I published my first case treated with spinal analgesia (*Proc. R. Soc. Med.*, 1928, **21**, 70). It was received with scepticism. I believe it was tried, but I think more to demonstrate its unworthiness than any virtue it might possess. The mind of the demonstrator matters. I have had several similar experiences. In 1932 I treated a man who had developed anuria some time after an abdominal operation. Two injections were given at an interval of twelve hours, and the result was wonderful. It was so wonderful that I had the greatest difficulty in getting the paper published: everyone seemed to think the experience related was not true.

Finally, it was published in abridged form in 1935 (*Lancet*, 2, 554). The patient, a farmer, is still strong and well—I see him occasionally by chance in the street.

In my view spinal analgesia acts by inducing a state comparable with shock. There is a great fall of blood pressure, and blood is not thrust into the renal medulla to maintain the obstruction to the exit of urine from the uriniferous tubules. The treatment should be induced early: there is no point in delaying. The position of the patient is important. He (or she) should be kept in the Sims position, with the foot of the bed elevated, and starved completely, with great limitation of fluid. More than one injection is usually required. In fulminant eclampsia it is better to try such a treatment than let the patient die. In post-partum anuria it is much better to do this than use an artificial kidney, for the application of the latter is vain at a time when the cortical renal cells are rotting.—I am, etc.,

Rugby. R. H. PARAMORE.

Strangulated Appendix in Femoral Hernial Sac

SIR,—The following case report may be of interest to your readers.

A woman, aged 67, was admitted to St. Leonards Hospital on May 6, 1949, with a diagnosis of strangulated femoral hernia. She was collapsed and dehydrated, with a subnormal temperature, a blood pressure of 100/70 mm. Hg, a pulse of 120, and a respiratory rate of 28. Two days before admission she had complained of intense abdominal pain, most marked in the right iliac fossa. Vomiting began simultaneously, the vomit being first yellowish, later brownish, and, on admission, faecal in character. She had had no bowel action and had not passed flatus per rectum for three days. She had a tender lump about two inches (5 cm.) in diameter in the right femoral region; there was lower abdominal tenderness and a certain amount of distension. A diagnosis of strangulated femoral hernia was made.

At operation a longitudinal incision was made over the lump and the hernial sac was exposed and opened. The appendix was lying in the sac and was thickened, obstructed, and congested, with haemorrhagic patches on its walls. The neck of the sac was very narrow and was obviously obstructing the appendix; the proximal quarter-of-an-inch (0.6 cm.), which was inside the abdomen, was normal in colour and size. The herniated part of the appendix (two inches long) was removed, and the mesoappendix divided and ligated. The stump could not be buried in the wall of the caecum, but as there was a long mesoappendix it was buried in that structure. The sac was ligated and divided, and the femoral canal closed by suturing the inguinal ligament to the pectineus fascia. The patient made an uneventful recovery, and was discharged from hospital on May 20, 1949.

I am indebted to Dr. A. D. Morris, medical superintendent of St. Leonard's Hospital, for his advice and permission to publish this case.

—I am, etc.,

London, N.1. S. P. BOFFA.

Torsion of Normal Fallopian Tube

SIR,—I have read the article by Mr. R. de Soldenhoff (July 30, p. 263) and Professor Lambert Rogers's letter (Aug. 13, p. 384) on the subject of torsion of the normal Fallopian tube, and I should like to add a further case to the literature.

I was called out to see a girl, aged 13, who had not yet begun to menstruate. She complained of colicky abdominal pains for the past four days, situated mainly in the left iliac fossa, and had vomited on the first day of her illness. Three weeks previously she had suffered from a similar attack which had lasted three days, and she had then felt well again. She was constipated and looked ill and toxic.

On examination her temperature was 100.4° F. (38° C.) and the pulse rate 96. Her tongue was furred and moist. Her abdomen felt soft, without any guarding, but she was tender to pressure in the left iliac fossa. A rebound phenomenon was present in both iliac fossae. Peristalsis was diminished. She was extremely tender in the anterior walls of her rectum, and she was *virgo intacta*.

The diagnosis of a lower abdominal peritonitis, due possibly to a perforated appendix or a perforated Meckel's diverticulum, was made. During the next few hours in hospital her pulse rate rose to 114 and she did not improve.

At operation there was a small amount of blood-stained fluid in the peritoneal cavity. The left tube and ovary formed an impacted reddish-blue mass in the pouch of Douglas. They were released with difficulty. The tube was gangrenous, due to two complete twists of its mesosalpinx. The ovary contained a blood-stained cyst. A left salpingo-oophorectomy was carried out, and the patient had an uneventful convalescence. Section of the tube showed it to be *normal, but it was obliterated by blood.*

This case is one of undoubted primary torsion of the undiseased Fallopian tube in a girl before menstruation had commenced. As the aetiology is unknown, its main importance lies in the difficulty of diagnosis, for there is no definite syndrome to recognize. Because it occurs in young people and the diagnosis is in doubt, I venture to disagree with Mr. de Soldenhoff and state that the urgency of operation is great.—I am, etc.,

Liverpool, 9. ALFRED M. ABRAHAMS.

The Common Cold

SIR,—In the *Journal* of Oct. 2, 1943 (p. 433), I stated that as a result of psycho-analytic investigations I had come to the conclusion that the common cold always occurred in association with a particular emotional state which could be defined.

At the meeting of the International Congress of Oto-laryngology, reported in the *Journal* of July 30, Dr. E. P. Fowler (New York) said (p. 278), "In the common cold of all types an emotional factor is very likely to be the precipitating one . . . It is very common for a cold to develop on examination day or on a day of domestic upheaval, evidently due to changes in the nasal mucosa arising from an emotional cause." He added that he believed that a large number of colds were of a neurogenic type, due to overaction of the sympathetic, and that the outstanding prophylactic was emotional equilibrium.

I am glad to have Dr. Fowler's support for my theory. I am quite confident that further investigation of the common cold on psychological lines will confirm the psychogenic origin of this, up to now, mysterious and sometimes dangerous affliction.—I am, etc.,

Leeds. E. WRIGLEY BRAITHWAITE.

Simulated Amnesia

SIR,—I have read with great interest Drs. R. E. Hemphill and J. R. Stuart's article (May 28, p. 938) dealing with simulated amnesia. Do any of us possess hard-and-fast criteria whereby malingering can be distinguished from hysteria?

Very few of us like to use the former term in clinical practice, whereas in legal practice either the term malingerer or the implication that a state of simulated disability exists is frequently made. I take it that the reason for this is that in the majority of such cases the physician sooner or later discovers some underlying cause of worry which explains the response. This does not dispose of the technical question of evaluating the mechanisms whereby an individual symptom complex is produced and maintained—i.e., of explaining the actual pattern of symptoms. A large proportion of the major hysterical patterns can be removed in one session by persuasion. Now although this begs the question of the validity of such forms of therapy if unsupported by more fundamental help it nevertheless reinforces the impression held by many that the hysteric "*could help it if he would*"—i.e., could adopt a more reasonable manner of drawing attention to his need for help.

It appears to me that there are three clinical settings within which the problem of simulation or apparent simulation of, for example, amnesia can occur. (1) The constitutionally averagely endowed man who falsely states that he is ill, knowing that such is not the case. This is true malingering, and is rare in clinical practice. (2) The constitutionally endowed hysteric. In these cases we may be dealing with a prolongation syndrome or elaboration of a nucleus of true dissociative features. This in my experience is the most common clinical problem. (3) The psychotic. Amnesia occurring in schizophrenia is frequently amenable to precisely the same forms of treatment as is the case with hysteria. The more "genuine" the dissociative mechanisms the more grateful the patient. The more conscious the mechanism the more hostile the patient.

When we come to post-traumatic hysteria (neurasthenia) in which litigation is involved we frequently see colleagues in the witness box

stating opposite opinions. For the plaintiff it is neurasthenia, for the defence it is malingering or some oblique expression which implies this. War neurosis cases illustrate the same theme. Some regard the "shell shock" case as a faint heart and sometimes a coward. Others assert he is a sick man. I suggest that in many cases the truth is a combination of both statements. That is to say, when we meet conversion hysteria we can assume that the patient is in distress and to that extent a sick man, but also that mechanisms have come into play which to some extent (varying from patient to patient) are under his control.

When we say that "dissociation" occurs in hysteria we are employing a term which possesses no referrent. This is not to deny its hypothetical validity or indeed its pragmatic necessity, and it appears as if this term describes a class of event which expresses at one and the same time a reaction to emotional trauma and a constitutional capacity for dissociation which the non-hysteric does not possess.

I have seen a pseudochoric maintain his movement for eight weeks to the point of emaciation through inability to eat and sleep, resist narcosis, shock therapy, and what psychotherapy was practicable, and then recover within 12 hours following strong persuasion. I have seen a soldier going about camp with his back bent double for weeks, resist similar methods, and then respond to persuasion in the matter of a few minutes. When the law is concerned with a compensation issue the question of the extent of this control becomes important. I know of no criteria whereby this can be determined. When all is said and done we all "forget" appointments occasionally, tell white lies, lose all emotional control at times, and under stress get palpitations or feel weak at the knees. The hysteric does these things more frequently, for longer, and at times apparently more convenient to his self-interest.

If we are good physicians we do not sit in judgment on him—we seek to understand and try to help. If we are judges or commanding officers or school masters or parents we occasionally have to sit in judgment, and sometimes we reprimand. Now, can anyone deny that a reprimand benefits the hysteric?

Finally, may I reiterate the question which has prompted this letter? Can any psychiatrist assert that he can diagnose with confidence between malingering and hysteria in any individual case? Because if there is such a test medico-legal work in our compensation courts will become easy. The answer to this question would illuminate the manner in which those processes we call dissociation operate, and enable us to understand how a hysteric really thinks and feels about the world. My opinion is that the hysteric can be compared to the "double-jointed person" who possesses the faculty of contorting his frame in a manner not possessed by others. Sometimes this queer mechanism is set going by emotional trauma, and to that extent the patient is a sick person. Sometimes it is set going as a result of the patient's decision to evade responsibility or duty or to establish prejudice in his favour (as in compensation cases). More commonly it is a mixture initially outside his control which becomes prolonged and sometimes, in addition, elaborated. The elaboration features are true malingering, the prolongation features are more or less genuine, and the original nucleus is entirely genuine.

Persuasion is capable of removing the elaborative features but will rarely affect the genuine features except it be exhibited in a manner which introduces still more subtle therapeutic mechanisms. "I seemed to be unable to get better myself: I wanted to but couldn't until you seemed to get me going," as one patient (I believe correctly) assessed the effect of brisk admonitions to a previously intractable pseudochorea. Needless to say, the physician who has the temerity to attempt to treat hysteria by admonition, though invariably receiving the gratitude of his genuine patients, will encounter strong hostility from the non-genuine. Hence the need for accurate diagnosis.—I am, etc.,

Dunedin, New Zealand. HAROLD PALMER.

Paraffin-wax in the Male Bladder

SIR,—I read with interest Dr. T. J. D. Lane's report (July 23, p. 216) on paraffin-wax in the male bladder. I should like to mention a similar case which I encountered in Poland in 1936.

The patient was admitted to hospital with acute cystitis. Cystoscopy confirmed this diagnosis, and to my great surprise revealed a blue-tinted twisted Christmas candle floating on top of the liquid ("rivanol") which had been injected into the bladder for the purpose of the examination. I instilled about 300 ml. of pure benzine into the bladder and after 20 or 30 minutes removed this liquid. I then filled the bladder with rivanol and on cystoscopy failed to find any traces of the candle except for the wick, which I removed with the help of an operation cystoscope (Sass-Wolf). The paraffin-wax had evidently become completely dissolved. The cystitis subsided after three days' treatment by washing the bladder out with rivanol and instilling 100 ml. of silver nitrate (1 in 200). When the patient was asked if he himself had introduced the candle into the urethra, he reluctantly admitted that two days previously, while drunk, he had had intercourse with a prostitute whom he could not pay. She in her anger had inserted the candle while he was asleep.

—I am, etc.,

London, S.W.5. B. B. RAPACKI.

Nucleoprotein, Virus, and Mouse Cancers

SIR,—Low-temperature treatment of mouse carcinoma tissue yielded remarkable results in the laboratories of the Imperial Cancer Research Fund (July 30, pp. 251, 253, 255). As to the facts, I hope they will readily obtain ample confirmation; as to the theories attached to them, however, I deem it necessary to consider further possibilities as well. May not very low temperature cause structural changes in the protein molecule itself? I refer particularly to the nucleoproteins of the chromosomes, and this altered molecule might be the causative agent of the tumours. Experimental grounds for this suggestion can be found in the Continental literature. Kanuo Yamafuji and Teigen Cho (*Biochem. Z.*, 1948, **318**, 95) claimed to be able to produce tobacco-mosaic virus by keeping the plant at higher temperatures (43–45° C.) and the polyaeder virus of the silkworm by this and other means. The virus so produced seemed to be to a certain extent transmissible, without any further temperature effect. Their theory is that normal nucleoprotein becomes denaturated nucleoprotein, which becomes polymerized nucleoprotein, which becomes a virus.

Although the authors did not refer to the production of tumours in this article, the possibility cannot be left undiscussed. The following two experiments therefore appear to be necessary. (1) The same cooling procedure should be applied to non-tumour tissues, and these should be grafted into an animal afterwards to ascertain the behaviour of normal tissue protein under such circumstances. (2) Lower temperatures than −79° C. should be applied—say −150 or −200° C.—to prove that there is a low temperature which kills the virus. Without such proof the virus nature is contestable, and the possibility of a non-living agent—i.e., a polymerized molecule—is likely.

It is a puzzling observation by Dr. Mann that it is not the time of freezing but the repetition of it with corresponding thawing that causes a diminution in the infectivity of the agent. It might be that the virus is more easily killed by repeated freezing than by a prolonged spell, but the protein molecule may have the peculiarity of withstanding polymerization, becoming resistant to it on repetition. Regarding the virus, it would be strange if it is killed by the process of thawing when it is resistant to extreme low temperature. It might be equally suggested that the denaturation of some virus-inhibitory substances, the existence of which is propounded by Dr. Mann, does not take place on repeated freezing and thawing. This would be a further field of research. There are many more interesting points. They are, however, beyond the scope of a letter, which should be brought to an end by expressing a high appreciation for the experimental results which give so much food for thought.—I am, etc.,

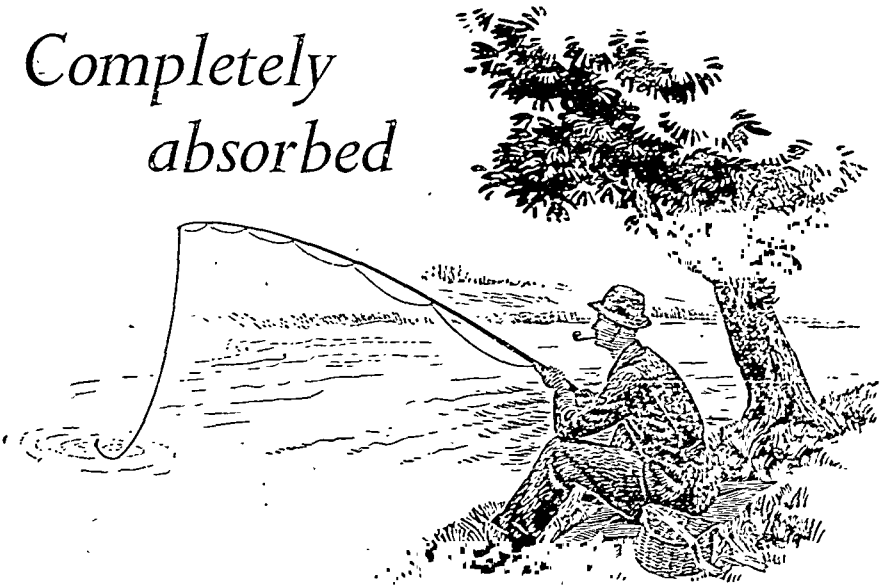
London, N.W.2. J. KUCHARIK.

B.M.A. Tuberculosis Group

SIR,—May I draw the attention of all old tuberculosis officers, tuberculosis superintendents, and tuberculosis physicians to the newly constituted B.M.A. Tuberculosis Group, and urge all to join it? I hope secretaries of local tuberculosis societies in England, Wales, Scotland, and Northern Ireland will be willing to help, first by getting a supply of forms from B.M.A. House and then by circulating them to their members and having copies available at all the early autumn meetings. If 90% of tuberculosis workers join the group the tuberculosis service will wander less in darkness and confusion than at present.—I am, etc.,

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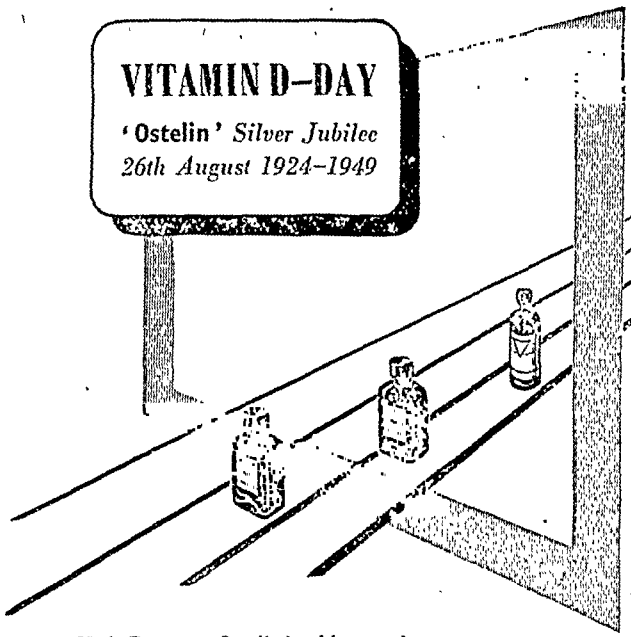
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POINTS FROM LETTERS

Histamine Desensitization in Ménière's Disease

Dr. D. A. DRAFFIN (Newcastle-upon-Tyne) writes: Wing Commander Saville Paul (July 23, p. 216) draws attention to an interesting case of Ménière's disease which he treated by histamine desensitization, and he adds that it is reasonable to assume "that a cure has been probably effected." Surely the following errors have been made. (1) The natural history of this type of case has been ignored, for many cases of this type tend to get less frequent attacks in any case. How much improvement in this officer's morale will contribute to mitigation of the tinnitus (which he incidentally still has) is difficult to assess. (2) Faith has been placed in the histamine test. (3) The body has theoretically been desensitized to what is closely related to, if not identical with, the natural substance of the body, on which the body relies to a large extent for its defence against attacks from all sides, be it bacterial toxins, injury, or allergens.

The Elderly Sick

Dr. W. R. E. HARRISON (Buxted, Sussex) writes: Your leading article "*The Elderly Sick*" (Aug. 6, p. 324) might have been more complete had it contained a warning against letting the pendulum swing too far in the direction of over-treatment of the aged. With ever-increasing lay participation in medicine, with "health" visiting, mobile physiotherapy, voluntary car pools, etc., there is, I submit, a grave danger that all sense of proportion may be lost. You speak of co-operation between G.P. and social services, lay-controlled. Do you, I wonder, realize the difficulty in which a G.P. may find himself should he try to do his duty by curbing their exuberant offers of help? As I write, a record harvest stands in stooks exposed to the risk of a break in the weather. A handful of men are struggling to get it in, but the towns and villages are thronged with people doing next to nothing. Let our professors of sociology come down from the sentimental clouds and bend their minds to the treatment of this besetting sin of our sickly civilization. Let our social reformers not make things too difficult for the young and vigorous among our people upon whom depends the bare survival of young and old alike.

Antihistaminic Drugs for Burns

Dr. S. SHUBSACHS (Manchester) writes: While I agree with your correspondent Dr. Donnell Deeny (Aug. 6, p. 336) that it is logical to give an antihistaminic drug in burns, I must point out that the raised temperature is more likely to be due to other conditions, such as sepsis or heatstroke, than histamine excess. It is true that elevation of skin temperature 1° or 2° F. (0.6°–1.2° C.) can occur after the injection of small doses of histamine, as pointed out by Samson Wright (*Applied Physiology*, 1945, p. 556). But major burns are usually associated with normal or subnormal temperature, a rise in temperature only occurring after sepsis has set in. On the other hand, heatstroke can occur with minimal liberation of histamine in the skin. If the use of an antihistamine in burns leads to neglect of the significance of a raised temperature, then tragedies will occur and a valuable aid in the treatment of burns be unfairly discredited.

Tuberculosis in Scotland

Dr. B. C. SAALER (London, N.W.11) writes: May I draw your and Mr. Walter Elliot's attention to a book by Fliess entitled *Vom Leben und vom Tod* (Jena, 1909), which I am afraid has not been translated into English? Discussing the tuberculosis mortality rates for Prussia, he warns the reader not to expect the curve always to move as it would if it depended on external factors only. According to him a nation is a biological unit and its life process is controlled by internal factors. Life is lived in waves; there are "high and low tides," mortality being low at low tides and increasing with the rising tide. He supports these views with evidence derived from knowledge he obtained through the study of the time factor in the life history of generations of human beings, animals, and plants, correlating all major events not due, or due not solely, to external influences. . . . A few questions raised by Mr. Elliot (Aug. 6, p. 297) point indeed to the possibility of an internal factor being responsible for the rise in the curve of the Scottish pulmonary tuberculosis mortality rate. What is affecting Glasgow which is not affecting Birmingham and Cardiff would be easy to see. The inhabitants belong to different biological groups. In England the "slope to the north" would become intelligible, and, as regards the different trend in the more agricultural counties of Northumberland and Cumberland, one could think of a greater reluctance of a peasant population to intermarry with city-bred people in Scotland, who, according to the figures given by Mr. Elliot, are in the main affected by the higher tuberculosis mortality rate. . . .

Obituary

Sir ALAN NEWTON, M.S., F.R.C.S., F.R.A.C.S. F.A.C.S.

Sir Gordon Gordon-Taylor and Professor C. Lambert Rogers write: The moving tributes (Aug. 20, p. 440) to the late Sir Alan Newton leave little for other friends to add, but perhaps further reference may be made to his enduring and passionate desire to promote the science and art of surgery in Australasia, and to ensure that the Cinderella sister college, in the inception and nurture of which he had played so important a role, should in all its activities be not unworthy of the Royal College of Surgeons of England with all its great tradition. Emphasis may be laid on the dignity and decorum on which he insisted in connexion with all the examinations held in the buildings of the Royal Australasian College of Surgeons. As Censor-in-chief he organized and himself superintended a primary fellowship examination in 1934, in which one of us (G. G.-T.) was privileged to participate: nothing was left undone, nothing omitted, nothing unanticipated, so that the examination might be conducted in the best tradition of Queen's Square and Lincoln's Inn Fields. To this end he gave up all his own work for a week and never left the building in Spring Street, Melbourne, during the hours of the examination. With princely courtesy, but with unmistakable firmness, it was impressed on the visitors from the English College of Surgeons that they were in Melbourne to conduct an important examination and not for their own enjoyment, and the mildest *divertissement* in which they might indulge had perforce to be kept from his ears. He would certainly have frowned had he known the late hours at the card-table in the club kept by the distinguished examiner in physiology, although he was well aware that the Royal College of Surgeons of England never had a better ambassador than George Buckmaster. As an examiner himself he was feared but respected.

As long ago as 1945 one of us (L. R.), speaking at the annual meeting of the Royal Australasian College of Surgeons, envisaged a day when there might be an interchange of examiners between the Mother Country and the Commonwealth, a dream that has recently been realized in the active part played by Professor Sunderland in a recent primary examination in London, but the official recognition of the Australasian primary fellowship by the English College, which Sir Alan had for so long regarded as a "statesmanlike desideratum," evoked in his breast the liveliest satisfaction. As alumni of Middlesex Hospital, we are both proud that he too learned anatomy within our walls, and still remember how 30 years ago a tall upright figure in the uniform of a major in the A.I.F. might have been seen striding into the dissecting-room of "Middlesex," along that floor which so many young surgical postgraduates from the lands under the Southern Cross have subsequently trod. As lecturer on surgical anatomy in the University of Melbourne doubtless he taught and retaught those lessons that he had learned as a disciple at the feet of "Tim" Yeates, whom he himself helped to discover and who remains so beloved a figure to Australian visitors of the third and fourth decades of the century.

It is curious that the motto of the Royal Melbourne Hospital which he served with such distinction and loyalty throughout his life should be the selfsame Virgilian line as that proudly possessed by the hospital in London which is our alma mater, and somewhere he himself has written that

"the secret of the care of the sick is to care for the sick." To this end he devoted his life unsparing of himself. Alan Newton was one who walked worthy of the vocation to which he was called, and had that gay, serene spirit which, as Schiller tells us, is the source of all that is noble and good.

Dr. ALBERT HOPKINSON died suddenly at his home in Cambridge on July 31 at the age of 85. The son of John Hopkinson, a former lord mayor of Manchester, he was educated privately and then at Owens College. In 1881 he came up to Emmanuel College, Cambridge, where he took his M.A. and M.B. degrees in 1889. He returned to Manchester and entered into general practice in Withington with the vigour and enthusiasm which were part of him. His especial love was the human aspect of practice, and he devoted himself with kindness, courtesy, and tireless energy to those under his care. It was during this period that he acquired the great human knowledge and sympathy which enabled him to influence the many medical students he taught in the latter part of his life. During the 1914–18 war Dr. Hopkinson was appointed medical officer to the Mosley Road Hospital, Manchester, which was devoted to the treatment of injuries to, and diseases of, the nervous system. "Here," Sir John Stopford wrote, "he worked tirelessly, not only clinically, but in encouraging the men. By his shrewd observation he did much to make possible the early investigations which greatly influenced the subsequent treatment of these diseases. His modesty made it impossible for him to realize the value of the work he was doing, but his colleagues and many of his patients have reason to be very grateful to him." In 1919 Dr. Hopkinson retired and came to live in Cambridge. At the invitation of his old college he undertook the supervision of medical students and became an assistant demonstrator in the school of anatomy, holding this appointment for nearly twenty years. Here he met and helped all the medical students who came to Cambridge during that period. The medical students in the materialistic world of the early 'twenties were apt to feel that they could ill afford the time to listen to his philosophic generalizations, and it was only in later years that they became fully appreciative of the lessons that he had taught them. It was a remarkable achievement to become a competent teacher of anatomy after half a lifetime in general practice, and only the possessor of an unusually retentive memory could have succeeded. In his teaching Hopkinson always made a point of emphasizing the applications of anatomy in practice. Patient and painstaking, he took a keen personal interest in the undergraduates, many of whom kept in touch with him long after they had gone down. Nor did he forget the subjects in the dissecting room, for he wrote a poem, a plea for their reverent handling, which was printed in the *Cambridge Review*. Hopkinson served on the advisory council of the Cambridge University Medical Society until after the recent war. The contact which this gave him with the rising generation of medical students was a constant joy, not only to him but to them. He was a life member of the British Red Cross Society. He also acted as treasurer for the Universities' Mission to Central Africa. As an undergraduate he represented his college at rugby football and athletics, and rowed in the college boat. All his life he was a keen mountaineer, and with his four brothers he was a member of the Alpine Club. In later years he took an especial interest in the Cambridge Mountaineering Club, and a more active one in the University Swimming Club, swimming a mile when he was close on seventy. His family life, despite the loss of one son in the first world war, was a very happy one until the death of his wife ten years ago. He is survived by two daughters and two sons, one of whom is in the medical profession. With the passing of Albert Hopkinson, Cambridge has lost a great and lovable personality who by his example has influenced the lives of many hundreds of medical men practising to-day.

Dr. DOUGLAS BELL died at his home at Skelmanthorpe on July 21 after a short illness. He was educated at the Watson Academy at Edinburgh, and graduated M.B., Ch.B. at Edinburgh University in 1904, taking the D.P.H. three years later. After a short period of assistantships he settled down in general practice with his brother, Dr. William Bell, at Skelmanthorpe, near Huddersfield. During the 1914–18 war he held a temporary commission in the Royal Navy and served in the flagship *H.M.S. King George V* at Jutland. He was for a time medical officer to the Royal Naval Barracks, Chatham. After the war he returned to general practice in Skelmanthorpe and was Medical Officer of Health to the Denby Dale Urban District from 1939 to 1945. He took a keen interest in all local activities; possessed of a strong personality, he was renowned for his forthright manner and his intolerance of petty officialdom. The personal and intimate family history of his patients was an open book to him, and he was an outstanding example of the old type of family doctor giving unstinted service to the community. His practice was his all-absorbing interest. It was his wish to die in harness, and it was fulfilled. He is survived by his wife and his son, Dr. Ian Bell, to whom the sincere sympathy of his colleagues and friends will be extended.

Mr. JOHN ROBERT FOSTER died at Danby on Aug. 5. Born at Sleights, Yorkshire, in 1868, he graduated at Edinburgh University in 1893 and took the F.R.C.S.Ed. in 1901. After holding house appointments at the Central London Ophthalmic Hospital, the Royal Westminster Ophthalmic Hospital, and the Royal National Throat, Nose, and Ear Hospital, Golden Square, he was appointed ophthalmic surgeon to the Hartlepools Hospital. A year later he was appointed ophthalmic surgeon to the Cameron and Howbeck House Hospitals and aural and ophthalmic surgeon to the Hartlepools Education Authority. He was an excellent and careful surgeon, and continued work until the age of 64, when he had to retire from hospital and private practice owing to ill-health. He is survived by a widow and three children, the eldest of whom is ophthalmic surgeon to the General Infirmary at Leeds.

Dr. ALEXANDER GORDON LEGGAT, who had practised in Newbury for nearly 30 years, died at Wellington, New Zealand, on Aug. 8. Dr. Leggat was born in Glasgow, and graduated at Glasgow University in 1905. In the 1914–18 war he served as major in the R.A.M.C. at Gallipoli and was awarded the D.S.O. He was a conscientious and able practitioner, and in 1931 was appointed to the staff of Newbury District Hospital. It was then that he found work most congenial to his taste and capacity, for he was a born administrator and took the greatest interest in the administration of the hospital. He was a firm but popular chairman, and kept order with a tact and humour which owed something to his Scottish origin. He will be greatly missed for his work at the hospital and his other activities. Dr. Leggat died as far from Newbury as it is possible to be on this planet, but near and dear to many of the inhabitants of the town. He survived the death of his wife by six months, and leaves a son and a daughter.

Medico-Legal

OVERDOSE OF NITROUS OXIDE

At an inquest held in Dublin on May 31 the jury found that the death of a woman of 38 was due to anoxaemia and cardiac failure following an overdose of nitrous oxide.

This patient had a septic left thumb which required incision. A woman house-surgeon at the Adelaide Hospital said that she had examined the patient and thought she was fit to be given an anaesthetic. She then noticed that the oxygen cylinder in the anaesthetic machine was empty. She asked one of the nurses to get a cylinder of oxygen and this was connected up; she turned on the nitrous oxide fully and the "oxygen" partially. After a few inspirations she noticed that the patient was becoming slightly blue. She therefore turned off the nitrous oxide and turned on the "oxygen." The cyanosis

became even more marked. She then examined the gas cylinders and found that both contained nitrous oxide. An oxygen cylinder was then put in and artificial respiration started. For two hours everything possible was done to revive the patient. She agreed that, though the cylinders were the same size, nitrous oxide cylinders had a black distinguishing mark and oxygen cylinders black with a white ring round the top. With continued usage the distinguishing white paint did tend to become worn.

A nurse described how she had brought into the theatre what she thought was a cylinder of oxygen. She did not examine the label on the cylinder to see whether it contained oxygen or not. The labels on the cylinders of nitrous oxide and oxygen were similar in size and she had no reason to believe that this cylinder did not contain oxygen. Later one of the medical students noticed that both cylinders in the anaesthetic machine contained nitrous oxide. She agreed that though the labels on the cylinders were of the same size they were of different colours. She had not seen gas cylinders being changed before in the course of her training and she had never been told of the distinguishing marks.

A fourth-year medical student said that he had been in the theatre for about five minutes, helping to apply artificial respiration, before he noticed that both cylinders in the anaesthetic machine contained nitrous oxide. He identified the cylinders by the labels. He did not look particularly at the tops of the cylinders.

The senior anaesthetist at the Adelaide Hospital described the methods of resuscitation employed and said that in her opinion death was due to anoxaemia and cardiac failure. Doctors were taught the importance of distinguishing between the colours of cylinders, but she thought that it would be better if the fittings were so arranged that it would be impossible to connect them up wrongly.

The manager of the firm which supplied the cylinders said that they were painted every two years.

The jury gave a verdict in accordance with the evidence and added a rider expressing the opinion that the Adelaide Hospital was guilty of negligence and that there was contributory negligence on the part of the house-surgeon.

Universities and Colleges

UNIVERSITY OF LONDON

The recognition of the British Postgraduate Medical Federation as a school of the University has been extended in respect of its facilities (*a*) at the Institute of Child Health and (*b*) at the Institute of Ophthalmology for three years and five years respectively in the first instance, from Oct. 1, 1948.

Sir Archibald Gray and Mr. J. B. Hunter have been appointed representatives at the University on the governing body of the British Postgraduate Medical Federation and Dr. Audrey Z. Baker representative on the governing body of Nonsuch County School for Girls, Cheam, Surrey.

A further A. H. Bygott Scholarship for 1949–50 (see *Journal*, Aug. 13, p. 393) has been awarded to Wilfred Charles Turner, M.B., B.S.

The Sir William Dunn Scholarship of the value of £100 for one year, which is awarded annually on the results of the second examination for medical degrees (internal and external) held in March, has been awarded, for 1949, to Charles John Edmonds (University College), who proposes to proceed to the B.Sc. (Special) degree in physiology.

Awards of medical entrance scholarships and exhibitions have been made on the results of the London Inter-Collegiate Scholarships Board examination, as follows: *Medical Scholarship*, Miss M. A. Clark (University College). *Bucknill Scholarship*, D. B. Thomas (University College). *Medical Exhibition*, R. Radford (University College). *Sambrooke Scholarship*, R. Conroy (King's College). *Mrs. George M. Smith Scholarship*, Miss M. Y. K. Armstrong (Royal Free Hospital School of Medicine). *Mabel Sharman-Crawford Scholarship*, Miss K. M. Barber (Royal Free Hospital School of Medicine).

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Aug. 6. [No. 31

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1948 (a)	(b)	(c)	(d)	(e)	1947 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	19	—	18	3	—	40	2	20	3	—
Deaths		—	1				3	—		
Diphtheria	89	7	26	2	3	107	13	28	6	—
Deaths	1	—	—	—	—	1	—	—		—
Dysentery	45	5	81	—	1	111	12	30	—	—
Deaths				—	—					—
Encephalitis lethargica, acute	—	—	—	1	—	—	—	2	—	—
Deaths		—					1			
Erysipelas			11	8	6			24	4	—
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				92					43	
Deaths	21	4	4	5	1	23	3	8	1	1
Measles*	3,683	273	71	121	66	6,879	430	52	46	42
Deaths			—	—	—			—		—
Ophthalmia neonatorum	26	2	8	—	—	44	5	11	—	—
Deaths										
Paratyphoid fever	37	1	1(B)	2(B)	1(B)	47	3	3(B)	—	—
Deaths	—	—	—	—	—	—	—	—		—
Pneumonia, influenzal	220	15	2	2	—	363	26	1	2	1
Deaths (from influenza)‡	4	—	1	—	—	6	2	—		—
Pneumonia, primary			103	14				113	21	
Deaths	94	16		2	5	116	17			6
Polio-encephalitis, acute	22	2				5	1			
Deaths										
Poliomyelitis, acute	164	29	10	3	—	38	3	4	2	5
Deaths§	12	1					4			
Puerperal fever		—	6				—	10		—
Deaths										
Puerperal pyrexia¶	78	6	12	—	—	135	10	7	—	—
Deaths		—					1			
Relapsing fever	—	—			—	—	—			—
Scarlet fever	854	45	134	41	28	848	49	134	29	21
Deaths†			—	1	—			—		—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	5	—	1	9	2	10	—	—	4	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,566	74	43	67	85	3,185	263	11	79	12
Deaths	4	—	—	—	—	6	1	1		—
Deaths (0–1 year)	198	31	29	11	6	247	41	40		9
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,632	563	465	135	103	3,586	584	517		84
Annual death rate (per 1,000 persons living)			9·3	8·4				10·4		
Live births	7,121	1161	868	356	219	7,556	1242	939		242
Annual rate per 1,000 persons living			17·4	22·1				19·0		
Stillbirths	169	24	20			161	19	31		
Rate per 1,000 total births (including stillborn)			23					32		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

¶ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

In the week ended Aug. 13 notifications in England and Wales were: poliomyelitis 236 (164), polio-encephalitis 18 (22). Figures for the previous week are shown in parentheses.

Counties with multiple cases (poliomyelitis and polio-encephalitis together) were: London 30 (31), Bedford 2 (5), Berkshire 2 (3), Buckingham 2 (1), Cambridge 2 (0), Chester 3 (3), Cornwall 6 (9), Devon 9 (6), Dorset 2 (1), Durham 3 (1), Essex 19 (7), Gloucester 7 (5), Hereford 4 (0), Kent 6 (3), Lancs 23 (12), Leicester 4 (5), Middlesex 10 (15), Norfolk 3 (0), Northampton 2 (0), Northumberland 4 (1), Nottingham 4 (1), Somerset 4 (2), Southampton 13 (9), Stafford 4 (2), Surrey 7 (7), East Sussex 5 (2), West Sussex 4 (2), Warwick 10 (5), Wiltshire 2 (2), Yorks East Riding 2 (2), Yorks West Riding 34 (17), Glamorgan 3 (5), Monmouth 4 (2).

Total notifications in the corresponding week of 1947 were: poliomyelitis 568, polio-encephalitis 56.

Discussion of Table

In *England and Wales* there were decreases in the notifications of measles 583, whooping-cough 229, scarlet fever 191, dysentery 49, and acute pneumonia 43, with an increase in the incidence of acute poliomyelitis 17.

The largest falls in the notifications of measles were Durham 55, Sussex 44, Oxfordshire 42, Gloucestershire 42, and Yorkshire West Riding 41; the largest rise in incidence was Warwickshire 65. Notifications of whooping-cough decreased in Lancashire 52 and Essex 30, but rose in Warwickshire 42. The incidence of scarlet fever decreased in London 46 and in Yorkshire West Riding 36. No appreciable changes were reported in the notifications of diphtheria.

A further 4 cases of dysentery have been reported from the outbreak in Warwickshire, Warwick R.D. No further cases of dysentery have been notified from the outbreak in Buckinghamshire, Amersham R.D. There were 16 notifications of dysentery in Lancashire.

Notifications of food-poisoning numbered 356, an increase of 175 on the previous week. The largest notifications were Lancashire 131: Bury C.B. 43, Farnworth M.B. 43, Lytham St. Anne's M.B. 20; Yorkshire East Riding 54: Kingston-upon-Hull C.B. 54; Yorkshire West Riding 30: Sheffield C.B. 20.

In *Scotland* there were increases in the notifications of dysentery 41, scarlet fever 22, and paratyphoid fever 9. The increase in the incidence of dysentery was mainly contributed by Glasgow, where notifications rose from 14 to 59. Of the 10 cases of paratyphoid 8 were notified in Glasgow.

In *Eire* there were decreases in the notifications of whooping-cough 43, measles 24, and scarlet fever 18. There was an increase of 20 in the notifications of diarrhoea and enteritis in Dublin C.B.

In *Northern Ireland* a decrease of 19 in the notifications of measles was the only notable change in the trends of infectious diseases.

Week Ending August 13

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 689, whooping-cough 1,738, diphtheria 78, measles 3,226, acute pneumonia 227, cerebrospinal fever 26, acute poliomyelitis 236, acute polio-encephalitis 18, dysentery 62, paratyphoid fever 26, typhoid fever 11.

When a death grant is payable under the National Insurance Act the cost of a hospital patient's burial arranged by a hospital management committee or board of governors will be met, up to a maximum of three-fifths of the grant, out of the National Insurance Fund. Formerly the maximum was one-half of the grant.

Medical News

Medical Research Council Travelling Awards

The Medical Research Council announces that it has made the following travelling awards for the academic year 1949–50: *Rockefeller Travelling Fellowships in Medicine.*—Mr. W. J. Atkinson, Mackenzie Mackinnon Research Fellow (Royal College of Surgeons), National Hospital, Queen Square, London; Dr. Ruth E. M. Bowden, Lecturer in Anatomy, Royal Free Hospital School of Medicine, London; Dr. R. Daley, First Assistant, Cardiology Department, St. Thomas's Hospital, London; Dr. J. Dawson, Lecturer in Biochemistry, University of Leeds; Dr. C. E. Lumsden, Senior Lecturer in Pathology, University of Aberdeen; Dr. J. S. Robson, Assistant, Departments of Medicine and Clinical Biochemistry, University of Edinburgh. *Dorothy Temple Cross Research Travelling Fellowships in Tuberculosis.*—Dr. A. J. Robertson, Medical Registrar, Royal Infirmary, Liverpool; Mr. J. D. Wade, Surgical Officer, Welsh National Memorial Association (Sully Chest Centre). *Travelling Scholarships under an exchange arrangement with the Centre National de la Recherche Scientifique in France.*—Dr. E. J. Field, Lecturer in Anatomy, University of Bristol; Miss A. M. N. Sewell, Nuffield Research Unit, Psychological Laboratory, University of Cambridge.

American Committee to Study Rheumatism

Dr. Philip Hench, of the Mayo Clinic, has been appointed chairman of a committee in the U.S.A. to study new methods promising to alleviate rheumatic diseases. The other members are Dr. Walter Bauer, of Boston, Mass., General Hospital; Dr. Granville Bennett, of the University of Illinois School of Medicine; Dr. Jerome W. Conn, of the University of Michigan; Dr. W. Paul Holbrook, of Tucson, Arizona; Dr. Robert Loeb, of New York; Dr. Fred Moore, of the University of Southern California School of Medicine; Dr. Jane A. Russell, of Yale University School of Medicine; Dr. Emil L. Smith, of the University of Utah School of Medicine; and Dr. Alfred L. Wilds, professor of chemistry, University of Wisconsin.

New Journal for Radiologists

The first issue of the *Journal of the Faculty of Radiologists* has just been published. All branches of radiology have expanded so rapidly in recent years that the Faculty of Radiologists felt that the time was opportune for the publication of a journal devoted to clinical radiology. This first issue includes a number of papers on cerebral tumour which were read at the annual meeting of the Faculty, and there are also articles on pneumoconiosis, on the radiotherapy of leukaemia, and on the doctor–patient relationship in the treatment of cancer. Inquiries should be addressed to the editor at the Faculty of Radiologists, 45, Lincoln's Inn Fields, London, W.C.2.

Bristol Hospitals Fund

Since July 4, 1948, the Bristol Hospitals Fund has allocated £7,495 to hospital amenities funds, medical charities, and for medical research.

Statistics in Israel

A new publication entited the *Statistical Bulletin of Israel* has been issued by the Israel Central Bureau of Statistics. Various statistics are given for cases of infectious diseases; the figures are fairly complete for the years 1936 to 1947, and figures for the Jewish population are given for 1948 in most cases.

National Association for the Prevention of Tuberculosis

A scholarship of £300 offered by the association to enable a matron from a British sanatorium to spend three months visiting tuberculosis institutions in Canada has been awarded to Miss Nora Burrows, matron of Baguley Sanatorium, near Manchester. It is hoped that a matron from a Canadian sanatorium will pay a similar visit to this country.

Menopausal Syndrome

'Estigyn' enables the symptoms of the menopause, due to decline in the œstrogen secretion of the ovary, to be effectively treated by specific replacement therapy.

'Estigyn' is a highly potent œstrogen derived from natural sources and is active orally. In addition it is non-toxic in therapeutic doses. The improvement in subjective symptoms and the restoration to normal outlook is, in many cases, gratifyingly rapid while at the same time the possible onset of pruritus vulvæ or kraurosis vulvæ is prevented.

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THE INTRAVAGINAL TAMPON IN MENSTRUAL HYGIENE

An important clinical study

Significant facts obtained by the close observation of 25 parous and nonparous women

In view of the increasing use of the intravaginal tampon for the absorption of the menstrual flow, the following important study was undertaken to determine whether or not this method of sanitary control is safe and not prejudicial to health.

Twenty-five women—parous and nonparous—were selected and were under daily institutional observation during two successive catamenial periods. Ranging in age from twenty-one to forty-five, some had previously used tampons, others had not.

The following summary indicates clearly the findings of the study.

1. In not a single instance was there any evidence of local irritation brought about by the use of the tampons.

Reprinted from the Medical Record, U.S.A. for May, 1942

2. No uterine cramps, suggestive of block of the uterine flow or damming back into the tubes were reported in any case of this series.
3. No bladder irritation was reported.
4. The average number of tampons used in a period was ten.
5. In cases in which a cervical erosion was present, neither the amount of bleeding nor the character of the erosion was altered by the use of the tampons.
6. There was no appreciable difference in the bacterial flora of the vagina and cervix, as determined by smear and culture, before menstruation and after the use of the tampons during the menstrual period.
7. There was no appreciable difference in the pH of the vaginal or cervical secretions before menstruation and after the use of the tampons during the period.
8. Absolute comfort and complete absorption of the flow was obtained by the proper correlation of the size of the tampon with the length and calibre of the vagina.
9. *The evidence is conclusive that the tampon method of menstrual hygiene is safe, comfortable and not prejudicial to health.*

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MEDICAL INQUIRIES: TAMPAX LTD., 110 JERMYN ST., S.W.1

HANDS AND THE MAN . . . No. 8



Mr. . . . . , Specialist in E.N.T. Surgery

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Visits Abroad of Ophthalmologists

During May nineteen ophthalmologists went to Italy on a tour organized by the Faculty of Ophthalmologists. At Pavia the rector of the university received them, and Professor Bietti gave some interesting talks and performed some operations. At Genoa Professor Maggiore showed the party round, and demonstrated some new instruments and some experiments in colour vision. The party then visited Professor Alajmo's clinic at Florence, where they saw some operations performed, including sclerectomy for glaucoma. Next day they went to Rome, where Professor Cavara showed some interesting cases, including one of "crocodile tears," and a hydatid cyst causing retinal detachment. Professor Leonardi in another hospital demonstrated cases of cataract extraction by suction apparatus. On reaching Naples the party was entertained by Professor Lo Cascio, who performed nine cataract extractions in 45 minutes. Finally the party went to Bologna and visited Professor Di Marzio's clinic, where papers were read on pituitary tumours and nasal infection in eye diseases. In June twenty members of the Faculty, under the leadership of Mr. W. Muirhead (Sheffield), were received by the heads of the ophthalmic clinics at Copenhagen, Lund, Uppsala, Stockholm, Oslo, and Gothenburg. Lectures, clinical demonstrations, and operative sessions were arranged, and the tourists were made welcome in the homes of their Scandinavian friends.

Hospital Contributory Schemes

A history of the British Hospitals Contributory Schemes Association will be published in the autumn under the title *Pennies for Health*. The cost will be 13s. 3d. post free, and orders may be sent to the British Hospitals Contributory Schemes Association (1948), Royal London House, Queen Charlotte Street, Bristol, 1.

Faculty of Radiologists

At the recent annual general meeting of the Faculty of Radiologists the following officers were appointed for 1949–50. President: Professor B. W. Windeyer, London. Vice-presidents: Dr. J. L. A. Grout, Sheffield (Diagnosis); Dr. J. R. Nuttall, Leeds (Therapy). Warden of the Fellowship: Dr. S. Cochrane Shanks, London. Editor: Dr. Peter Kerley, London. Hon. treasurer: Dr. J. W. McLaren, London. Hon. secretary: Dr. E. Rohan Williams, London.

Nuffield Orthopaedic Centre

Lord Nuffield has made a further gift to the Nuffield Orthopaedic Centre at Oxford. The donation is of £50,000, and the fund will be used mainly to offer special facilities for visiting orthopaedic specialists and students from the Commonwealth. The gift is comparable to Lord Nuffield's recent benefaction to the Royal College of Surgeons of England.

Medical Films

The following medical films are available on request from the Documentary Film Unit, May & Baker, Ltd., Dagenham: "Thiopentone Sodium and its Use in Intravenous Anaesthesia" (made in co-operation with the Department of Anaesthetics, Westminster Hospital, London); running time is 38 minutes on 16 mm. and 35 mm. (with sound track). "Medical Applications of Sulphonamides"; running time is 34 minutes on 16 mm. and 35 mm. (with sound track). Both films are divided into three sections—namely Introduction (chemistry), Pharmacology, and Clinical Use. Applicants should specify alternative dates when possible. Synopses may also be obtained.

Wills

Professor Stuart McDonald, who was emeritus professor of pathology in Durham University, left £7,933. Dr. Lionel James Picton, of Holmes Chapel, Cheshire, left £15,308. Mr. Robert Leslie Dodds, of London, N.W., left £2,195. Dr. Howard Bluntisham Hodson, of Colchester, left £8,596. Dr. Oswald Hanson Isard, of Tonbridge, Kent, left £59,739, including £100 to the Royal Medical Benevolent Fund.

COMING EVENTS

South-east Metropolitan Regional Tuberculosis Society

A meeting of the South-east Metropolitan Regional Tuberculosis Society will be held at B.M.A. House, Tavistock Square, London, W.C., on Saturday, Sept. 10, at 10.30 a.m., when a lecture on "The Secondary Effects of Tuberculous Mediastinal Lymphadenitis, with Special Reference to Disease of the Middle Lobe" will be delivered by Mr. R. C. Brock. The meeting will be followed by the annual luncheon of the society at Russell Hotel, Russell Square, London, W.C.

Rehabilitation Clinic

A special clinic on rehabilitation will be held by Dr. Howard Rusk, of New York, at the Royal Free Hospital, Gray's Inn Road, London, W.C., on Wednesday, Sept. 14, at 2.30 p.m., when Dr. Rusk will demonstrate his special methods of approach to the subject. The chair will be taken by Lord Horder. Anyone who wishes to be present should notify the Medical Rehabilitation Unit at the hospital.

Association of Army Psychiatrists

The seventh reunion of army psychiatrists will take place at Slater's Restaurant, 18–24, High Street, Kensington, London, W., on Saturday, Sept. 24, from 7.30 to 10.30 p.m. Particulars may be obtained from the honorary secretary, Dr. J. C. Penton, The Old Farm House, 1, Gatehill Road, Northwood, Middlesex.

Lectures in Social Studies

The Institute for the Scientific Treatment of Delinquency (8, Bourdon Street, Davies Street, London, W.1) announces the following university extension lectures for candidates for the Diploma in Social Studies. Twelve lectures on "Criminology," by Mr. H. Mannheim, on Tuesdays, at 6.30 p.m., beginning on Sept. 27; 24 lectures on "Social Philosophy," by Mr. J. J. Hartland-Swann, Ph.D., on Wednesdays, at 6.30 p.m., beginning on Sept. 28; 24 lectures on "Social Psychology," by Mr. R. Elias, Dr.Phil., on Thursdays, at 6.30 p.m., beginning on Sept. 29; 24 lectures on "Social Structure," by Mr. B. C. Adams, on Fridays, at 6.30 p.m., beginning on Sept. 30; 12 lectures on "The Psychology of Delinquency," by Dr. Edward Glover, on Tuesdays, at 6.30 p.m., beginning on Jan. 10, 1950. The lectures are open to members and non-members of the institute and to diploma and non-diploma students. As each class will be limited in number early application for enrolment forms should be made to the education secretary of the institute at the above address. The fee for 24 lectures is £1 10s., and for 12 lectures 15s.

French Medical Congress

The Association des Médecins de Langue Française will hold a congress at Geneva on Sept. 29–Oct. 1. Subjects to be discussed include plasma proteins, hyperthyroidism, and hormone treatment of cancer. Information may be obtained from Professor E. Martin, 16, Boulevard Helvétique, Geneva.

Course on Rheumatic Diseases

A concentrated week-end course on the rheumatic diseases, with lectures, ward-rounds, and practical demonstrations, will be given at the Rheumatism Unit, St. Stephen's Hospital, London, S.W., on Oct. 1 and 2. The course will be opened by Sir Ernest Rock Carling with an address on "Some Social and Economic Aspects of the Chronic Rheumatic Diseases." Other lecturers will include, Dr. Francis Bach, Dr. Grace Batten, Dr. Philip Ellman, Mr. Timbrell Fisher, Dr. Jackson Richmond, Dr. David Shaw, Dr. A. G. Signy, and Dr. Worster-Drought. Applications to attend the course should be made to the medical registrar, Rheumatism Unit, St. Stephen's Hospital, London, S.W.10, or to the Fellowship of Postgraduate Medicine, 1, Wimpole Street, London, W.1.

Safety in Chemical Works

The Association of British Chemical Manufacturers has arranged to hold a conference on "Safety in Chemical Works" on Oct. 7 to 9 at Scarborough.

French Dental Congress

The annual congress of the Confédération Nationale des Syndicats Dentaires will be held on Oct. 3–9 in Paris. Visitors from abroad are invited, and further information may be obtained from the secretary of the congress at 31, Rue Tronchet, Paris, 8e.

International Society of Medical Hydrology

The annual meeting of the International Society of Medical Hydrology will be held at Dax, Landes, France, from Oct. 9 to 15. Further particulars may be obtained on application to the honorary secretary, Dr. Donald Wilson, "Cranbourne," Southdown Road, Bognor Regis, Sussex.

SOCIETIES AND LECTURES

Monday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At Anatomy Lecture Theatre, Edinburgh University, Aug. 29, 4.30 p.m., "*Influenza in Perspective*," by Dr. C. H. Andrewes, F.R.S.

APPOINTMENTS

MACDOUGALL, IVOR ANDERSON, M.B.E., M.R.C.S., L.R.C.P., D.P.H., Medical Officer of Health and School Medical Officer to the County Borough of Bournemouth. (*From Feb. 26, 1950.*)

PRIESTMAN, AUSTIN, M.B., Ch.B., D.P.H., Temporary Medical Officer of Health, Borough of Richmond and Rural Districts of Richmond, Croft, and Startforth, Yorkshire.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Galewski.—On August 11, 1949, at Queen Charlotte Maternity Hospital, London, to Anna (née Galin), wife of Dr. Galewski, a daughter.

Rosenvinge.—On August 5, 1949, at Carlton Lodge, Harrogate, to Margaret (née Ogden), wife of Dr. Gerald O. Rosenvinge, of 35, Hookstone Drive, Harrogate, a brother for Louise and Stephen—Henry Paul.

MARRIAGE

Marciniec—Macfarlane.—On August 13, 1949, in London, Antoni Marciniec, Captain P.R.C., to Laura Helen Macfarlane, M.D., D.O.M.S.

DEATHS

Blampied.—On August 15, 1949, at Seymour Cottage, La Rocque, Jersey, Harold John Blampied, M.B., B.S., aged 56.

Chissell.—On August 15, 1949, at Middlesex Hospital, Gordon Frank Chissell, M.R.C.S., L.R.C.P., aged 53.

Gater.—On August 10, 1949, at Brighton, Horace James Gater, L.M.S.S.A., of Santos, Little Crescent, Rottingdean, Sussex, formerly of Peckham.

Green.—On August 19, 1949, Philip Withers Green M.R.C.S., L.R.C.P., of 5, Cheyne Gardens, Chelsea, London, S.W.

Hollings.—On August 13, 1949, Guy Bertram Hollings, M.D., F.R.C.S.Ed., of Torrington House, Berkhamsted, Herts.

Jackson-Taylor.—On August 18, 1949, Basil John Francis Jackson-Taylor, M.R.C.S., L.R.C.P.

Jameson.—On August 20, 1949, at 95, Bouverie Road, Folkestone, Archibald Douglas Jameson, M.R.C.S., L.R.C.P., Lieutenant-Colonel, R.A.M.C., Ret., aged 71.

Laidlaw.—On August 9, 1949, at 109, Grantchester Meadows, Cambridge, Janet Young Laidlaw, M.B., B.S., aged 66.

Leggat.—On August 8, 1949, at Wellington, New Zealand, Alexander Gordon Leggat, D.S.O., T.D., M.B., Ch.B., D.P.H., of Monkswood, Newbury.

Littlewood.—On August 1, 1949, at "Highfields," Woodhouse Road, Mansfield, Samuel Littlewood, M.B., B.S., aged 64.

Lyle.—On August 2, 1949, at "Moyle," Belmont Road, Belfast, William Lyle, M.B., B.Ch., B.A.O., M.P., aged 78.

Newfield.—On August 13, 1949, at Buck's House, Great Bardfield, Essex, Maurice Newfield, M.R.C.S., L.R.C.P., aged 55.

Owen.—On August 19, 1949, at Royal White Hart Hotel, Beaconsfield, Daniel Stanley Owen, L.S.A., late of Langford House, Higham Hill, Walthamstow, London, E.

Paterson.—On August 2, 1949, George William Murray Paterson, F.R.C.S.Ed., of 84, Oswald Road, Scunthorpe, Lincs.

Ramsay.—On July 26, 1949, at Edinburgh, James McAlister Ramsay, L.R.C.P &S.Ed., L.R.F.P.S.Glas., of 11, Brucehaven Crescent, Limekilns, Fife.

Scott.—On August 16, 1949, at Hill Crest, Sileby, Leics, Alexander Scott, M.B., Ch.B.

Steven.—On August 9, 1949, at "Ardglass," Lochgoilhead, George Henry Steven, M.B., Ch.B.

Stone.—On August 17, 1949, at Sedgewood, Vittoria Walk, Cheltenham, Charles Ainslie Stone, M.B., B.Ch., aged 70.

Symons.—On August 18, 1949, at 17, Boscombe Spa Road, Bournemouth, Annie Dorothea Symons, M.R.C.S., L.R.C.P.

Warwick.—On August 21, 1949, at the Middlesex Hospital, London, W., William Turner Warwick, F.R.C.S., of Fitzroy Farm Cottage, Highgate, London, N.

White.—On August 4, 1949, in Guernsey, Digby Cooke White, M.D., aged 81.

Whitelaw.—On August 14, 1949, at Osborne House, Bathampton, Bath, James Charles Graham Whitelaw, M.B., B.Chir., aged 43.

Willoughby.—On August 13, 1949, at St. Bartholomew's Hospital, London, William George Willoughby, M.D., of 17, Hartfield Square, Eastbourne, aged 83.

Wills.—On July 30, 1949, at Bath, James Tremlett Wills, M.B., B.Ch., aged 78.

Any Questions ?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Hypertension and Pregnancy

Q.—*A married woman aged 26 is anxious to have another child if it is not likely to damage her health. During her first pregnancy, which ended in a live birth, she suffered from high blood pressure. In the 32nd week of her second pregnancy her blood pressure was 145/95 mm. Hg; there was oedema of the ankles but no albuminuria. At the 36th week she went into labour and was delivered of a stillborn child weighing 3 lb. (1,360 g.) and an unhealthy, small, infarcted placenta. There were no foetal abnormalities. Her blood pressure is now 135/85 mm., and there is no albuminuria. What advice should I give her about another pregnancy?*

A.—The history suggests a diagnosis of essential hypertension rather than a recurrent pre-eclamptic state, and this despite the fact that the blood pressure is not much raised at present. Is there any family history of vascular disease? If this diagnosis is correct, it seems likely that another pregnancy will also be complicated by an exacerbation of the hypertension and possibly by albuminuria in the later weeks. In such event there is also an appreciable chance that the woman might be left with a persistently raised blood pressure. Although it is not inevitable, the next foetus is likely to be poorly developed, and its live birth could not be guaranteed. These points should be put to the patient, but it is doubtful whether the risks are grave enough to justify advising her not to embark on another pregnancy. It would, however, be wise for her not to try to conceive until two years after the last confinement, and at that time estimations of blood pressure and renal function should be made. During the next pregnancy she should rest for regular periods each day and should be kept under the closest observation. A rise in blood pressure or the appearance of albumin in the urine would call for her admission to a well-equipped maternity hospital, and in the interest of both mother and child premature termination of pregnancy might be necessary. The method of termination could be decided according to the circumstances present at the time, but caesarean section under local analgesia has its place in some of these cases.

Blood Circulation Time

Q.—*The fact that sodium dehydrocholate, when injected intravenously, gives rise to a bitter taste on the tongue has been utilized to determine the arm–tongue circulation time of the blood. The interval between the injection into a vein of the arm and the moment a bitter taste is experienced is generally reckoned to be from eleven to nineteen seconds. Over a similar distance—from a vein in the antecubital fossa to the olfactory nerve—by using a solution of sodium penicillin I have lately demonstrated a circulation time of eight seconds or less. Perhaps this is because the olfactory sense organ is more quickly stimulated. I should like to know wherein lies the flaw, as the figure arrived at by this method is only about half that generally accepted.*

A.—Determination of the circulation time, usually measured from the arm to the tongue, is a very complex affair. A high concentration of sodium dehydrocholate is produced in the veins of the arm into which the injection is made. This concentration, however, is considerably diluted in the great veins and in the right heart. Furthermore, rates of blood-flow through the different parts of the lung vary somewhat, and by the time the systemic arteries are reached the injected substance has been considerably diluted. The concentration in arterial blood begins to rise about the 9th to 12th second after injection, reaches a peak in 14 seconds, and thereafter

falls away more slowly. These phenomena have recently been well demonstrated by Prinzmetal and his colleagues (*J. Amer. med. Ass.*, 1949, 139, 617) by following the passage of injected radioactive sodium through the right and left heart with a Geiger counter placed over the chest.

It is clear that sensory perception of the arrival of these diluted test substances is governed by the sensitivity of the sensory end-organs and by the reaction-time of the patient. Presumably the olfactory perception of sodium penicillin is sensitive to much greater dilutions of the substance, and the very beginning of a rising concentration may be recognized. Sodium dehydrocholate is recognized only some seconds later when a greater concentration reaches the taste buds in the tongue. Alternatively, substances perceived by sense of smell may diffuse through the lungs, reaching the nose in the expired air. This is the basis of the arm-lung circulation time with injected ether, which is, of course, much shorter than the arm-tongue time. Some of the prolongations of circulation time in heart failure are due to dilution of the test substance in the dilated heart and engorged lungs. The patient simply does not perceive the smaller concentrations reaching his tongue until the delayed peak of concentration is attained, after which the taste may last an unduly long time. Rapid injection of the test substance is of the utmost technical importance if any comparative value is to be placed on circulation times for clinical assessment.

Jealousy in a Child

Q.—*I am the mother of two little boys. The elder, Peter, aged 4, is intensely jealous of the younger, Paul, aged 2½. The jealousy first appeared when Paul started to toddle and Peter constantly pushed him over. Now he hits him, teases him, refuses to let visitors speak to him, interrupts plans for little outings, etc., and screams and rages for anything that Paul is playing with. Paul in his early days was cared for mainly by my mother's help, as I was temporarily crippled and could not handle him. I tried to show Peter how much I loved him, and had him with me a good deal, but in order to achieve safety and peace for Paul I have often had to smack him. Paul is a shy, good-tempered, generous little boy. Peter gets on very well with other people and seems to have a charming personality, and I do want to help him to grow up well balanced. This temperament has appeared in older generations of the family, so I feel that it may be an inborn tendency rather than something that has arisen as a result of environment only. I would appreciate it if you could indicate a steady line of action.*

A.—The origin of Peter's extreme jealousy of Paul may well be connected with your prolonged disability. Although this had nothing to do with the latter's birth, it would certainly have appeared to the eighteen-months-old Paul as the work of the wicked baby who had damaged you and might do so again. It is quite possible that the word "jealousy" is out of place in this case, for, since the attacks on Paul did not start for about a year, it may be that Peter really wanted to like the new brother, and could do so as long as his inability to get about made him harmless. At the toddling stage, however, Paul's increased mobility would again make him appear as a danger against which you must be protected at all costs by the loyal Peter, who would then have been 2½ years old—a peak period in a child's attachment to his mother. This explanation, being in line with common fantasies of early childhood, is more likely to account for the trouble than can any theory of inborn tendency, especially as Peter has a charming personality otherwise. He is now at an age when companionship with his father might help by leading to adoption of the latter's attitude—"being like Daddy" towards Paul and yourself. Another suggestion is to tell Peter quite factually how your disability arose, making it clear that it had nothing to do with Paul. This might be followed by schemes in which you and he in partnership arrange things for Paul, so making him feel you are on his side, though obviously you must protect the younger son until there is a change of attitude, and this may take much time and patience. If these home measures do not succeed, as they may well do, it is likely that a fairly short period of child psychotherapy would be effective.

Mild Thyrotoxicosis

Q.—*In a mild case of primary thyrotoxicosis in a female aged 30 there appear to be three ways of treatment: (1) with Lugol's iodine; (2) with methyl thiouracil; and (3) by subtotal thyroidectomy. Some cases are effectively controlled by Lugol's iodine continued indefinitely; if this treatment is not enough, can it be supplemented with methyl thiouracil? What is the current relationship between medical and surgical treatment of mild early cases in patients under 30?*

A.—Most authorities would contest the statement that thyrotoxicosis can be controlled indefinitely by Lugol's solution. It is common experience that iodine has a rapid and short-lived effect, which reaches a maximum about three weeks after its administration is started. The available effective methods of treatment are with methyl thiouracil, by operation, and with methyl thiouracil followed by operation. In a mild case in a young woman, prolonged treatment with methyl thiouracil in small doses is a reasonable choice. At this age the disease is often self-limiting, and after nine to twelve months it may be possible to withdraw the drug without consequent relapse. Operation is to be preferred if there is a large goitre, and particularly if it has a retrosternal prolongation, for it may increase in size after medication with thiouracil. Many prefer preliminary "detoxication" with thiouracil, followed by thyroidectomy. An interval of three weeks should elapse between discontinuing the drug and the operation, and during this period Lugol's solution should be given. By this step the vascularity of the gland is decreased and the technical difficulties of the operation are lessened. It cannot yet be said that the relative positions of surgery and methyl thiouracil in the treatment of thyrotoxicosis have been precisely defined.

Acroparaesthesia

Q.—*A woman aged 44 has for three years complained of paraesthesia in the tips of her fingers, worse on the left than the right, and followed by a pain which spreads up the arms to the shoulders. These symptoms start when she gets warm in bed; the pain is worst after a day's washing. There are no abnormal physical signs: radial pulses are equal in rate and volume; sensation and reflexes are normal; there is no tenderness over the ulnar nerve; and the skin is normal in appearance. Please suggest diagnosis and treatment.*

A.—The condition as described is acroparaesthesia, which is fully discussed in textbooks. No physical signs are found when tingling is not present, but the hand is often red and puffy then. The condition is vascular, and is thought to be the same as release tingling.

Excessive Salivation

Q.—*In a female aged 56 suffering from progressive motor neurone disease the most distressing symptom is loss of control of salivation; the saliva pours from her mouth in a constant stream. The following drugs have had little or no effect: tincture of belladonna, stramonium, hyoscine, tincture of opium, and nicotinic acid. Can anything else be done to control the salivation?*

A.—This symptom is a very difficult one to treat, because in most cases it is the failure of the patient to control the salivation which causes the trouble. We do not know of any other substance which can be used, but atropine alone, if given in large enough doses, is sure to reduce salivation.

Sulphonamide Sensitivity

Q.—*A woman died of subacute necrosis of the liver as a result of sensitivity to sulphonamides. Is sensitivity to these drugs an inheritable factor, and is there a simple cutaneous test to determine such sensitivity?*

A.—There is no satisfactory skin test to determine sulphonamide sensitivity. Such sensitivity is not known to be inherited, and subacute necrosis of the liver, although sometimes attributed to the action of one of the sulphonamide drugs, is a rare and unusual sequel to their administration.

Alopecia Totalis

Q.—*Eighteen months ago a healthy woman aged 35 observed a small bald patch behind the ear. In spite of treatment the condition spread to involve the occiput and rapidly progressed to alopecia totalis; a few lanugo hairs are visible on the body, but no pubic or axillary hair, eyelashes, or eyebrows exist. The patient continues to menstruate normally and her weight remains constant. The scalp has been painted with a preparation containing radon as well as with liquor iodi fortis, and the patient has been given injections of testosterone propionate, but all to no avail. Is the prognosis quite hopeless so far as regeneration of scalp hair is concerned?*

A.—The alopecia is, of course, symptomatic and there must be some underlying cause, probably psychogenic or endocrine, even though it is not apparent. It is important to know whether the patient had previously suffered from alopecia or whether there is any family history of the affection. Prognosis depends on the underlying cause. There is probably no destruction of follicles, so that theoretically hair may regrow, but in practice the prognosis is generally bad.

Infection from Crockery

Q.—*Can you tell me if the use of glazed earthenware vessels may be detrimental to health owing to frequent crazing or fine cracking of the glaze allowing the entry of organisms? What is the risk in Britain, as compared with countries in the East?*

A.—Chipped and cracked cups, which are consequently impossible to clean, can convey bacteria from mouth to mouth and may therefore be concerned in transmitting throat and mouth infections, such as streptococcal sore throat and Vincent's angina; they have even been known to transmit syphilis. This does not apply to utensils used only in the kitchen, since there is no reason why they should become contaminated with pathogenic bacteria. The worst that bacteria in cracks in earthenware glaze are likely to do in ordinary circumstances is to cause the more rapid souring of milk. The same considerations would seem to apply in any country, except that in hot climates and without refrigeration bacterial growth would be more rapid.

Chronic Intermittent Priapism

Q.—*A man of 42 recently suffered for a few days from pain in the groin, with maximum tenderness over the right pubic bone where the cord passes over it. There was no abnormality of the cord and no rupture; both testes were descended and not swollen or painful. There was, however, a partial erection of the penis, which was painful from congestion, and a small hard lump was palpable underneath at the root of the organ. The patient had been circumcised, but gave a history of penile eczema from infancy to the age of 25. The skin of the penis, though intact, is easily irritated by slight trauma. There have been occasional similar attacks for a year or two. His sexual life seems to be normal. Can you suggest any treatment?*

A.—Persistent erection of the penis occurs with thrombosis of the corpora cavernosa, which may be of unknown causation or associated with various disorders of the blood; it is a well-recognized complication of chronic myeloid leukaemia. Although the congestion of the organ raises suspicions of a thrombotic origin, the recurrent attacks make it improbable. A chronic intermittent priapism is known to occur; it is sometimes associated with lesions in the posterior urethra or prostate or with disease of the central nervous system. These aspects of the case require investigation. No cause can be found in other instances, and treatment is then unsatisfactory. Some relief has been obtained with heat applied by the diathermy current, and occasionally irradiation is effective. The palpable nodule at the root of the penis raises the possibility of fibrous cavernositis or plastic induration of the penis. Priapism is not a usual symptom in this condition, which is again resistant to treatment, although some success has followed injections of fibrolysin into the lesions.

Sodium Glutamate

Q.—*What are the chemical and physical properties, physiological actions, method of manufacture, etc., of sodium glutamate?*

A.—Sodium glutamate is the sodium salt of glutamic acid—a simple amino-acid which occurs in food protein and as part of the molecule of folic acid. Its structure may be thought of as a compound of acetic acid and the amino-acid alanine. Alanine is $H\text{–}CH_2.CH.NH_2.COOH$, while acetic acid is $H\text{–}CH_2.COOH$. If H is removed from each substance and the residues are joined, the result is glutamic acid. Like other amino-acids, it has no physiological action. Its manufacture is indicated by the structure.

NOTES AND COMMENTS

Delirium Tremens.—Dr. A. E. CARVER (Nuneaton) writes: I was shocked to read in answer to the question, "What is the best treatment for delirium tremens?" ("Any Questions?" July 23, p. 242), that small doses of alcohol plus intramuscular injections of 2 dr. (8 g.) of paraldehyde were recommended. Although D.T. is not now so common as it used to be in my young days, I did think that there was general agreement among those called upon to deal with it that once it was established alcohol should be immediately and completely cut off, since its exhibition has been found to prolong this brief psychosis. In long-standing topers, who alone are subject to D.T., a small quantity of alcohol is irritating, not soothing. Forty and more years ago there was an idea that D.T. was due to an excess of some hypothetical anti-alcohol substance in the body and that giving alcohol would neutralize this, but such an idea has long since been disproved. Healthy heavy drinkers sent to prison and abruptly cut off alcohol do not develop D.T. Some trauma or acute disease (e.g., broken leg or pneumonia) seems to be a necessary precipitating factor, and the welfare of the patient depends far more upon how this is attended to than upon the restless delirium, which usually is controllable by repeated small injections of hyoscine hydrobromide. Other sedatives and hot packs may also be employed, but intramuscular injections of paraldehyde should certainly be eschewed. I wonder whether he who answers the question has tried them.

Sulphur-containing Sweat.—Dr. J. N. MORRIS (Stoke, Plymouth) writes: In "Any Questions?" (July 16, p. 189) sulphur-containing sweat is discussed. I have known this condition to follow the taking of Epsom salts or other sulphur-containing laxatives. This may be the explanation in your correspondent's case.

Miss W. JOAN WADGE, F.R.C.S. (London, W.), writes: With reference to the question and answer under this heading ("Any Questions?" July 16, p. 189), I have seen this in patients who were applying a sulphur-containing liniment to the skin (elsewhere than on the hands). Bowel function was normal.

Bee-stings.—Dr. W. K. WENNER (Upper Montclair, New Jersey) writes: With regard to the question on bee-stings in the *Journal* (June 11, p. 1061), may I draw your attention to a paper by W. T. Strauss (*J. Amer. med. Ass.*, 1949, **140**, 603), who reports good results by topical application of the antihistamine "thephorin" (2-methyl-9-phenyl-2,3,4,9-tetrahydro-1-pyridindene hydrogen tartrate)?

Anaesthetics for Domiciliary Midwifery.—Dr. S. RANSOM (Obstetric Unit, University College Hospital, London, W.C.) writes: I am glad that Dr. J. E. M. Barnes (Aug. 6, p. 346) has drawn attention to the misleading statement that the Cyprane inhaler can produce anaesthesia. We in this department at any rate have not been able to use the apparatus for this purpose, though we found it satisfactory for producing analgesia.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Alliology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 27 1949

British Medical Association

REPORT OF GENERAL MEDICAL SERVICES COMMITTEE, 1948

Chairman

Dr. S. Wand was appointed Chairman for the session 1948–9.

Dr. E. A. Gregg

The Committee takes this opportunity of placing on record its appreciation of the services of Dr. E. A. Gregg as Chairman of the Insurance Acts Committee for many years, and of his unfailing devotion to the interests of general medical practitioners.

Obituary

The Committee regrets to report the deaths of Dr. J. W. Bone (Luton), Dr. E. Lewis Lilley (Leicester), Dr. L. J. Picton (Holmes Chapel, Cheshire), and Dr. J. W. Leach (Beauly, Inverness), all of whom were members of the Insurance Acts Committee for many years.

Dr. Bone will be remembered for his valuable services as Treasurer of the National Insurance Defence Trust, and Dr. Lewis Lilley, whose special interest was pharmacology, was chosen as the Chairman of the Special Committee which compiled the first *National Formulary*.

Nominees on Ministry of Health Distribution Committees

The following nominees were accepted by the Ministry for appointment to the Central Distribution Committees for 1948–9 :

International Distribution Committee : Dr. E. A. Gregg (London), Dr. W. M. Knox (Glasgow), Dr. J. D. Wells (Billericay, Essex), and Dr. E. J. Rees (Pontypridd).

Distribution Committee for England and Wales : Dr. E. A. Gregg (London), Dr. W. Woolley (Bristol), Dr. E. J. Rees (Pontypridd), and the Secretary of the General Medical Services Committee of the B.M.A.; together with Dr. J. C. Pearce (Diss, Norfolk), Dr. J. D. Wells (Billericay, Essex), and Dr. C. F. R. Killick (Williton, Somerset), when questions concerning mileage are under consideration.

Medical Practices Committee

The medical profession's nominees on the Medical Practices Committee are : Dr. W. E. Dornan (Sheffield) (Chairman), Dr. P. V. Anderson (Shildon, Co. Durham), Dr. D. B. Evans (Wrexham), Dr. Annis Gillie (London), Dr. J. F. Murphy (London), Dr. J. C. Pearce (Diss, Norfolk), and Dr. J. A. Pridham (Weymouth).

Informal discussions have taken place during the session between members of the Committee and the medical members of the Medical Practices Committee. These discussions have been of value, and it is intended to maintain this useful liaison between the two Committees.

Central Health Services Council—Standing Medical Advisory Committee

The Chairman of the Committee was one of the Association's nominees for appointment to the Standing Medical Advisory Committee of the Central Health Services Council. Having regard to the status of the General Medical Services Committee as the recognized executive of general medical practitioners, the Committee feels that it is a matter of regret that the Minister has not seen his way to include the Chairman of this Committee in the personnel of the Central Health Services Council's Standing Medical Advisory Committee.

Joint Subcommittee of the Medical and Pharmaceutical Committees

Dr. W. Woolley (Bristol) was nominated for appointment to the Joint Subcommittee of the Medical and Pharmaceutical Committees of the Central Health Services Council.

Compensation Appeals Tribunal

An invitation was received from the Ministry of Health to nominate a practitioner to act as a medical assessor to the Appeals Tribunal, set up to deal with the situation where a practitioner is aggrieved by the assessment of the annual value of the goodwill of his practice. The Committee nominated Dr. A. N. Mathias (London, N.W.) for the appointment.

Joint Pricing Committee of England

Dr. Joel Green (London) was appointed to fill the vacancy on the Joint Pricing Committee of England caused by the death of E. Lewis Lilley.

CONSTITUTION OF GENERAL MEDICAL SERVICES COMMITTEE

The 1948 Annual Conference (Minute 19) requested the Committee "to review the mode of election and representation to the Committee and to report thereon." Also, it was suggested, in a motion referred to the Committee, that the Committee might be "reconstituted to form the executive body of all general medical practitioners, grouped within the framework of the B.M.A. into areas corresponding to the present B.M.A. Divisions." These suggestions have been carefully considered, but, having regard to the similarity between the local and central administrative structure of the old N.H.I. medical service and the corresponding service under the new Act, the conclusion reached is that very little change is necessary in the constitution of the new Committee.

The grouping of areas for the election of direct representatives of Local Medical Committees on the Committee has been carefully examined, and it is here that changes are recommended. Hitherto, numerical considerations have been regarded as more important than geographical considerations. In considering the future grouping of Local Medical Committees the Committee has borne in mind that Regional Hospital areas and the B.M.A. branch and division areas are not coterminous with Local Executive Council and Local Medical Committee areas, and the Committee has come to the conclusion that grouping for the election of direct representatives must be based on Local Medical Committee areas. Effective representation of these areas calls for a revision of the old grouping, and the Committee's proposals provide for an increase from 27 to 33 members directly elected.

It is felt that there is a strong case for retaining in the membership of the Committee a number of practitioners who

are elected by an "informed electorate" on their personal qualities, whatever the character or size of the area they represent. This would be achieved by the retention of the election of six members by the Annual Conference.

The question of co-option has been reviewed. It is proposed that the Committee should have power to co-opt up to four members, if necessary, to secure representation of a particular class of experience not otherwise represented on the Committee —e.g., a rural practitioner, a general practitioner not in the Service, a general practitioner employed also as a part-time specialist, etc.

Great importance is attached to the establishment of an effective liaison between the G.M.S. Committee and the Central Consultants and Specialists Committee. Two is considered to be the minimum for effective representation on each Committee.

Subject to the approval of the Conference, the constitution of the Committee for 1950–1 will be as follows:

5 *ex officio* (President of the B.M.A., Chairman of Representative Body, Chairman of Council, Treasurer, and Chairman of Conferences of Representatives of Local Medical Committees).
6 members elected by the Representative Body (4 for England and Wales, 1 for Scotland and 1 for Northern Ireland).
33 members elected on a territorial basis by Local Medical Committees in Great Britain and Northern Ireland.
6 members elected by the Annual Conference.
2 members nominated by the Central Consultants and Specialists Committee.
1 member nominated by the Medical Women's Federation.
1 member nominated by the Society of Medical Officers of Health.

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with power to co-opt not more than four members, if necessary, to secure representation of medical practitioners of a particular class of experience not otherwise represented on the Committee.

Details of the grouping for the election of 33 direct representatives are given in Appendix "A."

RECOMMENDATION: That approval be given to the proposals in paragraphs 12–17 of the Report on the reconstitution of the General Medical Services Committee.

STANDING ORDERS OF CONFERENCES OF REPRESENTATIVES OF LOCAL MEDICAL COMMITTEES

The Standing Orders of the Conference have been reviewed and note has been taken of the suggestions made by the Conference for their amendment. The Committee also considered a proposal referred to it, that where two areas have been merged for Executive Council and Local Medical Committee purposes, the previous representation at the Annual Conference should be retained. The conclusion reached, however, is that representation must be based upon new Local Medical Committee areas, and that regard cannot now be had to a situation which no longer exists.

The proposed new Standing Orders are set out in Appendix "B," and will be incorporated in the Agenda of the forthcoming Annual Conference, for adoption or amendment by the Conference.

DATE OF FUTURE ANNUAL CONFERENCE

It has been customary to hold the Annual Conference of Representatives of Local Medical Committees in the autumn. This custom has certain disadvantages. It means that the Executive of the Conference—the General Medical Services Committee—is not complete and therefore unable properly to begin the work of the new session until the Conference has elected its six representatives on the Committee: nor is the Committee at its first meeting in the new session in possession of the views of the Conference on various outstanding matters. In other words, a late start is made on the Committee's work for the session.

It is felt that there would be advantages in holding the Annual Conference in the early summer, so that the new Committee may have its first meeting in, say, July. This would give the Committee a better opportunity of preparing for the main part of its work in the early autumn, instead of, as at present, some time in November or December. A summer Conference nearer the time of the Annual Representative Meeting of the B.M.A. would enable the views of both bodies on subjects of mutual interest to be co-ordinated. Subject to the approval of the Conference, the following Standing Order giving effect to this proposal will become effective in the summer of 1950:

(i) *Annual Conference of Representatives of Local Medical Committees.*—The General Medical Services Committee shall convene each year a Conference of Representatives of Local Medical Committees. The Conference shall ordinarily be held in June.

CONSULTATIONS ON REGULATIONS AND INSTRUCTIONS

The Ministry was asked for an assurance that the Committee would be consulted before any statutory orders were promulgated or instructions issued by the Department to Local Executive Councils or other bodies on matters of principle affecting doctors rendering services under Part IV of the Act. The Ministry has accepted "the general principle that the profession's representatives should be consulted on points of major principle involving regulations."

REMUNERATION

The 1948 Annual Conference instructed the Committee to take action "to secure an adequate overall increase in the capitation fee in order to relieve a serious hardship resulting from the new Service." The Committee began the task of carrying out this instruction by instituting an inquiry, to determine whether or to what extent the current incomes of general medical practitioners were in accordance with the main recommendations of the Spens Committee. Five areas were chosen —Lancashire, Norfolk, Bath, Halifax, and Nottinghamshire and Nottingham—and the figures obtained from these areas showed that, generally speaking, the "spread" of incomes in the 40–50 age group was in accordance with the Spens recommendation.

If these figures can be regarded as typical of the country as a whole, there remains the question of the "betterment" factor and the adequacy of the Central Pool, and on March 3 a Special Conference of Representatives of Local Medical Committees was called to consider the Committee's memorandum on the subject (M22, published in the *Supplement* of Feb. 19). In this memorandum the whole question of the adequacy of general-practitioner remuneration was discussed in detail, and the conclusion reached was that the Central Pool ought to be increased by approximately £16½ million. This conclusion was based largely upon an expert economist's calculation (*Supplement*, Jan. 22) that the change in the cost of living of professional classes between 1939 and the end of 1948 represented an increase of 85%. It also took account of the increased number of practitioners in the Service over and above the estimate upon which the Ministry based the present Central Pool.

The Committee's memorandum went on to recommend that any additional money made available in the Central Pool by the application of a proper betterment factor and an adjustment in relation to the increased number of practitioners in the Service should be devoted entirely to an augmentation of the capitation fee for the first thousand on all practitioners' lists. The effect of this would be to increase the remuneration of all practitioners while increasing the rate of remuneration of practitioners with smaller lists to a relatively higher extent.

The memorandum was approved by the Special Conference as the basis of the general-practitioner case, and the Committee was instructed "to press the Government as a matter of urgency to adjust general-practitioner remuneration on the basis of the memorandum, the adjustment being retrospective

to July 5, 1948." The memorandum and resolution of the Conference were sent to the Ministry on March 4. On April 14 it was learned that the Ministry had decided that insufficient information was available on which to assess how far the Spens recommendations were being implemented. The main factors were the number of doctors in the Service and the total amount each doctor was receiving from N.H.S. funds. Neither of these factors was known to the Ministry with any degree of precision, and a national inquiry had been instituted from the results of which it was anticipated definite conclusions could be reached. The Ministry hoped its inquiry would be available within a month, when its representatives would be in a better position to discuss the profession's claim for an increase in the Central Pool.

In the course of the discussion on April 14 the Ministry's representatives indicated that there could be no assurance that any improvement in remuneration which might emerge from this inquiry and subsequent negotiations would be applied retrospectively to July 5, 1948. Further, when asked what the position would be if, having raised the question of general-practitioner remuneration through Whitley machinery and in the event of disagreement, the G.M.S. Committee sought arbitration, the reply given was: "It must not be assumed without further discussion that participation in the Whitley machinery necessarily involves, in the event of disagreement, the right to resort compulsorily to arbitration on all subjects."

It was made quite clear to the Ministry's representatives that the statements on these two points were very unsatisfactory. It was regarded as unreasonable to inform the profession that it might not receive any increase in the "pool" retrospectively to July 5, 1948. The Ministry received ample notice of the profession's intention to raise the question of "betterment," and the profession was entitled to arrears of payment on this issue and on any increase in the number of general practitioners in the Service over and above the number (17,900) which was a factor in calculating the Central Pool before the appointed day.

On the question of arbitration, it was pointed out that the Ministry's statement was in conflict with repeated assurances given by Ministers, both in Parliament and personally, to representatives of the profession.

The Committee decided that no positive action could usefully be taken until the result of the inquiry undertaken by the Ministry was available. It was felt, however, to be necessary to place on record the profession's dissatisfaction with certain statements made to its representatives, and the following resolutions were sent to the Ministry:

"That the Committee records its dissatisfaction with the Ministry's inability to state, nine months after the appointed day, the number of principals taking part in the Service, and with the statement that, in so far as the Central Pool may prove to have been inadequate for the first nine months of the Service, any increase may not be adjusted retrospectively to the appointed day.

"That, in view of the statements made by responsible Ministers prior to the appointed day, the Committee is of opinion that the Ministry's view that disputes concerning remuneration referred through Whitley machinery do not carry the right to arbitration on either side is a gross breach of faith."

As stated in an earlier paragraph, the Ministry anticipated that the figures Executive Councils were being asked to furnish would be summarized and available by the middle of May, but it was learned subsequently that the result of the inquiry would not be available for many weeks. A request was therefore made for an interview with the Minister himself. On June 2 the Chairman and Secretary met the Minister, and the latter insisted that before any comparison could be made with the Spens Committee's recommendation it would be necessary to know what each doctor was earning, not only from the capitation fee but from all N.H.S. sources. Attempts to press the matter of the global sum were met with repeated reference to the necessity of computing each individual doctor's income before any decision could be made.

The Minister was informed that in certain circumstances the Committee might wish to ask for arbitration. While he did not rule out the possibility of arbitration being granted, he was unwilling to discuss this in relation to higher income groups. He repeated what had already been said by his officers, that participation in Whitley machinery did not carry the automatic right to seek arbitration on all matters.

The Minister was left in no doubt that the profession would be greatly disturbed at the turn which events had taken in the matter of arbitration. Subsequently, the Committee decided that, while no useful action could be taken on the question of the global sum until the result of the Ministry's inquiry was available, the profession should be fully informed of the seriousness of the situation and the vital need to preserve the right to a settlement by arbitration if agreement by negotiation could not be secured.

Following negotiations between the Joint Committee for Consultants and the Ministry on the terms and conditions of service for hospital medical and dental staffs, the following modified statement was issued by the Department:

The Ministry has agreed—

(*a*) That no changes will be made in the terms and conditions of service without discussion in the appropriate part of the Whitley machinery, when established, and this will be established as soon as possible.

(*b*) That remuneration is a subject which is suitable for arbitration.

(*c*) That save in exceptional circumstances, and after the conciliation machinery of Whitley has been exhausted, issues of remuneration remaining in dispute will go either to arbitration or for inquiry and report by a committee.

The G.M.S. Committee decided that this formula went some distance towards meeting the position of the general practitioners, and agreed to accept it without prejudice to any action it may be necessary to take when it is seen how the formula is applied.

Subsequently it was learnt that the detailed figures would be available at the end of July, and it is intended to reopen negotiations as soon as the Committee has had an opportunity of studying the figures. A special meeting of the Committee for this purpose is to be held on Aug. 31, if the figures are available in time.

MILEAGE

Very early in the Committee's deliberations on the subject of remuneration it became evident that many rural doctors throughout the country were in serious financial difficulties. Some would be able to carry on only if help was speedily forthcoming: others were considering practices in more populous areas. In some of the very remote parts of England and Wales the borders of medical practice are governed not by population but by geographical boundaries which are particularly effective in winter. Any depletion of doctors in these areas would be disastrous, but the possibility could not be excluded unless urgent remedies were applied.

Alleviation of the position of rural doctors seemed to be possible by only two methods—immediate and generous payments from the Special Inducements Fund, and/or a substantial increase in the Central Mileage Fund. There was a general reluctance on the part of doctors generally to apply for grants from the Special Inducements Fund because it seemed to them to be a form of "public assistance." Urgent representations were therefore made for a substantial increase in mileage payments, and the Ministry agreed to the Committee's recommendation that the Central Mileage Fund should be increased from £1.3 million to £2 million, the new money to be found from sources other than the Central Practitioners' Fund. The increase of £700,000 a year is made up of £200,000 from the Special Inducements Fund and a new Treasury grant of £500,000. Thus, the pre-war Mileage Fund of £600,000 has been more than trebled, and it is believed that the new money has gone a long way towards easing the financial position of rural practitioners.

The Committee's Rural Practitioners' Subcommittee has instituted an inquiry with the object of discovering, by comparison with the position which existed under the N.H.I. Act, the increase in the total number of patients in respect of whom mileage is claimed, the number of doctors claiming mileage, and the total number of mileage units claimed. Proposals for dealing with claims for special difficulties, such as footpaths under winter conditions, are also under consideration.

TEMPORARY RESIDENTS

Under the National Health Insurance Act the allocation to, and the charges against, individual Local Practitioners' Funds on account of temporary residents were based upon data furnished by Insurance Committees. The returns from Insurance Committees gave the number accepted by doctors, distinguishing between "ordinary" and "convalescent home" temporary residents. The payment from the Central Practitioners' Fund was 8s. for each ordinary temporary resident and 1s. for each convalescent home temporary resident, and each area was debited or credited on this basis. It involved a considerable amount of clerical work centrally for a relatively small sum before each area's "loading" could be determined.

Under the National Health Service the Ministry of Health obtained from every Executive Council a return showing the number of claims for temporary residents. Without making any "plus" and "minus" adjustment, each Executive Council was credited for the first two quarters (July to December, 1948) with 8s. for each temporary resident claimed.

The Committee felt that an increase in the unit value of a temporary resident was justified, but that any increase must be fair without being an unduly heavy charge on the Central Practitioners' Fund. After careful consideration it was decided

(*a*) that the amount deducted from the Central Practitioners' Fund for the treatment of temporary residents should be distributed to Executive Councils on a uniform basis in accordance with the number of claims from each area;

(*b*) that the value of the unit to be paid from the Central Practitioners' Fund should be 15s. for each ordinary temporary resident, and (provisionally) 2s. 6d. for each temporary resident in a convalescent home, to be reviewed in the light of experience and further information as to the number of claims received; and

(*c*) that claims for mileage for temporary residents should be charged to the Mileage Fund and not to the Central Practitioners' Fund for treatment purposes.

The Committee did not feel that it could make any recommendation in regard to the basis of distribution of the moneys received by Executive Councils for temporary residents, believing that this was entirely a matter for each area to determine by joint consultation between the Executive Council and the Local Medical Committee.

There appears to be some doubt as to the circumstances in which a claim for a temporary resident fee may be made. In the absence of a definition it is possible for a doctor to take a patient on his list as a temporary resident and claim a fee regardless of whether any treatment is given. The Committee considers that temporary resident credits should be given only in those cases in which medical treatment has been given, and the Ministry of Health has agreed to make this clear in the distribution scheme which is now in course of preparation. The Committee's definition would also apply to patients in convalescent homes.

BASIC SALARY

Circulars issued by the Ministry of Health to Executive Councils show that the Minister has allowed appeals against the disapproval of applications for basic salary in cases where the applicants have only recently established themselves in the area. The effect of granting basic salary to such practitioners is to subsidize them at the expense of their professional colleagues in the area, and it is contended that this is contrary to the Minister's original intention that doctors should not be encouraged to go to areas where they are not needed.

The Minister's attitude is understood to be that, having agreed with the profession's view that, up to the appointed day, every medical practitioner should have a right to choose the area in which he would enter the National Health Service, it would be impracticable to take any action which could be construed as being in conflict with that view. It is claimed that, subsequent to July 5, the Minister's responsibility was to consider, on its merits, every appeal against the disallowance of a claim for basic salary, without regard to the circumstances in which the appellant came to the district before July 5, 1948.

The Minister was asked to make provision in the proposed Amending Bill or Regulations for an appeal from the decision of a Local Executive Council on an application for basic salary to be made to the Medical Practices Committee and not to the Minister.

INFLATION OF DOCTORS' LISTS

In May last there were 20 Executive Council areas in each of which the numbers on doctors' lists were, in the aggregate, more than the estimated population of the area. This fact is quoted as evidence of the marked degree of inflation of doctors' lists, the main causes of which are:

1. Existence of a certain amount of inflation before the appointed day, partly from wartime difficulties and partly from the failure of some approved societies to notify "exits."

2. The decision not to remove from doctors' lists the names of persons whose insurance was due to terminate on June 30, 1948. The numbers were fairly substantial, being largely people who had taken up work during the war or had continued to work when they might otherwise have retired, and who ceased to be employed between June 30, 1946, and Dec. 31, 1946.

3. The action of many insured persons in completing form E.C.1. The identification of duplicates involved a tremendous amount of work and was made more difficult by conflicting or insufficient information on form E.C.1, and the completion of more than one E.C.1 by a number of insured persons and by others who did not immediately receive a medical card.

4. The appearance of some persons' names on more than one doctor's list not necessarily within the same Executive Council area. Some of these were insured persons before July 5, 1948.

5. Removal of a person from one Executive Council area to another where registration is effected with a doctor in the new area without disclosure of the fact that the patient is on the list of a doctor in the other area.

6. Men going into the Forces receive a new identity number when they return to civil life. Representations have been made with a view to the retention of the old number.

The position has been discussed with the Ministry with the object of checking the causes of inflation or bringing them within reasonable limits. The elimination of duplicate names—perhaps the main cause—will be a lengthy process, owing to the need for inquiry in many cases where duplication is suspected but cannot be established from Executive Council records. Constant scrutiny of lists will help to reduce duplication, but many cases will be resolved only by personal inquiry of the persons concerned. In this connexion it is felt that the provision of reply-paid envelopes or labels might secure a higher percentage of replies. Doctors and patients can help by notifying Executive Councils of changes of address and by completing form E.C.1 only where one has not previously been completed and where no medical card is held.

The Ministry has undertaken to do everything possible to speed up the process of clearing doctors' lists. If no substantial reduction of inflation is effected by 1951, when the new census is taken, consideration will be given to the establishment of a Central Index Register, which the Ministry regards as quite impracticable at the present time.

New Form E.C.1

The readiness with which the present form E.C.1 is available and can be used, even when a medical card is available and ought to have been used, is responsible for a certain amount of inflation of doctors' lists. It often happens that a person who cannot find his medical card, instead of getting a new one, completes another form E.C.1, and the information given on that form may not reveal the fact that the person is already on another doctor's list. It has been decided, therefore, that it would be useful to have a simpler form which would be available only from doctors or the offices of Executive Councils. The new form will contain a declaration to be made by the person completing it, stating that the applicant "is not already on the list of a doctor in this or any other area."

REMOVAL OF NAMES FROM DOCTORS' LISTS

The Ministry has accepted the Committee's suggestion that when a notice or medical card is returned to the Executive Council through the Dead Letter Office the person's name should not be removed automatically from the doctor's list before six months have elapsed, during which time the doctor will be given an opportunity of supplying information as to the patient's whereabouts.

ANAESTHETICS



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MISSING INFORMATION ON FORMS E.C.1

Complaints were received that some Executive Councils were asking doctors to obtain information which patients had failed to give on form E.C.1. The point was taken up with the Ministry, who agreed that it was the duty of the Executive Council to apply direct to the patient for the missing information.

FILLING OF VACANCIES CAUSED BY DEATH OR RETIREMENT

Two informal conferences were held between representatives of the Committee and the medical members of the Medical Practices Committee, at which representatives of the Scottish Medical Practices Committee were present. At these conferences questions which were giving rise to difficulties in connexion with vacancies caused by the death or retirement of doctors were discussed. As a result, the Ministry was asked to provide in the Amending Bill for

(*a*) the law to be brought into conformity with the Minister's promise that, in all areas except those where the Medical Practices Committee has decided that no more doctors are needed in the Service, the consent of that Committee to applications for inclusion in the medical list will be automatic;

(*b*) the filling of a declared vacancy to be followed automatically by the "block" transfer of the patients by the Medical Practices Committee, the transfer being made to the practitioner finally selected;

(*c*) power being given to Local Executive Councils to remove from their lists practitioners (other than those compulsorily recruited to H.M. Forces) no longer working in the area and no longer providing the appropriate premises;

(This point was subsequently included in the Amending Bill.)

(*d*) the right of appeal by an Executive Council to the Minister when the Medical Practices Committee has reversed the decision of the Council.

A new form (to be known as E.C. 16A) is in course of preparation for use by applicants for an advertised vacancy. Amending regulations are also being drafted (*a*) to provide that *all* applications received for an advertised vacancy (including those made by applicants already on the list) shall be referred to the Medical Practices Committee, who would make the selection, and (*b*) to extend the right of appeal to *all* unsuccessful applicants. At present those already on the list have no such right of appeal.

It is understood that the Treasury will sanction only third-class travelling expenses for doctors who are candidates appearing before an Executive Council in connexion with a vacancy in the area. The Ministry has undertaken to make further representations to the Treasury on the subject.

VOLUME OF WORK DONE BY GENERAL PRACTITIONERS

The volume of work general practitioners would be called upon to do could not be assessed when the Service commenced, and, in the absence of reliable data, could not be taken into consideration during the discussions on remuneration. As a first step towards obtaining reliable data, the Committee has decided to conduct a special investigation covering a period of one year. A similar investigation was undertaken in 1938–9, but, although the results confirmed figures previously obtained by another method, the abandonment of the Insurance Acts Committee's application for increased remuneration (owing to the outbreak of war) meant that they could not be used. This new inquiry, which will begin in October, will be under the supervision of an expert statistician.

VACCINATION AND IMMUNIZATION

Discussions with representatives of Local Authorities on the fees to be paid for vaccination and immunization were adjourned until the Committee had settled with the Ministry of Health the question whether these services fall within the scope of a general practitioner's agreement under the National Health Service Act. The Ministry has now agreed that the submission of a report is not the only factor to be taken into account in fixing appropriate remuneration for these services, and has been asked to reopen discussions with the Local Authorities Associations as soon as possible. To hasten these negotiations the Committee has informed the Ministry that unless discussions on the fees to be paid for vaccination and immunization are reopened forthwith the Committee will take no steps to discourage Local Medical Committees from advising their constituents not to send records of persons vaccinated and immunized to local authorities. Any settlement will cover all cases dealt with since July 5, 1948.

CERTIFICATION

Inter-Departmental Committee

Representatives of the Committee (Drs. S. Wand, E. A. Gregg, and F. Gray) have given oral evidence before the Inter-Departmental Committee on Certification.

Hospital Out-patients

The Ministry of Health suggested that forms Med. 7 and 8 for use in connexion with long-stay patients in hospitals might be adapted for issue to out-patients. The Committee took no exception to the proposal, but expressed the hope that appropriate steps would be taken to ensure the maintenance of a high standard of certification.

Certificates for Juveniles and Non-employed Persons

Inquiry was made as to whether it was part of the general practitioner's terms of service to give certificates free of charge to juvenile and non-employed persons who did not require such certificates for National Insurance purposes. The Ministry pointed out that, so far as juveniles were concerned, a certificate was required in order to get a "credit" and to obviate the requirement of a stamp. The suggestion that this is a matter which should be taken up with the Inter-Departmental Committee on Certification has been adopted.

Certification for Surgical Corsets

Discussions have taken place with representatives of the Ministry of Health and the Board of Trade with a view to relieving practitioners of the burden of certification for surgical corsets. The Ministry and the Board have agreed to waive the requirement, and an appropriate circular has been issued to the trade. The Customs and Excise, however, still require a medical certificate to substantiate a patient's claim for exemption from purchase tax, and until this latter point has been cleared up a medical certificate is still necessary.

Certification of Contacts

The Committee has taken up with the Ministry of National Insurance an instruction to the effect that, in certain circumstances, only a certificate issued by a Medical Officer of Health to a suspected carrier or contact in cases of infectious diseases would be recognized for National Insurance purposes. The Committee has been assured by the Ministry that this instruction was issued with purely epidemiological considerations in mind, and that there is no intention of encroaching on the rightful province of the family doctor.

Morbidity Statistics

General approval has been given to a proposal by the Ministry of National Insurance that the final medical certificate should be used in the compilation of morbidity statistics.

DISPENSING AND PRESCRIBING

Provision of Medicines and Appliances for Private Patients

There is general agreement among general practitioners that patients who wish to make private arrangements for medical attention and treatment should not be debarred from obtaining necessary medicines and appliances through the National Health Service. This question has been pressed on the Ministry of Health, whose view is that prescribing and dispensing are essential parts of treatment and cannot be dealt with as though

they are something separate. The Ministry was asked to consider the possibility of making available, through the Hospital Service, to patients treated privately, particularly expensive and life-saving medicines (insulin and liver preparations, etc.) where the cost would represent hardship to the individual, but the Ministry does not think that any workable arrangement on these lines is possible. Efforts have been made to secure an amendment of the Act to give effect to the profession's wishes in this matter.

Dispensing Capitation Fee

The Ministry's offer of a capitation fee of 6s. 6d., in England and Wales, to cover the provision of medicines and appliances (except those contained in a special list) for patients who would otherwise have difficulty in obtaining them from a chemist has been accepted without prejudice to revision as a result of negotiations at a later date. Before the fee is reviewed, there will be an investigation into dispensing costs. Doctors who are required to dispense for their patients may, of course, choose the alternative method of being paid, namely, on a "cost per prescription" basis.

Medicines and Appliances for Doctors' Surgeries

The Ministry has been asked to accept the Committee's suggestion that doctors should be allowed to order, on official prescription forms, stocks of medicines and dressings for emergency use in surgeries. Scottish general practitioners already enjoy this privilege.

List of Appliances

The Ministry has been asked to include the following in the list of appliances and chemical reagents which general practitioners may prescribe for their patients:

B.L.B. mask for the administration of oxygen (where not already provided by the local health authority).
"Cellanband" bandage.
"Clinitest" apparatus (under "chemical reagents").
Adhesive sponge rubber.

It has been suggested also that the words "as described in the Drug Tariff" should be deleted from the reference to dressings, thus giving the doctor greater freedom in prescribing them.

The Ministry has indicated that it is not possible to allow general practitioners complete freedom to prescribe surgical appliances. The Department is prepared, however, to receive suggestions for a list of surgical appliances which it is considered general practitioners should be able to prescribe without referring the patient to the Hospital Service, and such a list is now in course of preparation.

Specially Expensive Drugs and Appliances

The Ministry has agreed to add ethisterone to the list of drugs and appliances and reagents for the supply of which dispensing doctors paid by capitation fee receive payment over and above such fee.

The Committee also asked for the inclusion of (*a*) hypodermic syringes and needles (for all purposes, and not only for the self-administration of insulin or adrenaline, as at present), (*b*) "clinitest" apparatus, and (*c*) all sulphonamide drugs. So far as (*a*) and (*b*) are concerned, their inclusion would necessitate an amendment of the Regulations, which is under consideration as they are not at present permitted to be supplied at all under the general medical services. On the question of sulphonamide drugs, the Ministry is not agreeable to the inclusion of all of them, but is willing to consider any suggestions the Committee may wish to make. The Ministry has agreed to continue, on a temporary basis, the arrangement in force under the N.H.I. Act which permitted dispensing doctors to submit claims for special payment in cases where the cost of dispensing was abnormally high. The minimum amount it will be possible to claim under this heading is twenty shillings in respect of one quarter. The arrangement will be reviewed concurrently with the review of the dispensing capitation fee.

Pessaries and Dutch Caps

The Ministry suggested, and the Committee agreed, that doctors should be permitted to supply pessaries under the Service, and paragraph 7 (9) (ii) of the terms of service has been amended accordingly.

The Committee's suggestion that Dutch caps should also be included was not accepted by the Ministry, but it is understood that this is part of the wider question of contraceptive advice by general practitioners now under consideration by the Standing Medical Advisory Committee of the Central Health Services Committee.

Prescription Books

The present unsatisfactory "lay-out" of the prescription form and the construction of pads of these forms have been among the subjects discussed with the Ministry.

Prescribing for Residential Schools and Institutions

It was suggested to the Ministry that, with a view to economy of public funds, when prescribing for residents of schools and institutions a practitioner should be able to prescribe for the school or institution as a whole by means of a bulk prescription.

The Department has accepted the suggestion in principle so far as medicines are concerned, but will not agree to the inclusion of dressings owing to the possibility of abuse.

Inter-Prescribing by Industrial Medical Officers

In certain areas where the majority of the practitioners are part-time medical officers to local factories, it has been found that during sessions at the factories the Medical Officer has been asked to see another doctor's patient, who obviously should go home and would benefit from a prescription being given that day. It has been suggested that the Industrial Medical Officer should prescribe for such a patient and write a brief note to the patient's doctor, to be handed to him when he visits the next day.

The Committee is in agreement with the Occupational Health Committee of the Association that it is undesirable that Industrial Medical Officers should prescribe in these circumstances.

MATERNITY MEDICAL SERVICES

Administration of Anaesthetics

It was suggested to the Ministry of Health that the fee for the services of a second doctor administering an anaesthetic in a confinement should be paid direct to the doctor. The suggestion was not pressed, in view of administrative difficulties, particularly in the matter of superannuation.

Certificates of Incapacity due to Pregnancy

The Ministry of National Insurance has agreed to the Committee's proposal that at or about the 34th week of pregnancy the doctor should be required to give only one certificate to cover the interval of the actual confinement. A new type of certificate has been prepared which will enable the doctor to issue only one certificate eleven weeks before the expected date of confinement. In the event of the anticipated date being incorrect, no further certificate will be required. An ordinary weekly certificate will be required for sickness benefit prior to the beginning of the eleven-week period. This new certificate should ease the present burden of certification at present falling on doctors.

Payment of Fees for Maternity Services

The Ministry agreed with the view put forward by the Annual Conference (Minute 70) that the payment of fees for maternity medical services should not be dependent upon the carrying out of an examination on a particular date, and has so informed Executive Councils. It has also been agreed that Executive Councils should give doctors the names of patients in respect of whom payments are being made, and the amount payable in each case.

Miscarriages

The Committee contested the Ministry's view that treatment for miscarriages should be regarded as part of the ordinary obligation of a general practitioner under his terms of service, and the Ministry has since agreed that a doctor may claim a Part I fee for attending a miscarriage after the eighth week of the commencement of pregnancy.

Similarly, the Ministry has agreed that emergency confinements should qualify for Part II payment, provided the patient is not booked with any other doctor and the doctor is not called in by a Local Authority midwife.

Mileage in Maternity Cases

The Ministry has been asked to agree that a practitioner practising in an area where a mileage scheme normally operates, whether he is on the obstetric list or not, should be entitled to a single payment for each maternity case booked, at the rate of 3s. a mile (outwards) over two miles from the practitioner's residence to the patient's address. The payment will be a first charge on the Central Mileage Fund.

Forms of Application for Maternity Benefit

Arrangements have been made for a supply of forms of application for maternity benefit to be made available to individual practitioners where desired.

Sterile Drums for Domiciliary Midwifery

The present position in regard to the supply of maternity outfits and dressings is as follows:

(*a*) Where a Local Authority midwife is attending the case, both maternity outfit and dressings will be supplied free of charge. Normally the expectant mother would be expected to collect the outfit from the nearest clinic, but if this is not possible (e.g., in remote rural areas) she should write to the Local Authority, who will probably send a health visitor to her home.

(*b*) Where the expectant mother has booked no midwife, or a private midwife, the Authority may still supply a free maternity outfit—obtained as in (*a*)—if requested, though not the extra dressings for the lying-in period.

(*c*) Where the expectant mother is receiving maternity medical services under Part IV and has booked a private midwife, the position will be as in (*b*) above.

(*d*) Where the expectant mother has booked her confinement at a private maternity home the Local Health Authority will not be responsible for providing outfit or dressings.

The Ministry has been asked to extend these arrangements to all confinements whatever arrangements may have been made.

Definition of a G.P. Obstetrician's Responsibility towards Patients not on his N.H.S. List

The Committee felt it was desirable to attempt to define the general-practitioner obstetrician's responsibility in regard to conditions arising out of and during pregnancy, and has approved the following statement for guidance in dealing with inquiries on this subject:

In all cases where a general-practitioner obstetrician's responsibility is in doubt, it is desirable that there shall be consultation between him and the patient's ordinary medical attendant. Any question where there is an unresolved difference of opinion should be referred to the Chairman or Secretary (being a medical practitioner) of the Local Medical Committee, whose decision would be binding.

Although it is impossible to compile an exhaustive list of conditions occurring during pregnancy for the treatment of which the general-practitioner obstetrician could reasonably be expected to accept responsibility, the following are put forward as the nucleus of such a list:

Toxaemia of pregnancy.
Antepartum haemorrhage.
Any pelvic or vulval abnormality arising out of or in the course of pregnancy.
Genito-urinary infections.
Severe hyperemesis gravidarum.
Responsibility in puerperium only for 14 days, except for post-natal examination at or about the sixth week.

Assistants Employed for Maternity Medical Services

Following representations by the Committee, the Ministry has amended the Regulations to enable an Executive Council to waive the requirement that a deputy or assistant employed for maternity medical services must have obstetric experience.

Review of General Practitioners on Obstetric List

A letter from an Executive Council to all doctors on the Obstetric List for the area indicated that the list was to be revised, and inquired whether the doctors concerned claimed to have special experience in obstetrics and wished to continue to have their names on the list. The question is being raised with the Ministry from the point of view that doctors who have gained admission to the list should be given reasonable security of tenure.

MEDICAL SERVICES COMMITTEE PROCEDURE

It was represented to the Committee that provision should be made for a medical practitioner to be allowed to have legal assistance in the presentation of his case before a Medical Services Committee. The Committee is not in agreement with this view and has decided that, for the present, no action should be taken to secure an amendment of the regulations. At the same time, at the end of a reasonable period the Committee intends to review the various regulations affecting the terms of service of general medical practitioners, and Local Medical Committees will be asked to report on their experience of the working of the Regulations, including the procedure at meetings of Medical Services Committees. A special subcommittee has now been appointed to make a survey of the constitution, procedure, and working of Medical Services Committees, and will have before it a resolution passed by the Representative Body of the Association to the effect that the regulations relating to the procedure of Medical Services Committees should be amended to bring them into line with those applicable to Northern Ireland whereby a defendant doctor appearing before a Medical Services Committee may have, if he so desires, the services of a paid advocate or solicitor.

The position of the Deputy Chairman of a Medical Services Committee when the Chairman is present has been raised with the Ministry of Health. The Ministry's view is that the Deputy Chairman may be present and may take part in the proceedings as though he were an ordinary member, but he may not vote. The Committee feels that, whilst the Deputy Chairman should be entitled to be present, he should be debarred from taking any part in the proceedings, nor should he vote, and the Ministry has been asked to amend the appropriate regulation accordingly.

The Regulations governing the consideration of complaints against a medical practitioner do not provide, as in the old N.H.I. Benefit Regulations, for similar action against a patient. Although such complaints are rare, the Committee felt that provision should be made for them under the new Service, and representations have been made to the Ministry of Health on the subject.

RANGE OF SERVICE

The Committee has agreed with the Ministry's ruling that the taking of a sample of blood for examination for the Rhesus factor falls within a general practitioner's obligations under the Act.

SPECIALIZATION IN GENERAL PRACTICE

Paragraph 10 (1) of the terms of service for general practitioners precludes a practitioner from demanding or accepting any fee or other remuneration in respect of any medical treatment, "whether under these terms of service or not, rendered to his patients or the patients of his partner or assistant." A proviso sets out certain exceptions, but, generally speaking, a doctor who has the requisite qualifications and experience to enable him to render services which are normally outside the scope of general-practitioner treatment may not now charge for these additional services.

The view of the Committee is that it is essential, in the interests of medicine, that some degree of specialization in general practice should be encouraged, and this view has been constantly emphasized in discussions with officers of the Ministry of Health. The Ministry's view is that facilities for specialist services are provided under the Act without charge to the patient, and that a general practitioner cannot receive payment for specialist services unless he is also employed as a specialist in the Hospital Service. In pursuance of some relaxation of this rigid rule, the Committee is seeking a definition of "medical treatment" in the Regulations. In the meantime a memorandum entitled "The Case for Physiotherapy" has been sent to the Department in support of the Committee's case, and the Ministry has undertaken to explore the possibility, so far as rural practice is concerned, of allowing a general practitioner with the requisite experience to participate in the physiotherapy service as part of the Hospital Service but not necessarily as a specialist.

GENERAL PRACTITIONERS AND HOSPITAL WORK

The Council of the Association has appointed a Committee to consider and report upon the association of general practitioners with hospital work. The Private Practice, General Medical Services, Public Health, and Central Consultants and Specialists Committees each have three representatives on the Committee. The General Medical Services Committee's representatives are Drs. S. Wand (Birmingham), D. F. Hutchinson (London), and C. F. R. Killick (Williton, Somerset).

Treatment in Cottage Hospitals

The Annual Conference (Minute 98) expressed dismay that doctors not participating in the National Health Service were not being permitted, as in the past, to attend their own patients in cottage hospitals. An assurance has been received from the Ministry that it is their policy to encourage general practitioners to join the open staffs of cottage hospitals. The Ministry is willing to investigate any case brought to its notice.

GENERAL PRACTITIONERS AND SPECIAL DEPARTMENTS OF HOSPITALS

The Ministry of Health was asked to assist in securing that there should be extended to all general practitioners the privileges, now enjoyed by some, of being able to obtain *x*-ray and pathological examinations by direct application to the hospital department concerned. The problem is said to be the practical one of increasing facilities so that the hospital departments can meet the needs of general practitioners as well as their primary duties to the Hospital Service. Whilst recognizing that the difficulty is a practical one, the Committee considers that increased facilities are more likely to be available in the field of pathology, particularly where they are not provided as part of the Hospital Service.

GENERAL-PRACTITIONER SPECIALISTS

A subcommittee composed jointly of members of the General Medical Services and Central Consultants and Specialists Committees has been appointed to consider matters of particular interest to general-practitioner specialists. The G.M.S. Committee's representatives are Drs. A. T. Rogers (Bromley), W. D. Steel (Worcester), and H. S. Howie Wood (Isle of Wight). This joint subcommittee, which has met on three occasions, has been predominantly concerned up to the present time with the problems arising out of the assessment of status of practitioners engaged in the hospital and specialist services.

Before the deliberations of Review Committees became known, there was a growing anxiety among general-practitioner specialists that as a body they would be downgraded to the status of Senior Hospital Medical Officer, despite the instructions of the Ministry of Health that the assessment of status should be made on the merits of the individual practitioner, account being taken not only of higher qualifications but of actual experience. The subcommittee therefore recommended to the Joint Committee that any general practitioner holding a specialist appointment on the staff of a closed hospital, or where he had full clinical responsibility, should be recognized as of specialist status, enjoying the same security of tenure and remuneration as other specialists, provided he satisfied the Review Committee, bearing in mind the general instructions of the Ministry regarding the assessment of status. The subcommittee also recommended (*a*) that the Review Committees should be encouraged to seek evidence of the practice of a specialty; (*b*) that they should have regard to the views of Local Medical Committees; and (*c*) that a general-practitioner specialist should be co-opted to the Review Committee when the status of other general-practitioner specialists was being considered. The General Medical Services Committee has gone a step further by sending the following resolution to the Ministry of Health:

"That this Committee, being informed of the widespread dissatisfaction throughout the country on the part of general-practitioner specialists who consider that they have been improperly graded, wishes to press for the establishment of appeal machinery independent of the body responsible for the original assessment."

Now that the decisions of Review Committees have largely been announced, it has been found that not only general-practitioner specialists but a considerable number of exclusive specialists have been graded as Senior Hospital Medical Officers, and the problem is therefore a general one which is exercising the attention of the Central Consultants and Specialists and Joint Committees.

In the meantime the subcommittee has expressed the view that in order to afford the necessary opportunity for a general practitioner, graded as a consultant, to maintain his skill and efficiency he should be offered and required to undertake not less than three or more than five sessions per week; and that when he wishes to do more than five sessions he should, except where his other commitments are unusually light, consider transferring to the exclusive practice of his specialty. In general, the subcommittee considers the same consideration should apply to general-practitioner specialists graded as Senior Hospital Medical Officers, but in this case there might be circumstances in which less than three weekly sessions should be permissible.

The subcommittee has asked the Joint Committee to give early consideration to the present and future position regarding the employment of general-practitioner specialists and to allow its chairman to attend to submit the views of the subcommittee.

LIAISON BETWEEN GENERAL PRACTITIONERS AND CONSULTANTS

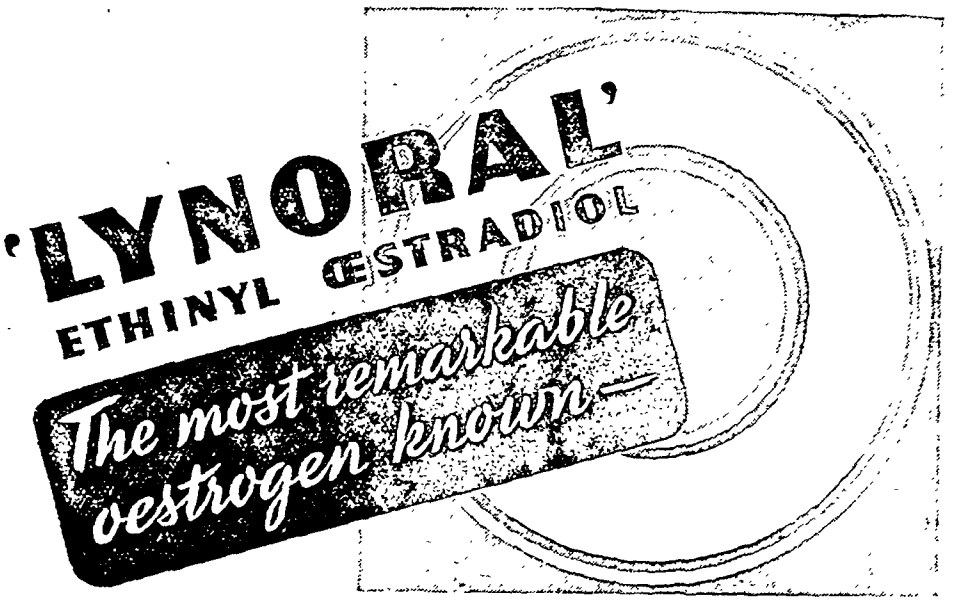
The Committee is exploring the practicability of promoting liaison between general practitioners and consultants at Regional, Hospital Management, and Group Committee levels.

REMUNERATION OF GENERAL PRACTITIONERS ON STAFFS OF COTTAGE HOSPITALS

According to the draft permanent terms of service for hospital and specialist work, general practitioners on the staff of a cottage hospital are to be remunerated from a staff fund, created by the Hospital Management Committee making a payment of £25 per annum for each bed (other than private pay-beds) occupied on the average in the hospital, the fund to be shared among the general-practitioner staff as they may themselves determine. There have been some complaints that this payment is inadequate, especially as it does not take account of the work done for the doctors' own patients when they are in hospital, work which involves the administration of anaesthetics, assistance at operations, post-operative treatment, etc. This aspect of the problem will be considered by the Committee in conjunction with the settlement of the Central Pool for general medical services.

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NEMBUTAL SUPPOSITORIES—in 2-gr. size.

NEMBUTAL and ASPIRIN—NEMBUTAL, ½-gr., and ASPIRIN 5-gr. Sedative and analgesic.

EPHEDRINE and NEMBUTAL—EPHEDRINE ⅜-gr. and NEMBUTAL ⅜-gr.

ABBOTT LABORATORIES LTD., WADSWORTH ROAD, PERIVALE, MIDDLESEX

per annum per weekly "half-day" up to a maximum of nine "half-days" per week. This approximates closely to the rate to be paid to specialists, and is considered to be reasonable.

DOMICILIARY CONSULTATIONS

The Committee supports the views of the Central Consultants and Specialists Committee, as expressed in the following resolutions:

Resolved: That in the opinion of the Committee, whilst it is most desirable that a general practitioner who requests a domiciliary visit by a consultant should be present at the consultation, he should not be required by regulation so to attend.

Resolved: That the G.M.S. Committee be informed that in the view of the Committee general practitioners should not be required to furnish written certificates in connexion with domiciliary visits carried out by consultants at their request.

Resolved: That in all cases where requests for domiciliary visits are required to be made through the hospital the diagnosis should not be disclosed, and the reason for the request confined to a statement that the patient is "unfit to attend hospital."

The 1948 Annual Conference referred to the Committee a motion objecting to the method of obtaining the service of consultants for domiciliary consultations, which interfered with the normal personal relationship between general practitioner and consultant. The Central Consultants and Specialists Committee was asked for its observations on the point and replied as follows:

"Isolated complaints have been received from local units of the B.M.A. with regard to the domiciliary visiting arrangements and in particular to the requirement that requests for domiciliary visits should be made through the hospital and not by direct approach to the consultant.

"The Committee does not consider it unreasonable that requests for domiciliary consultations under N.H.S. arrangements should be made through an official channel, nor does it feel that the arrangements interfere unduly with the relationship between general practitioner and consultant in view of the fact that once the official request has been made there is nothing to prevent direct contact between the two practitioners.

"The Committee also suggests that the present arrangement preserves the distinction between public and private practice."

It has been suggested to the Central Consultants and Specialists Committee that the general practitioner should have the alternative of being allowed to make arrangements for a domiciliary consultation through the hospital or by direct approach to the consultant.

ASCHHEIM-ZONDEK TESTS

The Ministry advised Local Executive Councils that Aschheim-Zondek tests could be carried out as part of the National Health Service only by reference to a specialist at a hospital. The Committee pointed out that it had been a common practice for doctors to obtain these tests by direct application to a laboratory, and that it was quite unnecessary for a patient to be referred to a specialist before the test could be undertaken.

The Ministry has since agreed that, wherever arrangements can be made without the intervention of a specialist, it will be possible for a general practitioner to obtain an Aschheim-Zondek test direct. The procedure will be evolved with the least possible delay.

SUPERANNUATION

At the Committee's request, the Ministry has amended regulation 38 of the Superannuation Regulations so as to make it clear that there must be agreement between partners before an Executive Council can be authorized to assess superannuation contributions on the basis of shares in the partnership.

The Association's Superannuation Committee has been asked to secure that all remuneration from N.H.S. and Local Authority sources shall rank for superannuation. Representations to the Ministry have repeatedly been made on this point.

The exclusion of an assistant's remuneration in assessing a principal's remuneration for superannuation purposes has been taken up with the Ministry. It is considered to be inequitable that the salary paid to an assistant should be deducted from a practitioner's gross remuneration, in addition to the normal deduction (35%) for practice expenses, when assessing the net income to rank for superannuation. The Ministry has undertaken to explore with the Treasury an alternative proposal that the principal should be relieved of his present obligation to pay the employer's contribution to his assistant's superannuation.

ASSISTANTS

The position of assistants to general practitioners in the National Health Service needs clarification, and with this object in view the following proposals were submitted to the Ministry:

(*a*) That the names of assistants should be incorporated in a separate list;

(*b*) that there should be a right of appeal to the Medical Practices Committee against the refusal of an Executive Council to consent to the employment of any assistant;

(*c*) that the Local Executive Council should have a right to participate in the proceedings of such an appeal;

(*d*) that consent to the employment of a second assistant should not be subject to the approval of the Medical Practices Committee;

(*e*) that an assistant should not be allowed to have his own list of patients.

These proposals have been discussed at a conference of representatives of the G.M.S. Committee, the Ministry, the Executive Councils' Association, and the Medical Practices Committee. There was no difference of opinion on points (*b*), (*c*), and (*e*).

On point (*a*) there is general agreement that assistants' names should not be included in the medical list or in a separate list. In future this will probably be a condition of the right of a doctor to employ an assistant, but no change will be made in the present position so far as assistants already on the list are concerned.

On point (*d*), the employment of a second assistant, the Ministry's attitude, supported by the Executive Councils' Association, is that the approval of the Medical Practices Committee is desirable in order to eliminate, as far as possible, the practice of "farming out," and that if the decision were left to the Executive Council it would hamper the efforts of the Medical Practices Committee to obtain an even distribution of doctors. The G.M.S. Committee's view is that Executive Councils, with their greater knowledge of local conditions, are more suited to make the decision than comparatively remote central organizations. Amending regulations will shortly be issued giving effect to the points upon which agreement has been reached.

GRANTS FOR TRAINING ASSISTANTS

In connexion with the Ministry's scheme of grants for training assistants, the Ministry was asked to consider giving some guidance to Local Medical Committees concerning factors which should be taken into account in considering applications from doctors for grants. The Committee was concerned at the situation which might arise if the number of trainers greatly exceeded the number of trainees. The Ministry agreed, and the Committee had an opportunity of discussing the draft of Circular E.C.L. 152 (Feb. 28, 1949) to Local Executive Councils giving the principal factors to be taken into account when considering applications for grants.

Subsequently, the scheme was examined by a special subcommittee with the object of suggesting improvements. The general conclusion reached was that the scheme as at present designed is primarily for the benefit of the trainee and should be regarded as such. Any financial benefit which the principal may hope to derive from the help given by the assistant (as suggested in the Spens Report) could and should be met in other ways, such as an adequate capitation fee. Other decisions reached were that appointments as "trainers" should be for a period of years and should not for the present exceed one year, and that a principal should not accept a trainee assistant who is liable for National Service during a period of training.

The scheme will be reviewed in the light of the experience of a year from its inception.

HEALTH CENTRES

The Committee continues to watch the position closely as plans for Health Centres develop, and Local Medical Committees have been asked to use their influence to prevent hasty establishment of undesirable types of Health Centre.

A special subcommittee has been set up to investigate the question of protecting the practices of doctors who consent to practise at such centres.

DENTAL SERVICES

Anaesthetics and X-ray Examinations

The cutting of the remuneration of dentists whose earnings exceeded £4,800 a year resulted in a tendency not to employ doctors for *x*-ray examinations and the administration of anaesthetics, as the fees for these services were included in the dentist's gross remuneration.

With regard to the amount of the fees payable for the administration of dental anaesthetics, the Ministry states that these fees apply also to dentists acting as anaesthetists, and must be related to the dentists' scale of fees. For this reason the Ministry cannot hold out any hope of an increase in the scale where a medical practitioner administers an anaesthetic. Joint representations with the British Dental Association are being made to the Ministry on this matter. The fees for dental anaesthetics are not affected by the recent cut of approximately 20% in dentists' remuneration.

Emergency Treatment following Dental Operations

The Ministry of Health has been asked to make provision for the payment of a fee to a doctor when he is called in to an emergency following a dental operation, the dentist not being available. It is considered that the fee should be not less than the dentist would receive for a similar service and should not come from the Medical Pool.

Whilst the Ministry's present view is that it is not legally possible to regard a doctor called in in such a case as the dentist's deputy, and therefore entitled to a fee under the dental scale, the Ministry has promised to give the matter further consideration.

Liaison with Dentists

The Committee has arranged an exchange of observers with the organization representative of the general body of dentists.

TREATMENT OF SEAMEN

Discussions were held with the Ministry of Health, the Shipping Federation, and the Protection and Indemnity Association as the result of which the Ministry prepared draft instructions to Executive Councils giving authority for whole-time medical officers of the Shipping Federation to be included in the medical list for the purpose of treating seamen as temporary residents. The Committee took strong exception to the draft instructions on the grounds that (*a*) a doctor should not be allowed to have his name on the medical list for the treatment of temporary residents only, and (*b*) it appeared that the Central Practitioners' Fund would receive no payment for these cases.

Subsequently, the Ministry recognized the Committee's objection to the inclusion of these officers in the Medical List for a limited purpose and agreed that it would be preferable to deal with the situation by means of a small allocation from the Central Pool. On the question of the augmentation of the Pool by reason of the arrangements for foreign seamen, the Department claims that, although seamen in ships laid up in ports were not included in the population figures, their omission is counterbalanced by the inclusion of persons for whom general practitioners are not at risk. The Committee cannot accept this suggestion, and the matter is being pursued with the Ministry.

TREATMENT OF MEMBERS OF H.M. FORCES ON LEAVE

The War Office suggested that officers and soldiers who fall sick on leave and who are obliged to seek treatment of civilian doctors might be treated as temporary residents under N.H.S. arrangements, the appropriate credits being added to the Central Pool. The Committee was not in agreement with this suggestion, and the War Office was so informed. The Ministry of Health has subsequently supported the Committee's view that there should be no change in existing arrangements.

FEES FOR EMERGENCY TREATMENT AND ANAESTHETICS

The Committee considered and approved the draft instructions and model forms for use by Executive Councils in connexion with claims for fees for emergency treatment and anaesthetics. Several minor amendments were suggested to and accepted by the Department. As in the past, Local Medical Committees may substitute their own scale of emergency fees for the scale suggested by the Ministry.

EMERGENCY TREATMENT OF SCHOOL-CHILDREN

The question of the emergency treatment of school-children has been explored with the Ministry of Health from the point of view that there are calls on the Local Practitioners' Fund for emergency fees without the patient's doctor being afforded an opportunity to attend. The Ministry of Education has been asked to co-operate by approaching teachers through local education authorities.

MAXIMUM NUMBERS ON DOCTORS' LISTS

It has been agreed that general approval of lists in excess of the prescribed maxima should be withdrawn, and that action might be taken to bring such lists within the prescribed maxima as soon as is reasonably practicable. No action should be taken in individual cases, however, until all the doctors' lists in the areas concerned have been cleared of duplicate names. Executive Councils have been advised that, as a first step, the doctor should be asked to refrain from accepting any more patients on his list until the total number is below the permitted limit.

MEDICAL TREATMENT OF OVERSEAS VISITORS

Counsel advised that section 33 of the National Health Service Act, which requires an Executive Council to arrange for the provision of medical services for "all persons in their respective areas," means that no qualification is required for taking advantage of the relevant arrangements other than that the person is in the area to which the arrangements relate. Overseas visitors are thus entitled to the benefits of the National Health Service during their stay in this country. The Ministry was asked to amend the Act so as to exclude such visitors from taking advantage of its provisions.

ACCOMMODATION FOR DOCTORS

The Committee's attention has been drawn to circumstances in which it appeared that an Executive Council could compulsorily acquire, at a sum arrived at under the Compulsory Acquisition Code, the property of an outgoing doctor, although in certain instances approval of payment at current market prices could be obtained. Legal advice was obtained on the position of the outgoing doctor under the Compulsory Acquisition Code, and an assurance was received from the Ministry that in all cases the Department is dependent upon acquisition by agreement. It appears that the Ministry is only empowered to pay a price arrived at under the Compulsory Acquisition Code. Treasury approval can be sought to pay an amount in excess of that prescribed by the Code.

POSTAGE ON OFFICIAL COMMUNICATIONS

The opinion expressed by the Annual Conference (Minute 82), that the appropriate method of reimbursing doctors for postage on documents to Executive Councils is by the issue of official

franked and addressed envelopes, has been discussed with the Ministry of Health. The Ministry's view is that postage is a proper charge on a doctor's practice expenses and that arrangements for franking envelopes are not justified.

FRIVOLOUS OR UNJUSTIFIED EMERGENCY CALLS

The Ministry has been asked to reintroduce rules for the conduct of patients which were in operation under the National Health Insurance Act, with disciplinary machinery to be used in the event of non-observance. This would involve a substantial revision of the medical card.

MEDICAL CARD

A number of suggestions for the amendment of the medical card have been sent to the Ministry. The Ministry of Health has agreed to the suggestion (Minute 92 of the Annual Conference) that in appropriate cases a person's medical card shall indicate that the holder is a dispensing patient. The former practice of stamping a large "D" against the person's name is to be continued.

EMERGENCY BED SERVICE

The Committee has given its support to a number of suggestions made by the London Local Medical Committee for improving the present emergency bed service. Immediate action is recommended in order to minimize the possibility of a breakdown during the coming winter. It has urged the necessity of making one official in each Hospital Management Committee area ultimately responsible for the admission of a patient to hospital.

TELEPHONE CHARGES

The Ministry was informed of the heavy cost of telephone charges now falling upon rural practitioners as a result of the National Health Service, and it was suggested that in respect of other than local calls a practitioner should be able to reverse telephone charges where a call is made to a hospital on behalf of one of his patients. It is understood that such a practice is in fact prevalent in some parts of the country. Examples of heavy telephone costs have been sent to the Ministry, which is investigating the possibility of adopting the Committee's suggestion.

SUPPLEMENTARY OPHTHALMIC SERVICES

The Committee is in agreement with the view of the Association's Central Ethical Committee that arrangements by industrial firms for the ophthalmic examination of employees under the National Health Service are undesirable.

PARTNERSHIP SHARES

The Committee was asked by the Medical Practices Committee for its views on the stage, if any, at which a junior partner should reach parity with his senior partner or partners in the division of the partnership. The Committee feels that the answer must depend on circumstances which vary greatly in different practices and different areas. Where, for example, a single-handed practitioner takes in a partner, there being a reasonable prospect of expansion of the practice, it might well be reasonable for parity in division to be reached in five or seven years. On the other hand, where a practitioner of 50 takes in a partner of 25 and there is no reasonable prospect of expansion or of an equal distribution of work and responsibility, it would be reasonable to defer the stage of parity for a much longer period if, indeed, it is ever reached. Again, where it is contemplated that a second junior partner may be taken in, the problem assumes quite a different complexion. The Committee, while anxious to give the Medical Practices Committee all possible help, is unable to recommend a particular formula, and regards the problem as one which must be examined in the light of each set of circumstances.

REPORT OF WORKING PARTY ON MIDWIVES

This report has been considered by the Committee jointly with the Public Health and Central Consultants and Specialists Committee, and their observations have been sent to the Ministry on behalf of the Association. The Committee's representatives were Drs. H. H. D. Sutherland (London), J. G. Thwaites (Brighton), and A. T. Rogers (Bromley).

Briefly, the Association supports many of the recommendations of the Working Party, but feels that those concerned should recognize that there is no acute crisis in the midwifery profession. Tribute is paid to the continuous efforts which have been made during the past twenty years by the Central Midwives Board, the College of Midwives, and individual tutors and matrons to develop the profession; and it is felt that the best results in the future will be achieved by fostering these existing agencies.

REGISTRATION OF BABIES

It has been suggested that form H.S.L., which is apparently issued to all persons registering the birth of a baby, should be amended by the inclusion of a reference to the parents' right to have the baby treated by a private medical practitioner should they so desire. It has also been suggested that the general phraseology of the form should be in the nature of advice rather than an instruction.

"COVERING" AN UNQUALIFIED PRACTITIONER

The question has been raised with regard to the position of a general medical practitioner who discovers that his patient is receiving treatment from an unregistered practitioner, with particular reference to the issue of certificates. A comparison with the old and new regulations relevant to the subject has been made and legal advice sought on this point.

SCOTTISH LOCAL MEDICAL COMMITTEES—TRAVELLING EXPENSES

The Committee was asked to consider a request from a Conference of Scottish Local Medical Committees that travelling expenses and subsistence allowances, where necessary, in attending meetings of Local Medical Committees should be paid from central funds. It is recognized that geographical conditions in some parts of Scotland impose a heavy burden on the funds of Local Medical Committees for those areas in meeting the travelling expenses of their members. It has been decided, therefore, that where it can be proved that the product of the usual levy for a Committee's expenses is not sufficient to meet claims for travelling and subsistence expenses consideration will be given to the possibility of making a grant to the Committee from the National Insurance Defence Trust.

GENERAL PRACTITIONERS' REFRESHER COURSES

The Ministry is arranging for the present scheme of post-graduate study for general practitioners to be supplemented by a new type of course, to be known as a "Special Short Course." It will consist of three half-day sessions at the week-end or during the week. The conditions of grant and procedure applicable to the longer courses will be the same, with the modification that a doctor may take a maximum of seven courses of three sessions (or any combination of such courses with the 11 session courses which does not exceed 22 sessions) in any year. The fee for the course will be paid by the Ministry direct, and travelling expenses and subsistence allowance may be reclaimed by the doctor, but it is not expected that any expenses for the payment of a locum tenens will be allowed for the short courses.

AN ETHICAL PROBLEM

The position in law appears to be that a doctor suitably qualified may have his name on two or more lists under the National Health Service—for example, as a general practitioner, an optician, or a pharmacist. The Committee is in agreement with the recommendation of the Association's Ethical Committee, endorsed by the Council, that this possibility is to be deplored on the grounds that it is beneath the dignity of the profession so to act and may promote unethical practices.

PURCHASE TAX ON MEDICAL RECORD FILING CABINETS

The Ministry was asked for assistance in securing the abolition of purchase tax on filing cabinets for medical records. The Ministry approached the Board of Customs and Excise, whose reply was that it had no authority to remit or refund purchase tax on equipment of this nature, and that there was no possibility of obtaining such authority. Not only are there administrative difficulties in giving preferential treatment to particular classes of purchasers, since purchase tax is charged at the wholesale stage, but a concession to doctors would make it impossible to resist other claims which would be regarded as equally strong.

INCOME TAX

The Board of Inland Revenue was asked to agree that medical practitioners who wish to do so should be allowed to pay income tax by quarterly instalments. The reply received was that the Board was unable to authorize any general arrangements for the collection of tax from doctors by quarterly instalments, but that Collectors of Taxes would be prepared to consider, on its merits, any case in which a doctor is unable to meet his tax liability on account of reduced earnings.

NATIONAL INSURANCE DEFENCE TRUST

The balance sheet and statement of expenditure and income of the Trust for the year ending Dec. 31, 1948, are being sent to every Local Medical Committee.

As Local Medical Committees are aware, the trustees of the National Insurance Defence Trust were the members of the Insurance Acts Committee for the time being in office. With the replacement of the Insurance Acts Committee by a new Committee of the B.M.A.—the General Medical Services Committee—it was hoped that by passing a formal resolution the funds of the N.I.D.T. could be transferred to a new Trust administered by trustees who would be the members of the new G.M.S. Committee. According to legal advice the obstacle to this is the fact that a trust, once formed, cannot hand over its assets to another body.

Leading Counsel's advice was sought as to the action which should be taken in the changing circumstances. This confirmed the advice already given—namely, that the funds of the existing N.I.D.T. could not be transferred to another body; and that in the circumstances it would be best to form a new Trust Fund which would eventually be the only one acting on behalf of general medical practitioners. The position, therefore, is that in the immediate future there will be two funds—the N.I.D.T. and the G.M.S. Defence Trust; that in any emergency the funds of both Trusts will, if necessary, be used for identical purposes, but in the meantime all payments within the objects of the Trusts will be met from the N.I.D.T. until such time as the moneys at its disposal are exhausted; and that no further contributions will be made to the N.I.D.T., all new contributions being credited to the G.M.S. Defence Trust. A new Trust Deed, inaugurating the G.M.S. Defence Trust, has been prepared and signed by the members of the G.M.S. Committee. Under this Trust Deed it is necessary for a sum of money to be placed at the disposal of the trustees to form the nucleus of the fund to be held on trust, and £50 has been voted from the N.I.D.T. for this purpose.

It should be clearly understood that the formation of the new Trust does not, in effect, change the guardianship of the money which has been subscribed over a number of years by doctors engaged in the late National Health Insurance medical service. It remains, as before, their money, and will be administered as such by the trustees, who are members of the Committee which has taken over functions of the old Insurance Acts Committee.

Consideration is now being given to the form of appeal for contributions to the new Trust.

The Trustees of the N.I.D.T. have undertaken to make available to the new British Medical Guild, which was formed by the Council of the B.M.A. in April, the sum of £500 to form the nucleus of the fund to be administered by the Guild. The Guild, the N.I.D.T., and the G.M.S. Defence Trust would, of course, work in close co-operation in any emergency involving members of the medical profession engaged in the National Health Service.

S. WAND,
Chairman, General Medical Services Committee.

SCOTLAND

(This Section deals with matters which have a Scottish aspect)

General Medical Services Subcommittee (Scotland)

Consequent upon the replacing of the Insurance Acts Committee by the General Medical Services Committee, the Insurance Acts Subcommittee (Scotland) has been succeeded by the General Medical Services Subcommittee (Scotland). For the time being this Subcommittee retained the constitution of the I.A.S.C., but recommendations have recently been made to and accepted by the General Medical Services Committee for modification of the constitution. The revised constitution allows each Local Medical Committee in Scotland to be directly represented on the Subcommittee by at least one member, with an increase in the number of members in the larger areas proportionate to the number of resident practitioners on the Executive Council lists, and provides for the inclusion in the Subcommittee of representatives of consultants and specialists and Public Health Medical Officers in Scotland.

The Subcommittee has appointed a Chairman's Subcommittee, with executive power, to act between meetings of the full Subcommittee; also a Rural Practitioners' Subcommittee to deal with matters affecting general medical practice in rural areas under the National Health Service, not specifically related to conditions in the Highlands and Islands. The formation of a Colliery Subcommittee to replace the former Colliery and Public Works Surgeon's Subcommittee (Scotland) is under consideration.

The question of the appointment of a joint subcommittee composed of representatives of the General Medical Services Subcommittee (Scotland) and the Central Consultants and Specialists Committee (Scotland) to consider the problems of general practitioners in relation to the hospital service is under consideration.

Chairman and Deputy Chairman

Dr. W. M. Knox and Dr. W. Jope were appointed Chairman and Deputy Chairman of the Scottish Subcommittee respectively for the session 1948–9.

Constitution of Local Medical Committees in Scotland

These committees were appointed in the first instance for an interim period, and the question of drawing up a model scheme of permanent constitution has recently been considered. Conditions vary so considerably in the different areas that it has not been thought advisable to adopt a model scheme applicable throughout Scotland. Instead a memorandum laying down general principles for the guidance of the Committees in drawing up their permanent constitution has been circulated.

Advisory Distribution Committee

The following were appointed as the representatives of the Scottish Subcommittee on the Scottish Advisory Distribution Committee: Dr. W. Jope (High Blantyre), Dr. W. M. Knox (Glasgow), Dr. A. Simpson (Hawick), and the Scottish Secretary.

Medical Advisory Committee

The previous arrangement in connexion with this matter has been continued—namely, that all the members of the General Medical Services Subcommittee are regarded as available for service on the panel of medical practitioners constituted under Regulation 11 (3) of the Medical and Pharmaceutical Service Committees and Tribunal Regulations (Scotland).

Part-time Services rendered to Local Authorities

The Subcommittee has discussed with representatives of the Scottish Local Authority Associations the circumstances under which fees to general practitioners shall be payable by Local Authorities for part-time services rendered, and the question

of what services are covered by the fees payable to such practitioners under the National Health Service. The matters discussed include periodic examinations of boarded-out children, visits to children's homes and reception centres, certification of lunatics, certification for non-attendance of children at school, examination under teachers' sick pay regulations, and the fee for the report in cases of immunization and vaccination. The comments of the Local Authority Associations on the views put forward by the Subcommittee are still awaited.

Circulation of National Formulary in Scotland

The Subcommittee has discussed with the Department of Health the desirability of the circulation in Scotland of the new *National Formulary*. Scottish tradition in medicine has been for doctors to write individual prescriptions in full rather than order standard prescriptions from a formulary, and this procedure is still favoured in Scotland. The new formulary is, however, recognized as being a great advance on any previous publication. Consequently no objection has been raised to its circulation by the Department of Health for Scotland, on the definite understanding that there will be no implied pressure on the practitioner to use it in his prescribing and that he remains free to use prescriptions devised by himself or obtained from any other source.

Prescription Form

The single sheet prescription book is the form at present in use in Scotland. Recently, at the request of the Department of Health, the Subcommittee has considered the question of reversion to a triplicate form, and has discussed the matter with representatives of the pharmacists, who are anxious to secure a return to the triplicate form. The Subcommittee has informed the Department that in its view, while pharmacists have established a case for the keeping of some form of record, this is primarily for their own use and only secondarily to cover certain situations which might arise in practice. Under existing conditions, when the practitioner is labouring under great difficulties, it would be inopportune to ask him to undertake what is not an essential duty.

Dispensing Capitation Fee in Scotland

Attempts have been made unsuccessfully to secure an increase in the Dispensing Capitation Fee in Scotland from 5s. to 6s. 6d. to bring it to the level of that paid in England and Wales. Dispensing costs have always been lower in Scotland than in England and Wales, this being due to more economical prescribing procedure. So far as it has been possible to ascertain the facts, it appears that under the National Health Service the rise in the dispensing cost in England and Wales has been correspondingly greater than the rise in Scotland. In these circumstances the Department of Health is not prepared to consider a claim for an increase in the dispensing fee, but has agreed that the matter shall be reviewed in the light of the first year's working and that the question of retrospective adjustment shall receive sympathetic consideration if it should be shown that the 5s. fee is inadequate. As in England and Wales, Scottish "dispensing" doctors have the alternative of being paid on a "cost per prescription" basis.

Training of Assistants Scheme

The Training of Assistants Scheme as approved for Scotland is on similar lines to that in operation in England and Wales. The constitution of the Selection Committee, however, is somewhat different. In Scotland there is so much variation in size between the Local Medical Committee areas that the English scheme is not practicable. Selection Committees have therefore been based on the Regional Hospital Board areas. The Selection Committee is composed of a lay chairman appointed by the Secretary of State (after consultation with the profession); general practitioners, the number varying from region to region, selected in consultation with the Local Medical Committees; a representative or representatives of consultants and a representative of the university of the Region, with a medical secretary.

Expenses of Local Medical Committees

In Scotland, as in England, the question of the means by which the expenses of Local Medical Committees are to be met has been the subject of serious concern, particularly in relation to the Highlands and Islands. Representations have been made to the Department of Health that travelling expenses and subsistence allowances of members of Local Medical Committees in the Highlands and Islands should be defrayed from some source other than the Practitioners' Fund. The Department of Health has made it clear that there is no possibility of additional money being made available to meet these expenses, and it has been suggested that the expenses should be made a charge on a central fund and distribution loaded in favour of those areas where the expenses are disproportionately heavy, as in the Highlands and Islands. The formation of a separate executive council for the Outer Isles, which is now under consideration by the Highlands and Islands Standing Advisory Committee of the Scottish Health Services Council, might, it is thought, ease the problem.

Inducement Payments: Procedure and Scope

The question of the scope of the Inducement Fund, and the procedure for application to the Fund in its relation to Scotland, is at the present time under consideration and discussion with the Department of Health.

Vacancies in Medical Practices

The question of the method of filling of vacancies in medical practices under the Scottish regulations, and the delay in filling of vacancies under these regulations, is also the subject of active consideration.

Telephone Charges in Rural Practices

The need for some special payment to rural practitioners in respect of telephone calls, in view of the increase in these calls which the general practitioner is now required to make under the National Health Service and in the cost of telephone charges, has been discussed on several occasions with the Department of Health. The problem is regarded sympathetically by the Department, but action is deferred pending the outcome of the discussions which are taking place with the Ministry of Health in London.

Dental Treatment given by General Practitioners to National Health Service Patients

The question of emergency dental treatment by practitioners in the Highlands and Islands and other rural districts in Scotland where ordinary dental facilities are not easily available has been discussed with the Department of Health. The Department thought that it would be possible to devise some satisfactory system of payment for emergency dental treatment given by medical practitioners from funds additional to those provided for general medical services. The Department promised to give further attention to the matter and has under consideration arrangements which will apply to the Highlands and Islands area.

General Practitioners and *X*-ray Facilities

The question of the direct access of general practitioners to *x*-ray facilities, without prior reference to specialists or surgeons at out-patient departments of hospitals, under the National Health Service has been the subject of discussion with the Department of Health for Scotland, and is now under consideration by the appropriate committee of the Scottish Health Services Council.

Range of Service: Treatment of Venereal Diseases

Representations by the Subcommittee that domiciliary treatment of venereal disease should be regarded as outside the practitioner's terms of service, and therefore subject to a fee, are at the present time under consideration by the Department of Health.

W. M. KNOX,
Chairman, General Medical Services Subcommittee (Scotland).

APPENDIX "A"

GROUPING FOR ELECTION OF 33 DIRECT REPRESENTATIVES TO THE GENERAL MEDICAL SERVICES COMMITTEE

Group	No. of General Practitioners resident in the Group (Jan. 1, 1949)	No. of seats on Committee
A.1 Fife—Lothians and Peebles: Edinburgh—Roxburgh, Berwick, and Selkirk ..	544	1
A.2 Aberdeen and Kincardine: Aberdeen Burgh—Angus: Dundee—Perth and Kinross — Orkney — Caithness — Sutherland—Ross and Cromarty—Inverness—Banff, Moray and Nairn—Shetland	570	1
A.3 Glasgow	510	1
A.4 Lanarkshire — Renfrewshire — Dumbarton—Ayr—Argyllshire and Buteshire — Dumfries — Galloway, Kirkcudbright, and Wigtown—Stirling and Clackmannan	762	1
B. Northumberland: Newcastle-upon-Tyne, Tynemouth—Durham: Darlington, Gateshead, South Shields, Sunderland, West Hartlepool — Cumberland: Carlisle — Westmorland: Middlesbrough	920	2
C. Yorks (North Riding)—Yorks (East Riding): Hull — Yorks (West Riding): Barnsley, Bradford, Dewsbury, Doncaster, Halifax, Huddersfield, Leeds, Rotherham, Sheffield, Wakefield, York	1,667	2
D. Lancashire: Barrow-in-Furness, Blackburn, Blackpool, Bolton, Burnley, Bury, Manchester, Oldham, Preston, Rochdale, St. Helens, Salford, Southport, Warrington, Wigan, Liverpool, Bootle	1,590	3
E. Cheshire: Birkenhead, Chester, Stockport, Wallasey	820	1
F. Anglesey—Caernarvon—Denbigh and Flint — Merioneth — Montgomery — Cardigan — Radnor — Brecon — Pembroke — Carmarthen — Glamorganshire: Cardiff, Merthyr Tydfil, Swansea—Monmouthshire and Newport	1,031	2
G. Derbyshire: Derby—Lincs (Holland)—Lincs (Kesteven)—Lincs (Lindsey)—Grimsby, Lincoln — Nottinghamshire and Nottingham — Leicestershire and Rutland: Leicester ..	1,012	2
H. Staffordshire: Burton-on-Trent, Stoke-on-Trent, Smethwick, Walsall, Wolverhampton, West Bromwich—Shropshire	598	1
I. Herefordshire—Worcestershire: Dudley, Worcester—Warwickshire: Birmingham, Coventry	864	1
J. Gloucestershire and Gloucester: Bristol—Somerset: Bath	666	1
K. Oxfordshire and Oxford—Berkshire: Reading — Buckinghamshire — Northamptonshire: Northampton ..	615	1
L. Cornwall—Devon and Exeter: Plymouth—Isles of Scilly	574	1
M. Suffolk (East)—Suffolk (West): Ipswich—Norfolk: Norwich, Great Yarmouth — Cambridgeshire — Huntingdonshire—Isle of Ely—Soke of Peterborough	534	1
N. Dorset — Hampshire: Bournemouth, Portsmouth, Southampton—Isle of Wight—Wiltshire	837	1
O. Surrey: Croydon	795	1
P. Sussex (East)—Sussex (West): Brighton, Eastbourne, Hastings	529	1
Q. Kent and Canterbury	660	1
R. Middlesex	1,302	2
S. Hertfordshire — Bedfordshire — Essex: Southend, East Ham, West Ham ..	1,016	2
T. London	1,600	2
U. Northern Ireland	—	1
Total number of seats ..		33

APPENDIX "B"

STANDING ORDERS OF CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL COMMITTEES

(1) **Annual Conference of Representatives of Local Medical Committees.**—The General Medical Services Committee shall convene each year a Conference of Representatives of Local Medical Committees. The Conference shall ordinarily be held in the month of June.

(2) **Special Conference of Representatives of Local Medical Committees.**—A special Conference of Representatives of Local Medical Committees may be convened at any time by the General Medical Services Committee and shall be convened not later than one month after the requisition of not less than 20 Local Medical Committees, the period of one month being modified only by agreement of the Committees making the requisition.

(3) **Members of Conference.**—The Conference shall be composed of representatives of Local Medical Committees and of members of the General Medical Services Committee and of its Subcommittees.

(4) **Appointment of Representatives.**—The Local Medical Committee of each area in England, Scotland, and Wales is entitled to appoint one representative to every 350, or part of 350 above each completed 350, upon the Medical List of the area on Jan. 1 immediately preceding the Annual Conference. Each Local Medical Committee in Northern Ireland and the Central Practitioners' Committee of Northern Ireland shall be entitled to appoint one representative to attend the Conference.

(5) **Eligibility of Representatives to Conference.**—All representatives shall at the time of their election be medical practitioners and members or officers of a Local Medical Committee.

(6) **Tenure of Office of Representatives.**—The representatives elected to act at the Annual Conference shall continue to hold office until the commencement of the succeeding Annual Conference, unless the General Medical Services Committee is notified to the contrary by any Local Medical Committee concerned.

(7) **Procedure as to Seconding Motions or Amendments.**—No seconder shall be required for any Motion, Amendment, or Rider submitted to the Conference by the General Medical Services Committee or by a Local Medical Committee. All other Motions, Amendments, or Riders, after being proposed, must be seconded.

(8) **Time Limit of Speeches.**—A member of the Conference moving a resolution shall be allowed to speak for 10 minutes, and with this exception no speech shall exceed five minutes.

(9) **Reducing Time Limit.**—The Conference may at any period reduce the time to be allowed to speakers, whether in moving resolutions or otherwise.

(10) **Voting.**—Save as provided in Standing Orders (14) and (17), only representatives of Local Medical Committees shall be entitled to vote.

(11) **Mode of Voting.**—Voting shall be by show of hands unless a formal division is demanded by 20 Members of the Conference, signified by their rising in their seats, in which case the names and votes of the Members present shall be taken and recorded.

(12) **Rules of Debate:**

(*a*) A member of the Meeting shall stand when speaking and shall address the Chair.

(*b*) Every member shall be seated except the one who may be addressing the Meeting, and when the Chairman rises no one shall continue to stand, nor shall anyone rise, until the Chair is resumed.

(*c*) A Member shall not address the meeting more than once on any motion or amendment, but the mover of the resolution or amendment may reply and in his reply shall strictly confine himself to answering previous speakers and shall not introduce any new matter into the debate.

(*d*) No notice of motion or amendment to any motion shall be considered until a copy of the same with the name of the

proposer and seconder has been handed in writing to the Chairman.

(*e*) Whenever an amendment to an original motion has been moved and seconded, no subsequent amendment shall be moved until the first amendment has been disposed of, but notice of any number of amendments may be given.

(*f*) If an amendment be carried, the amendment or motion, as amended, shall take the place of the original motion, and shall become the question upon which any further amendment may be moved.

(*g*) If it be proposed and seconded that the meeting do now adjourn, or that the debate be adjourned, or that the meeting do proceed to the next business, or that the question be now put, such motion shall immediately be put to the vote without discussion, except as to the time of adjournment, provided always that the Chairman shall have power to decline to put to the meeting the motion that the meeting do proceed to the next business or that the question be now put, and that the mover of any motion or amendment shall have a right of reply before the question is put. A two-thirds majority of those present and voting shall be required to carry a proposal "that the Meeting proceed to the next business" or "that the question be now put."

(13) **Rescission of Resolution.**—No motion to rescind any resolution of the Conference shall be in order at any subsequent Conference unless notice is given by the General Medical Services Committee or by a Local Medical Committee. In the latter case notice must be received by the General Medical Services Committee not less than two months before the date of the Annual Conference and not less than one month before a Special Conference.

(14) **Election of Chairman:**

(*a*) At each Annual Conference a Chairman shall be elected who shall hold office from the termination of that Conference until the termination of the next following Annual Conference. All members of the Conference shall be entitled to vote.

(*b*) Nominations shall be handed in, in writing, before noon of the first day of the Annual Conference, the election, if any, being held during the following afternoon session.

(15) **Election of Six Members of the General Medical Services Committee:**

(*a*) For the purpose of this election "Representative" shall be defined as the duly appointed representative of a Local Medical Committee, or, in his absence, the Deputy duly appointed in his stead, in attendance at the meeting.

(*b*) Nominations may be made only by representatives, and a representative may make not more than one nomination. Any registered medical practitioner actively engaged in practice as a general medical practitioner under the National Health Service Act, whether a member of the Conference or not, is eligible for nomination.

(*c*) Nominations must be handed in on the prescribed form before noon of the first day of the Annual Conference, the voting, if necessary, taking place during the afternoon session. Only appointed representatives or deputy representatives in attendance at the meeting are eligible to vote.

The General Medical Services Committee shall be empowered to fill casual vacancies occurring among the elected members.

(16) **Returning Officer.**—The Secretary of the Association, or in his absence one of the Deputy Secretaries, shall act as Returning Officer in connexion with all elections.

(17) **Conference Agenda Committee.**—(*a*) The Agenda Committee shall consist of the Chairman of the Conference, the Chairman of the General Medical Services Committee, together with three members elected by the Conference. The duty of the Agenda Committee shall be to settle the order of the Agenda of the Conference and to report: (*b*) Nominations for the Agenda Committee must be handed in on the prescribed form before noon on the first day of the Annual Conference, the voting, if any, taking place during the afternoon session. Any member of the Conference may be nominated for the Agenda Committee and all members of the Conference shall be entitled to vote in the election for this Committee.

(18) **Dinner Committee.**—At each Annual Conference there shall be appointed a Conference Dinner Committee, formed of five members of the Conference, to take all necessary steps to arrange for a Dinner to be held at the time of the following Annual Conference, to which the members of the General Medical Services Committee, amongst others, shall be invited as guests of the Conference.

(19) **Suspension of Standing Orders.**—Any one or more of the Standing Orders may be suspended by the meeting, provided that three-fourths of those present and voting shall so decide.

(20) **Quorum.**—No business shall be transacted at any Conference unless there be present at least one-third of the number of Representatives appointed to attend such Meeting.

DISPENSING ERRORS

Commenting on a newspaper report that nearly one bottle of medicine in four prescribed under the National Health Service is wrongly dispensed by chemists in the Service, the Ministry of Health states that in fact just under 10% of the cases examined have been referred to the appropriate committee of the executive council to consider whether there are any grounds for disciplinary action against the chemist.

Test analyses of drugs and dressings were started on April 1. During the quarter ended June 30, 1,753 samples were tested in England and Wales; of these the results of 748 were not known by June 30. Of the remaining 1,005 cases no action was found necessary in 909—i.e., just over 90%.

It is too early to say whether disciplinary action will be taken in the remaining cases, but in 1932, under National Health Insurance, out of 389 cases referred to the appropriate committee of the insurance committee only 227 resulted in disciplinary action. Under N.H.I. before the war disciplinary action was necessary in about 5% of cases, and consisted either in a warning or in withholding part of the chemist's remuneration.

WAR PENSIONS

TIME LIMIT FOR REVIEW

The Minister of Pensions has announced that applications for the review of cases by Special Review Tribunals cannot be accepted after Nov. 30.

The Special Review procedure applies *only* to persons whose claims arose out of the 1939 war and whose appeals were disallowed by Pensions Appeal Tribunals before Aug. 1, 1946.

Special Review Tribunals were set up in 1946 because certain judgments in the High Court in England and the Court of Session in Scotland had affected pension law. It was felt that persons whose appeals had been disallowed before those judgments had been given should have the right to have their cases reconsidered.

SICKNESS BENEFIT CERTIFICATES

Draft regulations that came into operation on Aug. 4 allowing medical certificates for sickness benefit to be given at longer intervals in cases of prolonged illness were reported in the *Supplement* of Aug. 13 (p. 80). The Ministry of Health has given further information about them, which we reproduce here.

In the light of the past year's experience the Ministry of Health and the Ministry of National Insurance have been examining proposals for reducing the doctors' certification work by extending the intervals of time at which Special Intermediate Certificates may be given in support of claims to sickness benefit in cases of prolonged incapacity. An amendment has now

been made to the Medical Certification Regulations with the following effect:

(i) Special Intermediate Medical Certificates (Form Med. 3) may now be given for a maximum period of thirteen weeks (instead of the former eight weeks) where the incapacity has already lasted for six months and the doctor is of the opinion that it would last at least a further thirteen weeks.

(ii) A Special Intermediate Certificate for any period for which the doctor considers the incapacity will last up to a maximum of thirteen weeks (or four weeks when the incapacity has lasted four weeks but less than six months) may be given even though the doctor intends to see the patient at more frequent intervals.

The amending regulations, which have been made provisionally (pending their consideration by the National Insurance Advisory Committee) came into operation on Aug. 4, 1949.

Where the doctor has given a certificate for thirteen weeks in accordance with these regulations it is intended that, as soon as the necessary arrangements can be made, the patient should normally receive from the Ministry of National Insurance a sickness benefit order book (similar to a pension order book) containing thirteen weekly orders, which can be cashed at the post office of his choice. Towards the end of each book there will be a slip reminding the patient that he must ask the doctor for a fresh medical certificate at the end of the thirteen weeks if his incapacity is continuing. If the patient recovers before the period of the order book expires the doctor should issue a final certificate.

Form Med. 3 is being amended to correspond with the new regulations, but as it will take some considerable time to get a sufficient supply of the new certificates into the doctors' hands it has been agreed that the existing stocks of Form Med. 3 may be used for giving thirteen-week certificates under the new regulations. Any Form Med. 3 completed on or after Aug. 4 will be read as if it had been amended in accordance with the regulations even though the actual amendment is not made on the certificate by the doctor. The amendments are:

(*a*) the deletion of the words "your incapacity is of such a character that it will be unnecessary to see you for the purpose of treatment more frequently than once in..... weeks, and";

(*b*) the substitution of the words "at corresponding intervals" for the words "at the intervals stated above";

(*c*) the substitution of the word "certification" for the word "attendance."

In order that persons whose incapacity has already lasted six months and is likely to continue may have the full advantage of the new method of paying sickness benefit by quarterly order books it is hoped that, subject to any medical considerations affecting individual patients, doctors will co-operate by giving thirteen-week certificates in all suitable cases.

The new regulations do not of course affect the doctor's obligation to see the patient for treatment as often as may be necessary, and in particular to see the patient each time a certificate is given.

PAY OF COLONIAL MEDICAL OFFICERS

Good progress is being made in the negotiations with the Colonial Office on this subject. A working party of officials from the Colonial Office and from B.M.A. House has almost completed the task of evaluating the adjustments which have to be made to the Spens salaries in order to take account of the many factors peculiar to the Colonies—e.g., income-tax, pensions, etc.

REFRESHER COURSES FOR G.P.s

Financial assistance is now available for special short courses consisting of three half-day sessions at the week-end or during the week—in the latter case either during the same week or spread over several weeks.

A general practitioner in the Service may take a maximum of seven courses of three sessions in a year or any combination of such courses with the 11-session courses which does not exceed 22 sessions. The conditions are otherwise the same as those described for the courses reported in the *Supplement* of Oct. 30, 1948 (p. 149).

INFLATION OF LISTS

In order to try to reduce the risk of inflation of general practitioners' lists the Ministry of Health has decided, after consultation with the General Medical Services Committee, that Form E.C.1 should not be made as freely available as at present. The ready availability of the form encourages people to use it when changing their doctor, and there is a possible risk of inflation if it is not completed fully or accurately.

Stocks will be withdrawn from post offices, and the Minister has asked executive councils to withdraw any substantial stocks from libraries and not to issue further supplies of them. In future the form will be obtainable only from executive council offices, from doctors' surgeries, and (on the registration of a birth) from the Registrar of Births.

When a patient dies his medical card should be handed to the Registrar of Deaths.

PRIORITY OPHTHALMIC ARRANGEMENTS

Priority labels are attached to prescriptions for patients whom the optician considers require urgent treatment. The manufacturer separates these from the rest of the order and deals with them as rapidly as possible. Since only a limited number of prescriptions can be dealt with in this way, the Ministry of Health has asked that the priority labels should be reserved for cases of the following types:

(1) Cases of progressive defect in children, or in which delay in the supply of glasses is likely to result in serious deterioration of vision, especially short-sighted children, children with certain types of squint, and children at schools for the partially sighted.

(2) Cases in which the person concerned would be totally unable to carry on everyday duties or normal work without glasses.

SPECIAL DRUGS

The Ministry of Health has issued the following list of drugs, reagents, and appliances for the supply of which doctors receive payment over and above their capitation fees. Suggestions for amendments to the list are being considered.

Drugs

Allergenic protein preparations. Antihistamine agents. Organic arsenic compounds used for the treatment of venereal disease (when supplied to patients for whom a supply is not made gratuitously available by any public authority). Bismuth compounds, for parenteral injection. Colloidal preparations for parenteral injection. Desiccated stomach, extracts of stomach, and the active principles of stomach supplied for the treatment of pernicious anaemia and of disseminated sclerosis. Emetine and its salts, for parenteral injection. Ethisterone. Ethyl chloride. "Folic acid." Hormone preparations, for parenteral injection. Gold compounds, for parenteral injection. Insulin. Liver extract and the active principles of liver, supplied for the treatment of pernicious anaemia and of disseminated sclerosis. Mercury and mercurial compounds, for parenteral injection. Mersalyl suppositories. Oxygen. Penicillin and preparations of penicillin. Peptone preparations, for parenteral injection. Phenytoin sodium. Phthalylsulphathiazole. Protein sensitization test solutions. Sclerosing agents for the injection treatment of varicose veins. Sera (when supplied to patients for whom a supply is not made gratuitously available by any public authority). Succinylsulphathiazole. Sulphadiazine and methylsulphadiazine. Sulphadimidine. Sulphathiazole. Toxins, anti-

toxins, and vaccines (when supplied to patients for whom a supply is not made gratuitously available by any public authority). Vitamin B_{12} for parenteral injection.

Reagents

Benedict's solution (qualitative) and Fehling's solution, when required for the regulation of the treatment of diabetes.

Appliances

Atomizers, hand operated. Bandages: elastic adhesive, elastic web, zinc paste. Breast relievers. Urethral catheters: gum-elastic, soft rubber, and lubricant for use therewith. Colostomy belts and parts thereof and repairs and replacements thereto. Douches, with rectal and vaginal fittings. Elastic anklets, knee leggings, knee stockings, knee-caps, leggings, stockings, thigh knee-caps, thigh leggings, thigh pieces, thigh stockings. Hypodermic needles and hypodermic syringes, when required for self-administration of insulin or adrenaline. Ice bags: check sheeting, indiarubber. Inhalers: earthenware (Nelson), Burney Yeo. Splints: simple splints, wooden, metal, or plastic, for upper and lower limbs; Gooch splinting; Kramer splinting. (All other splints will be supplied through the hospital service.) Sputum flasks. Suprapubic belts and parts thereof and repairs and replacements thereto. Trusses: femoral, inguinal, scrotal, umbilical. Vaporizers, as specified in the Drug Tariff.

Questions Answered

Private Patients' Use of N.H.S.

Q.—*Can a patient who is not registered with a practitioner under the N.H.S. (a) have the right to a specialist under the domiciliary scheme, (b) partake of the maternity medical service without payment?*

A.—(a) Yes. (b) Yes.

Certificates for Corsets

Q.—*What is the present state of the regulations concerning the provision of corsets and brassieres? By this I mean by purchase and not through hospitals. General practitioners know that it is no longer necessary for one of a certain number of named disabilities to be specified in order to qualify for one of these garments, but one is constantly being told by the manufacturers or their agents that they cannot be supplied at all except under medical certificate. Is this true or not? Or, alternatively, does the medical certificate exempt the purchaser from purchase tax?*

A.—A medical certificate from the patient's general practitioner is not necessary for the purchase of corsets from a private manufacturer. A medical certificate is still necessary if the patient wishes to claim exemption from purchase tax on the article. Discussions are now taking place with the Ministry of Health and H.M. Customs and Excise on this latter point.

Partner's Option

Q.—*I am a partner in a firm of three—A, B, and C. Under our partnership agreement made in 1946, C has an option to buy a further 22nd share from A on Oct. 1, 1949. C gave notice to A that he wished to avail himself of this option on June 30, 1949. A has taken advice on the matter and states that there can be no reallocation of the partnership shares until the Amending Bill to the N.H.S. Act becomes an Act. Is this so?*

A.—There is no reason why Dr. C should not exercise his option. Provision is made in the Bill for this part of the Act to be retrospective. Section 4 (1) reads as follows:

"*Retrospective effect of Section 1 of the Act.*

"4. (1) Section 1 of this Act shall apply in relation to rights and obligations which were exercised or performed, or were required to be exercised or performed, on or after the appointed day and before the passing of this Act, under an agreement to which that section applies. . . ."

Section 1 of the Bill was published in the *Supplement* of May 21 (p. 274).

Income Tax on Hospital Salary

Q.—*I note in the Supplement of June 25 (p. 357) a question and answer on the subject of superannuation for assistants. In the substance of the question it is stated that the amount deducted from the salary of the assistant in respect of his living in is allowable as an expense for income tax purposes. Is this the case with hospital residents? I have just been informed that tax is to be deducted from my salary and also from my residential emoluments.*

A.—The money value of any residential emoluments received by a practitioner engaged in the hospital and specialist service is assessable for superannuation purposes. The position as regards income tax depends upon the actual terms of the contract. If the contract provides for the payment of a salary of, say, £500, with, in addition, the right to free board and lodging (reckoned for superannuation purposes at £100), only the £500 is taxable. If on the other hand the contract is for a salary of £600, out of which £100 is deducted for board and lodging, then the whole £600 is regarded by the income-tax authorities as taxable.

Retrospective Pay

Q.—*At the beginning of this year I was appointed to the post of resident medical officer to a hospital for a period of six months at a salary of £350 p.a. I reapplied for the same position in June, and was reappointed for the second half of the year. My status has now been defined as that of a registrar for purposes of remuneration, and my salary accordingly increased to £775 p.a. Am I eligible for back pay from Jan. 1, 1949?*

A.—It is laid down in the explanatory memorandum issued by the Ministry on the Terms and Conditions of Service of Hospital Medical Staff (para. 91 (5)—Retrospective Application. Senior Registrars, Junior Registrars, and House Officers) that the posts which an officer has held from time to time since the appointed day should be reviewed and classified in accordance with the new grading, remuneration then being adjusted retrospectively. Therefore, if the medical officer in question has held the same post and carried out the same duties from January, 1949, it would appear that he is entitled (upon the introduction of the new terms of service) to payment of salary in accordance with his recent grading retrospectively to the beginning of the appointment.

Postgraduate Students from the Dominions

Q.—*What is the position of postgraduate students from the Dominions holding junior house appointments in this country, such students having held one, two, or more house posts in their own country, and also perhaps having had war service? Are these previous posts taken into consideration in assessing the salary, or must these doctors accept the minimum salary (£350 p.a.) for the first post held in England irrespective of their previous experience in their own country?*

A.—It is understood that, in the case of Dominion practitioners obtaining junior house appointments under the National Health Service in this country, similar posts previously held in other parts of the Commonwealth may be taken into account in fixing the salary of the appointment.

Resident Staff Under N.H.S.

Q.—*Will you please clear up a few points regarding the position of resident staff under the National Health Service? The vagueness lies mainly in the junior registrar posts. What qualifications or experience will be required for such a post, or will each advertisement stipulate the requirements? Secondly, what happens to a medical officer after his third hospital post? Does he continue on the £450 grade till he eventually succeeds in obtaining a junior registrar post, or will he be entitled to further increments? The difference in salary is £220—rather a high rise if there are no intermediate grades.*

A.—There are no criteria for the appointment of registrars (trainee specialists) in the terms and conditions of service other

than the minimum period of qualification which will normally be required—i.e., in the case of a junior registrar not less than one year's experience after registration; in the case of a registrar not less than two years' experience; and in the case of a senior registrar not less than four years. In practice each employing authority will stipulate the qualification and experience required, and the position will be very much the same as heretofore. Practitioners who have completed junior hospital appointments and who intend to specialize will seek higher posts which provide the necessary training and experience in open competition with their colleagues. A salary of £450 is payable for the third *and subsequent* house appointments, and an officer holding such an appointment will not receive any higher salary until he is successful in obtaining a registrar appointment or a post as junior hospital medical officer.

HEARD AT HEADQUARTERS

Hospitals and the Public

The first public meeting—in London, at all events—of a hospital management committee since the National Health scheme came into operation was held in Chelsea the other evening, and very interesting it was. The Chelsea group of hospitals is one of 50 groups under the control of the South-west Regional Hospital Board. The meeting was attended by the Mayor and the local Member of Parliament, and short accounts of their work were given by the chairman of the committee, the secretary, and the medical superintendents of the hospitals in the group. The beds available to the public in the three ex-council hospitals and the one ex-voluntary hospital which make up the group are considerably fewer than in 1939, but there has been a great increase in the number of operations performed and the radiological and pathological examinations undertaken, and an enormous multiplication, by nine or ten times, of out-patient attendances. The general tone of the meeting was one of optimism. The heavy cost of hospital services was fully recognized, but the public was assured that if hospital management committees had full control over administration there would be no waste. It seems an excellent idea to have such annual public meetings, alike to give the public information which they have a right to receive and to stimulate interest in hospitals, which is tending to flag since voluntary work diminished.

Horticultural Health Service

A doctor sends us the following letter that he received from a patient: "Dear Dr. ——, I want to have the electric current in the house. I think it will be healthier in this *little* house. I cannot grow bulbs very well indoors, and cut flowers do not last because of the gas. I believe perhaps the gas has a bad effect on myself. When I applied to the electric office I was told I must get a doctor's certificate. Will you please supply this. Also, will you please give me a certificate for new teeth. I have had these for years and cannot get the lower set in now. I require both top and bottom."

NEW ZEALAND MEDICAL SERVICE

Mr. E. W. Maples, LL.D., has written an interesting pamphlet on "Social Security Services in New Zealand" after an eight weeks' visit to the country. He compares the health services there with those in Britain, and emphasizes that the New Zealand method of paying doctors a fee for each service should not be adopted in England. He considers that, as in New Zealand so in England, the pressure on the doctor, which can be satisfied only too easily by prescribing drugs, is likely to increase materially. "The only remedy that seems possible is that patients, other than those in hospital, should be required to make some part payment of the cost, subject to the issue of free drugs to people suffering from illnesses like diabetes, and to repayment, to those on the poverty line, of the sums paid." He believes that the present scheme in New Zealand provides little or no encouragement to the individual doctor to gain further experience or to increase his skill. The pamphlet is obtainable from the author at 59, Bodenham Road, Hereford, if a stamped addressed envelope 9 in. by 6 in. is sent.

Correspondence

Position of Registrars

SIR,—I should like through the medium of the *Journal* to draw attention to the unsatisfactory position of a number of registrars throughout the country. There are on the staff of a proportion of hospitals registrars appointed before July 5, 1948, as honorary registrars. Some of these have held their posts for a year or two prior to the inception of the National Health Service Act and wait for vacancies on the medical or surgical staff in the ordinary course of events. During the tenure of their appointments the majority have worked hard, become integrated in the team work of their hospitals, and have earned the confidence and approbation of their seniors. These latter were, in the normal course, prepared to support the candidature of such registrars when a vacancy occurred on the hospital staff, in which appointment they exercised considerable influence.

With the inception of the new Act the staffs of the hospitals lost their influence over such appointments, and these are now made on the recommendation of a regional appointments committee to the regional hospital board. This committee contains two representatives only of the staff of the affected hospital out of seven members. The remaining members are appointed from outside the hospital group affected. It is true that these remaining five may give due attention to the opinion of the local members, but in effect appointments are liable to be, and no doubt are, made on paper records plus a short interview, and in these circumstances the local registrar is placed at a serious disadvantage.

Conceive the position of a registrar in the provinces who has held such a post for three years or more, who has been reasonably assured of appointment to a vacancy on the staff which he has known will be due to occur, and who has neglected opportunities of appointment elsewhere because of the local loyalties and associations he has formed during his period of probation. The vacancy occurs; sixty or seventy applications are received. Many of these come from younger, more recently qualified applicants, who have been acting as first assistant or as registrars at their teaching schools. Is it fair that a young man of this type should be appointed in preference to the local registrar who has been serving an apprenticeship the hard way for several years? I maintain, Sir, it is not fair.

A committee of cold-blooded assessors, diluted only by two in seven who have intimate knowledge of the work of the local candidate, cannot take into consideration any but the cold facts of qualifications and testimonials submitted to them. Many of the candidates from teaching centres will have the backing of their respective august chiefs, and these latter will have had opportunity to use their influence with the members of the committee from London or the university centre involved, to whom they will be well known. Indeed, they may even themselves be members of the appointments committee. In such circumstances the voices of the local members of the committee will be but faintly heard.

I feel that these committees should give very great weight, and indeed priority, to the opinion of the local members, who will have intimate knowledge of the *abilities* of one candidate at least.

Finally, Sir, what encouragement will this method of appointment give to future registrars? Can they be expected, especially in the provinces, to give unsparing loyalty and hours of overtime as they do at present, when the chances of their appointment to any vacancy which may occur are so nebulous? There appears to be an increasing tendency to appoint more and more registrars while making no provision for their future advancement by the creation of fresh specialist posts.

However, the future must care for itself. The position of the registrar is not quite the same as that of the honorary registrar appointed before the Act, whose case I am attempting to plead.—I am, etc.,

Plymouth. CYRIL F. MAYNE.

Telephone Duty

SIR,—Dr. E. Thomson (*Supplement*, July 16, p. 51) has referred to the telephone responsibility under the N.H.S. contract of service, and states that a doctor is responsible for the reception and forwarding of urgent telephone messages from his patients at any hour of the day or night.

I can remember no reference in the Act or in any contract that a telephone has to be a necessary equipment of the doctor's house. It is true that one's telephone number is requested on the executive council's form, but it is not a compulsory item. There is no legal obligation for a doctor to have a telephone at all, and if he wishes to run his practice without such an instrument I understand that he is at liberty to do so. I am informed there is no legal obligation for arrangements to be made to always have a continual telephone service any more than there is an obligation that the doctor's house shall never be left empty for a few hours.

As a country doctor without domestic help, either of such obligations would prevent me from ever going out with my own wife. A pad and pencil left outside the front door for visits or some such similar facility for messages is helpful, but again is not obligatory.

If desired, a telephone can be disconnected, and a doctor is free to go to those visits requested by letter or messenger only. Such a position is not very practical, but that is the position as I am led to understand it, and if true it should be known more widely.

I understand that a telephone call *once answered* does involve liability, but not otherwise.—I am, etc.,

Birmingham. E. J. JENKINS

Doctors and Dentists

SIR,—It is stated that for the first year of the Health Service in the Manchester area the average amounts paid approximated to about £3,400 per dentist and £1,280 per doctor in the Service. The value in terms of money of the dentist to the scheme is thus in round figures considered to be just under three times the value of the doctor's services. Are practising doctors as a body satisfied that this should be so?

Before the health scheme started it was generally conceded that the great responsibilities and exacting hours and duties of the average physician called for better rewards than those of the average dentist. One does not wish to express an opinion on the adequacy or otherwise of the average dental remuneration, but it is surely obvious to any fair-minded individual that the medical remuneration is hopelessly out of proportion to the duties involved.

One may take the Manchester figures as fairly representative of the industrial areas of the country. Let us remember that the doctor must keep up a 24-hour-day service in the home with the very considerable expense of keeping a car on the road every day of the year and a telephone and door serviced.

The dentist can manage very nicely without car or telephone except for his own personal convenience, and there is no night work. Let me put this in more concise form.

	Doctor	Dentist
Training	Long and arduous	Not so long or so arduous
Expenses	Considerable	Not so great
Hours of service	24-hour day	Ordinary daily hours—no night work
Car and travelling expenses	Essential	Unnecessary
Telephone	Essential	Convenient
Private practice	Practically eliminated	Still very considerable and lucrative
Practices	Confiscated. Appreciation—nil	Still retained with consequent house. Capital value appreciation
Servicing in the house of door and telephone	24-hour service daily	Not necessary
Holiday locum	Necessary	Unnecessary
Average income: Before scheme	1·25	2·65
After scheme	1	1
Treatment of dental haemorrhage	No extra fee	Special fee
Prospects	Pretty grim	Never brighter

And so you see the dentist has the advantage in every conceivable way.

One would imagine that the pay of chemists and opticians under the scheme is far above that of the doctors also. And yet we are the cornerstone of the whole edifice. For just how long are we willing to value our services at a pin's fee? Is it that the sacrificial role of Cinderella with least money for most work appeals to the self-abasing temperament of the long-suffering general practitioner?

The Minister of Health, possibly with good reason, appears to have a very poor opinion of the efficacy of the B.M.A. as a negotiating body (Committee stage of Amendment Bill). One can only hope that the B.M.A. will take steps to convince him without delay that nothing less than average remuneration totalling 25% above average dental remuneration will do for us. And let this happen before the inevitable plea of financial stringency is hurled at us. Remember, the dentists did not have their practices confiscated. What an asset now! Unity in the profession is of paramount importance. Without it we are lost. One would suggest that the local secretaries of the B.M.A. should be asked to make it their business to contact every G.P. in their area and that answers should be sought on these questions: (1) Are you satisfied? (2) Are you willing to withdraw from the scheme if advised so by the B.M.A.? It is obvious that local unity must be attained in this.

Whom the gods wish to destroy they first make mad, it is said. Is it that the medical profession (G.P. section) is in imminent danger of destruction? The labourer is worthy of his hire. We do not object to the dentists' being the spoilt darlings of the scheme. What we do object to is filling the role of poor relation. The doctors have to live as well as the dentists. The role of the big mug is a poor one as a permanency.

Dentists £3,400 per annum—doctors £1,280: it makes one gasp.—I am, etc.,

Manchester. K. V. DEAKIN.

Expose Defects

SIR,—The nation is passing through a crisis, and therefore a state of national emergency must exist. The National Health Service cannot expect to enjoy a separate existence in the face of the national emergency. It must take its place alongside all other vital national institutions.

Just as food is rationed to the bare necessities of life, and housing is restricted to a minimum, so, too, the Health Service must be restrained within medical and surgical necessities and essentials and the national facilities available.

It is now a year since the new Health Act first came into operation, and already its more glaring defects and shortcomings, both professional and economic, must have come to light. That the Act would be exploited was inevitable in view of its framework, but the extent to which it can be exploited must by now be exposed.

Members of the medical profession above all are in a position to fully appreciate these defects, shortcomings, and exploitations, and to gauge their full extent and gravity. They, above all, are in a position to adequately set them out and to suggest the remedies.

A possible withdrawal from the Service is said to be even under consideration. But here the issue would appear to be not entirely free from prejudice and personal grievances, many of which are common to everybody to-day. Would it not be more expedient if the profession were first of all to state a case on the disclosed defects, shortcomings, and exploitations of the Act, and have it laid if necessary before Parliament, at the same time claiming their just and undeniable right to the responsibility of declaring their remedies?

From the time a National Health Service was first mooted it was obvious that any such scheme could never be successfully implemented without the closest co-operation of the medical profession in both an executive and advisory capacity. That the Ministry of Health and Parliament may not have realized this does not relieve us of our responsibility.—I am, etc.,

New Buckenham, Norfolk. R. G. BLAIR.

Personality, education, diligence, knowledge, and clinical ability are conceded to the local consultants. Against this the appointing committee has no personal knowledge, as the old idea of interview has been abandoned, and the committee is probably a hundred miles away, out of reach of local opinion. As individual doctors these selectors would hesitate to risk a patient's life by prescribing by post; there seems no more justification for their actions here, with a professional life at stake.—I am, etc.,

Bournemouth. P. P. MCKINNEY.

The Maternity Service

SIR,—I have received my copy of the statement issued by the Standing Maternity and Midwifery Advisory Committee of the Central Health Services Council (*Supplement*, Aug. 6, p. 74). It only confirms the gross defect in the maternity medical service scheme, which was obvious before it began to operate.

The conscientious family doctor who joined the Service has continued to do his maternity work exactly as before. On the other hand, it seems (*vide Supplement*, April 23, p. 248), some doctors have booked far more cases than before with the deliberate intention of doing the minimum of work for the maximum number of flat-rate fees. They have made a racket of the thing. This is not surprising; the regulations invite it.

Now comes this circular, with open encouragement for the racketeers, and a threat for the good G.P. obstetrician. Hands off! We are not to pretend that we are in charge of our patients. We are the least essential members of a team.

I shall continue to tell my patients that the maternity scheme entitles them to engage me for their confinements if they wish. Being engaged, I *shall* "accept full responsibility for the antenatal care, the labour, and the lying-in period." If I am thrown out of the maternity service for this I shall be delighted.—I am, etc.,

Cambridge. H. R. YOUNGMAN.

*** The Secretary of the Association writes: The General Medical Services Committee has dissociated itself from the contents of this circular and has asked the Ministry of Health to receive a deputation on the subject.

POINTS FROM LETTERS

Income Reduced

Dr. R. H. A. RITCHIE (Sutton, Surrey) writes: After the first year of N.H.S. I am one of a large majority of G.P.s whose income has been substantially reduced as a result of the scheme. None of us can continue long under these conditions. What is the B.M.A. doing about this state of affairs? It is galling to find that dentists are in clover. And who are of the greater value to the community, G P.s or dentists?

Allowance for Telephone Calls

Dr. THOMAS LEVEN (Irvine, Ayrshire) writes: Since the introduction of the National Health Service most hospitals have found it necessary to introduce an appointments system, which places upon the general practitioner the necessity of telephoning hospitals to make such appointments for patients who require examination by consultants or specialists. In the case of country and other practitioners who are some distance from suitable hospitals this duty involves considerable expense, which in my view is not adequately covered by the capitation fee. I request that the British Medical Association urge—nay, demand—that the Minister of Health and the Department of Health for Scotland accept the financial responsibilities of such calls, either by allowing their hospitals to accept reversed charges for legitimate calls or by an allowance for telephone calls to all practitioners on the same principle as the Mileage Fund. . . .

Universal Health Service

Dr. JOHN DEBARY (London, E.5) writes: A patient called to see me to-day with the following story. She was staying in Nice, and had a fall on the beach, as a result of which she hurt her varicose leg. She called a French doctor, who applied a dressing and a crêpe bandage. His bill was 23s. She asked me if there was any means of obtaining a refund of this fee from the N.H.S. Whatever next?

Correction.—The Medical Practices Committee states that in the amended Schedule 2 of its Survey of General Practice (*Supplement*, Aug. 20, p. 93) Mildenwall should be spelt as here, and not Mildenhall.

H.M. Forces Appointments

ROYAL NAVY

ROYAL NAVAL VOLUNTEER RESERVE

Surgeon Lieutenant G. R. Kershaw to be Surgeon Lieutenant-Commander.

Temporary Acting Surgeon Lieutenant-Commander A. J. Ward has been transferred to List I of the Permanent R.N.V.R., in the rank of Surgeon Lieutenant.

ARMY

Colonel W. D. Anderton, M.C., late R.A.M.C., has retired on retired pay, and has been granted the honorary rank of Brigadier.

ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel J. M. MacKenzie, C.B.E., M.C., has retired on retired pay, and has been granted the honorary rank of Brigadier.

Lieutenant-Colonel J. F. Shepherd, M.B.E., I.M.S., retired, Retired and Re-employed, has ceased to be re-employed in the rank of Colonel as a Consultant, reverted to retired pay, and has been granted the honorary rank of Colonel

Lieutenant-Colonel R. D. Davy, O.B.E., M.C., has retired on retired pay and has been granted the honorary rank of Colonel.

Majors W. F. Hooton, R. M. Henderson, and J. C. Scott, from Short Service (Specialist) Commissions, to be Majors.

Major J. Walsh has retired on retired pay on account of disability. (Substituted for the notification in a *Supplement* to the *London Gazette* dated June 14.)

Short Service Commission, Specialist.—Major R. T. Fletcher, M.B.E., has r

Temporary M.C., has relinquished his commissio

REGULAR ARMY RESERVE OF OFFICERS

Colonel H. C. D. Rankin, C.I.E., O.B.E., late R.A.M.C., having exceeded the age limit for liability to recall, has ceased to belong to the R.A.R.O., and has been granted the honorary rank of Major-General.

Colonel E. P. Allman-Smith, O.B.E., M.C., late R.A.M.C., having exceeded the age limit for liability to recall, has ceased to belong to the R.A.R.O.

ROYAL ARMY MEDICAL CORPS

Major R. W. Chapman, having exceeded the age limit for liability to recall, has ceased to belong to the R.A.R.O., and has been granted the honorary rank of Lieutenant-Colonel.

Major S. P. Wilson, T.D., having exceeded the age limit for liability to recall, has ceased to belong to the Reserve of Officers.

Captain (Honorary Major) C. G. Harper, having exceeded the age limit for liability to recall, has ceased to belong to the Reserve of Officers.

Captain and Brevet Major J. S. Sloper, O.B.E., having exceeded the age limit for liability to recall, has ceased to belong to the R.A.R.O., and has been granted the honorary rank of Colonel.

Captains and Brevet Majors R. C. Aitchison, F. H. Woods, G. H. Wood, E. J. Mannix, M. McGee Russell, H. J. Davidson, M.C., and C. W. Sparks, M.C., having exceeded the age limit for liability to recall, have ceased to belong to the R.A.R.O., and have been granted the honorary rank of Major.

Captains and Brevet Majors J. W. Cannon, A. G. P. Hardwick, M.C., H. Mitchell, and G. Fleming, having exceeded the age limit for liability to recall, have ceased to belong to the R.A.R.O.

Captain H. L. G. Hughes, C.B.E., D.S.O., M.C., having exceeded the age limit for liability to recall, has ceased to belong to the R.A.R.O., and has been granted the honorary rank of Brigadier.

Captain T. E. Osmond, having exceeded the age limit for liability to recall, has ceased to belong to the R.A.R.O., and has been granted the honorary rank of Colonel.

Captains C. J. O'Reilly, D.S.O., W. D. Whamond, A. G. Henderson, and G. Marshall, having exceeded the age limit for liability to recall, have ceased to belong to the R.A.R.O., and have been granted the honorary rank of Lieutenant-Colonel.

Captains G. D. Robertson, R. J. S. McDowall, H. A. Crouch, O.B.E., M.C., I. Aubrey, M.B.E., M.C., D. A. D. Kennedy, M.C., and P. Reid, having exceeded the age limit for liability to recall, have ceased to belong to the R.A.R.O., and have been granted the honorary rank of Major.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

Major (Temporary Lieutenant-Colonel) A. G. Henderson, Reserve of Officers, has relinquished his T.A. Commission.

Captain R. F. Guymer, from T.A.R.O. to be Major, and has been granted the acting rank of Colonel.

Major S. P. Wilson, T.D., has relinquished his commission.

Captain C. J. Wells, M.B.E., to be Major.

TERRITORIAL ARMY RESERVE OF OFFICERS: ROYAL ARMY MEDICAL CORPS

Major (Acting Lieutenant-Colonel) J. B. Forsyth, T.D., from Active List, to be Major, relinquishing the acting rank of Lieutenant-Colonel, and has been granted the honorary rank of Colonel.

Majors T. F. Lalor and A. W. Forrest, from Active List, to be Majors.

Captain (acting Major) I. C. Campbell, from Active List, to be Captain, relinquishing the acting rank of Major.

ROYAL AIR FORCE

Group Captain L. C. Palmer-Jones has retired at his own request.

Group Captain R. W. White has retired on account of medical unfitness for Air Force service.

Wing Commander P. J. McNally to be Group Captain.

Squadron Leaders J. F. McGovern, L. S. Everett, E. W. R. Fairley, and H. O'B. Howat to be Wing Commanders.

Flight Lieutenant S. C. Farman has been transferred to the Reserve, class D, retaining the rank of Squadron Leader.

To be Squadron Leaders: A. L. Knipe, H. O'B. Howat, and L. V. McNabb.

Flight Lieutenants D. S. Grant, W. O. Davies, and J. M. Ferguson to be Squadron Leaders.

Flying Officer P. H. Moore to be Squadron Leader.

ROYAL AIR FORCE VOLUNTEER RESERVE

Squadron Leader C. H. Levick has relinquished his commission on appointment to the reconstituted R.A.F.V.R., retaining the rank of Wing Commander.

Squadron Leaders J. A. Chalmers and P. R. Kemp have relinquished their commissions on appointment to the reconstituted R.A.A.F., retaining their rank.

Flight Lieutenant G. O. Horne has relinquished his commission on appointment to the reconstituted R.A.A.F., retaining the rank of Squadron Leader.

Flight Lieutenants D. St. C. L. Henderson and H. E. W. . . . their commissions on appointment to . . . retaining the rank of Squadron Leader.

Flight Lieutenant W. Lyons has relinquished his commission, retaining the rank of Squadron Leader.

WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

Flight Lieutenant A. M. O'Riordan has relinquished her commission, retaining the rank of Squadron Leader.

INDIAN MEDICAL SERVICE

Colonel J. G. McCann has retired.

Lieutenant-Colonels W. H. Crichton, C.I.E., A. H. Barzilay, R. I. Reid, F. C. Jackson, W. P. Lappin, O.B.E., and M. K. Bryce have retired and have been granted the honorary rank of Colonel.

Lieutenant-Colonels K. S. Fitch, O.B.E., J. O'Neill, D. McCarthy, R. J. Jarvie, W. Scott, W. T. Taylor, O.B.E., and M. M. Mansfield have retired.

Major (War Substantive Lieutenant-Colonel) J. L. Mewton, O.B.E., has retired, and has been granted the honorary rank of Colonel.

Majors R. D. D. Birdwood, M.C., G. S. Michelson, P. W. Kent, L. H. Cooper, R. M. McCullough, J. L. M. Whitbread, F. W. Sneddon, O.B.E., S. H. Heard, M.B.E., W. S. Hacon, H. F. T. MacFetridge, D.S.O., H. C. Rogers, J. F. A. Forster, M.B.E., E. L. Wilson, J. P. O'Riordan, D. F. Eastcott, and J. M. M. Drew have retired and have been granted the honorary rank of Lieutenant-Colonel.

Majors W. D. P. Griggs, J. J. Woodward, M.B.E., P. M. Kirkwood, M.B.E., and H. V. Morris have retired.

Major R. O. Yerbury has relinquished his commission on appointment to a permanent commission in the R.A.F.

COLONIAL MEDICAL SERVICE

The following appointments have been announced: P. H. Canham, M.B., Lady Medical Officer, Gold Coast; J. A. Gemmell, M.B., Lady Medical Officer, Aden; F. R. MacNaughton, M.B., Medical Officer, Nyasaland; G. Skinner, M.R.C.S., D.T.M., and K. J. Covell, M.B., Medical Officers, Tanganyika; H. S. Bannerman, M.B., Medical Officer (African) Gold Coast; W. S. Kulesza, M.B., Medical Officer, St. Vincent; W. Wolyncewicz, M.B., District Medical Officer, Grenada; P. G. Currid, M.B., D.P.H., Administrative Medical Officer, Superscale Grade A, Federation of Malaya; W. C. B. Harrison, L.R.C.S.I., D.P.H., Senior Medical Officer, Northern Rhodesia; N. E. W. Anderson, M.B., D.P.H., D.T.M.&H., G. M. M. Menzies, M.B., and F. L. G. Selby, F.R.C.S., Assistant Directors of Medical Services, Nigeria; G. I. H. Braine, M.B., D.T.M.&H., and J. E. McMahon, M.B., D.T.M.&H., Administrative Medical Officers, Superscale Grade B, Federation of Malaya; L. F. Chan, M.B., D.T.M., Medical Officer, Grade A, Trinidad; D. H. Vollet, M.B., Ch.B., Director of Medical Services, Basutoland.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

B.M.A. LIBRARY

The following books have been added to the Library:

Adler, A.: Guiding Human Misfits. Second edition. 1948.
Advances in Genetics: Vol. 1—1947 and Vol. 2—1948.
Allen, A. C.: Atlas of Medical Diseases of the Kidney. 1947.
Anderson, D. G., and Keefer, C. S.: Therapeutic Value of Penicillin: A Study of 10,000 Cases. 1948.
Anomaly: The Invert and His Social Adjustment. Second edition. 1948.
Barach, A. L.: Physiologic Therapy in Respiratory Diseases. Second edition. 1948.
Bastos Mora, F.: Cirugía de las Parálisis Espásticas. 1948.
Behrman, H. T., and Levin, O. L.: Your Skin and Its Care. 1948.
Berg, H.: Wetter und Krankheiten. 1948.
Bloom, W. (Editor): Histopathology of Irradiation from External and Internal Sources. 1948.
Bullough, W. S.: Practical Zoological Illustrations: Invertebrates (a collection of plates). 1948.
Congress, Third American, on Obstetrics and Gynecology: Transactions, Sept. 8-12, 1947. 1948.
Congress, International, of Obstetricians and Gynaecologists, Dublin, July 7-11, 1947: Transactions. 1949.
Congress, Fourth International, on Tropical Medicine and Malaria, Washington, May 10-18, 1948: Proceedings. Two volumes. 1948.
Critchley, M.: Sir William Gowers 1845-1915: A Biographical Appreciation. 1949.
Current Therapy, 1949: Edited by Howard F. Conn. 1949.
Davis, H. A.: Shock and Allied Forms of Failure of the Circulation. 1949.
Debrunner, H.: Lumbalgien. 2 Auflage. 1948.
Entretiens de Bichat 1948: Chirurgie-Spécialités. 1948.
Entretiens de Bichat 1948: Médecine. 1948.
Farquharson, E. L.: Illustrations of Surgical Treatment: instruments and appliances. Third edition. 1949.
Feyrter, F.: Uber Neurome und Neurofibromatose, nach Untersuchungen am menschlichen Magendarmschlauch. 1948.
Gates, R. R.: Human Ancestry. 1948.
Grenet, H.: Conférences Cliniques de Médecine Infantile. Troisième série. Troisième édition. 1949.
Gross, M., and Greenberg, L. A.: The Salicylates. 1948.
Hall, S. B.: Psychological Aspects of Clinical Medicine. 1949.
Hertzberg, G.: The Achievements of B.C.G. Vaccination. 1948.
Hutchison, Sir R., and Hunter, D.: Clinical Methods. Twelfth edition. 1949.
Keefer, C. S., and Hewitt, C. S.: Therapeutic Value of Streptomycin: A Study of 3,000 cases. 1948.
Kemp, W. N.: Elementary Anesthesia. 1948.
Keynes, G. (Editor): Blood Transfusion. 1949.
Khairallah, A. A.: Outline of Arabic Contributions to Medicine. 1946.
Lavoine: L'Anesthésie du Cyclopropane. 1949.
Lian, C. (Editor): Médecine Pratique. 1948.
Lull, C. B., and Hingson, R. A.: Control of Pain in Childbirth. Third edition. 1948.
Macalpine, J. B.: Cystoscopy and Urography. Third edition. 1949.
Martini, P.: Methodenlehre der therapeutisch-klinischen Forschung. 1947.
Moore, Dom T. V.: Driving Forces of Human Nature and Their Adjustment. 1948.
Naranjov, P.: El Sistema Neurovegetativo. 1948.
Ogilvie, Sir H., and Thomson, W. A. R. (Editors): Minor Surgery ("The Practitioner" Booklets). Second edition. 1949.
Paraf, J.: Etudes Cliniques sur la Tuberculose. 1948.
Portié, J. F.: Essai d'Exploration Humaine. 1947.
Rainer, F. J., and Tudor, A.: L'Oeuvre Scientifique. Three volumes. 1945.
Rainer, F. J.: In Amintirea (1874-1944). 1946.
Rainer, F. J., and Tudor, A.: Le Métopisme chez les Roumains et en Général. 1946.
Ribeiro, E. B.: A Penicilina por vía Arterial nas Osteomielites. 1947.
Riese, J.: Akute äussere Prozesse. 1948.
Schafer's Essentials of Histology. Fifteenth edition edited by H. M. Carleton and E. H. Leach. 1949.
Sciuto, J. A.: Estudio Clínico del Enfisema Pulmonar. 1947.
Simonnet, H.: L'Oeuvre de Louis Pasteur. 1947.
Sourdille, M.: Traitement Chirurgical de l'Otospongiose. 1948.
Squirru, C. M., Galea, M. B., and Bianchi, H. D.: La Penicilina en Cirugia Maxilo-Facial. 1946.
Stevenson, R. S., and Guthrie, D.: History of Oto-laryngology. 1949.
Terracol, J., and Lapouge, J.: La Pénicilline en Oto-rhino-laryngologie. 1947.
Tosatti, E.: Le Infiltrazioni del Simpatico. 2a edizione. 1947.
Tournay, R., and Wallois, P.: Les Varices de la Grossesse. 1948.
Trojan, F.: Der Ausdruck von Stimme und Sprache. 1948.
Ulrici, H.: Der praktische Arzt und die Tuberkulose. 1948.
Vogler, P., and Hassenpflug, G.: Das Gesundheitswesen in der Bauplanung Berlins. 1948.
Waldhecker, M.: Das Eke-ABC. 1948.
Wanke, R.: Pathologische Physiologie der frischen geschlossenen Hirnverletzung. 1948.
Wormser, P.: Die Reaktion der Pupille auf Mydriatica nach Unterbrechung der sympathischen Pupillenbahn. 1948.
Yeremitch, R.: A Bibliography of Serbian Medical Literature. 1757-1918 (in Serbian). 1947.

Association Notices

TUBERCULOSIS AND DISEASES OF THE CHEST GROUP

The inaugural meeting of the Tuberculosis and Diseases of the Chest Group of the Association, whose formation was approved by the Council on June 27, 1949, will be held at B.M.A. House on Friday, Sept. 23, 1949, at 2 p.m.

All those interested in this new group are invited to attend. Application forms for membership of the group may be obtained from the Secretary, B.M.A. House, or will be available at the meeting.

AREAS OF HOLLAND AND LINCOLN DIVISIONS

The Council has transferred the following areas from the Lincoln Division to the Holland Division:

Urban District of Skegness.

That part of the R.D. of Spilsby comprising the Civil Parishes of Wainfleet All Saints, Friskney, Stickney, Croft, New Leake, Eastville.

CHARLES HILL,
Secretary.

PRIZES FOR MEDICAL STUDENTS, 1950

The Council of the British Medical Association is prepared to consider the award in 1950 of prizes to medical students for essays submitted in open competition.

The subject of the essays shall be "Clinical Teaching in Relation to the Practice of Medicine."

The purpose of these prizes is the promotion of systematic observation among medical students. In awarding the prizes due regard will be given to evidence of personal observation. No study or essay that has previously appeared in the medical press or elsewhere will be considered eligible for a prize. Any medical student who is a registered member of a medical school in Great Britain or Northern Ireland at the time of submission of the essay is eligible to compete for a prize.

If any question arises in reference as to the eligibility of a candidate or the admissibility of his or her essay, the decision of the Council of the British Medical Association shall be final. In determining the number and the value of the prizes to be awarded the Council will take into consideration the number of essays received. Should the Council decide that no essay entered is of sufficient merit, no awards will be made.

Each essay must be typewritten or legibly written in the English language, on one side of the paper only, must be unsigned, and must be accompanied by a form of application which can be obtained from the undersigned. Essays must be forwarded so as to reach the Secretary of the British Medical Association not later than Dec. 31, 1949. Inquiries relative to the prizes should be addressed to the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1.

CHARLES HILL,
Secretary.

NATHANIEL BISHOP HARMAN PRIZE

The Council of the British Medical Association is prepared to consider the award of the Nathaniel Bishop Harman Prize in the year 1950. The value of the prize is approximately £100. The purpose of the prize is the promotion of systematic observation and research among consultant members of the staffs of hospitals who are not attached to recognized medical schools. It will be awarded for the best essay submitted in open competition. The work submitted must include personal observations and experiences collected by the candidate in the course of his practice. A high order of excellence will be required. No study or essay that has been previously published in the medical press or elsewhere will be considered eligible for the prize.

Any registered medical practitioner who is a consultant member of the staff or senior hospital medical officer of a hospital in Great Britain or N. Ireland and is not attached to a recognized medical school is eligible to compete. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay the decision of the Council shall be final.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1950 but will be offered again the year next following this decision, and in this event the money value of the prize on the occasion in question shall be such proportion of the accumulated income as the Council shall determine.

The writer of the prize-winning essay may be required to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate Section of the Annual Meeting of the Association. Each essay must be typewritten or printed in the English language, and must be distinguished by a title and a motto. The essay must not bear the name of the writer, which should be sent with the essay in a sealed envelope bearing only the motto on the outside.

The title of the proposed essay and the motto should also be notified in writing to the Secretary by Dec. 1, 1949, on a form to be obtained from the Secretary. Essays must be forwarded to reach the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, not later than March 31, 1950. The prize will be awarded at the Annual Meeting of the Association to be held in 1950. Inquiries relative to the prize should be addressed to the Secretary.

Diary of Central Meetings

AUGUST

31	Wed.	General Medical Services Committee, 11 a.m.

SEPTEMBER

9	Fri.	Joint Committee on Fees for Part-time Work under Local Authorities, 2 p.m.
13	Tues.	Proprietary Medicines Committee, 11 a.m.
14	Wed.	Rural Practitioners' Subcommittee 11 a.m.
15	Thurs.	General Medical Services Committee, 11 a.m.
16	Fri.	Committee on Psychiatry and the Law, 2 p.m.

OCTOBER

5	Wed.	Joint Committee of British Medical Association and National Veterinary Medical Association, 2.30 p.m.

Meetings of Branches and Divisions

SOUTH-EASTERN COUNTIES DIVISION

A meeting of the Division was held at St. Boswells on July 3. After Dr. Glover had given a report of the Association's Annual Meeting at Harrogate, the meeting discussed the constitution of the local medical committee. It was decided that the committee should consist of five members from Roxburghshire, five from Berwickshire, five from Selkirkshire, two medical superintendents from Peel and Dingleton, and the medical officer of health of each of the three counties. Seven members should constitute a quorum. Any practitioner could be co-opted for special reasons. The committee should issue an annual report. Dr. Glover proposed that the old committee be re-elected, and the motion was carried.

SUFFOLK BRANCH

The Annual Meeting of the Suffolk Branch was held at Bury St. Edmunds on July 14, with the president, Mr. F. R. Stansfield, in the chair and 33 members present.

The report for the year 1948–9 was unanimously approved. The meeting also approved the establishment of a contingency fund in place of the local levy fund referred to in the report. A vote of thanks to Dr. R. A. Leader, who had audited the Branch accounts, was passed. Mr. Stansfield, the retiring President, then formally introduced Mr. D. J. P. O'Meara as president for the year 1949–50.

The new president took the chair, and was invested with the chain of office. Mr. G. F. Langley, who had been elected by the Branch Council to continue as honorary secretary and treasurer, was then invested with the secretary's badge of office. Dr. R. A. Leader and Dr. H. Roger were elected as public health representatives to serve on the Branch Council.

Mr. O'Meara then introduced Mr. M. W. Bulman, who gave an address on "The New Look in Obstetrics." He said that fear was often responsible for pain in labour in the absence of gross physical defect, and that labour could be postponed by psychological reactions, so that postmaturity, inertia, and delay in the first stage of labour often resulted from the subconscious desire to postpone the feared events. Shock without severe haemorrhage might be initiated by fear.

Lactation had recently been investigated by Peterson in cows, and he had found that peaceful surroundings, one attendant, and a regular milking routine, with milking more frequently than twice daily, benefited the cow and increased the quantity of milk. Applying this to infant feeding, Mr. Bulman suggested that sometimes it was desirable to allow the fractious child to feed more frequently than at the customary three- or four-hourly intervals. The mother and child should be a "biological unit," which would eventually settle down to a routine beneficial to both.

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REFORM IN MEDICAL EDUCATION*

BY

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The last quarter-century has seen three notable publications concerned with this subject. First, the excellent report of Dr. Abraham Flexner (1925) on his comparative study of medical education in Europe and America undertaken under the auspices of the Division of Medical Education of the Rockefeller Foundation; secondly, the Report of the Interdepartmental Committee on Medical Schools (1944), under the chairmanship of Sir William Goodenough; and last, but by no means least, *The Training of a Doctor*, by Sir Henry Cohen and his colleagues of the Special Committee of the British Medical Association (1948).

A brief consideration leads inevitably to the conclusion that education in medicine has developed more according to the dictates of expediency and tradition than as the result of integrative development based on continuity of principle. I shall therefore attempt to outline certain appropriate principles and objectives, beginning with the assertion that medicine is essentially a science in that it deals with phenomena and is based on observation, experiment, and deduction, and is an art only in so far as the term means human skill, both definitions being derived from the *Concise Oxford Dictionary*. Popular perversion of these terms imputes to them the qualities of opposites, science being regarded as meaning preoccupation with essentially laboratory aspects of disease, while the latter has come to imply mystic qualities of insight which transcend logic and defy definition.

Enlightened promotion of health and care of the sick must be based on scientific method which compels thorough observation, leading to recognition of causal factors and to interference in natural processes only when there is good evidence that such interference is likely to diminish the disrupting effect of disease on the community or the individual. The clinician who makes his diagnosis from the patient's history and the presence or absence of physical abnormality and applies treatment which favourably alters the disease is practising the scientific method just as much as the experimental biologist who observes the behaviour of a cell in tissue culture, deduces a particular force determining that behaviour, and tests his hypothesis by observing the effect of calculated interference. It makes no difference to the quality of the science if in a particular case the clinician can carry out this process with his unaided senses while in another case he has to extend his sensory appreciation by microscopy, radiography, or chemical analysis. Science is just as much disgraced by the overzealous application of elaborate technical investigation regardless of the patient's emotional state as it is by indiscriminate blunderbuss therapy with a superficial diagnosis or perhaps no diagnosis at all.

The Scientific Method in Medicine

Despite the fact that scientific method was appreciated by Hippocrates and Galen, its substantial application to medical practice is a comparatively modern development; indeed, it is probably incorrect to assume that it is at all widespread even to-day. The reasons for this are to be found, first, in the developmental history of medicine in its relation to mankind, and, secondly, in the prevailing emotional pattern of man himself. Fear is one of the dominant human emotions, and bodily and mental disorder is a potent source of fear both to the sufferer and to his dependants largely because ill-health is a constant reminder of insecurity and mortality. When confronted with illness and the threat of illness the sufferer casts around for help, and the more omniscience and omnipotence he imputes to his helper the greater surcease does he gain from fear.

In the early river-valley civilizations of Babylonia and Egypt medicine was practised by the priesthood, who, greedy for power, relied mainly on mysticism and empiricism for their influence. Throughout the ages the practice of Medicine has been a compound of superstition, empiricism, and scientific method; the last in but small proportion. It is still very true that in order to give patients comfort from their fears it is often necessary for the physician to pretend to a degree of insight and confidence he sadly lacks. Small wonder is it that in these circumstances the systematic practice of scientific method tends to languish. It is but a small step from the physician deceiving the patient to deceiving himself. It is only by thorough grounding in scientific method that the medical practitioner can hope to retain a foundation of intellectual honesty in the shifting sands of emotional prejudice.

The attitude of the public to medicine is, of course, not fixed; indeed, it is changing with astonishing rapidity. One is frequently delighted to find how much intelligent insight laymen have in medical matters. People are beginning to distrust the doctor who goes on treating them for chest disease without an *x*-ray examination, who doses them for anaemia without a blood test, or who tells them

*From an address delivered to the East Yorkshire Branch of the B.M.A. on March 9, 1949.

that their febrile attack is a "touch of malaria" without finding parasites. An increasing number of patients are beginning to suspect that the vast majority of illnesses recover spontaneously and not as the result of the "doctor's medicine." Patients not infrequently come to the doctor saying that no doubt their complaint will right itself, but they would like to know how long it will last and whether anything will hasten recovery.

If scientific method be the most desirable quality in medical practice its inculcation should be the chief endeavour of medical education. The first and main step in its application is the collection and evaluation of evidence directed towards establishing the best possible diagnosis—that is, a diagnosis based on aetiology. In the case of an infective disease this implies the recognition of the causal organism, its source, the mode of infection, and an assessment of factors, intrinsic and extrinsic, which have determined the susceptibility of the patient to attack. In many diseases one has, in the present state of knowledge, to be content with an inferior brand of diagnosis which goes no further than recognizing the probable type of the disease on the basis of similarity to some general qualitative concept. For instance, the diagnosis of effort syndrome is based on an aggregate of disturbances not due to any clearly defined organic or psychological defect in a person whose personality is of the type generally known to be liable to such reactions. The recognition of such inferiority of diagnosis is a constant reminder of the limited horizon, and should act as a spur to the enlargement of knowledge. Scientific method is critical of the quality of evidence and tries always to measure. A complaint of pain is not regarded as of much value until it has been defined in terms of its severity, location, duration, and quality. The statement that tubercle bacilli are not present in the sputum is regarded as of little value without knowing how often the examination has been performed and whether concentration methods have been used and cultures made. A common example of neglect of scientific method is the tendency to embark on a range of laboratory tests without a thorough history. The most important step in the elucidation of an obscure disorder may be the obtaining from another hospital of a report of some antecedent illness or operation.

The scientific study of disease recognizes no limitation of methods of observation. The pencil and notebook can be as effective an instrument of investigation as the electron microscope—indeed, often more so. The only purpose in employing the inferior clinical methods of physical examination of the chest when a radiograph is available is to keep in practice these methods against the time when radiology is not available. It is just as important to appreciate the limitations of a method as to know its possibilities. The good physician appreciates that he deals in probabilities and not certainties. There is no such thing as the "cast-iron" diagnosis. It is a commonplace in medicine to see individuals, condemned to death on the basis of a well-supported diagnosis of fatal disease, gain a reprieve either because of the remote chance of error or the rare regression of the process.

Faults of Educational Practice

An important characteristic of scientific method is that it strives always to be quantitative. The transition from the qualitative to the quantitative marks the adolescence of a branch of science, and the conviction that if a phenomenon exists it can be measured is a sign of scientific sophistication. It is one of the serious faults of current educational practice that it allows people to obtain the hallmarks of higher education without any training in size language. Much effort is expended in developing facility in two or more descriptive languages, living or dead, in history, in formal mathematics, etc., to the complete neglect of training in elementary statistical methods. In my opinion some appreciation of how to assess significance in numerical data, the normal distribution, and the theory of probability is just as important in the educated person—particularly if he aims at being a useful physician—as being able to preserve the integrity of his infinitives and the purity of his tenses. Mathematics to a higher standard, including elementary statistical methods and an introduction to the calculus—most important in biological science because of its preoccupation with rates of change—should be an essential requirement for admission to a medical school. In exchange for this educational benefit I would willingly give the dead tongues, solid geometry, and much else besides.

Another characteristic of scientific procedure is a keen appreciation of the limitations of knowledge. It has been said, whimsically, that one of the functions of a university is to teach what is not known, partly in order to throw into greater prominence the little that is known and partly to stimulate inquiry so as to reduce, however slightly, the seemingly infinite content of the unknown. Progress in medicine has often been retarded by established authority. There is in human nature a deep-rooted fear of the unknown which tends constantly to seek solace in belief in the authority of the elder and to look for inspiration to the didactic rather than the appeal to reason. What in the light of present knowledge looks logical is likely to be quite absurd in the light of future discovery; expressed epigrammatically, the dogma of to-day is the doubt of to-morrow. It was Willard J. Stone (1936) who, in his monograph on Bright's disease, headed a chapter on classification with this apt quotation from Bacon: "The first distemper of learning is when men study words and not matter." It should be the constant endeavour of the teacher in any branch of knowledge—and the principles of science are applicable to all knowledge—to be constantly on the watch to prevent the student believing rather than comprehending. It is the inevitable fate of the teacher endowed with superior intelligence, wide knowledge, and an attractive personality that his followers tend to accept his pronouncements because they are his and not because they represent reasonable deduction from inevitably meagre data. The intellectual vigour and scientific quality of a medical school can be gauged by the quality of the teacher-pupil relationship. An outstanding flaw in this respect is any element of the pompous or pontifical; a sign of grace is an atmosphere in which no student is ever afraid to question or to express doubt and in so doing is assured of kindly and appreciative consideration.

Much misconception has arisen with regard to that curious attribute which is called "clinical instinct," the possession of which confers the power to arrive at a correct diagnosis, more or less, at a glance. By many it is regarded almost with awe as evidence that its owner has capabilities which transcend scientific procedure—something akin to second sight. "He took one look at the patient and said he's a case of acute Hodgkin's"—how often have we heard that sort of story? Such a *tour de force* is a compound of acute observation, extensive experience, and rapid deduction—all perfectly proper—coupled with a large slice of luck. If a clinical teacher indulges in such a diagnostic gymnastic he should take great pains to analyse the processes by which he arrives at the conclusion and

to emphasize that it is no substitute for thorough verification.

Another much more mischievous slur that is often cast on scientific method in clinical practice is the implication that it is in some way antagonistic to the humanity which should characterize the physician in his attitude to suffering. In that the object of the scientific approach is to influence favourably the state of the patient, any lack of sympathy or neglect of the patient's emotional state is just as much a crime against science as it is against humanity.

The distinction between scientific method and empiricism, although very important, is rather subtle, in that the relationship is rather that of the part to the whole. While the scientist is always endeavouring to verify and to extend knowledge the empiric recognizes no such responsibility, but is perfectly content to work within the bounds of current belief. I fully recognize that for those but moderately endowed with intellectual ability a sort of conditioned empiricism is the only possible *modus operandi*, but this should always be recognized as an inferior substitute.

Selection of Teachers

It is clear that no educational system, however perfectly it be designed, can produce good results if it be applied to indifferent students by dull teachers. It is appropriate, therefore, to consider next the selection of the teachers and the taught.

In the past the system of training and selection of the academic staffs of the non-clinical departments of medical schools has been on a very much more satisfactory footing than in the clinical departments. The main reason for this is the circumstance that these men have been "whole-time" university or medical school teachers and have therefore been free to move from school to school, thereby acquiring a valuable breadth of outlook and experience. Furthermore, their advancement has depended very much more on their status in the national or international association of their colleagues than on their local status among those most of whom are unable to assess them as critically as their peers. For instance, the career of a physiologist depends primarily on the opinion that other physiologists hold of him. In my opinion that is the biggest single factor which has promoted the undoubted scientific ascendancy of the so-called laboratory sciences over the clinical departments. In my own alma mater this point is well illustrated in a non-clinical department which in virtue of its whole-time status has been able to maintain in its direction an unbroken dynasty of illustrious scientists.

Promotion to academic posts in the clinical subjects has been handicapped by the fact that until the comparatively recent introduction of whole-time units the field of those eligible has been almost entirely limited to those who had already sunk economic roots in the locality. This has resulted in a great variation of standards and quality from place to place and from time to time in the same place. It is not so much that those responsible have frequently made errors in selection as that sometimes they could have done much better if the field of candidates had been nation-wide instead of parish-wide. The other side of this picture is that many individuals of the highest ability and promise must have been denied opportunity because they had the misfortune to be contemporary with a surplus of quality in their own school and the system denied them the chance to move elsewhere. Previously academic clinical appointments, with the exception of a few whole-time posts, had to be filled from "local talent," and the almost invariable practice was for recognition as clinical teachers to be accorded to those who had been elected to the staff of the teaching hospital, in many places without prior reference to the University, which therefore had little if any direct influence on the appointment.

The position is very much better under the new Act. The substantial payment now given to all clinical staffs should make it easy for a specialist to accept an appointment away from his own school. Whereas previously his survival in a new milieu was dependent upon his gaining in a short time a consulting practice or upon the possession of private means, he now, even on a part-time basis, has enough to keep him going until additional connexions are established.

This severance of geographical economic bonds can confidently be expected to have a great vitalizing effect on the teaching of clinical subjects. It has been clear that many medical schools were decadent from inbreeding. The extent to which this had gone was shown by the fact that, far from deploring and seeking to circumvent the economic factors which limited their choice of recruits to their own school, they had come to invest this practice with a peculiar intrinsic merit of its own, or, as Chaucer expressed it, "to maken vertue of necessite." It seems likely that in the New Order there will be little if any difference in standards of remuneration between academic centres; this circumstance, coupled with migratory facilities, will mean that a medical school will have to compete for its staff, using for inducement opportunity for research, adequacy of clinical opportunity, a restricted quota of general administrative duties, and, above all, an atmosphere charged with a love of learning, a search for truth, and a tradition of discovery. A free migration of staff was probably one of the main factors contributing to the great efflorescence of scientific medicine which occurred in Germany from about 1850 to the first world war.

Let us try to analyse the qualities which should characterize the medical teacher and, in particular, the clinical teacher. The most fundamental attribute must be a thorough training in the method of science. It is this, and this alone, which will mean that his efforts will be characterized by thorough observation, critical evaluation, and intolerance of the specious and meretricious. He should be, or have been, engaged in the active prosecution of research, because the procedure of science cannot be learnt from the grand-stand. It must not be expected, however, that he should always, or indeed often, have been responsible for outstanding advances in knowledge—such achievement comes only to the few. Another quality of equal importance is the possession in outstanding degree of clinical ability with all its implications of experience of humanity in health and sickness, coupled with qualities of compassion and insight without which the successful care of patients is impossible.

Lastly, there is an aggregate of attributes essential in any person whose duties entail human contact and leadership—i.e., the capacity to inspire others, to get the best out of them, and to create an atmosphere of happy endeavour. Although it is hard to put into words, we all know what is meant when it is said of someone that he is "difficult." There are many ways in which this unhappy effect originates, but a common basis of it is intellectual arrogance; contrariwise, one of the most endearing of human traits is humility. However it may come about, it is an unhappy fact that some people possessed of intellectual ability are denied academic advancement solely because of their inability to create happy relations. On the other hand,

outstanding qualities of rapport may more than compensate for shortcomings in other directions, in that they create an environment which enables others to attain a pinnacle of achievement which would otherwise be denied to them.

Selection of Students

Here one enters a highly controversial field. One of the fundamental aspects of this problem is the question whether or not there are enough individuals of sufficient intelligence to meet the demands of the community. The increasing complexity of community organization and the development of technology are steadily shifting the emphasis from brawn to brain, and there is hardly a trade or profession which is not bent on imposing ever higher educational standards on its entrants. Each profession is bent on carving for itself the largest possible slice of the cake of intelligence. This is all very right and proper, but current belief regards the distribution of intelligence in the community as a relatively fixed characteristic susceptible only to slow change over many generations. Intelligence so far as it is understood—and its definition and measurement are relatively rudimentary—is probably not susceptible to any great improvement in any one individual. The *British Medical Journal* in a leading article and in a paper by Smyth (1946), and the similar number of the *Lancet* in 1948, dealt with the subject of selection of medical students. It was made clear that the problem was complex and was fundamentally hampered by ignorance of the qualities necessary for success in medicine. However, a systematic effort is now being made to determine by organized investigation the correlation between various grades of achievement and different combinations of intellectual and personality attributes. It will obviously take years to reach any definite conclusions. In the meantime it is clear that the more effort medical schools take to find out about their applicants the less likely are they to acquire gross misfits. An interview conducted by a small committee is essential. Students who show an outstandingly poor performance during the earlier years of the course should be discouraged from continuing. Britain is no longer wealthy in terms either of man-power or of treasure, and she can no longer afford the luxury of square pegs in round holes.

Integration of the Curriculum

Although my qualifications allow me to speak with any measure of authority only in the department of medicine, I venture to offer some comments on education in the earlier years. Following a good grounding, preferably at the university standard, in physics, chemistry, and biology, the student passes to the study of anatomy and physiology. In this direction the most notable advance of recent years has been made at Birmingham, where under the leadership of Professors Zuckerman, Gilding, and Smout there has been effected a fusion of the normally isolated disciplines of anatomy and physiology. Zuckerman (1947) has pointed out that this separation is a temporary phenomenon which has prevailed for only some 60 years.

In 1845 William Bowman, in conjunction with Robert Todd, produced a great textbook, entitled *The Physiological Anatomy and Physiology of Man*, which made no distinction in its presentation between structure and function. Apparently the separation was in large measure due to the influence of Sharpey, followed by Schaefer, who, while contributing much to knowledge of structure particularly in the histological field, so developed the experimental approach as to establish this tradition as an entity separate from those who concerned themselves more or less exclusively with the direct observation of tissue structure. The same influence led to the curious anomaly that, while macroscopic structure became the domain of the anatomist, microscopical anatomy remained in general within the province of the physiologist. The last two decades have seen anatomists adopting more and more the experimental method so as to restore the former unity of approach. Parallel with this, another and philosophically not dissimilar trend can be discerned in that the physiologist or anatomist—it matters little what you call him—is probing ever deeper into the dynamics of molecular behaviour, making use of the modes of thought and techniques which traditionally have belonged to the chemist and physicist. These developments emphasize that the scientific study of phenomena, particularly biological, knows no narrow traditional boundaries. The approach to a problem may at one time be mainly structural, at another functional. Function may imply the methods of organic chemistry, the techniques of nuclear physics, or the refinements of electrical engineering. The researcher must be a jack-of-all-trades and a master of many, or at least capable of working in fruitful harmony with many masters.

Widening Horizons

The influence of this widening of horizons goes far beyond the most successful fusion of instruction in anatomy and physiology effected at Birmingham. We are now engaged in studying how best to apply this scientific "holism" throughout the whole of the curriculum. The first step in this direction is to make the student's transition from the preclinical to the clinical as smooth as possible and to impress on him that the knowledge and modes of thought he has already acquired form the only secure basis of clinical practice, and that the good clinician shares with the good physiologist devotion to the same scientific procedure. There used to be a time when, the second M.B. hurdle surmounted, the student proceeded to a bookseller to sell his physiology books; he usually retained his anatomy works, because the surgeon has always placed great emphasis on a good knowledge of macroscopic morphology. With few exceptions teachers of medicine and surgery who qualified more than a generation ago have not attempted to base their clinical teaching on physiological knowledge, and therefore the student has not appreciated the concept of a body of knowledge one and indivisible.

This appreciation of the unity of knowledge extends beyond the transition from preclinical to clinical, and we intend to make of it a guiding principle in the reorganization of the curriculum of the clinical years. It is our intention that pathology be the central discipline around which is built the study of medicine and surgery, and at appropriate stages pharmacology and all the other subjects which constitute the traditional more or less independent content of the conventional curriculum.

An essential corollary to pathology occupying the central place in co-ordinated teaching is that it should be one of the subjects of the Final Examination and should be taken within a few months of the examinations in medicine and surgery. It is quite illogical that it should be otherwise, and in this school steps are being taken to effect such an association. It may even be desirable to go further and have written papers and viva-voce examinations conducted jointly by pathologist, pharmacologist, physician, and surgeon. This would serve more than anything else to emphasize to the student the essential unity of these subjects.

The Place of Surgery

In such co-ordinated teaching the place of surgery requires close examination. Traditionally surgery has tended to be taught and practised as a discipline separate from that of medicine. There are obvious though not particularly sound reasons for this dichotomy. The surgeon has in the past had more to offer suffering humanity than the physician, and the rapid development of surgical techniques has in itself been a complex process of immense practical significance. Furthermore the surgeon enjoys a position in public esteem far transcending that of the physician—in some measure due to the inherent drama of the surgical operation and the strong appeal it makes to primitive emotional characteristics. However, in my opinion the time has come for a real *rapprochement* between surgery and medicine. The community of work and interest is far greater than the divergence. The physician need not be a surgeon, but the surgeon must be a physician. They are both engaged primarily in the recognition and study of disease processes, using the same methods of thought and similar diagnostic aids. The difference comes when the surgeon steps into his operating theatre and carries out surgical therapy.

Speaking as a spectator, I would say that the difference between a good surgeon and a bad surgeon is much more often to be found in his ability as a physician than in his purely operative technique. The closest harmony has a beneficial effect on both, particularly on the physician, who comes to appreciate the great opportunities and inevitable limitations of surgery and to realize the utter futility of treating the surgeon as a person whom he directs to do a specific operation. It is essential that the physician call in the surgeon in consultation, not so much to have an operation performed as to get another opinion on the problem in its entirety. In my opinion a very practical method of emphasizing the unity of outlook is to avoid, except for very special purposes, the rigid hospital segregation of medical and surgical cases. I have the inestimable benefit of working with surgical colleagues who permit cases on which they have operated to remain in the medical ward. Witnessing the post-operative course and surgical after-care has an excellent influence on staff and students, and emphasizes that there is no fundamental distinction between diseases treated surgically and those treated medically. I look forward to the day when clerking and dressing as separate disciplines are abolished and students will serve their clinical apprenticeship in hospital units where cases are treated some by surgical methods and some without, and where the surgeon shares with the physician the clinical teaching irrespective of whether operative therapy is applicable.

Lightening the Burden

As regards theoretical teaching in these subjects, close integration will lighten the burden for both teacher and taught. The cry of "Pity the poor student" is often raised these days. It is stated that there is so much more to learn, professors of this specialty and that subject all clamouring for more hours in which to profess their branch of knowledge, with the result that the student is in danger of being utterly overwhelmed by a flood of facts. That this tendency exists I do not deny, but I believe it is due not so much to the acquisition of new knowledge as to failure to discard the old. Viewed rationally, I am convinced that the presentation of a well-balanced curriculum within the compass of the intelligent student—and there is no place in medicine for the dullard—is easier to-day than it has ever been. There are numerous instances of where increasing knowledge has replaced a welter of irrational conjecture by a relatively concise body of knowledge. A very obvious example is drug therapy, in which a small number of potent agents have entirely replaced a wide range of products at best inactive or at worst harmful. Furthermore, the increasing emphasis on scientific procedure with its insistence on the critical evaluation of evidence has made the mere acquisition of facts of less importance. It is futile to attempt to show the student even a majority of the almost infinite varieties of human ailment. The careful study and critical evaluation of a relatively small number of diseases in all their facets constitute a better preparation for medical practice than a motley of fleeting impressions. An essential feature should be emphasis on where to find information rather than on any attempt to overburden the memory.

Clinical teaching to be of real value must be conducted with a small group: it is earnestly to be hoped that the increased number of students will not result in large ward classes. With a small group it is possible to make of each member an active participant in the work of the class. The student is much more likely to carry away a vivid impression of a case which has been demonstrated by a fellow student under the guidance of the teacher than if all the interrogation and demonstration has been done by the physician. We all know the form of teaching in which the lecturer talks the whole of the time, relates the patient's history—or what he thinks ought to be the history—rapidly demonstrates selected physical signs, answers his own questions to his own complete satisfaction, and relegates the students to the role of passive spectators.

Probably as the result of the morbid-anatomical era in medical development with its preoccupation with structure rather than function, there has tended to be undue emphasis placed on physical signs and insufficient attention paid to disordered function as revealed by the history of the illness. Platt (1947) studied the value of the patient's history apart from physical examination as a guide to diagnosis, and came to the conclusion that in 68% of cases an accurate diagnosis—as confirmed subsequently—was made on the basis of the history, while in only 6% was it found either impossible to reach a diagnosis by this means or such diagnosis was completely wrong. This is most important, and cannot be over-emphasized in clinical training. How often one sees clinicians embarking on this or that laboratory investigation or listening intently at a stethoscope or peering into a fundus when all these investigations would have some meaning and coherence if a little time were spent on the history. Much of the trouble lies in the character of the clinical part of final and higher examinations, which places an undue premium on the "physical sign" and makes little if any attempt to assess the candidate's interrogatory ability.

A Welcome Development

A very welcome recent development in clinical teaching has been the enlargement of the scope of social medicine. Previously this subject, or public health as it was called, was more or less limited to State medicine and sanitary science, and was exclusively non-clinical. Although in every group there were notable exceptions, it was on the whole true that conventional clinical medicine concerned itself exclusively with the organic aspects of disease and gave but scant attention to the patient as an individual, the influence of his social environment on the origin, development, and prognosis of his illness, and the effect of this illness on the prosperity and health of the other members of the family. Up till the last few years there was

an excellent reason for this omission in that the contemplation of the social and economic causes and consequences of illness brought inevitable frustration, because the aid and resources necessary to mitigate these influences were either totally absent or were provided by some charity usually gravely hampered by lack of funds. There has grown up under the new social Acts a wide range of assistance which can be brought to the aid of the victims of illness and accident, not as an act of charity but as an expression of the prudence of a community which has elected to insure itself against the malevolence of chance.

Although the general principles and the social biology of social medicine are a matter for a non-clinical department, their application to individual cases of illness is of the very stuff of clinical medicine and constitutes a matter for the clinician. It is in my opinion quite wrong for the physician to limit his view of the case to the details of the disease process and to leave the assessment of the social factors to another person, such as an almoner. The help of the trained social worker is of the greatest possible value, but it achieves its maximum value only in close co-operation with the physician. This emphasis is particularly valuable in teaching, because the general practitioner has rarely got the help of an almoner and he must be quick himself to perceive and alleviate the social stresses of illness.

Conclusion

I can do no better than conclude with a quotation from the evidence that Sir Thomas Lewis presented to the Goodenough Committee; he said of medical teaching that it should "aim at sending the student forth with a well-trained mind, familiar with and critical of sources of information, possessed of a sound knowledge and experience of all common disease, and of disease and manifestation of disease whether common or rare—that is clearly understood. Thus a substantial foundation will be laid upon which, by building as he has been taught, his mind can become well stocked."

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In a pamphlet entitled "Hospital Reform in New Zealand" Drs. Selwyn Morris and Douglas Robb advocate a complete survey of hospital resources in the country, with the idea of grouping them ultimately under six regional hospital boards. They say that there are now too many small and unrelated administrative units. The general medical services overlap the hospital work, little attention is given to the care of the aged, and there is an undesirable division of authority between the local hospital boards and the Government department. The regional hospital boards would each serve about 300,000 people, and would have their base hospitals at Auckland, Hamilton, Palmerston North, Wellington, Christchurch, and Dunedin. There should also be an investigation into the nursing services. The existing shortage of nurses has necessitated curtailment of hospital work on more than one occasion.

THE TEACHING OF PHYSIOLOGY

BY

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"The true aim of the teacher must be to impart an appreciation of method and not a knowledge of facts."
KARL PEARSON (1900).

Medical education, said Abraham Flexner, is a problem not of medicine but of education. That statement is as true to-day as when it was made. If we are to judge rightly of what should be sought in teaching physiology we must begin by examining the aims and methods of education and the difficulties of realizing them in the medical course. For one of the major criticisms of medical *education is that the elementary principles of education* have been forgotten.

Education and Instruction

In the older universities a sharp distinction was drawn between education and instruction. The *Oxford English Dictionary* defines "educate" as follows: "To bring up from childhood, so as to form habits, manners, mental and physical aptitudes."

The essence of education is that the student does the work. He is guided and stimulated by his teachers, and his teachers appraise and criticize his efforts. Set classes occupy but a fraction of the student's time-table; most of his time is spent working on his own in the library, the study, or the laboratory. To carry out this system effectively the pupil must have learned how to work and classes must be small, which requires a high teacher/student ratio. The system still operates in sixth-form work in schools and in the older universities, particularly in languages and humanities.

The *Oxford English Dictionary* defines "instruct" as follows: "To furnish with knowledge or information." The teaching is didactic. The student learns by memorizing material which he receives in lectures or from textbooks. His own mental contribution, apart from a feat of memory, is small. This system requires only a small teacher/student ratio. It operates in elementary schools and in trade and technical schools.

The object of education is to train the student's mind, to train it to seek its material from original sources, to manipulate ideas, and to weigh the evidence which bears on these ideas. The well-educated man is not merely a man of superior knowledge; he is also a man of method, a man whose mind is so trained that it can deal adequately with a problem presented to it for the first time. He can clearly define the problem, collect the relevant facts, evaluate what may seem to be contradictory evidence, and arrive at a judgment on the problem. These steps are common to most of the higher intellectual processes that make up the life of a civilized community.

In the case of science the same steps are taken, the facts being first won by simple observation. Then follows a further process which is the most important, and is the peculiar contribution of natural science. This is the method of experiment, which is the essence of the scientific method. Here the observations are made under a variety of conditions, in which one or more variables are controlled, kept constant, or eliminated. It is by the method of experiment that conflicting hypotheses are tested and a decision finally

reached on which, if any, is correct. It is of course chiefly to the scientific method that we owe our knowledge of and ability to control the world of nature, both animate and inanimate.

The object of instruction is to teach a particular system of belief or practice. Thus religious instruction is rightly so called. In the secular field the method is particularly suited to the teaching of an art or a trade or a technique.

Method in Teaching

Since medicine always has been in large part a practical art, instruction clearly has its place as a method of teaching. But when medical schools were incorporated in the universities—and the past two years have witnessed the completion of this process in Great Britain—it was tacitly admitted that the educational method, which is the chief concern of the universities, should play an increasingly important part. A century and a half ago there may have seemed to be little justification for such a step. But the rapid progress in our understanding of biological phenomena since that time has now made the use of the method imperative. For the most important asset that the newly qualified doctor should have is an ability to learn both from his own experience and from that recorded by others.

Now, if we look at the medical course of to-day we find that the method of instruction is almost in sole possession of the field. The educational method is used sparingly or not at all. The result is what would be expected. In the words of the Royal College of Physicians Planning Committee (1944):

"We are agreed that, quite apart from lack of character and ability that may be avoided by improved recruitment and selection, the average medical graduate has defects which are to be attributed chiefly to the manner of his training. He tends to lack curiosity and initiative; his powers of observation are relatively undeveloped; his ability to arrange and interpret facts is poor; he lacks precision in the use of words. In short, his training, however satisfactory it may have been in the technical sense, has been unsatisfactory as an education."

There are three reasons for the failure to use the educational method in medicine. First, historical; the course has grown out of a course of instruction, and the natural tendency is against change. Secondly, the crowding of the curriculum; since the student learns more slowly by his own efforts than by the memorization of predigested information, less ground can be covered in the time. Thirdly, the small size of university staffs.

Of these causes the second is the most difficult to combat. There is a tendency to forget that the unfortunate student has such a thing as a mind that is worth cultivating; there is a tendency for each teacher to regard his own subject as the most important in the whole curriculum, to forget that in medicine there are some 14 other subjects, and ruthlessly to demand his pound of flesh. The first cause needs no discussion; the third is ceasing to be operative since the increase in Government grants to the universities.

It is quite beyond the scope of this article to suggest what should be eliminated from the curriculum. All bodies who have considered the matter agree that much should, but until medicine has an enlightened dictatorship, or until some of us are prepared to be consistently rude to our colleagues, little will be done. It is urgent that it should be done, because the recent increase in university staffs makes the increasing use of the educational method a practical proposition for the first time.

The Place of Physiology

Against this background we may consider the place of physiology, the opportunities it offers as a medium for training the mind, and the way in which these opportunities can best be utilized. No doubt it is chiefly because I am not and never have been on the staff of a university department of physiology, though I have long been a member of the Physiological Society, that the Editor asked me to contribute this article.

Physiology and the closely related biochemistry have made enormous strides in the last century. Much is now known of the behaviour of the mammalian body, both in terms of the body as a whole and in terms of its constituent organs and cells. This knowledge forms an essential basis for understanding the behaviour of the body in disease, and thus is an essential basis for clinical work and its numerous subdivisions. It is therefore quite obvious that during his course of physiology the student should gain as complete as possible a knowledge of the contemporary status of the subject.

The course in physiology, however, has another and even more important function. One constantly hears that the premedical subjects of chemistry, physics, and biology are justified because they teach the student the fundamental principles and methods of science. From my own experience as a recipient, as a donor, and as an observer of the premedical course in more than one university and school, nothing is further from the truth: the course tends to degenerate into a cram-class in which the student learns by rote. Of all the subjects in the medical curriculum proper none is a better vehicle for the teaching of method than physiology. For physiology has been won by the experimental method, and the exponents of this method in physiology have numbered amongst them some of the greatest names in science. It is not enough, therefore, for the teacher in physiology to give his students a comprehensive knowledge of the subject He must also give them a firm foundation in the scientific method, and particularly in the experimental method. For if he does not, he is failing in his most important duty, for no other teacher in the curriculum has similar opportunities for the exposition of method.

By physiology we usually mean animal physiology. While there are many points of resemblance in the behaviour of all animals, there are very numerous differences in detail. The fish differ from amphibia, amphibia from birds, and birds from mammals. Even in the mammalia there are often striking differences between genera and even species. Now it has been maintained that it does not matter which animal is used to illustrate physiological behaviour. This is incorrect. To quote from the Cambridge University Report on University Education and Business (1945):

"Any subject can be used as a means of training and developing the intelligence, and when intelligence has been developed by exercise it will be a better instrument for studying other subjects. This, however, is not the same as saying that the clarity in thought attained in one subject is directly transferable to another. In order to secure clarity the ideas involved must be easily manipulated, and an early acquaintance with these ideas is a great aid to proficiency. Further, if the subject is one for which the student has special interest, he will more readily advance by using his innate ability unchecked by lack of interest in the subject-matter. Perhaps one of the most useful conclusions of experimental psychology has been to stress the importance of developing intelligence in conjunction with special aptitudes and interests."

Since most students of physiology are going to be doctors, and will be primarily concerned with man, it is clear that,

in presenting physiology to the student, man should be used wherever possible; if not man, the mammal. It is easier for the student (and in view of the strain of the curriculum this aspect should always command respect) if human or mammalian physiology is the medium in which he is taught. While this should be a guiding principle, it need not be adhered to slavishly. There are aspects of cellular physiology which can at present be worked out only in invertebrates, and the energetics of muscular contraction are as yet well elucidated only in the frog. There is one other important point. Most active laboratories have a team or teams working on a limited field. It is natural that in the relevant school most attention should be paid to this particular field. From the educational point of view this is the correct course, because the student will learn method best by working in the field which his teacher has mastered.

Techniques of Education

Having defined our objectives, in which method has been stressed, and having discussed the principles guiding content, we may proceed to discuss the techniques of education that are available—the lecture, the tutorial, and the practical class.

The Lecture

When the attitude of a teacher is that of an instructor the lecture becomes a dogmatic exposition which is no more than a substitute for the textbook. It is what my old teachers in Cambridge used to define as a system for transferring material from the notes of the lecturer to those of the student, without the material passing through the minds of either. It is of limited value, but it is popular with the student in these days of overloading, because he feels that if he learns his lecture notes he should be able to pass his examination. To the teacher who regards his function as that of an educator the lecture has a different purpose. No attempt is made to cover the ground completely; certain problems are taken up and defined, and the experimental evidence which has been accumulated in exploring the problem is set forth and critically assessed.

I always remember in this connexion an elementary lecture at Cambridge by Sir Joseph Barcroft on the kidney. He described briefly the kidney structure and told us he was going to ask six questions and describe one experiment to answer each of these questions. The questions were: Does the glomerulus of a frog act as a filter (evidence the constitution of the glomerular filtrate as obtained by Richards by puncturing Bowman's capsule with a micropipette)? Does the tubule of the frog reabsorb? Does the tubule of the frog excrete? The same three questions were asked about the mammal. This lecture was remarkably helpful in having picked [illegible] kidney function, and excellent as an exposition of the scientific method. It was to my mind the model of what a lecture should be.

The Tutorial

The second method is the tutorial. By a tutorial I do not mean the revision class to which we have become accustomed in our medical schools, which is nothing more than a cram-class of the most brazen variety, with examination success as its only goal. Not surprisingly, this kind of class has become popular with the overburdened student, and his teachers can see in it a sign of the mental disease of which they are the chief creators. I mean by a tutorial a class of the kind that is so important a part of the educational method as practised in the sixth form of a good school and at Oxford or Cambridge.

The essence of such a class is that the students prepare a subject by reading a list of references which they may have been given by the teacher. The results of the student's reading and deliberations are presented either as an essay or verbally to the group. The function of the teacher is to criticize and to comment on the matter and form of the presentation. These classes are inevitably small, and they can be effectively conducted only if the teacher realizes their function and has the ability to get to know his students and to help them individually. Outside Oxford and Cambridge this method is not to my knowledge used in Great Britain. Of all the subjects in the medical course none is more suitable than physiology for its employment. Nevertheless it will be difficult to start such a class, for so few of the graduates we turn out of our medical schools understand the principles of education, and fewer have any knowledge of how to apply them. The danger will be of producing just another cram-class, always popular with the student and requiring no mental exertion by the teacher.

The Practical Class

It is in the practical classes that the content of physiology assumes major importance. I am glad to find that the day when the frog was the mainstay of practical physiology is nearly over. Wherever possible man should be used as a subject; if not man, the mammal. Now it is possible to illustrate a remarkable variety of experiments relating to the fundamental principles of physiology by experiments on man. Professor Landis, of Harvard, has instituted such a class, which I saw in operation. Lewis's *Exercises in Human Physiology*, 1945, is a compendium of simple and very illuminating experiments drawn largely from his own field; many experiments of similar type could be found elsewhere to complete the course.

The advantage of such a course is obvious. The student becomes familiar with the workings of the human body and with the approach to human problems through experiments on man himself—an invaluable prelude to medicine. It is one of the major shortcomings of contemporary medicine and surgery that so little use has been made of the experimental method, that we have failed to verify so much that is capable of proof or disproof, and that we accept as fact so much that is no more than a tissue of dreams. The difficulty in arranging such a class is the space required to accommodate so large an experimental animal and his observers. When new departments of physiology are built they should provide for such a laboratory, which could also be used for teaching elementary physical signs.

Classes in mammalian physiology in Great Britain will be difficult to organize so long as they are based on the cat or dog, uncommon and expensive animals the use of which is much hedged round by restrictions. In Adelaide I saw a most successful practical class in which the wild rabbit was used. These animals are apparently very tough and can be trapped cheaply. Of a team of six students, there was one anaesthetist, one surgeon, and one assistant, two in charge of recording apparatus, and one in charge of notes. A series of 12 experiments was done, including the occlusion of the carotids before and after denervating the carotid sinus with collections of blood from the [illegible] prarenal vein.

Sir Stanton Hicks told me that these classes had been remarkably successful. The students learned to work as a team and succeeded in carrying out in a remarkably successful fashion even a very difficult technique such as that just quoted. But one of the great points about such a class is the interest it stimulates. The student is able to

record these very dramatic facts for himself, and Sir Stanton said that one of the major difficulties in running the class was to get the students out of the laboratory in time to have it cleaned up for the next day.

The Student's Problem

Education is essentially a partnership, and having considered the teacher's side we must not forget the student. The student of to-day faces a problem that is in many ways much grimmer than that which faced his predecessors. Often he is dependent on a grant which continues only so long as he passes his examinations. The exigencies of war and the pressure of students on medical schools have led to the practice of expelling a student after one or two failures in an examination. The student's request is accordingly a simple one: he asks to be put through his examinations. Whether or not he is educated in the process is to him a secondary consideration.

If we teachers place a high value on education, and on method, we must ensure that the student who has acquired this is duly rewarded. This can be done in two ways: by taking into account his performance in class during the year, and by ensuring that the examination is largely a test of method. For I doubt whether we are in a position to do away with examinations. Nevertheless, they require the same careful study as the course itself. If the course is being designed to impart method the examinations must be designed to test how far method has been acquired. And since all professional examinations have and must continue to have an external examiner, it is clear that he also must understand and be in sympathy with what has been attempted. His selection therefore requires equal care.

Conclusion

The reader who has persisted thus far may remark that this article is just loose talk, that the writer has not laid down a precise syllabus, that he has not told the physiologist what he must teach and what he need not, and that he has not laid down the number of hours to be devoted to lectures and tutorials and practical classes. I have not done this, for three reasons: first, because I was not competent to do so; secondly, because I profoundly distrust any precise statements on matters that are so controversial; but my chief reason is that these matters are of less importance than the attitude of mind of the teacher and the student. I personally do not mind if a student comes to me in medicine with enormous lacunae in his knowledge: these he can very quickly repair once they are pointed out to him, if he has learned how to learn. But I do very strongly object when I meet students who have already had three years of university education, and who, far from having the scientific attitude of mind, have not the least idea what the scientific method is. That I regard as the most heinous crime of our system of medical education to-day.

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"It could be said, I suppose, that of all the changes which have occurred in the last half-century, the most beneficent are the discoveries of medical science. Assuredly much pain has been alleviated and much hope created by contemporary researches into the functioning of the endocrine glands and by such discoveries as insulin and the many varieties of antiseptic and anaesthetic drugs."—Mr. Harold Nicolson, the *Spectator*, August 19, 1949.

THE TEACHING OF CHEMISTRY

BY

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The teaching of chemistry to medical students has been one of the most controversial subjects in the whole of medical education. That a sound knowledge of organic and physical chemistry is necessary for the proper understanding of medical and allied subjects will be disputed by nobody; but what is the best method of imparting this knowledge? Medical students are taught chemistry usually in one of two ways. If they are students at a university possessing a single chemistry department, they attend special courses in this department. On the other hand, if they are students at a medical school attached to one of the big London teaching hospitals, the medical school in most instances provides teaching of the complete curriculum and the student is taught chemistry in the chemical department of the medical school.

Two Methods

It must be emphasized at the outset that these instances differ entirely in the problem they present. A university chemical department is naturally a highly specialized and well-equipped institution with a series of professors for organic chemistry, inorganic chemistry, physical chemistry, and so forth. Each of these subdepartments of chemistry is fitted with modern apparatus and well-turned-out teaching laboratories. Here are all the facilities for teaching, together with the necessary inspiration and drive given to a subject by those engaged in original research. Theoretically at least, in these circumstances the medical student should have the advantage of an ideal education in chemistry.

Before considering in detail what happens to him in this department, let us turn to the potentialities for the student in the hospital medical school. From the material point of view he is obviously very much worse off than his fellow-student at a university chemical department; for medical schools cannot afford to maintain and equip a chemical department of the same standing as that in a university. They obviously cannot afford to have three or four professors for the teaching of the various branches of chemistry, nor have they the space for separate departments of inorganic, organic, and physical chemistry. Again, the equipping of laboratories of this type with modern apparatus would be an expense beyond their power. The chemistry department is therefore organized on different lines, consistent with its admittedly more limited scope. One man is responsible for organizing the teaching in all branches of chemistry, and he is assisted by more junior lecturers and demonstrators. The teacher of chemistry in the hospital medical school can claim an advantage over his counterpart in the university chemical department. Having spent years in a medical school, he has become acquainted with the ways and minds of medical students and is therefore perhaps in a better position than others to have responsibility for their chemical instruction. We can quote many examples of distinguished organic chemists who have devoted the greater part of their lives to the teaching of medical students.

To switch back to the university chemical department, one must point out that the position of such a student is not quite so enviable as would appear at first sight. For a number of years past every university chemical department in the country has been grossly overcrowded

with honours and ordinary-degree students taking chemistry in its various branches as their main subject. Laboratory accommodation for practical work in every university in the country is inadequate, and almost without exception practical classes have to be run in shifts. The director of a university chemical department would indeed be abnormal if he did not regard the purely chemical student as his first charge, and not unnaturally the medical students are regarded as an unfortunate burden and necessity. They have to be fitted in to suit the convenience of the degree students, and usually the less senior and inspiring teachers are allotted for their instruction. We can sympathize with the purely chemical teacher in the university chemical department, to whom by definition the medical student must be little other than a nuisance.

Value of Chemistry to the Medical Student

It is very difficult for the medical student to regard the instruction for the first and second medical examinations as other than hurdles and obstacles put in his path to prevent his getting to the clinical work in the hospital. Chemistry to him means a kind of barbed-wire entanglement through which he must cut his way and so get to the patients in the wards. Unless he is very carefully taught, he does not realize that chemistry is being taught him for its intrinsic value, nor how it will help him when he does get to the wards. The teacher in the university chemical department completely loses sight of the medical student as soon as he has passed his second M.B., and one can well understand the lack of interest which must inevitably arise in these teachers.

We are faced, therefore, with an unsatisfactory state of affairs both in the university chemical department and in the hospital medical school. In order to solve this difficult problem we must first of all try to define how much chemical knowledge is necessary for the efficient practice of medicine. This is said advisedly, since we must never lose sight of the fact that the main function of the medical schools is to produce practising doctors and not medical research workers. Every commission and committee that has sat on the revision of the medical curriculum has had ponderous and far-reaching comments to make about the teaching of chemistry, but it is my opinion that very few people who have studied this problem really see it in its proper perspective.

Obviously the ideal form of education would be to give the medical student a competent working knowledge of organic chemistry and biochemistry. To do this would take several years of study of chemistry and later of biochemistry alone. It is obvious that such a course is impossible, and we are therefore faced with the limiting factor of how much knowledge can be imparted to the average student in the six or seven years during which he is available for tuition at the medical school. The amount of time allotted for the teaching of chemistry and biochemistry has been settled as a result of uneasy compromise between the warring factions of anatomy, physiology, and chemistry. The only practical way to regard the problem is to accept with as good a grace as possible this allocation of time and to see what can be fitted into it.

Co-ordination of Work

We may assume that the student of to-day, and certainly of the future, will come to the medical school with a fairly competent knowledge of elementary inorganic and physical chemistry, and either a smattering of organic chemistry or none at all. It would seem to me that the first and most important consideration is that the chemical course for the student should be treated as a whole from the moment he enters the medical school to the time when he is dealing with chemical pathology in his final year. In the past this has certainly not been the case. In the university the chemistry and physical chemistry have been taught in the chemistry department, biochemistry has been taught by another group quite independent of the former, and the chemical pathology has been dealt with by an entirely separate department. Again, in most institutions, little or no attempt has been made to co-ordinate the work of these departments, with the result that a student may be taught to estimate chlorides in the inorganic chemical laboratory in his first year and may be taught an entirely different method of estimating chlorides in biological fluids in his second or third year, and is possibly given an entirely new method in the chemical pathology department. This segregation of the three periods of his chemical education leads to intellectual resentment on the part of the student, so that he almost takes pleasure in forgetting and refusing to apply what he has learned in the previous department.

Few would deny that those responsible for the teaching of the inorganic and physical chemistry should be sufficiently in touch with biology and the biological outlook to impress on the student that when, for example, he is conducting experiments on osmotic pressure in the inorganic chemical laboratory in the medical school or university, which seems to him so remote from the eagerly awaited ward or operating theatre, he is really actively preparing himself for this period. This making the student aware that his chemistry is being taught him for his own ultimate good, and that he should not regard it as a particularly unpleasant obstruction in an obstacle race, must run through the whole of the teaching of chemistry.

This question of the co-ordination of the various branches presents a difficult problem. One way to settle it would be to arrange for all the chemistry taught to the medical student to be under the control of one authority. This experiment is at present on trial at the Middlesex Hospital Medical School, and has now been operating for three years. It is as yet too early to give any judgment on the practical results, as the scheme will obviously have to be in operation for at least six years in order that the final-year students shall have been through the whole of the chemical course. The important point is that accurate co-ordination be obtained. Provided some scheme is put into force which ensures this, the teaching of chemistry to medical students is bound to improve.

Choosing a Syllabus

If this be accepted as the organization, we still have to face the further difficult task of choosing a syllabus. It is obvious that in the limited space at my disposal this important subject can be dealt with only in the most general terms. It would seem to me that the chemical education should be pyramidal in its construction—that is, the base should be extremely broad so that the student is grounded in the basic principles, and that as the teaching advances from inorganic and physical chemistry to organic chemistry the field can be narrowed as the pyramid rises.

Thus it is obviously important that a really sound knowledge of the physical chemistry of solutions, electrolytes, osmotic pressure, and colloid chemistry be given to the student. So far as is possible this should be treated in a non-mathematical manner. Many experts will object to this and say that it is impossible. After many years of teaching medical students, I have been impressed with the

curious allergic objection that they have to any form of mathematics. This curious phenomenon is well known to all teachers, and one of the surest ways of alienating a class of medical students is to introduce some mathematical formula even of the simplest character. If enough trouble is taken by a sympathetic lecturer, this cardinal error can be avoided, and it is possible to explain to students the phenomena of physical and colloid chemistry without recourse to higher mathematics.

In the past one of the great difficulties in designing a course of chemistry for medical students has been the different types of school education. Thirty years ago the teachers in the first year might be faced with a group of students who varied between two extremes. At one end of the scale was the classically educated boy from one of the older public schools who knew no science at all, and at the other end the boy from the secondary school who could have passed his first M.B. in physics and chemistry the day he entered. From that time up to the present this difficulty has gradually become less and less, and to-day every student entering a medical school has at least some knowledge of physics and chemistry, and very often also of botany and zoology. At the present time, with the possibility of the abolition of the matriculation examination and the substitution of the new certificate of education, it is premature and impossible to say what will happen with regard to the preliminary education of the new entries. It is almost certain, however, that in the medical schools we can anticipate receiving students who have an increasing knowledge of the basic scientific subjects of physics, chemistry, and biology.

It is not the function of this article to discuss how much of the old first M.B. work should be done in school; the construction of the chemistry syllabus will therefore be based on the assumption that the student entering a medical school has an elementary general knowledge of inorganic and physical chemistry.

Organic Chemistry

The organic chemistry syllabus has always been one of the biggest bugbears of would-be reformers. The teacher of medical chemistry in a hospital medical school, in order to justify the importance of his subject, will try to make the syllabus as wide as possible, whilst the medical student in the university chemical department is often forced to attend lectures and practical classes on chemical subjects which he knows will never be of any interest to him. It would seem to me that we can profitably narrow this field of organic chemistry and restrict its teaching to those substances which are of importance in the body. These, by and large, will include proteins, fats, carbohydrates, purines, sterols, and pigments, and in order to understand the chemistry of such substances the student must know something of the basic aliphatic and aromatic compounds. This list is formidable enough, as anyone with knowledge would admit. There is obviously no point in teaching the medical student elaborate details of synthetic organic chemistry, nor is there any point in dragging him through a lot of dyestuff chemistry and similar fields so far removed from his own.

One of the most important errors to avoid is the feeling of satisfaction that some teachers and students get through memorizing formulae. This has always been one of the curses of medical chemical education. So many biological examiners experience a feeling of erudition when they can demand the writing of a formula for a steroid hormone from a student. It is most unfortunate that so many medical students, and in fact many of their biological teachers also, feel they understand the whole sterol field because they can draw a cyclo-penteno-phenanthrene formula on the blackboard. What is much more important is that the student should realize that the fusion of a number of saturated six-membered rings gives rise to the possibility of innumerable stereo-isomers in this field, and that it is therefore possible to have a whole series of cortical steroids all with very similar formulae. In addition, the position of polar groups, such as methyl, hydroxyl, and ketonic, can modify the properties to such an extent that it is essential to have an idea of the importance of their positions in relation to configuration.

Practical Teaching

Up to the present I have dealt mainly with the theoretical side of the course in chemistry. Perhaps even greater difficulties are caused by the wide divergence of expert opinion on the question of practical teaching. Teachers can be divided into roughly two classes. There are those who maintain that the student can obtain valuable instruction by his making complicated quantitative estimations, and that even if the results are wide of the mark the fact that he has struggled through the determination will have demonstrated to him the principle of the method. The second group of teachers, to which I very definitely belong, maintain that this performance of elaborate experiments in determination, with the production frequently of ridiculous results, is not only useless but actively dangerous from an intellectual point of view. It encourages the development of the old bogy of the medical student already referred to—namely, that subjects like chemistry, etc., are put there as traps and obstacles to prevent him from getting on. The second group of teachers believe that the student should attempt experiments in quantitative determination only of a complexity that will enable him to practise them well enough to get accurate and reproducible results. The more complicated investigations can be shown in lecture demonstrations.

Many teachers seem to delude themselves into believing that medical students can perform accurate gas analyses with the Haldane apparatus and can do accurate blood analyses. Those of us who have had experience of running biochemical routine laboratories know the length of time it takes to train a technician in one or two blood or urine quantitative determinations. With an intelligent technician it requires weeks of training before one can rely on his results, and it is therefore most unfair to expect a medical student to master the more complicated determinations in the short time at his disposal.

Another important development in the modern teaching of chemistry to medical students is the very wholesome trend of employing biological material, and wherever possible human material, for experimental practical work. It is very obvious that if one can design experiments where the students examine the effect of some reaction on their own blood and urine they take much greater interest than if they are handed out some made-up solutions. The practical course in organic chemistry has been evolved in most schools and universities to contain exercises such as simple synthetic preparations which enable the student to understand the elementary principles of organic synthesis.

In biochemistry the same principle should hold, and the student should only do exercises which he can accomplish efficiently. Wherever possible the more complicated exercises should be illustrated by carefully thought-out lectures and demonstrations.

Chemical Pathology

Finally, turning to chemical pathology, for the general course of practical instruction in examination of blood and urine from different types of cases it has always been found a good plan, if accommodation is available, for students to be able to carry out examinations on patients whom they are looking after in their medical and surgical appointments. While this tends to be a nuisance to those in charge of the laboratories, there can be no doubt that many biochemists of distinction to-day have entered the subject through this portal. In some institutions the students actually perform the routine investigations on the patients. In my experience this puts far too much strain on the students, and the results cannot be relied upon.

If the continuity of teaching is maintained, the student will appreciate it fully when he comes to his chemical pathology. If the scheme outlined has been properly implemented he will fall on the urinary steroidal examination in adrenogenital syndrome almost with relish and will start his studies of diabetes and other metabolic diseases with interest based on sound chemical knowledge. Another advantage of such co-ordination is that it enables the institution to provide interest for the teachers of inorganic and organic chemistry. If they are in the same department as the teachers of biochemistry and chemical pathology they do not lose sight of their students, and then they have the stimulus of research work in that they are in constant touch with biological material. This is very different from the old regime in medical schools where the teacher of inorganic and organic chemistry had no connexion whatsoever with those dealing with biochemistry and chemical pathology, being segregated in a separate department.

Conclusion

Anyone who attempts criticism of the medical curriculum or points out faults in the existing system of teaching exposes himself to a battery of criticism, and this applies doubly to the person who is rash enough to publish his article in a journal permitting correspondence. There is no doubt that many of those who read these brief notes will be tempted to write at once and say that these objections certainly do not apply to their particular university or medical school. I trust that those who are kind enough to study my remarks will understand that they are meant in an entirely general sense, and that there must be institutions where some or possibly all of the defects are avoided or minimized.

The Dutch have long realized the limitations of their own language as a medium for scientific expression. In the 17th century Leeuwenhoek was sending accounts of his discoveries to London for publication in English in the *Philosophical Transactions*, and as recently as 1947 English was chosen as the most suitable language for the series of abstracting journals published in Amsterdam under the title of *Excerpta Medica*. Dutch surgeons have now commenced publication in English of a new journal for their specialty, the *Dutch Archives of Surgery* (*Archivum Chirurgicum Neerlandicum*), which is sponsored by the Dutch College for the Advancement of Surgical Science. By this new journal surgeons in Holland hope to enjoy the advantages of international criticism and a broader interest in their work. Papers will be published in French or German also, but manuscripts submitted in Dutch will be translated into English. The journal will appear quarterly, at an annual subscription of £2 2s. The agents in this country are Messrs. Baillière, Tindall and Cox.

ON THE TEACHING OF BIOLOGY AS A PREPARATION FOR MEDICINE

BY

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It is most unlikely that further discussion concerning this particular topic can yield conclusions significantly different from those presented in the 1948 Report of the B.M.A. Medical Curriculum Committee. Nevertheless it is perhaps desirable that such discussion should proceed, since in spite of the appearance of this most admirable report there is still much disputation and not a little misunderstanding both among medical students and among their teachers concerning the contribution which biology makes, or is expected to make, to the education of the future practitioner of medicine.

Aims of the Curriculum

The structure of the curriculum and the place of biology within it cannot be considered profitably until the aims of the curriculum are known. They certainly are not solely the production of the general practitioner, that lowest (or highest) form of professional life, the specialist in some particular branch (or twig) of medicine, or the medical scientist (physicist, chemist, anatomist, physiologist, pathologist, bacteriologist, biochemist, pharmacologist, and the like). There would seem to be a general though occasionally hesitant agreement that the product is meant to be a person who, in virtue of his initial organic endowment and early upbringing and as the result of his exposure to this curriculum, has become fitted to pursue further study and thus ultimately equip himself with that constellation of qualities, personal, social, and professional, that is necessary for the kind of work he proposes to do and for the kind of life he proposes to lead. Graduation is thus the starting-point for a career in one of the three major provinces of medicine. The graduate can proceed thence to become a medical scientist whose hope is to advance knowledge in a particular field of medical science, a specialist in medical practice dealing with some particular part of a human being in relation to the rest of him (for example, an ophthalmologist; a specialist in the utilization of some particular technique demanding a mastery over some particular complicated machinery and of value in diagnosis and therapy—e.g., radiology; a specialist in some particular field of medicine—e.g., public health), or a generalist in medical practice concerning himself with the total individual in relation to his total external physical and social world.

So far as the future practitioner of medicine is concerned, the aim of medical education is to produce out of an individual with the appropriate personality, aptitudes, and inclinations an educated person. He must be fitted to claim his proper place in the society of which he is a co-operative member and be equipped with the special outlook, knowledge, and skills which will enable him to render service of a special and expert kind to the community; this service taking two main forms—the skilful application of his special abilities to the immediate task of conserving, augmenting, and restoring the health, happiness, and efficiency of individuals or of a community, and the expansion of the special corpus of knowledge which is medicine by additions thereto gleaned from his own activities and experience.

Groundings in General Science

To medicine can be given several definitions, every one of them plausible and attractive. But for the purpose of this particular discussion let it be granted that, *in the main*, medicine in action, the practice of medicine, is the application to human and social affairs of medical science (that part of scientific knowledge which has its bearing upon medical theory or its application in medical practice). Medical science is a part of general science but has an added vocational value. It is but reasonable, therefore, that the future practitioner of medicine should receive an adequate introduction to those disciplines which are grouped under the heading of medical science. Since medical science is science, it is equally reasonable that the student should receive an adequate introduction to science itself.

The curriculum as we know it is divided into three interrelated parts: (*a*) an introduction to general science (with special reference to physics, chemistry, zoology, and biology); (*b*) a grounding in the sciences on which the theory and practice of medicine rest (anatomy, physiology, biochemistry, bacteriology, pathology, pharmacology, etc.); and (*c*) an extensive introduction to the theory and practice of medicine (total medicine applied to the affairs of an individual patient, of a series of these, or of a group). Since group (*b*) rests on group (*a*) it can of course be argued, and quite commonly and rightly is so argued, that in the ultimate analysis the sciences on which the theory and practice of medicine are based are physics, chemistry, and biology. However, let this pass. All that this present approach demands is the acceptance of the view that the teaching of medicine is not to be detached from the teaching of science and that the practice of medicine is not to be undertaken by anyone who is unacquainted with science.

There is another reason why an introduction to general science should be included in the medical curriculum. The history of our society is from its beginnings, and especially since the Renaissance, the narrative of science in application, and the possibilities of the continuance and further development of our way of life depend on the even more intensive application of science to its affairs. The practitioner of medicine is a citizen as well as a doctor, and as such should be well informed concerning these matters. Furthermore, it must remain impossible to understand the place which medicine occupies in our society until it is understood in what ways and to what extent science has shaped our social philosophy and has fashioned our social aims, and in what ways and to what extent the prevailing social philosophy and aims have moulded the philosophy of medicine.

The promulgation of the theory of evolution and its general acceptance produced great changes in our concepts of the world, of mankind, and of disease. Man, who had been a puny creature imprisoned in a hostile, narrow, and incomprehensible world, whose heart had been chilled by fear and whose mind had been blinded by superstition, was liberated. His world became a potentially hospitable, friendly, bountiful environment which could be shaped by him to satisfy his every physical need. Man himself became part of organic nature, a product of a continuing evolutionary process. Neither he nor the social institutions which he had invented were final static things. He could hope to gain the knowledge concerning them that, translated into power, would enable him to change them according to his desire. Disease, formerly to the masses the handiwork of demons or the sign of the wrath of an outraged, malevolent, and implacable deity, became the manifestation of a disharmony between man and the other components of an oecological system of which the human being was but one member. Disease was the outcome of ignorance; it was undesirable, unnecessary, preventable, and often curable. It was a barrier standing between man and his own self-selected goal and was therefore to be removed.

Science grew because it gave to man in increasing measure the power to control the forces of his external and social world. It grew because it came to be recognized that before individuals and nations could hope to realize their spiritual desires they must enjoy a certain level of material comfort and security. Science in application has made possible the material welfare of mankind. But it has done far more than this. It has given to mankind great hope and the possibilities of great dignity. The medical sciences have grown because man came to desire health and freedom from pain and anxiety, and because these sciences have given that for which the people yearned. Medicine has grown because it has shown itself to be one of the most potent tools that a society can use for the achievement of certain of its aims—the creation of a physical environment ridded of its disease-provoking agencies and propitious for the full growth and expression of man's inherent qualities.

For these reasons alone it is imperative that the student of medicine shall know what science is. He must be so attracted and impressed by the teaching to which he is exposed that he shall become and remain a scientist (in outlook at least).

Purposes of Biological Training

Biology, used as a branch of science to illustrate the whole, offers certain advantages. The student himself is aware of the biological nature of his own existence. Among the sciences it is biological science that seeks an understanding of the nature of human personality and answers to the questions—Whence came man, what is man, and what is to be his terrestrial destiny? The relative attractiveness of the biological sciences to the student is perhaps evidenced by the fact that failures in the first professional examination are invariably fewer in the case of zoology than in chemistry. Perhaps the student finds the examination easier because the subject is inherently more attractive (?). Other reasons for this difference—the ones that usually satisfy the chemist—can of course be adduced.

The content of the course and the method of its presentation are matters which have to be left to the teachers themselves. Doubtless they realize full well that the attractiveness of the apostle as a person is no less important in the matter of gaining adherents to a point of view or to a field of inquiry than is the beauty of the creed he presents and represents. If courses in zoology and botany respectively are offered by different university departments, as is usually the case at present, then it is imperative that the two should be most carefully integrated

Perhaps it is correct to say that what their colleagues of the later years of the curriculum desire of the teachers of the biological subjects is that the ultimate purpose of their teaching shall be:

(*a*) (in common with the physical sciences) to show that scientific knowledge is a special kind of knowledge, systematized and formulated and secured by the employment of certain particular modes of inquiry; to show that scientific inquiry rests on the warrantable assumption that among the circumstances and events in the world around us there is to be discerned an orderliness, a regularity, in the character or relations of certain classes of facts and events; to show that science is the product of human reason applied to the phenomena of nature and that it is that human interest and activity which

seeks to disclose this orderliness, this regularity, and to explain it; to exercise the student in the methods of science—the logical methods of reasoning, inductive and deductive, and the technical or technological methods of manipulation and measurement (including the elements of statistics); to exercise the student's curiosity in the stream of natural events that flows past him; to encourage his capacity for imaginative speculation (and his capacity to hold this in check); by every possible means to interest the student in the higher values of science—e.g., the aesthetic quality in scientific thinking, fairness in judgment, openness of mind, scepticism, intellectual honesty, dispassionate observation, critical discrimination; to contrast the relative values of reward in the form of wealth, security, social elevation, popular acclaim on the one hand and on the other the calm delight that comes from the contemplation of the harmonies of science and the exaltation that follows upon scientific discovery;

(*b*) (the special contribution of the biological sciences) to stimulate, excite, and satisfy the student by giving him an understanding of the theories of evolution, of the cell and of the gene, and of the impact of these theories upon human thought and action; to demonstrate the interdependence of Nature and nurture; to display the astonishing variety of biological inventions by means of which different types of living things function more or less efficiently—e.g., inventions relating to respiration, alimentation, reproduction; to trace the development of the animal society and to contrast the social life of animals with that of man; to demonstrate the essential harmony that exists between habitat and inhabitant and the effects of the disturbance of this harmony; to present the concept of the oecological system.

Much of what is here suggested might appropriately be offered in an arts course preceding the entrance of the student into the medical curriculum proper. Many of the topics listed may seem to belong to the territories of moral philosophy, logic, or aesthetics. But for the majority of medical students there is no such arts course, and so the responsibility for explaining these topics must be accepted by the teachers within the medical curriculum. There is no valid reason why the student should be the loser by this arrangement.

At present the complaint is all too commonly made by medical students that the courses in zoology and botany are a waste of the student's time; they are held to be useless because they do not seem to help in the cultivation of the bedside manner and because they postpone unnecessarily the contact between student and cadaver or patient. There is gross and grave misunderstanding here, and it is for the teachers of the first year to remove it. The mind of the medical is more important than are his medicaments.

A Privilege and an Adventure

Participation in the medical curriculum is a privilege, an adventure, a mounting excitement as knowledge is added to knowledge and understanding expands. If not, then it ought to be. What surely is required is that the first-year teachers shall hand on to those who follow students whose initial experience of the university has exceeded their wildest hopes, whose inclination towards medicine as a career has been strengthened, and whose mental outlook and habits have been profoundly affected as the result of their contact with science and the scientist.

It is a privilege to take part in the making of a doctor, since he can be such a force for good in open society. To bore him in his first year is as great a crime as to discourage his idealism in his last year. It is imperative in these most critical days to arouse his faith in science as a means of human and social betterment. We are afraid of the power with which science has endowed us. Out of this fear has emerged a widespread pessimism concerning human nature and human motives. In this course the student should be presented with the evidence which shows that man's dominion over the other species rests on his scientific knowledge concerning them. He should be invited to examine the evidence which points to the conclusion that, thanks to science and to science alone, it has become possible both theoretically and practically for mankind to build a world based on common effort for common good in which the powers which science gives will be used for beneficent purposes. He should be confronted with the proposition that the recent explosive growth of science has made it impossible to set limits to the directive capacity of man or to predict how far he may extend his dominion over his external world and over himself.

Believing in the perfectability of the human mind and loving his fellow man, the doctor, holding to the view that to expanding scientific knowledge there is no discernible limit, can do much to treat that most serious disease of mankind to-day, the pessimism which destroys man's faith in man and robs the future of all hope.

THE TEACHING OF ANATOMY TO THE MEDICAL STUDENT

BY

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Clinicians constantly complain that students on entering the hospital wards for the first time show a lamentable standard of anatomical knowledge. At first sight this would seem to be a severe condemnation of the teaching in the preclinical years, but there are certain factors which modify the value of the criticism. The clinician is, as a rule, a specialist in one branch of medicine or surgery, and his knowledge of the minute anatomy of the part of the body in which he is particularly interested is very extensive. If the roles were reversed, and the student were allowed to question the teacher on general anatomy, it might be that the report would be equally severe.

Because of the frequency with which these complaints are made, it is natural that the student's ignorance of the minute points of regional anatomy is accepted as proof of a weakness in the teaching of the subject.

Many attempts have been made to bridge the gap between the subject of anatomy as a basic science and its application to the clinical work which is the object towards which the training of the medical student is directed. In most schools young clinical teachers from the medical and surgical sides of the university have been appointed as lecturers in the anatomical department with the object of changing the bald anatomical facts into a living picture. These efforts have been to some extent successful, and the student is instructed by the clinicians in those points of anatomy which are considered to be of the greatest clinical significance.

The clinicians emphasize particularly the alterations in form and relationship which occur in the various organs as a result of their normal and abnormal functional activities, and they lay stress on the importance of the surface markings of the various organs and bony prominences.

In spite of these efforts at improvement the weakness still remains; the student takes little interest in this important

part of the subject, as he knows that the clinician will take no part in the examination, which will be conducted entirely by the anatomical teachers.

An experiment on somewhat different lines has recently been started in the University of Birmingham, where the subjects of anatomy and physiology have been integrated into one department. The idea is excellent; through this arrangement the bald truths of anatomy can be enlightened by the experimental work carried out in the physiological section, and the dead structure of the dissecting-rooms can be seen to function in a living medium.

Time Spent in the Anatomical Department

In spite of these efforts there are, however, certain questions which may reasonably be asked in regard to the teaching of anatomy. The first and most obvious of these is the problem of the time spent by the student in the anatomical department. Is time being given to anatomical instruction which could be devoted with greater advantage to other subjects in the medical curriculum? To answer this question is extremely difficult: every teacher in the medical faculty is convinced that his particular subject is not receiving adequate recognition in the student's training.

It is obvious that the student is not receiving too much instruction in anatomy, otherwise the criticism of the clinicians would not have arisen. The student cannot possibly know too much of that subject; it is just as important for the doctor to know every part of the human organism as it is for the engineer to know every nut and bolt of the machine for the repair and maintenance of which he is responsible. The only question, then, is whether the time spent in anatomical teaching could be rearranged to equip the medical student more fully for his life-work.

At present the greater part of the time spent in the anatomical department is devoted to dissection; the student must, during his attendance there, complete the minute examination of the whole body. Although this arrangement is very satisfactory, and gives both teacher and student a sense of completion, yet much of the routine work of dissection could be avoided without lowering the value of the instruction given to the student.

Dissection of at least one part of the body by each student is an essential step in his training. It is impossible to visualize correctly from drawings or photographs the exact arrangement of the fascia in its attachments to bone or in its intermuscular separations. These can be understood fully by completing the dissection of any one part; similarly, only by dissection can the student realize that the ligaments round a joint are not separate structures but are simply thickenings of the all-embracing fascial sheath of the limb. Again, in the dissection of any one part he can see the method of origin and attachment of muscle to bone, the method of entry of the motor nerve into the muscle belly, the splitting up of the cutaneous nerve branches, and the arterial and venous arrangements of the part.

These are only a few examples of the outstanding importance of dissection in the training of the student, but, once having accepted the necessity for dissection as an important factor in teaching, we are faced with the question of its extent.

Is it necessary for the student to dissect every portion of the body? There is so much which is common to all regions that it seems to be unnecessary to insist on a complete detailed examination of every part. Once the student has dissected and understood the arrangement of the more superficial structures of skin and superficial and deep fascia, with the emerging cutaneous nerves, in any region, it is comparatively easy, by the aid of diagrams and demonstrations, for him to understand the arrangement in other parts of the body.

A Suggested Rearrangement

A complete dissection of one joint with its articular surfaces, joint cavity, ligaments, and capsule will form the basis from which variations in other joints can be understood and appreciated. Muscles take their origin from bone, membrane, and fascia in the limbs as they do in the trunk and on the chest and abdominal wall; similarly, their methods of attachment to bone vary little in the different regions of the body. It is true that the arrangement of the organs, vessels, and nerves varies widely in the chest, abdomen, and skull, but even this problem can be overcome by the museum dissections, models, and drawings.

This suggested rearrangement would involve a considerable increase in the number of demonstrations which must be given if the standard of teaching is not to be lowered. The problem is how to maintain an equally high standard of general anatomical teaching and at the same time to improve the student's knowledge of those sections which are of the greatest clinical significance.

The obvious answer to this difficulty would at first sight seem to be an increase in the number of lectures; this would have the advantage of concentrating the attention of all the students on the same section. Although this method has some obvious advantages, it is not really the answer to the problem. The size of the classes and the distance of the student from the dissection which is being discussed tend to diminish the value of even the most perfect lecture.

Some lecturers have the ability to illustrate their teaching with clear, easily understood diagrams on the blackboard, but the best of these drawings fail to leave an impression on the student's mind equal to that gained by examination of the tissues in their normal relationship.

Lectures and blackboard demonstrations cannot replace, but can only implement, the value of dissection and visual examination of tissues. If, then, it is impossible adequately to replace the slow method of dissection by set lectures, can there be any rearrangement of lectures by which the student can obtain better instruction in an equal period?

The only method by which this desirable end can be achieved involves a considerable increase in the teaching strength of the department. Each teacher could take a small group of eight or at most ten students, and each part could be thoroughly and repeatedly demonstrated until in the opinion of the teacher an adequate standard of knowledge has been reached. All the different sections would then be fused into the general outline, and the relationships of each organ and tissue to its neighbours explained in the set lectures, which could thereby be reduced in number.

These suggestions would depend for their successful completion on an alteration of the outlook of at least some of the teachers in the anatomical department.

Divergent Views

The subject of anatomy consists essentially of a mass of facts each of which is of equal value in the mind of the pure anatomist, but from the standpoint of the clinician and of the training of the medical student some of these facts could be omitted from the course, while others could with advantage be stressed and elaborated.

A good illustration of this divergence of view is seen in the teaching of the musculature of the body. In the dissecting-room the student must learn the exact point and extent

of the origin of a muscle from bone and fascia with its course and relations to its point of insertion. He must also learn the nerve supply of the muscle; but its action, which is the most important clinical feature, is usually ignored or at most mentioned casually.

The clinical teacher, on the other hand, ignores the minute description of its bony attachments, stressing particularly the action of the muscle, and noting especially the fact that some muscles, like the biceps brachii, extend over two joints and therefore have a more complicated action than muscles such as the brachialis, which acts on only one articulation.

The anatomical teaching of the vascular system of the body is also so complicated and minute that the student is forced to learn in parrot fashion the innumerable named branches of the arteries. Thus the external carotid artery is described as starting from the common carotid opposite the upper border of the thyroid cartilage, extending upwards and forwards and then backwards to a point behind the neck of the mandible, where it divides into the superficial temporal and internal maxillary arteries.

In its short course the external carotid artery gives off eight named branches, whose course and relations must be memorized. These eight arteries in their turn give off a total of thirty branches whose names must also be remembered by the unfortunate student. Is it any wonder that as a result of this difficulty every student is fortified by the series of rhymes which help him to remember the first letter in the name of each branch?

Some Modifications

In suggesting a few modifications in the teaching of anatomy in the preclinical years we must avoid the mistake of trying to teach the subject in a specialized form. The broad conception of anatomical structure must always remain. The student must be taught the interdependence of each system on the others, and all attempts to describe e subject as one of watertight systems must be resisted. is wrong to suggest that a limited or first-aid course of anatomy would be sufficient to fit the student adequately for a medical career.

Nevertheless, there are some modifications which might be made in the anatomical curriculum, alterations which would not lessen the value of the course to the student and would make his subsequent medical training more simple. Of these suggestions the first and most obvious is the elimination of the uninteresting mass of detail which is of little practical clinical importance. The student should not be asked to take up a bone and map out by pencil or pen the exact limit of origin and insertion of every muscle and ligament to which it gives attachment.

To this suggestion the examiner holds the answer: so long as there is any possibility that he may be asked such detail the student must burden his mind with unnecessary material.

Further, there must be agreement between the clinician and the anatomist in regard to the amount of instruction which shall be given on pure anatomical grounds, as compared with functional and clinical details. It is unnecessary to teach all the details of muscular origin and insertion, but a sound working knowledge of these facts is necessary if the functional activity of a muscle is to be understood.

Much interest has been shown recently in the idea of instruction by means of radiographic demonstrations; these are of considerable importance in certain well-defined fields. Thus, radiographic pictures of the chest, abdomen, and joints are of considerable value, more especially in the case of the last-named in the recent innovation of movable pictures, but we must realize the limitations of this method of instruction.

Modifications can also be made with advantage in the teaching of the arterial and venous systems. These are vastly important to the student and to the doctor, but there can be no advantage in knowing all the names with which the subject is at present burdened. The main vessels must be known and their situation and relation to other important structures and organs fully realized.

Central Nervous System

The teaching of the nervous system could also be altered with considerable advantage. With a full knowledge of the nervous system the student will be able to understand many of the problems which he will meet after qualification. It is not enough to teach a student that the deltoid muscle is supplied by the circumflex nerve: he must also understand the area of the cord from which these fibres are eventually derived, and know the other muscles supplied from the same segment.

Neurology, which to most students of clinical medicine is a difficult subject, is largely a problem of anatomical localization. The apparent difficulties disappear when the structure of the central nervous system is understood.

Too little use has been made of the important subject of developmental anatomy. Thus when instruction is being given on the structure of the central nervous system it is easy for the student to grasp the relationship and the possible abnormalities which may be seen in this system if at the same time models are shown illustrating the various stages of development.

Similarly, it is not sufficient that the student should read of the development of the heart or intestine without giving him the help which is gained from a study of models of these organs at various stages. The structure of fully formed bone can be understood more readily if the changes which occur in these tissues can be studied in models and diagrams.

Anatomy is one of the most valuable subjects in the curriculum; no attempt should be made to reduce its importance, but a more complete integration of anatomy with the clinical subjects is not a difficult problem.

ON TEACHING PHYSICS TO MEDICAL STUDENTS

BY

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An attempt by someone who is concerned with postgraduate education to evaluate the present teaching of the basic sciences to first M.B. students is beset with difficulties. While it is true that one should be in a position to judge how well the students from a number of different schools and from several parts of the world have been equipped scientifically for the work they have to do as doctors, one is also out of touch with the trend of thought in the undergraduate schools and with the plans for improvement in the training that are already afoot. What appear to be defects may be reasonable compromises hammered out after long discussion, and what seem to be obvious overdue reforms may only be awaiting the moment when they are no longer quite impracticable. Voluntarily to

undertake the task of teaching one's grandmother how to instil the physical principles involved in extracting the contents of eggs is extremely rash. The incentive is a firm belief in the need for more science in medicine. By this I mean a way of thought, an approach to problems, and not merely what appears to the lay public so often as a rather terrifying and uncontrollable technology.

The process of development of medicine from a mediaeval art into a modern science is proceeding. There is no knowing where important implications to medicine may appear at any time from advances in the basic sciences. The study of mechanics led the anatomists to advance their interest in form to include an interest in function. An obscure draper in Delft, through a persistent interest in lens-grinding, was the first to see an animal "a thousand times smaller than the eye of a large louse" in a drop of water, and so laid the foundations of bacteriology and histology. As in the past so to-day: the introduction of artificial radioactivity in providing a new method of investigation by tracer techniques has started a new era of medical research.

The reason for inviting a radiotherapist to write about the teaching of physics is presumably that radiotherapists are so clearly concerned with the application of physics in medicine, and that they have been foremost in recognizing the need for the appointment of hospital physicists. Radiotherapists are not, however, alone in their interest in medical physics, the place of which is hardly given adequate recognition by astonishing statements such as the following which appeared in a leading article in the *British Medical Journal* in 1945: "At present the application of physics to medicine is limited to radiology, the electrocardiograph, and the encephalograph in diagnosis, and the somewhat empirical use of various forms of radiant energy in treatment; but it is highly unlikely that these represent more than a fraction of the contribution physics might make to human biology."

Physical methods of diagnosis and treatment have become indispensable in medicine and have so expanded in recent years and have covered so many branches that it was possible to publish in the United States a year before the above quotation was written an encyclopaedia of medical physics of 1,744 pages under 255 main headings listed in the table of contents (Glasser, 1944). The extension of the employment of physicists in general hospitals only awaits an initiative in other clinicians similar to that shown by radiotherapists; in fact, the latter have already established physics departments in most large hospitals which are ready and are waiting to be called on.

Educational Value of Physics

The importance of physics in medicine and the fact that the teaching of first-year students has been unable to keep pace with the advances cannot be seriously disputed. Before we judge the success or failure of present methods of instruction, however, we must have a clear understanding of what we want to achieve. It is all too easy to point out how much more is required, and all too difficult to reconcile the claims of the many subjects which compete for time on the already overloaded medical curriculum. If every sectional interest had its way years might be added to the training of the poor medical student, who only wants to be a doctor. The reason for teaching him physics should be to help to make him a good doctor first and to provide him with an appreciation of the practical applications of physics in medicine second. We should not forget, in considering the first, that technical ability may be an important professional quality and, in considering the second, that so many branches of medicine are open to each individual student that he is unlikely to deal personally in practice with more than a small fraction of the physical methods concerned. Teaching that does not help the student towards these ends should be ruthlessly eliminated on the grounds that the inclusion of any unnecessary work under the present conditions of strain in a medical education amounts to cruelty.

Anyone in daily association with a large and active department of medical physics employing nine physicists may be forgiven for stressing the importance of the practical application of physics in medicine, but no one who also consults with a number of doctors about the treatment of patients with cancer could deny the paramount importance of a sound general scientific education. The advancement of the practice of medicine demands that doctors receive a thorough training in the scientific method of logical, objective, dispassionate thought. To teach a medical student that the field of human knowledge is expanded by reason and experiment: that he should remain unmoved by plausible argument while retaining the capacity to accept new ideas, and so depend upon his own judgment; that when his facts are verified and his arguments tested he should proceed to apply his conclusions fearlessly—this is an achievement which rises far above the mere provision of technical proficiency.

Those combinations of qualities which go to make a good doctor and which are so hard to define are enriched and given purpose by a scientific outlook. The dissection of a problem to its fundamentals, the correlation and interpretation of the available facts, the conclusion uninfluenced by personal bias, add point both to the skill with which he applies his treatment and to the understanding and fellow-feeling that soften his conversation with his patients. We have too many fashions in medicine, too many new remedies which work wonders for a while, too many specialists whose diagnoses always lie within their specialty, and too many medical advocates of quack "cures" on the basis of one or two cases unusual in their limited experience but well within the bounds of normal variation.

It is reported (Shryock, 1948) as an example of the sad way in which treatment used to be based on mere assertions of the most dogmatic sort that Freteau, in the early nineteenth century, insisted on the necessity for venesection in certain conditions "on the ground of *two reported cases*, each susceptible of other interpretations than those he accepted" (the italics are not mine). Why pick on the nineteenth century when 1949 would do as well? We do not have to go so very far back in the correspondence columns of our medical journals for equally good examples. Doctors are not always less susceptible to convenient illusions than their fellows, nor are they less ready to produce rationalizations to preserve for themselves their appearance of reasoned thought and logical action. The laudable desire to save the medical student from some of the rigours of the syllabus, to get down to "the fundamentals of medicine" and away from all this "pure physics," must not be allowed to interfere with his essential, basic scientific education. Physics and mathematics are particularly valuable as a background training in scientific thought and method.

Medical Physics

Having insisted on physics for its basic must we therefore necessarily insist on a physics similar to that planned for the el of physicists? Surely a greater concent

physics will serve our purpose just as well and at the same time add interest and practical advantage. The undergraduate should learn to appreciate the use of physical methods in medicine and acquire a basic knowledge on which to build should he later take up some branch which is closely associated with a particular form of medical physics. It may be as well that the basic sciences should not seem to be too well defined; medicine has no interest in artificial barriers between the sciences, and physical chemistry and biophysics cannot be ignored because they have been arbitrarily placed on some borderline. We shall certainly not solve the real problems of the lengthening syllabus, the urge to get on with the things that will be useful, and the need to eliminate the inessential by insisting on the *status quo*.

Once the student has embarked on his medical career the continuation of his scientific education should surely be made an integral part of his training rather than a preliminary to it. The medical student sets out to do medicine; he regards a good deal of what he is taught in his preclinical course as being divorced from this object. It is too often merely an obstacle in the path of his progress towards matters of real interest. He has to-day to overcome considerable difficulties to be allowed the opportunity to start at all, and at this stage is eager for instruction in subjects that seem to him to have an obvious medical application. When you start out to heal the sick it is a little discouraging to find yourself confronted by a Wheatstone bridge and a post-office box.

Dr. Henry Yellowlees (1946) starts his admirable and delightful book with the sentence, "I suppose that the most significant, if not the most memorable, day of a medical student's career is that on which he finally emerges from the preclinical period, and I have always felt that the occasion of his first introduction to clinical work might well be marked by some appropriate ceremony." I think that this is a true picture of the position, but it contains some reflection on our method of presentation of the basic sciences as medical subjects.

Adjustment of the Syllabus

Postgraduate students embarking on a physics course for a diploma in medical radiology can be heard one after another denying familiarity with the physics that they were taught so few years before. No hospital physicist "assumes a knowledge of physics equal to that of the first M.B." whatever the regulations may say, because he knows from sad experience that he can do no such thing. This is some indication of the failure to ensure that the training does at least consistently provide a sound though elementary knowledge of physics. Is it possible that the reason so many retain so little is that their interest was not engaged; and could the general educational result have been achieved with medical physics of more interest to the student and a greater degree of usefulness to him during his clinical training?

If we assume that the present methods do achieve their main object of developing a scientific outlook and promoting a way of thought, giving due allowance to the varied abilities of the students to absorb such teaching, then reform must be cautiously applied to see that none of this is lost. If we assume that they do not achieve even this end, then reform is urgently needed. There would seem to be some reason for doubt whether the present arrangements of the teaching of physics are in fact nicely adjusted to produce the desired result. No emphasis is placed in the syllabus on the development of the all-important attitude of mind; this is left to take care of itself in the general classical approach to the subject that is laid down, or rather is left to the individual teachers on whose varying knowledge of the needs of medicine and whose ability to impart an outlook to the student all ultimately depends. Some, at least, seem concerned only with the elementary details of heat, light, sound, electricity, and magnetism.

The practical utilitarian side of the instruction appears shyly here and there in the syllabus with the mention of osmosis, spectacles, microscopes, ophthalmoscopes, radioactivity, and thermionic emission. That no real importance is attached to these concessions to those who have demanded more direct application of the prescribed syllabus to medicine is shown in the list of exemptions which allows a boy from school to avoid all such instruction. The introductory paragraph of the syllabus of the University of London for "Physics (including Mechanics)" does not say, "The subject is to be treated as a basis for the development of a critical, reasoning, scientific outlook and illustrated as frequently as possible by means of direct practical examples of the applications of physics in medicine; a knowledge of mathematics on the part of the student is an inestimable advantage in attaining this object, the experimental approach being the only other method likely to be successful." Instead there appears the rather dreary sentence, "The whole subject is to be treated in an elementary manner, the mathematical development in no case extending beyond a knowledge of quadratic equations and elementary trigonometry."

It has, I believe, been suggested that the first M.B. might be abolished and that instruction in chemistry, physics, and biology be given along with that in anatomy and physiology in one preclinical course. More time is wanted for the second M.B., and it is thought to gain it at the expense of the first. The time would presumably be gained by the elimination of much of what is now taught in the basic sciences and regarded by some as unnecessary, and what remained would be more closely related to practical, everyday medical needs. If every student received a sound scientific training at school, if anatomy and physiology were not allowed to swamp the chemistry, physics, and biology that remained, and if teaching were done imaginatively and largely by the experimental method, using direct clinical applications for illustration, there would be much to be said for the suggestion. The student would start off doing something more nearly related to medicine; he might better appreciate the need for the physics he was being taught. There are, however, a lot of "ifs" concerned. I do not know how such an arrangement would work, but while fundamental changes are being discussed there are still reforms which surely should be made at once.

Suitable Instructors

The teaching of physics to medical students should never be solely in the hands of a university physics department, but should include instruction from those with personal practical knowledge of the medical applications of physics and who themselves engage in research in physics in relation to biology or medicine. There is a growing band of hospital physicists available who would benefit from a closer contact with medical students and also from the necessity to review the applications of their branch of science to medicine on its broadest basis. There should be no exemptions from a course of this kind. Hospital physicists could produce many fascinating subjects for inclusion in it. Some knowledge of radioactivity, of the use of

radioactive isotopes as tracers in the investigation of physiological and pathological problems, and of the use of a Geiger–Müller counter as a clinical instrument are obvious examples. It is not difficult at the same time, for instance, to convey something of the potentialities of the quantitative method, something of present ideas of the nature of the atom or the ways in which experimental confirmation of theory has been obtained.

Last year I was fortunate enough to see the results of an exercise set by Dr. Joseph Hamilton to a student class in the University of California at Berkeley in which each student was required to set down in detail an account of an experimental investigation that he would like to carry out with a radioactive tracer material and that had not been suggested before in the literature. Nearly all were reasoned, practical, original suggestions, and some were so well presented and of such merit that the opportunity of carrying out the experiment was being provided to these students. It would be hard to find a better example of the use of a method of applied medical physics as a means for promoting a scientific outlook. It is difficult to believe that such a result could be obtained with the methods of training students in operation in most schools in this country at the present time.

Practical Applications

Illustrations of the application of physics in medicine naturally occur to me primarily in the field of radiation, but many others can be found. Some of the applications of optical principles, such as the measurement of erythrocytes by the haloes they cause around a source of light, or microscopy from the optical microscope to the fascinations of the electron microscope, where a virus may be shown by means of a golden shadow, are good examples. Electronics is invading medicine on a large scale and provides possible demonstrations for the student in such varied fields as neurophysiology, the measurement of radiation, the use of hearing-aids, electrocardiography, muscle-nerve stimulation, colorimeters, *p*H meters, and even the demonstration of surgical operations by television.

An obvious illustration in surgery is the importance and means of counteracting the physical factors that interfere with respiration and circulation when the chest is opened. The dermatologist may be interested in the physical forces which produce alterations in skin pigment, the psychiatrist in electric-shock therapy, the ophthalmologist in the spectral sensitivity of the various parts of the retina and the methods of investigating night-blindness, the haematologist in electrophoresis, the orthopaedic surgeon in the trajectories of stresses in bone, and the otolaryngologist in the complications of vestibular mechanisms.

The difficulty is not to find illustrations but to distinguish amongst the wealth of material available those most likely to hold the student's interest and provide him with an appreciation of the underlying physical principles concerned, while unobtrusively developing his powers of critical examination of a problem and his desire and ability to test a theory by experiment—in fact, providing him with the capacity for logical, impersonal, objective thought.

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Nova et Vetera

SIR WILLIAM GOWERS

Sir William Gowers. By Macdonald Critchley. (Pp. 118; illustrated. 17s. 6d.) London: William Heinemann Medical Books. 1949.

Dr. Macdonald Critchley's life of Sir William Gowers, who was born in 1845, records the chief events of his career, illuminates them with the reminiscences of those who were privileged to be his pupils, and reviews his contributions to medicine. He was born the son of a Hackney shopkeeper, and it was probably the accident of his father's early death and his widowed mother's migration to the neighbourhood of Oxford that set his foot on the first rung of the educational ladder at Christ Church College School. An apprenticeship to a general practitioner in Essex was his entry into the profession to which he was destined to contribute so much. Thereafter University College Hospital and subsequently the National Hospital made up the sphere of his activities. He played no great part in medical affairs: neurology filled his working life, and hobbies, especially shorthand, occupied his spare time. He died in 1915.

Gowers will be remembered as a great clinical observer. Dr. Critchley points out that the early descriptions of many of the nervous diseases which we recognize to-day with confidence are due to his acumen. That this has not been more generally recognized in the past is due to the fact that many such descriptions were given casually in the course of his writings and it was often left to subsequent observers to attach a label to conditions which Gowers had discovered.

Dr. Critchley has written a valuable memoir which is short enough to make the reader wish for more. Ten illustrations add to its interest, and it includes a bibliography.

RUSSELL BRAIN.

PIONEERS IN ORTHOPAEDICS

On the Contributions of Hugh Owen Thomas, Sir Robert Jones, and John Ridlon to Modern Orthopaedic Surgery. By H. Winnett Orr, M.D.; supplement by Arthur Steindler, M.D. (Pp. 253. £1 5s.) Oxford: Blackwell Scientific Publications.

These three men, prominent in their generation, have added much to orthopaedic surgery, and a critical examination of the work of any one of them would be sufficient to satisfy most writers. Dr. Orr has wisely not attempted to judge the value of all their contributions to orthopaedics, but has confined himself largely to Thomas's writing on rest, and the reactions of Jones and Ridlon to these principles. It is for this reason that Jones and Ridlon appear not as original workers themselves but rather as pale moons reflecting the light of the sun. The book enables the reader to obtain a picture of the relations between the three men, and it brings to the notice of the profession once again the great advances made by Thomas and the difficulties he encountered.

Dr. Orr's style of writing leads on occasion to some difficulty. He does not finish his remarks on one personality before discussing others, and this results in a certain amount of confusion which could readily have been avoided. He rightly criticizes the many modifications and improvements of the Thomas splint that have been suggested during and between the two world wars, and states that it would have been preferable if the authors of these suggestions had learned how to use the splint in the correct manner. Directly after this condemnation Dr. Orr explains that "the use of skeletal fixation pins (not wires) in plaster of Paris represents the only substantial improvement in the technique for maintaining correct length—position—and rest—since Thomas himself."

It is unfortunate that with a subject in which the facts could be so readily confirmed there should be a few obvious mistakes. For example, Thomas was not trained by his maternal uncle Owen Roberts, of St. Asaph, at the Liverpool Workhouse Hospital, as stated in the text, and it is obvious that Dr. Orr meant Sir Astley Cooper and not Sir Ashley Cooper. It is hard to define the exact character of this book: it includes many extracts from other authors and follows closely their opinions.

T. P. McMURRAY.

Reviews

SURGICAL COMMENTARY

A Companion in Surgical Studies. By Ian Aird, Ch.M., F.R.C.S. (Pp. 1,060. £3 3s.) Edinburgh: E. and S. Livingstone. 1949.

This is a new and attractive book, and the author is to be congratulated on choosing a happy title and on providing such a pleasant and useful companion for the senior student and postgraduate. The volume represents an enormous amount of work, for there are over a thousand pages of reading matter, ten thousand references, and ten thousand items in the index. It is largely based upon lecture notes and is certainly well up to date. In at least one place there is over-emphasis on a subject of minor interest—there are four and a half pages devoted to pre-auricular fistula. Some of this space might well be sacrificed to make room for a more detailed account of the relative value of the tests of renal function, or some other subject of similar importance.

The book is well written and is all from the one hand. It not only contains the basic information on all the problems with which it deals but gives finger-posts to the sources of information which the student must consult if he wishes to improve his knowledge further. In the introduction the author says, "It is hoped that this book will be found convenient for employment in the hospital ward and ante-theatre, no less than in the study, as a kind of commentary to the clinical illustration which the ward and operating theatre afford. For this reason and for economy of space diagrams have been entirely excluded." This was probably a wise decision, though it is difficult to understand the operation for cleft-palate (Wardill's) in the absence of a diagram.

It is unfortunate that the author felt it necessary entirely to omit the subjects of fractures and orthopaedics from his book, and it is difficult to accept one of his reasons for doing so—that "the gap between general surgery and the ... lized surgery of the skeleton is so wide." Surely it ught not to be. Every candidate for the higher surgical xaminations is required to have a sound basic knowledge of these subjects, and most surgeons would agree with the view that every general surgeon should have at least a working knowledge of them. The total exclusion of these subjects leads to serious difficulties for the student, for though he will find a good account of the paraplegia due to Pott's disease of the spine he will look in vain for an account of the main symptoms of that disease; he will read that osteitis deformans may attack the lower jaw but fail to find any general account of Paget's disease of bone. He will even get sound information on the treatment of a wound which involves a bone but have to obtain the details of the treatment of the fractured bone elsewhere. Another hundred pages giving the main facts of these two subjects, with appropriate references, would make this book almost a necessity for the postgraduate student.

V. ZACHARY COPE.

ILLUSTRATIONS OF SURGERY

Illustrations of Surgical Treatment, Instruments and Appliances. By Eric L. Farquharson, M.D., F.R.C.S.Ed., F.R.C.S. Foreword by the late Sir John Fraser, Bt. Third edition. (Pp. 391; illustrated. £1 5s.) Edinburgh: E. and S. Livingstone. 1949.

There is much to be said for the pictorial method of teaching in an intensely practical subject like surgery. Not that pictures, even when accompanied by good descriptive matter, can act as substitutes for clinical experience, but in the student's comparatively short period of training there are many surgical techniques which he has no opportunity of seeing. In this connexion Mr. Eric Farquharson's book fills an obvious gap. The work is already well known, the present being the third edition. The reader must realize that it limits itself to certain orthopaedic conditions, fractures, closed injuries, and deformities, and is mainly concerned with plaster technique. The second section, which consists of numerous illustrations of surgical instruments and appliances with short descriptions of their uses, covers a much wider field. The author has been unduly conservative in his choice of instruments, but this may be of advantage from the student's point of view.

The illustrations have been carefully chosen and are well reproduced, so that a good and clear conception can be obtained of the procedures depicted. The text contains many useful hints which house-surgeons will find of value when they handle their first cases.

This is a book which can be recommended to the senior student and the junior surgeon as a trustworthy guide, especially in fracture work. Some of the sections have been revised, and the price has not been advanced since the last edition was published in 1942.

NORMAN C. LAKE.

ANAESTHETICS FOR STUDENTS

Anaesthetics for Medical Students. By Gordon Ostlere, M.A., M.B., B.Chir.(Camb.), D.A. With foreword by C. Langton Hewer, M.R.C.P., F.F.A.R.C.S. (Pp. 108. 7s. 6d.) London: J. and A. Churchill. 1949.

This book is an attempt to explain to medical students how an anaesthetic may be administered with safety to the patient and satisfaction to the surgeon. It is written in a pleasant, easy, and informal style, and is short, concise, and to the point. Its objects are certainly achieved.

There are some anaesthetists, however (of whom I confess myself one), who consider anaesthetics to be a postgraduate rather than an undergraduate study, and from this viewpoint the book is perhaps too inclusive. However, assuming that medical students do require to be taught the details of intravenous techniques, closed circuit methods, and local and spinal analgesia, this book does convey the necessary information in a readable way, eminently suited for study "in the bus, or while awaiting the entrance of an unpunctual surgeon." It includes all the important facts without being too dogmatic or detailed, and the student who knows this book well should be able to tackle any question on anaesthetics which he is likely to meet in his qualifying examination.

R. BLAIR GOULD.

TEXTBOOK OF MEDICINE

Medicine. By A. E. Clark-Kennedy, M.D., F.R.C.P. Volume 2. (Pp. 522. £1 5s.) Edinburgh: E. and S. Livingstone. 1949.

The second volume of Dr. Clark-Kennedy's book is concerned with diagnosis, prevention, and treatment. Its six chapters are entitled: Clinical Diagnosis, Special Investigations, Disturbances of Function, Reactions of the Mind, Pathological Processes, and The Practice of Medicine. This is not a textbook of medicine containing the factual knowledge necessary for passing examinations or the practice of one's profession. The subjects are discussed in a broad manner as a series of essays, and the text makes very pleasant reading. A great amount of material is covered, and new light is thrown on many of the infirmities to which the mind and body of man are heir. No one can read this book without having his interest stimulated and his outlook broadened.

The titles of the chapters do not alone indicate the many subjects considered, but these are related in subheadings. The prospective reader may be interested in a short selection of these—The Urgent Case, The Easy Case, The Difficult Case, *X*-ray Shadows, Looking into the Body, Tests of Function, Fever, Reactions of the Mind, The Doctor, The Family, and The State.

We must expect generalizations rather than details in a work of this type, and the information given about any one subject is necessarily somewhat meagre. For example, the use of "lipiodol" in the diagnosis of pulmonary conditions is dismissed in half a page. A barium enema is said to be "more time-consuming and more unpleasant than a barium meal. The information gained is more expensive and on the average less reliable." This must, however, depend upon what we are

looking for; if the barium enema is able to reveal a growth of the colon in an operable stage, and the barium meal fails to do so, the comparison is somewhat unfair. In the section describing the *x*-ray appearances of the heart we learn that when the patient is screened in the postero-anterior position "the right border of the heart with the patient in this position is formed below by the right ventricle." Readers may not be in agreement with this.

The book will make a wide appeal, for it expresses the inarticulate and ill-formed thoughts of many a seasoned practitioner of medicine.

G. E. BEAUMONT.

CARDIOLOGY AND GENERAL MEDICINE

An Introduction to Cardiology. By Geoffrey Bourne, M.D., F.R.C.P. (Pp. 264; illustrated. 18s.) London: Edward Arnold.

Patients with diseases of the digestive, pulmonary, and nervous systems may present with symptoms suggesting heart disease, and many diagnoses will be missed unless the cardiologist has a considerable familiarity with general medicine. This theme is predominant in Dr. Bourne's book.

The author has described the chief aspects of cardiovascular disease: opening sections on clinical methods are followed by chapters on heart failure, diseases of the myocardium, and disorders of rhythm. Articles on valvular and vascular diseases of the heart are admirably suited to the needs of the undergraduate student of cardiology, though "angina innocens" is not a term which has commended itself to most cardiologists. No doubt the inevitable delay between writing and publication accounts for the statement that atheroma is responsible for 60% of cases of aortic stenosis in the British Isles. Recent investigations have emphasized the role of rheumatism in the majority of cases. Such points do not, however, detract from the value of the book, which has throughout the ring of personal experience and which should inculcate in budding physicians and cardiologists an understanding of the fundamentals of medicine from the cardiologist's viewpoint. The continuity of the book is impaired by its derivation from lectures, but it demonstrates throughout the principles upon which cardiological diagnoses are based.

K. SHIRLEY SMITH.

"EDEN AND HOLLAND"

Eden and Holland's Manual of Obstetrics. By Alan Brews, M.D., M.S., M.R.C.P., F.R.C.S., F.R.C.O.G. Ninth edition. (Pp. 796; 36 plates, 12 in colour, and 405 illustrations. £2 2s.) London: J. and A. Churchill. 1948.

This work has always been acknowledged as one of the finest examples of a British textbook, for the publishers have used the best available paper and print and have been lavish with illustrations, while the authors, apart from being men of great academic distinction, have been able to write with clarity and precision. Mr. Alan Brews can be congratulated on the efficiency with which he has revised the book, and his powers of expression are at least equal to those of the previous authors. Moreover, he has shown skill in picking out from the literature which has been published since the last edition those contributions which deserve inclusion.

The new volume can be regarded as a full and up-to-date account of obstetrics as practised in Great Britain. It will be universally welcomed, particularly by postgraduate students working for higher examinations. Although the book is long it is not easy to see how the size could be reduced, for it is of primary importance in a textbook of this kind that full references should be made to original work. Indeed, it may be argued that the book should be expanded so that in time it can rival the great American textbooks.

The new diagrams are not always of the same high quality as those of previous editions, otherwise there is little to criticize. The success of the new edition is certain.

WILFRED SHAW.

PRACTICAL OBSTETRICS

Handbook of Midwifery. By Margaret Puxon, M.D., M.R.C.O.G. (Pp. 326. £1 5s.) London: Sylvio Publications. 1949.

Since the end of the war a number of books on practical obstetrics and gynaecology have been added to the literature. Many of these take the form of revision manuals for the general practitioner and those wishing to revise for higher examinations. Dr. Puxon's book is of this type: she presents a practical manual of obstetrics with emphasis on the normal. The subject is discussed in reasonable detail and the text is up to date. The style is that of a book of reference rather than a textbook, and the synoptic treatment of many of the sections makes it as a whole not very readable.

The book is marred by some errors of fact and by the doubtful value of some of the advice contained in it. For example, the level of the blood urea is not always raised in chronic nephritis in pregnancy, and in severe pre-eclampsia the baby is often small, not of normal size, as stated. The administration of pethidine by the intravenous route is recommended, though it is noted that collapse may occur. Surely such dangerous advice would be best omitted altogether, since the drug can be given safely and with reasonably rapid effect by the intramuscular route. The use of ergometrine to induce labour has only to be mentioned to be condemned as extremely dangerous in any circumstances. The dose of 0.5 mg. of ergometrine intravenously for postpartum haemorrhage is unnecessarily high and liable to cause side-effects.

The chief faults of this book are that it attempts too much in too small a compass and that it suffers in many instances from lack of illustrations. These shortcomings detract to some extent from its real merits of completeness and sound practicality.

JOSEPHINE BARNES.

SYMPTOMATIC DIAGNOSIS

Symptoms in Diagnosis. By Jonathan Campbell Meakins, C.B.E., M.D., D.Sc., LL.D. Second edition. (Pp. 542; illustrated 42s.) London: Baillière, Tindall and Cox. 1949.

Like Disraeli, many medical authors hate definitions, and Dr. Jonathan Meakins makes no attempt in this book to define the meaning of "symptoms" beyond the statement that they are "the patient's way of telling his story." This omission may explain why much of the work is concerned with phenomena generally regarded as physical signs. This is not a true defect, however, for the division of the subjective and objective phenomena of disease into symptoms and signs is patently artificial, the artificiality extending to books which undertake to consider them separately.

The author follows the customary pattern, considering in successive chapters the body's various anatomical and physiological systems and the symptoms which arise in connexion with them. The four final chapters on the eye, the ear, nose, and throat, the nervous system, and symptoms in psychiatry are contributed by specialist colleagues. Dr. Meakins's great experience and erudition are reflected in the mass of factual information presented; it is not clear to what audience the book is addressed, but the detail may be overwhelming for the student. In some sections rarities are accorded a disproportionate amount of space, and in others forbidding lists of causes will deter the faint-hearted. These minor criticisms do not detract from the general excellence of the text, and the discussions of cyanosis and dyspnoea are of particularly high standard.

The inevitable systematic arrangement tends to destroy cohesion, and symptoms which cannot be allocated to any one system elude consideration—there is, for instance, no discussion of fever. It is also disappointing not to find a section concerned with the technique of eliciting symptoms, for a chapter on history-taking would have given the book a unity that at present it lacks. There are signs of hurried proof-reading, and the reader's pleasure is sometimes marred by a turgid literary style: the author of *Plain Words* would not have approved of "Increased fragility (of bone) is demonstrated by a predilection to spontaneous fractures."

R.

A BEDSIDE HANDBOOK

Bedside Diagnosis. By Charles Mackay Seward, M.D., F.R.C.P.Ed. With foreword by Sir Henry Cohen, M.D., F.R.C.P. (Pp. 372. 17s. 6d.) Edinburgh: E. and S. Livingstone. 1949.

Dr. Seward points out the wide gap that exists between the symptoms complained of by the patient and the contents of the usual textbook of systematic medicine, and he attempts to help the student bridge this gulf. The book opens with sections on psychogenic symptoms and pain, but the remainder of the text consists of 20 chapters discussing the implications of single signs or symptoms. Each chapter is prefaced by a list of the common causes of the symptom in question; the underlying physiological disturbance is described whenever possible; and suggestions are made for shortening the list of possible diagnoses by analysis of the presenting complaint. There follow a brief description of the diseases responsible for the symptom and an account of the important investigations that may be required in diagnosis.

The author's plan is sound, and is that followed by many clinical teachers in the wards. The information is accurate; where statistics are given they are well chosen; and the work bears the stamp of a practical physician throughout. The book has flaws, though it is only fair to add that these are the result of its brevity, for even the common diseases are too numerous and too variable to be adequately described in such small compass. A notable weakness is lack of information on the diagnosis of diseases of the nervous system, common conditions such as disseminated sclerosis, hemiplegia, and epilepsy not being mentioned. But as the book is intended as a guide to the principles of diagnosis rather than a work of reference such omissions can be forgiven. The publishers are to be congratulated on the production, and the price is not high by to-day's standards.

SIDNEY TRUELOVE.

The twelfth edition of *Clinical Methods*, by Sir Robert Hutchison and Dr. Donald Hunter (pp. 484; 17s. 6d.; London: Cassell, 1949), has undergone a thorough revision, for which the authors have called on the assistance of Dr. R. R. Bomford. Some of the methods and phrases that gave an air of antiquity to parts of the previous edition have been eliminated, and the text now incorporates modern work on haematology, liver function tests, and elementary radiology. Some teachers will note with displeasure that the third and fourth heart sounds have made an appearance in the book, and it is surprising that a long description of the polygraph has been retained in a practical volume of this sort. The format has been altered, and the use of large and small type will help the student considerably in the difficulty he faces with all his textbooks—the selection of the leading facts from the less important details. The illustrations have been greatly improved, particularly those of urinary crystals. This edition will be found easier to read and to remember than its predecessor, and the book remains equally important to candidates for Membership and the M.B.

Dr. F. M. R. Walshe's *Diseases of the Nervous System* (pp. 359; 17s. 6d.; Edinburgh: E. and S. Livingstone, 1949) made its first appearance as recently as 1940, which may be a matter of surprise to many of its readers. It has now become a well-established textbook and occupies as important a place in the student's reading as many senior volumes. In the sixth edition the text has everywhere been brought up to date. The chapter on neurosyphilis has been rewritten and the sections on acute poliomyelitis and intracranial abscess enlarged. The short chapter on psychoneuroses has been retained, and there is a useful scheme of examination of the nervous system at the end of the text. Dr. Walshe should relieve the student who carefully reads this book of the anxiety with which he usually contemplates a neurological case in the final examination.

In their *Elementary Atlas of Cardiology* (pp. 108; 99 illustrations; 12s. 6d.; Bristol: John Wright, 1948), Drs. Wallace-Jones, Chamberlain, and Rubin have put together a series of electrocardiograms illustrating abnormalities of rhythm and of myocardial function. These are the standard records used for undergraduate teaching; they and the accompanying legends fulfil this purpose excellently. The authors have perceived that even in an elementary textbook chest leads must be mentioned, and they include IV R, IV F, and CR1. It is not clear why both of the first two are described when some other lead instead of IV F, such as CR6 or CR7, would have given additional information. The book includes a section on the radiography of the heart. This achieves a succinct presentation of the principal abnormalities, but the illustrations are not of high quality.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

Text Book of Surgery. By P. Kiely, B.Sc., M.D., M.Ch., F.R.C.S. (Pp. 1,184. 45s.) London: H. K. Lewis. 1949.

The Evidence for Voluntary Action. Edited by Lord Beveridge and A. F. Wells. (Pp. 343. 16s.) London: Allen and Unwin. 1949.

The Value of Hormones in General Practice. By W. N. Kemp, M.D. (Pp. 115. $3.) Minneapolis: Burgess Publishing Company. 1949.

The Substitute Family. By F. Knight, L.H.D. (Pp. 84. 3s. 6d.) London: The Convocation Lecture, 1949, of the National Children's Home. 1949.

What is Psychoanalysis? By E. Jones, M.D. (Pp. 126. 7s. 6d.) London: George Allen and Unwin. 1949.

The Yearbook of Psychoanalysis, 1948. Vol. 4. (Pp. 356. 30s.) London: Imago. 1949.

Understandable Psychiatry. By L. E. Hinsie, M.D. (Pp. 359. 22s. 6d.) New York: The Macmillan Company. 1948.

A Review of Nursing. By H. F Hansen, R N., M A. 6th ed (Pp. 866. 21s.) London: W. B. Saunders. 1949.

The American Nurses' Dictionary. By A. L. Price, B.S., R.N (Pp. 656. 19s.) London: W. B. Saunders. 1949.

"Doctor Himself." An Unorthodox Biography of Harry Roberts, 1871–1946. By W. Stamp. (Pp. 163. 10s. 6d.) London: Hamish Hamilton. 1949.

The Principles of Chiropody. By J. H. Hanby, F.Ch.S., and H. E. Walker, F.Ch.S. (Pp. 383. 21s.) London: Baillière, Tindall and Cox. 1949.

Tablet Making. By A. Little and K. A. Mitchell. (Pp. 121. 15s.) Liverpool: The Northern Publishing Company. 1949.

Tax Tables, 1949-50. By G. Whillans, F.I.B. (3s. 6d.) London: Butterworth. 1949.

Précis des Maladies Allergiques. By Pasteur Vallery-Radot. (Pp. 223. 550 francs.) Paris: Editions Médicales Flammarion. 1949.

Le Sexe. By V. Dantchakoff. (Pp. 210. No price.) Paris: Presses Universitaires de France. 1949.

Thrombo-Phlébites Cérébrales. By R. Garcin and M. Pestel. (Pp. 135. 600 francs.) Paris: Masson. 1949.

Von der Angst der Kranken. By K. Scheele. (Pp. 75. M. 4.80.) Stuttgart: Georg Thieme. 1949

Über die neuen Strahlenschutzregeln. By H Graf. (Pp. 72. M. 4.) Stuttgart: Georg Thieme. 1949.

Über die Anzeigepflicht des Prosektors wegen Ärztlichen Verschuldens. By F. Feyrter. (Pp. 88. 12s.) Vienna: Wilhelm Maudrich. 1949.

Grundriss der Allgemeinen Zoologie. By A. Kühn. (Pp. 281. M. 18.) Stuttgart: Georg Thieme. 1949.

Die Bazillenruhr. By L. Roemheld. (Pp. 125. M. 10.80.) Stuttgart: Georg Thieme. 1949.

Leitfaden der Neurologie und Psychiatrie. By W. Kurth. (Pp. 305. M. 22.) Stuttgart: Georg Thieme. 1949.

Die Erkrankungen der Endokrinen Drüsen. By A. Oswald. (Pp. 580. 58 francs.) Berne: Hans Huber. 1949.

Uremia y Seudouremia. By J A. Bofill. (Pp. 168. No price.) Barcelona: Ediciones Byp. 1949.

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INSTRUCTION OR EDUCATION?

In this Educational Number our distinguished contributors are all discussing from different points of view the same question. This is a question which has been asked since ever there was a medical curriculum to reform. Is it possible, by integration, to compress the present curriculum, overloaded with instruction, within limits that will no longer stultify attempts at education? In different keys, but in harmony, our contributors say yes. All are agreed that medical students must be "educated" and not merely tutored, or else when in practice in an increasingly instructed and science-conscious community their prestige will rightly sink.

The most serious complaint voiced to-day is that as the student passes from the premedical to the preclinical period and thence to the wards he appears to have learnt little of his professed subjects and forgotten more. The explanation generally offered is that subjects are presented in such a way as to lack demonstrable value for the student's aim of becoming a doctor; he thinks them futile and frustrating. Some blame, of course, is laid at the door of examiners, but more at the lack of unity of the curriculum. Chemistry, physics, anatomy, biology, and even physiology appear remote from the student's objective, or so the critics allege. One means of amendment proposed is the fusion of anatomy and physiology—now in the programme of one school, Birmingham—and another the integration of all the chemistry from first to sixth year under one educational head, as at the Middlesex. Perhaps even that is not enough: is there not room for the inclusion of pharmacology with chemistry and for its proper relation to general medicine? No doubt other co-ordinating experiments will be tried as pilot endeavours in other schools. The right method will only be reached by trial and error—in fact, by the "experimental" method.

A partial solution of difficulties might be found in a co-ordinating committee, or perhaps even a dean-dictator, of education, whose purpose would be to assemble all the staffs, first, second, and third stage teachers, and devise a composite course that would excite the student's expectations and make clear to him that however devious the path plotted for him it leads to the goal. As Professor Smithers says, "The reason for teaching him physics should be to help to make him a good doctor," and adds that "the best people to teach physics are perhaps those who themselves engage in research in physics in relation to biology or medicine." Professor Dodds points out that it might be stimulating even for first-year teachers of inorganic chemistry to feel that they kept touch with their students up to and after qualification, and had an interest in the reputation of the profession in the community. "What surely is required," writes Professor Crew, "is that the first-year teachers should hand on to those who follow students whose initial experience of the university has exceeded their wildest hopes."

There have been many proposals for improving the method by which doctors are trained, but it is unusual, to say the least, to find so plainly stated the need to improve the teachers as well as the taught and the teaching. It is indeed remarkable not so much that clinicians never have sought instruction or training in the art of teaching, as that the men of science, the physiologists, the research workers, who can transform themselves into clinicians overnight by the acceptance of a chair, have not been prompted by their daily practice of the scientific method to take a course in pedagogy. The methods used by educationists to teach the teacher are described in this issue by Professor W. R. Niblett. He urges co-operation between institutes of education and schools of medicine, and here, perhaps, one of the matters to be inquired into might be the training of doctors in the art of teaching. Teaching, however, is a small part of the great burden that professors now carry. It is too much to expect that research, clinical experience, a competent understanding of intimate human relationships, administrative wisdom, and the patience of a good committee-man can all be combined in the same person. One way or another the ardours of research, the art and practice of educating, and the pursuit of planning must be shared. An older and experienced director of education might share responsibility with a younger research professor, or perhaps middle age for research and youth "to teach the young idea how to shoot" and, *pace* Francis Thompson, not "to pour the fresh instruction o'er the mind." All are agreed that educational method throughout the curriculum would require a great increase of teaching staff and, as Professor McMurray mildly puts it, "an alteration of the outlook of at least some of the teachers." Others would add, "of the examiners too." There is naturally some rejoicing that adequate payment of clinicians will free more and more of them to follow their bent from one school to another, from university to university; that inbreeding amongst clinical staffs will therefore become less prevalent; and that if and when classes are small enough there will really be time and space for educational method.

There is a strong feeling for the seminar or class where student and teacher exchange ideas, for student as teacher

of student, or even for such a pronouncement as Trousseau used to make to his class at the commencement of a term, "I expect to learn as much from you as you from me." All teachers are concerned to cultivate the "scientific method" and to exercise it by example and experimental practice until, like the aseptic ritual of the surgeon, it becomes a habit that cannot be broken. At the back of their minds is the fundamental distinction between teaching and education, and a feeling that in the use of the collective-study method there is an immediately practical way whereby the student may educate himself and from the first day of his entry feel the implications of the last of his pupilage.

Professor Pickering, as might be expected, claims for physiology a foremost place as an educational tool; he, like many another, would see clinical medicine not only based upon, but indissolubly permeated with, physiology. He would so far as possible use man, and that man often a fellow student, as the experimental animal. Others insist on focusing the phases of study on one ultimate intention, each teacher abstracting from the great excess of material at his disposal that illustrative part, and that part alone, which will arrest the attention of a student intent on his objective of caring for the sick—and this the more easily now that function can be described in terms of molecular shape. All the basic sciences and many clinical problems are concentrating to-day on the molecule as their ultimate target and have at service, in the tagged atom, a research tool of great value.

With agreement on the importance of educating the medical neophyte in scientific method there appears again and again the plea for a humane and humanistic approach, an indication of awareness that by concentrating on the science and despising the art of medicine it would be quite possible to throw the baby out with the bath-water. Professor Arnott, in his carefully thought-out paper in our opening pages, asserts that "Science is disgraced by the over-zealous application of elaborate technical investigation, regardless of the patient's emotional state." Some at least are on guard lest too much trust in measurements, fallible and delusive as they may easily be in inexpert or lazy hands, should overwhelm the humanity of the doctor in his comprehension of his patient. "The training in scientific method, whilst providing the student with capacity for logical, impersonal, objective thought, should add point both to the skill with which he applies his treatment and to the understanding and fellow-feeling that soften his conversation with his patients."

Thus, though psychology has made but a shy appearance in these articles, it lurks in every corner, and the 'prevailing emotional pattern of man" seems unlikely to be entirely overlooked. That is as well, for, as Professor Crew points out, an additional duty is now imposed on those who educate the medical student: besides teaching him the methods of his trade, they must instil into his mind and character the culture that once was the peculiar and exclusive prerogative of the humanities. A prospective student who reads these articles, if he becomes aware that the curriculum prepared for him is in many ways defective, will nevertheless be convinced that his interests are the subject of great concern to his future teachers and that his own endeavours will have a fair field and no impediments.

A situation that demands precise and unshrinking consideration must be faced. The national finances are in so precarious a state that thought must be devoted to what share of the country's total income can be afforded for the promotion of health and the treatment of sickness. The decision, while not disregarding the dictates of civilized human sympathy, must be dispassionate and realistic. This is a matter of national policy. So far as the medical profession is concerned, whatever material economies may be made, however much "overheads" may be cut on the hospital account, and however distressing it may be to postpone the day of palatial health centres, it is clearly a duty so to educate the generality of medical men that far from declining into little more than "medical orderlies"—of which there is a real danger—they should, on the contrary, apply their trained intelligence so that their individual service may be effectively spread over the whole field of prevention, social well-being, curative method, and restoration to productive citizenship. Education in and by the scientific method certainly; but that method must extend into realms where exact experiment is difficult, where there are factors that cannot be singly eliminated, and where emotion is imponderable but dominant.

SURFEIT OF DIPLOMAS

All plans for the reform of medical education are to some extent held up by the natural inertia of those in control of the medical curriculum at the teaching hospitals. There is not in medical education the same scope for initiative and experiment as there is in general education. And all schemes of reform sooner or later come up against the formidable obstacle of the examination. Many earnest words have been written on the value of a sound general education to the youth who intends to be a doctor. Much more might be said of the need for a good all-round education in general medicine, especially for those who intend to be specialists. The time may yet come when all who qualify will have to spend some time in general practice before being allowed to specialize. In the meanwhile the drift to specialism continues, and the young doctor who seeks to

avoid the most arduous medical life—general practice—finds before him a tempting array of special diplomas, acquisition of any one of which will enable him to stake his claim as a specialist.

The Conjoint Board now offers ten special diplomas, eight of which were in existence before the war; the diplomas of physical medicine and of industrial health have since been added. Since 1938 thirteen provincial universities in Britain have made provision for taking the D.P.H., a diploma, incidentally, for which there is more justification than for many of the others. Nevertheless the issue of diplomas on a wide scale to accommodate the different divisions of medical practice illustrates the tendency to the atomization of medicine. If this tendency continues medical men will cease to be "doctors," men more or less learned, and instead become mere technicians able to tinker with local parts of the human machine. The unfortunate patient, with no one to see him as a whole person, will pass along a conveyer belt to be assembled, perhaps, by an administrator in a central records office.

It is worth noting that in recent years those homes of real learning, Oxford and Cambridge, have offered only one special diploma each. The worst offenders are the Royal Colleges of Physicians and of Surgeons through their Conjoint Board. There is, of course, a financial side to the issue of diplomas, and the Colleges may be naturally apprehensive of their financial position if, for example, the Conjoint qualification, M.R.C.S. and L.R.C.P., is abolished, as was implied in the Goodenough Report. But finance must not be allowed to dictate the policy of medical education, nor would one suggest that it does. The mushroom growth of diplomas is no doubt in large measure due to demand. And such a demand is in itself a reflection upon the inadequacy of medical education. The foreign doctor, it has been said, looks with amazement and mockery upon the alphabetical beads the British doctor can string after his name.

If we may assume that a specialist will confine himself either to a part of surgery, or to a part of medicine, or to the combination of the two in obstetrics and gynaecology, there would seem to be a rational way out of the diploma maze. Just as no one is allowed to qualify until he has been grounded in the whole of medicine, so, surely, no one should be allowed to specialize, say, as an otolaryngologist until he has proved his general competence as a surgeon. The F.R.C.S. of England is the hallmark of this general competence, and no additional diplomas should be needed to indicate that the F.R.C.S. is competent to practise as an otolaryngologist, ophthalmological surgeon, thoracic surgeon, or what else. His special competence is recognized by his appointment to special hospitals, or departments of general hospitals, and by his contributions to learned societies and periodicals. The position of the physician is now somewhat ambiguous because of the present policy of the Royal College of Physicians in relation to the M.R.C.P. But until now the passing of the examination for the M.R.C.P. has been taken to indicate general competence to practise as a medical specialist. What need, therefore, to urge the would-be paediatrician to add the letters D.C.H. after his name? Manson and Ross were able to make their discoveries without the assistance of the D.T.M.&H., and Sir Alexander Fleming hit upon penicillin unaided by the D.Bact. now offered by London and Wales. The real danger of the special diplomas is that they will ease the way to special practice for those who cannot pass the test of such general examinations as the F.R.C.S. and the M.R.C.P. This will lead to a lowering of standards and of competence, to the detriment of medicine and of the public medicine serves. A strong case could be made out for retaining such diplomas as the D.P.H. and the D.P.M. The medical officer of health applies his art and science in a way quite different from that of the physician or surgeon. He deals with the collectivity and not with the individual. Some mark of his special competence would seem to be necessary. And with the present division between "mental" and "physical" medicine the practice of psychiatry, too, must largely be in the hands of those whose special training is proved by the possession of a diploma.

Now that the National Health Service has been launched the whole question of consultant and specialist practice should be reviewed, perhaps by a special commission of men and women representative of the teaching centres of Britain. An inquiry into the qualifications of consultants and specialists is urgently needed, and a long-term policy should be laid down if the medical profession is not to drift into the position of accepting the second best offered by endless permutations and combinations of all the letters of the alphabet.

PROSPECTS IN THE N.H.S.

"It must be brought home to boys and girls, to their parents and school teachers, that there is no profession offering a wider range of interests than Medicine, and that children of ability need not be deterred from entering the profession through lack of money." The Goodenough Report,[1] from which this passage is quoted, was published in 1944. Have the events of the intervening five years made any difference to the prospect before the medical student and the newly qualified doctor? The present is a difficult time to answer this question, for the manner in which the National Health Service

[1] *Report of the Interdepartmental Committee on Medical Schools*, 1944, London: H.M.S.O.
[2] *British Medical Journal*, 1948, 1, 579.
[3] *The Training of a Doctor*, 1948, London.
[4] *Hansard*, 1949, May 24, col. 1097.
[5] *British Medical Journal Supplement*, 1949, 2,

will develop cannot yet be foreseen, and the period of transition which began on July 5, 1948, is likely to last for a long time. At the medical schools also the last few years have been exceptional because of the effects of the war and of compulsory service in the Forces.

In one direction a great change has already come about. A student who passes the stiff hurdle of entrance into a university can now more easily obtain financial help, if he needs it, than ten years ago. Even parents who may be considered relatively well off are finding the burden of paying for the medical education of their children increasingly heavy, and it seems certain that as time goes on more and more medical students will receive financial assistance from the State and from local education authorities. A university or college scholarship will continue to be a distinction for exceptional ability. Early in 1948 the Minister of Education, replying to a question in the House of Commons, stated that the Ministry was making at that time 2,540 grants to medical students[2]; no figures were available to show the number of similar grants given by local education authorities. Parents of a boy or girl who has succeeded in entering a medical school and who can show that the cost of the medical education of their child would be a crippling expense should apply to their local education authority for information about the grants available.

What of the prospect before the newly qualified doctor? Certainly the salaries of junior posts in the hospital service are better than they used to be. Furhermore, entry into the superannuation scheme dates om the time of taking up the first appointment. Every encouragement should be given to the young doctor to widen his experience in hospital after qualification, and doubtless it will not be long before one of the conditions of registration will be, in the words of the Goodenough Report, "a compulsory period of approved and responsible clinical practice under supervision." In *The Training of a Doctor* the Medical Curriculum Committee of the British Medical Association discussed "the intern year" at some length and made many sensible suggestions about how the work of the "interns" should be arranged.[3] There is still keen competition for house appointments in teaching hospitals, but the newly qualified doctor who fails to "get on the house" may stand a good chance of obtaining an appointment at one of the satellite hospitals associated with his teaching school, and he will be able thereby to keep in touch with experienced teachers during this important stage in his career. It is when he has finished his junior house appointments that the young doctor is faced with a number of difficult decisions. If he has decided to go into general practice or into one of the Services—including the public health and colonial medical services—he can make his plans accordingly, but if he wishes to specialize or to remain in the hospital service he would be wise to consider carefully what his chances are of reaching the position which he desires. During the past 30 years young doctors have been increasingly attracted to specialist work. If anything the N.H.S. increases the attraction, and competition will be keener than ever.

The way to a specialist appointment is ordinarily through the grade of registrar. It is not essential for a registrar to hold a higher degree, but at some hospitals the chances of candidates without the M.R.C.P. for medical and the F.R.C.S. for surgical appointments would be very poor. The pressure on the aspiring specialist to take one or more of a "surfeit of diplomas" is also increasing. It is, as it used to be, the step from registrar to specialist that is the most difficult. It was not uncommon for the man or woman who wished to obtain an appointment on the staff of a non-teaching hospital to go into practice in the area served by the hospital and wait for a vacancy. An established local practitioner with the necessary hospital experience and qualifications stood a good chance of securing the desired advancement. The more impersonal method of selection in the National Health Service has raised doubts whether he is now so likely to succeed. Many registrars are at present gloomy about their prospects, but there is hope in the fact that the hospital service is far from the stage of full development. In the debate on the Second Reading of the National Health Service (Amendment) Bill, Mr. F. Messer, the chairman of the Central Health Services Council, said about the hospital service: "We cannot look for contraction; there must be expansion." He added that there were areas in the country in which the hospital service was inadequate, and that in these areas there will be a need for more specialists.[4]

For the doctor who wishes to enter general practice things are easier in one respect than they used to be and harder in another. He can, of course, enter practice by putting up his plate in any open area with the permission of the Medical Practices Committee. For those who prefer the more usual approach to general practice no capital has to be found nowadays for the purchase of a practice in the N.H.S. (though the purchase of a house may mean heavy expenditure), but the doctor who wants to obtain a practice must submit a formal application for an advertised vacancy. The number of applications to fill these vacancies is large at the present time, especially when the practice is in an area which is popular with doctors. Another difficulty for the man or woman seeking to set up in practice lies in the fact that certain areas of the country are "closed," the Medical Practices Committee having decided that the number of doctors undertaking to provide general medical services in them is

for the time being adequate.[3] A doctor usually takes an assistantship if he wishes to enter general practice, and this is probably the best way of being introduced to it, especially if he becomes a trainee assistant under the guidance of a principal selected to train entrants to general practice. Many principals seek an assistant with the intention of offering a partnership if the assistant proves his worth. During the next few years the distribution of general practitioners throughout the country will be changing, and it may be some time before the new machinery works smoothly. Practitioners who require advice about the method of entry into general practice should make use of the Medical Practices Advisory Bureau, which the British Medical Association set up at the end of last year; one of its functions is to introduce partners, assistants, and locums. The Bureau, which maintains an information service about openings in the various fields of medical practice, may also be able to give helpful advice to specialists and others seeking appointments outside general practice.

TRAINING IN PUBLIC HEALTH

The scope of preventive medicine is being constantly enlarged. No single practitioner can now be expert in the whole subject, and some degree of specialization has become essential. At one time, for example, the health officer was expected to have a detailed knowledge of the young science of bacteriology; but such great advances have now been made along this road that even bacteriology applied to hygiene is itself a lifelong study. The practice of public health in the field is also limited by political considerations, and teaching should take note of changes brought about in this way. From the beginning of the present century—to choose a simple illustration—preventive medicine has become more and more closely linked with personal health. In the meantime many of the environmental services have become so highly developed technically that they have been rightly handed over to the architect and the sanitary engineer. The medical officer of health gladly shouldered the burden of maternal and child care, and played a notable part in the evolution of the statutory schemes for the prevention and treatment of tuberculosis, venereal disease, crippling conditions, and other social handicaps of great importance to the nation. These services were built up in a comparatively short time to a remarkable state of efficiency.

In the year 1929 a large number of hospitals came under the direct administration of the medical officer of health, and in the course of the next ten years many of them were transformed from typical "poor law institutions" to progressive modern hospitals. They stand to-day as monuments of wise local government and excellent teamwork among the officers of local authorities. Nevertheless hospital administration was apt to take precedence over the proper functions of the medical officer of health. He has no reason to deplore the recent restoration of hospital and other remedial services to the fold of clinical medicine, for he should now have time and opportunity to concentrate on his own job.

Postgraduate teaching in public health was slow to follow these progressive changes. In the past, it has to be admitted, the study of the personal health services was only sporadically introduced into the course, while the intricacies of bacteriology and chemistry still received too great a share of the student's attention and loomed too large in the examination for the D.P.H. At the end of the last war, however, a new syllabus came into operation. It was intended to cover an interim period "while the new medical services are taking shape." The nine months' course for the full D.P.H. was retained, but the first three months were to be devoted to a general review of the health services. A Certificate in Public Health was given to those who passed an examination at the end of this period of study. It was believed that a large number of students, content with the certificate, would then proceed to advanced clinical work in paediatrics, tuberculosis, and the like. In fact nearly all the students go on to take the full course for the diploma in public health.

This interim curriculum is already out of date, and the courses for the diploma are being adapted to keep pace with the times. In particular, more attention is being paid to practical social work, to industrial health problems, and to the vast field of epidemiology. Elective subjects are taking their place in the curriculum here as in the United States, and stress is laid on the day-to-day observations made by the student in his notebook. Public health is not only not in decay: it has not nearly reached maturity. As Sir Farquhar Buzzard said in a Harveian Oration eight years ago: "It exhibits precocities of growth and promise of further development. It has already accomplished much in its fight against slums, dirt, infection, and industrial disease. It has done much indeed for the health of mothers and children. In short, the history of our public health services is one of which our country may be justly proud."[1]

It is necessary to think well ahead if the framework for the new public health service is to be soundly constructed. If the present course for the Certificate in Public Health were to be given in the undergraduate years it should be easier for the general practitioner and the health officer to work more closely together to promote health of mind and body. This task has always

[1] *Lancet*, 1942, 1, 343.
[2] *British Medical Journal*, 1949, 2, 326.

been hard, and it is not likely to be made easier in the near future. For one thing the Government, preoccupied with working a statute which is mainly concerned with the sick, is busy with remedial care; for another, the medical practitioner, as yet untutored in prevention, is consulted only when people are ill. The local health authorities are still smarting under the blow which tore from them the hospitals in which they took so much pride. And the multitude care little about health so long as they are reasonably well.

The health officer's special responsibility is to safeguard the health and well-being of the community he serves. Now that he has been relieved of his clinical burdens he can give his full attention to the study of health and of the foundations of disorder—epidemiology in its broadest sense. In this territory he should once again be a pioneer. Further, the medical officer of health has a clear duty to translate the technicalities of science applied to hygiene into terms which the public can understand. The basis of local government in this country is the presentation of expert knowledge in such a way that the layman can grip it and act upon it. The M.O.H. is an interpreter. If these principles are right, then the course for the D.P.H. should be educational rather than narrowly vocational. On the one hand it should give the student an understanding of how the sciences can be applied to the practice of health, and on the other it must afford abundant opportunity for him to grasp the social functions of medicine—the study of man in relation to his home and his family, his work and his play.

The prospects of a career in public health have never been better. The work is interesting, and there is wide scope for experiment and imagination. The ties of office work have mercifully been lo[illegible]ened since the National Health Service Act came into operation. Financially the rewards of a career in public health will always be less than clinical medicine can offer, but it is encouraging that the dispute between the British Medi[illegible] year [illegible] Associations and the local authority associations at some length gestions about how the wo[illegible] of public health medical officers arrang[illegible] and [illegible]re is still ago.[2] The representatives of t[illegible] the remuneration ow agreed to take part in the settled a few weeks ching ho[illegible]nctional council under the local authorities have into "get tors in the public health rmation of a medical fu[illegible]ining f knowing that their case Whitley machinery, and doc[illegible] assoc[illegible]ust now be heard. service have the satisfaction o[illegible] th[illegible] for improved scales of salary r[illegible]

TEACHING OF MEDICAL BACTERIOLOGY

[illegible] bject which can easily [illegible]dent must know how bacteriology is not a [illegible]dy defends itself against The medi[illegible] overcome this defence, how they cause, and how death or recovery takes place. For practical reasons he must be taught what specimens to take, how and when to take them, and the information to send to the laboratory with them. He must also be familiar with skin tests in common use to indicate infection or susceptibility and know what preparations are used for prevention and treatment. The student's understanding of future developments in the diagnosis, prevention, and treatment of bacterial disease will depend on his knowledge of the nature of bacteria and, in particular, their metabolic processes, for it is interference with these which seems to offer greatest hope for the control of infectious disease.

One of the problems of the teacher of medical bacteriology is to give a balanced review of the subject in all its aspects within the limited time allowed in the medical curriculum, and in this connexion Professor R. Cruickshank[1] has recently made some constructive suggestions. He very rightly maintains that bacteriology should not be taught in isolation, but should be integrated with other subjects, particularly with pathology, epidemiology, and clinical medicine and surgery. Demonstrations, tutorials to small groups, and bacteriological clerkships all have great educational value. Professor Cruickshank believes that the teaching of bacteriology should be in four stages: during the biology course; in an introductory course in general pathology; in an intensive course in pathology and bacteriology to be taken after at least one year of clinical work; and during bacteriological clerkships in the final year. Such a scheme obviously has great advantages, but some medical schools may find it requires too much time.

The proposal that instruction in the principles of bacteriology should be given during the biology course is valuable. If included towards the end of that course the subject would catch the student's interest as something obviously related to his future work. There might, however, be a danger of reducing the load in one course by overloading another. The inclusion of bacteriology in an introductory course in general pathology puts the subject in its proper perspective for a medical student as a branch of pathology. Another object of the introductory course is to bridge the transition from "the familiar and normal to the unfamiliar and abnormal." At this stage the approach should be from bacterium (much about the bacterium) to patient (only a little about the patient). When the student is ready to cross the bridge his teacher should cross it with him by leaving the class-room and going into the ward. The approach would then be from patient to bacterium. Students, under supervision at first, would study the patient, consider what, if any, bacterial cause there might be for his illness, take the appropriate specimens, and either follow or themselves carry out the examination in the laboratory. Finally, there would be discussion with clinician and pathologist of modes of infection, pathological changes, treatment, and prevention.

Such a method of teaching small groups of students would give a balanced view of bacteriology and integrate it with other subjects. Many teaching hospitals have a number of bacteriologists on their staff, and all should be called on for teaching; but it might be more difficult to find suitable teaching laboratories. After this period of work under supervision the student should be able and be

required to work on his own. During his medical clerking he should be expected himself to take and examine specimens from his patients. Only by accepting responsibility will he really learn.

TEACHING OF TROPICAL MEDICINE

At the present time there are three centres in this country at which postgraduate courses of instruction in tropical medicine are given: these are in London, Liverpool, and Edinburgh. The length of the courses is about five months, and the students then sit an examination for a diploma in tropical medicine and hygiene. That in London is conducted by the Conjoint Board, and those in the other centres by the universities concerned. Their original purpose was to fit medical men for clinical practice in the Tropics, essentially to familiarize them with a variety of diseases of which they learn little or nothing in the ordinary qualifying medical curriculum in this country. Among the diseases which are of more peculiarly tropical distribution those due to protozoa, to spirochaetes, and to helminths are of very great importance. The study of these cannot be confined to the more rigidly clinical aspects of their diagnosis and treatment; it entails an introduction to subjects largely foreign to the graduate in medicine in this country. It is impossible to understand the parasitic diseases of man without a sound knowledge of the parasites causing them and of the vectors which convey these parasites. The student's course of study must therefore include clinical parasitology and medical entomology and zoology in order to give him sufficient knowledge to undertake ordinary tropical practice. The basic requirements of the curriculum are thus wide, and not least of the difficulties for the student is the acquirement of an extensive new vocabulary.

Learning the facts about tropical diseases is largely valueless in medical practice without skill in the technical examinations which are necessary for diagnosis and for the control of treatment. The help of a laboratory, so easy to obtain in this country, is but rarely available in the Tropics, and the medical practitioner there must be his own clinical laboratory technician. To give him confidence in his ability to do this work a large proportion of his time in training must be spent in the laboratory if he is to acquire the necessary technical proficiency. The need for this is great, for teachers have found that many postgraduate students coming for training cannot even use a microscope competently. In addition to essential instruction in tropical diseases the three courses now include a wide range of subjects such as ethnology, nutrition, sanitary engineering, field surveying, public health practice, epidemiology, and vital statistics. That adequate knowledge of each of these can be acquired by the student in so limited a period is doubtful, and in the attempt to absorb it there is a very real danger that the facts necessary for the ordinary practice of his profession may be obscured.

Restriction of a curriculum to assimilable proportions without omission of essentials is a problem common to all branches of medical education. In this case the primary object is to equip the medical graduate for his immediate duty as a general practitioner in the Tropics, and a preliminary course of study might well be limited to this. After experience in the Tropics the practitioner would have first-hand knowledge of the medical problems of his own district, and he would know which were capable of solution by his own efforts. Armed with this knowledge, he would be in a far better position to seek and to assimilate a wider range of information to this end. Those who advocate a preliminary course of instruction in tropical medicine of rigidly limited scope and of severely practical aspect have a strong case. At a later date medical officers with practical experience in the field could take a more advanced course of study. The preliminary course might be followed by an examination, which would in effect afford a certificate of competence to practise medicine in the Tropics. The advanced course would be much less stereotyped and could be varied to meet the needs of individuals; an examination after this course might be dispensed with.

THE B.M.S.A.

Though the British Medical Students Association has to contend with the problem of all student bodies in that after a short time medical students—or most of them—become doctors, it continues to flourish and to increase its activities. It confines its work to studying and trying to fulfil the needs of medical students as medical students and eschews political controversy and other ulterior affairs. Its wholly laudable aim is to increase co-operation between medical students themselves as well as between them and the medical profession, students of other faculties, and students overseas. Several times a year it holds clinical conferences at various centres, where authorities on different aspects of medicine give lectures and demonstrations, and three times a year it publishes an excellent journal. *The British Medical Students Journal*, which is edited by students and has a circulation of over 4,000, contains articles both on clinical medicine and on its historical and cultural aspects. Last year the association also published a diary for 1949—an enterprise that will be continued each year—which includes many pages of tabulated clinical and pharmacological information. It is a useful pocket-book for the medical student, though he might be wiser to leave it outside the examination hall with his textbooks.

The association's annual general meeting, which is to be held at Edinburgh on Nov. 11–13, is attended by representatives of the constituent bodies. These are the great majority of the medical schools in Britain and Northern Ireland. As a result of decisions taken at last year's meeting the association inquired into billeting fees paid by students taking their midwifery course. They were found to vary from £1 to £3 a week, and it was suggested to the Minister of Health that they should be a charge on the Hospital Service. He did not agree, and contended that it was a question for the medical school or university. Another problem investigated—and this time with greater success—was the ex-Serviceman's grant. A meeting was held with the Ministry of Education, and certain anomalies were adjusted. The B.M.S.A. is playing a useful role in investigating students' problems and advocating solutions to them. It deserves the backing of all medical students, for no case, however good, can succeed unless it is well supported by the evidence and effort of the majority of those concerned.

THE TRAINING OF THE TEACHER

BY

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At least fifteen thousand teachers are sent newly trained into the schools of the nation every year. Most of them are trained in colleges which offer a two-year course, but teachers who take up posts in secondary grammar schools and an increasing number of those joining the staffs of other types of secondary school are graduates who have had in all a four-year period of training—the first three years being spent at a university in reading for the degree of B.A. or B.Sc. and the year after graduation in a university education department.

During his three years' course the undergraduate will have been fully occupied in his academic studies and will have concentrated upon securing the best degree he can in the subject or subjects of his choice. The postgraduate year of training is therefore a year during which his mind and personality have to be acclimatized to the idea of teaching. It may have been some years since he has even been inside a school, and he is not likely to be very well aware of his own capacity or deficiencies as a teacher of boys or girls.

But the task of a university education department is much wider than that of giving a student various hints and tips about the techniques of teaching in the classroom and of providing chances of practical experience of such teaching. It is true that the total length of the course is quite short. It amounts to about thirty weeks in all, perhaps seventeen of them spent in lectures, discussions, and classes at the university and the remainder in "teaching practice" in schools of various types. In these thirty weeks the student has to be introduced to some of the social, philosophic, and psychological bases of education. All university education departments are anxious that students should not think of the job of teaching simply as one of instructing John and Mary in a particular subject or subjects. The education which a nation gives to its children is an intimate expression of its social and national purpose and character: the children of a nation *are* its future. It is not merely what they are consciously taught in schools that will matter but the unconscious presuppositions and values which the school as a society will impart to them.

A very important element in the training given to the teacher is his study of the psychological development of children. Such instruction as he receives on the psychology of childhood is no substitute, of course, for personal understanding of children as human beings. But some knowledge of human psychology can undoubtedly deepen understanding of child behaviour and mental growth. A certain number of lectures are given to students upon the physical development of childhood and upon principles of health. There may be lectures, also, upon the history of education in this country, contemporary educational developments in other nations, and the general administration of education

All the lecturers in an education department are themselves teachers of experience, and students take part with them in discussions on teaching methods. During the year the students have experience of trying to teach boys and girls of various ages. This gives them a chance of learning how to co-operate with themselves as teachers, how to shape lessons of many sorts, how to make effective contacts with children of differing temperaments and abilities. During their periods of practice they are encouraged to look upon teaching as an art and a craft calling for great demands not merely upon their knowledge of a subject but upon their human understanding and their skill in interesting an audience and helping it to learn.

Social Factors in Learning

Clearly there is much in common between the training of a doctor to be a good doctor and a teacher to be a good teacher. It is significant that in these days there should be an increasing emphasis in teacher training upon the importance of social factors in learning, just as there is an increasing emphasis upon social factors in medicine. Similarly, it is realized more and more that the individual child cannot be understood simply as an individual. He must be seen as intimately influenced by the family in which he has been brought up, the social class to which he belongs, his environment of street and newspaper and public opinion. Educational psychology is to be seen as a branch of social psychology. The time allowed for discussions in small groups between students and their lecturers has its counterpart in the case of students training to be doctors.

The training of the teacher, whether in a two-year training college or in a university education department, is not of course to be thought of only as a narrowly professional business. If the student is to make a good teacher he must during the whole time of his training be enriching his humanity. It is important that his capacity for experience should be increased as well as his knowledge of education as a subject and his skill as a practitioner. The experience of students can be stretched in many ways, and use can be made of the arts, the novel, the film, and also of travel. It is important that students training to be teachers should not merely read textbooks upon child development or methods of teaching, but stories about childhood and the childhood parts of various autobiographies. It is very enlightening to them also to read something about education in primitive societies. Such absorbing studies of life in primitive societies as Margaret Mead's *Growing Up in New Guinea* or *Coming of Age in Samoa* are valuable books upon education itself.

Institutes of Education

Since the war, great developments have been taking place in the organization of teacher training in this country. The country has been divided up into regions, each with an institute of education centred upon a university. Henceforward these institutes will be responsible for the training given to teachers within their area. This will inevitably bring about the gradual development of much closer relationships between the two-year training colleges (which in due course will offer three-year courses instead of two-year) and the universities themselves. The Ministry of Education will in future recognize as qualified teachers only students who have secured a qualification awarded by one or other of the institutes of education.

But institutes, like medical schools, are not concerned only with the initial training of teachers. A very important part of their work will be in "postgraduate" education—in the continued training and education of teachers already in the field. In the past there have been, of course, summer schools, refresher courses, and evening lectures for teachers who cared to attend them. With the coming of institutes of education, however, the scope and provision of such methods of continued training will be much enlarged.

Post-certificate qualifications for trained teachers are likely to come into existence in considerable numbers. Thus a graduate who has had an initial year of teacher training immediately after receiving his first degree will be able to add to his qualifications as a teacher by taking a more advanced diploma after having taught for some years. This may be general in character or of a specialized sort—e.g., a diploma in primary education, or religious education, or the administration of education. Corresponding qualifications will also be open to those who have qualified as teachers after a period at a two-year training college.

Educational Research

A third concern of an institute of education is with the organization and encouragement of educational research. Here again there is a parallel with the centres of medical education. In all the five main fields of educational investigation vast territories remain to be discovered—in the sociological, psychological, historical, comparative, and methodological fields. Educational research is not to be regarded simply as a matter of discovering more about actual methods of teaching in the classroom or about more efficient means of examining children at various stages in their school career. We need to know much more than we do about, for example, the educative influence of the cinema, the adaptation of the school curriculum to fit contemporary needs more effectively, the influence of classroom and school design upon the education given within the buildings which have been put up. The curriculum itself in most types of school is what it is for traditional rather than really educational reasons.

Most institutes of education are building up libraries of books available for loan to teachers in their area. They have already begun to publish accounts of experiments and researches which are taking place under their auspices. Indeed, an institute which is really awake will be seeking out and encouraging all sorts of investigations, projects, and new methods within the schools and colleges of its area. It will act as a focus and fertilizing place for vital ideas on many educational matters.

There is an obvious parallel between the work of university institutes of education as they are developing and medical schools which specialize in postgraduate education and advanced medical research. It may be, however, that in institutes of education continued teacher education and the findings of educational research are brought into closer relationship with one another than is sometimes the case in medicine. As time goes on the need is likely to become more apparent for a closer linkage between institutes of education and the departments of medical schools concerned with child health, mental health, and social medicine generally. The doctor in training and the teacher in training have much to give to one another, and so have the staffs engaged in training them.

The Central Council for Health Education held a summer school at the School of Domestic Economy, Eastbourne, from July 28 to August 11 under the direction of the Council's Medical Adviser and Secretary, Dr. Robert Sutherland. This year not only the subjects but the method of study were of interest to both pupils and tutors. The subjects were "The Nature and Needs of Man" and "The Contents, Principles, and Practice of Health Education," and the method of study was that of tutorial group discussion. A short consideration of the theory and method of group discussion completed the course, which was supplemented by the showing of films and a display of health education material and books. The students were drawn from all fields where health education is of importance.

NURSE-TRAINING AND LEGISLATION

RETROSPECT AND PROSPECT

[FROM A SPECIAL CORRESPONDENT]

When the Nurses' Registration Act was passed in 1919 after long struggles and much controversy it was assumed that the field had been won. The goal on which the nurses had set their hearts was the formal recognition of nursing as a profession. This implied a recognized qualification, and the qualification had been found in State registration. Since that time nurse-training has become more and more a process of obtaining the greatest possible number of passes in the State examinations. Efforts to help other countries to bring their nursing to a higher level have generally included the imposition of a State diploma and of minimum requirements not unlike ours—e.g., a three-year training course. Clichés such as "the one portal of entry," "raising the standard of the profession," "professional self-government of nurses by nurses," have largely dominated the thinking of nurses and have raised a barricade against help which might have come from outside.

Is it possible that the paradoxical situation which exists to-day, when in spite of the steadily mounting numbers of student nurses and pupil midwives entering the training schools since 1938 a grave shortage of nurses and midwives for the hospitals still persists, is due in some measure to a too rigid allegiance to the principle of State registration? To approach the question from another aspect, would anyone claim that the essential art of nursing has made any appreciable progress in the last twenty or thirty years? Has there been any real research into nursing skills, nursing practices—one is tempted to add nursing superstitions? Discounting the effects of modern equipment, modern methods of heating, etc., can the patient entering hospital to-day be sure that the nurses will know better how to ensure his comfort and the well-being of his mind and body than they would have done twenty years ago? The delicate and elusive art of making the patient comfortable is the very heart and essence of nursing—without it there is no value in all the talk of "raising standards." It may be that some of the "wastage" and restlessness so evident among young nurses is due to frustration—they were groping towards this ideal when they entered hospital and they have found their days ruled by a flurry of ward routines and by the cramming of indigestible "theory" related to the State examination syllabus rather than to the work they are doing in the wards.

The purpose of these notes is to suggest that the maintenance of State registration in its present form has in fact hampered the evolution of nurse-training rather than assisted it. To trace the processes at work we must look further back than the Nurses' Registration Act of 1919, and further afield than the nursing profession.

The Evolution of Nurse-training

When Miss Nightingale founded a training school for nurses in 1860 with the fund raised in her honour by a grateful nation she sowed the seed for the cultivation of nurse-training schools. Other fine training schools sprang up and made a great name for themselves, but there was one difference—none had the separate endowment and financial independence of the hospital which the Nightingale School had. From 1860 to 1948 the nation made no grants for the training of its nurses. The nurses themselves have largely financed their training by the services they have rendered to the hospitals. It has long been recognized in the hospital

world that the most practical and economical way to staff a hospital is to set up a training school and attract a large body of student nurses—totally disproportionate, very often, to the number of trained staff employed. Even the General Nursing Council, which administers the Nurses Acts, is financed by the examination and registration fees of nurses, so much have nurses been willing to give for "self-government."

When we look at other professions and the means whereby their practitioners are trained we see a different scale of values. Other great liberal professions have not accepted or imposed one uniform national examination and qualification—imagination shrinks from contemplating the results if this had happened in teaching, for instance. Universities and training colleges have been free, have been given the strongest encouragement, to develop their own individual and characteristic courses, and it has been taken for granted that the State should help to finance them, to the tune of many thousands of pounds a year. Moreover, this State aid is not given in order that the graduate may serve the State in a particular capacity.

A comparison of the working of the two systems may explain some of the differences in the results.

At the time when the Nurses' Registration Act was passed a number of hospitals were able to award a training certificate which was recognized as the mark of a well-trained and skilled nurse. Other hospitals, though not so famous for their nursing, were able to attract enough "probationers" for their training courses, which varied a good deal in value. For some years the leading training schools still regarded their own training certificate as the true test of a nurse's ability, and in some cases the standard was higher than that required for the State examinations. As time went on, however, policy dictated that nurses should be prepared for the State examinations, and few hospitals, if any, can spare their nurses time now to adventure widely outside the confines of the State syllabus. This has led to an artificial levelling down as compared with the heights which might have been achieved. At the other end of the scale more and more hospitals came to see that their only hope of attracting that economical and manageable unit of labour, the "probationer," lay in opening a training school and offering the training course required for the State examinations. Then it was found that the hospital would have to spend money on class-rooms, teaching equipment, and staff, and there was much counting of the cost, because the money spent in this way must show a good return to the hospital in labour and in the recruitment of more and more probationers. It was, in fact, mere outlay on "maintenance." Class-rooms were improvised in basements, in odd outbuildings; administrative needs dictated that so far as possible the nurses should attend lectures and study in their off-duty time, so that the wards were not deprived of their services. These hospitals could not set a high educational standard for entrance if their staff needs were to be met, and so a system of artificial cramming and parrot-learning was needed, and this did indeed have astonishing results in the unlikely material it forced over the hurdle of the State examinations. Little time was left for that intelligent consideration and understanding of the actual conditions met in the wards which even the "practical nurse" should have.

Once a hospital had gained approval as a training school it was left in peace. It might economize by employing an unqualified sister-tutor and requiring her to undertake also the duties of assistant matron or home sister. Many were the complaints about insufficient teaching, though it must take a good deal of provocation to make a young girl whose energies are already fully employed in the wards rebel on this score. State-registered nurses were found to have had serious gaps and omissions in their experience, and to have spent a totally disproportionate amount of their training time in some ward or department where their experience was of use—all because of the labour needs of the hospital.

Drawbacks of the Present System

In recent years the General Nursing Council has tried to effect reforms by appointing inspectors of training schools, by refusing approval to small hospitals not offering adequate experience, by attempting to impose a uniform educational test for entrance to all hospitals, no matter what the level of their teaching, and by making their requirements more stringent in various ways. The real authority behind the Council's requirements, however, is not the power to give help to the training school or to withhold it, but simply to withdraw approval of the training school, which seriously handicaps the hospital in its efforts to obtain the necessary staff.

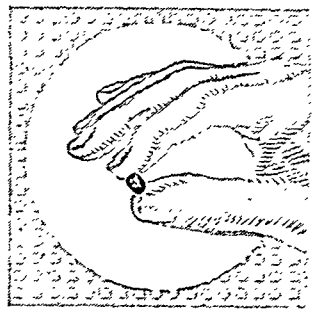
A large amount of the nursing work of the country has always been undertaken by nurses who have no training certificate. The services of these people were needed in 1919, and the country has continued to rely on them up to the present day. It is typical of the British outlook that, while the "one portal" of State registration was imposed in 1919, the existence of this large body of nurses who would never attain to it, but whose services were needed, was politely ignored until 1943, when the Nurses Act provided for a second national standard—that of the assistant nurse—and for the restricted use of the title "nurse." It is interesting to speculate whether the shortage of the "practical nurse" would be so acute to-day, and the number wishing to be assistant nurses so few, if the existence of and the need for the assistant nurse had been frankly admitted in 1919.

The 1943 Act still further hampers the hospital's efforts to staff nursing staff by restricting it to the State-registered nurses or enrolled assistant nurses (admittedly far too few for present needs) or to those taking a recognized training course. Thus we have the hopeless situation in which the General Nursing Council tells a hospital it can no longer be a training school because it has not enough beds in use. The hospital must then send away the student nurses it has, and, since it is no longer a training school, it cannot hope to find the staff it needs; still less can it open additional beds. Here lies the real tangle of staffing and training—not simply, as some have supposed, that the training course consists of too much ward work and too few lectures.

An Alternative System

It has been suggested above that the power behind the General Nursing Council's influence on "standards" is not the ability to help the hospital to offer a better training course but the threat to withdraw approval and thus to prevent it from recruiting student nurses. What alternative is there? It is taken as quite a natural thing that the University Grants Committee should distribute between £5,000,000 and £6,000,000 annually on behalf of the Treasury in grants to universities and colleges. By their grants, given after periodical visits, the Grants Committee can foster what is best in the educational system of each institution. Where things are amiss they can apply sanctions by refusing grants unless reforms are made, and at the same time make those reforms possible by offering the necessary financial help.

What is needed for nursing is, first, a separation of the finances of the training school from those of the hospital,



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and, secondly, a body analogous to the University Grants Committee, composed largely but not exclusively of nurses. The Grants Committee would be entrusted with an annual block grant from the Treasury, and would have the power to distribute this money in grants for satisfactory training projects and to withhold it from those training schools which did not offer an adequate course. It would also decide which training schools were worthy of recognition and therefore able to confer a qualification on their graduates, but this would not imply in every case the rigid following of a standard syllabus laid down by an outside body. Just as the teaching profession has a wide range of courses, from that of the training college for primary school teachers to the honours course of a university, so the training schools would be able to adjust their teaching to the capacity and needs of the student body which each was able to enrol.

The efforts of the nurses to establish a university school of nursing indicate a groping in this direction, but the need is not merely for one school here and there distinguished from others by its academic standard, but for freedom for a number of training schools to spend money on their teaching course and to develop that course on the lines which seem best for the students they admit. Schools of this type would preserve the apprenticeship system to which British nursing owes so much, but the fact that the training school was separately financed should ensure that the training course was not sacrificed to meet the varying labour requirements of the hospital.

It may be argued that this leaves too much room for diversity of standards and that the public must have some means for knowing what the term "trained nurse" implies It would be too much to expect every hospital in this country which wished to train nurses to plan and decide its own course of training. These proposals do not rule out the possibility of a national syllabus which the rank and file of hospitals would adopt, with the help of grants from national funds for nursing education and with the stimulus of consultation with the Grants Committee. State registration would be given on satisfactory completion of this course. Its content would be planned to match the ability of the type of candidate on whom the less-sought-after training schools rely—and must continue to rely. It would not presuppose a school certificate standard of education in the student nurses. However much that may be regarded as desirable, it is outside the sphere of practical politics, since the training schools for State registration need an annual intake in the neighbourhood of 20,000 student nurses. But hospitals which could offer something more than the national syllabus would be allowed freedom to develop their training courses on characteristic lines and their training certificate would confer full professional qualification with exemption from the national course.

No lowering of standards is contemplated in these proposals, but rather a fostering of what is best in nurse-training, with the assistance of educational grants, a greater degree of freedom in the presentation of the teaching material to the student body, and a willingness to learn from the experience of older and more seasoned systems of education. Zeal for "standards" and professional status as expressed by State registration has led at times to a levelling down of the best and an artificial levelling up of the poorest. If there were real encouragement and financial support for nurse-training schools to develop on individual lines and to achieve training certificates of their own which would be accepted as the hall-mark of a competent nurse there might be a flowering of the art and science of nursing beyond anything yet envisaged, and with it a raising of the prestige of nursing which would solve much of the present recruitment difficulty.

The Nurses Bill, 1949

The Nurses Bill recently introduced represents a great step forward, inasmuch as it provides a new channel for the finance of nurse-training, quite separate from hospital finance or any other expenditure on the National Health Service. The channel runs from the Treasury through the General Nursing Council and Standing Nurse-Training Committees to the training schools. The Standing Nurse-Training Committees are bodies which may be appointed by the Minister for any region (the Bill does not state that they will be appointed for each region). Their functions would appear to be partly advisory (both to the General Nursing Council and to the training schools) and partly executive, and they are to be staffed by the Regional Boards, though they are not subcommittees of the boards.

The General Nursing Council then becomes the grant-making body (through its Finance Committee) as well as the examining and qualifying body. The question which calls urgently for consideration is whether such an arrangement is likely to secure those elements of diversity and elasticity which are so much needed in nurse-training. Financial independence for the training schools is not enough if they remain tied to rigid uniformity in the curriculum and examinations. Under the Bill, half the members of the reconstituted General Nursing Council are nurses elected by nurses on a regional basis. This method is likely to lead to the appointment of prominent members of the profession who have achieved distinction, possibly as administrators or teachers. It does not seem likely to ensure the special and rare qualities needed to distinguish the potentialities in new and perhaps revolutionary schemes of training, to assess whether their results might be worthy of recognition as at least equivalent to the normal standard for State registration, and to decide how far a training school may be given a free hand and financial independence in carrying out such a scheme. Fundamentally, there would seem to be no objection to vesting the dual powers referred to above in one body if some means can be found of appointing on it the persons best fitted to discharge these exacting duties and to bring vision and sound judgment to the evolution of nurse-training

Remembering that the nurse-training centres number several hundred, in contrast with the small number of centres with which the University Grants Committee deals, it would appear essential to delegate most of the routine assessment of training schools and their needs to the Standing Nurse-Training Committees in the regions, reserving the more "experimental" schemes for the detailed scrutiny of the General Nursing Council. If that were done, the membership of the Regional Committees also would become a matter of great importance. It would not be enough to secure the representation of the various interests in the region. Here again it would be necessary to ensure that each individual sharing these responsibilities possessed the special qualities needed for the work. Present tendencies suggest that salaried appointments rather than voluntary membership of a committee might be called for to secure a sufficient degree of continuity and concentration in the work.

To sum up: while the general outline of the Bill suggests a great step forward, much consideration needs to be given to the constitution of the General Nursing Council and the Standing Nurse-Training Committees, as outlined in the first and second schedules to the Bill, if the objects proposed earlier in these notes are to be achieved.

POSTGRADUATE TRAINING FACILITIES

"In discussions on medical education and duties of medical schools we tend to lose sight of the fact that the best that the student can do in them is to begin to learn. If he does not study much longer and harder after he graduates than he does before he will not become a successful physician."—Dr. J. S. BILLINGS (1851).

Once again we are indebted to Sir Francis Fraser, director of the British Postgraduate Medical Federation, which is a school of the University of London, for up-to-date information. Last year we mentioned the formation of the Joint Board of the Federation and the three Royal Colleges. The Joint Board has met several times during the year and has paid particular attention to the procedure necessary to make available to postgraduate students advice on suitable hospital appointments and programmes of study. Each of the three Royal Colleges arranges courses of lectures in the clinical aspects of their specialties, and the Royal College of Surgeons provides in addition courses of lectures and demonstrations in the basic sciences for potential surgical and dental specialists, and in anaesthetics. Each Royal College provides expert advice and guidance on suitable hospital appointments and programmes of study for its higher qualifications and for other graduates visiting this country for further study, and the services of the staff of the Central Office of the Federation (2, Gordon Square, London, W.C.1) are available to all postgraduates.

Among other recent developments in the postgraduate field is the formation of the Institute of Obstetrics and Gynaecology, which started work in October, 1948, and has lately been inspected by the Senate and recommended for recognition as a federated institute of the University of London. Other institutes which have also been recognized in the same way since last year are those of child health, laryngology and otology, and ophthalmology.

The regional advisers in postgraduate education who were appointed to the four metropolitan regions of the National Health Service at the beginning of the present session have been visiting the hospitals in their regions with a view to ascertaining the educational facilities for specialist and general practitioner training and grading them accordingly. This information is available at the Central Office of the Federation. A start has been made in two of the regions with plans for the interchange of registrars during their more advanced stages of training between the teaching and the other hospitals.

Refresher Courses for General Practitioners

A number of refresher courses for general practitioners have been arranged at non-teaching hospitals in the regions throughout the year. These are open to National Health Service practitioners who receive grants from the Ministry of Health and also to private doctors who wish to attend at their own expense.

As an alternative to the present one-week or two-weeks intensive courses (11-session and 22-session courses), which are not proving as attractive as the Ministry would wish, financial assistance is now available to N.H.S. practitioners for special short courses, consisting of three half-day sessions at the week-end or during the week. The same conditions of grant and procedure apply in respect of such courses, with the modification that a doctor may take a maximum of seven courses of three sessions (or any combination of such courses with the 11-session courses, provided that it does not exceed 22 sessions) in any year. Form G.P.R.C. 2 will be marked by the university or medical school "Special Short Course." The course fee will be paid direct by the Ministry. Travelling expenses and subsistence allowance may be reclaimed by a doctor who qualifies for grant, but it is not expected that any expenses for the payment of a locumtenent will be incurred in these cases.

When the Ministry was asked by the British Medical Association to elaborate this last point, the Ministry replied that as the week-end courses would be held on Saturday afternoons and Sundays it seemed reasonable to expect that there would be no need for a locumtenent. A doctor might not have a Saturday evening surgery, and, even if he had, the times of the session might enable him to carry it through, or it might be possible to cancel the evening surgery and to arrange with a colleague to treat any patients directed to him, as well as to cover any visits which could not be postponed. The same arrangement might cover absences during three mid-week sessions; these might be spread over a period—for example, one afternoon a week.

These short courses (week-end or mid-week) have been introduced on the representation of certain universities, where it is said that they have attracted large numbers of applicants, who at the moment are meeting the entire cost themselves.

London Postgraduate Institutes

Included in the British Postgraduate Medical Federation are the Postgraduate Medical School at Hammersmith Hospital, with its university departments of general medicine, general surgery, and pathology, and a number of institutes in the principal clinical branches of medicine associated with the special hospitals. The institutes are in various stages of development, and the numbers of students that can be admitted to the clinical practice of some of the hospitals are limited. Appointments of the house officer and registrar types in the hospitals and institutes provide the most valuable form of postgraduate education, and there are opportunities for research for selected graduates. At all the institutes courses of instruction are given throughout the academic year; these are suitable for graduates in the early stages of their specialist education, and also for those who have completed their practical training. Two or more years of hospital work in general medicine and general surgery after graduation are normally advisable before beginning work in the special branches. The work at the institutes is of an advanced type, and is comprehensive enough to enable graduates with suitable practical experience to prepare for higher degrees and diplomas. Emphasis is placed on clinical and laboratory teaching, supplemented by lectures and demonstrations.

Brief notes are appended concerning each of these teaching bodies.

Postgraduate Medical School of London (associated with Hammersmith Hospital, Ducane Road, W.12).—Teaching in clinical departments based on ward work is continuous and is supplemented by lectures during three ten-weeks courses starting in January, April, and October. Course for university diploma in clinical pathology, lasting one year, available for limited number of selected students. Department of Radiology of hospital provides courses for D.M.R. of university and Conjoint Board. All these courses begin in October. Long-term and short-term tuition in anaesthetics provided for small number of students.

Institute of Cardiology (associated with National Heart Hospital, Westmorland Street, W.1).—Seven appointments of registrar type offered each year to physicians in training as cardiologists who already have a sound grounding in general medicine. General physicians may enrol for full-time or part-time instruction for one term of approximately three months. Three terms annually, beginning January, May, and October. Three intensive fortnight courses of lectures and demonstrations, beginning February, July, and November.

Institute of Child Health (associated with Hospital for Sick Children, Great Ormond Street, W.C.1., Hammersmith Hospital, and Queen Elizabeth Hospital for Children, Hackney).—Tuition provided throughout year in three terms of three months each, beginning January, May, and September. Series of lectures by specialists and experts each term.

Institute of Dermatology (associated with St. John's Hospital for Diseases of the Skin, 5, Lisle Street, W.C.2).—Clinical teaching in out-patient department twice daily. Facilities for study and tuition in pathological laboratory. Owing to restricted accommodation, no ward instruction as yet. Short course of lectures in summer months, more systematic course in winter. Clinical assistantships arranged for more advanced students.

Institute of Diseases of the Chest (associated with Brompton Hospital, S.W.3).—Students enrol for three months or more for what is at present approximately a half-time course. In special cases a whole-time programme can be arranged. Courses consist of clinical work in wards and out-patient departments, lectures, and demonstrations. Three terms annually, beginning January, April, October.

Institute of Laryngology and Otology (associated with Royal National Throat, Nose, and Ear Hospital, Gray's Inn Road, and Golden Square, W.C.1).—A comprehensive full-time course lasting 20 weeks is held twice a year, beginning in January and July. Part-time advanced revision course lasting 10–12 weeks, suitable for students preparing for higher qualifications, is held twice yearly,

approximately from February to May and from September to November. A number of appointments open to students after completion of basic training in specialty, giving good opportunities for acquiring and extending clinical experience.

Institute of Neurology (associated with National Hospital for Nervous Diseases, Queen Square, W.C.1).—Teaching mainly by attendance on hospital practice; three terms annually. More advanced students appointed as clinical clerks in wards or attached to special departments and research laboratories Two whole-time courses in clinical neurology held annually in autumn and spring terms. During summer term a course in neurosurgery is held. Two courses of weekly clinical demonstrations held regularly.

Institute of Obstetrics and Gynaecology (associated with Queen Charlotte's Maternity Hospital, Chelsea Hospital for Women, and Department of Obstetrics and Gynaecology, Postgraduate School).—Teaching based on ward work and supplemented by lectures and demonstrations during 10-week terms, beginning October, January, and April. Short intensive courses of a fortnight's duration, suitable for students preparing for higher qualifications, are held twice a year. Limited number of posts for junior specialists receiving advanced training.

Institute of Ophthalmology (associated with Moorfields, Westminster, and Central Eye Hospitals).—In addition to teaching by means of hospital practice, a routine lecture and tutorial course, lasting four to five months, is held twice a year, beginning March and October. This starts with basic subjects and elementary clinical instruction and proceeds to cover all branches of ophthalmology. Clinical teaching and lectures given at higher level for advanced students.

Institute of Orthopaedics (associated with Royal National Orthopaedic Hospital, Great Portland Street, W.1).—Practice of both central hospital and country hospital at Stanmore open to postgraduate students. Selected students have opportunities for taking active part in work of Institute and hospital and for spending in the Institute up to two years of their training. Comprehensive six-months basic course held each year, beginning in October. Twice a year, in April and September, a one-week course in advanced clinical orthopaedics is held.

Institute of Psychiatry (associated with Maudsley Hospital, Denmark Hill, S.E.5, and Bethlem Royal Hospital).—Training normally covers two to three years after experience elsewhere in general medicine, and is based on responsible hospital duties under supervision. Regular series of lectures and demonstrations given throughout each of the university terms; clinical training continues throughout the year and includes seminars and case discussions. Students who, because of previous experience, do not wish to take the comprehensive two-year course are able to attend limited series of lectures and clinical instruction. Facilities for original investigation under supervision in clinical departments and in the psychological, neuro-anatomical, electrophysiological, and biochemical departments.

Institute of Urology (associated with the combined school of St. Peter's and St. Paul's Hospitals, Henrietta Street, W.C.2) —Three courses of 14 weeks' duration held annually, beginning January, April, and September. An intensive two-weeks course suitable for students taking higher examinations is held in September and March. Limited numbers of clinical assistants are appointed in January and July each year. Two courses in venereology, each lasting four months, held annually, beginning April and September.

Institute of Dental Surgery (associated with the Eastman Dental Clinic, Gray's Inn Road, W.C.1).—Object of Institute is to train dental practitioners in the special branches of preventive and therapeutic dentistry, both for children and for adults, by means of clinical experience, lectures, demonstrations, and research. Opportunities for limited number of students available in orthodontics, conservative dentistry, periodontia, and preventive dentistry, the courses varying from four to 12 months.

Prospective students should make their own arrangements well in advance. Those sponsored by their universities, governments, or other official bodies receive first consideration in the allotment of vacancies. Established specialists from overseas, here for a relatively short time, who wish to see something of practice in this country are always welcome: they are regarded as visiting colleagues, and the experts in their specialties are always ready to receive them and let them accompany them in their work and teaching. In addition refresher courses for general practitioners are arranged at non-teaching hospitals in London and the home counties. Inquiries should be made of the Federation at the address given above. An information bureau of postgraduate activities in London and other university centres is maintained.

The Fellowship of Postgraduate Medicine (1, Wimpole Street, W.1) provides general information on postgraduate work and arranges courses of instruction as follows: (1) Week-end courses at various hospitals in such subjects as infectious diseases, geriatrics, rheumatic diseases, and clinical surgery. (2) Courses specially suitable for, though not restricted to, candidates for the D.A., D.C.H., D.Obst.R.C.O.G., M.R.C.P., and F.R.C.S. (Primary and Final). These include general medicine, neurology, general surgery, proctology, obstetrics, children's diseases, and anaesthetics Some are full-time courses, lasting one to two weeks; others are spread over longer periods, arranged either in mornings, afternoons, or evenings, and are intended particularly for postgraduates who are not free for full-time study.

Facilities in Other University Centres

The following is a list, not exhaustive, of courses of postgraduate instruction held regularly at universities other than London. All are full-time courses, except those in general medicine at Liverpool and Sheffield, in neurology at Birmingham, and in obstetrics and gynaecology at Liverpool, which are part-time. All the courses include practical work, demonstrations, and lectures.

Courses in public health, which are provided by practically all the universities, are not included in this table. They will be found set out in the article headed "Special Diplomas."

Subject	University	Duration	Starts	Remarks
Anaesthetics	Bristol	12 months	Oct.	Suitable for D.A. (Conj.)
	Liverpool	12 ,,	,,	,, ,,
	Oxford	2 weeks	Mch., Sept.	Revision for D.A. (Conj.)
Bacteriology	Manchester	9 months	Oct.	For Dip. Bact. Manch.
Industrial health	Edinburgh	9 ,,	,,	For D.I.H. Ed.
	Glasgow	9 ,,	,,	For D.I.H. (Conj.)
	Manchester	9 ,,	,,	,, ,,
Medicine (general)	Edinburgh	12 weeks	Oct., April	Advanced instruction
	Glasgow	8 ,,	,, ,,	,, ,,
	Liverpool	10 ,,	Oct., Jan., April	Advanced revision
	Sheffield	10 ,,	,, ,,	,, ,,
Neurology	Birmingham	2 months	,, ,,	Revision suitable for D.P.M. (Conj.)
Obstetrics and gynaecology	Liverpool	5 ,,	Oct.	Advanced revision; 1 session weekly; first 15 weeks, obstetrics; second 15 weeks, gynaecology
Ophthalmology	Birmingham	6 ,,	Jan., July	Suitable for D.O. (Conj.)
Orthopaedic surgery	Liverpool	15 ,,	Oct.	For M.Ch.Orth. Lpool
Paediatrics	Bristol	3 ,,	,,	
Psychiatry	,,	2 terms	,,	For Part I, D.P.M. (Brist.)
	Edinburgh	5 weeks	,,	For Dip. Psychiatry (Ed.)
	Leeds	3 terms	,,	For Part I, D.P.M. (Leeds)
Radiodiagnosis	Bristol	18 months	,,	For D.M.R.D. (Brist.)
	Edinburgh	18 ,,	,,	For D.M.R.D. (Ed.)
	Glasgow	18 ,,	Oct., April	For D.M.R.D. (Conj.)
	Liverpool	2 years	Oct.	For D.Rad.(D.) and M.Rad. (Lpool)
	Manchester	18 months	April	For D.M.R.D. (Conj.)
	Sheffield	18 ,,	Oct.	,, ,,
	Wales	15 ,,	,,	,, ,,
Radiotherapy	Birmingham	2 years	,,	For D.M.R.T. (Conj.)
	Bristol	2 ,,	,,	For D.M.R.T. (Brist.)
	Edinburgh	2 ,,	,,	For D.M.R.T. (Ed.)
	Glasgow	2 ,,	Oct., April	For D.M.R.T. (Conj.)
	Liverpool	2 ,,	Oct.	For D.Rad.(T.) and M.Rad. (Lpool)
	Manchester	2 ,,	April	For D.M.R.T. (Conj.)
	Sheffield	2 ,,	Oct.	,, ,,
Surgery (general)	Edinburgh	5 months	Oct., Mar.	Advanced instruction
	Glasgow	8 weeks	Oct., April	,, ,,
	Liverpool	9 months	Oct.	For Ch.M. (Lpool), (suitable also for F.R.C.S.)
Tropical medicine	Edinburgh	2 terms	,,	For D.T.M. and H. (Ed.)
	Liverpool	4 months	Jan., Sept.	For D.T.M. and H. (Lpool)
Tuberculosis	Wales	6 ,,	Jan.	For T.D.D. (Wales)

At Cambridge postgraduate courses have been arranged as follows: October, 1949, to July, 1950: regular daily sessions at fixed times, taking the form of ward rounds, out-patient clinics and clinico-pathological conferences. In February, 1950, a postgraduate course in orthopaedics has been arranged. Information

about the Cambridge courses should be sought from the Secretary, the Naval Hut, Downing College.

Westminster Medical School celebrated its centenary in July with a postgraduate course for old students given by members of the staff of the Westminster group of hospitals. The first course for the final F.R.C.S. examination to be held at Westminster and the designated hospitals will take place in September and October.

A two-weeks course on child health is being held in Glasgow in September, and a three-weeks course on mental deficiency in October. In Durham a recent short course in midwifery and gynaecology, designed for practitioners, proved very popular, and it is hoped to run a second course later in the year.

The Royal Colleges

A highly important contribution to postgraduate education is by means of the series of lectures at the Royal Colleges. The Royal College of Physicians of London holds a series of lectures for postgraduates on advanced clinical subjects. The lecturers are specially distinguished in their respective fields and are drawn from the provinces as well as London.

The Royal College of Surgeons of England has arranged a number of lectures and demonstrations to be held at the College. In surgery two series, each of 24 lectures, will be given during October and April, and at the same time clinical conferences will be arranged at selected hospitals. In anaesthesia two series, each of 45 lectures, will be given in October and March. In addition, courses extending over a period of from one to two years are being arranged. Between October and January and between March and May there will be a series of 72 lectures and practical demonstrations in anatomy, applied physiology, and pathology. Lectures in oral, dental, and general surgery will be given in February–March, and lectures and practical demonstrations on the application of the basic sciences to dental surgery will be held in January–February.

Facilities are now available for advice on postgraduate orthopaedic training through the Postgraduate Orthopaedic Committee which, with its headquarters at the College, has been established under the aegis of the Royal College of Surgeons of England, the Royal College of Surgeons of Edinburgh, the Royal Faculty of Physicians and Surgeons of Glasgow, the British Orthopaedic Association, the Institute of Orthopaedics of the British Postgraduate Medical Federation, and the Department of Orthopaedics of the University of Liverpool.

The British Medical Association, which last year published the report of its special committee under the heading *The Training of a Doctor*, has appointed another committee, again under the chairmanship of Sir Henry Cohen, to consider the postgraduate education of general practitioners.

THE ENROLMENT IN MEDICINE

The total number of names in the current *Medical Register* is 76,292, a drop of 1,600 on the figure of a year ago, but 5,000 higher than the average of the last twenty years. Commonwealth and foreign registrations account for only 10% of the total. During last year the task of determining the position of practitioners eligible to apply for normal registration under the Medical Practitioners and Pharmacists Act, 1947, was completed, with the result that 4,467 names were removed from the temporary list. Of these practitioners, who came on to the *Register* from abroad mostly in the period 1941–5, just over 3,000 did not apply for re-registration under the Act just mentioned within the statutory time limit, and it may be assumed that most of them have returned to their practices in their own countries. Of the remainder, 1,337 have come on to the Foreign List of the *Register*.

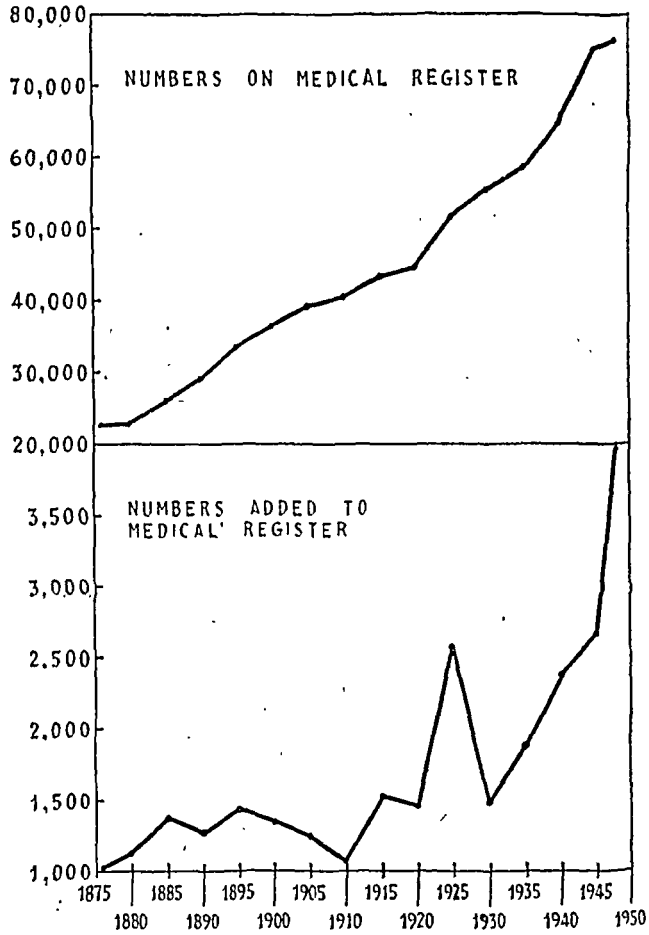
The number of persons registered in the local registers for England, Scotland, and Ireland is 68,323; those on the Commonwealth List number 6,081, and those on the Foreign List, 1,803. Those temporarily registered number only 85. They are persons whose applications under the new Act have not been finally determined. As a result of this readjustment the number of names added to the Foreign List in 1948 is the highest recorded addition in any one year, as is also the number added to the Commonwealth List (416).

The following table gives the position in respect of the *Medical Register* during the last ten years:

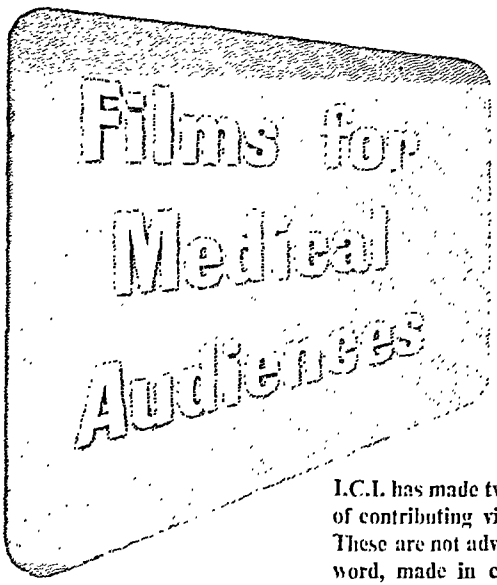
Year	Added by Registration	Restored	Removed	Total number
1939	2,968	49	1,027	63,360*
1940	2,384	37	1,102	64,679
1941	3,296	16	996	66,992
1942	3,556	7	1,127	69,428
1943	3,532	13	1,091	71,882
1944	2,971	11	1,218	73,646
1945	2,666	11	1,190	75,133
1946	2,237	14	1,092	76,292
1947	2,787	10	1,160	77,929
1948	3,968	16	4,467	76,292

*Figure adjusted in 1940.

The following graph shows the numbers of medical practitioners on the *Register* at each five-yearly period since 1876, when the information was first compiled, and the numbers of additions. The large increase in the number added in 1948 is mainly due to the transference of temporarily registered foreign doctors.



The task of training students to be doctors is shared between the teaching hospitals and the universities. In London the twelve undergraduate teaching hospitals, each with its group of satellite institutions, have been designated as teaching centres. In the regional hospital centres of England and Wales the existing teaching hospitals, again with their groups of associated hospitals, have been similarly designated. The teaching hospitals remain separate from, though closely linked with, both the regional services and the university. They are specially picked centres for medical training, drawing their patients, of course, from a wider area than the ordinary hospital, but the board of governors of each teaching centre comprises nominees of the university, of the regional board, and of the doctors actually teaching in the hospital, as well as other persons



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Intravenous Anaesthesia Part 2

Spinal Anaesthesia

Respiratory and Cardiac Arrest

Operative Shock

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Made with the Department of Physiology, Edinburgh University

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Made with the Department of Phonetics, University College, London

Control of Infection in Surgical Dressings

Made with the Birmingham Accident Hospital

Further films are in course of production by the I.C.I. Medical Film Unit.

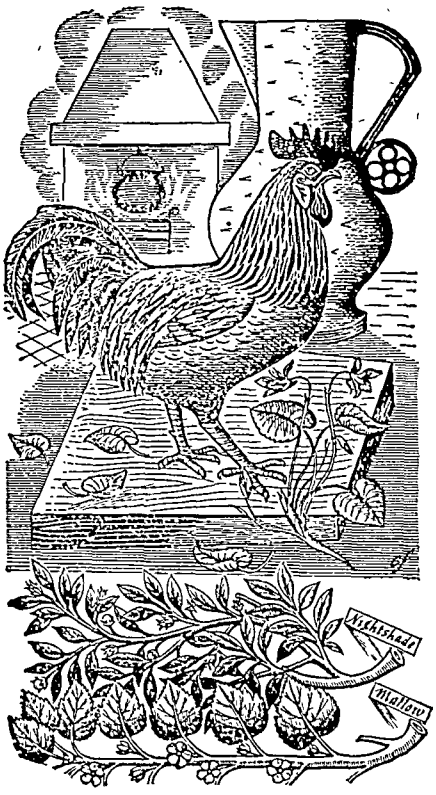
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appointed by the Minister in consultation with local health authorities and other interested bodies. In Scotland hospitals are not designated as teaching hospitals, and they all come within the jurisdiction of the five Regional Hospital Boards, but special provision is made for the inclusion in the boards of management of these hospitals of nominees of the university on which the region is centred and also of the teaching staff of the hospitals. In Northern Ireland there is a duty upon the Hospitals Authority—a body corporate appointed by the Minister of Health and Local Government—to provide the Queen's University of Belfast with adequate facilities for medical teaching.

The Student Entry

The number of medical students admitted to the schools of Great Britain and Ireland during the academic year 1948–9 was 2,653.

The table of student admission for recent years is as follows .

1941–2	2,361	1945–6	2,610
1942–3	2,468	1946–7	2,553
1943–4	2,426	1947–8	2,797
1944–5	2,612	1948–9	2,653

Passes and Rejections

The number of passes and rejections in the final or qualifying examinations held in 1948 by the various examining bodies was as follows :

	Passes	Rejections
Medicine	2,774	1,521
Surgery	2,756	1,805
Midwifery	2,909	1,536

The proportion of passes in medicine was highest in Sheffield (85.19%), in surgery in Aberdeen (87.21%), and in midwifery in St. Andrews (89.39%). The lowest proportion of passes in medicine and in midwifery (47.35 and 51.61% respectively) was in the Scottish Conjoint Board examination, and the lowest in surgery (47.29%) in the Society of Apothecaries, London.

In the examinations in anatomy and physiology the highest percentage of passes was in Sheffield (97.26%). The percentage of passes in the English Conjoint Board examination in these subjects was not much above 60, and in the Scottish Conjoint Board it was as low as 40.

The following table, which has been compiled from the report of the University Grants Committee (H.M.S.O., 1949), shows the numbers of professors and other teachers in the London medical schools.

Institution	Professors	Readers, Assistant Professors, and Independent Lecturers	Lecturers	Assistant Lecturers and Demonstrators	Others
Charing Cross Hospital Medical School	4	2	1	8	—
Guy's Hospital Medical School ..	8	5	8	19	—
King's College Hospital Medical School	2	1	5	4	—
London Hospital Medical School ..	7	7	12	8	—
Middlesex Hospital Medical School	10	4	3	12	16
Royal Dental Hospital School ..	1	—	—	—	4
Royal Free Hospital School of Medicine	3	7	5	18	—
St. Bartholomew's Hospital Medical School	8	3	2	36	—
St. George's Hospital Medical School	—	—	4	4	—
St. Mary's Hospital Medical School	6	6	17	6	—
St. Thomas's Hospital Medical School	7	4	7	9	3
University College Hospital Medical School ..	7	2	2	18	—
Westminster Medical School ..	2	—	8	7	1
British Postgraduate Medical Federation	9	5	47	13	12
London School of Hygiene and Tropical Medicine	11	5	13	4	1

Forthcoming Academic Year

The applications of students for 1949–50 are reported by many of the schools to be again well above the number which can be regarded as optimum, but owing to accommodation difficulties or for other reasons a strict limit has to be placed upon the number accepted. The London Hospital Medical College is receiving about 2,000 applications every year, and from these it has to select 80. At Middlesex, where again the intake is 80, there is no diminution in the number of applicants, and selection is a difficulty. At St. Bartholomew's the number of applicants is as high as, or higher than, ever, but the entry next October has been reduced to approximately 100. The Dean of Westminster Hospital Medical School writes that the number of students has mounted steadily to the present total of 140, and the problem of selection from the enormous number of applications is becoming increasingly difficult. At St. Mary's Hospital Medical School, 70 students—56 men and 14 women—were accepted for entry last session, and the number is expected to be about the same for 1949–50. The total number of full-time students in the school is about 440. The annual intake at King's College Hospital Medical School is 50, and students are admitted for clinical training twice a year, in April and October. At Guy's there are 80 vacancies to the preclinical studies, of which roughly two-thirds are for the first year, the remaining third entering the second year, having already passed the first M.B. In addition, 25 places are reserved for Oxford and Cambridge men for the clinical period of studies; these men take a three-months preliminary course before entering the wards.

In the provincial schools it is much the same story. At Leeds the intake into the first M.B. course cannot be increased beyond 75 without further building, and the selection of this number of students from the many hundreds of applicants is a difficult matter, but selection is still done by interview and consideration of scholastic performance. At Oxford the number of new students is restricted by decree; the number for the coming year has been fixed, as it was last year, at 55 men and 10 women. Ex-Service men and women are admitted over and above these numbers only if they were born before 1929. The various colleges put forward the names of the students they wish to be admitted to the medical school, and preliminary acceptance by a college is essential for any prospective student. The last annual entry at Cambridge was 210 new students, of whom 19 were women. At Bristol the annual entry is about 54, and the total number in Faculty 325. At Manchester and at Liverpool the annual entry is round about 100, representing the maximum capacity. About one-fourth of the students at Manchester are women. At Sheffield the figure is 60. In the Welsh National School of Medicine the number of places for entrants is now 65, comparing with 44 a few years ago, but this number falls short of the demand from the schools and from ex-Service men, and cannot be increased without extensive building, of which there is no early prospect. In the University of Durham the number of applicants is greater than ever before, and selection of the most suitable candidates to fill the 95 vacancies has accordingly been strict; women are accepted in the proportion of one to four.

In view of the hospital facilities available at St. Andrews the annual intake is limited to between 70 and 80 to ensure that each undergraduate receives adequate clinical instruction. At Glasgow it is expected that about 230 new students will ultimately be admitted. Queen's University, Belfast, admits 108 to the Faculty of Medicine, but this includes 20 dental students. Most of the places are allotted to students normally resident in Northern Ireland and children of former graduates. The number available for candidates from Great Britain and overseas is not likely to be more than ten, and for the coming session over 800 applications have been received.

Effect of National Health Service

A question which was asked of the deans concerned the effect of the National Health Service on the schools. In most cases the answer was that there was no perceptible effect. The Dean of the Medical College of St. Bartholomew's says that any effect of the N.H.S. on the College is not a direct one, but certain matters are requiring adjustment, not always in the College's favour, such as the ruling that whole-time pathologists must be paid wholly by the College instead of as hitherto by the College and the hospital. Similarly, the ruling that all registrars must be paid by the hospital instead of jointly by the hospital and College as hitherto has some serious implications, and the ruling is at the moment being contested.

Charing Cross says that the Service appears so far to have had little effect directly on the school, except to constitute it under section 15 of the Act as an independent legal entity, but even this has made little difference, as previously the school was organized on a basis similar to that now adopted. Middlesex says that the Service has had no appreciable effects. Certainly there has been no diminution of applications to join the school, and it enjoys all the same facilities in the hospital as before. St. Andrews says that, while the Service has had little influence upon undergraduate teaching, it has called for a complete reorganization of postgraduate instruction with a view to the training of specialists. The Dean of the Faculty of Medicine of Aberdeen writes: "So far as I can see, the only effect the National Health Service has had on the school is to continue the plethora of trainees imposed on us in the immediate post-war years. This should help in the teaching and guidance of students."

It should be made clear that medical schools are not transferred to the Minister or to the board of governors of the associated teaching hospital, but in the provinces they are owned and administered by the governing body of the university of which they form part, and in London by their own governing bodies. Any medical school of London University which was not a body corporate was required to become incorporated within six months of the passing of the Act.

Improvements in the Curriculum

Several schools report interesting changes in the curriculum. As mentioned last year, the Faculty of Medicine at Birmingham set up a committee to review the curriculum. During the past year this committee has confined its deliberations to the clinical course, and it has been decided to abolish the third and fourth M.B., Ch.B. examinations in their present form. The subjects formerly included in these two examinations have been transferred to the final examination, which is now divided into three parts—namely, (1) pathology, bacteriology, pharmacology, forensic medicine and toxicology, and social medicine, which will be taken in June of the fifth year; (2) surgery and obstetrics and gynaecology; and (3) medicine, paediatrics, and child health. The second and third parts of the examination, which also include applied pharmacology, pathology, and bacteriology, will be taken in June of the sixth year. Ophthalmology and psychological medicine have been deleted as separate subjects in the examination. These revised regulations apply to all students passing Part II of the second M.B., Ch.B. examination in and after March, 1949. The Dean states that a frequent criticism of the medical curriculum is that it is constantly being extended and the student's life is thereby made correspondingly difficult; therefore it is interesting that the lectureships in operative surgery, vaccination, and applied anatomy have been abolished. The experiment of teaching anatomy and physiology as an integrated subject continues to attract attention and congratulation.

At Leeds the revision of the curriculum with the object of giving the student a more integrated course is under active consideration. Entry requirements to the first M.B. course are being considered, with special reference to the new general certificate of education which in 1951 will replace the School and Higher Certificates. New regulations have been introduced for the Ch.M., for which a thesis must now be presented. At Bristol the main changes in the curriculum which have been introduced are, first, that a full introductory clinical course is now firmly established; and, secondly, that next year most of the systematic teaching in pathology will be given in the third and fourth years, so that the main instruction in this subject will be completed during the first clinical appointments. At Sheffield a new curriculum, to which reference was made in last year's account of the school, has been almost completely introduced, the last batch of students working under the old regulations having now entered their final year. In Durham the present arrangement of holding the second M.B., B.S. examinations in anatomy and physiology as separate parts is to be discontinued. In 1951 there will be a return to the system whereby the examinations in anatomy and physiology are taken together after five terms' work. A rearrangement of the final examination will also take place in 1950–1. Surgery is to be taken in Part II of the final examination in June of the final year, in company with medicine and paediatrics. Midwifery and gynaecology remain in Part I of the examination taken in the previous December.

At St. Andrews the six-year curriculum recommended by the General Medical Council was introduced last October, and the necessary rearrangement of work in the later years of study will be made as required. The whole curriculum may be taken at Dundee, or the first two years and two terms at St. Andrews and the remainder at Dundee. Good opportunities for clinical work are afforded by the Dundee Royal Infirmary and Maryfield Hospital, the instruction given thereat being recognized for purposes of graduation by all the Scottish universities, the universities of Cambridge and London, the National University of Ireland, and the Royal Colleges. It is the intention of the University to institute at an early date chairs in social medicine and in child health, so that in this respect the recommendations of the Goodenough Committee will also be fulfilled. At Manchester a Committee of the Faculty has spent a very long time considering the report of the B.M.A. Committee published last year under the title *The Training of a Doctor*, and several minor adjustments have been made. New regulations are also being introduced at Manchester for the final M.B., Ch.B. examination and the award of honours. At the University of Glasgow the recent recommendations of the General Medical Council will be implemented in the coming session, and all students commencing study in October or thereafter will follow a six-year curriculum, of which the first year will be devoted entirely to the pre-medical subjects.

The Welsh National School of Medicine has made some minor adjustments in the curriculum. The Senate has given much consideration to the Goodenough and B.M.A. reports and to the recent recommendations of the General Medical Council. The regulations for the degrees M.B., B.Ch.(Wales) are in the process of complete revision, with the object, among other things, of curtailing slightly the length of preclinical studies, lengthening the clinical part, and ensuring that the final examinations will all be taken near the end of the course. At the Queen's University of Belfast, under the new curriculum now in force, the second professional examination in anatomy, physiology, and biochemistry is taken after five terms of study, following upon which successful students pass on to two terms of study in pharmacology and bacteriology, ending with the third professional examination in these subjects.

King's College Hospital Medical School is in process of revising the curriculum, which will in future include the teaching of psychological medicine and certain special subjects such as orthopaedics and urology during the first twelve months of the clinical course. Three months will be devoted entirely to the study of paediatrics, including fourteen days in residence at the Belgrave Hospital for Children. A revision course will be held twice a year preceding the M.B., B.S. examinations. St. Bartholomew's reports no basic changes in the curriculum, but states that some developments have taken place putting rather more stress on the teaching of social medicine and allied subjects.

At St. Thomas's, which maintains its entry level of 80 clinical students a year, the elementary clinical period from October, including work in the casualty department, will be six months, after which the student will commence proper ward work as an in-patient medical clerk.

The Dean of the London Hospital Medical College (Dr. A. E. Clark-Kennedy) writes:

"I do not think there have been any great changes in the curriculum. We have, however, started a system by which all students are required to undertake duties in the wards for a period of 10–14 days during their clinical training—that is, at the end of their first clinical year. Students work eight hours in the wards every day, which they arrange with the ward sisters to suit their mutual convenience so as not to interfere with the lectures on the one hand and so that they go into the wards when there is most for them to do. They are expected to carry out any nursing duties which are to their educational advantage—that is, to carry out any nursing duties which they might find themselves required to *supervise* when later they are practising their profession. I would emphasize that they are not there to supplement labour in the wards. They are not expected to be asked to carry out work which has no educational advantage for them."

At St. Mary's Hospital Medical School a revised course of clinical lectures over a period of two years has been introduced, and it is expected that this will greatly assist the clinical students to cover the syllabus systematically. A chair in biochemistry has been instituted during the past session, and in October readerships are being established in anatomy, physiology, pharmacology, and bacteriology. Middlesex Hospital reports improvements in the clinical period, with a rearrangement of instruction in anaesthesia; and Charing Cross reports slight adjustments in the introductory clinical course.

The Older Universities

At Oxford the various colleges put forward the names of the students they wish to be admitted to the medical school, and preliminary acceptance by a college is essential for any prospective medical student. There are 22 men's societies in Oxford, each attached to a college and under the presidency of its head, and there are four women's societies attached to the three women's colleges and Lady Margaret Hall, and one non-collegiate society. Preliminary inquiries should be addressed to the head of a society, not to the Dean of the Medical School.

All students entering the school are now required to take the second public examination as before the war. The course normally taken to satisfy this regulation is the final honour school of animal physiology, which takes up one year after passing the anatomy and physiology examination for the B.M. degree. Students then do their clinical work either at the Radcliffe Infirmary in Oxford or at one of the teaching hospitals. Students who have completed their preclinical studies elsewhere are also admitted to the clinical school, though they take the qualifying examinations of their own universities.

At Osler House, in the Infirmary grounds, there is a club and hostel for clinical students, providing social and reading facilities and sleeping accommodation for those on duty in the hospital. This social, administrative, and teaching centre is being completed by the provision of additional lecture rooms and class-rooms and of further sporting facilities for students in the medical school.

In the University of Cambridge the most important plans concern the further development of the department of human oecology, in which a chair is to be established from October next. There is also a good prospect of an early start on the erection of a permanent building for the department, which it is hoped will be situated on Fenner's Ground and combined with a gymnasium suitable for remedial exercises. Here in an atmosphere of healthy athletic activity the University Health Service will have full scope. This service has been in operation during the past year and has carried out some 3,700 x-ray examinations and 1,700 clinical examinations on volunteers from among undergraduates and the university staff. The mass radiography apparatus and team have been borrowed from the East Anglian Regional Hospital Board. A high proportion of first-year students, men and women, have also submitted to a clinical examination. The results have been such as to suggest that at least x-ray examinations should be made compulsory. The new department of human oecology is also interested in the development within the teaching hospital of a home care and nursing service with which will be linked the study of the problems of the aged and infirm. The Reader in Human Oecology has been engaged in epidemiological studies and, in co-operation with the county medical officers of health, has been able to make a preliminary analysis of the distribution of infectious diseases in the schools.

The university department of radiotherapeutics has pursued research work designed to improve the treatment of cancer and allied diseases by the combined use of radiotherapy and chemotherapeutic agents. The department expects to have a 30 meV synchroton installed in the near future. The department of experimental medicine has carried out studies on various aspects of undernutrition, notably oedema, renal function, and skin conditions. The staff of Addenbrooke's, which has been strengthened by the election of a thoracic surgeon and a paediatrician, now regularly give courses on various special subjects for postgraduates, including general practitioners. The long vacation course in elementary clinical methods for undergraduates has been completely reorganized to cover adequately the intermediate period between preclinical and clinical work in accordance with the recommendations of the General Medical Council. Undergraduates also have the opportunity of attending an introductory course in psychology during the long vacation term of their residence.

During the past year the regulations for the Cambridge degrees in medicine and surgery have been revised. The most important change consists of a rearrangement of the final M.B. examination. Part I of this examination will in future include pathology, pharmacology, and therapeutics, instead of surgery and midwifery and gynaecology. Part II will include medicine, surgery, and midwifery and gynaecology, instead of medicine, pathology, and pharmacology and therapeutics. Under the new arrangements a candidate who fails in only one or two of the subjects in Part II will not necessarily have to sit the whole of that part again. The revised regulations apply to all candidates who matriculated after Oct. 1, 1948, but the new arrangements will begin on Oct. 1, 1951. At first most candidates who have matriculated before Oct. 1, 1948, will have the option of the old or new regulations.

Developments in London Undergraduate Schools

In discussing long-term and short-term developments at their schools many of the deans refer to the value of the arrangement whereby the main teaching hospital is the centre of a group of hospitals, most of them of a special type. University College Hospital, for example, has associated with it the Obstetric Hospital and the Royal Ear Hospital, Huntley Street, the Hospital for Tropical Diseases, and St. Pancras (formerly L.C.C.) Hospital. Guy's has the York Clinic and Nuffield House in its own curtilage, the Evelina Hospital for Sick Children, and country recovery and convalescent homes. St. Thomas's includes the Royal Waterloo Hospital for Children and Women, the General Lying-in Hospital, the Grosvenor Hospital for Women, and the Roffey Park Rehabilitation Centre.

Associated with the Royal Free Hospital group are the Elizabeth Garrett Anderson Hospital, the Hampstead General Hospital, and other institutions providing altogether over 700 beds, which are available for clinical teaching. The Royal Free is building a new wing in Hunter Street to provide additional laboratories, research rooms, and other conveniences to accommodate the increased numbers. At Westminster Hospital Medical School the clinical facilities available at the designated hospitals make it possible for an increasing amount of instruction to be given outside Westminster Hospital itself, and thus to deal more easily with the growing number of undergraduates. Students on general firms already attend All Saints' Urological Centre; the paediatric work is carried out at Westminster Children's Hospital; and a new surgery firm will shortly be formed to work at the Gordon Hospital. The teaching of psychiatry has been reorganized, and students attend for instruction at Netherne, Belmont, and Fountain Hospitals. There is a resident fevers course at the Western Hospital. A fortnight's resident course for final-year students has also been instituted at King Edward VII Sanatorium, Midhurst, where the students attend in groups of four. Only in the teaching of pathology has the problem of overcrowding arisen, and this has been solved by spreading instruction in that subject over a longer period of the clinical course. At Middlesex Hospital visits are arranged to Harefield Sanatorium, where lecture-demonstrations in pulmonary tuberculosis are given.

Although major building seems to be out of the question, many schools are making adaptations. At St. Mary's during the past year new research laboratories have been equipped in the biochemistry department and medical unit. A new common-room for women students, who make up a quarter of the intake, a new kitchen for the students' restaurant, and a photographic department for the combined use of the medical school and hospital have been opened. At King's College Hospital Medical School the post-mortem department has been re-equipped to provide better accommodation for post-mortem demonstrations, the museum is being recatalogued and many specimens remounted, and library facilities have been increased. At St. Bartholomew's the future plans are largely concerned

with rebuilding, and a start has been made on this with the help of the good offices of the University Grants Committee. The plans for the new Charing Cross Hospital and Medical School to be built at Northwick Park, Harrow, have now been submitted to the Ministry of Health and the University. Negotiations are almost complete for a lease of additional accommodation at Charing Cross, which will ease the pressure on the present facilities of the school until the move is made to Harrow. Middlesex Hospital School began its rebuilding before the war, but so far has not been able to resume this arduous task, though it is hoping to start again as soon as practicable.

The West London Hospital Medical School, by arrangement with the University of London, has agreed to accept no more undergraduate students. The last group of students entered the school in October, 1948. The usual undergraduate work will continue until these students have qualified, and early next year a start will be made with postgraduate teaching in association with the Postgraduate Medical School at Hammersmith. The plans for the future have not yet matured, but the full resources of the school and hospital will be devoted to the postgraduate training of specialists in medicine and surgery as soon as the school's undergraduate commitments have been fulfilled.

Schools Outside London

At the Medical School, Birmingham, the anatomical and dental hospitals are being reconstructed so that self-explanatory demonstrations may be presented to students from time to time. By a redistribution of space greatly increased accommodation has been made available for the teaching of surface anatomy. The building of the experimental anatomical research laboratory is proceeding slowly, but it is hoped that it will be ready for occupation in the near future.

On the clinical side at Birmingham a satisfactory year has been completed, and the Regional Hospital Board has given many examples of its desire to co-operate with the university by providing members of the university teaching staff with opportunities for practice and for teaching in the hospitals which are under its authority. A standing joint committee consisting of representatives of the university, the board of governors of the teaching hospital, and the Regional Hospital Board has been formed to ensure this close collaboration.

A new departure in the department of bacteriology is the introduction of an Honours (B.Sc.) School, which will help to meet the urgent need in medicine as well as in agriculture and industry for persons with knowledge of the principles of bacteriology and with practical experience of bacteriological technique. Research workers from the department of chemistry and paediatrics are working in this department on problems connected with tuberculosis. Mention should also be made of a further innovation which has taken place at Birmingham since the closing months of 1948—namely, an investigation into the condition of the chronic sick to determine whether the lot of these patients can be alleviated and to encourage them to return to some degree of active life. This inquiry is taking place at one of the hospitals under the authority and with the enthusiastic support of the Regional Board.

At Leeds accommodation has proved insufficient in the medical school for the needs of new and growing departments, but it has been possible to convert houses in the neighbourhood to accommodate the departments of preventive medicine and public health, forensic medicine, and paediatrics, while the departments of medicine and biochemistry have also taken over additional premises. This new accommodation will improve facilities both for teaching and for research.

The main advance in the medical school at Bristol next year will be the opening of a school of veterinary science under the aegis of the Faculty of Medicine. Twenty-five students are being admitted in October for the first-year course for the degree of B.V.Sc. Buildings to accommodate veterinary anatomy and physiology are nearing completion, and a farm for clinical work is being stocked and equipped.

At Sheffield the use for teaching purposes of hospitals other than those under the control of the board of governors is being steadily developed, and several members of the specialist staff of the City General Hospital have been recognized by the university as clinical teachers. A chair in social and industrial medicine has been set up, the student outlook on public health has been reorientated, and the research side of this department is being developed. The early history of the school has lately been recalled by Sir Arthur Hall's presentation of a portrait of Lord Addison, the first occupant of the Arthur Jackson chair of anatomy.

At Cardiff the University of Wales, the Welsh National School of Medicine, and the Regional Board have given much time and thought during the past year to the acquisition of a site for a new medical teaching centre, but so far without success. The reallocation of beds in the two main teaching hospitals—Cardiff Royal Infirmary and Llandough Hospital—is proceeding and should make it easier to use the beds at Llandough, which is a former municipal hospital, for teaching.

Proposals have been made in Wales to establish a whole-time chair and department of paediatrics and child health and to set up other special university departments. The university and the school are in sympathy with such developments and hope to proceed with them in an orderly fashion as money becomes available. In this connexion it may be mentioned that the co-ordination of the anaesthetic service in Cardiff and neighbourhood through a medical school appointment has led to a great increase in efficiency and to the development of research and improvement of methods which are attracting many postgraduate students and visitors from foreign countries.

At Edinburgh from October, 1948, the course for the M.B., Ch.B., previously five years, was extended to six.

The School of Medicine in the University of St. Andrews lays stress on the value of residence. Both at St. Andrews and at Dundee there are excellent student residences which accommodate undergraduates from all or any of the faculties. Medical students in their early years are encouraged to reside in these, so that there is a width of contact among the undergraduates which is of great educational value. In addition there is the William Low Residence of Medical Students, situated near the principal teaching hospital, which is devoted exclusively to undergraduates in their clinical years.

At Queen's University, Belfast, clinical teaching is carried out at the Royal Victoria Hospital (554 beds), the Mater Infirmorum Hospital (200 beds), the Belfast City Hospital (600 beds), and the other hospitals in Belfast which deal with specialties. A new department of child health under the care of a full-time professor has been established, and the department of social and preventive medicine (formerly the department of public health) has been reorganized to meet the requirements of the General Medical Council. The erection of a new clinical block and an extension of the institute of pathology have been sanctioned and it is hoped to begin construction this year. A full-time officer in charge of students' health has been appointed at Belfast, and all first-year students are required to be medically examined, the examination to be repeated before entering upon clinical studies.

So much for a review of undergraduate education. One fact has not up to now been mentioned, but it is everywhere felt—namely, the handicap arising from the calling up of men so soon after qualification. By the time they are out of the Services again they are often married or for other reasons are not prepared to come back as house officers. It is certainly unfortunate that at the present time military service is seriously handicapping the normal postgraduate education of the medical student.

On a still broader issue perhaps we may quote again the Dean of the London Hospital Medical College :

> "I suppose the major problem is how medicine should be taught in the face of the increasing volume of medical knowledge and the increasing complexity of the practice of medicine. It seems to me that before long we shall reach bursting point, and some radical reconstruction will be necessary. Personally I think too much time is given to preclinical subjects, and before long clinical training must be brought back into the preclinical period, and the men started in the wards sooner, and the teaching of anatomy and physiology carried on during their clinical training so as to provide some satisfactory overlap.
>
> "But perhaps I am a heretic in these things."

QUALIFYING DEGREES AND DIPLOMAS

All universities, following the results of the final examinations, confer qualifying bachelor degrees in medicine and surgery. The abbreviations for registration are: B.M., B.Ch., U.Oxfd.; M.B., B.Chir., U.Camb.; M.B., B.S., U.Durh. and U.Lond.; M.B., Ch.B., V.U.Manc., U.Birm., U.Lpool, U.Leeds, U.Sheff.; U.Brist., U.Edin., U.Aberd., U.Glasg., and U.St.And.; M.B., B.Ch., U.Wales, N.U.Irel., Q.U.Belf., and U.Dubl. (also L.Med. and L.Ch., U.Dubl.). The licentiateship in medicine, surgery, and midwifery of the Society of Apothecaries of London (L.M.S.S.A.Lond.) also admits primarily to the *Register*, as does the licentiateship of Apothecaries' Hall, Dublin (L.A.H.Dubl.). The Medical Act, 1886, requires the document presented in evidence of any of the above qualifications to show that its holder has passed a qualifying examination in medicine.

The Conjoint Board

The qualifying diplomas in the English Conjoint (L.R.C.P. Lond., M.R.C.S.Eng.) were taken by about one-fifth of the total of those who qualified last year. Candidates are examined by the Examining Board in England of the three Royal Colleges (Examination Hall, Queen Square, W.C.1). Three examinations have to be passed: a pre-medical examination; a first examination in anatomy, physiology, pharmacology, and materia medica; and a final examination in pathology and bacteriology, medicine, surgery, midwifery, and gynaecology. Candidates are required to complete the medical curriculum extending over not less than fifty-seven months of study at recognized medical schools and hospitals, and to pass the professional examinations in accordance with the regulations after passing any two parts of the pre-medical examination. The Board does not itself conduct the preliminary examination in general education but recognizes a number of matriculation examinations and school-leaving certificates.

The examinations of the Board are conducted four times a year, and candidates are required to give notice to the secretary of the Board twenty-one days before the examination. The first medical examination is in two parts: (1) anatomy and physiology, written, oral, and practical; and (2) pharmacology and materia medica, oral only. In the final examination, medicine, surgery, and midwifery and gynaecology are written, clinical, practical, and oral; pathology is written and oral only, and may not be taken alone as the last part of the examination.

Candidates who produce evidence of not less than twenty-seven months' recognized clinical study subsequent to passing in anatomy and physiology are admissible to any one part only of the examination; on the completion of thirty months' study they are admissible to one or two further parts, or to three parts if presenting themselves for the first time. Candidates may not enter for the last part of the examination until they have completed thirty-three months' clinical study. Before admission to the final examination candidates must show that they are at least 21 years of age and must produce evidence of having completed the medical curriculum as set out in the regulations.

The Scottish and the Irish Conjoint

The Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Royal Faculty of Physicians and Surgeons of Glasgow have an arrangement by which after one series of examinations students may obtain diplomas of the three co-operating bodies (L.R.C.P., L.R.C.S.Ed., L.R.F.P.&S.Glas.). Each of these corporations grants its single diploma after examination, but the single diploma does not confer the right to qualifying registration; it is only a qualification additional to those already on the *Register*. The course of professional study embraces a certified period of not less than five academic years, in the last three of which clinical subjects must be studied. The first examination embraces physics, chemistry, and biology; the second, anatomy and embryology, and physiology, biochemistry, and biophysics; the third, pathology, materia medica, and pharmacology. The final examination is in two parts: the first, forensic medicine and public health; and the second, medicine, surgery, and obstetrics and gynaecology. All candidates at the final examination must also produce certificates of efficiency in the practice of vaccination from a Government teacher in the United Kingdom. Candidates for the Scottish Conjoint may work at any of the medical schools of Great Britain and Ireland. Details may be obtained from the Registrar, 18, Nicolson Street, Edinburgh, 8.

The Conjoint Board of the Royal College of Physicians of Ireland and the Royal College of Surgeons in Ireland issues a joint licence in medicine, surgery, and midwifery (L.R.C.P.I.& L.M., L.R.C.S.I.&L.M.), which is a registrable qualification, and accepts candidates from most of the medical schools at home and overseas. The regulations are obtainable from the Secretary of the Conjoint Board, Royal College of Surgeons, St. Stephen's Green, Dublin.

Other Diplomas

The Society of Apothecaries of London, which was constituted by the Royal Charter of James I in 1617, confers a diploma (L.M.S.S.A.Lond.) which is registrable under the provisions of the Medical Act, 1886, and qualifies the holder to compete for appointments in the naval, military, and Air Force services and for civil and colonial appointments. Examinations for the final subjects are held monthly except in September. Examinations in anatomy, physiology, and materia medica are held in January, April, July, and October. Particulars from the Registrar, Apothecaries' Hall, Black Friars Lane, London, E.C.4.

The L.A.H. of the Apothecaries' Hall of Ireland (95, Merrion Square, Dublin) entitles to registration as a qualified medical practitioner under the Medical Act, 1886, and enables the holder to compete for public medical appointments, including naval and military service, civil and colonial appointments, and all Poor Law appointments. It entitles the holder to practise pharmacy as well as medicine, surgery, and midwifery, which means that he may if he so desires open a medical hall.

Diplomas in medicine and surgery registrable in the Colonial List are granted by the Universities of Sydney, Queensland, Adelaide, and Melbourne, Ceylon Medical College, University of Ceylon, University of Hong Kong, Royal University of Malta, Newfoundland Medical Board, University of New Zealand, the Universities of South Africa, Capetown, and the Witwatersrand, and the King Edward VII College of Medicine, Singapore. Under certain conditions diplomas of universities and colleges in some of the provinces of Canada are registrable; also, with some exceptions, and subject to dating, diplomas of the Universities of India and Pakistan and the University of Rangoon.

All universities confer the higher qualification of Doctor of Medicine and Master of Surgery. Liverpool also confers the degree of Master of Orthopaedic Surgery (M.Ch.Orth.U.Lpool). The regulations for the award of this degree have been amended. Intending candidates must now be holders of an F.R.C.S. or F.A.C.S. before beginning the course. The Irish universities offer the degree of Master of Obstetrics (M.A.O.). The Master of Surgery of Oxford is a degree admitting primarily to the *Register*; it is conferred as the result of an examination. To obtain the D.M., Oxford, a thesis satisfactory to the Faculty Board must be presented. University requirements vary, and particulars should be obtained from the one selected.

M.R.C.P.

The Royal College of Physicians of London confers its Membership (M.R.C.P.Lond.) by examination. The pass for membership is a written examination in the form of a paper on questions of medical anatomy, pathology, principles of medicine; a paper on questions of the practice of medicine, including the principles of public health, and on psychological medicine; a clinical examination in the clinical wards of a hospital; and oral examinations. The M.R.C.P. has been the subject of recommendations of a committee which considers that

> "Membership of the College should signify a knowledge of general medicine that justifies further training as a consultant and the examination should therefore be a test in general medicine on a level higher than that required for qualification."

Hitherto the M.R.C.P. has been looked upon as a qualification conferring specialist status. Fellowship of the College is subject to election by the Fellows.

Fellowships of the Royal Colleges

The Royal College of Surgeons of England grants its Fellowship (F.R.C.S.Eng.) to those who pass its primary and final Fellowship examinations. The primary examination, partly written and partly oral, is held in January and July, and the final examination, partly written, partly practical, and partly oral, and including the examination of patients, is held in May and November.

Membership of the Royal College of Obstetricians and Gynaecologists may be applied for by medical graduates who have been registered or eligible for registration for at least three years. The Fellowship (F.R.C.O.G.) is granted to members who are considered to have advanced the science and art of obstetrics and gynaecology.

The Royal College of Physicians of Edinburgh elects as a Member any licentiate of a British or Irish College of Physicians or any graduate in medicine of a university approved by the Council, following upon an examination in the principles and practice of medicine and also in a department of medicine selected and offered by the candidate and approved by the Council; in this a high standard of efficiency is expected. Examinations are held four times a year. Save in exceptional cases, no one is elected a Fellow of the College until he has been at least three years a Member. Motions for the election of Fellows are made at quarterly meetings of Fellows, and a three-fourths majority on ballot is necessary.

The Fellowship examination of the Royal College of Surgeons of Edinburgh consists of two parts: the first, a written paper and an oral examination in anatomy and physiology and in pathology and bacteriology; the second, a written paper, a clinical or practical examination, and an oral examination in the principles and practice of surgery, and in an optional subject chosen by the candidate from the following: surgical pathology and operative surgery; laryngology, otology, and rhinology; obstetrics and gynaecology; and ophthalmology.

The Royal Faculty of Physicians and Surgeons of Glasgow grants, after examination, a Fellowship *qua* physician and a Fellowship *qua* surgeon registrable by the General Medical Council as an additional qualification (F.R.F.P.S.G.). Admission is by examination and subsequent election. Candidates for the Fellowship in medicine must have been in possession of a recognized medical qualification for not less than three years and must have been engaged during one of these years in full-time clinical work in a recognized hospital and have spent two other postgraduate years in approved medical work. The examination comprises a clinical examination in medicine, written and oral examinations in the principles of medicine and medical pathology, and written and oral examinations in the practice of medicine and therapeutics. Candidates for admission to the Fellowship in surgery are required to possess a recognized medical qualification and to pass a primary and a final examination. The primary examination consists of written and oral examinations in anatomy, physiology, pathology, and bacteriology. For admission to the final examination candidates must have been in possession of a recognized medical qualification for not less than three years and produce evidence that they have been engaged, after qualifying, for one year in full-time clinical work in a hospital approved by the Council and a further two years in the study of surgery. The final examination comprises a clinical examination in surgery, written and oral examinations in surgical anatomy and surgical pathology, and written and oral examinations in surgery. Alternatively, candidates may submit themselves for examination in one of the following subjects: obstetrics and gynaecology, ophthalmology, and otorhinolaryngology. The address of the Royal Faculty is 242, St. Vincent Street, Glasgow, C.2.

The Royal College of Physicians of Ireland (6, Kildare Street, Dublin) grants to registered medical practitioners, as the result of examination, its Membership (M.R.C.P.I.), its Licence in Medicine (L.M.), and its Licence in Midwifery (L.Mid.). Dates and particulars of the examinations can be obtained from the Registrar. The College grants the Fellowship (F.R.C.P.I.). Only Members of the College are eligible for election as Fellows.

Two examinations—primary and final—are also required for the Fellowship of the Royal College of Surgeons in Ireland (St. Stephen's Green, Dublin). The first is in anatomy, physiology, and pathology, and the second in surgery. A one-year course for the primary starts in October each year and lasts three terms.

The Mastery of Midwifery of the Society of Apothecaries of London (M.M.S.A.) is designed to give evidence of practical experience in antenatal care, midwifery, and infant welfare, and their relation to hygiene and preventive medicine. The diploma indicates qualification to undertake the responsible control of maternity and child welfare. Examinations are held twice yearly, in May and November.

MILITARY SERVICE

Civilian doctors and released medical officers who have held a non-permanent commission in the Royal Army Medical Corps during the emergency will be considered for appointment to short-service commissions in the R.A.M.C. for a period of eight years. The first four years will be on the Active List and the remainder in the Regular Army Reserve of Officers. Civilian doctors will have direct appointment in the rank of lieutenant, and released medical officers, on certain conditions, in the rank of captain. Candidates must at the time of application be (*a*) normally not over 30 years of age, (*b*) British subjects or citizens of the Irish Republic, and sons of British subjects or citizens of the Irish Republic, and (*c*) registered under the Medical Acts in force in Great Britain and Northern Ireland. During their service on the Active List they will be considered for appointment to a regular commission, and if they do not want, or are not selected for, such commission they will receive at the end of their four years' short service on the Active List a gratuity of £600. Conditions of service and forms of application can be obtained from the Assistant Director-General, Army Medical Services (A.M.D. 1), 38, Hyde Park Gate, S.W.7.

On the nomination of the Central Medical War Committee (B.M.A. House, London) doctors are appointed to national service commissions in the rank of lieutenant. During their service they can apply for a short-service commission and subsequently be considered for a permanent commission under the conditions stated above.

Training of Army Medical Officers

Officers commissioned in the R.A.M.C. receive a postgraduate service training at the Royal Army Medical College, Millbank, S.W.1. Here a senior officers' course is held twice yearly. The first of the three parts is devoted to the study of tropical medicine and entomology, military surgery, pathology, military hygiene, and psychiatry, and is spread over about three months. Practical instruction and demonstrations are given concurrently with this part of the course. In addition there is a series of lectures on venereology, dermatology, the medical aspects of chemical warfare, and six visits to a recognized hospital. The second part includes clinical instruction in medicine and surgery at London teaching hospitals; this part also takes about three months. Examinations are held at the conclusion of each of these parts, and thereafter officers are selected for training in the specialist subject for which they are best qualified or show aptitude. The officers selected by the College Council for specialist training begin the third part in their particular subject after the completion of the six months devoted to the first and second parts. The training is carried out at various civil hospitals in London, Edinburgh, Glasgow, Belfast, Dublin, and other cities. The period of training is up to a maximum of twelve months, depending upon the previous experience in the specialty of the officer concerned. The examination consists of a paper of questions and practical or oral tests.

Instruction in tropical medicine includes a course of lectures and clinical demonstrations. In addition, instruction in entomology is given. The principles and practice of modern military surgery are taught at the College. Lectures in the various courses deal with the surgical lessons which have been learned as a result of war experience, and cover both general

and regional surgery. The surgery of tropical diseases has its place in the syllabus, and stress is laid on the influence of tropical diseases on the management of surgical conditions in the soldier both at home and abroad.

In the teaching of pathology the syllabus of lectures for the senior classes is designed to cover the subjects taught in the classes of tropical medicine, surgery, and hygiene. Specialists in pathology receive all their training, except in the performing of necropsies, at the College. The vaccine and serum departments, now separately accommodated at the emergency vaccine laboratory at East Everleigh, Wiltshire, are a part of the pathological department of the College and are responsible for the preparation of T.A.B. and cholera vaccines for the Army and of standard reagents for agglutination tests.

The hygiene department, in addition to the teaching of Army health, has facilities for the carrying out of research of importance to the Army from the hygiene point of view, and much work of this kind has been accomplished in the past and will be a feature of the activities of the College in the future. Well-equipped laboratories exist for instruction in hygiene laboratory work of all kinds. There is also a well-organized hygiene museum. Officers taking a specialist course in hygiene (now Army health) are given the opportunity of taking the D.P.H. and the D.T.M.&H., and a considerable part of the instruction for these diplomas is given at the College.

The course in psychiatry consists of lectures partly on clinical psychiatry and psychopathology and partly on the applications of psychological principles to morale, discipline, personnel selection, and other purely military matters. There are also demonstrations of clinical cases held at Banstead and Sutton Emergency Hospitals, and demonstrations of selection tests by a personnel selection officer.

SERVICE OVERSEAS

The Colonial Medical Service

An interesting career is offered by the Colonial Medical Service, vacancies in which occur in all parts of the Colonial Empire, the greatest number in tropical Africa and Malaya. Candidates must ordinarily be British subjects holding medical qualifications registrable in the United Kingdom, and should have had at least 12 months' postgraduate hospital experience before appointment. Those applying for entrance into the permanent service must be under 40 or 45 years of age, according to the age of compulsory retirement (50 in West Africa and 55 in most other territories) in the territory to which they are appointed. Contract appointments for short terms are available for candidates who are above the age limits or who, while being below the age, do not wish to commit themselves to a colonial career at the outset. Officers appointed to the permanent service are normally required to take a course in tropical medicine and hygiene either before proceeding overseas or during their first leave.

In the first instance medical officers are usually appointed for general duties, which require all-round ability and a balanced outlook upon both preventive and curative medicine. Such duties often involve the charge of a district hospital and responsibility for the medical administration of a district, although many officers are employed on clinical duties in the large hospitals. Some posts are purely concerned with public health work, and for these the possession of the D.P.H. or special experience in preventive medicine is necessary.

A large number of specialist appointments exist which are normally filled from within the service by officers possessing the necessary aptitude and qualifications. For these appointments a very high standard of professional attainment is required. Senior administrative appointments are also almost invariably filled by the promotion of serving officers. The Colonial Medical Service is unified throughout the Colonies, and promotion takes place in the administrative or specialist branches whether in the territory in which the officer is serving or on transfer to another. The scope for promotion is therefore considerable. The total of the establishments of the various Government medical departments amounts to some 800 European medical officers and an even greater number of officers appointed locally.

Officers possessing qualifications or experience in pathology would be considered for appointment to the laboratory establishments. Workers in the laboratories carry out pathological and biochemical examinations for clinical, forensic, and public health purposes. In this branch a great deal of the research work which has led to important advances in the knowledge of tropical medicine and of local health problems has been carried out.

There are a number of vacancies for women doctors, particularly for those with special experience in obstetrics, school health, child welfare, and nutrition, although their employment is not necessarily confined to these subjects.

Full particulars of terms and conditions of service may be obtained from the Director of Recruitment, Colonial Office, Sanctuary Buildings, Great Smith Street, London, S.W.1.

Medical Missions

To medical men and women with a sense of vocation and a desire to express their faith through their professional work, medical missionary service offers vast opportunities. In China, Christian missions have given the country a medical and a nursing profession, and even in these recent days of trouble and change the missions continue their witness. In Africa they have pioneered rural health services and contributed largely to leprosy research and control. In India and Pakistan they have helped to maintain high ethical and professional standards.

The missionary societies regard 18 months' postgraduate work in resident appointments as a minimum, and often advise work for specialist diplomas or higher degrees. In addition special missionary training is recommended. Terms of service vary in length from 18 months to six years, according to climatic conditions. Ordinarily it is hoped that life service will be volunteered for, but short terms are considered. Salary is on a missionary basis, with children's allowances and a pension scheme.

Applications from students and qualified men and women should be made direct to the missionary societies, through local branches of the Student Christian Movement or the Intervarsity Fellowship, or to the Chairman of the Medical Advisory Board of the Conference of British Missionary Societies, Edinburgh House, 2, Eaton Gate, London, S.W.1.

MEDICAL AUXILIARY SERVICES

In 1936, principally at the instance of the British Medical Association, there was formed a Board of Registration of Medical Auxiliaries. The purpose of the Board was to establish and maintain a national register of trained persons engaged in technical work or practice ancillary to the work of the medical profession. This register now comprises over 12,000 names and is composed of radiographers, dispensing opticians, chiropodists, speech therapists, orthoptists, dietitians, and physiotherapists and biophysical assistants. The Board is a registering and disciplinary body, not an examining one. Examining bodies in the various branches are approved by the Board and appoint representatives to its Council. The majority of members of the Council—nine out of 16—are members of the medical profession.

The function of the Board is to co-ordinate the work of these various auxiliaries, to ensure that they are qualified, to maintain and improve their standard of training, and to afford liaison between them and medical practitioners. All those whose names appear on the register hold a qualification in their particular sphere recognized and approved by the Board. With the exception of the chiropodists, all those on the register, as a condition of admission, undertake not to carry out any medical auxiliary work except under a medical practitioner's direction and control. The chiropodists, when not acting under medical direction, confine their practice to the treatment of malformed nails and superficial excrescences occurring on the feet, and bunions.

The qualifying bodies for the respective branches are the Society of Radiographers, the Association of Dispensing

Opticians, the Society of Chiropodists, the College of Speech Therapists, the British Orthoptic Society (the training and qualifications being the responsibility of the Faculty of Ophthalmology advised by the Orthoptic Board), and the British Dietetic Association. In 1944 the Chartered Society of Physiotherapy withdrew from membership of the Board, and so ceased to be a qualifying body. The Board is unable, therefore, to accept for registration members of the Chartered Society qualifying since that date, but the majority of the members, as distinct from the Society, registered with the Board have not resigned, and their names appear in the register. Biophysical assistants—namely, those qualified to dispense ultra-violet radiation, light, heat, etc.—underwent an examination formerly controlled by the Society of Apothecaries. This examination is no longer held, and the number of persons holding this qualification only is small. All the qualifying bodies have established periods of training. That for the radiographers, for example, is two years at a recognized training centre, and for speech therapists three years' full-time course at a recognized school.

The office of the Board is at B.M.A. House, Tavistock Square, W.C.1.

ORGANIZATIONS TO JOIN

At every gathering of final-year students and the newly qualified the man on the eve of entering practice, public or private, is advised to do two things—namely, to join one of the defence organizations and to become a member of the British Medical Association. This advice is as good as ever. The National Health Service has not made it less necessary for the practitioner, by joining a defence society, to protect himself against the medico-legal hazards to which even the most careful and conscientious practitioner is exposed. The defence societies are three in number.

Defence Societies

The Medical Defence Union (49, Bedford Square, W.C.1) has now a membership of over 33,200. It has thrown open its doors to dental as well as to medical practitioners, and it has made special provision for overseas medical and dental practitioners practising in the Dominions and in other countries. Its work has been increasing by leaps and bounds during the past three years. It claims to be the largest defence organization in Great Britain or indeed in any country except America. The Union furnishes advice and unlimited financial indemnity to any member threatened with or involved in litigation raising a question of professional significance or more commonly based upon a charge of professional negligence. The accumulated funds are now about £150,000, while the subscription income is mounting annually. Nevertheless, costs of litigation and of settlements out of court are mounting at a more rapid rate.

The Medical Protection Society, formerly known as the "London and Counties" (Victory House, Leicester Square, W.C.2), has a membership exceeding 25,000. During the past year it has gained nearly 1,800 new members. Membership is open to any registered medical or dental practitioner. This society was the first to afford indemnity against adverse costs and damages, the first also to afford unlimited indemnity. The indemnity is secured by financial resources exceeding £145,000 and a reinsurance at Lloyd's for an unlimited amount.

The Medical and Dental Defence Union of Scotland, Ltd. (115, St. Vincent Street, Glasgow, C.2), has a membership of approximately 6,200. The total assets are over £37,000. The policy of the council has always been to give careful consideration to the interests of its members who have claims made against them for negligence.

The annual subscription of all these societies is £1, with an entrance fee of 10s. The Medical Defence Union mentions the possibility of an increased subscription, but is prepared to accept newly qualified practitioners applying for membership within three years of their registration at the subscription of £1, this annual rate to obtain for the first three years of membership.

The British Medical Association

The British Medical Association (Tavistock Square, W.C.1) has now a membership of considerably over 60,000. It includes more than three-quarters of the members of the medical profession in the United Kingdom. Members are elected by the council of the Branch in the area in which they reside, or, if not resident in a Branch area (for example, serving with the Forces), by the Central Council. The privileges of members include participation in all activities, local and central, in its government and the formulation of its policy; the weekly receipt of the *British Medical Journal* and its *Supplement*; the use of the houses of the Association in London and Edinburgh, and the help of the central staff in professional matters. The Association offers a number of prizes for research and the encouragement of important work. Six prizes, each of the value of £25, are awarded annually to medical students for essays submitted in open competition on a national basis, and £150 has been allocated for the award of regional essay prizes to medical students based on the four regions of the British Medical Students' Association. The Association also has certain research scholarships which are awarded for a period of twelve months to accord with the academic year.

A recent development in the Association is the establishment of an Empire Medical Advisory Bureau to assist members of the profession coming to this country from the Dominions and Colonies for postgraduate instruction and other purposes. The Bureau, which is located at B.M.A. House, furnishes a personal advisory service to visiting practitioners, and one of its principal objects is to make available the fullest information regarding facilities for postgraduate study and, where necessary, to provide the required contacts and introductions.

A still newer piece of work of the Association is the establishment of a Medical Practices Advisory Bureau. The work of this Bureau is described elsewhere in this issue under the heading "The G.P. and the N.H.S."

The ordinary subscription to the B.M.A. for members resident in Great Britain and Northern Ireland is being raised from Jan. 1, 1950, to four guineas, but there are certain classes of members who come in at lower rates, and the newly qualified practitioner who is elected within two years of registration will pay only two guineas per annum for the period of four years after registration. Members residing outside Great Britain and Northern Ireland pay one and a half guineas, and Service members, wherever resident, two and a half guineas.

Medical Women's Federation

The Medical Women's Federation (Tavistock House North, W.C.1) is the only professional organization in this country consisting solely of medical women. Its forerunner, the Association of Medical Women, was constituted in 1879, but the Federation itself was founded in 1916. It endeavours to bring before the main body of the profession the special minority difficulties of medical women and, when necessary, to press for the full application of the principle of equality. It works in close and friendly relationship with the British Medical Association and encourages women to take an active part in the Association's central and divisional activities.

The Students' Association

The British Medical Students' Association (B.M.A. House, Tavistock Square, W.C.1) was founded in 1941 to afford a means of communication between medical students of the various schools and also between British and foreign medical students. It publishes a quarterly journal, organizes clinical conferences in university centres, and holds an annual meeting in London extending over a week-end. It has liaison with the Irish M.S.A. Last year it held a noteworthy International Clinical Congress in London, Oxford, and Birmingham; there were 107 delegates, representing 25 countries. The weakness of all students' associations is that they continuously lose members on graduation. The B.M.S.A., with the object of retaining the interest of its old members, has created a category of membership for qualified men and women, so that, having left the ranks of students, they are not necessarily cut off from the student body.

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J. Amer. Med. Ass., 1947, 135, 496.
Amer. J. Psychiat., 1946, 103, 159.
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SPECIAL DIPLOMAS

Public Health

The London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1, offers a course of study for the University of London Postgraduate Certificate and Diploma in Public Health which begins in October and extends through an academic year of nine months. The preliminary part of the course, from October to December, which is followed by the examination for the C.P.H., is intended to meet the needs of registered medical practitioners who wish to devote themselves to any branch of public health work; and the full course provides more advanced instruction for those practitioners who wish to qualify themselves for appointments in which they are required by law to hold diplomas or degrees in public health or State medicine.

Students are also offered facilities for making special study of one group of subjects during the second part of a diploma course. These "elective" subjects have been introduced in order to give students an opportunity of acquiring special knowledge within the framework of the general course. The elective subjects offered are: (1) industrial health, (2) statistics, (3) hospital administration, and (4) tropical hygiene. The elective course in industrial health is recognized in part as qualifying for the examination for the Diploma in Industrial Health, and opportunities are given for visits to factories and other industrial establishments. Only a limited number of students can be accepted for this and the other elective courses.

At the University of Leeds the D.P.H. course covers three academic terms, of which the first is devoted to an introductory course in social medicine and the mass aspects of disease, on which the Certificate in Public Health is granted, followed by two terms of more detailed instruction in public health suitable for the practising medical officer. Practical bacteriology is taken in the course, so making it particularly suitable for those students who will ultimately practise public health in countries where the laboratory services are under the supervision of the public health service. The Department at Leeds is fortunate in having within a radius of 10 miles an area with a population of one and a half millions, both urban and rural, in which the practical field work can be particularly well undertaken. The Department of Preventive Medicine and Public Health has moved to new premises equipped with a demonstration room and a students' common-room for students attending public health courses of various kinds. In Durham a marked falling off in the number of applicants for the D.P.H. course led to its cancellation in 1948–9, but it is intended to provide a course, both for the diploma and the certificate, beginning in October, 1949.

At the Queen's University of Belfast a course for the Certificate and Diploma in Public Health is held each academic year in the Department of Social and Preventive Medicine. The courses, which are full time, are open to graduates of British and Commonwealth universities. Not more than 15 students are accepted, and priorities are given to graduates of Queen's University.

Full-time courses, with practical work, demonstrations, and lectures, lasting nine months and beginning in October, are also given at the Universities of Aberdeen, Birmingham, Bristol, Durham, Edinburgh, Glasgow, Liverpool, Manchester, St. Andrews, and Wales. Wales offers a three-months full-time course for the Certificate in Public Health, preliminary to the D.P.H., for which there is a twelve-months part-time course.

In addition to the universities, the Royal College of Physicians of London and the Royal College of Surgeons of England confer a Diploma in Public Health (D.P.H. R.C.P.S.Eng.), as do the Royal Colleges of Physicians and Surgeons of Edinburgh and the Royal Faculty of Physicians and Surgeons of Glasgow (D.P.H. R.C.P.S.Ed. and R.F.P.S.Glasg.), and the Royal College of Physicians and Surgeons in Ireland (D.P.H. R.C.P.S.I.). The University of Durham confers the diplomas of Bachelor and Doctor in Hygiene (B.Hy., D.Hy.Durh.), Birmingham that of Bachelor of Science in Public Health (B.Sc.(P.H.)Birm.), Glasgow similarly (B.Sc.(P.H.)Glasg.), as well as a doctorate, Victoria University of Manchester has a Diploma in Sanitary Science, and the University of Dublin a Diploma in State Medicine; all these in addition to the ordinary D.P.H.

The Royal Institute of Public Health and Hygiene (28, Portland Place, W.1) arranges courses of lectures and laboratory instruction for the D.P.H. Students completing the course are entitled to enter for examinations for the diploma of the universities and corporations. Examinations for the diploma and for the certificate are held twice a year.

Postgraduate teaching in the University of Liverpool includes full-time courses for the diplomas of D.P.H. and D.T.M.&H. (in conjunction with the Liverpool School of Tropical Medicine), as well as for the Diploma in Radiology referred to below.

Tropical Medicine and Hygiene

The Incorporated Liverpool School of Tropical Medicine has courses for the D.T.M.&H. Two courses are arranged for this diploma, each lasting about five months. The syllabus comprises tropical medicine, dermatology, ophthalmology, and surgery, bacteriology, entomology, parasitology, tropical hygiene, and sanitary engineering. Fees are 40 guineas for the D.T.M.&H. course and 20 guineas for the revision course. The examination in the University of Liverpool for this diploma is held twice yearly, in January or February and in April or May. The Liverpool School, which also gives courses of instruction in public health parasitology and entomology for students taking the D.P.H., has recently passed its jubilee.

The London School of Hygiene and Tropical Medicine offers a course in tropical medicine and hygiene, intended primarily to prepare qualified medical practitioners for the examination of the Conjoint Board for the D.T.M.&H. The courses last five months and there are two each year, from October to February, and from March to July, to prepare for the examinations in March and July. The syllabus includes systematic and practical instruction in the laboratory sciences, protozoology, helminthology, entomology, and bacteriology in relation to tropical conditions; theoretical and clinical instruction in tropical medicine, and systematic instruction in statistics, nutrition, sanitation, and public health. Application should be made not less than one month before the course is due to begin.

A short course in medical statistics is also offered by the London School. It occupies two days a week for three months, during April to July, and also during January to April if enough applications are received. The instruction is on the principles of medical statistics and statistical methods.

The Medical Faculty of the University of Edinburgh has courses for the D.T.M.&H.Edin., lasting two terms, beginning in October.

Industrial Health

The Royal Faculty of Physicians and Surgeons of Glasgow grants a Diploma in Industrial Health. Candidates for the diploma (D.I.H.Glasg.) must complete courses of instruction and pass the examinations. Copies of the regulations respecting the diploma may be obtained from the secretary of the Royal Faculty, 242, St. Vincent Street, Glasgow, C.2.

The Society of Apothecaries of London holds an examination for the Diploma in Industrial Health, taking the history of the subject, legislation, occupational diseases, the industrial environment, the practice of industrial medicine, and clinical medicine and surgery as applied to industry. The examination is held in July and December. The D.I.H. is granted by the University of Edinburgh and by the Conjoint Board.

The Royal Institute of Public Health and Hygiene arranges courses for the D.I.H.

Bacteriology

A course of study for the academic postgraduate Diploma in Bacteriology of the University of London is given by the London School of Hygiene and Tropical Medicine. The course extends throughout the academic year, starting in October. Lectures and practical instruction cover the fields of general

bacteriology, including the study of virus diseases and bacteriology applied to hygiene, and instruction is given in bacteriological chemistry, medical mycology, and elementary statistics. The course, which is intended to give advanced instruction in bacteriology to students who wish to follow a bacteriological career, may be taken by students with a qualification in medicine or veterinary science. A small number of students with an honours degree in science (including chemistry) or a degree in pharmacy may receive instruction in bacteriological chemistry as applied to industry instead of in bacteriology as applied to hygiene. The total number of places available in the course is strictly limited. Applications for admission to the course beginning in October must be received by the preceding March.

Manchester University also has a Diploma in Bacteriology.

Other Diplomas

A large number of other special diplomas are available, and the programmes and prospectuses of the various bodies must be consulted. The English and Irish Conjoint and several of the universities, among them Bristol and Leeds, have Diplomas in Psychological Medicine. The Diploma in Psychiatry of the University of Edinburgh (D.Psych.Ed.) requires candidates entering for the examination to have spent a period of three years in a duly proportioned training in approved hospitals, clinics, and other institutions.

Diplomas in Radiodiagnosis and Radiotherapy are conferred by the Conjoint Board and, among other universities, by Edinburgh and Bristol. A Diploma in Radiology (diagnosis and therapy) has lately been instituted in the University of Liverpool. Holders of this diploma (Dip.Rad.) may be awarded the degree of M.Rad. after further study for two years and the presentation of an acceptable thesis.

The University of Oxford grants a Diploma in Ophthalmology, the University of London a Diploma in Clinical Pathology. A Diploma in Anaesthetics is granted by the English Conjoint (D.A. R.C.P.Lond., R.C.S.Eng.), which also offers Diplomas in Laryngology and Otology, in Ophthalmic Medicine and Surgery, and in Child Health. Diplomas in Ophthalmic Medicine and Surgery, in Anaesthetics, and in Child Health are also granted by the Irish Conjoint.

Fellowship in Radiology

The Faculty of Radiologists (45, Lincoln's Inn Fields, W.C.2) offers a Fellowship (F.F.R.) to medical graduates of five years' standing who have spent at least one year in general clinical work at approved hospitals, hold a radiological diploma, and have practised radiology exclusively for at least two years after obtaining that diploma. Candidates are required to pass an examination and submit a thesis. Candidates who hold higher medical or surgical qualifications may be exempted from the examinations in general medicine, general surgery, or pathology.

COURSES IN PSYCHIATRY

The National Association for Mental Health (39, Queen Anne Street, W.1) arranges training courses in certain aspects of psychiatry, especially child psychiatry. Its courses for school medical officers are full. Fellowships are given to enable qualified psychiatrists to obtain special training in child guidance at a recognized training clinic and are tenable at a number of clinics in Great Britain. The usual course of training covers 12 months, half-time, and is recognized as a qualification for the medical directorship of a child-guidance clinic.

The Tavistock Clinic (2, Beaumont Street, W.1) specializes as a centre for the out-patient treatment of children and adults with psychiatric disabilities. The educational programme includes courses for psychologists and social workers as well as doctors. It organizes with the National Association for Mental Health (see above) the 12-month half-time course for psychiatrists specializing in child psychiatry.

The Institute of Psycho-Analysis (96, Gloucester Place, W.1) furnishes a part-time course, lasting about four years, in psychoanalytic theory and technique. It includes a personal analysis, attendance at lectures and seminars, and clinical work under supervision. The Institute does not set out to teach all aspects of psychiatry, and general psychiatric experience must be obtained at other clinics and hospitals.

The Institute of Psychiatry, associated with the Maudsley Hospital and Bethlem Royal Hospital, is referred to in the article on "Postgraduate Training Facilities" (p. 530). Training normally covers a period of two to three years after adequate experience elsewhere in general medicine and is based on responsible hospital duties under supervision. The aim is to provide a wide training in the many branches of clinical psychiatry and its basic sciences.

The fees payable by those who attend the teaching at the Institute of Psychiatry without holding hospital appointments are: for clinical instruction only, 10 guineas for three months, 15 guineas for six months, and 20 guineas for 12 months; for clinical instruction and all first- or second-year lecture and demonstration courses, 20 guineas for one term and 50 guineas for one year; and for first- or second-year lecture and demonstration courses only, 12 guineas for one term and 30 guineas for one year. The enrolment fee is £1. Fuller information may be obtained from the Dean, Maudsley Hospital, Denmark Hill, S.E.5.

NEW WORK FOR THE KING'S FUND

King Edward's Hospital Fund for London is not directly affected by the National Health Service Act (it is governed by an Act of its own, passed more than forty years ago), and its responsibilities and sphere of influence have been enlarged, not diminished, as a result of the transfer of hospitals to the Minister of Health. The King's Fund has been in the past a staunch supporter of the voluntary system, and its aid enabled this system to survive the financial crisis which followed the first world war.

Now that the voluntary system has been abolished the King's Fund remains as a residuary legatee. There is, as its 52nd annual report points out, still a large volume of good will flowing towards hospitals, and the Fund offers a means whereby in the metropolitan area this can be canalized. The Fund has large financial resources, its ordinary income reaching over a quarter of a million pounds, 90% of which comes from investments. What is more important, it has a long and intimate experience of hospital problems. It would be premature to define precisely the manner in which this income may still be used to assist hospitals, but there are many ways in which institutions can be helped, though the State is financially responsible for their maintenance. Last year, for example, grants amounting to over £21,000 were made to some fifty hospitals for the provision of comfortable modern mattresses. Other grants were made for the well-being and comfort of patients and staff by providing patients' trays, easy chairs, wireless, and so forth; for improving the hospital service by gifts of refrigerators, washing machines, and *x*-ray apparatus; and to encourage the extension of the work done by hospitals for the aged and the chronic sick.

Little attention has been paid to the "disclaimed" hospitals, but, as the report points out, the progress and development of the National Health Service will be profoundly influenced by the existence of active institutions experimenting and developing under voluntary aegis. Grants to twelve such hospitals in the metropolitan area were made last year. Convalescent homes also require help, and a sum of £30,000 was distributed among them during 1948. In some respects the new Act is a greater landmark in the history of convalescent homes than of hospitals, because for the first time it gives them recognition as an integral part of health care. Convalescent homes were formerly regarded as a rather luxurious appendage to the treatment of illness; they are now seen to be a necessity. Only about 40% of convalescent homes have been taken over and attached to boards of governors or management committees. Many have been left outside the Service, not because of inefficiency, but because of failure exactly to fulfil a statutory definition. Here again comes in the value of an organization

which is not frustrated by rigid official frontiers in the allocation of its help.

Other activities of the King's Fund are finding an increased scope. One of them is the Emergency Bed Service, established just before the war. This has become the agent of the four metropolitan regional boards for urgent admissions under the National Health Service. It was expected that its work might be doubled on the appointed day, actually it was quadrupled, but the organization took the strain and no disaster occurred. The Emergency Bed Service received a good deal of attention from the Press for political reasons, as being likely to illustrate the failures of the Act. Nevertheless, it has solid achievements to its credit, and the regional boards and the Ministry have given the fullest help and encouragement. Two other activities of the Fund, one in being and the other projected, are the setting up of a staff college for ward sisters, recently described in these columns (July 2, p. 30), and the coming inauguration of a catering centre at St Pancras Hospital to serve as a model in equipment and layout. In addition, bursaries are offered to assist the training of hospital administrators and almoners. The impression gained from this report is of an organization which is meeting new occasions with new duties. It is taking a broad view of the needs of hospitals helping in many ways where help is most needed, encouraging progressive hospitals, and introducing the human element, in which the best-laid State schemes are apt to be deficient

THE G.P. IN THE N.H.S.

The general practitioner who enters the National Health Service does so by making a contract with the local executive council. He is not an employee of the council, but a contractor with it, in the same way as his predecessor, the insurance practitioner, was in contract with the local insurance committee.

In England and Wales there are 138 executive councils, one for each county and county borough, except in eight cases where two areas have been combined under a single council. Each executive council consists of 24 members—four (with the chairman) appointed by the Minister of Health, eight appointed by the local health authority, seven doctors appointed by the local medical committee (which is elected by all the local doctors and is the successor of the Panel Committee) and three dentists and two pharmacists appointed respectively by their local committees.

The doctor newly starting in practice, like the established doctor who moves into a new district, can come into the Service anywhere in the country except in some areas declared to be over-doctored (see *Supplement* to the *British Medical Journal* of August 6, p. 70, and August 20, p. 93). An area may be closed to additional doctors and a vacant practice remain unfilled if it is considered that the area has more doctors than it needs. The control in this respect is exercised by a Medical Practices Committee, whose nine members, all appointed by the Minister, include seven doctors appointed after consultation with the British Medical Association, and five of the seven must be actively engaged in medical practice. To this Medical Practices Committee the executive councils report the number of doctors required to meet the needs of their areas and also any vacancies occurring in the Service. The committee can refuse a doctor's application to join the Service in a particular area only on one ground—namely, "that the number of medical practitioners undertaking to provide general medical services in the area or part of the area concerned is already adequate."

Formerly, vacancies in practices were commonly filled by purchase. The young doctor had to buy his way into general practice, starting perhaps as an assistant and presently buying either a practice of his own or a share in a partnership. This buying and selling of practices has been swept away so far as public practices—that is, practices within the National Health Service—are concerned, and a fund of £66,000,000 has been set up to compensate existing practitioners for the loss of the right to sell their practices, provided they entered the new service on or before July 5, 1948. This date may be extended in certain cases if the Amending Bill now before Parliament becomes law.

As vacancies in the Service can no longer be filled by purchase the M.P.C. may decide not to fill a vacancy; when a vacancy has to be filled the executive council will normally advertise it. A booklet entitled *The National Health Service* just issued by the Ministry states: "If only one doctor applies he will usually be given the practice automatically. If several apply, the executive council, when reporting their names to the committee, will add the opinion of the local medical committee and its own recommendations. Local ties and wishes, as well as local needs, will be taken into account. For instance, a partnership of doctors may want a particular man to join them, or a son may wish to carry on his father's practice. The doctor who fails to get what he wanted may ask the Minister to overrule the committee or to appoint him in addition to the doctor chosen by the committee."

The remuneration of general practitioners in the National Health Service is in general by capitation fee. The amount of the capitation fee has been the subject of long discussions, not yet terminated, between the Ministry and the British Medical Association. The maximum number of persons on the list of a single-handed doctor is fixed for the time being at 4,000. With the consent of the executive council after consultation with the local medical committee (or on appeal to the Minister) a doctor may have a fixed annual payment—a basic salary as it is called—of £300, plus capitation fees at a lower rate. This arrangement is intended to help doctors starting in practice. Normally the annual payment of £300 is subject to the condition that the doctor shall have a specified number of patients on his list within a given period of his entrance into the Service. There is also a fund amounting to £200,000 a year for extra payments to be made to doctors who practise in difficult or unpopular areas. In addition to the capitation fee there are certain extra payments such as for maternity services, for mileage in rural areas, and for dispensing. Doctors undertaking the training of a young assistant may also receive extra fees, and the Government scheme includes provision for superannuation, death benefits, and widows' pensions. Various public appointments, as well as, of course, private practice, are open to the practitioner.

A word about the disciplinary machinery. The executive council has no power to dismiss a doctor, but if after inquiry it feels that owing to a doctor's dereliction his contract ought to be cancelled the case is referred to an independent tribunal consisting of a lawyer-chairman appointed by the Lord Chancellor and a layman and a doctor both appointed by the Minister after consultation with the Association of Executive Councils in the one case and the doctors' professional organization in the other. If the decision of this tribunal is in favour of the doctor it is final; if it is against the doctor he has a right of appeal to the Minister, who, after careful inquiry and consultation with an advisory committee of doctors can override the tribunal in the doctor's favour.

An Advisory Bureau

With the changes which the National Health Service has brought about in the customary methods of entering upon practice, the Council of the British Medical Association felt the need of establishing some central machinery through which practitioners wishing to establish themselves in practice could obtain advice and information concerning suitable openings. The Medical Practices Advisory Bureau has been accordingly set up as a department of the Association at Tavistock Square. Its purpose is to advise all practitioners on individual problems connected with entry into, and conduct of, practice, and it includes an appointments information service through which the introduction of locumtenents, assistants, or partners can be effected. The Bureau is under the direction of one of the assistant secretaries of the Association (Dr. L. S. Potter), and it retains the services of some members of the staff of the British Medical Bureau, now in voluntary liquidation. Branch offices have been established at 33, Cross Street, Manchester, and at the Scottish office of the Association, 7, Drumsheugh Gardens, Edinburgh. It is hoped that in course of time other regional offices will play their part. The services of the Bureau are free of charge to members of the Association; others are expected to pay fees as a contribution to the expenses incurred.

A survey by the Medical Practices Committee in which the areas of England and Wales were scheduled according to doctor-need appeared in the *Supplement* of August 6 (p. 70) and of August 20 (p. 93).

THE PUBLIC HEALTH SERVICE

The public health service has been very greatly affected by the changes resulting from the National Health Service Act. The hospitals of local authorities, like the voluntary hospitals, have been transferred to the Regional Hospital Boards, and the public health service feels a natural disappointment at the loss of municipal beds. Moreover, maternity and child welfare services, instead of, as formerly, belonging to the smaller as well as the larger welfare authorities, are now included in the 150 county and county borough authorities which are the local health authorities under the Act. Tuberculosis officers, hitherto employed by local authorities, are now mainly officers of the Regional Boards. The number of chief posts in the public health service in relation to the total number in the service has always been small, and the Act has made them relatively fewer still, though a number of new types of post have been created.

At the moment of writing the long dispute between the British Medical Association and the associations of local authorities is ended, the associations having agreed, with a certain proviso, to participate in the Whitley machinery. It is to be hoped that the service will be so established that the best type of medical graduate will be attracted to make a career in public health, with prospects no less satisfactory than those which confront general practitioners and specialists.

The entrant into public health work usually begins as an assistant medical officer, doing maternity and child welfare or school work or both. Such medical officers are likely in future to specialize more directly either on the obstetric or on the child health side and to have opportunities of keeping up clinical knowledge by interchange arrangements with hospitals or by clinical assistantships, for which the D.P.H. is not essential. The Society of Medical Officers of Health has suggested that special experience in maternity or children's hospitals and the acquirement of some diploma such as the D.C.H. might in fact be more useful than the D.P.H. itself. But the Certificate in Public Health is regarded as the basic qualification for entrance into the public health service.

The L.C.C. Medical Service

Sir Allen Daley, Medical Officer of Health and School Medical Officer to the London County Council, kindly sends us the following: Whole-time appointments in the Public Health Department of the London County Council, apart from those of medical officer of health, deputy medical officer of health, and principal medical officer, include five senior medical officers, nine divisional medical officers, one principal assistant medical officer, six senior assistant medical officers, nine assistant divisional medical officers, and 67 assistant medical officers. Their duties are, in the higher grades, mainly administrative. The officers, speaking generally, have graduated through the clinical field and have special knowledge in at least one branch of the service. The assistant medical officers are mainly engaged in the school health and maternity and child welfare services. Suitable qualifications are the D.C.H. and the C.P.H. or the D.P.H. It is hoped that arrangements may be made for them to have clinical responsibilities at hospitals, and for some of them to gain experience of the environmental health services in the metropolitan boroughs.

For the grades assistant medical officer to senior or divisional medical officer the present salaries range from £910 to £1,800 per annum.

In addition the Council employs nearly 500 part-time medical officers in a variety of work—for example, in residential nurseries, welfare institutions, staff examinations, and sessional work at clinics and school medical inspections.

By arrangement with the London School of Hygiene and Tropical Medicine, the Institute of Child Health, and several undergraduate schools, students are given opportunities of gaining experience in the Council's various medical services.

Correspondence

The M.R.C.P.

SIR,—Dr. F. M. R. Walshe's admirable criticism (August 13, p. 383) of the tests of merit to be applied to men and women in the middle of a career is relevant to the testing of young persons on its threshold, so I venture to offer some comments on the College committee's report on the examination for M.R.C.P.

At present the career of medical "consultant" in England is virtually closed against all young people who have not passed this examination. In the year ending September 29, 1948, candidates, successful and unsuccessful, paid the College £33,873. In 1948 a candidate was under examination for approximately seven and a half hours, of which six were devoted to answering written questions, 70 minutes to the clinical examination, and 20 minutes to a pathology viva. In future the clinical examination will last 80 minutes. Those who have examined in the faculty of science of a university for degrees or diplomas valuable to would-be specialists (e.g., the London B.Sc. (Special) in statistics is a highly esteemed qualification for embryo statisticians) will notice that *their* examinees have a much longer run for their money. I use the sporting phrase because the College committee holds that if candidates found insufficient in the written examination were not admitted to the clinical examination they "might fairly complain of not having a run for their money." The system of marking was, and is to remain, such that if a candidate fails in his "long case" he will usually fail in the whole examination. The committee justifies this in the following passage:

> "The examination is meant to test method at least as much as knowledge; and if it puts a premium on readiness of judgment, that is defensible because this quality is useful to consultants. A former Censor has declared that, 'in the routine and method of examining a patient and in the recognition and evaluation of obvious physical signs, the candidate must be right first time.'"

"Obvious" is an ambiguous word: a professor of mathematics once said that "it is obvious that" in an examination script frequently meant "I cannot prove that." No doubt the committee would agree that many mental and moral qualities other than readiness of judgment are useful to consultants—forethought, caution, tact, sympathy. It is even arguable that readiness of judgment is of less importance to a young consultant, who will usually pass years in the service of a well-equipped institution where technical aids to diagnosis are available to him, than to a general practitioner in a remote country district who must depend wholly on himself. Perhaps the committee would retort that these other desirable qualities cannot be tested at all by examination. That might do less than justice to Censors. I should think that a wise physician who has the gift of putting a young man at his ease might in 20 minutes' talk learn a good deal about him. Not, of course, if he simply fired questions at him, but if he drew him out.

Is it possible—as a man with little clinical experience I am genuinely asking for information—that clumsy fingers and dull ears are now not the insuperable obstacle to success as a physician that they were 60 or 70 years ago? That now a man with a good brain, able to interpret the reports of technologists and the graphical records of machines, might be a very good physician although his fingers were clumsy, provided he had qualities not tested at all by the ritual of the "long case"?

What is, I suggest, probable is that the way to improve the examination, to make it do something more than put a premium on readiness of judgment, is to lengthen it. There are two ways of doing this—drastically to reduce the number of candidates and/or to increase the number of examiners. The committee declines to make the examination longer, but it does propose to increase the number of examiners and reduce the number of candidates. It is not clear from the report how many additional examiners are to be appointed, but they are not to be "elder statesmen." The candidates will be reduced

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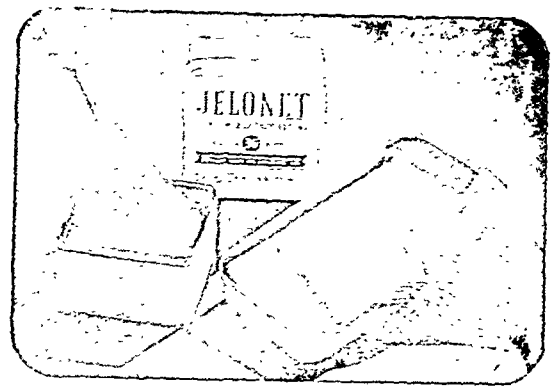
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by allowing no candidate to try his luck more than twice within a year. On the data available this would reduce the number sitting at each quarterly examination by about one-third. Still, even 380 is a good round number when one remembers that under the by-laws of the College "the four Censors bear entire responsibility for the results of the examination, and they should, therefore, continue to conduct, alone, the Final Viva."

A veteran of medical statistics will be forgiven if he expresses a little (not much) surprise that the committee did not use its very extensive statistical data roughly to verify its hypothesis that the examination does effectively test something, let us say readiness of judgment. Suppose one tabulated by candidatures—1st, 2nd, etc.—the proportion rejected, then, if the proportions were equal, the *prima facie* interpretation would be that chance ruled. If the proportion steadily increased, the *prima facie* interpretation would be that the test steadily weeded out the unsuitable candidates. I am too old a hand to suppose that this comparison would be decisive—many sub-tabulations would be required to justify either inference—but such an analysis would be rational and, I think, should have been made.

What the committee's reforms do is to make an examination of the present content controlled by the Censors slightly less onerous for the examiners. Like other intelligent people, the committee sees that the scope of the examination could not be increased without delegation of power. If the examinees were distributed through the medical faculties of the British universities having schools of clinical medicine, then the scope of the examination could be widened without putting intolerable pressure upon the examiners, but some people would ask why the ancient College should have a papal authority over it.—I am, etc.,

Loughton, Essex. MAJOR GREENWOOD.

Distinction Awards

SIR,—I was pleased to see that Dr. F. M. R. Walshe (August 13, p. 383) had written a characteristically forthright letter criticizing the crazy notion of distinction awards for consultants. As a Fellow of the Royal College of Physicians of London I might conceivably have felt it possible that my name would be among those being considered for one of the grades, but as I have refrained from joining the Service, and am therefore not eligible for any of the financial rewards, I can take a somewhat detached view.

From the beginning it was obvious to the meanest intelligence that mere volume of work made it quite impossible for the Awards Committee to accomplish their task. It now seems that they have decided to invite hospital medical committees and various other bodies to submit recommendations. They may report "confidentially" to the chairman of the Awards Committee. I like this word "confidentially." It sounds so much better than "secretly" and has less sinister associations.

Dr. Walshe points out the extreme difficulty of defining "distinction." Has the Awards Committee arrived at a satisfactory definition, and if so will they pass it on, and perhaps suggest a points system to cover the various questions asked by Dr. Walshe? If they do, there still seem to be insuperable difficulties in the path of each subcommittee. How much do we really know about the professional abilities even of our colleagues on the staff of the same hospital? We never see more than a minute fraction of their work. How often does a surgeon watch another surgeon operating, or one physician see another taking a history and examining a patient? Add to this the inescapable fact that personal friendships and jealousies are apt to cloud judgment, and it will surely be admitted that with the best will in the world and the strictest possible integrity no just grading can be accomplished.

Another difficulty I foresee is the position of the members of the various committees, including the Awards Committee. Will they begin by choosing themselves and each other or will a becoming modesty compel them to ignore their own claims? And what evidence is to be obtained about teachers? The best judges of them are unquestionably the students. Will the Awards Committee collect a random sample of students and ask them for a "confidential" report on their teachers?

When the holders of distinction awards die or retire, as Nature decrees that they must, the prospect is even more terrifying. Presumably there will have to be a series of by-elections to decide which of the hundreds of anxious candidates are to be elected to fill the vacancies. Surely the whole project is too fantastic to be seriously considered by a learned profession. But we must admit that it is a masterly example of the principle "Divide and rule," and it would be interesting to know who were the originators.—I am, etc.,

London, W.1. C. C. BEATTY.

SIR,—In his authoritative letter (August 13, p. 383) Dr. F. M. R. Walshe asks what constitutes "distinction" in medicine, and offers diverse answers to the question. He concludes that "there is no practical answer to these pertinent questions." His letter is matched by the bewilderment of all with whom I have discussed this problem. The Awards Committee may have an acceptable scheme of assessment in mind, but consultants may be forgiven for having grave doubts. May I put forward a scheme which has found favour with colleagues who have considered it?

First we must be clear what is to be done—and with what resources. In my letter in the *Supplement* of August 20 (p. 96) I suggested that 14% of the total basic salary paid to all consultants year by year represents the resources of the Awards Fund. This fund should be distributed so that provision is made: (1) for those holding awards to take extra sessions; (2) for promotion from grade to grade, and into a grade for those who receive no award initially; and (3) for the grading of junior consultants in the future. Assuming that the finance is on a satisfactory permanent basis the funds are to be distributed in certain proportions to those nominated by the Awards Committee appointed by the Minister of Health. I believe this could be done fairly and without any secret recommendations by local caucuses. About a million pounds a year is involved, and both the public and the profession may fairly claim to know how and on what grounds this public money is spent.

The idea of distinction may be divided simply into three sections: (1) Qualifications—professional and scientific. (2) Consultant service—appointments, seniority, offices of distinction in medical academic societies, and service as an examiner. (3) Publications—original and compilatory work. The following scheme is based upon this primary division. The marks

	Total Marking	Detail Marking (highest mark in each subsection counts—not additive)	
Section 1. Qualifications:			
Medical qualifications ..	18	F.R.C.P., M.R.C.P., F.R.C.S., etc.	18
		Other M.D., M.S., etc.	11
		Diploma	7
		Pass examination with distinction	3
Science degrees	7	Ph.D., M.Sc., or higher ..	7
		M.A., B.A., B.Sc. .. .. (not normally part of pass degree in medicine)	3
	25		
Section 2. Consultant Service:			
Appointments	20	Postgraduate teaching hospital	20
		Undergraduate teaching hospital	15
		Hospital requiring M.R.C.P./F.R.C.S.	10
		Hospital requiring lesser qualifications	3
Seniority	15	1 per annum—15 years	15
Offices of distinction in medical academic societies	6	National President .. .. Secretary, etc. ..	6 2
		Local President .. .. .. Secretary, etc. ..	3 1
Examiner	4	Examiner Senior Posts .. Junior Posts ..	4 2
	45		
Section 3. Publications:			
Original work	20		
Compilatory work ..	10		
	30		
Grand total	100		

Press Reports on Technical Subjects

SIR,—The May issue of the *Journal of General Microbiology* (p. 274) contained a highly technical paper of mine on "The Incidence of Penicillin-sensitive Variant Colonies in Penicillinase-producing Strains of *Staphylococcus pyogenes*." This recorded the fact that when kept under laboratory conditions for some length of time many strains of penicillinase-producing staphylococci give rise to a proportion of penicillin-sensitive variant colonies. While these experiments indicate that penicillin-destroying strains of staphylococci are genetically unstable in the test-tube, they cannot readily be interpreted in terms of penicillin-resistant infection.

An account of this paper and of my work which appeared in a national newspaper on August 9 implied that such an interpretation had been made. This is not the case. I should perhaps add that the writer of the article had not consulted me at any stage. This seems to me to raise an issue of some importance for all medical research workers. Is there no way by means of which they can be protected from this type of reporting of their work in the popular press? More important still, is there no way by means of which the general public can be protected from the false conclusions so presented to them?—I am, etc.,

London, S.E.1. MARY BARBER.

Treatment of Rodent Ulcer

SIR,—The tendency in treatment is that when a case is referred to a specialist it is treated according to his methods of therapy unless there are clear-cut reasons for other branches of therapy. To the plastic surgeon a rodent ulcer asks for surgical excision, and the more difficult the resulting area is to close the more fascinating the problem. To the radiotherapeutist *x* rays are the obvious answer. It is essential that any specialist should know what can be done by his colleagues in other specialties, and this can only be done by close co-operation.

For the past 18 months I have held a clinic with my radiotherapeutic colleague, Dr. F. Ellis, and we decide which form of therapy we think is most suitable for each particular case. In this early stage one cannot draw conclusions. In any form of treatment where two methods of treatment are available (and we must agree that in the majority of cases *x*-ray or surgical treatment gives equally good results) there must be at either end of the scale cases which are better treated by one or other form of therapy and others which may require a combination of the therapies. The difficulty is deciding which is best, and this can be done only by seeing the results of all forms of therapy.—I am, etc.,

London, E.1. CHARLES HEANLEY.

POINTS FROM LETTERS

Shunts in Essential Hypertension

Dr. RUDOLF LOVREC (Maribor, Yugoslavia) writes: I have read with interest Professor F. H. Smirk's paper on essential hypertension (May 7, p. 791) and should like to draw attention to the value of shunts from arterioles to veins. They cause more oxygen to be present in the veins, so that their intima receives the needed oxygen. All over the body there are such arteriovenous shunts—in the lungs, in the liver, in the kidneys, in the tips of the fingers and toes, and in the coccyx (glomerulus coccygeus). Vertebrates, as the dog and wolf, have in their tails such a glomerulus of much greater size. I think this phenomenon of arteriovenous shunts is of very great importance for the nourishment of the veins. When it is disturbed a condition of malnourishment of the intima of the veins arises. Such abnormal veins set free into the circulation a substance that causes the blood pressure to rise, in order that more oxygen may be obtained by the veins.

Syringes

Dr. H. MAITLAND MOIR (Currie, Midlothian) writes: I see Dr. T. G. Benjamin (July 30, p. 282) says that a stuck piston in a syringe results in a broken barrel. I had a stuck metal piston recently, and when all efforts had failed to free the piston I put it in my refrigerator for a few hours, after which the piston came away quite easily. It may not always work out that way, of course, but it is worth trying.

Obituary

SIR CRISP ENGLISH, K.C.M.G., F.R.C.S.

Sir Thomas Crisp English, who died on August 25 at the age of 71, was elected to the surgical staff of St. George's Hospital in 1904 on the untimely and unexpected death of Herbert Allingham.

The son of Dr. T. J. English, whose family was well known in the North Riding of Yorkshire, he was educated at Westminster School and St. George's Hospital, where he was a William Brown Scholar. He qualified in 1900. When he was surgical registrar in 1902 he won the Jacksonian Prize for his essay on head injuries, and for a time he toyed with the idea of specializing in this branch of surgery. But in 1901 Edward VII had been operated on for acute appendicitis by Sir Frederick Treves in dramatic circumstances on the eve of his coronation, and the public—lay and medical—became "appendix-minded" overnight as it were. English was one of the first to perceive the implications of this, and he set out deliberately to become pre-eminent in the surgery of this organ. How fully he achieved this ambition is common knowledge. His success was no fluke; it was thoroughly well deserved, for he was an extremely dexterous, careful, and conscientious surgeon. There must be thousands who can testify to his skill and kindness and his unremitting care. He also had the vision to foresee that asepsis was inevitably going to supersede antisepsis, and he adopted it whole-heartedly. He realized even in those days, however, that aseptic technique depended on a chain of essential precautions and that perfection could only be arrived at if each link in the chain was as strong as another. He took the most elaborate care to ensure this in his operating theatre, and his results showed how successful he was. As his experience grew, he began to discover for himself, what is now common knowledge, that appendicitis is a protean malady, that a disordered appendix can give rise to a number of symptoms which are not at first sight referable to the organ itself. But his immense success in private practice left him no time then to publish these observations, even if the urge to do so had been strong in him. The very greatness of his reputation for operations on the appendix had in one sense an unfortunate result. It tended to obscure the fact that he was also an extremely good general surgeon. To see him remove a breast for carcinoma, to take one instance, was an object lesson in how that operation should be done.



[*Russell, London*

In the 1914–18 war English was sent to the Middle East, and on his return he was made a C.M.G. in 1917 and advanced to K.C.M.G. in the following year for his distinguished services there. As consulting surgeon to the British Salonika force and the British Forces in Italy he was four times mentioned in dispatches, and was made a Knight-Commander of the Order of George I of Greece. He was also awarded Serbian and other decorations, and many other distinctions came his way. A Knight of Grace of the Order of St. John of Jerusalem, he was also a member

of the Chapter-General of the Order. Sir Crisp English was vice-president of the Section of Surgery when the B.M.A. met at Portsmouth in 1923. Later he represented his constituency at the Annual Representative Meetings in 1933–6, and again in 1938. He was a member of the Central Council from 1933–7, and at different times he gave valuable service to the Finance Committee, the Hospitals Committee, the Arrangements Committee, and the Parliamentary Elections Committee. He was also president of the Metropolitan Counties Branch of the B.M.A. in 1939–40. Apart from his long connexion with St. George's Hospital he served the Hospital of St. John and St. Elizabeth, Queen Charlotte's, and Beckenham Hospital, and he was also associated with the Royal National Orthopaedic Hospital and the Royal Hospital, Chelsea.

Between the wars his success was, if possible, greater than ever. Even so, he always found time to give to the interests of St. George's Hospital, for which he had a passionate and lifelong devotion. The suggestion that it should be moved from its present site was to him anathema. Whenever the idea was mooted, as it has often been during the last forty years, he fought it tooth and nail; and if he had lived to see Hyde Park Corner unadorned by the hospital, as one day soon it will be, he would have regarded the landscape with pain and grief and horror.

When he retired from the active staff of St. George's I wrote this of him—and I am going to repeat it now, because I can think of no better epitaph for him: "St. George stands for England and all that is English: English stood for St. George's and all that is St. George's."—I.B.

W. T. WARWICK, M.B., F.R.C.S.

Mr. William Turner Warwick, senior surgeon of the Middlesex Hospital, died there on August 21, at the age of 61.

He was born in 1888, educated at Doncaster Grammar School, and in 1906 entered Emmanuel College, Cambridge, where he studied mathematics and gained an honours degree. He was always deeply interested in education, and he left Cambridge to teach at Bedales School in 1909. While teaching there he worked for and won an entrance scholarship to the Middlesex Hospital in 1911. He took a remarkably short time to qualify M.R.C.S., L.R.C.P. in 1915, and after resident house appointments he joined the R.A.M.C. Three years later he returned in poor health, and although no one knew it he suffered considerably at times throughout his life. In 1918 he took the degrees of M.B., B.Ch., and, having already had time to become interested in rectal surgery, he gained the appointment of resident surgical officer at St. Mark's Hospital in 1919. There he obtained further practical experience which stood him in such good stead in future years. The next year, too, gave him valuable experience in general surgery at the Leeds General Infirmary as resident surgical officer. Working with Lord Moynihan and Mr. Littlewood he always regarded as of great importance, and he retained an interest in, and affection for, that hospital and his old associates.

Warwick had by this time become convinced that surgical treatment could only be based upon a sound knowledge of pathology, and in 1921 he returned to the Middlesex Hospital as surgical pathological registrar; by so doing he not only became a pathologist of unusual merit but inaugurated a close liaison between the laboratories and the surgical wards. In 1921 he married Joan, daughter of Theodore Harris, of Limpsfield, Surrey, whom he had first met during his teaching days at Bedales. He was appointed to the staff of the Middlesex Hospital in 1923 and became senior surgeon in 1945.

This brief recital can convey only a faint impression of the man he was. William Turner Warwick was a remarkable and complex personality. It was easy to underestimate him on early or superficial acquaintance, but the more one knew him the finer did he appear, and however well one did know him it did not seem possible to approach his depths. Among his outstanding characteristics were his kindness and understanding. No appeal for help would remain unanswered, and he had a way of identifying himself completely with the problems of others. He was always interested in the welfare of students and nurses, and gave them much practical assistance, although few realized this. He remained a true humanist, and intellectually he was a man of many and brilliant ideas. Few of these ideas he left in print. He became an authority on several subjects: on rectal surgery, on malignant disease in general, and particularly with regard to the correlation of the various methods of treatment. As one example his influence is most obvious in the pathology and treatment of varicose veins. In 1931 he published a short book, *The Rational Treatment of Varicose Veins and Varicocele*. Its importance was immediately appreciated and has been generously acknowledged by recent authors. In 1942 Warwick delivered a Hunterian oration on the growth of bone, and the views he put forward were original and stimulating though somewhat unorthodox.

On all subjects he carefully studied the work of others but never accepted unlikely statements or took facts for granted. His knowledge was vast, and there were few surgical problems that he had not considered. Warwick delighted in discussion, but would never advance his opinion without careful thought. His self-imposed standards were so high he could seldom believe a task was fully completed, and for this reason alone his writings were few in number. He was never facile of tongue, or vociferous concerning his ideas, and this may be regarded as unfortunate, but if he had been these things he would not have been the man so loved by all who knew him. As a surgeon he was very successful, and although there may have been better technicians few have obtained such consistently good results. This was often ascribed to "green fingers," but it was really a green and fertile mind which saw every case as a particular problem in itself, to be studied meticulously from all angles and to be followed with the greatest care in all its stages up to the final discharge. As a diagnostician he was superb, and he reached his conclusions by careful logical reasoning based on his wide and well-remembered experience. He demanded a "problem book" in which should be kept a record of all difficult cases with observations on where mistakes were made and how they might have been avoided. He preferred post-graduate teaching, and he would take immense pains in guiding his assistants. To work for him was always a privilege, and he was unfailingly tolerant and kind. If his ward rounds were not so popular with students as they might have been, it was because he did not care to talk over the conscious patient; on the other hand his operating sessions were a delight.

Towards his patients he was kindness itself and always found time to consider their feelings and their fears. His family, his wife, three sons, and a daughter, was the centre of his own life, and he never forgot that his patients also had their own homes and their relatives. He would never refuse a patient a chance, however remote, and would undertake long and fatiguing operations if there was the slightest hope of assisting the sufferer. Those who loved him in his completeness will always remember his acute sense of the ridiculous and his sudden "puckish" moods.

They will never forget those delightful shocks of surprise produced by his spontaneous shafts of penetrating and kindly wit. There are true rocks in this world, and he was one; so completely loyal and so entirely dependable. "T.W." was a great and an unusual man, and we are all much the poorer for his loss.

MAURICE NEWFIELD, M.R.C.S., L.M.S.S.A.

Dr. Maurice Newfield, who died on August 13 at his home in Great Bardfield, Essex, at the age of 55, was well known as a medical journalist. He was educated at the City of London School, and soon after leaving there he joined the Kensington Rifles, being subsequently commissioned and sent to Mesopotamia with the 3rd Battalion of the Bedfordshire Regiment. He was invalided to India, where he transferred to the Indian Army. He was then in charge of a signalling school until his return to England in 1919. As soon as he was demobilized he went abroad again to study at the Sorbonne and at Freiburg before becoming a student at Charing Cross Hospital, where he qualified in 1922 after a much shorter course than was usual even in those days. He held a number of resident posts at Charing Cross Hospital, and he was also for a time clinical assistant at the Hospital for Sick Children, Great Ormond Street. For a while he was in practice in Bloomsbury. Then in 1928 he was appointed a sub-editor on this *Journal*. He had already contributed an amusing brief medical section to the *Week-end Book* in 1924. It was while he was on the staff of the *Journal*, however, that he wrote *Parenthood: Design or Accident*, which is still popular and has sold over 200,000 copies. The pseudonym he used at that time was "Michael Fielding." This book had a preface by H. G. Wells, whom Maurice Newfield knew well. He spent a winter in Portugal with Wells, acting as his private physician. Another pseudonym that he used was "Richard Harley," but *Womanhood and Marriage* which he published over that name never had the same success as the "Michael Fielding" book.

Unhappily, in 1930 Newfield's health broke down, but he continued to do a great deal of work for the *Journal* even while he was a patient at the Mundesley Sanatorium. After this first breakdown he worked as a freelance from his own home until 1936, when he joined the staff of Butterworth's and assisted Sir Humphry Rolleston in editing the *British Encyclopaedia of Medical Practice*. In 1938 he went to the firm of Hamish Hamilton and set up the medical department there, and this he built up until it was recently taken over by another publisher.

During all his illnesses Maurice Newfield never stopped working. Even at Midhurst, where he underwent a three-stage thoracoplasty, he continued his many activities. There was no branch of medicine in which he was not interested and informed. In recent years he edited the *Eugenics Review*, and he was also keenly interested in the history of medicine. Maurice Newfield was a man of talent and personality and despite his poor health did valuable work as an author and journalist. His death will be deeply regretted by a wide circle of friends within and without the profession. He leaves a widow and one son, who is studying medicine.

Lord Horder writes: The death of Maurice Newfield at such an early age deprives medicine of one of its ablest writers, and many friends and colleagues of an example of courage and pertinacity in the face of ill-health which can hardly find an equal. This note of bravery is the dominant feature in Newfield's life. For twenty years the handicap of pulmonary tuberculosis pursued him, but even during the periods of active disease, and whilst in the sanatorium, his contributions to medical literature were never suspended for more than a few weeks. Newfield's published papers and books make a formidable list, but perhaps his best work was done as editor of the *Eugenics Review*. His monthly notes were boldly critical, but evinced very wide reading and a grasp of Galtonian principles unequalled by any of his contemporary writers. Newfield was a small man physically; was markedly unobtrusive; spoke with a low, soft voice, and to the general observer was not impressive. A quiet talk with him, however, discovered a mind out of all proportion to his physique, cultured and urbane, and leaving a lasting memory upon all who knew him. Once past this point there emerged a very lovable and very loyal friend.

Mr. Cedric Lane-Roberts writes: Of Maurice Newfield's indomitable courage and personal charm it is only possible to speak in eulogistic terms. Others will have told of his literary ability and his consummate editing capacity. Here nothing slipshod was ever countenanced, and with his easy and complete tact the erring sentence would be altered and moulded to his satisfaction and its final and obvious suitability and correctness. To see Maurice Newfield in the surroundings of his quite perfect family life was indeed a privilege. It was a genuine pleasure to hand him a book, asking for his opinion, and then to watch him while he deliberated before giving his verdict, fondling it all the while with the gentle hands of the true bibliophile. I used often to see him, his eyes burning with unquenchable vitality, sitting up in bed by the open window, by his side the telephone through which for months and months he had conducted his editing, his favourite books all around, ever an early copy of *Don Quixote* to hand, and nearest to him his Bible, his constant companion, which seemed to live when in his hands. He was widely read, and remembered what he had read—only one instance of his excellent memory. Anything selfish in word and deed were completely foreign to his nature, and to those who knew him quite inconceivable. This all made an unforgettable picture of a unique and beautiful character, fostered in family surroundings that so much helped to round off the whole. His host of friends will sympathize deeply with his widow and son in their tragic loss.

Dr. LEONARD CROSSLEY died in a nursing-home at Bradford-on-Avon on July 20, at the age of 80. After leaving Repton School he was at first attracted by industrial chemistry. Later he turned to medicine, and went to Edinburgh, graduating M.B., Ch.B. in 1900, and proceeding M.D. in 1903. From his boyhood at Arnside he maintained a lifelong interest in yachting. Always fond of music, he made this his other relaxation, and at Edinburgh, with a few other enthusiasts, he founded the Edinburgh University Musical Society. After qualifying, he took up tuberculosis work, and an appointment as the first medical superintendent of Benenden Sanatorium was followed by that of medical superintendent to Winsley Sanatorium, near Bath. Then he obtained the post of tuberculosis officer for Wiltshire, which he held until his retirement. In later years this appointment included heavy responsibilities in connexion with the county's orthopaedic scheme. Crossley stood out among his contemporaries, and subsequently he brought a wide culture and experience of life, with great clinical ability, to work which at first did not attract the best of the profession either in its conditions or its rewards. Practical common sense of a high order animated all he did, and his humorous neglect of the more useless and baffling departmental instructions is refreshing to recall. His official position was never as important as the fact that he was a friend of every doctor in the county. During his later working years he was handicapped by a most persistent and troublesome osteoarthritis of the hip, but never allowed the discomfort and limitations of this disability to change his sociable and friendly outlook on life. Crossley was chairman of the Trowbridge Division of the B.M.A. in 1927–8. He

resigned his appointment on reaching the age of 65, and enjoyed a peaceful retirement with his wife, taking an active interest in his garden and in the activities of his friends at Winsley. He was chairman of the Nursing Committee of the Bath and Wessex Children's Orthopaedic Hospital, and maintained his interest in the Trowbridge Voluntary Orthopaedic Clinic, being responsible for its financial administration. Leonard Crossley was a colleague truly loved by all, and he will be remembered by all who knew him.—J. B. L.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

The numbers of notifications in the week ended August 20 were poliomyelitis 273 (236), polio-encephalitis 22 (18). Figures for the previous week are shown in parentheses.

Multiple cases (poliomyelitis and polio-encephalitis together) were reported from the following counties: London 35 (30), Bedfordshire 4 (2), Berkshire 11 (7), Buckingham 2 (2), Chester 6 (4), Cornwall 8 (6), Derby 9 (1), Devon 9 (9), Durham 2 (3), Essex 10 (19), Gloucester 5 (7), Hereford 2 (4), Hertford 3 (1), *Kent 6 (6), Lancaster 29 (23), Leicester 7 (4), Lincolnshire,* Lindsey 3 (1), Middlesex 13 (10), Norfolk 3 (3), Northants 6 (2), Northumberland 7 (4), Nottingham 10 (4), Oxford 2 (1), Somerset 5 (4), Southampton 11 (13), Stafford 6 (4), Surrey 7 (7), Sussex East 2 (5), Sussex West 3 (4), Warwick 4 (10), Wiltshire 4 (2), Yorks West Riding 50 (34), Flint 2 (0), Monmouth 2 (4).

Discussion of Table

In *England and Wales* there were increases in the notifications of whooping-cough 172, acute poliomyelitis 72, and dysentery 17. There were decreases in the incidence of scarlet fever 165, measles 457, and diphtheria 11.

The largest changes in the notifications of whooping-cough were an increase in Staffordshire 46 and a decrease in Warwickshire 33. The largest decrease in the notifications of measles was Warwickshire 160; the only large exception to the decreasing incidence was a rise of 54 in Glamorganshire.

The chief features of the returns for diphtheria were an increase in London 7 and decreases in Yorkshire West Riding 8 and Lancashire 5. No large variations were reported in the local trends of scarlet fever.

Of the 11 cases of typhoid fever 5 were notified in Lancashire, Bootle C.B. The chief centre of paratyphoid fever was Liverpool C.B. with 8 notifications. An outbreak of dysentery affecting 16 persons was notified in Durham, Hetton U.D. The only other large return of dysentery was Lancashire 12 (Liverpool C.B. 6).

Outbreaks of food poisoning occurred in Staffordshire, Wolverhampton C.B. 132, and Lancashire 206 (Warrington C.B. 144, Clitheroe M.B. 49).

In *Scotland* there were decreases in the notifications of dysentery 27, scarlet fever 24, measles 24, whooping-cough 14, and diphtheria 11. There were increases in the incidence of acute primary pneumonia 24 and acute poliomyelitis 9. The chief centres of poliomyelitis were Glasgow 7 and Fife County 5. The rise in the incidence of pneumonia was contributed by the western area.

In *Eire* notifications of measles were 48 fewer than in the preceding week. The 13 cases of paratyphoid were scattered throughout the country.

In *Northern Ireland* decreases were recorded in the notifications of measles 23 and whooping-cough 17, while a rise of 20 was reported for scarlet fever. The increased incidence of scarlet fever was due to the experience of Belfast C.B., where the cases notified rose from 15 to 36.

Week Ending August 20

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 678, whooping-cough 1,637, diphtheria 59, measles 2,120, acute pneumonia 245, cerebrospinal fever 22, acute poliomyelitis 273, acute polio-encephalitis 22, dysentery 35, paratyphoid fever 30, typhoid fever 6.

Correction.—In the summary of Infectious Diseases and Vital Statistics No. 31, August 27, p. 491, the main column headings should read 1949 and 1948. They were misprinted as 1948 and 1947.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended August 13. [No. 32.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) Scotland. (d) Eire. (e) Northern Ireland. † Deaths recorded under each infectious disease, in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	26	6	13	—	—	38	4	23	1	1
Deaths	—	—	—			—	—	—		
Diphtheria	78	14	15	1	3	106	14	31	7	4
Deaths	2	—	—	—	—	—	—	—	—	—
Dysentery	62	3	54	—	1	107	15	50	—	1
Deaths				—	—					—
Encephalitis lethargica, acute	—	—	2	—	—	—	—	—	1	—
Deaths		—					—			
Erysipelas			20	5	2			28	9	—
Deaths		—					—		1	
Infective enteritis or diarrhoea under 2 years				85					28	
Deaths	30	2	1	3	1	33	2	9		2
Measles*	3,226	223	47	73	43	5,897	287	47	40	34
Deaths†			—	1	—			—		—
Ophthalmia neonatorum	53	6	8	—	2	75	6	16	—	—
Deaths										
Paratyphoid fever	26	3	1 (B)	13 (B)	—	19	1	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	227	10	1	—	3	282	13	4	2	4
Deaths (from influenza)‡	2	—	—	—	—	—	—	—		—
Pneumonia, primary	101	14	127	22	4	114	17	101	19	7
Deaths				4						
Polio-encephalitis, acute	18	—				2	—			
Deaths										
Poliomyelitis, acute	236	30	19	1	2	37	2	1	1	—
Deaths§	15	2				2	—			
Puerperal fever		—	6				1	12		—
Deaths										
Puerperal pyrexia	98	8	5	—	4	88	7	9	—	—
Deaths		—					1			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	689	39	110	53	48	774	33	122	45	15
Deaths†			—	—	—			—		—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—					—
Typhoid fever	11	2	3	7	1	8	1	2	—	—
Deaths	—	—	—	—	—	1	—	—		—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—					—
Whooping-cough*	1,738	82	29	75	6	3,455	228	23	55	14
Deaths	4	—	1	1	—	9	—	—		—
Deaths (0–1 year)	225	29	30	12	9	274	24	22		17
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,800	559	503	145	57	3,710	547	494		102
Annual death rate (per 1,000 persons living)			10·1	9·0				10·0		
Live births	7,707	1206	876	411	216	8,027	1303	947		259
Annual rate per 1,000 persons living			17·6	25·5				19·1		
Stillbirths	192	24	30			195	25	30		
Rate per 1,000 total births (including stillborn)			33					31		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

Medical News

New Minister of Health in Northern Ireland

Dame Dehra Parker, D.B.E., M.P., has been appointed Northern Ireland Minister of Health and Local Government in succession to the late Mr. William Grant, and she thus becomes the first woman Cabinet Minister in Northern Ireland.

Hebrew Medical Journal

The *Hebrew Medical Journal* enters its twenty-second year with the publication of Vol. 1 for 1949. This bilingual publication, edited by Dr. Moses Einhorn, comes from New York but maintains a close connexion with Israel in its endeavour to promote the development of Hebrew medical literature and terminology. The current issue includes a symposium on present-day public health problems in Israel (printed in both Hebrew and English), and contributions on old Hebrew manuscripts, the Bible and Medicine, and Hebrew medical terminology (printed in Hebrew only).

Study of Child Care

British advances in the field of child care are being studied by 45 doctors, nurses, and social workers from sixteen European and Middle East countries during a 15-weeks course in social paediatrics which has been financed by the United Nations International Children's Emergency Fund and organized by the Ministry of Health and the British Council. After a week in London for introductory lectures, the students are now working in small groups in centres at Birmingham, Bristol, Liverpool, Manchester, Newcastle, Edinburgh, and Glasgow. They will later return to London for final discussions and the study of various special services.

Register of Speech Therapists

The *Register of Speech Therapists* for 1949 has now been published, and medical practitioners can obtain a copy free on application to the registrar of the Board of Registration of Medical Auxiliaries, B.M.A. House, Tavistock Square, London, W.C.1.

Psychiatrist to Lecture in Australia

Professor Alexander Kennedy, Professor of Psychological Medicine in the University of Durham, has been invited by the Government of Victoria to advise it on mental health and psychiatric organization. The presentation to the Victorian Parliament of a new bill dealing with these subjects is being delayed until after his visit. Professor Kennedy will tour other States in Australia to lecture on mental health, under arrangements made by the British Council and the Australian Association of Psychiatrists.

Working Party to Investigate Fluorides

The Ministry of Education has announced that a Working Party has been set up to direct and organize an investigation on the prophylactic effect of the local application of a solution of fluorides to school-children's teeth. The members are as follows: R. Weaver, M.D., F.D.S., Ministry of Education (chairman); E. R. Bransby, Ph.D., Ministry of Health; Miss J. R. Forrest, L.D.S., Ministry of Health; W. G. Senior, O.B.E., Ph.D., F.D.S., Ministry of Health; G. J. Parfitt, M.R.C.S., L.R.C.P., L.D.S., Department of Preventive Dentistry, Eastman Clinic; B. R. Townend, F.D.S., West Riding Local Education Authority; W. Ritchie Young, F.D.S., London County Council; A. T. Wynne, M.D., Ch.B., B.D.S., L.D.S., Ministry of Education (secretary).

Wills

Sir Frederic Jeune Willans, K.C.V.O., Surgeon Apothecary to the King's Household at Sandringham, left £7,115. Dr. George Sandison Brock, of Jersey, left £17,712; Dr. Thomas Smith Duncan, of Nottingham, £19,370; and Dr. George Herbert Simpson, of Brighton, £16,022.

COMING EVENTS

Foot Inspection

The Foot Health Educational Bureau will hold a convention at the Caxton Hall, Westminster, on September 30, from 2.15–5 p.m., on "Foot Inspection in Childhood and Adolescence." The speakers include Dr. W. G. Booth and Mr. T. T. Stamm. Admission is free on presentation of a ticket, which may be obtained not later than September 15 from the Bureau at 121, Ebury Street, London, S.W.1.

American Course in Gastro-intestinal Surgery

The American National Gastroenterological Association announces that a course in gastro-intestinal surgery will be given at the Boston City Hospital, Boston, Mass., on October 27–29. It will be under the direction of Dr. Owen H. Wangensteen, Professor of Surgery, University of Minnesota Medical School, assisted by Lord Webb-Johnson. Enrolment is limited to 250. The fee will be $35. Information may be obtained from the National Gastroenterological Association, Dept. GSJ, 1819, Broadway, New York, 23, N.Y., U.S.A.

SOCIETIES AND LECTURES

Tuesday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At Anatomy Lecture Theatre, Edinburgh University, September 6, 4.30 p.m., *"Synovial Membrane in Health and Disease,"* by Professor D. V. Davies.

APPOINTMENTS

CARLISLE, W. H., M.B., M.Sc., D.R.C.O.G., F.R.C.S.Ed., Consulting Surgeon, North Cambridgeshire Hospital, Wisbech, Cambs.

TAYLOR, D. WILSON, M.B., Ch.B., Consulting Ophthalmologist, North Cambridgeshire Hospital and Clarkson Hospital, Wisbech, Cambs.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Jones.—On August 14, 1949, at St. Mary Islington Hospital, London, to Erica (née Axelrad) and Dr. Alun Howard Jones, a son.

Nabarro.—On August 26, 1949, at University College Hospital, to Joan (née Cockrell), wife of J. D. N. Nabarro, M.D., M.R.C.P., a son—David.

Petit.—On August 19, 1949, at the Lady Chancellor Nursing Home, Salisbury, Southern Rhodesia, to Joan (née Lamplugh), M.B., Ch.B., D.T.M.&H., wife of Joseph Petit, a daughter.

Pridie.—On August 24, 1949, to Joanna (née Egerton) and Kenneth Pridie, F.R.C.S., of 58, St. John's Road, Bristol, 8, a son—William Ralcigh.

MARRIAGE

Sloan—Logan.—On August 27, 1949, at Glasgow, Flying-Officer J. Burnley Sloan to Mairi Buchanan Logan, A.M.I.A.

DEATHS

Belbin.—On August 22, 1949, at Hove Hospital, Harry Ashley Belbin, L.S.A., late of Cradley Heath and Rottingdean.

Blaber.—On August 21, 1949, at Farthings, Borough Marsh, Twyford, Berks, Percy Leonard Blaber, M.R.C.S., L.R.C.P., of Boat House, Marlow, Bucks, aged 77.

Cairns.—On August 23, 1949, at 36, Bankfield Lane, Southport, Lawson Miller Cairns, M.D.

Duffy.—On August 23, 1949, at 12, Glodwick, Oldham, James Joseph Duffy, M.B., B.Ch.

English.—On August 25, 1949, at Chilton Hall, Sudbury, Suffolk, Sir Thomas Crisp English, K.C.M.G., F.R.C.S.

Ferguson.—On August 27, 1949, at St. Helier Hospital, James Ferguson, C.B.E., M.B., B.Ch., of Cranleigh, Ashley Drive, Walton-on-Thames.

Gibson.—On August 19, 1949, at Lancaster, James Andrew Gibson, M.D.

Hopkins.—On August 21, 1949, at Croydon, Walter Kempson Hopkins, O.B.E., M.R.C.S., L.R.C.P., Surgeon-Commander R.N., Ret., aged 79.

MacRobert.—On August 24, 1949, at Edinburgh, Peter Carmichael MacRobert, M.B., C.M., aged 79.

Mortlock-Brown.—On August 20, 1949, Constance Anderson Mortlock-Brown, L.M.S.S.A., of Boode, Braunton, Devon.

Ross.—On August 25, 1949, at Ardrannich, Inveraray, Argyll, Donald Ross, M.B.E., T.D., M.B., Ch.B.

Shave.—On August 22, 1949, Edward Simpson Shave, M.R.C.S., L.R.C.P., F.R.C.V.S., of Bexhill-on-Sea, Sussex, aged 93.

Welply.—On August 24, 1949, at Rosemont, Thurgarton, Nottingham, George Chinnery Welply, M.B., B.Ch., late of Forest Gate, London.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY SEPTEMBER 3 1949

Correspondence

Freedom of the Citizen

SIR,—There is a more disturbing aspect about the method of deciding which Territorial officers should be embodied that your correspondents, "Lieut.-Col., R.A.M.C." (*Supplement*, July 16, p. 51) and "Not to be Embodied" (August 20, p. 98), do not mention. Perhaps they are not aware of it. The Ministry of Health is asking local executive councils to make this decision. These councils may, but are not forced to, consult the local medical committee. Our professional degradation is such that, after being trusted in two wars to manage our own recruiting and, I think, having justified that trust, the still existing medical machinery is being by-passed. In fairness to the public, the profession, and to individuals local medical committees must not operate any procedure that has been initiated by the Ministry of Health without negotiation with the profession.

It is possible that in the case of your two correspondents their local medical committees by their veto are simply registering their dissatisfaction with what is happening. That is an understandable though, I believe, a mistaken action.—I am, etc.,

Wolverhampton. ROBERT S. V. MARSHALL.

*** The Secretary of the Association writes: The Ministry has been informed that it would have been appropriate for prior consultation to have taken place with the Association before this circular was issued. We are awaiting the Ministry's reply.

A Medical Trade Union

SIR,—Dr. B. S. Alderson (*Supplement*, August 20, p. 98) urges on behalf of the Consett Division that "the profession should make a very earnest attempt to co-ordinate the action of all doctors." The Division suggests the introduction of a fighting fund; subscribers to forfeit their subscriptions if they fail to adhere to the policy adopted by majority vote. While I agree with the necessity for co-ordinated action by the profession, I do not believe that the solution is by a fighting fund. Defence trusts, medical guilds, fighting funds—call them what you will—are powerless to settle the problem of achieving united action unless they have statutory authority and legal power behind them.

I submit, Sir, that the solution is the immediate formation of a trade union. It is essential that the members of the profession be educated to the advantages of their joining a trade union recognized by, and affiliated to, the Trades Union Congress. In a letter from Dr. J. A. Gorsky (*Supplement*, April 16, p. 235) the whole position of trade unionism as it concerns the medical profession was lucidly explained. This letter appears to have aroused little or no comment. I suggest that it merits the close study of the Consett Division, and of all Divisions concerned with this vital problem. Dr. Gorsky gives the aims of trade unionism as defined by the Webbs: "A trade union as we understand the term is a continuous association of wage-earners for the purpose of maintaining or improving the conditions of their employment. The purpose of the trade union is the protection of the standard of life—that is to say, the organized resistance to any innovation likely to tend to the degradation of the wage-earners." Dr. Gorsky goes on to say: "Trade unionism should encourage a community of interest between employer and employee, even if the employer is the State and the employee the doctor. Unless we possess legal powers analogous to those of a trade union, both as regards withdrawal of service and the economic support which would be essential if that service is withdrawn, and we are afforded the full protection of the Trades Disputes Act, 1906, we are rendered materially impotent in our negotiations with the Government."

This is the answer to the problem posed by the Consett Division. The sooner we rid ourselves of the idea that trade unions are organized primarily for the benefit of one type of worker, or one particular political party, the better. It is time that we acknowledged that we, too, are workers, or wage-earners, in the full sense of the word. Let us organize ourselves accordingly.—I am, etc.,

London, W.6. B. ROSEFIELD.

Fifty-five Committees

SIR,—I have just been reading the *Supplement* of August 20 in which is given the lay-out of fifty-five committees of the B.M.A. which will take a hand in the management of the nation's health. It is incredible that any of us ever lived for more than a few weeks up to July 5, 1948, and more incredible still that the span of life lengthened as the years swept by. I feel much alarmed about what will happen to us now that the B.M.A. has become a department of State Health and formed its fifty-five committees. Fifty-five committees determined to do their stuff should produce something, if only they produce chaos and make the profession's life a misery—they will certainly not produce health.

I was once told of a place in the Cascara Mountains where the inhabitants were so healthy that a centenarian had to be killed in order to start a cemetery: history didn't say how many if any committees were formed to put over the cemetery idea or to kill the old man. Pity!

With the already established State committees plus fifty-five B.M.A. committees I feel that we should complete the plan and form a fifty-sixth to arrange for the abolition of cemeteries and a fifty-seventh to co-ordinate the workings of the fifty-six.

The Englishman is notorious or famous for his sense of humour and being able to laugh at himself; the medical profession—particularly the naturally established specialist and consultant—now has the greatest opportunity for proving this mooted characteristic to be a fact. I regret to say that I have never seen anything funny in what has happened and is happening to both doctor and patient, but I fell off my chair with laughter over the Parliamentary Elections Committee of the B.M.A.—I am, etc.,

St. Osyth. R. E. CLARKE.

Qualifications of Specialists

SIR,—Allow me to endorse the views expressed by your correspondent "Sic Vos Non Vobis" (*Supplement*, August 20, p. 96). At the same time I think there should be an intermediate grade—that of junior consultant—for those who, having spent many years in a specialty, have the experience but who may not possess the prescribed qualifications or senior appointment. We are all familiar with people who only "shine" at examinations!—I am, etc.,

Leeds. D. A. HERD.

Grading of Hospital Staff

SIR,—The grading of specialists has produced an amount of indignation and resentment, and this i applied should be enough to sweep away the wh which is professionally impossible and often insu

the specialists, like wounded Caesar, quite ready to defend themselves against Cassius and his like, find their arm nerveless when they discern that it is Brutus who wields the fatal dagger. However, a lot of water has flowed down the Tiber since Caesar's time and we should not be so readily overwhelmed. There will always be a Brutus, and some of us consider that he has been rather overactive in our affairs of late.

The remedy is simple : "For Brutus is an honourable man." *All that is needed is that we should regard our fellow men* as fully adult. Fortunately it is not necessary, or even desirable, to believe this to be true ; *it is sufficient to accept it as a good* working rule. We do not need nursery governesses and schoolmasters, with their itch to take our affairs out of our poor fumbling hands, and their stern judgments, punishments, and awards from which there is no appeal.

We do need a medical Bill of Rights so that no man shall sit in judgment on his colleagues who have committed no crime without their individual desire and consent. We also have a duty to see that in certification and reports there is appeal to a final authority whose income and tenure are not under the control of either party to the dispute.—I am, etc.,

Stone, Staffordshire. B. R. SWORN.

Discount on Drugs

SIR,—Prior to the introduction of the National Health Service the wholesale drug houses gave the dispensing doctor a discount of 10% but gave the chemist 30%. The explanation given for this favoured treatment was that the chemist had to make his living out of his sales. The chemist now not only gets a dispensing fee for each item but also is able to buy drugs at a lower price than the value of the prescription as costed by the pricing bureau and hence now makes two profits.

The Minister has set his face against providing private patients with free medicines, and if doctors are to retain any private patients during this time of increasing economic stress it can only be by keeping down the private fees. This in turn can only be achieved if the dispensing doctor can buy drugs at a cheaper rate than exists at the moment.

There can now be no justification for not extending the 30% discount to doctors, and I hope the contents of this letter will be brought before the wholesale drug trade for their immediate consideration.—I am, etc.,

Upminster, Essex. E. ANTHONY.

*** The Secretary of the Association writes : The General Medical Services Committee is discussing this point with the trade.

The Maternity Service

SIR,—I suppose everyone agrees with the object of the circular recently distributed by the Central Health Services Council (*Supplement*, August 6, p. 74). It is obvious that the quality and quantity of midwives will fall if in future the midwife is seldom more than a doctor's assistant. Something probably will have to be done to preserve the status and numbers of midwives, but in the meantime one can hardly defy the facts by sending round circulars stressing the Minister's hopes and intentions in this direction.

Actually, when the Minister sponsored the N.H.S. Act he hoped and intended that it would make a doctor available to every man, woman, and child in consideration of compulsory contributions. Full maternity services were included. In fact every service rendered by the medical practitioner was to become a statutory right of every citizen, and, moreover, the patient retained the right to decide his or her own requirements. In the past doctors have generally been ready to attend women in labour, and many of them believed that their technical assistance was an advantage to the patient. Most intelligent women believe this, too, and usually derive much comfort and confidence from the presence of a doctor during labour and the early days of the puerperium. Their example, especially when seen in high places, will probably have greater influence than administrative precepts. The fact that many women did not appreciate or could not afford medical services in the past is no reason why they should not enjoy them in future.

No doubt the way everyone has flocked to use the health services has presented the Minister with some difficult problems, but they cannot be solved by trying to convince people that a service that doctors provided for anything from five to fifty guineas is now not even worth having as a gift.

When a patient books a doctor for her confinement she is often far more anxious to secure his services in labour than anything else. Indeed, many women still do not appreciate the relative value of antenatal care at all and would not bother to consult a doctor for the two antenatal and one post-natal services specified by the Minister. While patients have free choice of doctor they will encourage the doctor who is prepared to be there when he is wanted, irrespective of anybody's views on whether it is technically necessary. I must admit I never have attended the confinement of a Cabinet Minister's wife, but I know that those for whom I am responsible appreciate my insistence upon the management of my own cases. I and my patients at any rate seem to have been brought up to believe that it is part of my job, and, whether I am paid for it or not, I shall go on doing it.—I am, etc.,

Eye, Suffolk. J. SHACKLETON BAILEY.

*** The Secretary of the Association writes: The General Medical Services Committee has dissociated itself from the contents of this circular and has asked the Ministry of Health to receive a deputation on the subject.

His Own Doctor

SIR,—I should like to support Dr. A. D. Belilios's letter (*Supplement*, July 30, p. 68) in which he claims that doctors should have the right to prescribe for themselves. If any *notice is taken of the Minister's ruling it will be particularly* unfair to the doctor practising in an isolated village, for it will mean that he alone of all the village is denied the benefits of the Health Service, while still being obliged to pay for it in stamps and taxation. It will also be unfair to the man who knows that his own treatment is the best available in the district (and in spite of this Government's exaltation of mediocrity for its own sake there must usually be a best). Is he to be compelled to accept second best or pay for his medicines ? This seems very far removed from the Minister's rosy promises.

Even apart from these two special cases it will be unfair to all general practitioners. For who will be so inconsiderate as to trouble a colleague with a burden he is well able to bear himself ? Even if he is too ill to treat himself the G.P. will rely on his locum or partner just as all his other patients will.

If we are to be denied the benefits of the N.H.S. we must demand to be excused any financial contribution towards it. The B.M.A. should also take legal advice as to whether the Minister is empowered to deprive any citizen of his right of medical attention. Failing this we must resort to trickery—reluctantly, but consoling our consciences with the thought that our line of action is at least less underhanded than the Minister's attempt to get something for nothing. Let us make arrangements to go on a colleague's list, but to act as his deputy for purposes of treatment. Then instead of signing our prescriptions "John Doe," we sign "John Doe, p.p. Richard *Roe*," and get our medicine just the same. In conclusion I should like to ask the Minister whether he believes that we as a profession are dishonest, or only as hypochondriacal as he is trying to make the rest of the populace.—I am, etc.,

Silver End, Essex. J. W. NICHOLAS.

Domiciliary Midwifery Service

SIR,—In his letter concerning the domiciliary midwifery service (*Supplement*, August 20, p. 98) Dr. Clement W. Walker has again drawn attention to the fact that a large section of the Royal College of Obstetricians and Gynaecologists undoubtedly do consider that a general practitioner should not be permitted to practise midwifery.

It is pertinent to inquire, in view of this opinion, why it is that in these days of an ever-expanding syllabus in medical educa-

TABLE I.—*Classification of Cases by Causal Organism and Severity in Relation to Mode of Treatment*

	Penicillin Therapy		Sulphamezathine Therapy (Oral)			Sulphamerazine Therapy (Oral)	Total
	Oral Administration 200,000 Units × 4	One Intramuscular Administration 200,000 Units Followed by 3 Oral Administrations	0·5 g. Initially 0·25 g. 6-hourly	0·25 g. Initially 0·125 g. 4-hourly With Penicillin Locally	0·5 g. Initially 0·25 g. 6-hourly With Penicillin Locally	0·5 g. Initially 0·25 g. 8-hourly	
Gonococcus							
Mild							
Moderate		—	4	—	—	2	4
Severe		2	1	1	1	—	5
		2	5	1	1	2	5
							14
Staphylococcus aureus							
Mild							
Moderate		1	—	2		3	6
Severe		2	2	3		3	10
		1	1	2		2	6
		4 (*a*)	3	7 (*b*)		8 (*c*)	22 (*d*)
Staphylococcus albus							
Mild							
Moderate	1	3	3	2		1	10
Severe	1	3	4	4	—	2	17
	—	2	2	1	3	1	6
	2 (*a*)	8 (*d*)	9 (*b*)	7 (*c*)	3	4	33 (*g*)
Staphylococcus albus with diphtheroids							
Mild							
Moderate	—	—	2				2
Severe			1				1
			3				3
Diphtheroids							
Mild							
Moderate	—	1	1	—	—	—	2
Severe	1	—	4				7
	1 (*a*)	1 (*a*)	5 (*c*)	2 (*a*)			9 (*f*)
Other bacilli							
Mild							
Moderate	—	1	—	1	—	—	2
Severe	1	1	2	1	1	—	6
	1	1	1	2	—	—	4
		3 (*a*)	3 (*a*)	4 (*b*)	1		12 (*d*)
Streptococcus viridans							
Mild							
Moderate			2		—		2
Severe			1		1		2
			3		1 (*a*)		4 (*a*)
Other coccal organisms							
Mild							
Moderate		1		1			2
Severe		2		1	—		3
		3		2			5
Negative without inclusion bodies							
Mild			8		2	2	12
Moderate	—	—	6	—	1	6	18
Severe	2	2	1	3	3	—	3
	2	2	15	3	3	8	31
Negative with inclusion bodies							
Mild			5		1	1	6
Moderate	—	—	4	—	—	1	10
Severe	1	1	2	3	1	—	2
	1	1	11	3	1	2	18
Total	4	26	57	30	10	24	151

(*a*) Inclusion bodies present in 1 case. (*c*) Inclusion bodies present in 3 cases. (*f*) Inclusion bodies present in 6 cases.
(*b*) " " " " 2 cases. (*d*) " " " " 4 " (*g*) " " " " 10 "

that by increasing the dose a rapid cure is obtained in a greater percentage of cases, but that the incidence of unsatisfactory response is uninfluenced.

3. *Combined Use of Sulphamezathine Orally and Penicillin Locally (40 Cases).*—A series of 30 cases were treated with sulphamezathine orally in the smaller dose combined with penicillin drops 10,000 units per ml., initially instilled at one-minute intervals for 30 minutes. A further 10 cases were treated with the larger dose of sulphamezathine and the same mode of penicillin locally. As can be seen from Table III, in both these small series the percentage of cases with rapid response was high (29 out of 40). For this series of 40 cases as a whole, the proportion of unsatisfactory responses is, however, once more not diminished. This is clearly so for the 30 cases treated with the smaller dose of sulphamezathine, whilst the 10 cases treated with the larger dose of sulphamezathine in combination with penicillin are too few to allow any definite conclusions to be drawn.

4. *Sulphamerazine Orally in an Initial Dose of 0.5 g. and a Maintenance Dose of 0.25 g. at Eight-hourly Intervals (24 Cases).*—A series of 24 cases so treated, no fewer than 21 responded within one to three days, and the remaining three all cleared up within four to eight days, so that there was no case with an unsatisfactory response or relapse. Sulphamerazine had the further advantage that in none of these 24 cases was there any suggestion of intolerance, and the occasional cyanosis observed with sulphamezathine was entirely lacking.

TABLE II.—*...ive Results with Two Different Dosages of Sulphamezathine*

Dose		Total Cases	Clinical Cure in		Unsatisfactory Response or Relapse
Initial	Maintenance		1-3 Days	4-8 Days	
0·25 g.	0·125 g. 4-hourly	84	39·3%	44·0%	16·7%
0·5 g.	0·25 g. 6-hourly	57	68·4%	14·0%	17·6%

5. *The Series as a Whole.*—Table IV brings out the salient features observed with the different modes of treatment in this series of 151 cases compared with the previously recorded result. If the small series of 24 cases treated by sulphamerazine is excluded it would seem that the methods recorded in the present study have failed to reduce the incidence of unsatisfactory responses and relapses. It is, however, clear that two conclusions can be confidently drawn regarding the use of penicillin and the sulphonamides. First, the intensive use of penicillin locally at one-minute intervals is still the best mode of applying

TABLE III.—*Results Obtained by the Combined Use of Sulphamezathine Orally and Penicillin Locally*

Mode of Treatment		Total No. of Cases	Cases Showing Clinical Cure in		Cases Showing Unsatisfactory Response
			1-3 Days	4-8 Days	
Sulphamezathine orally	Penicillin drops 10,000 u/ml. Initially at 1-minute intervals for 30 minutes				
(*a*) 0·25 g. *initial dose*; 0·12 g. maintenance dose, 4-hourly		30	20	1	9
(*b*) 0·5 g. initial dose; 0·25 g. maintenance dose, 6-hourly	" "	10	9	1	0

TABLE IV.—*Salient Features in the Present Series Set Against Main Results Previously Recorded*

	Total No. of Cases	Percentage of Cases Showing	
		Clinical Cure in 1–3 Days	Poor Responses or Relapses
Previous series:			
Sulphanilamide, sulphapyridine, sulphathiazole, sulphadiazine, or sulphamerazine orally (2·5 g. initially and 0·125 g. 4-hourly)	333	32·4	16·3
Penicillin locally	104	74·0	26·0
Penicillin intramuscularly and orally	39	84·4	15·6
Present series:			
Penicillin systemically (800,000 units)	4	0·0	100·0
Penicillin intramuscularly and orally	26	57·7	42·3
Sulphamezathine: 0·5 g. initially and 0·25 g. 6-hourly	57	68·4	17·6
Sulphamezathine: 0·25 g. initially and 0·125 g. 4-hourly, with penicillin locally	30	66·6	30·0
Sulphamezathine: 0·5 g. initially and 0·25 g. 6-hourly, with penicillin locally	10	90·0	0·0
Sulphamerazine: 0·5 g. initially and 0·25 g. 8-hourly	24	87·5	0·0

penicillin in ophthalmia neonatorum. Secondly, the sulphonamides can with advantage be used in higher doses than those employed at present. A more rapid response is obtained if an initial dose of 0.5 g. is given, with a maintenance dose of 0.25 g. at six-hourly intervals with sulphamezathine and at eight-hourly intervals with sulphamerazine. As to the small series with sulphamerazine, the suggestion is that this drug may prove the sulphonamide of choice, possibly reducing the frequency of unsatisfactory responses and relapses as well as giving a high incidence of rapid results. The chance occurrence of a high proportion of these 24 cases being due to organisms readily susceptible to sulphonamides cannot, however, be excluded.

Therapeutic Failures

In the present series of 151 cases there were 34 which gave an unsatisfactory response or which relapsed; 15 of these were observed in the 30 cases treated with penicillin intramuscularly or orally. As this method of treatment was experimental and has proved unsatisfactory, these 15 cases need not be considered in any detail. It is enough to note that they did not contain an undue proportion of relatively resistant organisms.

Of the 121 cases treated by sulphamerazine or sulphamezathine with or without local penicillin 19 gave a poor response or relapsed. These 19 cases were observed in a series of 87 cases—the 57 treated by large doses of sulphamezathine orally and the 30 treated by sulphamezathine in smaller doses with penicillin locally. Seventeen of these 19 were relapses; in one case—completely negative bacteriologically—there was a persistent membranous cast of the conjunctiva, and in the remaining case diphtheroids, coliform bacteria, and inclusion bodies were present, leading to prolonged treatment but ending in a primary cure. Table V shows the clinical features of these 19 cases in comparison with the cases responding satisfactorily. It is clear that unsatisfactory response is not related to degree of severity of the affection.

TABLE V.—*Degree of Severity in Cases with Satisfactory Response Compared with that seen in Cases with Relapse*

	Whole Series (121 Cases)	Series of 87 Cases	17 Cases with Relapse and 2 Cases with Slow Response
Mild	40	31	4
Moderate	62	41	10
Severe	19	15	5

Table VI sets out the data concerning cause [illegible] It will be seen that the cases with unsatisfactory response are not confined to any one aetiological group. In all groups the satisfactory responses considerably outnumber the cases with relapse or slow response. It should, however, be noted that 10 out of the 19 cases showed inclusion bodies either alone or in combination with organisms. In the whole series of 121 cases inclusion bodies occurred either alone or in combination with organisms in 33 cases. There are therefore 10 failures out of 33 cases showing inclusion bodies, and nine failures in 88 cases without inclusion bodies. This confirms the previously recorded observation that cases with inclusion bodies are the most resistant to treatment. As the difficulty centres on relapse rather than on slow response, the question arises whether such cases should not be given a longer consolidation treatment than cases of ophthalmia neonatorum due to other exciting organisms.

TABLE VI.—*Distribution of Organisms in Cases with Satisfactory Response Compared with that seen in Cases with Relapse or Slow Response*

	Whole Series (121 Cases)	Series of 87 Cases	17 Cases with Relapse and 2 Cases with Slow Response
Gonococcus	10	7	2
Staphylococcus aureus	18‡	10†	2*
albus	23‖	16‖	3*
" with diphtheroids	3	3	1
Diphtheroids	7§	7§	3†
Other bacilli	8‡	7‡	3†
Streptococcus viridans	4*	3	—
Other coccal organisms	2	2	—
Negative, without inclusion bodies	29	18	1
" with " "	17	14	4

* One case associated with inclusion bodies.
† Two cases " " " "
‡ Three cases " " " "
§ Four " " " "
‖ Five " " " "

Discussion

The present study suggests that the sulphonamides, used in larger doses than those advocated until now, tend to give results almost as rapid as those obtained by the intensive local use of penicillin. With larger doses of sulphonamides some 60 to 70% of cases of ophthalmia neonatorum give a clinical cure within one to three days. This is still less rapid than the results obtained with intensive local penicillin treatment, but not to any marked degree. Local penicillin therapy has the advantage that it can suppress pus formation within 20–30 minutes, whereas the sulphonamides take the better part of 24 hours to achieve this initial improvement. Sulphonamide therapy is, however, much simpler in application and is far less exacting on both the baby and the nurse.

When sulphonamides were first used in the treatment of ophthalmia neonatorum a dose of 0.125 g. initially and 0.062 g. at six-hourly intervals was given (Sorsby, Hoffa, and Smellie, 1942). Subsequently the maintenance dose was raised to 0.083 g. With these doses the incidence of unsatisfactory response and relapse was 38.1%. With the subsequent increase of the dose to 0.25 g. initially and 0.125 g. as a maintenance dose at four-hourly intervals this percentage fell to 16.3.

The higher dose suggested in the present study, whilst not influencing the relapse rate, has the merit of reducing the duration of treatment. This higher dose is innocuous and there is nothing to be gained by not adopting it as the standard dose for ophthalmia neonatorum. As between

TABLE II sulphamerazine, the advantage seems ierazine, though it has still to be proved y of relapses with this drug will be less sulphamezathine. Contrary to expectation, the combined use of penicillin locally and sulphonamide orally does not seem to reduce the relapse rate, but it should always be borne in mind that relapses are sometimes, possibly often, reinfections rather than relapses in the true sense.

Routine Procedure for Treatment

The steps in the two alternative methods of treating ophthalmia neonatorum available at present—sulphonamides orally and penicillin locally—may be thus summarized:

(*a*) *Steps in Common for the Two Methods.*—On admission a swab is taken for smear and culture and the eye is irrigated with half-normal saline at room temperature. A drop of adrenaline 1 in 1,000 is instilled and a scraping is taken from the palpebral conjunctiva for examination for the presence of inclusion bodies. Gutt. atropinae sulphas, 1%, are instilled if the cornea is affected. Any pus that may have accumulated is wiped away with moist pledgets of cotton-wool.

(*b*) *Procedure for Sulphonamide Treatment.*—(1) After the preliminary measures a tablet of sulphamerazine or sulphamezathine (0.5 g.) crushed into powder is given by mouth in a teaspoonful of water or milk. Alternatively a stock mixture can be used. (2) Sulphamerazine administration in doses of 0.25 g. is continued every eight hours. If sulphamezathine is used the administration has to be at six-hourly intervals. (3) Local treatment consists of three-hourly irrigation with saline solution during the first day in cases with profuse discharge; as a rule there is no need for further irrigation on the subsequent days. After irrigation medicinal paraffin is instilled as a precaution against the sticking together of the lids. (4) Atropine is instilled three times daily in cases with corneal haze or ulceration. (5) Sulphonamide administration is continued for 48 hours after clinical cure.

With this treatment swelling of the lids generally subsides within 12 hours after admission; purulent discharge disappears within 24 hours.

(*c*) *Procedure with Local Penicillin Therapy.*—(1) The preliminary measures are completed by the instillation of a drop of penicillin in a concentration of 10,000 units per ml. into the conjunctival sac. (2) The baby is now placed on the nurse's lap, while another nurse sitting near by instils one drop of penicillin solution, 10,000 units per ml., every minute for 30 minutes. Irrigation is not needed, as pus does not form to any extent; such thin mucoid discharge as is present can be ignored or, if it clings to the lid margin, wiped away with moist pledgets of cotton-wool. (3) At the end of this time there is invariably no pus and generally little or no discharge. The eye, however, is still moist, the lids are still swollen, and the lid margins tend to be sticky. The baby is returned to its cot, and instillation of penicillin drops is continued six times at five-minute intervals, followed by a similar number of instillations at half-hourly, hourly, and two-hourly intervals. This gives a total of 22 hours' treatment. Many cases require no further attention. (4) In some babies the lid margins still tend to remain sticky. It is advisable in such cases to continue with penicillin at two-hourly intervals until the eye is dry, when treatment is carried on for a further 12 hours.

Crystalline penicillin only should be used for making up the drops. Impure penicillin is likely to cause irritative reactions.

Summary

A series of 151 cases of ophthalmia neonatorum treated by several different methods is recorded.

Oral administration of doses of 200,000 units of penicillin, either exclusively or after an initial intramuscular injection, has proved disappointing.

Combined oral sulphonamide and local penicillin therapy proved effective in reducing the duration of treatment but ineffective in reducing the considerable frequency of relapses seen with either sulphonamide or penicillin therapy.

Duration of treatment was likewise reduced by increasing the dose of sulphonamide. With sulphamezathine, 0.5 g. initially and a maintenance dose of 0.25 g. six-hourly, some 70% of cases showed clinical cure within one to three days. Similar results were obtained with sulphamerazine, 0.5 g. initially and 0.25 g. at eight-hourly intervals. The use of these larger doses of sulphonamide does not apparently influence the relapse rate; it is, however, possible that sulphamerazine may prove to be a favourable exception.

For the present the best way of administering penicillin is still the instillation of drops of 10,000 units per ml. initially at intervals of a minute for half an hour and subsequently at less frequent intervals. For the best results with sulphonamide therapy higher doses than those used previously are necessary.

We are indebted to the matron of White Oak Hospital and Sister Condon, of the Ophthalmia Neonatorum Unit, for their loyal help in the treatment of the cases recorded here.

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BACTERIOPHAGE TYPES IN PENICILLIN-RESISTANT STAPHYLOCOCCAL INFECTION

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Many studies concerning the incidence of penicillin-resistant staphylococcal infection have been reported, and it is now generally agreed that this is increasing (Spink *et al.*, 1944, 1945; Bondi and Dietz, 1945; Gallardo, 1945: Plough, 1945; Harley *et al.*, 1946; Barber and Rozwadowska-Dowzenko, 1948). Results of investigations of a series of infections occurring in a single hospital, however, are difficult to assess, as such institutions often seem to be breeding-grounds of a particular strain of pathogenic staphylococcus. Thus in previous studies in a single hospital by one of us (Barber, 1947a, 1947b; Barber and Rozwadowska-Dowzenko, 1948) it was found that 59 of 100 cases of staphylococcal infection investigated in 1948 yielded penicillin-resistant staphylococci, whereas the incidence in a similar series was 38% in 1947 and 14.1% in 1946. Each year, however, it was found that a significantly high proportion of the penicillin-resistant strains when typed by the bacteriophage method fell into the 6/47 group, suggesting that most of the penicillin-resistant infections might have been caused by a single strain of staphylococci.

Recent experience, however, has led us to the conclusion that a large number of penicillin-resistant staphylococci isolated from infections in widely separated hospitals belong to the 6/47 phage group. In the present investigation, therefore, staphylococci isolated from a series of 100 cases of infection occurring in this hospital have all been tested for penicillin sensitivity and phage-typed to see if the two could be correlated.

Methods

During the investigation all cultures of staphylococci (usually on blood-agar plates) obtained from cases of infection were collected from the routine laboratory. From each primary plate 10 colonies were picked off and streaked on to penicillin ditch-plates, the ditch containing 10 units of penicillin per ml. The remaining growth was then emulsified in broth and plated out on a similar penicillin ditch-plate in order to detect small numbers of penicillin-resistant organisms which might otherwise have been missed. After incubation overnight the plates were examined. If all colonies from a single specimen showed a similar reaction to penicillin one was picked off into "lemco" broth for further investigation. If penicillin-sensitive and penicillin-resistant staphylococci were present, one colony of each was similarly picked off.

All staphylococci were tested for coagulase by the slide method and only coagulase-positive strains included in the series. Later all strains in the series were tested for haemolysin production by the method of Gillespie and Simpson (1948), and strains giving doubtful or negative results were tested for coagulase production by the tube method of Fisk (1940) and for haemolysin by the method described by McFarlan (1938).

All penicillin-resistant strains were tested for penicillinase production by the method described by Barber (1947a); 17 of them were tested by the serial dilution method in broth, using two different-sized inocula in each case, as recommended by Gilson and Parker (1948). Sensitivity to streptomycin was also tested on ditch-plates, the ditch containing 100 units of streptomycin per ml., and to sulphonamides on ditch-plates made of laked horse-blood agar as recommended by Harper and Cawston (1945), the ditch containing 1 in 5,000 sulphathiazole. All ditch-plates, whether for testing penicillin, streptomycin, or sulphonamide sensitivity, were kept for 24 hours before use to allow diffusion of the chemotherapeutic agent, and part of every ditch-plate was seeded with the Oxford staphylococcus as a control. Phage-typing of all strains was carried out by the method now used at the Central Public Health Laboratory, using the same 25 filtrates. The method is based on the work of Wilson and Atkinson (1945).

Penicillin Sensitivity

Specimens were examined from 100 consecutive patients with infection due to coagulase-positive staphylococci (hereafter referred to as *Staph. pyogenes*). The results are given in Table I, in-patients and out-patients being separated. From 35 patients penicillin-resistant strains of *Staph. pyogenes* were isolated: from 24, all colonies tested were resistant to penicillin; from 11, sensitive and resistant colonies were isolated in each case from a single specimen. Thus 111 strains of *Staph. pyogenes* were obtained from 100 specimens. The difference between sensitive and resistant strains was clear-cut in every instance. All the penicillin-resistant colonies when streaked across the penicillin ditch-plates grew at least to the ditch, whereas the sensitive colonies showed an area of inhibition similar to that shown by the Oxford staphylococcus. It will be seen from Table I that the incidence of resistant strains was greater in in-patients than in out-patients. The results, analysed according to type of infection, are shown in Table II.

TABLE I.—*Analysis of Patients Yielding Staph. Pyogenes in Relation to Penicillin Sensitivity*

Aug.–Dec., 1948	No. of Patients	Patients with Penicillin-resistant Strains		
		All Colonies Resistant	Sensitive and Resistant Colonies Isolated	Total
In-patients	49	13	7	20
Out-patients	51	11	4	15
Total	100	24	11	35

TABLE II.—*Results According to Type of Infection*

Type of Infection	Total Patients	Patients Yielding Resistant Strains
Carbuncles, abscesses, boils, etc.	53	14
Superficial skin lesions	19	9
Infected wounds	5	3
Pulmonary	8	4
Conjunctival	4	2
Aural	1	—
Nasopharyngeal	4	—
Genito-urinary	5	3
Inadequate information	1	—
	100	35

Previous treatment with penicillin was studied to see if this had any relation to the incidence of resistant strains. In only 67 of the patients was information regarding penicillin treatment available. Penicillin sensitivity in relation to treatment within the preceding three months in this group is shown in Table III.

TABLE III.—*Relation of Previous Treatment to Incidence of Resistant Strains*

	Penicillin Treatment within Previous 3 Months	No Penicillin Before Specimen Taken
Penicillin-sensitive strains only isolated	19	22
Penicillin-resistant strains isolated	22	8
Penicillin-sensitive and penicillin-resistant strains isolated	3	6

It will be seen that 22 of 41 patients who had been treated with penicillin yielded penicillin-resistant staphylococci, whereas only eight of 30 patients not treated with penicillin yielded such strains. One patient with an axillary abscess had a specimen taken before receiving any penicillin, and this yielded a very few colonies of penicillin-resistant and a heavy growth of penicillin-sensitive *Staph. pyogenes*. Treatment with penicillin was then started, and three weeks later a specimen of pus was received which yielded a heavy growth of *Staph. pyogenes*, and all colonies tested were penicillin-resistant.

The incidence of penicillin-resistant strains was correlated with length of hospital treatment in 46 cases, and the figures are given in Table IV. It will be seen that only 4 out of 22 patients who had been attending the hospital for a week or less yielded penicillin-resistant strains, whereas 10 of 18 patients who had been attending for a fortnight or more yielded such organisms.

TABLE IV.—*Incidence of Penicillin-resistant Strains of Staph. Pyogenes in Relation to Length of Treatment in this Hospital*

No. of Days under Treatment	Patients Yielding			Total
	Penicillin-sensitive Colonies Only	Penicillin-resistant Colonies Only	Sensitive and Resistant Colonies	
0	14 (4)	2 (1)	1 (1)	17 (6)
1–7	4 (2)	1	0	5 (2)
8–14	3 (3)	1	2	6 (3)
15–28	3 (1)	7 (1)	0	10 (2)
Over 28	5 (5)	3 (1)	0	8 (6)
Total	29 (15)	14 (3)	3 (1)	46 (19)

The figures in parentheses refer to the number of out-patients in each group.

Degree and Type of Resistance to Penicillin

All 35 penicillin-resistant strains destroyed penicillin. As is now well recognized (Luria, 1946; Barber, 1947a) the degree of resistance of such organisms when measured in the laboratory may vary many hundredfold according to the size of inoculum used. It is therefore extremely difficult to devise a test giving accurate information on the degree of resistance which will help the clinician in deciding the probable effect of penicillin in a particular case of infection. Gilson and Parker (1948) have suggested that the double sensitivity test in broth, using two different-sized inocula, is the most informative, as the results obtained are directly related to the degree and rate of penicillinase production. This test was carried out on 17 of the resistant strains of *Staph. pyogenes* isolated in this series (Table V). It will be seen that a large inoculum was

TABLE V.—*Showing Degree of Resistance*

Greatest Concentration of Penicillin Permitting Growth		No. of Strains
Large Inoculum (Approx. 1,000,000 orgs.)	Small Inoculum (Approx. 1,000 orgs.)	
50 u./ml. or more	1–4 u./ml.	7
50 „ „	0·25–0·5 u./ml.	5
25 „	1 u./ml.	1
25 „	0·25–0·5 u./ml.	2
12·5 „	0·25 u./ml.	1
12·5 „	0·03 u./ml.	1
0·03 „	0·03 u./ml.	Oxford Staphylococcus

able to grow in from 12.5 to 50 units per ml., whereas a small inoculum was able to grow only in from 0.03 to 4 units per ml.

Phage-typing

All the 111 strains of *Staph. pyogenes* were phage-typed, and the results in relation to penicillin sensitivity are given in Table VI. Cultures reacting with one or more closely

TABLE VI.—*Phage Groups of 111 Strains of Staph. Pyogenes Isolated in Present Series*

Phage Group	No. of Strains of *Staph. pyogenes*	
	Penicillin-sensitive	Penicillin-resistant
6/7/47	9	24
52A	18	4
3	16	0
42	5	0
29/31/52	6	0
44	1	0
Non-typable	21	7
Total	76	35

related phages have been grouped together, and the strains in a particular group do not all give identical reactions. Of those classified as 6/7/47 nearly all reacted strongly with phage 47, and many also reacted with various combinations of 6, 7, and 3298. A few strains included in this group were sensitive to phage 6 or phage 7 only. Group 29/31/52, again, consists of strains showing varying reactions with one or more of these three phages. Nearly all the strains classified as 3 were sensitive to only one of the phages 3A, 3B, and 3C, and similarly strains in the 42 group reacted only with one of the phages 42B, 42C, 42D, and 42E. Apart from trace reactions, the 52A strains reacted with this phage alone. The non-typable group consists mainly of strains giving no reactions, but includes a few which were very sensitive and could not be classified.

It will be seen from Table VI that of the 35 penicillin-resistant strains as many as 24 fell into the 6/7/47 group, and that the only other typable strains belong to type 52A. The penicillin-sensitive strains, on the other hand, were distributed among all the groups, only nine out of 76 belonging to group 6/7/47.

As mentioned above, penicillin-sensitive and penicillin-resistant strains were isolated from the same patient in 11 cases. These 11 pairs of strains were phage-typed and the results are given in Table VII. In nine of the 11 pairs the

TABLE VII.—*Phage Types of Pairs of Strains Isolated from the Same Patient*

Patient	Phage Type of Strain of *Staph. pyogenes*	
	Penicillin-sensitive	Penicillin-resistant
5	N.T.	6*
10	47*	N.T.
12	N.T.	N.T.
32	42E	47*
40	N.T.	47*
41	N.T.	7*
46	N.T.	52A
63	52A	6/47*
75	N.T.	6/47*
82	52A	52A
92	42E	N.T.

N.T. = Non-typable. * Side-reactions.

two appear to be different in phage-type, but it is unfortunate that in eight cases one of the pair is non-typable. From one of these 11 patients penicillin-resistant and penicillin-sensitive strains of *Staph. pyogenes* were isolated from both the lesion (sycosis barbae) and the nose. From each site the penicillin-resistant strain was phage type 6/47 and the penicillin-sensitive strain non-typable.

It occurred to us that the apparent correlation of penicillin resistance and phage group 6/7/47 might be a purely local phenomenon. A number of penicillinase-producing strains of *Staph. pyogenes* isolated from patients in widely separated hospitals were therefore collected together and phage-typed. The cultures from Hammersmith Hospital and the General Lying-In Hospital, S.E.1, were already in our possession, and the cultures from Canterbury, Manchester, and the West London Hospital were kindly sent by Dr. Forbes, Dr. Martyn, and Dr. Morris respectively. Except for the cultures from Manchester, which were isolated from healthy infants, all strains came from cases of infection. The results are given in Table VIII.

TABLE VIII.—*Phage Types of Penicillin-resistant Strains of Staph. Pyogenes Isolated from Patients*

Phage Group	Source						Total
	Hammersmith Hospital	St. Thomas's Hospital	General Lying-in Hospital, S.E.1	West London Hospital	Kent and Canterbury Hospital	St. Mary's Hospital, Manchester	
6/7/47	25	27	0	1	27	5	85
52A	1	4	15	0	1	0	21
42	3	0	0	0	0	0	3
3	1	0	0	0	0	0	1
29/31/52	1	0	0	0	0	0	1
N.T.	3	8	13	0	4	1	29
Total	34	39	28	1	32	6	140

In all, 140 strains were tested and as many as 85 (61%) fell into the 6/7/47 group. Apart from non-typable strains the only other large group is 52A. This is mainly due to an outbreak of infection among the babies at the General Lying-In Hospital which at the time of writing is under investigation. Nearly all the infections occurring at present in this maternity hospital are due to penicillinase-producing *Staph. pyogenes* and, as will be seen in the table, most of the strains are phage type 52A. A very large number of nurses in the hospital are carrying a similar organism in the nose.

Streptomycin and Sulphonamide Sensitivity

All 111 strains were tested for sensitivity to streptomycin and sulphonamides. The results are presented in relation to penicillin sensitivity in Table IX. All strains showed a

TABLE IX.—*Streptomycin and Sulphathiazole Sensitivity of 111 Strains of Staph. Pyogenes*

	Penicillin-sensitive	Penicillin-resistant	Total
Streptomycin-sensitive ..	76	35	111
Streptomycin-resistant ..	0	0	0
Sulphathiazole-sensitive ..	72	18	90
Sulphathiazole-resistant ..	4	17	21

sensitivity to streptomycin comparable to that of the Oxford staphylococcus. One of the patients, who had a lung abscess infected with penicillin-resistant *Staph. pyogenes, Proteus*, and non-haemolytic streptococci, was subsequently treated with streptomycin. Within five days the *Staph. pyogenes* had become highly resistant to this antibiotic.

Twenty-one of the 111 strains were considerably more resistant to sulphathiazole than the Oxford staphylococcus, and 19 of these strains grew at least to the edge of the ditch containing 1 in 5,000 sulphathiazole. It is interesting that 17 of the 21 sulphathiazole-resistant strains were also penicillin-resistant. Eight of the patients yielding sulphonamide-resistant strains had had some form of sulphonamide treatment before the specimen was taken, eight had not, and from five information in relation to treatment is not available.

α-Toxin Production

The strains isolated in the present series were all coagulase-positive on testing by the slide method. As Schwabacher, Cunliffe, Williams, and Harper (1945) and Christie, North, and Parkin (1946) have suggested that the production of α-lysin is more closely correlated with pathogenicity than coagulase production, all the strains were examined for α-toxin production, using the sheep-blood plate method of Gillespie and Simpson (1948). Of the 111 strains, 101 were α-toxigenic, two were negative, and eight were regarded as giving doubtful reactions. The negative and doubtful strains were tested for coagulase by the tube method of Fisk (1940) and found to be positive. The doubtful reactions on the sheep-blood agar plates were due in some instances to the simultaneous production of β-toxin in amounts sufficient to mask the appearances due to the α-toxin. On testing the eight doubtful strains for the production of α-toxin in broth, using the method of McFarlan (1938), four were found to be positive, while the remaining four were negative, as also were the two strains found to be negative by the sheep-blood plate method. Thus of the 111 coagulase-positive strains 105 were α-toxigenic.

Of the non-toxigenic strains, three belonged to phage type 3C; the remainder were non-typable.

Discussion

It is remarkable that such a high proportion of penicillin-resistant strains of *Staph. pyogenes*, isolated from patients in widely different hospitals, should belong to phage group 6/7/47. While in the present state of our knowledge it is possible only to speculate on the meaning of this, it may well be of considerable epidemiological importance. It is possible that strains of phage group 6/7/47 are genetically less stable than those of other phage groups, and have thus given rise to penicillin-resistant mutants more readily. A significant number of the remaining penicillin-resistant strains were type 52A, but nearly all these were isolated from neonatal infections occurring in a single maternity hospital over a period of three months. It is interesting that *Staph. pyogenes* of phage type 52A has been isolated from the noses of many nurses in this maternity hospital, and that some of the strains are sensitive to penicillin whereas others are resistant. It is possible that an originally sensitive strain of *Staph. pyogenes* carried in this hospital has recently given rise to a penicillin-resistant mutant which has now established itself there.

The ultimate origin of penicillin-destroying strains of *Staph. pyogenes* is still undecided. Spink and Ferris (1947) favour the hypothesis that such strains arise as mutants from penicillin-sensitive organisms. The work of Barber (1949) on the readiness with which, *in vitro*, penicillinase-producing staphylococci give rise to penicillin-sensitive variants supports this theory. Penicillin-destroying mutants, however, cannot be induced by growing penicillin-sensitive strains of *Staph. pyogenes* in penicillin *in vitro*. Spink *et al.* (1945, 1947) claim that such a change may be induced *in vivo* by penicillin treatment. As, however, their strains of *Staph. pyogenes* were not typed, it is possible that they were dealing with mixed infections due to penicillin-sensitive and penicillin-resistant strains of different types; that the latter, initially in the minority, were favoured at the expense of the former, and thus by a simple process of selection ultimately supplanted the penicillin-sensitive organisms.

Such mixtures of penicillin-sensitive and penicillin-resistant strains of *Staph. pyogenes* have now been isolated from the same patient on many occasions, and in most cases where such pairs have been phage-typed they have been found to give different reactions. Of 11 such pairs in the present series nine gave different phage reactions, and it seems likely that they were different phage types, although it is impossible to be quite certain of this where one of the pair was non-typable. In previous studies (Barber, 1947a, 1947b; Barber and Rozwadowska-Dowzenko, 1948) 10 such pairs were phage-typed and eight pairs were shown to be of different types.

Whatever the ultimate origin of penicillin-destroying strains of *Staph. pyogenes*, it seems likely (Barber and Rozwadowska-Dowzenko, 1948) that selection plays a large part in the increasing incidence of such strains in hospitals. The work of Harley *et al.* (1946) and Forbes (1949) further makes it clear that the incidence of penicillin-resistant strains isolated from staphylococcal infections in hospital in-patients is much greater than that in out-patients. In the present study it will be seen that 20 of 49 in-patients yielded penicillin-resistant strains compared with 15 of 51 out-patients, and that there was a significantly higher incidence of penicillin-resistant organisms in patients who had been under hospital treatment for more than a fortnight.

Kirby (1944) first pointed out that penicillin-resistant strains of *Staph. pyogenes* isolated from infective processes were characterized by the production of a powerful penicillin-inactivator. Since then Spink, Hall, and Ferris (1945), Bondi and Dietz (1945), Gots (1945), Barber (1947a, 1947b), Barber and Rozwadowska-Dowzenko (1948), Martin and Whitehead (1949), Martyn (1949), and Forbes (1949) have recorded studies in which all penicillin-resistant strains of *Staph. pyogenes* isolated from cases of infection or [illegible] carriers were shown to destroy penicillin. The [illegible] strains isolated in the present series likewise have this [illegible]ty.

Lurie (1946) and Barber (1947a) have both shown that the degree of resistance of penicillinase-producing organisms recorded in the laboratory was dependent on the size of inoculum used. In the present series it will be seen (Table V) that with many strains a small inoculum was

sensitive to less than 1 unit of penicillin per ml., whereas a large inoculum grew in from 12.5 to 50 units per ml. Thus the heaviness of the infection is the most important factor in deciding whether a patient infected with such an organism will benefit by penicillin treatment. As it is usually impossible to determine this, elaborate laboratory tests designed to show degree of sensitivity or rate of penicillinase production are valueless. It should further be emphasized that where a small inoculum is used in testing penicillin sensitivity the type of resistant organism here described may easily be missed.

The differentiation of pathogenic from non-pathogenic staphylococci in the laboratory has received considerable attention lately. Schwabacher, Cunliffe, Williams, and Harper (1945) and Christie, North, and Parkin (1946) found a small number of strains which were coagulase-positive but did not produce α-lysin, and both sets of workers considered the latter test to be more closely correlated with pathogenicity. In the present investigation all 111 strains were coagulase-positive and 105 were α-toxigenic. Although no evidence could be obtained to indicate that the α-lysin-negative strains were less pathogenic than the others, none of them came from very serious cases of infection.

Summary

Out of 100 cases of infection with *Staph. pyogenes* occurring in this hospital 35 yielded penicillin-resistant strains. In 24 cases all colonies tested were penicillin-resistant and in 11 both sensitive and resistant strains were isolated.

All penicillin-resistant strains were shown to destroy penicillin. Seventeen were tested for penicillin sensitivity, using two different-sized inocula, and it was found that whereas a small inoculum was sensitive to from 0.06 to 4 units per ml. a large inoculum grew in from 12.5 to 50 units per ml.

Twenty-four of the 35 penicillin-resistant strains were shown to belong to phage group 6/7/47, whereas only nine of 76 penicillin-sensitive strains fell into this group. When 140 penicillin-resistant strains isolated from patients in a variety of hospitals were phage-typed, 85 were found to belong to the 6/7/47 group.

All strains were initially sensitive to streptomycin. A strain from one patient became resistant after five days' treatment with this antibiotic.

Twenty-one of the 111 strains were resistant to sulphathiazole, and 17 of these were also resistant to penicillin.

All 111 strains were coagulase-positive; 105 were α-toxigenic.

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INFECTION WITH PENICILLIN-RESISTANT STAPHYLOCOCCI IN HOSPITAL AND GENERAL PRACTICE

BY

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The isolation of penicillin-resistant staphylococci from clinical sources, at one time a rare event, is now a commonplace. The great majority of these strains possess a natural resistance to penicillin by virtue of their ability to produce a penicillin-neutralizing enzyme, penicillinase (Kirby, 1944; Bondi and Deitz, 1945). Some indication of the frequency with which penicillinase-producing staphylococci are encountered in hospital practice, and the rising proportion of staphylococcal infections due to these strains, can be gauged from the work of Barber, who recorded a progressive increase in the incidence of infections with resistant strains from 14.1% in 1946 to 59% in 1948 (Barber, 1947a, 1947b; Barber and Rozwadowska-Dowzenko, 1948).

Dr. Barber's work has aroused much interest and not a little alarm, for at first sight it might appear that the power of penicillin in combating staphylococcal infection is decidedly on the wane. However, the results of an investigation carried out in a large hospital are not necessarily representative of the community as a whole, an opinion to which Dr. Barber herself subscribes when she states (Barber and Rozwadowska-Dowzenko, 1948): "Though penicillin-resistant strains of *Staph. pyogenes* are now appearing with increasing frequency in many hospitals, this is probably not the case in the community at large." This statement receives substantiation from the results of an investigation carried out at this hospital during the past 12 months.

Outline of Investigation

Staphylococci isolated on routine culture were in the first instance tested for coagulase-production by the method of Gillespie (1943) and sensitivity to penicillin on ditch-plates, using 10 units of penicillin per ml. of agar in the ditch. Coagulase-positive strains were then subcultured and set aside for further investigation, including a quantitative estimation of penicillin sensitivity (using serial dilutions of penicillin in 1-ml. amounts of broth and an inoculum of 0.02 ml. of a 1 in 100 dilution of a 24-hour broth culture), production of penicillinase, and sensitivity to streptomycin.

In the meantime further information regarding the source of the specimens which yielded coagulase-positive staphylococci was obtained by questioning patients and nursing staff, and in some cases examining the lesions from which the specimens were obtained. In particular it was noted whether the patient was an in-patient or out-patient not only at the time the specimen was collected but also at

the time that infection first became apparent, and whether the patient was having or had had penicillin treatment. Finally, attention was paid to the nature of the specimens submitted for examination, and to the amount and purity of growth on primary isolation, with a view to ensuring that the staphylococci were both pyogenic and truly pathogenic. As one would expect from the mode of selection, the great majority of strains accepted for analysis were from specimens of frank pus or purulent material from boils, abscesses, septic fingers, infected wounds, etc., and in nearly all cases the growth of staphylococci on primary culture was heavy and pure.

Analysis of 120 Strains of Staph. pyogenes

One hundred and twenty strains of *Staph. pyogenes* from the same number of patients were investigated. All but three were of the aureus variety; the three albus strains were strongly coagulase-positive on repeated examination, were present in pure culture on primary isolation, and the source of the strains left no doubt that they had been actively pathogenic. Of these 120 strains 73 (60.8%) were sensitive to penicillin and 47 (39.2%) resistant. The sensitive strains possessed a degree of sensitivity approximately equal to that shown by the control Oxford staphylococcus, and none produced penicillinase. On the other hand, all the resistant strains were penicillinase-producers. The resistance was gross in all cases both when tested on the ditch-plate (growth extending up to and over the ditch) and when estimated quantitatively, the minimal concentration of penicillin required to inhibit growth varying from 5 to 400 times that required to inhibit the control strain of Oxford staphylococcus (Table I).

TABLE I.—*Degree of Resistance of 41* Resistant Strains*

	Inhibiting Concentration of Penicillin in Units per ml.							
	32	16	8	4	2	1	0·8	0·4
No. of strains	1	3	5	9	7	2	6	8

* Six strains were not available for quantitative sensitivity tests. *Staph. aureus* (Oxford) was inhibited by 0·08 unit per ml.

Resistance to streptomycin was not encountered among any of these 120 strains, all possessing a sensitivity to this antibiotic of the same order as the control Oxford staphylococcus.

Analysis of 78 Out-patient and In-patient Strains

A separation of the 120 strains into those derived from out-patients and those from in-patients was then attempted. Inevitably a number of strains could not be placed in either of these categories. Thus a specimen may have been received from an in-patient, but the history of the case indicated that infection had occurred before the patient was admitted to hospital. Conversely, an out-patient may have given a history of a recent stay in hospital for the treatment of the condition from which he was suffering at the time the out-patient specimen was collected. Such cases in which the origin of the infecting strain was not clearly established have been omitted from this part of the analysis. Altogether 42 strains were unclassifiable, leaving a total of 78 strains which could be labelled with confidence "out-patient" or "in-patient" strains. The incidence of sensitive and resistant strains for this reduced series was 60.25% and 39.75% respectively, indicating that the exclusion of these 42 unclassifiable strains had not resulted in any significant deviation from the ratio for the original series, which was 60.8% sensitive to 39.2% resistant.

Out-patient Series.—The 40 strains which comprised the out-patient group were derived from specimens collected in the casualty and out-patient departments of this and neighbouring hospitals, and from specimens sent in by local practitioners. All but five of these strains were highly sensitive to penicillin, representing an incidence of sensitive strains of 87.5% and of resistant 12.5% (Table II).

TABLE II.—*Incidence of Penicillin-resistant Staph. pyogenes from 78 Patients with Staphylococcal Infection*

Source	No. of Strains	Resistant Strains
Out-patients	40	5 (12·5%)
In-patients	38	26 (68·4%)

In-patient Series.—Strains accepted for this series were recovered from patients whose infection had arisen during their stay in hospital. Thus infected operation wounds, infected plaster sores and bedsores, and neonatal infections were among the lesions which yielded in-patient strains. Of the 38 strains in this group no fewer than 26 (68.4%) were resistant, and 12 (31.6%) were sensitive. When these resistant strains were further analysed it was found that 11 of the 26 had originated in one department of the hospital, the maternity unit. This finding prompted a search for a carrier among the staff of the unit, and one of the senior nurses was found to be a persistent heavy nose-and-throat carrier of a penicillin-resistant coagulase-positive *Staph. aureus*. Phage-typing of eight patient strains, two carrier strains, and three strains isolated from the ward dust by exposing blood-agar plates was carried out through the courtesy of Dr. R. E. O. Williams at the Central Public Health Laboratory, Colindale. The results (Table III) show

TABLE III.—*Phage Reactions of Resistant Strains from Maternity Unit*

Ref. No.	Source	Phage Reaction	Remarks
50	Pemphigoid impetigo. Pustular rash	3A	
73	Ophthalmia neonatorum ..	3A	
77	Pustules on nipple	3A	
87	" " ..	47+	
94	Ophthalmia neonatorum ..	3A	
95	Pustular rash. Pemphigoid impetigo	47+	Child of No. 101
101	Pustular rash	47/47B+	Mother of No. 95
108	[illegible] ..	47/47B+	
49	[illegible] ..	3A	Heavy persistent carrier
78	[illegible] ..	52A	Temporary carrier
79	Ward dust, Colony 1	3A	
80	Ward dust, Colony 2	7	
97	Ward dust, Colony 3	47/47B+	

that all of the patients were infected with staphylococci belonging to one of two phage-types, that these same types were isolated from the ward dust, and that one of them (type 3A) was carried by a member of the nursing staff.

Effect of Previous Penicillin Therapy on the Resistance Rate

A history of treatment with penicillin for several days before the collection of the specimens was obtained from 41 patients. Twenty-five strains from these penicillin-treated patients were resistant and 16 were sensitive. Of 51 strains from patients not treated with penicillin 22 were resistant and 29 sensitive (Table IV). In short, the incidence

TABLE IV.—*Penicillin Therapy and Resistance Rate*

Source*	No. of Strains	Resistant Strains
Untreated patients	51	22 (42%)
Treated patients	41	25 (59%)

* The 92 patients which comprise this series include both out-patients and in-patients, and are independent of those quoted in Table II.

of resistant strains was slightly but not significantly higher in patients receiving penicillin.

In interpreting these findings it should be remembered that 42 of the 47 resistant strains were hospital strains, and, although they were isolated from 42 patients, it cannot be said that they were all distinct strains, for, as phage-typing has shown, dissemination of any one strain or the descendants of that strain by means of cross-infection had probably occurred to some extent. Consequently a number of the infecting strains were already resistant before the institution of penicillin treatment. All five out-patients and 20 in-patients from whom resistant strains were isolated were on large doses of penicillin when the specimens were collected. It is conceivable that the cells of the original infecting strain were for the most part susceptible, but that a number of variants within the strain enjoyed a measure of resistance. By the time the specimens were collected penicillin had eliminated the susceptible cocci, leaving a flora which was resistant.

Discussion

There is no doubt that staphylococcal infections due to penicillin-resistant strains are being encountered with increasing frequency in hospital practice. The reason for this unwelcome trend would seem to lie in the fact that the staphylococcal population of most hospitals at the present time is dominated by strains which possess a natural resistance, the inevitable consequence of the widespread use of penicillin during the past few years. By a process of natural selection these resistant strains have survived and propagated at the expense of susceptible breeds; and their presence in ward dust and the upper respiratory passages of members of the hospital staff, together with case-to-case infection, no doubt accounts for the high incidence of this type of infection in hospitals. By contrast, the environmental conditions which prevail in the community at large offer small scope for the perpetuation and dissemination of resistant strains, and one would anticipate a much lower incidence of infection due to these strains among the general population.

The carrier rate of penicillin-resistant staphylococci among hospital and non-hospital employees is under investigation and will be the subject of a later communication. Preliminary findings indicate that the rate of carriage of these strains by members of the staff of this hospital is disturbingly high. Of 50 ward nurses no fewer than 23 (46%) were found to carry in their anterior nares coagulase-positive *Staph. aureus* resistant to at least 1 unit of penicillin. The resistant strains all produced penicillinase. Of a control group of 50 office workers (not attached to the hospital) only one (2%) was found to be a nasal carrier of a penicillin-resistant strain.

From these and other observations one might attempt a grouping of staphylococcal infections according to the sensitivity to penicillin of the infecting strains, as follows. (*a*) Infection due to a pure sensitive strain the cells of which are all susceptible to the action of penicillin in adequate dosage. The majority of infections, especially those met with in general practice, fall into this group. (*b*) Infection due to a pure resistant strain—for example, hospital infection—which is naturally resistant to penicillin. (*c*) Infection due to a single strain, for the most part sensitive but containing a variable number of naturally resistant penicillinase-producing variants. Under the influence of penicillin such a strain may develop into a pure resistant strain owing to the elimination of penicillin-susceptible cells (Anderson *et al.*, 1944; Spink and Ferris, 1947). (*d*) Infection due to a sensitive staphylococcus complicated by superinfection with an insensitive strain of different phage type (Barber, 1947a, 1947b).

Recent reports on the high incidence of resistant strains have cast doubt on the competence of penicillin to deal with staphylococcal infections (leading article, *British Medical Journal*, 1947, 2, 874). The results of this study are presented in the hope of restoring confidence in penicillin for the treatment of staphylococcal infections in general practice. So far as the results of a limited study confined to one provincial hospital area are applicable to the general situation, it would seem that intelligent therapy with penicillin (and other measures when indicated) should effect a cure in nine of ten out-patients with staphylococcal sepsis. At the same time the results confirm the high proportion of hospital infections due to resistant strains: only one in every three patients with infection contracted during their stay in this hospital was eligible for penicillin therapy.

Penicillinase-producing strains of staphylococci are fully pathogenic (North and Christie, 1946; Barber, 1947a) and on occasion are capable of causing severe and sometimes fatal infections, such as staphylococcal septicaemia. Since resistance to penicillin appears to be specific, and not necessarily accompanied by resistance to either sulphonamides (Spink, Hall, and Ferris, 1945) or streptomycin, recourse may be had to one or both of the latter anti-staphylococcal agents in the treatment of severe infections due to penicillin-resistant staphylococci.

Summary

Seventy-eight strains of *Staph. pyogenes* from clinical sources have been analysed according to their sensitivity to penicillin. The resistance rate of strains derived from out-patients was 12.5% and from in-patients 68.4%.

All resistant strains produced penicillinase.

Many of the strains were already resistant before penicillin treatment was started.

The epidemiological and clinical significance of these findings has been briefly discussed. The frequency with which penicillin-resistant strains are carried in the anterior nares of ward nurses is thought to be partly responsible for the high proportion of hospital infections with resistant staphylococci.

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The June report of the British Control Commission for Germany says that the Rockefeller Institute has arranged a study tour in Denmark, England, and the U.S.A. for a number of young German medical officers of health, two of whom will probably come from the British Zone. The tour will last two to three months. In the hope that the proposed central narcotic administration for Western Germany may be modelled on British organization, arrangements are being made to send prospective officials to Britain for a 10-day visit to study British methods. No special shortages of medical supplies were reported during the month. Improvement in the supply of penicillin should enable a reserve to be built up again, and it is now sold more cheaply.

HOMOLOGOUS SERUM JAUNDICE

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In 1938 MacNalty drew attention to the fact that jaundice had followed the subcutaneous injection of convalescent measles serum; of 109 recipients 41 developed jaundice. Despite this and similar reports, little interest was aroused until in 1942 Sawyer *et al.* reported 28,585 cases among United States troops following inoculation against yellow fever with vaccine suspended in human serum. Subsequently there were reports of jaundice following the transfusion of human plasma or serum. In 1943 a memorandum was published (*Lancet*, 1943) by Medical Officers of the Ministry of Health reviewing the literature on homologous serum jaundice and reporting that recipients of plasma transfusions had developed jaundice. Spurling, Shone, and Vaughan (1946), in their survey of 1,054 patients given plasma, found that 7.3% developed jaundice, whereas in 891 patients given whole blood there were no cases of jaundice which could be attributed definitely to transfusion. Brightman and Korns (1947) investigated 649 cases in which plasma had been transfused, and found a 4.5% incidence of jaundice.

From these and other reports it was obvious that certain pools of plasma were definitely icterogenic while others were non-icterogenic. It therefore seemed probable that the icterogenic factor was present in the blood of a small percentage of donors, and that the inclusion of such donors' blood in the pools was responsible for their icterogenicity. It was considered likely that by limiting the number of donors contributing to each pool it should be possible to limit the dissemination of the icterogenic agent, and accordingly small-pool plasma was introduced in June, 1949.

This paper reports the results of a survey carried out during the period October, 1945, to March, 1948, in the region served by the Liverpool Regional Blood Transfusion Centre. The main object of the survey was to obtain comparative figures for the incidence of homologous serum jaundice following the transfusion of different blood products. The transfusion materials investigated were:

Large-Pool Plasma.—This consisted of plasma processed at the Medical Research Council Drying Plant at Cambridge or the Army Blood Supply Depot at Bristol before June, 1945, each pool being derived from not fewer than 300 donors; this plasma was Seitz-filtered before drying. In addition to this a small quantity of similar large-pool dried serum, supplied during the war by the Government of the Dominion of Canada and the Canadian Red Cross Society, was used. It was considered that no useful purpose would be served by recording separately cases receiving large-pool plasma and large-pool serum.

Small-Pool Plasma.—Consisting of unfiltered plasma, collected and processed since June, 1945, each pool being derived from not more than 10 donors.

Whole Blood.—Collected and bottled by the standard technique of the National Blood Transfusion Service.

*Working with a grant from the Medical Research Council.

Method of Follow-up

The survey was carried out on the following lines: (1) Names of patients receiving transfusions were reported to the Regional Transfusion Centre by the hospitals. (2) Permission was obtained from the hospitals to abstract from their records information such as the patient's home address, the condition for which the transfusion was given, and other relevant details. (3) After a period of six months from the date of transfusion had elapsed a letter was sent to the patient's home address. This letter was in the form of a general inquiry regarding the health of the patient following his discharge from hospital. A questionary was included with the letter, and the patient was asked to indicate whether he had had various illnesses, including jaundice. On receipt of the completed questionary, those patients whose replies indicated that jaundice had occurred were visited.

This "home visit" was essential for the discovery of cases of homologous serum jaundice, because very few were reported by hospitals or private practitioners. Furthermore, it was necessary to ascertain whether jaundice had occurred in other members of the patient's household, as if this had occurred it was doubtful whether the illness of the recipient could be attributed to transfusion. When full details of the course of the illness had been obtained from the patient, further inquiries were made from the physician who had treated the case, so establishing a comprehensive history and accurate diagnosis.

The "home visit" was omitted in the case of death of the recipient, and a careful check of the case papers and the private practitioner's records was carried out to ensure that homologous serum jaundice had not occurred.

A diagnosis of homologous serum jaundice was made only if each of the following conditions was fulfilled: (1) jaundice occurring one to six months after transfusion; (2) absence of history of contact with cases of infective hepatitis; and (3) absence of other pathological causes of jaundice.

TABLE I.—*Particulars of Patients given Blood, Large-Pool Dried Plasma, and/or Small-Pool Dried Plasma*

	Blood Alone	Large-Pool Plasma	Blood and Large-Pool Plasma	Blood and Small-Pool Plasma	Small-Pool Plasma	Totals
Total No. of patients followed up	4,270	893	666	703	584	7,116
No. of patients untraced	704 (16·4%)	133 (14·8%)	173 (25·9%)	83 (11·8%)	50 (8·5%)	1,143 (16·1%)
No. of patients traced	3,566	760	493	620	534	5,973
No. of deaths within 6 months of transfusion (not with jaundice)	770 (21·6%)	307 (40·4%)	126 (25·5%)	202 (32·6%)	138 (25·8%)	1,543 (25·8%)
No. of surviving patients upon whom incidence of jaundice is based	2,796	453	367	418	396	4,430
No. who reported no history of jaundice within 6 months	2,772 (99·1%)	399 (88·1%)	320 (87·2%)	410 (98·1%)	391 (98·8%)	4,292 (96·9%)
No. with unconfirmed history of jaundice or doubtful aetiology	2 (0·1%)	0 —	1 (0·3%)	1 (0·2%)	0 —	4 (0·1%)
No. who developed jaundice attributed to transfusion within 6 months after transfusion	22 (0·8%)	54 (11·9%)	46 (12·5%)	7 (1·7%)	5 (1·3%)	134 (3·0%)
No. who died of jaundice	0 —	3 (0·7%)	3 (0·8%)	1 (0·2%)	0 —	7 (0·2%)

Overall case mortality rate = 5·22%.

In three of the four cases listed as "doubtful" the history of jaundice was extremely [illegible] confirmation of the illness from the patient [illegible] had been in contact with a case of infective hepatitis.

Of the 1,543 patients who died within six months of transfusion without evidence of jaundice or hepatitis, 1,308 (84.8%) died within one month and 235 (15.2%) within the next five months.

Results of Follow-up

Particulars of the patients followed up are shown in Table I. Letters were sent to 7,116 recipients of transfusion, and 5,973 were traced, of whom 1,543 were reported to have died within six months, leaving 4,430 to be interviewed.

Classifying these according to fluid transfused, 2,796 received whole blood, 453 large-pool plasma, 396 small-pool plasma, 367 blood and large-pool plasma, and 418 blood and small-pool plasma. In all, 134 cases of jaundice were discovered.

The 2,796 recipients of whole blood were given 6,210 bottles, equal to an average of 2.2 bottles per patient. Twenty-two cases of homologous serum jaundice occurred following the use of these 6,210 bottles of blood: if each case of jaundice received only one bottle of icterogenic blood, and assuming that each donor gave only one bottle of blood, then at least 0.35% of the donors were carrying an icterogenic agent in their blood stream with no symptoms indicative of disease. It is unlikely that all recipients were susceptible, so that the rate is possibly higher than this.

Among those who received large-pool plasma and blood and large-pool plasma 100 cases of homologous serum jaundice occurred. The batches of plasma used in six of these cases were also found to be icterogenic when used in other areas. Seventy-one of the cases followed the use of 25 batches—for example, Batch No. C307 was involved in seven cases. Each of the remaining 23 cases was associated with a different batch of plasma.

Similarly, among those receiving small-pool plasma and blood and small-pool plasma the plasma used in six of the 12 cases was drawn from 13 different batches. The remaining six cases each followed the use of a different batch. These batches were not associated with jaundice in any other recipients.

It is impossible to give an attack rate for any particular batch of icterogenic plasma in this series, but it was found, for example, that Batch No. C307 was given to 15 patients without complication, although this batch was followed by jaundice in seven other patients. The total number of recipients of this batch, which was widely distributed in other areas, is not known.

Fatal Cases.—There were seven deaths from homologous serum jaundice in the series—namely, three in the large-pool plasma group, three in the blood and large-pool plasma group, and one in the blood and small-pool plasma group. There were no fatal cases in the groups which received small-pool plasma or whole blood (see Table II).

TABLE II.—*Fatal Cases*

Illness	Age	Sex	Incubation Period	Transfusion Fluid
Incomplete abortion ..	36	F	12 weeks	Blood and small-pool plasma
Post-partum haemorrhage	28	F	16 ,,	Blood and large-pool plasma
Arthrodesis of hip ..	55	M	6 ,,	,, ,, ,, ,,
Ruptured spleen	40	M	6 ,,	,, ,, ,, ,,
Multiple injuries and shock	73	M	9 ,,	Large-pool plasma
Prostatectomy	67	M	13 ,,	,, ,,
Partial gastrectomy ..	65	M	6 ,,	,, ,,

Incubation Period.—The incubation period of the illness varied considerably in the cases investigated, but unless the jaundice occurred between one and six months after transfusion it was not classified as homologous serum jaundice. In fact, no cases of jaundice occurred within one month of the transfusion. In the majority of cases the jaundice occurred 8 to 16 weeks after transfusion (see Chart).

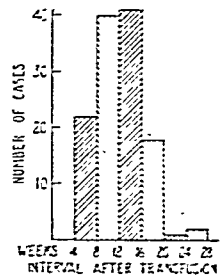


Chart showing incubation period. Ten cases are omitted because the incubation period could not be accurately determined.

Nature of the Illness.—Eight of the cases (6%) were very mild, with an illness lasting less than one week, and three of these were indisposed for two to three days only. On the other hand, two cases terminated fatally within three days of the onset of symptoms. Twenty-one cases (15.7%) were severe, with an illness which lasted six weeks or more, while the remaining 98 cases (73.7%) were ill for one month or less and their symptoms were not severe. The average duration of illness was 30.5 days, with extremes of two and 112 days. The incidence of the various symptoms and signs is shown in Table III.

TABLE III.—*Symptoms and Signs*

Symptoms and Signs	No. of Cases
Jaundice	134 (100%)
Nausea, vomiting, and anorexia	60 (44·8%)
Lassitude	35 (26·1%)
Joint pains	33 (24·6%)
Skin rash	21 (15·7%)
Epigastric pain	14 (10·4%)

Age Incidence.—The age incidence is set out in Table IV; the upper and lower limits were 73 years and 9 years respectively.

TABLE IV.—*Age Incidence*

Age Group	No. of Patients Transfused		No. of Cases of Jaundice	
	Blood Alone	Plasma and Plasma and Blood	Blood Alone	Plasma and Plasma and Blood
0–10 ..	87	127	—	1 (0·8%)
11–20 ..	136	104	2 (1·4%)	6 (5·7%)
21–30 ..	655	294	6 (0·9%)	20 (6·8%)
31–40 ..	758	339	7 (0·9%)	24 (7·1%)
41–50 ..	450	254	2 (0·4%)	23 (9·1%)
51–60 ..	294	204	2 (0·6%)	19 (9·3%)
61–70 ..	267	211	2 (0·7%)	17 (8·1%)
71–80 ..	112	88	1 (0·8%)	2 (2·2%)
81–90 ..	7	13	—	—
Totals ..	2,796	1,634	22 (0·8%)	112 (6·1%)

The illness which necessitated transfusion therapy was taken into account in all cases, but nothing significant was noted. Similarly, the cases were more or less equally distributed between the sexes, 71 (53%) being female and 63 (47%) male.

Discussion

In the present investigation the incidence of homologous serum jaundice (11.9%) found among the recipients of large-pool plasma is considerably higher than that reported by other workers. Of the 54 cases, three were fatal, whereas Spurling and others reported 77 cases, none of which was fatal.

In those patients who received small-pool plasma, on the other hand, the incidence of homologous serum jaundice was significantly lower, amounting to only 1.3%. The considerable reduction in the incidence of this complication of plasma transfusion seems to justify the decision made in 1945 to produce only small-pool plasma.

Of the recipients of whole blood 22 developed jaundice—i.e., 0.8% of the cases—whereas among 891 recipients investigated by Spurling and others six cases of jaundice (0.7%) were reported, but these were listed as "doubtful if due to transfusion."

Inquiry failed to reveal any increase in the incidence of infective hepatitis during the period under review in the North-West Region, the population of which is 3,250,000. In another part of England the attack rate per 1,000 per annum was 0.06 in 1945, 0.07 in 1946, and 0.04 in 1947 in a population of 2,600,000 (McFarlan—personal communication).

In the production of small-pool plasma a record of the donors who contributed to each pool was available, and a follow-up of these donors was carried out so far as was possible, but in only one out of the 63 donors traced was there a history of jaundice. In this case jaundice occurred three months after blood donation. No information such as history of contact with infective hepatitis or of inoculation was given. The donors whose bloods were involved in homologous serum jaundice in the whole-blood series were also followed up, but with negative results.

Summary

In the follow-up of 4,430 patients who had received transfusion therapy 134 (3%) cases of jaundice were discovered, of which seven (0.2%) terminated fatally.

Large-pool plasma and combined large-pool plasma and blood transfusions were responsible for 100 (74.6%) of the cases, six of which were fatal.

The incidence rates of homologous serum jaundice for small-pool plasma (1.3%) and for whole blood (0.8%) are not significantly different (difference/S.E. of difference = 1, approx.), but these rates differ very considerably from that of large-pool plasma (11.9%).

The findings suggest that at least 0.35% of donors are probably carriers of the icterogenic virus.

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One of the German casualties of the war was the *Archiv für Schiffs- und Tropenhygiene*, and for over four years the Germans have been without a national journal devoted to tropical medicine. This gap has now been filled by the publication of the *Zeitschrift für Tropenmedizin und Parasitologie*, which is edited by workers at the Bernhard Nocht-Institut für Schiffs- und Tropenkrankheiten, Hamburg, and published by Georg Thieme, of Stuttgart. In their prefatory note the editors point out that, while opportunities for German workers in the Tropics are now almost non-existent, many problems concerning tropical medicine can be investigated in the laboratory at home, and that as a result of the war many cases of tropical disease in Germany make ample material available for clinical investigation. Subscription to the new journal is approximately £4 per annum. Dutch investigators also suffered a setback when publication of the *Geneeskundig Tijdschrift voor Nederlandsch Indië* was stopped by the Japanese in March, 1942, after having appeared without interruption since 1852. This journal was replaced in 1946 by the *Medisch Maandblad*. Both these journals have the disadvantage, so far as English readers are concerned, of being almost entirely in Dutch. To overcome this difficulty the Dutch have now commenced publication of an English-language quarterly journal of tropical medicine and hygiene, *Documenta Neerlandica et Indonesica de Morbis Tropicis*, with an editorial board representative both of the Netherlands and its overseas territories. Subscription to this journal is £1 2s. 6d. per annum, and it is published at Rivierenlaan 268, Amsterdam Z.

ISO-IMMUNIZATION BY BLOOD-GROUP FACTORS A AND B IN MAN

BY

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Much has been written about the possibility of the blood-group factors A and B acting in the same way as the Rh factor in the pathogenesis of haemolytic disease of the newborn. Jonsson (1936) gave the first immunological evidence, of a statistical nature, that heterospecific blood-group pregnancy (where the O or B mother bears a foetus of group A or AB) was accompanied by a rise of the anti-A haemolysin. Smith (1945) demonstrated that the anti-A or anti-B agglutinin titre rose only in the cases in which the heterospecific foetus was a secretor. The heterospecific pregnancy is then capable of inducing an immune response, but there are very few heterospecific foetuses that demonstrate haemolytic disease. In consequence, there must be some protective mechanism, several of which were reviewed by Tovey (1945).

There are, however, certain facts which focus the attention on the antibody itself. In 1946 we found in the blood of pregnant women who had previously been delivered of stillborn babies anti-A agglutinins reacting far more strongly at 37° than at 4° C. (Millet and Hubinont, 1946a ; Hubinont and Millet, 1946). Bruynoghe (1947) found an anti-B agglutinin of the same type in a case of haemolytic disease of the newborn. Since then we have met with several similar cases in which the clinical course was somewhat different from the classical haemolytic disease of the newborn. In all cases the foetus died *in utero* a few days before delivery or during labour.

Many authors—the first of them being Levine, Katzin, and Burnham (1940)—have emphasized that anti-Rh agglutinins react more strongly at 37° than at 4° C. Inversely, it is very well known that natural anti-A or anti-B agglutinins possess a thermal optimum at 4° C.

We verified that several normal agglutinins of rabbit serum (Millet and Hubinont, 1946b ; Hubinont, 1948a) and guinea-pig serum (Hubinont, 1947) showed, through immunization, the same change of thermal optimum that we found in our patients. Further investigations on the rabbit showed that hyperimmunization with sheep erythrocytes was often followed by the production of a blocking antibody, giving a prozone phenomenon in quantitative agglutination tests (Hubinont, 1948b).

We recently had the opportunity of studying the immune-response of a group B individual who was transfused by mistake with A_1 blood and eventually recovered: 75 ml. of whole blood had been injected before alarming symptoms appeared.

The serum was tested at regular intervals with A_1 and A_2 cells collected from the same donors. The tests were performed by the usual technique in tubes, using 0.9% saline as diluent, each test being performed simultaneously at 4° and 37° C. The results are shown in the Table.

On the day of transfusion both A_1 and A_2 cells were agglutinated with the same titre and thermal optimum. On the fourth day there was a small increase in titre, noticeably higher for A_1 than for A_2 cells. On the eighth day the thermal optimum for A_1 agglutination turned to 37° C. Finally, on the 30th day the agglutination was stronger at

37° C. for both A_1 and A_2 cells. Further, there was a prozone phenomenon in the test for A_1 agglutination at 4° C. It was shown by a blocking test (Race, 1944 ; Wiener, 1944) that this prozone was due to the presence of an anti-A blocking antibody.

Time of Test	Cells	Temp.	Serum Dilutions 1/1	1/2¹	1/2²	1/2³	1/2⁴	1/2⁵	1/2⁶	1/2⁷	1/2⁸	1/2⁹	T
Day of transfusion	A_1	37° C.	½	++	+	w	—	—	—	—	—	—	—
		4° C.	3½	3½	3½	2½	2	1	++	++	—	—	—
	A_2	37° C.	++	++	w	—	—	—	—	—	—	—	—
		4° C.	3	3	2	2	1	++	++	—	—	—	—
4th day	A_1	37° C.	2	2	1	+	w	—	—	—	—	—	—
		4° C.	4	4	4	3	3	2	1	++	+	—	—
	A_2	37° C.	++	++	(+)	?	?	—	—	—	—	—	—
		4° C.	4	3½	3	3	1½	+	(+)	w	?	—	—
8th day	A_1	37° C.	4	4	4	4	4	3	2	1	½	++	—
		4° C.	4	4	4	4	3	2	2½	1½	++	(+)	—
	A_2	37° C.	4	4	3½	3	2½	1	½	++	(+)	—	
		4° C.	4	4	4	3½	3½	3	3	2	½	++	—
30th day	A_1	37° C.	2½	4	3½	3½	3½	3½	3	2½	2	2	—
		4° C.	++	(+)	++	++	2	3½	2½	2	1	++	—
	A_2	37° C.	2	2	3	2	3½	3	2½	2	2	1½	—
		4° C.	3½	3½	2½	3	3	3	2½	2	1	++	—

Scores for agglutination are given in arabic signs (for visual agglutination) and the signs usually employed for microscopical agglutination in Rh work (M.R.C. Memorandum, 1943).

Unfortunately the patient could not be followed up, and we are not aware of his actual agglutination pattern for A_1 and A_2 cells. Nevertheless, his immune response to an incompatible transfusion confirms our observation of ABO iso-immunization in pregnant women and of experimental hetero-immunization in rabbits.

Upon immunization with an antigen corresponding to a natural agglutinin present in the animal's serum (anti-A or anti-B in man, anti-sheep in rabbits), the first noticeable change would be a slight rise in titre, followed quickly by an inversion of the thermal optimum in quantitative agglutination tests. A further step would be the apparition of a prozone corresponding to the production of "blocking antibodies."

The *in-vitro* differences in the behaviour of "natural" cold anti-A and anti-B agglutinins and the "immune" warm anti-A and anti-B antibodies are probably dependent on their chemical structure, which would account for their harmfulness to the foetus. It is a significant fact that we found these warm agglutinins in the only instances quoted above with their particular clinical course, and that they were not found in uneventful heterospecific blood-group pregnancies.

Summary

A case of immune response to an incompatible blood-group transfusion is described. There is a definite difference *in vitro* between natural and immune anti-A agglutinins.

The same difference is found in maternal iso-immunization, the particular form of haemolytic disease following A and B sensitization being the death of the foetus *in utero*, either during the last days of pregnancy or at the time of delivery.

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DIAGNOSIS AND TREATMENT OF CUTANEOUS ANTHRAX

BY

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Anthrax—a rare disease in this country—has many interesting and unusual facets. Probably first recorded by Virgil, it became prominent initially in Britain about the middle of the last century coincidentally with the importation of alpaca and mohair to Bradford. It was first notifiable so far as factories and workshops were concerned in 1896, and activity was rapidly directed towards its prevention in view of the high proportion of fatalities among affected workers—then some 20 to 30%. Local precautions in the form of protective clothing, the posting of information regarding the disease, washing facilities, and exhaust ventilation for certain processes were advocated by the Anthrax Investigation Board set up in Bradford by the Chamber of Commerce. Despite these the incidence remained high, though the dread and fatal form of pulmonary infection showed a rapid decline between 1881, when Mr. John Spear made his investigations, and 1905, when Dr. T. M. Legge gave the classical Milroy Lectures on industrial anthrax.

A further Anthrax Investigation Committee set up in 1913 advocated, in 1918, a process for wool and hair disinfection. Following up the committee's suggestions, Parliament passed the Anthrax Prevention Act in 1919, and by 1921 an experimental disinfecting station had been set up in Love Lane, Liverpool, to carry out the "Duckering process"—named after the secretary of the above committee—for wool and hair disinfection, and in succeeding years this process has proved its efficacy. Mention should be made of the excellent bacteriological investigations carried out for both the board and the committee by the late Dr. F. W. Eurich, professor of forensic medicine at the University of Leeds.

From 1890 to 1920 an increase in the incidence of anthrax was also noticed in the cattle of Great Britain, though the numbers were never comparable to those encountered in Russia, Siberia, China, and parts of India. Knowledge about the means of spread of the disease and the life history of the organism enabled measures to be taken which may be briefly summarized under the headings of—notification, isolation, and destruction of the sick animal or carcass, disinfection of the surroundings, and inoculation of other animals. These not only rapidly controlled the disease among cattle but also diminished the incidence among butchers, veterinarians, shepherds, and others associating with animals, the true index of which was never known, since only cases occurring in certain trades were then notifiable. This anomaly of notification was widely commented upon in coroners' courts, medical journals, and Parliament at the time.

In the four or five years following 1915 the incidence of anthrax increased both here and in America, the source being shaving-brushes made from infected hair. This source was soon recognized as being especially dangerous, since it was not confined to any particular trade or industry, claiming among its victims a professor of law and a

Congregational minister, to name but two, and precautions were rapidly taken—in particular an Order made under the Act of 1919 banning the importation into Britain of shaving-brushes of Japanese origin. Sporadic cases from this source have been reported up to 1939—some from brushes bought years previously, in which the spores had lain dormant until the unlucky coincidence of shaving-cut and spore ignited the powder of disease.

The disease contracted from wool and hair and that in animals are thus largely controllable, but there still remains a further common source of infection—namely, imported hides and skins. This source gives rise to cases not only in tanneries but also in dock workers, carters, and warehousemen, as well as very occasionally in persons coming in contact with leather. Methods aimed at killing the hardy spore in the hides tend to damage the material, and though suitable disinfecting processes have been claimed by Seymour-Jones, of Wrexham (and advocated by Ponder), and by others in Germany, they have not been adopted. Cases from this source arise from time to time, and the following is a report of eight such cases occurring in two tanneries in Leeds and district in a period of fourteen months.

Occupation and Source of Infection

All eight cases were of the cutaneous type of infection, and all occurred in men doing essentially the same tasks at two different tanneries (named for convenience "A" and "B") in widely separated areas. Tannery "A" deals mainly with goat-skins coming from various sources as indicated in Table I, but principally from East and West Africa. All six men from this tannery were employed opening the bales of skins, carrying the skins up to a sorting-shed, sorting them, and then sending them down a chute to the lime-yard when required. As one man after another fell victim other men took their place, and eventually they too became patients. Of the seven different men undertaking these tasks during the past fourteen months six have contracted anthrax. The previously reported cases occurring at this tannery were two in 1936 and two in 1946. Certain alterations have now been carried out in the hope of reducing the risk.

Tannery "B" deals with the hides chiefly from East and West Africa, though occasionally from South America and India. All are dry hides, as opposed to the wet salted variety which rarely give rise to infection. The duties of the men at this tannery are precisely the same as those at "A"—but owing to the demand for goods and the short-age of raw material there is very little storage of hides at present, and they are almost immediately taken into the water- and lime-vats on unbaling, and there is rushing in this system. During the eight-months period in which the cases occurred there were some 12 to 15 men working in this part of the tannery. There had been no previous cases.

At both tanneries the full regulations as laid down in various Acts are carried out, the men wearing protective clothing, and washing facilities and changing-rooms being provided. In the opinion of the authorities at these tanneries it is the increased demand for raw materials which has given rise to the present outbreak, the materials being collected from various remote regions in Africa where there is little or no control over the source of the hide or skin. No cases have ever occurred at either tannery in the processes carried out beyond the lime-vats.

Occurrence of Infection. Contact Cases

The necessity for a local skin abrasion together with the presence of the organism before the appearance of a malignant pustule has long been known, and is borne out by these cases, in all of which there was good cause for a local abrasion such as collar-chafing or shaving-cuts. Even in Case 4, in which the lesion was on the leg, there were also numerous flea-bites. It is interesting to speculate in this connexion whether a break in the lung "lining surface" is not also necessary before the development of pulmonary anthrax. Spore-laden dust was plentiful at tannery "A" and yet no pulmonary cases have occurred to date. Also the rapid decline in incidence of pulmonary anthrax from 1880 onwards parallels the improvement in general public health and the decline of tuberculosis in particular.

All cases presented the classical malignant pustule, and in all the diagnosis had been made by the patient or a fellow workman—from their knowledge of the disease obtained by experience or from a poster hung in the factory—and never by a physician. In some cases delay in admission was actually caused by the physician.

Man-to-man infection is surprisingly rare. There are recorded cases in the literature—Hodgson (1937) records two—but their number is small, and this is surprising in view of two points which can be seen in Tables I and III—namely, the length of time during which the patient may be in contact with his family, often in a small house, and the fact that his normal healthy skin may give a positive growth of organisms, showing the widespread nature of their distribution. The intact skin must in many cases be a barrier of unusual strength in preventing the appearance of contact infection.

TABLE I.—*Summary of Cases*

Case	Age	Tannery	Source of Hides	Site of Lesion	Duration	Stay in Hospital	Date of Admission	Constitutional Symptoms on Admission	Smear	Culture	Animal Inoculation	Contacts
1	50	A	Indian and E. African goat-skins	Below and behind right ear	26 hrs.	24 days	27/11/47	Nil	Pos.	Pos.	Pos.	4
2	48	A	E. African goat-skins	Left temple	4 days	17 ,,	22/12/47	,,	,,	,,	,,	1
3	42	A	,, ,, ,,	Right side of neck	3 ,,	16 ,,	16/2/48	,,	,,	,,	,,	7
4	49	A	E. and W. African goat-skins	Posterior right calf	20 hrs.	13 ,,	21/2/48	Severe	,,	,,	,,	7
5	29	A	,, ,, ,,	Right cheek	4 days	13 ,,	22/2/48	Nil	?Pos.	Neg.	Neg.	2
6	53	A	,, ,, ,,	Posterior right neck	6 ,,	33 ,,	20/8/48	,,	Pos.	Pos.	Pos.	1
7	30	B	E. and W. African cowhides with some S. American and Indian	Left cheek	3 ,,	17 ,,	29/5/48	,,	,,	,,	,,	2
8	29	B	S. African and Nigerian cowhides	Below and behind right ear	3 ,,	19 ,,	24/12/48	,,	,,	,,	,,	4

Diagnosis

This is made on the following three salient points.

1. *Appearance of Lesion.*—In all eight cases this was typical—a black, necrotic centre, a ring, partial or complete, of pearly translucent vesicles, the whole sitting on a red base on a hillock of widespread oedema. Certain other features aid the physician. The absence of pain with such a degree of oedema is noticeable. Practically the only local symptom encountered in this series was slight itching.

Earlier stages than this in the development of the lesions are described, the commonest being the large vesicle under which the black eschar forms, but these were not seen by us even in the patient who presented within 26 hours of the onset of disease. Constitutional symptoms and signs were not common. Only Case 4 presented with pyrexia, though Cases 3, 6, and 8 had pyrexia on the second or third day of treatment, with associated headache, malaise, and often pains in the bones. In Case 6 this may have been of other causation (see below).

2. *Occupation of Patient.*—At present this is a reasonably straightforward clue, anthrax occurring in those industries where exposure to infection is well known. A survey of the literature has shown that the disease may appear under most unlikely circumstances. For example, it may occur in carpet-layers, paper-hangers (from wall plaster), menders of sacks (which have carried bones, horns, or hooves), and carriers of potatoes (from soil), and from mink farms, elephant tusks, elephants at the London Zoo, etc. A physician may be forgiven for not suspecting the condition in patients in occupations such as these, but in persons connected with animals or animal products (especially imported ones) presenting with a localized skin lesion, or occasionally multiple lesions, anthrax should be a first consideration.

3. *Bacteriological Diagnosis and Investigations.*—These are the final proof, and were obtained in all our cases except Case 5, in which the first two criteria were adequately fulfilled—justifying treatment for anthrax. The following investigations were carried out in this series.

Bacteriological Examination

As soon as a case was suspected of being due to *Bacillus anthracis*, material from the local lesion was taken for investigation. The most practicable way of taking this material was found to be with a Pasteur pipette, plunging the point into the centre of a vesicle, or vesicles if confluent, and withdrawing the fluid. If there were no obvious vesicles, or they had burst, then material was aspirated from beneath the edge of the eschar. The fluid obtained was clear, yellow, or sanious in nature, there being no evidence of pus macroscopically.

As a routine this material was cultured aerobically on heated and fresh blood agar, and two thick films were made, stained with Gram and Leishman respectively. On examination of the Gram film a long time was often spent before coming across one, two, or perhaps a small chain of bacilli—this being especially true in five of the seven positive cases. In the other two the vesicular fluid was heavily infected with the organism. In no case was there any marked polymorphonuclear leucocytic response. In the seven positive cases the appearance of the bacillus was morphologically typical of *B. anthracis*—a large, straight, capsulated, Gram-positive bacillus with parallel sides, clean-cut square ends, with a tendency to chain formation. As confirmed by others, there was no evidence of spore formation in the human tissue fluids.

The growth after 18 to 24 hours on the solid media invariably showed an almost pure culture of *B. anthracis*, with occasional colonies of *Staphylococcus albus* and diphtheroids. There was no evidence in any case of invasion by other pyogenic organisms. The colonies at 24 hours' growth had the typical reticulated surface with irregular wavy edges (so-called barrister's wig), producing proteolysis on the heated blood-agar medium and no haemolysis on the medium containing the fresh blood.

These colonies were subcultured, and after the organism had been isolated in pure culture the following investigations were carried out.

Morphology.—Routine films from the 24-hour culture showed the typical rod-shaped appearance of the organism in heavy interlacing chains, capsulated, and associated with the production of numerous spores. These were mainly central or subterminal, but there were many spores also lying free. The characteristic morphology was retained on repeated subculture.

Motility.—This was determined by growing the organism in a semi-solid nutrient-agar medium in a 1-in. (2.5-cm.) diameter boiling-tube. A small-bore glass tube was inserted into the boiling-tube, the *B. anthracis* being inoculated on to the surface of the agar in the small tube. The organism, being non-motile, remained localized on or just below the surface of this agar. If the organism had been an anthracoid, then owing to its motility growth would have proceeded down the small tube and eventually infiltrated the larger volume of agar outside. In all the seven strains investigated the organism was non-motile.

Proteolytic Activity.—Gelatin prepared in large boiling-tubes was inoculated as a stab culture at 24° C. The lytic effect in gelatin is a slow but definite effect. In two cases only did the organism produce the truly characteristic inverted fir-tree phenomenon. The other five strains seemed to produce little attempt at canalicular liquefaction, there being just a central core of proteolysis.

Effect of Antibiotics.—All the strains were tested for their sensitivity to penicillin and streptomycin. The usual punch-hole plate method was adopted. Table II shows the degree

TABLE II.—*Sensitivity to Antibiotics: Animal Pathogenicity*

Case No.	Strain	Sensitivity Compared with Oxford *Staph. aureus*		Death of Mouse after Inoculation
		Penicillin	Streptomycin	
1	I	25% less	Equivalent	34 hours
2	II	50% ,,	10% less	36 ,,
3	III	10% ,,	80% ,,	36 ,,
4	IV	20% ,,	10% ,,	30 ,,
6	V	25% ,,	5% ,,	20 ,,
7	VI	20% ,,	10% ,,	35 ,,
8	VII	Equal	75% ,,	30 ,,

of inhibition compared with that of the Standard Oxford *Staph. aureus*. Thus in all cases the strain was sensitive to both penicillin and streptomycin in fairly low concentrations. It is interesting to observe that on the whole the strains showed greater inhibition with streptomycin than with penicillin, using equivalent concentrations of streptomycin per ml. No production of strains resistant to these drugs was noted, as the organism was never recovered from the lesion after the patient was placed on intensive treatment. The strains on an average were sensitive to 10 units of penicillin per ml. and to 5 to 10 units of streptomycin per ml.

Animal Pathogenicity.—In the seven cases in which the organism was isolated the mouse was utilized for virulence tests. A volume of 1 ml. of a 24-hour "oxopeptone" broth culture was injected subcutaneously into the right half of the anterior abdominal wall. The animals were isolated in glass containers, the carcass, food, faeces, etc., being autoclaved after necropsy. Death occurred in all cases within 36 hours, as shown in Table II. At necropsy the local lesion was haemorrhagic, hyperaemic, and oedematous, the spleen was congested and enlarged, and on microscopical examination the oedema fluid, splenic pulp, and heart blood were found to contain enormous numbers of Gram-positive bacilli, yielding pure heavy growths of *B. anthracis* on culture.

In addition to the above investigations on individual strains, in each case a series of swabs were taken from the hair or skin of the patients in order to ascertain the presence or otherwise of *B. anthracis*. Table III summarizes the

results of these investigations, carried out before the third day of treatment (usually on the first day). Similar investigations made towards the end of the stay in hospital were negative, as were cultures made from materials taken from beneath the eschar after complete therapy.

TABLE III.—*Skin Cultures*

Case No.	2 in. Above Lesion	2 in. Below Lesion	Hair of Scalp	Right Palm	Left Palm	Right Groin	Left Groin
1	Neg.	Pos.	Pos.	Neg.	Neg.	Neg.	Neg.
2	"	Pos. A	Neg.	"	"	"	"
3	"	Neg.	"	"	"	"	"
4	"	"	"	"	"	"	"
5	"	"	"	"	"	"	"
6	"	"	"	"	"	"	"
7	"	"	"	Pos.	"	"	"
8	"	"	"	"	"	"	"

Neg. indicates only normal flora grown. Pos. indicates *B. anthracis* cultured. Pos: A indicates anthracoids cultured.

Treatment

In no case was surgery contemplated. Excision and incision, especially the murderous crucial incision which was once performed, play no part in the modern treatment of anthrax, and are probably harmful, breaking down natural barriers. A study of the literature has revealed that excision performed very early was possibly beneficial, but incision was almost invariably followed by death, and thus was much worse than no treatment at all. In this series the local lesion was covered with a dry sterile dressing and left alone after the necessary bacteriological examinations. The part was immobilized as far as possible: if on the head and neck the patient was nursed flat with the head between sandbags; if on a limb, as in Case 4, the limb was splinted. The following specific treatment was carried out (Table IV), since the literature concerning patients treated successfully with penicillin alone had not been studied when the first case was admitted.

TABLE IV.—*Treatment*

Case	N.A.B.	Serum	Penicillin (units)	Result
1	1·5 g. over 10 days	145 ml. in 4 days	650,000	Cure
2	1·05 g. in 6 days	90 ml. in 5 days	2,265,000	"
3	1·2 g. over 5 days	160 ml. in 5 days	1,344,000	"
4	1·2 g. over 8 days	240 ml. in 5 days	3,520,000	"
5	1·2 g. over 5 days	80 ml. in 2 days	2,048,000	"
6	1·2 g. over 6 days	320 ml. in 4 days	5,400,000	"
7	1·8 g. over 13 days	80 ml. in 2 days	2,800,000	"
8	1·2 g. over 6 days	420 ml. in 6 days	6,018,000	"

Neoarsphenamine.—This drug was given in two or three doses of 0.45 to 0.6 g. intravenously at five- to seven-day intervals. Doses such as these given once or twice at one- to three-day intervals have been used successfully without any other therapy (Becker, 1912a, 1912b; Pijper, 1926).

Anti-Anthrax Serum.—Until recently this has been the mainstay of treatment. Advocated by Sclavo in Italy, by Marchoux in France, and by Legge (1905) in Britain, it soon became widely used—at first in combination with surgical treatment, and later alone, with definite success. Dosage advocated differed—from 40 to 80 ml. by early workers (Legge, 1905; Lockwood and Andrewes, 1905; Bowlby and Andrewes, 1905) to 600 ml. and upwards (Hodgson, 1941; Gold, 1942). In the above series the average dosage was 190 ml. in some seven injections over four days—the total varying with the need and response of the patient. Usually between 60 and 100 ml. was given intravenously on the first day of treatment. No severe reactions were encountered during the time of serum administration, but all cases developed urticaria and pruritus on the eighth day after the start of serum therapy. This was readily controlled by the use of calamine lotion containing 1% phenol locally and "anthisan" internally, 100 mg. three times a day with meals. The serum used, apart from the first case, was that marked "War Agricultural Committee," contained in rubber-capped 500-ml. bottles. Case 1 had the product manufactured by Mulford's, and later some 90 ml. of Lister's antiserum.

Penicillin.—Several reports are now in the literature of cases of cutaneous anthrax treated successfully with penicillin alone (Murphy *et al.*, 1944; Ellingson *et al.*, 1946; Griffin *et al.*, 1948). The suggested dose increases as the years go by, starting with a total dose of 200,000 to 400,000 units advocated by Murphy *et al.*, to 5,000,000 units advocated by Griffin *et al.* The average dose used in our series was about 3,000,000 units, given usually as 64,000 units three-hourly, though occasionally as 250,000 units twice daily.

Sulphonamides.—Sulphonamides were used not as specific therapy, though claims have been made for their curative powers in anthrax by Gold (1942), but in an attempt to remove the secondary invading organisms in the lesion—usually *Staph. aureus.* The dosage was small, a total of 15 g. over 10 days being the average. In Case 4 secondary infection with a purulent discharge was very troublesome, and the patient attended as an out-patient for local and general (penicillin) therapy for some two months after the cure of the anthrax.

Case 6 presented an interesting therapeutic problem in that he had latent seropositive syphilis in addition to anthrax. On the fourth day of treatment with serum, neoarsphenamine, and penicillin, he had a pyrexia of some 101° F. (38.3° C.) lasting for eight hours; since this occurred about eight hours after the last injection of serum, the possibility of a Jarisch-Herxheimer reaction was considered. Luckily there was no focal flare-up of the syphilis—at least, it was not in evidence. A study of the literature has not revealed a similar case.

All cases have been visited since discharge from hospital. All possess a small scar which is barely noticeable. All are well, and so far none has contracted any further lesion. Second attacks are uncommon, but do occur (Inda, 1921) and are said to be mild. The two men now doing the dangerous work at tannery "A" are both discharged cases, but it is hoped that the alterations carried out at this tannery have reduced the risk of infection. A third man from tannery "A" has returned to work, but in a job connected with the further processing of the leather and not in the lime-yard. The remaining three have obtained other employment. Both men from tannery "B" have returned to work in their original occupation.

Summary

A brief survey of the sources of anthrax shows control to be applicable and useful in all but hides and skins, and a report is given of eight cases occurring in Leeds and district over a period of 14 months in persons connected with these raw materials.

The salient points concerned in the diagnosis are given, together with the details of the isolation and identification of the organism in seven cases by direct films, culture, biochemical activity, and animal inoculation.

The effect of penicillin and streptomycin on the organism is discussed, and the routine investigation of skin culture before and after treatment is cited.

Methods of treatment past and present are briefly given, and the conclusion is reached that, for all practical purposes, penicillin is probably the most desirable method to-day—from the point of view of effectiveness, time of hospital stay, expense, and unpleasant side-actions.

We wish to express our thanks to Dr. J. T. Ingram and Professor J. W. McLeod for their kind permission to publish these cases, and for their help and advice in the writing of the article; also to Miss J. Cuckston for her invaluable technical assistance.

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ACUTE PERICARDITIS SIMULATING CARDIAC INFARCTION

BY

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Simulation of cardiac infarction by acute pericarditis is well recognized by cardiologists, though references are not numerous (Barnes and Burchell, 1942; Wolff, 1944). Pericarditis in such cases is of unknown aetiology, since an obvious cause would leave no doubt about the diagnosis. It forms a subgroup of the type mentioned by East and Bain (1948), in which "cause and association are quite obscure," and is termed by Peel (1947) "primary or idiopathic," by Dry (1943) "non-specific . . . from which recovery may be complete," and by Andrews *et al.* (1948) "acute idiopathic." The infrequency of specific references seems to justify a report of only two cases. The association of one with a general arterial disease suggests a possible mechanism.

Case 1

A man aged 63 was admitted to the Royal Sussex County Hospital on July 23, 1948, and was diagnosed clinically as a case of temporal arteritis. Biopsy confirmed the diagnosis and relieved a severe headache: the histological report was, "The adventitia is infiltrated with round cells, among which are a few eosinophils and giant cells. There are areas of necrosis in the media. The appearances are typical of temporal arteritis." Though the condition was regarded as still active, with persistent fever, a predominantly polymorph leucocytosis of 11,800, and an erythrocyte sedimentation rate of 31 mm. in the first hour (Wintrobe corrected, normal 0–10), discharge was necessary after a fortnight.

Headaches returned, however, and he was awaiting readmission, when in the early hours of Sept. 21 he was suddenly attacked by a pain under the left costal margin which spread to the lower substernal area. He was admitted 16 hours later, with evident severe substernal pain but negative clinical findings except for fever of 100° F. (37.8° C.) and what was regarded as triple heart rhythm. During the next 24 hours his temperature fell to normal and the pain disappeared, but a pericardial friction rub developed. An electrocardiogram showed changes indicating acute pericarditis, with elevation and deformity of the R–T interval in all leads. This returned practically to normal a fortnight later; no evidence of cardiac infarction was present. He was then discharged, afebrile, but with a raised sedimentation rate, which persisted until he was last seen in February, 1949, when he complained of pains in the occiput, sterno-mastoid, thigh, and deltoid muscles. The heart appeared normal clinically and by electrocardiography and cardioscopy.

Case 2

A man aged 37 was seen on Jan. 19, 1949. Following moderate exposure and mild malaise, and after a heavy meal, he developed epigastric pain while driving his car. This grew more severe and paroxysmal, extending from the xiphisternum upwards to the suprasternal notch, passing outwards to the pectoral regions and posteriorly to the interscapular region at the level of the sixth dorsal vertebra. Although no abnormal clinical signs of any kind were found, repeated injections of "omnopon" and pethidine were necessary.

By the next morning the patient felt practically recovered, but during this second day fever of 101° F. (38.3° C.) developed, and a loud but painless pericardial friction rub became audible. An electrocardiogram showed the changes of acute pericarditis, with elevation and deformity of the R–T interval in the limb leads and chest leads CR1 to CR7, maximal in II and CR3. Friction disappeared in 24 hours and fever in 48 hours. After a fortnight the heart was clinically and cardioscopically normal, but there was still slight elevation of the R–T interval, maximal in II and CR4. After a further seven weeks, when the patient had been working for a month, slight elevation of R–T in CR4 alone remained.

Comment

Both cases were at some stage, and with justification, diagnosed clinically as cardiac infarction. Apart from differential diagnosis, the general question of their mechanism may be raised. As will be observed from the earlier references, none has been suggested. It is also noted by Wolff (1944) that the prognosis is good, as is implicit in the terms "non-specific," "obscure," or "idiopathic" used by other authorities, since fatalities and necropsies would be likely to lead to some conclusion regarding their cause. A bacterial origin seems unlikely, since duration is brief and sequelae are rare. The cases cannot be regarded as "a chief manifestation of an infective process" (Lewis, 1946), such as acute rheumatism (Evans, 1948).

Another possibility arises, however, when the group simulating cardiac infarction is considered. The most likely simulator of a vascular lesion is another vascular lesion. In Case 1 there is evidence of activity of temporal or giant-cell arteritis, now recognized as a generalized process (Cooke *et al.*, 1946). The possibility has been suggested that this may affect the coronary vessels (Cole, 1948) or other large vessels (*B.M.J.*, 1949). A reasonable explanation of the pericarditis in Case 1 seems to be arteritis of the vessels supplying the pericardium—branches of the internal mammary vessels or descending aorta—producing a pericardial infarction. Pericarditis or subepicardial infarction is known to occur in some cases of coronary occlusion, so that vascular lesions can produce such changes. On the other hand, they are not invariable in coronary disease, so that the subepicardial muscle derives part of its blood supply from elsewhere. The vessels providing the supply may be those damaged by the arteritis in Case 1, and possibly in "idiopathic" Case 2 some chance lesion may also have affected them. The rarity of an obvious general cause may be due to the fact that when there is generalized arterial disease the coronary vessels, exposed to constant and severe stresses in unintermittent response to changes in the internal and external environment, will fail earlier than the relatively sheltered vessels of the pericardium. These, on the other hand, may suffer from such diseases of capricious local incidence as temporal arteritis.

Summary

Two cases of acute pericarditis simulating cardiac infarction are reported, one associated with temporal arteritis. Pericardial infarction is suggested as a responsible mechanism.

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ADDENDUM

Since completing the above a further case has been observed and the article by Harrison and Wood (*Brit. Heart J.*, 1949, **11**, 205) has been published. Their Fig. 9 illustrates development of anastomoses via pericardial vessels in coronary artery disease, by which means the blood supply of subepicardial muscle is presumably maintained. Increase of such pericardial anastomoses by talcum insufflation of the pericardium provides a rational therapy in coronary disease and has been performed on three of my cases, without mortality and with some symptomatic relief.

Medical Memorandum

Gangrenous Intussusception

This note records the successful resection of a gangrenous ileo-ileal intussusception in an infant of just under six months, on the third day of his illness.

CASE REPORT

The following pre-operative notes were kindly supplied by Dr. Michael Cutler:

"I first saw the patient at twelve noon on a Saturday, when the mother stated he seemed 'grievy' and not his usual self. He had twice vomited, first at 9 a.m. that morning and again about 11 a.m. After the operation the mother was again questioned and agreed that the child had an attack of screaming, with drawing up of the legs and pallor, at or about the time of the vomiting. It would appear the attack was neither prolonged nor violent, as the mother, an intelligent witness, thought it unworthy of mention when first questioned.

"The first examination was completely negative, except that the child looked rather pale. The bowels had not been open since the previous evening. I attributed the pallor to a severe infection, and fully expected diarrhoea and pyrexia to appear in a few hours. I instructed the mother to give 8 fl. oz. (227 ml.) feeds of half normal strength three-hourly. I saw the child again that evening. By then he had much improved: the pallor had gone and there was no more vomiting. For the second time I sought in vain for an abdominal tumour. The child slept all through Saturday night, and by Sunday morning the mother thought he had recovered. The failure of the bowels to act was attributed to the small feeds and vomiting. I again carefully examined the patient, but could find nothing wrong. I instructed the mother to continue diluted feeds and announced that I thought the trouble was nearly over. I left the child for twenty-four hours, making my next call on Monday morning. One glance at the child as I entered the room was enough—he was sweating, pale, and obviously very ill. The mother told me he had been vomiting severely since Sunday at 9 p.m. and there was a foul odour to the vomitus. I again examined the child and found no abdominal tumour, but the other signs were now conclusive."

This is a case of intussusception unrecognized until the third day. The failure in diagnosis is attributed to absence of the usual physical sign of blood per rectum, and to the striking absence of pain after the first day. There was only one attack of screaming, and that was brief. The vomiting was not profuse until 9 p.m. on the second day. The apparent recovery early on the second day also contributed to the difficulty of diagnosis. The case exemplifies the need for vigilance, as emphasized by Morrison and Court (1948).

On admission, the child's temperature was 100.4° F. (38° C.), pulse 144, respiration 28. He looked pale and ill. The abdomen was resistant to palpation, but when the patient relaxed a firm, sausage-shaped mass could be felt lying across the right lower quadrant, fixed with the axis to the right and upwards. This mass was deep in the abdomen and did not harden with the pains. This failure to harden was explained by the subsequent finding of a gangrenous intussusception.

Operation.—Dr. A. H. Grace administered ethyl chloride and open ether. Pre-operatively a catheter was inserted into the stomach and a quantity of greenish fluid aspirated; the tube was kept in place during the operation. A right paramedian mid-abdominal incision was made, and revealed some clear free fluid. An irreducible, gangrenous intussusception of the small intestine was found. This was resected between clamps, and an end-to-end anastomosis was performed with two rows of interrupted catgut. A small oil-silk drain was inserted into the pelvis and left protruding from the wound, which was closed in layers.

The first day after operation the child was very restless, and vomited a considerable amount of green fluid. A catheter was passed into the stomach for hourly aspiration. He was passing urine normally. Intravenous glucose-saline was administered, and he was given 50,000 units of penicillin four-hourly for nine days. During this time the evening temperature reached 100–101° F. (37.8–38.3° C.). He received hypodermic injections of "nepenthe" 1 minim (0.06 ml.) as required, and 3 ml. of water hourly. On the second day after operation a quantity of stale and bright red blood was passed per rectum, and a little greenish fluid was withdrawn from the stomach. Plasma (200 ml.) was administered intravenously, followed by 200 ml. of Group O blood and normal saline.

On the third day about 200 ml. of gastric contents were withdrawn by hourly aspiration. This was a considerable increase, but the patient appeared to be much better in the afternoon. The intravenous drip was then discontinued and the bowels were opened with a rectal saline.

On the fourth day the patient was much better. Gastric suction was discontinued and he was given glucose by mouth. He was passing urine and yellow, loose motions, and he smiled for the first time since the operation.

On the fifth day he was well, and took small amounts of milk and glucose solution.

On the sixth day the wound discharged during the night. The child vomited one feed, and the bowels were opened. In the afternoon a faecal fistula formed, which closed after five days. Sulphamezathine (sulphadimidine) was given for four days, the dosage totalling 3.25 g. After this the patient became apyrexial, and his progress has since been uneventful.

Acknowledgment is due to Dr. J. McMurray for directing the post-operative treatment with untiring skill, to Dr. M. Graham, and to Sister I. A. Vincent and the nursing staff of the Royal East Sussex Hospital for their loving care, and to Mrs. W. Beaufrere for her help in the arrangement of this account.

J. A. KERR, B.Sc., F.R.C.S.

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Professor Frits W. Went, designer and director of the new Earhart Plant Research Laboratory in California, said that for the first time in the history of experimental biology it was now possible to grow plants under a wide variety of rigidly controllable conditions. All possible climatic factors, such as light, temperature, humidity, and gas content of the air, are simultaneously and independently controllable in the laboratory, which is to be used for experimental work by the California Institute of Technology.

Reviews

COMMON SURGICAL INFECTIONS

Clinical Aspects and Treatment of Surgical Infections. By Frank Lamont Meleney, M.D., F.A.C.S. With foreword by Allen O. Whipple, M.D. (Pp. 840; 287 figures and 241 illustrative cases. £3.) Philadelphia and London: W. B. Saunders Company. 1949.

This book is a companion to the author's treatise on surgical infections, and the two volumes form a comprehensive work. Dr. Meleney considers the commoner infections in each region of the body—the skin, the head and neck, the heart and pericardium, the mediastinum, the lungs and pleura, the peritoneum, and so on—finishing with chapters on surgical septicaemia and war wounds. The scope of the book necessitates a considerable amount of repetition, and it is difficult to read much of it at one time. It is essentially a volume of reference for the practitioner to dip into when he is confronted with a difficult case of infection in any part of the body. There will hardly be any problem on which he will not find some useful word of advice, or some illustrative case which may serve as an example of what to do or what to avoid. Every practitioner would do well to read the account of the case of appendicitis on page 417, which so strongly emphasizes that delays are dangerous.

Every section is complete in itself and provides an account of the relevant pathology and bacteriology, signs, symptoms, and treatment, and a bibliography of the most important books or articles dealing with the subject. The author shows a remarkable knowledge of the literature, particularly the American, English, Canadian, and French journals. The absence of many references to German periodicals is probably due to the dearth of original work on the subject in that country during the last ten years.

Though the book was begun twenty years ago it contains the latest work on penicillin and streptomycin, and gives an account of an antibiotic called bacitracin, on which the author has done considerable research. There is little evidence that this substance is better than or even as good as penicillin, and it does not appear that it is yet available on any scale; that being the case, it is unfortunate that the drug should be given so prominent a place in this record.

There is so much good in this book and in the companion volume that I would suggest the two were made into one small, practical manual. This would be of even greater value to the busy practitioner.

ZACHARY COPE.

PHYSICS IN SURGERY

Physics and the Surgeon. By Sir H. S. Souttar, D.M., M.Ch., F.R.C.S. (Pp. 60. 7s. 6d.) Oxford: Blackwell Scientific Publications.

It is both inherent and axiomatic that surgical, as opposed to medical, methods of treatment should be largely physical in their nature. Records show that from early times surgeons were employing splints, traction, heat, cold, and other measures the use of which demanded some acquaintance with physical principles. This tendency has increased until the present day, when the surgeon is surrounded by complicated machines in which modern physical advances are put to practical use. Furthermore, he is called upon to use radioactive materials which depend upon atomic nuclear disruption for their biological effects. The practical surgeon cannot be expected to have a detailed knowledge of the constructional features of these machines nor of the mathematical profundities of nuclear physics, but at least he should know something of the underlying general principles.

The amount of physics demanded of the medical student is not sufficient to cover this field. To remedy the defect Sir H. S. Souttar has written this small book, which explains in simple language the surgical applications of physics, from elementary levers to radioactive isotopes. The author's interest in this aspect of surgery is well known, and within sixty pages he has managed to include a wide range of authoritative information. The surgical student whose knowledge of physics is deficient or requires revision will find this book admirable for his purpose.

NORMAN C. LAKE.

EARLY DIAGNOSIS

Early Recognition of Disease. Edited by Sir Heneage Ogilvie, K.B.E., D.M., M.Ch., F.R.C.S., and William A. R. Thomson, M.D. (Pp. 134. 10s. 6d.) London: Eyre and Spottiswoode. 1949.

This is one of the handbooks in which are reproduced a series of articles published in the *Practitioner*. Two chapters have been added, one by Professor Moncrieff on diseases of childhood and the other by Professor Sorsby on diseases of the eye. The remaining articles deal with diseases of the heart, lungs, nervous system, digestive system, blood, kidneys, and endocrine glands; and with orthopaedic disabilities, non-specific arthritis in adults, malignant disease, mental disorders, and the complications of pregnancy. A wide selection in a small compass, and all written by recognized authorities.

The preface states that "during the last thirty years a mass of data has accumulated concerning the recognition of disease in its early stages. Much of this, however, has not found its way into the standard textbooks or is not easily available to the practitioner or medical student." For this reason, we are told, the book has been published. This is a reflection upon the standard textbooks and those dealing with the special branches of medicine and surgery. But is it true that these works do not contain all the important information available for the recognition of disease in the early stages? Does this small book give any information of this character which is not discussed more fully in the standard texts? Take any subject—for example, the early recognition of malignant disease of the colon. We are told in this book that it is necessary to make digital, radiographic, and sigmoidoscopic examinations. But did we not all know this before? Are not the standard books readily available to students and practitioners in the medical libraries and bookshops? These and similar questions can easily be answered by the curious reader who is willing to make the necessary comparisons.

Diagnosis is an art which must be learned at the bedside. There is no short cut to the early recognition of disease, and failure to make an early diagnosis often depends more on lack of care than on lack of knowledge, and on the neglect, or apparent inability, of the observer to select and apply special knowledge to the individual case. Professor Moncrieff has hit the nail on the head when he writes in the concluding chapter: "Complete physical examination . . . is the real clue to the early recognition of disease," and, "Skill and experience with children is an essential requisite for the early recognition of disease." And this applies to adults also.

G. E. BEAUMONT.

CLINICAL DIAGNOSIS

Diagnostik durch Sehen und Tasten. By H. Kahler. (Pp. 253; illustrated. 13s. 6d.) Vienna: Springer. 1949.

Central European medical literature has a tendency to the bizarre rather than the basic, and Dr. Kahler's book on bedside methods is therefore welcome. The author was a pupil of Chvostek, and the academic pedigree of "Diagnosis by Sight and Touch" is therefore unexceptionable. The book is arranged by regions, and under each regional heading the features to be sought or examined are enumerated.

The pages devoted to methods of examination are relatively few and are unbalanced. For example, in discussing palpation of the abdomen the author makes no mention of the everyday matter of palpation in children, but finds room for a reference to "the superficial and deep palpation of Hausmann, the diaphragmo-inspiratory palpation of Obrastzow, the double-handed gliding palpation of Martini . . . a similar procedure of Lejars and Laqueur."

There are nevertheless many features of interest among the descriptions of signs—for example, an account of the

mechanism of neck-vein pulsation. But again there are grave deficiencies. The palpation of vocal fremitus and of tracheal displacement are both unmentioned. The almost useless section on the cervical lymph-nodes does not distinguish the various groups. The book is most inadequately illustrated, and the seventeen photographs show the less common of the subjects discussed. The reader who is in a position to be critical may find some interesting gleanings. He may also be pleased to take advantage of the extensive bibliography, which gives references to many classical descriptions.

JEFFREY BOSS.

GERMAN MIDWIFERY

Lehrbuch der Geburtshilfe. By Professor Heinrich Martius. (Pp. 1,196; illustrated. M. 72.) Stuttgart: Georg Thieme. 1948.

Martius's *Textbook of Midwifery* is a typical German work, with excellent paper and print. The illustrations are adequate and good: many of them are familiar and have been copied from those already well known in Germany, and others resemble the illustrations found in De Lee and Greenhill. Professor Martius has a great reputation for ingenuity in illustrations, and the new diagrams are of the same high level as those found in his textbook on gynaecology. There are relatively few references to original papers, a disappointing omission in a volume of this quality, which will surely rival the works of Stoeckel and Guggisberg.

This review is a convenient opportunity to point out the wide divergences between German obstetrics and the practice in the United States and Great Britain. In Martius's book there is no evidence whatsoever of the influence of progress in antenatal care upon German midwifery. It is difficult to understand why German obstetricians have persistently neglected antenatal supervision and have ignored the great contributions made in the subject in this country. As a result this textbook is entirely different in style from modern British publications. Moreover, little attention is paid to the problems of the Rhesus factor, and the description of contracted pelvis is likely to be severely criticized both in the United States and in Great Britain. The book has the usual German emphasis on malformations of the foetus and upon rare deformities of the uterus. The German means of controlling post-partum haemorrhage are well illustrated, and it is interesting that the methods have never found favour here. In Germany and Central Europe Martius's book will have a wide appeal, and the author is to be congratulated on his industry and his great power of expression.

WILFRED SHAW.

IMMUNITY TO SYPHILIS

Racial Variations in Immunity to Syphilis. A Study of the Disease in the Chinese, White, and Negro Races. By Chester North Frazier and Li Hung-Chiung. (Pp. 122. 14s.) Chicago: University of Chicago Press. London: Cambridge University Press.

Both the main title and the subtitle of this little book are misleading, for little is said about true immunity, and, although the study includes Chinese, white, and nego males and females, it only refers to selected groups of the populations of Peking and Baltimore. A comparison of these three groups may, as the authors admit, be prejudiced by the fact that the Peking group were probably undernourished and short of vitamins, whereas these factors were unlikely to apply to the Baltimore groups, either white or negro. Not only are these groups compared, but the two sexes also, a matter of some importance, as it is generally agreed that syphilis is a milder disease in the white woman than in the white man. Possibly the most important point to emerge from this study is that syphilis in the male Chinese assumes very much the same pattern as it does in the white woman; this agrees with the general make-up of the Chinese people, which is more related to that of the female than the male. Of the various manifestations of the disease the Chinese are particularly susceptible to acute meningitis, to skeletal lesions, and to skin lesions in the secondary stage, but are much less prone to late neurosyphilis than the other groups. On the other hand, the negro is more commonly affected by cardiovascular syphilis, especially in the form of aneurysm. These authors consider that all the evidence is against the concept of tropism in so far as dermotropic and neurotropic strains of *Treponema pallidum* are concerned. Within its sphere the book is full of interest, but the student of syphilis would have appreciated information about more races, more areas and climates, and more forms of spirochaetal infection such as yaws, bejel, and pinta. So little is known about syphilis in China that detailed information on congenital syphilis in that country would have added much to the value of the study. There are 27 tables containing a mass of statistical detail, 13 figures, and an ample bibliography.

T. E. OSMOND.

ADVANCES IN PUBLIC HEALTH

Modern Trends in Public Health. Edited by Arthur Massey, C.B.E., M.D., D.P.A., with 23 Contributors. (Pp. 581; illustrated. £2 10s., plus 1s. 6d. postage.) London: Butterworth. 1949.

At a time when the duties of local authorities in relation to public health have been radically altered by the law, Dr. Massey has performed a valuable function in producing this useful volume. The twenty-three papers are by persons well versed in the particular aspects of preventive medicine they discuss. The objection to this form of publication is that a certain lack of balance is inevitable, and the reader must endeavour to assess the relative importance of the numerous subjects that these papers cover.

The manner in which public health must be integrated with other forms of social endeavour is laid down by Professor Crew in the section headed "Future of Social Medicine," which is contained in the chapter with the arid title, "Social Medicine as an Academic Discipline." I was disappointed, however, to find in this section no reference to family life as the basis of personality. Dr. Odlum has contributed an excellent article on the mental health aspects of public health, and W. Edwards has written an equally good discussion on the contribution of preventive medicine to general practice. Individual subjects are discussed authoritatively, as in Fraser Brockington's informative article, "Nutrition and Public Health," and Tattersall's section on tuberculosis. Tattersall rightly gives an early place to the value of B.C.G. vaccine, about which he states that "an officially sponsored supply of the vaccine is expected to be available for selected groups of patients in the near future." Professor Cruickshank's "Recent Laboratory Contributions to Public Health" is a valuable summary. Paul's account of day nurseries will, I fear, leave doubts whether the staffs of these units are always capable of carrying forward Margaret Macmillan's work.

C. O. STALLYBRASS.

SEXUAL INVERSION

The Invert and his Social Adjustment. By "Anomaly." With an introduction by R. H. Thouless, M.A., Ph.D. Second edition. (Pp. 290. 8s. 6d.) London: Baillière, Tindall and Cox. 1948.

The first half of this book is a reprint of a work published in 1927. It was widely appreciated as an authoritative discussion of the personal problems of the male invert and as a portrait of a fine man with exceptional literary gifts. The "sequel" now added records some changes of opinion and discusses broader questions such as homosexuality as an instrument of political blackmail, as a theme in literature, and as a phenomenon in prisons, internment camps, and the Services. The author is an invert (though not a medical man), and his observations now extend over nearly fifty years.

The author accepts the Roman Catholic rule that "the sex impulse can be licitly indulged only in marriage, and then only without interference with the natural physiological consequences." This does not invalidate his discussion, and the existence of other viewpoints is recognized. The author thinks that the wisest course for an invert is complete abstinence from

any form of sexual relation, even platonic. He knows that this is counsel of perfection, and thinks that legal penalties should attach only to actions corresponding to those for which normal men are punished.

The frequency of inversion has probably been exaggerated through failure to distinguish it from bisexuality, and the author estimates that the percentage of inverts in the male population is not more than five. This figure may seem high, but lower estimates may be due to lack of skill on the observer's part. The author found no evidence for the opinion that seduction plays a significant part in causing inversion—an opinion reminiscent of the attribution of tumours to trauma. Of his more recent findings, perhaps the most interesting is that sexual attraction between inverts is extremely rare: a male invert almost invariably desires that his "mate" shall be a completely normal man. The conclusion drawn is that "all psychosexual attraction is essentially heterosexual." The book leaves no doubt that sexual inversion is wholly involuntary or that most inverts—like most normal men—try to live decent and useful lives.

This work will be helpful to specialists, whose knowledge of inversion may be based solely on clinical experience. To general practitioners—and indeed to all who have to deal with young people—it will be invaluable.

RAYMOND WHITEHEAD.

DELINQUENT CHILDREN

Children in Need. By Melitta Schmideberg, M.D.(Berlin). *Introduction* by Edward Glover, M.D. (Pp. 196. 12s. 6d.) London: George Allen and Unwin. 1949.

Another book on the difficult and delinquent child seems superfluous, but this volume, by an experienced worker at the Institute for the Scientific Treatment of Delinquency, is well worthy of study. It supports the familiar theses that home is best, foster parents are better than institutions, and that institutions (if they must be used) should be small, humanitarian, and staffed by intelligent and sympathetic trained people. The author stresses that reports of committees, laws, and regulations do not necessarily achieve all that is wanted, though they may be steps in the right direction. She points out that even now there is too little recognition of the needs of individual children, and too great a tendency to move children to an institution as the easiest course. The trouble and money might be better employed improving the child's home, to which he will probably have to return eventually. Institutions are in many cases too Victorian in outlook and organization, as they were often founded by charity with the object of uplifting the lower classes and imposing a patronizing and highly religious atmosphere on the inmates.

If a child cannot be kept at home the parents can be helped and taught so that the child can return at the earliest possible moment. Earlier and more effective psychological treatment of the child is urgently necessary, and proper training—not merely laundry work and scrubbing floors—should be given to the adolescent to fit him for a worth-while job when he returns to the world.

The author has her prejudices—for example, against public schools, which she looks at too much from the neurotic child's viewpoint—but she presents her case in an interesting and persuasive way which may convince readers that, in spite of improvements and plans, all is not yet well in the management of delinquent children.

R. G. GORDON.

It is good to see the publication of French clinical lectures again. Dr. H. Grenet is already well known for his contributions in this style, and his new edition of *Conférences Cliniques de Médecine Infantile* (pp. 275; illustrated; no price; Paris: Vigot Frères; 1949) provides a good opportunity for offering a new welcome to an old friend. Fourteen lectures are included, mostly about disorders of the newborn or young infants. The cases chosen as illustrations are graphically described, and the discussions are interesting and practical. Differences from British teaching are not difficult to find—for example, the discovery of a tumour in congenital pyloric stenosis is not regarded as important. But it would be a dull world if all physicians agreed, and it is stimulating to read passages with an approach completely different from the traditional British one.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

A Synopsis of Medicine. By Sir Henry Tidy, K.B.E., M.A., M.D., B.Ch., F.R.C.P. 9th ed. (Pp. 1,243. 30s.) Bristol: John Wright. 1949.

The Invisible World. By H. Carrington, Ph.D. (Pp. 123. 9s. 6d.) London: Rider. 1948.

Der Arzt der Persönlichkeit. By E. Speer. (Pp. 285. M. 26.) Stuttgart: Georg Thieme. 1949.

Über Weichteiltuberkulose. By M. Birkenfeld. (Pp. 45. M. 6.) Stuttgart: Georg Thieme. 1949.

Die elektrochirurgische Behandlung der Tuberkulose. By H. Brügger. (Pp. 76. M. 10.80.) Stuttgart: Georg Thieme. 1949.

Neuere Tuberkuloseforschung I. By R. Griesbach. (Pp. 112. M. 6.) Stuttgart: Georg Thieme. 1949.

Die Lungentuberkulose. By H. Gissel and P. G. Schmidt. 2nd ed. (Pp. 264. M. 26.50.) Stuttgart: Georg Thieme. 1949.

Die Erkrankungen des Darmes. By W. Zweig. (Pp. 253. M. 22.) Stuttgart: Georg Thieme 1949.

Experimentelle Untersuchungen über Romgeneffekte und chemische Effekte auf die pflanzliche Mitose. By K. Hohl. (Pp. 87. M 6.) Stuttgart: Georg Thieme. 1949.

Behandlung Innerer Krankheiten. By F. Hoff. (Pp. 471. M. 25.) Stuttgart: Georg Thieme. 1949.

Gemeinsame Erkrankungen aus der Inneren Medizin und Chirurgie. By W. Kanert and K. A. Koelsch. (Pp. 500. M. 35.) Stuttgart: Georg Thieme. 1949.

Lehrbuch der Stimm- und Sprachheilkunde. By R. Luchsinger and G. E. Arnold. (Pp. 431. 72s.) Vienna: Springer. 1949.

Die Insulin-Lipodystrophie. By F. A. Kehrer. (Pp. 43. M. 4.50.) Stuttgart: Georg Thieme. 1949.

Le Syndrome Hépato-Ovarien. By J. A. Huet and others. (Pp. 63. 200 francs.) Paris: L'Expansion Scientifique. 1949.

Algies Vertébrales d'Origine Statique. By S. de Seze and others. (Pp. 55. 200 francs.) Paris: L'Expansion Scientifique. 1949.

L'Humeur Aqueuse. By L. Alaerts. (Pp. 87. No price.) Brussels: Acta Medica Belgica. 1948.

Introduction a l'Étude de l'Endocrino-Psychiatrie. By A. M. P. Abély. (Pp. 184. No price.) Paris: Société d'Edition d'Enseignement Supérieur. 1949.

Vorschlag zu einer Leicht Durchführbaren Krebs-Prophylaxe. By R. Stöger. (Pp. 64. No price.) Vienna: Wilhelm Maudrich. 1949.

Ayurved-Vigyan-Mimansa. By P. Jha. (Pp. 80. No price.) Cawnpore: Brahman Press. 1948.

Überwärmung als Heilmittel. By H. Lampert. (Pp. 180. M. 15.) Stuttgart: Marquardt. 1948.

Desis und Wirkung. By H. Druckrey and K. Küpfmüller. (Pp. 130. No price.) Berlin: Werner Saenger. 1949.

Tratamiento de las Meningitis Agudas Supuradas en el Niño. By S. Benaba, A. Carrau, and others. (Pp. 107. No price.) Montevideo, Uruguay: Garcia Morales-Mereaut. 1948.

Lehrbuch der Haut- und Geschlechts-Krankheiten. By W. Schönfeld. 5th ed. (Pp. 458. M. 24.) Stuttgart: Georg Thieme. 1949.

Die Permeabilitäts-Pathologie. By H. Eppinger. (Pp. 755. £7 2s. 6d.) Vienna: Springer. 1949.

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PAVLOV AND CONDITIONED REFLEXES

In the opening pages of this issue Professor E. D. Adrian describes the life and work of Ivan Petrovich Pavlov, who was born on September 14, 1849. It is perhaps not common knowledge that Pavlov was already world famous as a physiologist and the recipient of a Nobel prize for his work on the processes of digestion before he became seriously engaged in his researches on the conditioning of innate reflexes—work which was to extend his fame far beyond the physiological and even the scientific world and to become the subject of often bitter controversy among philosophers, moralists, and educationists. Professor Adrian has sketched from his own memories some of the personal qualities of this great figure. All who had met him speak of his sincerity, energy, and enthusiasm and his strenuous adherence to the truth as he saw it. Under the Tsarist regime his professional career was hampered at times by his uncompromising criticism of policies which he thought wrong. The confirmation of his appointment as professor of physiology in the Military Medical Academy at St. Petersburg in 1895 was held up for two years, largely because he made quite plain his disagreements with the Academy's Rector. After the revolution the Soviet Government, it is said owing to the personal intervention of Lenin, gave every support to Pavlov's work, but this did not deter him from voicing his disapproval of what he thought were its faults. In scientific work he was equally outspoken, but, since he applied the same thorough criticism to his own past work as to the work of others and was generous in his appreciation of sound results wherever obtained, his vehemence made few enemies. It may be that in the future more attention will be paid to some of his earlier researches and that the method of conditioning stimuli and the facts elicited therefrom will be judged more important than the behaviourist "philosophy" others have based on these experiments, but it can hardly be doubted that his work on conditioned reflexes will have a permanent place in the history of human thought.

The basic facts of the conditioned reflex are now a part of elementary biological education. All Pavlov's own work was done on dogs, and much of it with the salivatory response.[1] Food placed in the animal's mouth produced a flow of saliva (unconditioned reflex): if placing food in the mouth was constantly associated with some other stimulus, this stimulus alone would after a time cause salivation (conditioned reflex). The associated or conditioned stimulus could be a constant property of the food (for instance, its smell or appearance at a distance); something less intrinsic, such as the dish on which it was placed or the sound of that dish being filled; or it could be something quite artificial, such as the ringing of a bell or a flash of light. Pavlov's interest was directed to the study of stimuli in this last group, to which the term "conditioned reflex" generally refers. In reporting his earlier results Pavlov wrote, "We see here facts which . . . seem to imply intelligence," and for over 30 years he and his associates investigated and elaborated these facts. They insisted on the study only of observed and verifiable physiological responses to the stimuli they applied, and they denied the need for any speculation on the animal's subjective state. Pavlov himself only applied his findings to man in the most general terms, though he was hopeful that the method might bring forward useful facts for human psychology; he certainly claimed that it was one which made possible a physiological approach to "mental" phenomena.

Such an approach was clearly indicated in the study of animal behaviour and the investigation of "intelligence" in animals which was taking place at the turn of the century, particularly in the United States, where Thorndike's[2] work acted as an incentive. Moreover, it had attractions for the growing school of human psychologists who were in revolt against the arid "introspectionist" attitude and were in search of a psychology based on the study of behaviour "without the terms consciousness, mental states, mind, content, will, imagery, and the like." Both the methods and the implications of Pavlov's work appealed to J. B. Watson,[3] who, trained in the study of animal psychology, now attempted to analyse human conduct in the same way. The principles of the conditioned reflex thus became a mainstay to the behaviourism which Watson elaborated. This extremely limited conception of the springs of human conduct, which formally denies the existence of sensation, feeling, and thought because they give rise to no direct observable behaviour and then has to employ the quibble of a "verbal report" to admit them—speaking being observable behaviour—has only a very tenuous connexion with Pavlov's work. But the latter continues to possess great potentialities for the physiological analysis of adaptive behaviour. Its findings are on a different plane from those of

[1] Pavlov, I. P., *Lectures on Conditioned Reflexes*, 1928, London.
[2] *Animal Intelligence*, 1898, New York.
[3] *Behavior. An Introduction to Comparative Psychology*, 1914, New York.
[4] *A Study of the Knee Jerk*, 1902, Ph.D. thesis, University of Philadelphia.

introspection, and it seems unnecessary to try to oppose the two. It is interesting that one of the earliest observations on conditioning was made by Twitmyer[4] on the human knee-jerk before Pavlov's main work was under way. He reported that this reflex became conditioned to a sound which would then evoke it without any stimulation of the patellar tendon. The subjects actually made "introspective reports" of the experience, and there was apparently no conscious volition or anticipation of the reflex jerk, so that in this case at any rate the conditioning must have occurred in a different part of the nervous system from that in which conscious adaptive behaviour takes place.

So far Pavlov's work seems to have less application to clinical medicine than have the results of other contemporary neurophysiological studies. The researches of Sherrington, of Adrian himself, and of many others now working along lines indicated by these pioneers frequently elucidate the problems encountered in a neurological clinic, but it is quite unusual to formulate a case in terms of conditioned reflexes; even in psychiatric practice such a formulation is rarely made in this country. The idea of conditioning stimuli, especially in the emotional sphere, is inherent in much modern psychiatry, but formal behaviourism seems on the wane. Nevertheless, the harvest of Pavlov's work will not be complete until the facts his method is still accumulating can be satisfactorily related to the physiology and anatomy of the nervous system. When that is achieved neurophysiology and neuropsychiatry will both have gained information of fundamental importance.

FREEDOM FROM WANT

Freedom from want was one of the results which President Roosevelt hoped that peace would bring. Most educated people, however, are now aware that, unless the production of food is increased at a faster rate than that of the world's population, attempts at social improvement are not likely to succeed. The elements of the problem are simple: world population is increasing at the rate of at least 20,000,000 people a year, an average of two every three seconds. The two may well become three or more as science advances, social services improve, and bodies such as the World Health Organization become fully operative. Although some areas are relatively empty, others are already overpopulated, and it is just in these areas, such as the West Indies, that the population increase is of the order of 2% per annum. If world food supplies are not progressively increased, if the growth of population is not slowed down by control of births, or if mass migration does not take place, then one or more of Nature's checks will be automatically applied in the form of famine, war, or epidemic disease. If freedom from want is to be attained, much more than the application of the natural sciences to food production will be required: superstitions, religious scruples, racial customs and prejudices—based often on the unconscious and irrational—are as important as, perhaps more important than, economics and politics.

It is not surprising that some bewilderment exists at the present time. On the one hand the Royal Commission on Population[1] has no hesitation in recommending that a replacement size of family is desirable in Great Britain, though it finds it by no means easy to weigh the factors entering into its conclusions; "imponderable" elements in the situation are at least partly responsible for this. On the other hand the example of an island such as Malta may be cited, where unless food or money is poured in from abroad or large-scale emigration is encouraged the present population cannot be supported. Many, too, will have read with some alarm such works as *Our Plundered Planet*[2] or *The Road to Survival*.[3]

In these circumstances Sir John Russell's authoritative review of the problem in his presidential address to the British Association on August 31 at Newcastle-upon-Tyne is of particular interest. Expansion of the world's food supplies depends, he believes, on extension of the food-producing areas, more intensive cultivation of the areas already used, and reduction of the present heavy wastes and losses. The food-producing areas represent at present an average per person of about one acre and a half, whereas if all the "climatically suited" areas were under cultivation there would be about five acres for every person. Agricultural science is now in a position to convert much marginal land into good farm land, and with control of pests and disease among plants and animals, destruction of weeds, and increased use of fertilizers there is every possibility of producing far more food than at present. Then, too, recent investigations have shown that only the best stock need be used for breeding. Artificial insemination from sires of good stock is now regularly practised, but there is evidence to show that fertilized ova from a particular mother can be artificially implanted into the uteri of other cows. One cow could thus become the mother of 75,000 calves. Unfortunately Sir John Russell scarcely touches on the human side of the problem, beyond the reminder that food will not be produced by the more advanced nations merely from a sense of duty. If Western standards of food are required by less advanced peoples they must also use Western standards of restraint.

[1] Report of Royal Commission on Population. (Cmd. 7695.) London: H.M.S.O. See leading article in *British Medical Journal*, 1949, 1, 1127.
[2] Osborn, F., *Our Plundered Planet*, 1948. London: Faber and Faber.
[3] Voigt, W., *The Road to Survival*, 1949. London: Victor Gollancz.
[4] *Freedom from Want*, a symposium edited for the American Association for the Advancement of Science, by E. E. DeTurk, 1948. Waltham, Mass.: Chronica Botanica Co.
[5] *Emile, ou de l'Éducation*, 1762, Paris.

Another useful contribution on this subject is a symposium of the American Association for the Advancement of Science.[4] Agricultural experts and economists have shown that by using our present cultivated lands more efficiently and by bringing certain new lands into use it would be possible to double the world's food production by 1960. This would mean that more of the red and lateritic soils of the Tropics and sub-Tropics, which together constitute 19% of the earth's surface, would have to be used. That this task is none too easy has been shown by the difficulties of growing even groundnuts and sunflowers in Tanganyika. Nevertheless in the U.S.A. the increase in rice per acre has been almost unbelievable, and an increase of only 10% in yields in China and Burma would supply food for some additional 58,000,000 people. The professor of economics at Harvard, Dr. J. D. Black, emphasizes the fact that as undeveloped communities modernize their economics their populations, while initially rising, soon begin to fall. Japan is now rapidly passing through such a cycle. However, even the rate of decrease in the birth rate of Japan is not rapid enough by itself, and the real demographic need of Asia and also of many areas in Africa and the West Indies is to devise ways by which the diffusion of the small family pattern may be quickened among peasant populations. H. R. Tolley, the Director of Economics and Statistics of FAO, puts his finger on one of the crucial difficulties: "If a particular nation needs food imports exporting countries must expand their output to meet this demand. Simultaneously the importing nation must boost its production of other goods to trade for the food it imports." Unfortunately he does not explain what other goods the African peasant, armed with a hoe, can possibly supply to exporting countries such as the U.S.A., where good imitations of everything down to a Camembert cheese are already available.

Although so far no practicable crop or cropping system has been found for restoring to the soil either the depleted nitrogen or the organic materials which are slowly but surely lost as a result of constant cultivation, nevertheless the Director-General of FAO believes that civilization can reach safety: it need not succumb in the desperate struggle of too many people trying to live on too limited resources. Prophecy is of course dangerous. Writing in 1762, at the very dawn of the industrial revolution, Jean Jacques Rousseau,[5] no foolish observer of the contemporary scene, could solemnly declare that in a few years' time Europe would be depopulated, a desert inhabited by wild beasts. In 1898 Sir William Crookes, at a meeting of the British Association in Bristol, asserted that by 1930 the world would be starving. Both these prophecies failed to come true for reasons quite unforeseen by their authors. One reason for controlled optimism is that the growth of scientific knowledge will not cease with this current fiscal or calendar year. Fungi and bacteria, for instance, synthesize not only antibiotics but vitamins and amino-acids. It may be that in the course of time the discovery will be made that if given the right encouragement they could produce something much more substantial.

PENICILLIN-RESISTANT STAPHYLOCOCCI

Although it has been known for eight years that staphylococci can be made *in vitro* to acquire a high degree of resistance to penicillin, strains possessing such resistance were very rarely encountered in patients during the earlier part of this period. They then began to be found, chiefly in patients who had undergone treatment with penicillin, and it was at first supposed that the strains concerned had acquired resistance by the same mechanism as that which had already been shown to operate *in vitro*. It was chiefly owing to the work of Spink and Ferris[1 2] that the existence of two kinds of resistant staphylococcus came to be recognized. The artificially resistant, which can be produced in the laboratory, has apparently little or no counterpart in the clinical field, and is in any case of little practical importance owing to its diminished virulence. The naturally resistant type, on the other hand, is fully virulent and owes its resistance to its property of forming penicillinase, an enzyme which destroys penicillin. It is this type which is found in patients whose treatment has failed, and is now also being encountered with increasing frequency in infections of many kinds, often before any treatment has been given.

The most definite and perturbing information about the recent behaviour of these staphylococci is that obtained by Dr. Mary Barber as the result of observations made at the Hammersmith Hospital; she found that the frequency of occurrence of such resistant strains was in three successive years 14, 38, and 59%. It seemed probable that cross-infection within the hospital accounted at least in part for this increase, and subsequent studies on out-patients have shown that among them the frequency of resistant strains is much lower. The importance of this distinction is confirmed elsewhere in this issue by Dr. G. B. Forbes, who studied strains from both in-patients and out-patients at the same hospital and showed that resistant strains were over five times as common among the former. He also found that 23 out of 50 ward nurses were nasal carriers of resistant pathogenic strains, a fact which must have an important bearing on the occurrence of infections due to such organisms. One comment which must be made on such observations is that the wearing of masks,

1 *Science*, 1945, 102, 221.
2 *J. clin. Invest.*, 1947, 26, 379.
3 Bellamy, W. D., and Klimek, J. W., *J. Bact.*, 1948, 55, 153.

and various other precautions, some of which have been introduced or at least modified with a view to greater efficiency within the past ten years, seem not to be having all the effect they should.

A further contribution to the study of this subject by Drs. Mary Barber and J. E. M. Whitehead also appears in this issue. It is concerned with staphylococci from 100 patients, in 24 of whom resistant strains only were found and in a further 11 a mixture of resistant and sensitive strains. Again, in-patients yielded resistant organisms more often than out-patients, though the difference is much less. The findings of chief interest are those resulting from phage typing. This method of identification was applied to the pairs of cultures isolated from the 11 patients having both resistant and sensitive organisms. Though the results are incomplete owing to the fact that some cultures could not be typed, it appears that in only one patient was the phage type of both organisms the same. Still more significant are the findings when phage typing was employed not only for all the resistant strains isolated in this study but for further strains obtained in five other hospitals, 140 in all. Of these as many as 85 belonged to a single phage type and 21 to another, about five typable strains remaining which were assigned to other types. This evidence points to selection as the major factor in causing the increasing prevalence of resistant organisms; most of these, in the London area at least—so far as the hospitals where this investigation took place may be regarded as representative—belong to a single type which must originally have been rare and has flourished in a penicillin-saturated hospital environment which has tended to eliminate other and sensitive types. The possibility that resistant variants may arise by mutation cannot be excluded, and is indeed suggested by the observation that organisms of the same phage type may belong to either category, but the fact remains that such a change cannot be induced *in vitro* except at an extreme stage of habituation, when the organism has become almost unrecognizable owing to the profound changes in its morphology and metabolic behaviour.[2]

Drs. Barber and Whitehead also discuss the quantitative assessment of resistance, pointing out that the heaviness of the infection has also to be taken into account in deciding whether a given concentration of penicillin will arrest the growth of an enzyme-forming staphylococcus. Since this cannot well be determined (except perhaps by quantitative blood culture in a case of septicaemia) the practical advantage of detailed information about the organism in any given case is doubtful. The most useful conclusion to be drawn from these studies is that only a much more vigorous campaign against cross-infection can prevent the frequent occurrence of infections which may be very difficult to treat effectively.

MYXOEDEMATOUS MADNESS

Every physician of experience must be able to recall at least one instance in which he failed to recognize that a patient was suffering from myxoedema. He will be able to remember his dismay when his error was pointed out and his astonishment that such an obvious diagnosis should have eluded him. In the out-patient department it is a commonplace to see patients whose appearance clearly proclaims this malady but in whom it has been unrecognized for years. It is curious that a disease which leaves its stamp so clearly on the patient's face should pass undetected, but the truth of these assertions is once more borne out by Dr. R. Asher's paper on myxoedematous madness in this number of the *Journal*. Of his 14 patients, seen within four years, at least 9 were admitted to hospital without the diagnosis of myxoedema having been suspected.

Dr. Asher's report is naturally concerned with patients in whom mental symptoms were dominant, but his illustrations show that the characteristic myxoedematous facies was not lacking, and he has performed a useful service in drawing attention to a feature of this disease which is obviously common but not widely appreciated. The type of psychotic reaction varied: apathy, confusion, and mental retardation were the rule, but hallucinations were common, and eight patients had delusions of persecution. This inconstant pattern gives some support to the suggestion that myxoedema reveals latent psychotic potentialities and does not induce a "specific" psychosis. The paranoid characteristics have frequently been remarked in the past, and, indeed, the mental symptoms are of the same nature as those of senile deterioration. The effects of cretinism on mental development are well known, and it is the more remarkable that these aspects of myxoedema should suffer such neglect in the textbooks, even in those devoted to psychiatry. That one of Asher's patients had received the label of "paranoid psychosis" from an experienced psychiatrist may explain, but cannot excuse, the general ignorance of myxoedematous madness. The author rightly says that the fault lies in failure to recognize myxoedema rather than the psychosis which accompanies it. To remedy this defect he gives simple directions, ending with the statement, to which all will subscribe, that the only way to make the diagnosis is to know what a myxoedematous patient looks like, and the only way to learn this is to see one. He has found a raised blood cholesterol a useful guide, and the value of his "photographic test" is well illustrated in his article. All physicians will not have shared his experience of having seen cases of myxoedema with a raised basal metabolic rate.

OPHTHALMIA NEONATORUM

In papers[1,2] published in this *Journal* in 1942 and 1944 Professor Arnold Sorsby and his associates drew attention to the value of the sulphonamides in the treatment of ophthalmia neonatorum. In a series of 258 cases treated at White Oak Hospital they reported that with an initial dose of 0.25 g. over 85% were cured within eight days. With penicillin a further advance was made. In an early study in 1945 Sorsby and Hoffa[3] reported only indifferent results with penicillin eye drops in concentrations of 500,

1,000, and 1,500 units per ml., but distinctly better results —21 recoveries in a total of 22 cases—when the concentration was increased to 2,500 units per ml. The drops were instilled at half-hourly intervals for the first three hours and then at hourly intervals for 24 hours. The results as a whole were similar to those obtained with the sulphonamides. Subsequently Sorsby[4] recorded a series of 38 cases with only two failures; the treatment in this series was more intensive, the drops being instilled at intervals of 5 minutes. Clinical cure could be obtained in this way in a matter of hours, this being as great an improvement over the sulphonamides as these in turn were over the older methods. When the concentration of the penicillin was increased to 10,000 units per ml. and the frequency of instillations to one every minute for the first half-hour, the appearance of pus ceased in most cases within half an hour and clinical cure was achieved within 24 hours.[5] Massive intramuscular injections of penicillin also gave good results.

These studies established the systemic administration of sulphonamides and the local application of penicillin as alternative methods of treatment of ophthalmia neonatorum. Sulphonamide therapy has the advantage of being simpler in use, but treatment with penicillin brings about the more rapid cure. Both methods are effective not only against gonococci but against staphylococci, diphtheroids, and all the other common organisms found in ophthalmia neonatorum, and an unexpected finding was that both cured the type of ophthalmia neonatorum caused by a virus. This is important, since the gonococcus, far from being the exclusive cause of ophthalmia neonatorum, is now not even the most frequently found causal organism. Both staphylococcal and virus infections are considerably more common; Sorsby and his associates have found the gonococcus responsible for the infection in less than 20% of the cases in their recent studies. Clinically there is little to distinguish between the different varieties of ophthalmia neonatorum: all may be mild, moderate, or severe infections, and the one substantial difference is the incubation period. When caused by bacteria, the symptoms come on within the first five days of life, but with a virus infection they do not usually appear until the sixth to tenth day. In each group there may, however, be cases that do not conform to these incubation periods.[6] While the sulphonamides appear to act equally effectively on all the causative organisms, penicillin is least active in virus infections, especially if adequate concentrations are not used.

In this issue of the *Journal* Sorsby and Kane report a further study of 151 cases, the object of which was to eliminate relapses. They point out that an unsatisfactory response is not the same as a bad result: in not a single case in their experience has the response to sulphonamide and to penicillin been so poor that anxiety has arisen about the state of the eye, and some of the cases classified as relapses might well have been cases of reinfection. Their bacteriological findings confirm that ophthalmia neonatorum is caused by a number of organisms. When the initial dose of sulphonamide was increased to 0.5 g. the proportion of cases in which a clinical cure was achieved within 1–3 days rose to 68.4%; this compared with 39.3% after an initial dose of only 0.25 g. The authors were not able, however, to reduce the frequency of the relative failures, but there was some indication that with sulphamerazine, used in 24 cases, the frequency of poor responses declined. Penicillin given by mouth alone or combined with intramuscular injections proved disappointing—the results were distinctly inferior to those following intramuscular injections of large doses alone. Likewise no advantage was gained by the combined use of penicillin and sulphonamides. Further investigation is required to determine the best type of sulphonamide to use in the higher dosage now advocated, and to find a less tedious method of penicillin treatment than instillation of drops at intervals of one minute—a procedure trying both to the infant and the nurse.

There are still about 4,000 cases of ophthalmia neonatorum notified each year, and in many of them the danger of blindness is still real. That there has been a great reduction in the incidence of ophthalmia neonatorum can hardly be doubted, but the fact that of late years there has been no definite decline is a sign that existing methods of prophylaxis are unsatisfactory. The system of prophylaxis associated with the name of Credé has two components, aseptic and antiseptic.[7] Prophylaxis by antisepsis—namely, disinfection of the conjunctiva by a drop of silver nitrate—is probably of little value. On the other hand prophylaxis by asepsis—antenatal treatment of the mother by the Credé toilet to prevent infection from entering the eye of the newborn baby—is valid by present-day bacteriological concepts. The persistence of ophthalmia neonatorum therefore raises the question whether obstetricians are as alive to the possible danger of the many varieties of antenatal infection in the mother as they are to the considerably less common danger of maternal gonorrhoea. Prevailing views on the aetiology of ophthalmia neonatorum must be revised if the condition is to be eliminated.

[1] *British Medical Journal*, 1942, 1, 323.
[2] Ibid., 1944, 1, 353.
[3] Ibid., 1945, 1, 114.
[4] Ibid., 1945, 1, 903.
[5] Sorsby, A., ibid., 1947, 2, 322.
[6] —— *J. Obstet. Gynaec. Brit. Emp.*, 1947, 54, 841.
[7] —— *Ophthalmia Neonatorum*, 1945. London: Hamish Hamilton.

WHOOPING-COUGH AND BRONCHIECTASIS

Bronchiectasis commonly arises during the first few years of life, the symptoms dating from an acute respiratory infection in early childhood. In the majority of such cases pulmonary collapse has occurred. It is known that when a segment of lung collapses the bronchi in that segment dilate; unless early re-expansion takes place both the collapse and the bronchiectasis become irreversible. Because of the narrow lumen of their bronchi children are more susceptible to lobar or segmental collapse than adults, and collapse occurs in such conditions as simple catarrhal bronchitis,[1] primary tuberculosis,[2] and whooping-cough. As many of these episodes of collapse are unrecognized or pass under the clinical sobriquet of "pneumonia," it is difficult to determine which diseases of childhood are the most frequent precursors of bronchiectasis, but it is widely believed that whooping-cough is the commonest cause. A history of whooping-cough is found in approximately 10% of cases of bronchiectasis in children,[3] and a slightly higher proportion is found in children with collapsed lower lobes.[4]

Although pulmonary atelectasis in whooping-cough was described in the middle of the last century,[5 6] the frequent occurrence of this complication has only recently been recognized. The main reason for this is that segmental pulmonary collapse can be diagnosed with certainty only from clear radiographs taken in both antero-posterior and lateral planes; these may be difficult to obtain in sick children, since reliance must often be placed on portable *x*-ray apparatus. In 1944 Kohn and his colleagues[7] investigated 222 children with whooping-cough by taking radiographs at weekly intervals throughout their illness. It was found that the incidence of pulmonary complications varied directly with the severity of the illness, and in 86.6% of the children considered to be seriously ill the radiographic appearances were abnormal at some stage of the disease. Most of the shadows seen on the *x*-ray films were due to collapse, the right middle lobe being most often affected, and they were usually transient. In no case was there radiological evidence of collapse caused by lymph-node enlargement—a finding which supports the current hypothesis that collapse is due to retention of viscid sputum.

More recently Nicholson[8] has reported on a series of 44 children with whooping-cough who were examined radiologically at intervals. The cases were unselected, the only criterion being that they were ill enough to be admitted to hospital. Four patients died, in three of whom collapse of the lung was demonstrated at necropsy. Nicholson found radiological evidence of segmental or lobar collapse in no less than 39 of his cases. The predisposing factor appeared to be not so much the severity of the illness as delay in admission to hospital after the onset of symptoms. Complete re-expansion of the collapsed lung took place in rather more than half the cases during the first three months of observation and in a further eight during the following six months. No re-expansion was observed after collapse had persisted for nine months. Seven children (21%) out of 33 who were followed up for more than a year had persistent collapse and probably, therefore, bronchiectasis.

This high proportion should dispel any complacency about the treatment of whooping-cough. The recognition of collapse in its early stages is of the greatest importance, for only prompt treatment is likely to be effective. Swift[9] has shown that "aerosporin" (an antibiotic produced by strains of *Bacillus aerosporus*) is of some use in pertussis provided it is given early enough in the disease, and Kinney[10] has reported that inhalations of carbon dioxide (5%) assist patients to expectorate the viscid sputum. A combination of these measures might reduce the incidence of the more serious respiratory complications of whooping-cough. Better still would be prevention of the disease altogether. The preliminary statement on whooping-cough prophylaxis issued by the Whooping-cough Immunization Committee of the Medical Research Council (appearing at page 590 in this issue) is much more encouraging than the report[11] of a trial of whooping-cough vaccine which was published in this *Journal* four years ago.

1 Ramsay, H., and Scadding, J. G., *Quart. J. Med.*, 1939, n.s. 8, 79.
2 Hutchison, J. H., ibid., 1949, n.s. 18, 21.
3 Franklin, A. W., *Proc. R. Soc. Med.*, 1944, 37, 576.
4 Oswald, N. C., ibid., 1947, 40, 736.
5 Gairdner, W. T., *Mon. J. med. Sci.*, 1850, 11, 122.
6 West, C., *Lectures on Diseases of Childhood*, 1852, London.
7 *Amer. J. Dis. Child.*, 1944, 67, 463.
8 *Arch. Dis. Childh.*, 1949, 24, 29.
9 *Lancet*, 1948, 1, 133.
10 *Dis. Chest*, 1947, 13, 33.
11 *British Medical Journal*, 1945, 2, 205.

RESULTS OF COLLAPSE THERAPY

With the present shortage of nursing and domestic staff it is important that valuable sanatorium beds should be used to the best advantage. Simmonds and Martin[1] have recently attempted a statistical evaluation of the results of sanatorium treatment and collapse therapy. Their investigation is based on the study of nearly 4,000 patients discharged from Clare Hall Sanatorium in the years 1937–45. During this period the use of collapse therapy has steadily increased, and for this reason the duration of institutional treatment also increased. The figures show a steady improvement in the 3- and 5-year survival rates throughout the period. The rate for patients who had collapse therapy was surprisingly high, 70% surviving five years. On average about 7% of the patients were lost from observation.

The authors point out that, whatever the treatment, most patients with tuberculosis improve at first, and therefore studies of survival rates must cover at least five years, preferably longer, if they are to be of any value. The worker who undertakes such a long-term investigation has many difficulties. Some, like the movement and dispersal of patients, are inevitable, but others are not; among these may be mentioned the practice at many hospitals of destroying *x*-ray films. Much valuable and unique material is lost in this way, because accurate estimates of the extent of disease can be based only on radiographic evidence. It should not be difficult to arrange that the radiographs of tuberculous patients are preserved.

Simmonds and Martin are well aware of the difficulty of applying statistical methods to tuberculosis problems, but they urge that the attempt should be made so that the clinical observations of different workers may be compared. Unfortunately the Ministry of Health's classification, which they use in their investigation, lacks the precision which is needed to obtain a true comparison. For instance, the authors show that the survival rate of patients in the "T.B.+, Group 2" (B.2) category who had collapse therapy was double that of patients in the same group who had no active treatment. But the limits of this group are so wide that it can include both unilateral and bilateral cases and disease varying in extent from two zones to the whole of both lungs. Hartley, Wingfield, and Burrows[2] showed the close relationship between extent of disease and prognosis, and a classification which gives a more precise indication of the amount of lung tissue affected is badly needed. The revision of the Ministry of Health's classification[3] has left this feature unchanged. Nevertheless the Clare Hall figures show that in a selected group of tuberculous patients collapse therapy undoubtedly improves the prognosis—thus confirming Bentley's[4] observations on patients treated by artificial pneumothorax. Simmonds and Martin are fully justified in concluding that the limited resources at present available should be used for the benefit of those who can be treated with real prospect of improvement; the patients with the best claims for early admission are those with open cavitary disease in whom collapse therapy appears to be practicable.

1 *Amer. Rev. Tubercl.*, 1948, 58, 537.
2 *Brompton Hosp. Reports*, 1935, 4, 1.
3 Revision of Section I of the Appendix to Memorandum 37/T (Revised). See *British Medical Journal Supplement*, 1941, 1, 111.
4 *Spec. Rep. Ser. med. Res. Coun., Lond.*, 1936, No. 215.

FIRST INTERNATIONAL CONGRESS OF BIOCHEMISTRY

MEETING AT CAMBRIDGE

The first International Congress of Biochemistry, initiated by the Biochemical Society, was held in Cambridge from August 19 to 25. This Congress marks a notable stage in the development of biochemistry as a branch of science covering the ill-defined territory between chemistry and the many branches of biology. The need for an international congress on this subject has been evident for some time, and eight congresses for French-speaking biochemists have already been held since 1927.

The distinguished foreign chemists and biochemists who consented to be honorary vice-presidents, and the names of the lecturers, illustrate the international character of the Congress. Among the vice-presidents were Professor J. B. Collip, of Canada; Professor N. E. Cruz-Coke, of Chile; Academician J. O. Parnas, of the U.S.S.R.; Professor J. Roche, of France; and Dr. D. D. van Slyke, of the U.S.A. Professor M. Florkin, of Belgium, and Sir Robert Robinson, of Great Britain, were among the lecturers. The Congress was opened by the President, Professor A. C. Chibnall, F.R.S. Viscount Addison presided at a reception given to the delegates by the Government during the evening.

The discussions were held in 12 separate groups, as follows: (1) Animal Nutrition and General Metabolism; (2) Microbiological Chemistry; (3) Enzymes and Tissue Metabolism; (4) Proteins; (5) Clinical Biochemistry; (6) Structure and Synthesis of Biologically Important Substances; (7) Cytochemistry; (8) Biological Pigments, Oxygen Carriers, and Oxidizing Catalysts; (9) Hormones and Steroids; (10) Chemotherapy and Immunochemistry; (11) Plant Biochemistry; and (12) Industrial Fermentation.

Vitamin B_{12}

In a discussion on dietary factors in relation to anaemias in the Section on Animal Nutrition and General Metabolism, Dr. K. Folders (New Jersey) said that chemical research carried out with collaborative clinical tests by Dr. Randolph West, of New Jersey, discovered the properties of vitamin B_{12}. The crystals do not melt below 300° C. Emission spectrographic analysis showed the presence of cobalt; thus the molecule was a cobalt co-ordination complex. The red colour and melting point were at least in part associated with the cobalt-complex character. The significance of cobalt as an essential trace element in nutrition could be re-evaluated as the biological functions of vitamin B_{12} became known. Sources other than liver for vitamin B_{12} were being sought, since the natural vitamins were known to occur in numerous animal, plant, and microbiological materials. A red crystalline compound had been isolated from a grisein-producing strain of *Streptomyces griseus*, and this was compared with vitamin B_{12}. Comparative chemical and biological data provided evidence that the crystals from the microbiological source and vitamin B_{12} were identical.

Professor G. R. Cameron, of London, spoke on the pathological types of liver injury. He wished to reduce the complicated patterns of liver necrosis to a few simple components with a geometry of their own. Liver necrosis began with impairment in the functioning of liver cells, such cells being distributed from the trabeculae within the lobules, either singly, or in linear groups, or in clumps. At first there might be no fixed rule in grouping, but sooner or later, usually within a few hours of the onset of the phenomena, a trend of redistribution made its appearance and the necrotic area emerged as focal, zonal, diffuse lobular, or massive lesions. There was reason to believe that this grouping also represented the time sequence of necrosis. All known cases of liver necrosis produced changes which fitted into these groupings. Complications arose with variation in intensity of the causative agent, its power of self-propagation (as in infection with bacteria and viruses), and possible host variations. Analysis had to take into account the disturbances of the vascular relationships within the lobules, the action of the causative agent on the liver cells, the preservation of the biliary mechanism, and possibly the lymphatic integrity of the organ as a whole.

Adrenal Cortex

In the Section on Hormones and Steroids, Dr. G. Pincus (Massachusetts) spoke on studies of adrenal cortex function. He stated that indices of human adrenal cortex function could be obtained by measuring the urinary 17-ketosteroids and neutral reducing lipids, which appeared to vary with the secretion of adrenocortical steroid precursors. Secretory activity of the adrenal cortex was reflected in the changes in the urinary sodium, potassium, and uric acid, and in the blood lymphocytes and eosinophils. Measurements of the diurnal variations of urinary steroid excretion had been made in men and women of various ages, and it was found that the basal output of 17-ketosteroid decreased markedly in older persons, whereas the output of urinary reducing lipids did not. The diurnal variation of each changed with age. Stress procedures or the administration of adrenocorticotropin, which stimulated adrenocortical secretion, were reflected by significant changes in the various blood and urinary indices of healthy men of various ages. Response in terms of these indices to stress or to adrenocorticotropin administration occurred in psychoneurotic patients, but was absent or diminished in most schizophrenic patients. The latter were fairly responsive to adrenal cortex-extract, indicating that adrenal cortex response was largely defective in the schizophrenics. This did not appear to be a function of the nutritive state of the schizophrenic patient. The significance of derangements of pituitary-adrenal function in schizophrenia was discussed and the effects of some therapeutic procedures were presented.

It is impossible to report more than a fraction of the large number of discussions held by the Congress. The range of subjects is indicated by the 12 sections already mentioned, and the individual topics varied from a study of acetylcholine metabolism to brewing and yeast production.

During the Congress the University of Cambridge conferred honorary doctorates of science on Viscount Addison, Professor Cori (U.S.A.), Sir Charles Harington, Professor Linderström-Lang (Denmark), Professor Tiselius (Sweden), and Professor Tréfouël (France).

WHOOPING-COUGH PROPHYLAXIS

PRELIMINARY REPORT

The following preliminary statement has been issued by the Whooping-cough Immunization Committee of the Medical Research Council.

In view of the conflicting reports on the efficacy of pertussis vaccine in whooping-cough prophylaxis the Medical Research Council was asked by the Ministry of Health to investigate the problem and report on the value of prophylactic immunization against whooping-cough of children in England and Wales. As part of the investigation the Whooping-cough Immunization Committee organized a series of controlled field trials in which the experience of children inoculated with pertussis vaccine could be compared with that of control children. The results of some of the early trials have already been published (McFarlan, Topley, and Fisher, *British Medical Journal*, 1945, 2, 205). The evidence obtained suggested that the pertussis vaccine used in these trials was of no value in whooping-cough prophylaxis.

Further large-scale trials have now been carried out in collaboration with the medical officers of health of Oxford, Manchester, Tottenham, Wembley, Edmonton, Leeds, and West Ham, using a number of different vaccines of both British and American origin. Each trial was planned in a similar manner. Children, mostly between the ages of 6 and 18 months, whose parents agreed that they should take part were divided by the method of random sampling into two groups. The children in one group—the test group—were inoculated with the pertussis vaccine under trial, while those in the other group—the control group—were inoculated with an "anticatarrhal" vaccine containing no *H. pertussis*. After inoculation the

children in both groups were kept under close observation for a period of at least two years by monthly home visits made by specially appointed nurse-visitors. Those children who came into known contact with whooping-cough or who developed symptoms which might be those of early whooping-cough received special visits in order that a bacteriological diagnosis might be made. As it was essential that observers should not be influenced in their clinical assessment of the disease, efforts were made to ensure that neither the doctor, nor the nurse-visitor, nor the parents should know whether the child under observation was in the test or the control group.

Seven of the early trials, comprising a total of 4,691 test and control children, have now been in progress for over two years, and from a preliminary analysis of the results the following general conclusions may be drawn:

(*a*) In each trial the random allocation to test and control produced two equivalent groups of children, comparable in age, sex, duration of breast-feeding, size of family, and incidence of infections other than whooping-cough.

(*b*) In six of the trials the incidence and severity of whooping-cough in the test groups were appreciably less than in the control groups. In the seventh trial the results were only slightly more favourable in the test group.

(*c*) There was considerable variation in the prophylactic potency of vaccines from different sources, and there was probably also some variation in the potency of different batches of vaccine from the same source.

(*d*) One particular type of vaccine, not at present readily available, was found to give decidedly better protection against the disease than any of the others tested.

The reason for variations in the prophylactic potency of these vaccines is not clear, nor is there yet available a conclusive laboratory method of assay by which this property of a vaccine can be accurately assessed, but an investigation is in progress in which the prophylactic value in children of a number of different vaccines is being compared with their immunizing properties as shown by laboratory tests. With this aim in view trials have already been begun in Manchester, Oxford, Cardiff, Poole, Walthamstow, and Leyton.

No investigation has so far been made of the value of combined pertussis-diphtheria prophylactic, as it was considered desirable to avoid the inclusion of any factor that might complicate the issue and do nothing that might possibly harm the diphtheria immunization campaign at a stage when the true value of whooping-cough immunization was unknown. This preliminary statement has been prepared on account of the interest shown by health authorities in the outcome of these investigations. A detailed analysis is now being made and should be ready for publication early in 1950.

Members of the Committee and the medical officers of health concerned wish to record their gratitude to the many thousands of parents who have collaborated and are still collaborating in the investigation and who, when control groups have been essential, have volunteered to take part in the full knowledge that their children would not necessarily receive pertussis vaccine.

ROYAL MEDICAL BENEVOLENT FUND

In his annual report on the Royal Medical Benevolent Fund the chairman of the committee of management, Mr. R. M. Handfield-Jones, points out that the inauguration of the National Health and National Insurance schemes does not mean that the need for benevolence has ceased to exist either within the ranks of the medical profession or outside them. He gives several poignant examples of distress amongst elderly doctors and their families. During the year the income of the Fund from invested capital was £13,068, and from subscriptions and donations £23,900. A sum of £32,000 was voted in relief of poverty and distress, some of it in the form of regular annual grants to beneficiaries of many years' standing, some in the form of single grants to meet a case of illness or misfortune, and some again in the form of educational grants for doctors' children. The Fund has now a house near Wimbledon Common where 12 elderly ladies, beneficiaries of the Fund, who were previously living in loneliness are lodged in comfort. Mr. Handfield-Jones reminds the profession that the Fund has never made a public appeal; it has resisted the temptation to be "This Week's Good Cause," believing that an honourable and learned profession ought to be able to deal with its own casualties and help its lame dogs over stiles. He makes a warm acknowledgment of the continuing help of the British Medical Association through its Charities Committee and through the work of its Divisions and Branches, and also that of the Medical Insurance Agency, which "continues, as if with a touch from a magician's wand, to present the Fund with seven-year covenants which magnify the gifts twofold." The treasurer of the Fund, Dr. C. L. Batteson, points out the need for larger grants in individual cases. The former grants of £26 or £40 a year are obviously inadequate in present circumstances, and the committee is in a position to vote grants of £2, £3, or £4 a week in exceptional cases of distress. Legacies during the year totalled £21,670.

At the 113th annual meeting of the Fund Lord Webb-Johnson was elected president, and Mr. Victor Riddell honorary secretary. The address of the Fund is 1, Balliol House, Manor Fields, Putney, S.W.15.

MEDICAL DEFENCE UNION

The annual report of the council of the Medical Defence Union to its members has been distributed recently and will be considered at the annual meeting which is to be held at 49, Bedford Square, London, W.C., on Tuesday, September 20, at 3.15 p.m. The report puts forward proposals about increasing the rates of subscriptions. These increases are necessary, in the council's view, because of the considerable deficits in the Union's income and expenditure for three consecutive years, and because of the probability that these deficits are due to continuing factors and not to exceptional misfortunes unlikely to recur.

If the contention that the causes of the Medical Defence Union's unfavourable experience are likely to be permanent is a well-founded one, it may be surmised that no long period is likely to elapse before the two sister societies follow the lead of the Medical Defence Union. Meanwhile it may be noted that the increased rates are not to apply, on the council's suggestion, to new members during their first three years of membership. This is a helpful concession to junior members of the profession.

The Minister of Food has approved for publication a report containing the Food Standards Committee's recommendations for standards for processed cheese. The committee recommends: (*a*) That processed cheese be defined as cheese which has been heat-treated with or without the use of emulsifying salts, and the fat of which consists entirely of butter fat. Colouring matter may also be added. "Flavoured processed cheese means processed cheese to which a flavouring substance has been added." (*b*) That a minimum butter-fat content of 48% in the dry matter, and a maximum moisture content of 42%, be prescribed for processed cheese; that a minimum butter-fat content of 45% in the dry matter, and a maximum moisture content of 45%, be prescribed for processed cheese of the Gruyère and Emmenthal varieties. (*c*) That a maximum quantity of 3% emulsifying salts be permitted for all types of processed cheese. (*d*) That cheese spread be defined as cheese prepared to spread easily by the addition of one or more milk products, with or without the application of heat. Emulsifying salts, colouring matters, and flavouring substances may be added. "It shall have a minimum content of 45% of butter fat in the dry matter and a maximum content of 48% of moisture." (*e*) That the ingredients of cheese spread be disclosed on the labels in accordance with Article 2 of the Labelling of Food Order (S.R.O., 1946, No. 2169).

Reports of Societies

WORKING CONDITIONS IN HOT AND DEEP MINES

Empire Mining Congress

The recent Empire Mining and Metallurgical Congress at Oxford passed one of its sessions considering the physiological and psychological effects of heat and humidity in deep mines. The discussion was mainly concerned with the mines of South Africa and India, but it was pointed out that the subject was becoming increasingly relevant to British coal-mines. In India mines have reached a depth of 9,300 ft. (2,790 m.), and, although in South Africa there are no mines so far below the surface, leases have been granted which will make mining to 10,000 ft. (3,000 m.) a possibility. In Western Europe a mine of 3,000 ft. (900 m.) would be considered deep, but the subject was important here if recruitment to the mines was to be unhindered by uncomfortable underground conditions.

Dr. A. CAPLAN spoke of the psychological effects seen under conditions of high environmental temperature in the Kolar gold-fields in Bangalore, South India. The miner subjected to high temperatures, he said, suffered from mental fatigue not only during the shift but after his work was over, and in certain individuals this contributed to maladjustment and anxiety and depressive states. The men became apathetic, careless, accident-prone, and ready prey to the agitator. This view was endorsed by the superintendent of the Mysore mine on the Kolar gold-field, Mr. J. K. LINDSAY, who said that the miner of to-day would not put up with the conditions tolerated by his forebears. According to his observation the first symptom of mental fatigue in the mines was a tendency to shout, to pay undue attention to trifling incidents, and to get the work done speedily at all costs. In his experience such mental fatigue lasted longer than physical fatigue, and mental clarity was not recovered until the following day. It had been found in the Kolar gold-field that the miner could work comfortably and efficiently at wet-bulb temperatures up to 83° F. (28.3° C.); even at 85° F. (29.4° C.) the loss of efficiency was slight; it became considerable at 87° F. (30.6° C.), and at 90° F. (32.2° C.) the efficiency was down to about half the normal. One speaker said that he had paid a visit to some German mines at Hamm. When the wet-bulb temperature exceeded 82° F. (27.8° C.) in these mines the length of the shift was automatically reduced, so there was an inducement to the management to keep down working temperatures for the sake of production. Other experts declared that a wet-bulb temperature of 80° F. (26.7° C.) with a dry-bulb temperature of 90–95° F. (32.2–35° C.) and a moderate air velocity made extremely pleasant conditions in a mine, not unlike those of a summer day so far as temperature and air movement were concerned. Figures were given of the cases of heat collapse in the Kolar gold-field since the installation of cooling plants five years ago. During the five years before the plants were started the number of cases of heat collapse was 406, with two deaths; during the last five years the number has been 26, with no death.

Dr. J. S. WEINER, of the Department of Human Anatomy, Oxford, described an experiment at the City Deep mine in Johannesburg which showed that Bantu labourers—not only novices but trained men—although they had spent all their lives in a hot climate, were less able to adapt themselves to conditions in the mine than were well-acclimatized Europeans. One South African speaker said that he had obtained the views of more than 30 experienced European foremen in the Rand mines on the question of acclimatization. The majority of them agreed that acclimatization could be acquired in about 15 days; some considered that it could be acquired in a week. It was their opinion that after one to two weeks' absence from underground work there was a slight loss of acclimatization which was recovered a few days after return, but a significant loss occurred after a month's absence. About half the foremen considered that some acclimatization remained after an absence of three to six months. Cases of heat collapse occurred most frequently among men who were resuming underground work after a short remission. The co-ordination of measures to combat heat and humidity and those to combat dust presented a problem. With water used to suppress dust the wet-bulb temperature might be raised considerably, because the strata were cooled by such a process and not the air. Moreover, as coal was broken up into finer particles more heat from oxidation was generated in the dust, and this could be a serious factor in a deep coal-mine.

Nova et Vetera

ROYAL COLLEGE OF SURGEONS IN IRELAND

An Account of the Schools of Surgery. By J. D. H. Widdess, M.A. (Dublin), L.R.C.P.&S.I. Foreword by William Doolin, F.R.C.S.I. (Pp. 107. 17s. 6d.) Edinburgh: E. and S. Livingstone. 1949.

This entertaining history of the foundation and growth of the Royal College of Surgeons in Ireland and its schools gives a picture of the growth of surgery in Dublin. Surgery there followed the same general lines of development as in London and Edinburgh, with colourful touches added by the Irish temperament. The same progress can be seen from itinerant charlatanry through guilds allied with the barbers and wig-makers to a company and finally to a college.

In 1745, when the London Company of Surgeons received their charter, a society of surgeons existed in Dublin, but no systematic training was available. The foundation of the Royal College of Surgeons in Ireland in 1784, however, preceded that of the Royal College of Surgeons in London by 16 years. The Irish College has from the outset taken a lead in education, and in the first half of the nineteenth century the College held classes and conducted examinations in the preliminary sciences and in medicine as well as surgery. This responsibility was accepted by the English College only within the last quarter of a century. As in London, much of the teaching in anatomy and surgery was undertaken by private schools like the one run by the Hunter brothers in Windmill Street, but in Dublin these flourished until much later, and the last two, the Carmichael and Ledwich Schools, were incorporated in the College in 1889.

There is entertainment as well as interest in this book. In the early years of the Irish College the Dublin poor, having buried their relations with ceremony and celebrated their interment with spirit, took no further interest in the departed. The resurrection men, provided they observed a modicum of decency, were therefore able to supply the anatomists with abundant material—so abundant that the export of cadavers to England was at one time a flourishing trade, and one professor was wont to illustrate his discourses on war surgery by propping a series of subjects round the lecture theatre, firing his revolver at them, and demonstrating the lesions that resulted.

The troubled history of Ireland colours the pages. Then as now one of the chief exports of the country was medical officers for the armed Forces of the Crown. But while many served in British uniform, others were fanatical rebels. William Lawless, professor of anatomy, was expelled from the College in 1799 for treason. He joined Napoleon's army, was wounded at the battle of Dresden, and had his leg amputated by Larrey. Knowing the dangers of hospital gangrene, he mounted his horse at the end of the operation and rode off to Mainz without changing the dressings. This is a colourful book that will interest any student of the history of surgery.

HENEAGE OGILVIE.

A new international non-governmental body, the main object of which is to co-ordinate international congresses of medical sciences, was created at Brussels in April, 1949. The final establishment of this new organization was the result of much preparatory work carried out by a group of scientists under the joint sponsorship of WHO and Unesco, and it will fill the long-recognized need for a permanent organization to ensure continuity and co-ordination of medical congresses.



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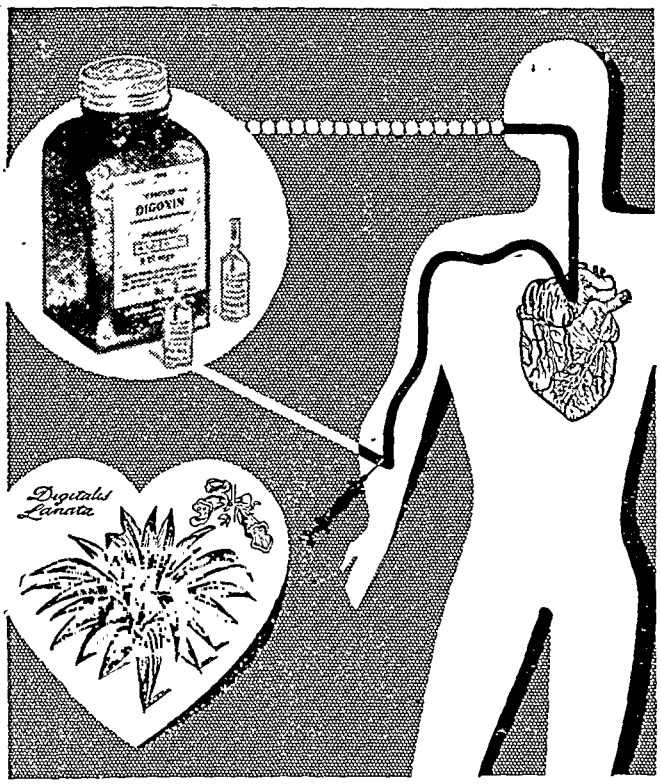
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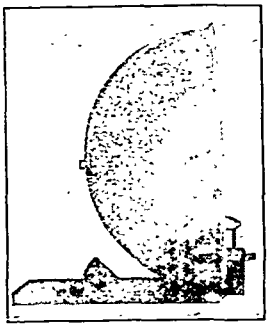
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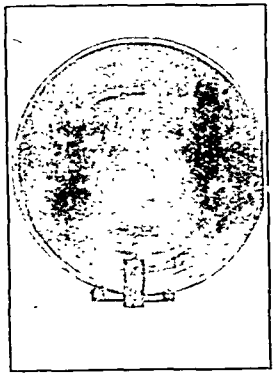
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Preparations and Appliances

A TRANSPARENT "PERSPEX" PERIMETER

Dr. CECIL M. RUBEN, of London, N.W.3, writes: The perimeter described below is made from a "perspex" half-sphere; the material is colourless, transparent, and about 4 mm. in thickness. The instrument has no movable parts. I have found the chief disadvantage to be the formation of troublesome reflections if care is not taken to place the head of the patient between the source of light and the point of fixation. When the source of light is a window in daylight, or an opalescent globe, so long as the general illumination of the room is good, image formation will not interfere with the test if the above





position is obtained and if only *one* source of light is used. The perimeter being transparent, the point of fixation can be placed at any distance. Best results will be obtained with a dull background.

The instrument combines the simplicity and speed of the clinical confrontation test with the accuracy of perimetry. I made the instrument for 30s. The parts required are: (1) Astral dome, ex-R.A.F., made of perspex. I bought mine at one of the stores selling ex-Service equipment for 25s.; it has a radius of 300 mm. (2) Piece of wood 18 by 9 by ½ in. (45 by 22.5 by 1.25 cm.). (3) Two metal right-angled brackets. (4) A piece of metal rod (curtain rod) 5 in. (12.5 cm.) by ½ in. (1.25 cm.) diameter. (5) Curtain-rod fitting. (6) Piece of wood 4 by 2 by 2 in. (10 by 5 by 5 cm.). (7) Black matt paint or black cloth. The dome has to be marked by scratch lines indicating the meridians 15 degrees apart and the concentric circles at 10-degree intervals. The circumferences at the periphery will be $2\pi r = 3\frac{1}{2} \times 600$ mm. $= 1{,}885\frac{5}{7}$ mm. Therefore the distance between the peripheral points will be:

$$\frac{1{,}885\frac{5}{7}}{24} = 7.8 \text{ cm.}$$

These intervals are marked in ink on the peripheral flange and opposite points are joined with scratch lines made with a needle; care must be taken that all lines pass through the centre. (A piece of pliable cardboard about ½ in. wide by half the circumference in length is suitable as a ruler.)

The concentric markings are made with a large pair of mathematical dividers, one end being placed at the centre, the other swept around the inside surface of the dome. The distance between the circles is equivalent to

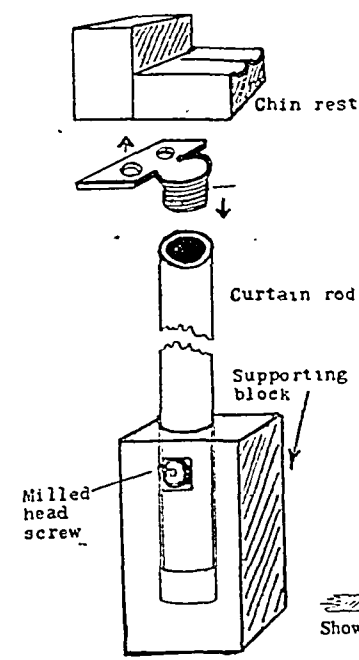
$$\frac{\pi r}{18} = 5.25 \text{ cm.}$$

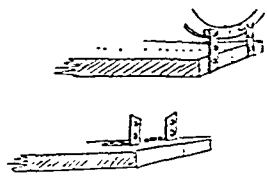
The base is now taken and the metal brackets are fitted at one end equidistant from the midline; the spacing must be exact and they must be over 4 in. apart. The vertical meridian of the perimeter must be held in alignment with the central line of the base, and in this position two marks are made on the flange opposite the holes in the supporting brackets. Holes are drilled through at these marks and the dome fixed into position by nut and screw (¼ by ¼ in. (0.3 by 1.25 cm.) long). It is best if the flange just rests on the base. Surplus bracket projecting into the perimeter is sawn off.

The chin rest is made from two pieces of wood 4 by ½ by 1 in. (10 by 1.25 by 2.5 cm.), and the chin depressions are filed out. This rest is fixed to the curtain rod by the support shown, and the supporting block has a hole ½ in. in diameter drilled through its centre vertically. The fixing screw must be improvised from a nut and screw with a milled head, the nut being sunk into the wood in line with the shaft and near the top.

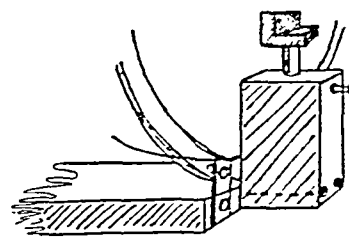
The centre of fixation can be made from anything suitable. My dome had a hole at the centre and my fixation point is a screw-head painted white held in position by a nut and a black rubber tap-washer. The supporting block can be screwed to the end of the base or into its top surface according to the position of the right-angled brackets. The flange is marked in indian ink with numerals ¼ in. high indicating the angle of the meridians according to the recording charts used. The concentric circles can be indicated by markings i, ii, iii, iv, v, vi, vii, corresponding to 10→80 degrees; they need not be higher than 2 mm. and only along four meridians. The base is painted black or covered with cloth. It is best to employ targets as used with screen scotometry; with a pencil in one hand and a chart held in the same hand as the target rod, or vice versa, recording is more rapid.

Another refinement is to scratch the normal limits of the field on the perimeter—a continuous line for the right field and a dotted line for the left field. This will enable the less experienced and occasional perimetrist to note departures from the normal without making a detailed recording. It is best to have the central 10-degree area bare of all scratch lines so as to assist fixation. The perspex can be polished with ordinary metal-polish and a soft cloth.

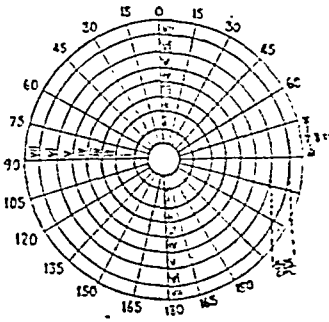




Showing methods of fixing brackets.



Position of supporting block.



Showing the grid to be scratched on to the dome.

Carcinoma of the Gall-bladder

SIR,—The annotation (August 13, p. 376) suggests that a decision for or against cholecystectomy should be influenced by the possibility of carcinoma developing in a gall-bladder containing stones. As I have recently contributed to a textbook an exactly opposite view, I should like to justify myself.

When we advise an operation with an immediate mortality of at least 1–2% in order to avoid some possible disaster in the remote future, our decision is based on probabilities and we must try to make a rough arithmetical estimate. The first difficulty is to find suitable data. Statistics of gall-bladder surgery tend to be misleading, because the patients attending a large and famous hospital are a selected and unrepresentative sample. Standardized mortality rates are based on the whole population and avoid fallacies of selection; but they are open to serious criticism because of unavoidable mistakes in death certification, especially in the older age groups. The least objectional data are thus male and female death rates at ages 45–65, and several independent lines of argument suggest that the following figures from the Registrar-General's occupational mortality returns (based on the 1931 census) showing annual death rates per million living are approximately accurate:

	Ages 45–55		Ages 55–65	
	Men	Married Women	Men	Married Women
All causes of death combined	11,141	7,658	23,552	16,431
All forms of cancer combined	1,606	2,024	4,685	4,012
Gall-stones, cholecystitis, etc.	37	91	111	218
Carcinoma of the gall-bladder	10	20	42	82

If we accept your citation from Graham[1] that 8–10% of all carcinomata start in the gall-bladder we are almost driven to assume that about 90% of patients who die from gall-bladder carcinoma are falsely certified as dying from carcinoma of the stomach or colon, and that in reality the gall-bladder is one of the commonest sites of a primary cancer. Even Kirshbaum's[2] figure of 3% would create difficulty. The Registrar-General's figures fit in far better with clinical and necropsy experience.

The next question is the incidence of gall-stones at different ages in the general population. Here we are compelled to accept necropsy figures, but these are so extensive and agree so well that they should be fairly reliable. At ages over 45 at least 5% of men and 10% of women carry stones. Most authors put the figures considerably higher, but as a result of modern austerity the incidence is possibly falling.

The statistical argument now runs as follows. It is not unlikely that the association between gall-stones and carcinoma is in part due to mucosal changes producing stones, and not vice versa. But let us assume that every gall-bladder carcinoma is the result of stones and that the whole incidence of the disease falls on the group with stones. Then, in order to get the incidence of gall-bladder carcinoma in patients with stones, we must multiply the rates just given by 20 for men and by 10 for women. We can then deduce that the probability of a man dying between 45 and 55 is 1.1131 in 10 if there is no risk of gall-bladder cancer, and 1.1331 in 10 if there is a risk of gall-bladder cancer. The biggest difference occurs in women aged 55–65, where the respective risks are 1.6349 in 10 and 1.7169 in 10. Various incalculable factors might alter these risks slightly in either direction, but all my assumptions have tended to exaggerate the benefit to be gained from cholecystectomy.

Surely the reward is incommensurate with the immediate risk. The immediate risk is 1–2%, and the benefit between the ages 45 and 65 is less than 1%. A better statistical case could be made out for universal appendicectomy or gastrectomy. Life cannot be lived on the basis of sacrificing our working years for an intricate actuarial calculation of an increased expectation of life as an old-age pensioner. The decision in favour of cholecystectomy must be based on a clinical judgment of more immediate benefits.—I am, etc.,

London, E.1. DENYS A. JENNINGS.

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The M.R.C.P.

SIR,—The annotation on the M.R.C.P. (August 6, p. 327) suggests that "the decision of the College is one the consequences of which it does not seem to have thought out to the end," and goes on to predict a lowering both of the status and the standard of the examination. While no one who happens already to have achieved the membership can regard lowering of its status or standards as anything but catastrophic, there is room for doubt whether the writer of the annotation is not suffering from a lack of prescience similar to that which he criticizes in the committee when he expresses the hope that in two years' time "the College will consider the possibility of holding, instead of the M.R.C.P., a primary examination, possibly in conjunction with the Royal College of Surgeons, as a preliminary to a final examination for the F.R.C.P., say four or five years after qualification."

For were this suggestion to be adopted what would be the status of the pre-1949—or even the pre-1951—Members? At present no Member can become a Fellow by examination: and I venture to predict that Members who had obtained their M.R.C.P. under the conditions which have so far prevailed would consider themselves utterly betrayed were the F.R.C.P. to be made obtainable by examination while the M.R.C.P. became obsolete or depreciated.

The procedure which would in fact become necessary if the F.R.C.P. were at some future date to be made obtainable by an examination of a standard comparable to that of the present M.R.C.P. would be to elevate all existing holders of the M.R.C.P. to the Fellowship. This would of course rob the F.R.C.P. of the special distinction which at present attaches to it as an individual honour, in that while the M.R.C.P. and the F.R.C.S. are strictly comparable, there exists no counterpart to the F.R.C.P. in the officially designated hierarchy of the Royal College of Surgeons at all. To maintain this difference in designation appears to have been the agreed policy of the Comitia to date.

To remark that "the method adopted by the Royal College of Surgeons appears to be more rational and fair" is a comment which, whether considered reasonable or not, is utterly irrelevant in the present context; for the terms of reference of the committee did not include a consideration of the desirability of equating the F.R.C.P. with the F.R.C.S., thereby lowering the status of the F.R.C.P. and abolishing the M.R.C.P. altogether. Whether this is or is not in fact desirable is beside the point as long as it is the status, standards, and function of the M.R.C.P. which are under consideration.—I am, etc.,

Boston, Mass. DAVID STAFFORD-CLARK.

Structure and Function of Muscle

SIR,—I would be glad of an opportunity to correct two misunderstandings in the report (July 16, p. 160) of a paper given to the Section of Anatomy at the Harrogate meeting of the British Medical Association.

The pattern of re-innervation of human voluntary muscle varies with the nature of the lesion in the main nerve trunk and the severity of atrophic changes in the muscle itself. Thus, after a favourable lesion such as axonotmesis, the degree of re-innervation may be normal and maturation is of a high degree, although abnormal branching is seen at the motor end-plates. Where there is scar tissue at the site of injury of the nerve some of the axons are obstructed and others may be misdirected. In such cases the intramuscular nerve trunks may contain both empty Schwann tubes and others containing nerve fibres in varying stages of maturation. Cutaneous sensory fibres fail to make functional reconnexions with the muscle. If atrophic changes in the muscle are advanced and re-innervation is delayed, the axons are seen to have left the terminal Schwann tubes, and they pass across muscle fibres in an attempt to form new connexions. If the atrophic changes are irreversible the highest degree of re-innervation is of no avail.

Fibrillation action potentials are characteristic of denervated muscle fibres—they are wholly independent of voluntary effort. One of the early signs of re-innervation of muscle is the return of motor-unit action potentials. In cases which go on to

successful recovery these motor-unit action potentials may precede probable voluntary contraction by 10 to 20 days in cases of pure axonotmesis. In cases where the nerve has been sutured or there is a lesion in continuity with considerable intraneural scar they may precede voluntary contractions by several weeks or even two to three months. The appearance of a few motor-unit action potentials is no guarantee of useful recovery; where such recovery is taking place successive electromyographic examinations of the muscle show an increasing number of motor-unit action potentials.—I am, etc.,

London, W.C.1. RUTH E. M. BOWDEN.

Headaches after Spinal Analgesia

SIR,—During recent discussions with anaesthetists and surgeons in this country and in America, the problem of the relief of post-spinal headaches has arisen several times. A measure which has been consistently effective since 1930 has been that of the intravenous injection of 20 ml. of 30% saline. It may aggravate the condition for 20 minutes, but at the end of half an hour the cephalalgia disappears and the ability to read and to concentrate is restored. On one or two occasions during the past 20 years it has been necessary to repeat the injection the following day, and also to combine it with placing the patient in the high Trendelenburg position for half an hour, but it has always succeeded.

It has proved equally effective in persistent post-traumatic headaches and also in those occasional ones following a diagnostic lumbar puncture. I have seen no ill effects from it beyond soreness at the point of injection when some of the salt has been inserted paravenously. Miss Joan Walker (*Brit. J. Surg.*, 1936, 24, 105) wrote on the effectiveness of hypertonic saline in raising a fallen blood pressure in spinal anaesthesia, and in a personal communication she told me that in the patients in which it had been used the incidence of post-spinal headaches was reduced.

The effectiveness of hypertonic saline for post-spinal headaches was suggested by its efficacy in the persistent cephalalgia of syphilitic basal meningitis. This remedy for insistent headache is so dependable and simple that it merits being widely known.—I am, etc.,

London, W.1. HAROLD DODD.

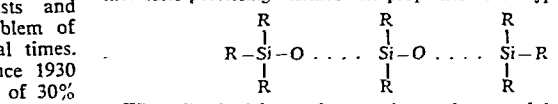
Silicone Pan Glazes in Bread Production

SIR,—We are concerning ourselves increasingly with the study of the possible effects of absorption and ingestion of new products of chemical origin finding their way into the baking industry. It has recently been pointed out[1] that a food which may be regarded as wholesome should make its expected contributions to human nutrition and be clean and free not only from harmful bacteria but also from substances which might be classed as chemical contaminants. The increasing number of new technological aids which are, and have been, developed for use in the growth, storage, and processing of food make it necessary for individual examination of such new products, particularly if ingested, for both acute and chronic toxicity. It is equally important to demonstrate in certain cases that usage of new materials, of which the silicones are an example, is unlikely to lead to their absorption by the product being manufactured. In such cases the information required is simpler, inasmuch as analytical procedure will suffice without recourse to the lengthy physiological examination which is necessary to demonstrate the harmlessness of materials which are absorbed and consequently ingested.

In the particular instance of silicone pan glaze it has already been shown[2] on experimental animals that this substance is very low in chronic oral toxicity. It is our view, however, that analytical evidence in a case of this type removes some of the uncertainties in translating results on experimental animals into terms of human metabolism and that problems generally of this nature require investigation by as many diverse techniques as possible.

As a result of our earlier work on the use of mineral oils in baking,[3,4] on which we based recommendations to the industry, the advent of the Mineral Oil in Food Order[5] has made the tolerances we suggested the legal limits beyond which mineral oils must not be present in foods as a result of processing. It is clear, therefore, that to attain these limits the baking industry must exercise the greatest care in using mineral oils for tin greasing or machinery lubrication, and any step which might be advised to replace the former operation would be an advantage provided the harmless nature of the replacement can be demonstrated.

For some time we have been examining the use of silicones as water-repellent glazes for bread-baking tins, these materials having been used in America and latterly on a restricted scale in this country to eliminate entirely the use of tin greases whether of edible or mineral character. The silicones are polymers containing silicon, oxygen, and alkyl radicles (R) and may be regarded as complex molecules possessing thermostable properties of the type



When dissolved in a solvent such as solvent naphtha (the inflammable nature of which probably precludes their use by many smaller bakeries unless some central distributing and processing organization can be created), these silicone solutions can be painted, sprayed, or otherwise distributed on a baking-tin and, after drying to remove the inflammable solvent, are rendered hard by baking at the usual temperature. In this way a thin durable glaze comprising a synthetic resin is created on the tin which can withstand repeated use approximately 200 times without renewal or carbonization of the coating.

We have investigated carefully the possible absorption of the resin by bread baked in silicone-coated tins and have been unable to detect by chemical means any increase in the proportion of silicon present in the crust of the loaves so obtained, irrespective of the method of application of the silicone solution to the surface of the tin. The method used was to compare the silicon content of the crust of a loaf baked in a silicone-treated tin with the content of the crust of a loaf prepared from the same dough baked in a greased tin—the crusts being treated chemically to convert any silicone present to silica, followed by colorimetric determination of the total silica in each case. In a series of comparisons no result was obtained which indicated a higher final silica content in the case of loaves baked in tins coated with the silicone resin. It should of course be borne in mind that bread naturally contains a small amount of combined silicon, hence the use of the comparative method outlined.

We have also investigated the loss in weight of a normal silicone film during a series of baking experiments, and the average loss per baking with very slight deviation was 0.0000006 g. per sq. cm., or 0.00045 g. per 2-lb. loaf tin. Even if one assumes that the entire loss is due to absorption by the loaf—which the previous experiment described indicates as unlikely—this loss would only represent a final proportion of approximately 0.00005% of silicone in the loaf, or less than 0.5 parts per million of silicon. It is possible that, as the silicone glaze is fairly easily scratched by sharp metal, stacking of the tins between bakings will cause slight removal of the coating.

In view of the data now put forward, and the earlier toxicological findings reported,[2] we do not consider that silicone pan glazes in bread production involve any potential harmful effect on the consumer and that the very small amount of silicon naturally present in bread is not materially increased by this process.—We are, etc.,

The British Baking Industries Research Association, Chorleywood, Herts and the Royal Technical College, Glasgow.
J. B. M. COPPOCK.
H. HULSE.
A. URIE.

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1 *J. Amer. med. Ass.*, 1949, 140, 786.
2 Rowe, V. K., Spencer, H. C., and Bass, S. L., *J. Industr. Hyg. Toxicol.*, 1948, 30, 332.
3 *British Medical Journal*, 1948, 2, 401.
4 Ibid., 1949, 1, 73.
5 Statutory Rules & Orders 614, 1949, London: H.M.S.O.

Gravitational Ulcers of the Leg

SIR,—Dr. S. T. Anning's excellent article on the aetiology of gravitational ulcers of the leg (August 27, p. 458) calls attention to a fact which is not commonly recognized—the importance of thrombosis of the deep veins as a cause of these common and disabling lesions.

I cannot help commenting on the extremely high incidence (86.6%) of deep thrombosis in Dr. Anning's cases, for, while I agree whole-heartedly that deep thrombosis is a very common causal agent, I am sure that in general it is not nearly so much

to blame as Dr. Anning's figures would suggest. Certainly in a large varicose-vein clinic attached to my service a relatively high percentage of leg ulcers are due to simple varicose veins and considerably less than half are associated with deep thrombosis. Probably the explanation is that as a dermatologist Dr. Anning does not see the majority of the varicose ulcers which are quickly and satisfactorily dealt with in the surgical clinics, while on the other hand a great many of the cases with deep thrombosis gravitate eventually to the skin clinics.

There are undoubtedly thousands of cases of gravitational ulcers of the legs receiving "dermatological" treatment both in skin clinics and from practitioners, and it is refreshing to find a dermatologist calling attention to the fact that these ulcers are a problem in hydraulics rather than dermatology, and that infection plays little or no part in their production. It is time that the profession learnt that ointments and lotions are at best useless in the treatment of these ulcers. I cannot remember seeing a gravitational ulcer during the last few years that had not been having penicillin applied as an ointment or given by injection. All too often the ointment produced a severe skin reaction.

It is good to find Dr. Anning adding his experience to that of Boyd and Robertson regarding the risk of deep thrombosis when varicose veins are injected at the same time as they are ligated at the sapheno-femoral junction. I know that many authorities on varicose veins, such as Dickson Wright and Dodd, still advocate this method. I agree that severe complications are uncommon, and I confess that for years I myself taught and wrote advising simultaneous ligation and injection—in 25 years I remember only one personal case when deep thrombosis resulted—but as a consultant to the Navy during and since the war and to the Ministry of Pensions I have seen a distressingly large number of cases where gross oedema, ulceration, etc., followed this practice.

The treatment of deep thrombosis and its complications has until recently been distressingly futile. Undoubtedly prevention is the best treatment, and the introduction of heparin and dicoumarol and a proper realization of the causes of the condition should help us to reduce the numbers of cases developing it. There will, however, always be a great many patients who will only be seen too late and who will already have developed oedema, pain, and ulceration. Surely we cannot be content to offer these patients nothing but elastic support. The problem is one not for the varicose-vein or the skin clinic alone but for them in conjunction with the radiologist and surgeon, for undoubtedly the surgical techniques of Bauer and Linton and Hardy are giving results which more than justify further consideration.—I am, etc.,

Liverpool, 1. J. B. OLDHAM.

SIR,—Dr. S. T. Anning (August 27, p. 458) concludes from a study of 270 "unselected patients" that treatment of varicose superficial veins is harmful more often than not. I should like to suggest that a high degree of selection has been achieved, as he has collected a number of cases who have had sclerosing injections without benefit, the remainder being cases of "white leg," which are obviously unsuitable for varicose-vein injection. Dr. Anning gives no figures concerning ulcers healed by injections.

My own personal impression is that the incidence of gravitational ulcer has decreased since 1929 by at least 80%. At that time no practice was complete without three or four chronic leg ulcers, whereas now ulcers are relatively rare. Some of this improvement is due to better understanding of nutrition. I have for instance seen an indolent ulcer heal after vitamin-C saturation with no other treatment, but most have required some sclerosing injections, occasionally helped by a subcutaneous ligation in our own practice.

The only chronic leg ulcers in our practice now are the really difficult cases. If the deep veins are thrombosed and the superficial veins varicose and therefore not functioning in the erect posture, the leg is perilously close to gangrene, and tight bandaging is not as a rule tolerated by the patient. There is no cure for these cases except amputation or indefinite rest in bed. They are unusual compared to the cases of ulcus cruris which heal after a few injections, or occasionally after only one. I feel that Dr. Anning has been seeing the failures and should study the successes before coming to a conclusion.—I am, etc.,

Shipley, Yorks. H. S. RUSSELL.

SIR,—The subject of gravitational ulcers is treated rather ungratefully by your annotator (August 27, p. 480)—"The many books and papers on this subject in the last 20 years have not been very fruitful"—and more realistically by Dr. S. T. Anning (p. 458). Dr. Anning deals with only one aspect of the problem—no doubt a deep-seated one—but one has to point out that, in the words of an eminent doctor, "On the black and marigolded mud the moorhen's footsteps print." (*On the Hill*, by John Masefield.)

The condition of the deep veins is important and is easy to neglect, but this problem is bound up with what one might term the "soil," and the "soil" includes "dirt," trauma, malnutrition, associated diseases, stagnation of circulation, autophytic influences, tissue inertia, and some other unknown factors. In addition to the "soil" one must consider the "seed," in other words the factor of infection. This may be staphylococcal and/or streptococcal—the "synergistic infective gangrene of skin" described by Meleney—the Vincent's organisms associated with tropical ulcer, *Corynebacterium diphtheriae*, and some others.

In addition to the "soil" and the "seed" the day-to-day and seasonal alterations in "climate" or weather have an important influence, and bodily fatigue or overwork and exhaustion must be considered. The anatomical distribution of small arteries to the superficial areas of the leg between knee and ankle, particularly the ring a few inches above the ankle, have a bearing on the formation and healing of these gravitational ulcers.

It is not the knowledge or treatment of these conditions that is defective—as hinted in your annotation—it is merely the practical application in general practice (and I do not blame general practitioners) which is defective. A short account of the factors involved in the evolution of these ulcers was published in 1945 (*Trans. R. Soc. Trop. Med. Hyg.*, 1945, 38, 259), and a method of treatment suggested, which proved not unfruitful.—I am, etc.,

Epping, Essex. FRANK MARSH.

Significance of Convulsions in Infancy

SIR,—The article by Drs. P. W. Nathan and P. M. Ransford (August 20, p. 421) presents some convincing statistics, indicating that convulsions occurring in infancy are likely to be the precursor of epilepsy. But surely the suggestion that any child having convulsions should, without careful individual study, be submitted forthwith to anticonvulsant medication is rather drastic. Repeated convulsions, it is generally agreed, are much more likely to be epileptic than those occurring singly, but, even when they are multiple, family history, possible precipitants, and the type of attack should first be considered.

It is, perhaps, not quite fair to attribute to Peterman the view that convulsions within the first two years are of no serious significance. In a later and more comprehensive communication[1] he finds birth trauma by far the commonest cause of convulsions, single or multiple, occurring in the first month of life. During the succeeding five months convulsions associated with acute infections take first place, with infantile tetany and birth trauma as less frequent causes. From 6 months to 3 years febrile convulsions still head the list, with idiopathic epilepsy, birth trauma, and tetany a good way behind. A large number of less common causes are, of course, cited. The outlook, *qua* fits, for the cases of idiopathic epilepsy and birth trauma needs no comment, but Peterman is now inclined to think that acute infection may precipitate fits only in children with a low convulsive threshold, itself evidence of a hereditary predisposition, and this he has confirmed in some cases by the E.E.G.

Margaret Lennox[2] has made a more detailed study of febrile convulsions arising in early childhood. Boys are twice as commonly affected as girls, and a family history of convulsions (not necessarily epilepsy) is found in nearly half the cases. Among

those who subsequently developed epilepsy the initial convulsion was more severe, and the incidence of birth trauma and of positive family history much higher. The clinical picture is confirmed throughout by the E.E.G., and Margaret Lennox suggests that children who have febrile convulsions should have an E.E.G. record within a week of the attack, a month later, and again at the age of 3. When indicated by clinical and E.E.G. findings anticonvulsant drugs might usefully be given up to the end of the third year. This would appear a sound policy to aim at for all cases of convulsions in early life.

It is commonly stated that the incidence of infantile convulsions is very much less than it was a generation or two ago. Is there any published evidence of this decline? There is, so far as I know, no reason to suspect any increase or decrease in the incidence of idiopathic epilepsy, and if the majority of early convulsions belong to that category we must assume that some fit-precipitants have disappeared. A fall in acute infections is unlikely, but it may be that dietary deficiencies have been made good, or that more intelligent and careful supervision of feeding has lessened alimentary upsets. Anyway, here would be a field for exploration, of especial interest, perhaps, to those who are investigating the role of metabolic factors in epilepsy.—I am, etc.,

Purley, Surrey. J. TYLOR FOX.

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2 *Proc. Ass. Res. ment. Dis.*, 1947, 342.

SIR,—Surely Drs. P. W. Nathan and P. M. Ransford (August 20, p. 421) have reached their conclusions too easily and swiftly. They quote a series of known epileptics attending hospital and a smaller group of ordinary out-patients for a contrast. The former group was almost bound to contain a number of "items" which had some sort of fits in infancy, and the latter group is far too small, and memories even of parents are likely to be too unreliable.

I do not know what the incidence of infantile convulsions is at the present date, but I do remember that 40 years ago, when I was in general practice near here, the onset of the ice-cream season was a time when I expected to be called out of my bed fairly regularly to give hot baths, etc., to many a baby or young child who had been indulged. There were also many cases in which the exanthemata were ushered in by a convulsion. These cases never developed epilepsy, and indeed when I meet many of them now they introduce me to some buxom daughter or capable son as the man who "saved their lives" by a hot bath. Should I have kept these youngsters under sedatives (bromides, because we had no phenobarbitone) as Drs. Nathan and Ransford suggest?—I am, etc.,

Brixham, Devon. CECIL B. F. TIVY.

SIR,—May I be permitted to make some observations upon the article by Drs. P. W. Nathan and P. M. Ransford (August 20, p. 421), in which they confirm the finding of a higher incidence of infantile convulsions in epileptics than that found in the general population. In the brief space available to them there was obviously no question of a general review of the literature, but it appears to me that brevity in this case has created rather a false impression. To say without further qualification that a convulsion within the first two years of life indicates that the child is an epileptic is likely to lead to an unnecessarily gloomy prognosis that may well be hotly challenged by those with experience of convulsions in childhood.

Their figures are not remarkably different from those reported by Patrick and Levy,[1] who found 20% of infantile convulsions in 500 epileptic children and only 4% in 752 unselected controls; nor from those of Burr,[2] who found a history of convulsions in infancy in 15% of a large series of epileptics. It is difficult, however, to see how these facts alone warrant the conclusion "that convulsions within the first two years of life are to be taken as manifestations of epilepsy" and that recurrence is to be expected. Surely all that they do indicate is the well-known fact that epilepsy very frequently begins in early life and often in infancy.

The only accurate way to determine the prognosis of infantile convulsions is to follow up for an adequate period a series of infants who have had observed convulsions and see whether in fact they have any more. A most searching investigation on these lines has been published by Thom.[3] In 395 children with infantile convulsions only 12% developed epilepsy, while the incidence of epilepsy in 8,000 unselected children was 1%. From this it is fair to conclude that there is an increased chance of epilepsy in those with infantile convulsions as a whole, but, while 88% of these children remained free from further fits during the period of observation, it is scarcely legitimate to dub them all epileptic, let alone to treat them as such.

The whole argument depends obviously upon what one means by epilepsy. I have taken it that the authors have used the term in the usual sense of a chronic convulsive disorder characterized by recurrent convulsions and the strong likelihood of subsequent mental deterioration. This concept is convenient and time-honoured, even if aetiologically unsound. Nevertheless, taking this definition, it is certainly not true that most children who have an isolated convulsion at the onset of an acute infection are "epileptic." On the other hand, the convulsion appearing "out of the blue" and unaccompanied by acute illness is very much more suspect, while repeated convulsions should always be regarded as potentially epileptic.—I am, etc.,

Glasgow. ROBERT A. SHANKS.

REFERENCES

1 *J. Amer. med. Ass.* 1924, **82**, 375.
2 *Arch. Ped.*, 1922, **39**, 303.
3 *Amer. J. Psychiat.*, 1942, **98**, 574.

*** In addition to the above letters and that from Professor R. S. Illingworth and Dr. S. A. Doxiadis (September 3, p. 547), letters criticizing the paper "Significance of Convulsions in Infancy," varying in detail but similar in substance, have been received from Dr. C. Elaine Field (London), Dr. N. Malleson (Ipswich), Dr. A. Lewis (London), Dr. A. A. McInnes (Wellingborough), Dr. D. Pyke (London), Dr. N. F. Elliott Burrows (London), Dr. J. B. Metcalfe (London), Dr. S. G. Siddle (Malton), and Dr. J. C. R. Morgan (Llantrisant).—ED., *B.M.J.*

Tuberculosis in European Voluntary Workers

SIR,—In the course of routine clinical duties among the population in an extensive and fairly representative area of the West Riding of Yorkshire I have been astonished by the number of cases of pulmonary tuberculosis which have been discovered among European voluntary workers who have immigrated to England during the past few years under the Ministry of Labour schemes.

It may well be that this finding is a mere impression on my part and one which may not be substantiated by detailed statistical investigation. Yet it is rather alarming to note that some at least of such new recruits to British industry have never had an *x*-ray examination prior to their acceptance for employment in this country, and others who claim to have had such an examination have demonstrable pulmonary infiltrations when examined within a few months of arrival in Yorkshire.

Clearly there is no room in this matter for political prejudice or parochial nationalism, but it must be borne in mind that one tuberculous E.V.W. may easily saddle the Exchequer with a bill for over £1,000 for his treatment and for the maintenance of his family during his stay in an institution and subsequent rehabilitation. The whole situation is even more perplexing when it is recalled that both the Canadian and South African Governments insist on the most rigorous health qualifications, including the production of a chest radiograph by all prospective British immigrants. Apart from the financial aspect of this problem, the further danger of introducing a new and perhaps more virulent strain of the tubercle bacillus among the indigenous population of this country may prove to be something more than mere academic speculation (see Mr. Walter Elliot's paper in the *Journal* of August 6, p. 297).

Finally, while conceding the need for additional sources of manpower in the current export drive, every effort should be made by the Ministry of Labour or the appropriate Government agency to introduce the highest possible health standards among all European workers recruited for British industry.—I am, etc.,

Halifax. BERTRAM MANN.

Torsion of Normal Fallopian Tube

SIR,—May I record a further case of torsion of an apparently normal Fallopian tube?

In June, 1947, I was called to see a woman of 48 (para 2) with severe lower abdominal pain, this being her fourth attack of similar pain in twelve months. Each attack had lasted about twelve hours. On examination, a tender swelling, estimated to be 1½ in. (3.75 cm.) in length, was palpable in the left fornix. A diagnosis of twisted ovarian cyst was made, and at operation the left tube was found to be swollen, black, and twisted on its mesosalpinx. The ovary was not involved, and there was no obvious reason for the torsion. The other tube and both ovaries were normal.

—I am, etc.,

Southampton. RAYMOND PURVIS.

Growth of Foetal Head

SIR,—I have read the letter on this subject by Dr. A. G. Murray (August 13, p. 387). Like the late R. E. Roberts, I have estimated foetal maturity on the assumption that the foetal skull grows at a constant rate during the last month of pregnancy. I have probably made over a thousand of these examinations since Reece[1] described his method in 1935, and my impression that this method is of definite value has gained strength through successive years—particularly so in the last six hundred cases, in which the proved accuracy of the vertical shift technique[2] has contributed to the precise measurement of Reece's greatest circular section. Reece based his calculations of foetal maturity on the work of Calkin, who showed that the diameters of the head are proportional to the length of the foetus.

Proof of growth in the last month is difficult if cephalometric results are not accepted as reliable evidence. Clinical measurements immediately after birth are apt to be upset by moulding. If the foetal head does not grow during the last month cephalometry at the 36th and 40th weeks would give similar results. This is not so in my experience. The greatest circular section will have increased by about four-tenths of an inch (1 cm.).—I am, etc.,

Reading. PAUL CAVE.

REFERENCES

1 *Proc. R. Soc. Med.*, 1935, 28, 489.
2 *British Medical Journal*, 1943, 2, 196.

Haemorrhage into the Spermatic Cord

SIR,—The following case was erroneously diagnosed as a strangulated hernia by two independent doctors of experience.

On April 26, 1949, a boy aged 13 was playing football and, while running, he became aware of a slight pain in the left groin not associated with any injury at all. During the next five minutes the pain increased in intensity until it became fairly severe but not excruciating. He cannot remember whether he ran about or remained still during the time when the pain became more severe. At this time he noticed that a lump had developed in the groin.

After an hour the pain diminished gradually and he was able to sleep that night, but was aware of the pain on awaking next morning. His doctor was called and, finding a tender irreducible lump with no impulse on coughing, he diagnosed a strangulated hernia and sent the patient into hospital with a letter which read, "Though not appearing typically like a hernia I think it is one." This diagnosis was substantiated by the doctor who saw the boy on admission to hospital.

At operation on the next day (April 28) the lump was found to be due to swelling of the spermatic cord, which was black in colour throughout its length. Torsion of the testicle was suspected and the tunica vaginalis opened, but the testicle and epididymis were seen to be quite normal. The coverings of the spermatic cord were then divided and the entire cord was found to be infiltrated with blood clot. This was gently swabbed away with dry gauze, but the bleeding point had evidently sealed and was not discovered. There was no hernial sac. The wound healed by primary union and recovery was uneventful.

Evidently this condition can simulate a hernia on clinical examination and can cause the surgeon to suspect a torsion of the testicle at operation. It should be borne in mind in the differential diagnosis of surgical emergencies of the inguinal region.—I am, etc.,

Boston, Lincs. CHARLES MACLAY.

Stress Incontinence in the Female

SIR,—I have followed the correspondence on this subject with interest. So far none of your correspondents has pointed out that this condition may be a neurotic manifestation simply and solely, due to neither anatomical nor organic neurological causes. To attempt to cure such a case by any form of operation would be as likely to be followed by permanent cure as an attempt by a thoracic surgeon to cure the air swallower by slinging up the oesophagus.

Non-realization of this may lead to one of the most worthwhile operative procedures, the cure of stress incontinence, coming into unwarranted disrepute.—I am, etc.,

East Boldon, Co. Durham. TERENCE G. ROBINSON.

Dermographia

SIR,—A case of dermographia came under my care recently, and the following particulars may interest your readers.

The patient, a nurse, consulted me on December 16, 1948, suffering from dermographia which she had had for several months. Her skin was extremely sensitive to the touch—a thumb-nail drawn lightly over the surface causing a weal to come up almost immediately. The weal took about five minutes to come up, during which time intense pain was experienced, but this passed off as soon as the weal was fully formed. Such simple movements as crossing her legs, combing her hair, or even lying in bed caused these weals to come up. In consequence of this she was becoming very debilitated and nervous. She found hot baths relieved the pain, although the friction of the towel while drying herself again aggravated her condition.

She had previously had desensitization tests, which proved negative. This was followed by a course of peptones and later by typhoid shock treatment, neither of which gave her any relief. She was then put on a milk diet with calcium injections and hydrochloric acid by mouth, without result. While under this treatment in hospital she lost a stone (6.3 kg.) in weight. After a period of four months there was no improvement. One of her fingers became infected, and she was treated with penicillin. The result of this was a further aggravation of her condition. It was at this stage that she consulted me.

A radiograph of her chest was negative. The only possible focus of infection which could be found were her tonsils, which were enlarged and pitted but which had been passed as satisfactory during the time she had been in hospital. With a view to improving her general health and sedating her nerves I decided to try to build up her general condition by a simple tonic containing lime, phosphorus, and iron, phenobarbitone gr. ½ (32 mg.) t.d.s., and general ultra-violet-light treatment. She had six general ultra-violet-light treatments before the end of the year, and these then stopped for five weeks. She received them again every other day in February for nearly four weeks, and she had a further three treatments in the middle of March. On April 1 she reported that she still had a very little dermographia, but there was no further burning and her general condition had improved considerably.

On further consultation with a nose-and-throat specialist her tonsils were removed as being a possible focus of infection, and early in May she had returned to full duty in hospital (being a sister in charge of a ward) completely relieved of her symptoms.

This case is interesting, demonstrating as it does the remarkable effect of ultra-violet light on this condition, which had resisted various forms of treatment. In addition it is important in such cases to make sure that any doubtful focus of infection is eradicated.—I am, etc.,

Christchurch, New Zealand. W. GORDON RICH.

Production of Dental Caries

SIR,—I was most interested in the article by Dr. P. Pincus on the production of dental caries (August 13, p. 358), and I found his logical reasoning as he took it step by step, smashing the lactic acid theory on the way, quite fascinating. While appreciating the considerable research he has done in this con-

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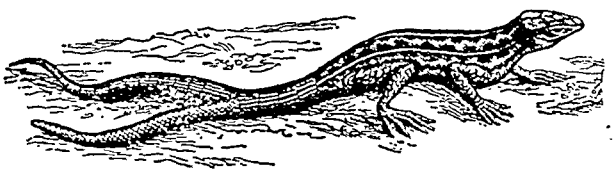
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20 years, strengthening with the passing of time; and with it came an ever-increasing appreciation of his influence in public health. So intuitive was his selection of staff, so inspiring and encouraging was his leadership, and so practically sound was the training he gave them that many of his young men now occupy high positions in the public health service. He was loved and respected by them all, and later they often turned to him for guidance and help that was never refused. Ferguson came to Surrey from Lancashire in 1929 to take over from Professor E. W. Hope, of Liverpool, who had been acting county medical officer. Those were difficult days in the [illegible] in Surrey. Two main influences [illegible] problems—the transfer of Poor [illegible]nty Council with the consequent [illegible] hospital service, and the rapidly [illegible] the need to develop the existing [illegible] threw himself whole-heartedly [illegible] difficulties; and, with his capacity [illegible] the problem to its simplest form, [illegible]ence in Lancashire, his unspar[illegible]nce which an enlightened county [illegible]cil had [illegible] unty health services were slowly built up t[illegible] st in the country. Ferguson's reputatio[illegible]c health was established and the inevitabl[illegible] as a first choice for innumerable committee[illegible] affairs; indeed, no such committee was com[illegible]ticularly those concerned with hospitals, without the name of Ferguson of Surrey. A catalogue of the committees on which he gave such valuable advice and guidance would be too lengthy to include here. But his help was also sought by examining bodies for the D.P.H.: he was examiner for London and Manchester Universities and for the English Conjoint Board.

One project to which Ferguson gave much effort was the development of the health services of the great L.C.C. housing estate at St. Helier. The provision of a first-class school health service, a health centre for the local preventive services, and a new hospital were only parts of that scheme. In particular, he was justly proud of St. Helier Hospital. Tribute has been paid in naming the nurses' home of that hospital "Ferguson House." He was proud, too, when he was made an Honorary Physician to the King in 1941; he felt it was one of the highest honours in the profession—and it was richly deserved. Later he was to receive further recognition in 1946, when he was created a C.B.E. But his greatest satisfaction came from the knowledge that he had been the architect of the efficient and extensive health services of the county which he served so well. So highly was Ferguson's knowledge, experience, [illegible] administrative ability appreciated that he was not [illegible]ed to retire at the end of his service in Surrey. He was [illegible] a temporary appointment as a principal medical [illegible]e Ministry of Health: he accepted and, with the [illegible]ndation from those whom he served there, he therapeutic properties his best. Unfortunately, the last two [illegible] now being used on an enormous by an insidious illness which [illegible] with the sentence: "The task of those few, if any, knew that many precious dollars to spend on this he should worry his [illegible] to distribute such supplies as reach before the end it was [illegible] easy one." [illegible] d to the inevitable.

The inference appears to be that t[illegible]otional moment not available in this country is limited to son[illegible] available for its purchase. If this infer[illegible] seems a most opportune time to express leave a gap in many of this and other life-saving drugs will shed, and his wide from the effects of sterling-dollar crises uson, his daughter, of medical ideas and information.—I am, r deepest sympathy

Rostrevor, Co. Down.

Dr. F. Hall writes: News of the death of James Ferguson was received with great regret by his friends and former colleagues in Lancashire, where he spent the earlier part of his public health career. From 1920 until his appointment as county medical officer for Surrey he occupied the post of chief assistant medical officer to the Lancashire County Council, a period during which the health services of that county were actively developed. Intellectually brilliant and endowed with a clear and constructive mind, Ferguson exercised an important influence on this process and helped to lay the sound foundations upon which the services were built. Those of us who were in the service at that time will long remember not only his friendly and helpful counsel but also his thoughtful and discerning views upon major social and health problems. Large numbers of the more unfortunate members of the community he served, particularly the blind and crippled children, also owe him a debt of gratitude for the thorough and sympathetic manner in which he exercised his administrative functions in arranging for their welfare. The public health services and the medical profession have lost an honoured and valued member, one who at all times maintained the highest ethical standards of medicine in all its varied relations.

W. T. WARWICK, M.B., F.R.C.S.

Sir Gordon Gordon-Taylor writes: Some years ago I wrote of a distinguished Australian surgeon that he was "a man of few words, a flair for diagnosis, and a sharp knife": these words would not inaptly describe my old friend and colleague, Turner Warwick, with the substitution of the terms "careful" and "deliberate" for "sharp." Warwick, whose obituary notice was printed in the *Journal* of September 3 (p. 549), was never an architect of talk, not that he was unready to take part in any discussion that was for the benefit of his patient or on a subject upon which he entertained strong views, but he was not publicly disputatious, and I imagine that he felt the strain each time he was compelled to participate in open debate. His diagnostic flair was extraordinary: he was the first, or at least one of the first, to make the diagnosis of a ruptured oesophagus; he tentatively formulated the startling diagnosis of actinomycosis of the rectum in a patient of the writer's, subsequently confirming its accuracy by demonstrating the streptothrix fungus on numerous occasions before the patient's death; he unerringly diagnosed a haemorrhage into an intrathoracic goitre in a colleague, when all others in consultation took the most sinister view of the case; it is even alleged that he suspected the rare affection which terminated his own life.

His work and outlook bore the impress of his distinguished senior colleague, William Sampson Handley, and this contact, together with the years of nurture in the Bland-Sutton Institute of Pathology, perhaps inculcated in him a livelier Lucretian interest in the nature and cause of things than in the technical correction or ablation of human affections and ills, perchance sustained by Cromwell's hope: "To be a seeker is to be of the best sect next to a Finder, and such an one shall every faithful, humble seeker be at the end."

He was the "whitest" man that ever lived, "foursquare," of transparent honesty, completely devoid of self-seeking, unsparing of effort on behalf of others. Perhaps the affection in which Warwick was held may be summed up in words used of the old St. George's surgeon, Sir Prescott Hewett, who also owned a Doncaster background: "Few men were more beloved by those who were connected with him in practice, whether as pupils or patients, for he was a man 'who would not merely scorn

a base action, but with whom anything base would be inconceivable.'" The idea of any panegyric would have been abhorrent to a nature like Turner Warwick's, but I believe that he would have liked a senior colleague to say of him that throughout life he always played the game. He did.

Dr. WINIFRED PEACEY, who died in April last, was an outstanding figure in the West of England. After studying at Oxford and the London School of Medicine for Women she qualified in 1921. Her father was an Anglican canon, and she was the only Catholic in her family. Two of her sisters became Anglican nuns and several of her brothers became Anglican clergymen. After holding a house appointment she joined the Congregation of the Daughters of the Cross and was appointed to their convent at St. Michael's Hospital, Hayle, Cornwall, in 1925. From then until her death Sister Marie Theresa, as she became, worked unceasingly. During her long term of office as medical superintendent the facilities of the hospital were extended and it became more and more an important link in the chain of hospitals in that area. Sister Marie Theresa became one of the best-known and most dearly loved doctors in the district. The hospital, at first staffed by general practitioners in the neighbourhood, grew under her guidance, and over the last ten years treated nearly all the emergency cases from the surrounding districts of Hayle, St. Ives, and the rural area covering the wild Cornish coast and countryside down to the Lizard and Penzance. Sister Marie Theresa, apart from acting as superintendent, was also responsible for radiography and for most of the anaesthetics administered. Three or four years ago she estimated that she had given 16,000 anaesthetics for all types of cases with only one death on the table. She participated fully in the religious life of the convent, gave lectures to the nurses, and supervised the busy physiotherapy out-patient department. Although a nun, she spoke her mind on all occasions, and it was her forthright character which endeared her to those who understood her and appreciated her great qualities. In common with the other members of her sisterhood she scarcely ever left the hospital or convent grounds, but nevertheless she knew every family in the district and conducted the business affairs of the hospital with precision and impartiality. Thanks to her firm and fair management of the hospital there was never any friction among the medical staff of specialists and practitioners, and her ruling was always accepted as final. During the 10 years which I spent in surgical work at the hospital I came more and more to depend on her sound judgment in clinical matters. Over many long hours of operating by day or night one came to rely on her impassive moral support from the "top of the table" and to bow to her cryptic remarks when surgical zeal began to outrun discretion. Sister Marie Theresa was never disturbed by the most irritable surgeon or by the most unreasonable and exacting patient. Few doctors have devoted themselves more whole-heartedly to their profession and looked less for reward or recognition. Her long illness failed to dim her spirit, and she continued to work until the spread of metastases prevented her from walking. It is the greatest satisfaction to all who knew her that she lived to see her hospital saved from State ownership, concerning which she had strong views seldom heard, I imagine, from the lips of one who had chosen the convent for her life's work.—E. C. A.

Dr. GWILYM JAMES, of Aberystwyth, died suddenly on June 24. The son of a sea captain of Aberystwyth, Gwilym James first attempted to follow his father's profession, and he served for a period as apprentice in a sailing ship. Later, however, he studied medicine at St. John's College, Cambridge, and at University College Hospital, where he qualified in 1911. He was a house-surgeon at the Queen's Hospital for Children, Bethnal Green, and also held resident appointments at the Royal Northern Hospital. He settled in general practice in Llanelly in partnership with Dr. Samuel Williams. Here over many years Dr. James won the esteem and affection of his patients by his outstanding ability and his self-sacrificing devotion to his work. He served as a captain, R.A.M.C., with the 2nd Railway Construction Section of the Royal Engineers throughout the 1914-18 war. At Llanelly he was in practice from 1919-43, and he was also honorary consulting surgeon to the Llanelly General Hospital. Ill health compelled his retirement six years ago, and since then he had been living at Aberystwyth, where he renewed many old friendships.

Dr. ARTHUR CARVETH JOHNSON died on June 28 at the age of 63. He was born in West Norwood, London, of Cornish ancestry, and was educated at the Merchant Taylors' School, where he won a scholarship to Downing College, Cambridge, and to St. Thomas's Hospital. He graduated in 1913, and after holding house appointments at St. Thomas's and at the Brompton Hospital he joined the Welsh National Memorial Association for Tuberculosis. He was at first responsible for the districts of Brecon and Radnor, and was transferred to Newport in 1917. Dr. Johnson played rugby for his school and for his hospital. He was a well-known breeder, exhibitor, and judge of bull-terriers, and was a life-member of the Bull-terrier Club. He was at one time chairman of the Newport Canine Society and president of the Newport, Devon, and Cornwall Society. A keep photographer, he was a founder member of the Newport Camera Club, and was its president when he died. At the age of 21 Dr. Johnson was initiated a Freemason, and at the time of his death he was provincial grand senior warden for the province of South Wales, Eastern Division. He was a member of the Newport Medical Society, and he had been in charge of the tuberculosis services for practically the whole of Monmouthshire for many years. He was considered to be an authority on his subject, and his opinion was valued throughout Wales. Dr. Johnson was twice married, and he is survived by a widow and three children.—J. T. R.-E.

Dr. ALEXANDER SCOTT died at his home in Sileby, Leicestershire, on August 16 at the early age of 50. A student of St. Andrews, he graduated M.B., Ch.B. in 1928 and held resident house appointments at the Dundee Royal Infirmary. He had been deputy medical superintendent of Baguley Sanatorium and an assistant tuberculosis officer in Sheffield.

E. K. M. writes: Dr. Scott came to Leicester as senior tuberculosis officer in 1945. His experience of his subject was great, but it is more of his character as a man of which I would write. Following, as he did, a man who had given the last thirty years of his professional life to the work of the local tuberculosis clinic was not particularly easy, but Scott soon endeared himself to the staff and even more especially to his patients. He was a man of great courage and full of life to a remarkable degree. It may be said that he had a zest for living, everything—his profession, his garden, his bee-keeping—his very special hobbies—was so intensely interesting to him. His death was marked by more than one letter in the local press from former patients expressing their lifelong gratitude for the words of cheerful hope which he had been able to give them. Scott leaves behind him a widow and four young children.

Dr. JAMES ANDREW GIBSON died on August 19 at his home in Lancaster. A student of Edinburgh University, he graduated M.B., C.M. in 1895, proceeding M.D. in 1900. After being in general practice at Kendal, he came to Lancaster in 1898. In 1908 he joined the staff of the Royal Lancaster Infirmary, and was in charge of the electro-medical department. He was largely responsible in those early years for the introduction of the first *x*-ray unit to be installed there. He was appointed honorary medical officer to the infirmary in 1911, and was a member of the general committee from that time onwards. Dr. Gibson took a large share in the planning of the original extension of the hospital buildings, and he was elected president of the Royal Infirmary in 1927 and 1928, and again in 1942. He was chairman of the house committee for many years, both before and after his retirement from general practice, and was chairman of the medical committee from 1931 to 1938. He was elected honorary consulting physician in 1939, and he acted as chairman of the local medical war committee during the recent war. Over the past 50 years, while he lived in Lancaster, Dr. Gibson built up a large and flourishing general practice, and for many years was in partnership with Alderman P. F. Mannix. He was much beloved by all his patients, and with

his quiet and assured manner he was a great comfort to many who sought his help. To a few of his more intimate associates his generosity and kindness to the poor and needy were well known. By his professional colleagues he was respected and admired, and his wise counsel and unhurried, unbiased judgment in controversial matters was of inestimable value in the administration of hospital affairs. His colleagues all regretted that during his latter years failing health prevented him from continuing to guide the affairs of the infirmary whose welfare and smooth running were always his first and most important interest. His loss is a great one to all those who knew him, and his memory will be cherished. He was a man of sterling quality, unimpeachable integrity, and a loyal and beloved friend.

Medico-Legal

PARTIAL INTERCOURSE AS CRUELTY

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

Cruelty for divorce purposes is nowhere defined by statute, but the accepted traditional definition is, briefly, conduct endangering or threatening the spouse's life or health. The idea has been gradually clarified by successive decisions of the courts, but each case is decided on its own facts. One of the most recent of these decisions[1] is useful in showing one of the boundaries of legal cruelty and also one of the possible remedies where a spouse suffers from refusal of complete sexual intercourse.

A husband, almost from the outset of the married life, performed partial intercourse by coitus interruptus in spite of the repeated protests of his wife and of his own knowledge that his conduct was increasingly injurious to her bodily and mental health. He abstained for varying periods, and after these had partial intercourse on occasions. On each of these occasions the wife genuinely hoped and believed that the intercourse would be complete and that she could bear a child. Each time she was frustrated, disappointed, and depressed, and her nervous system was disturbed, with the result that her health, both bodily and mental, suffered increasingly, for she keenly desired to raise a family and believed that her husband did also.

At last, losing hope of the marriage, she petitioned the court for nullity on the ground of the husband's sexual incompetence or wilful refusal to consummate the marriage, but the judge was not satisfied that the marriage had not been consummated. She accordingly petitioned for divorce on the ground of cruelty through a failure of the husband, consistent only with determination, properly to give her those sexual rights to which she was entitled, with the result that her health deteriorated and at one time at least was in a serious condition.

Mr. Justice Wallington did not doubt that the conduct of the husband, if continued, would have produced a serious and dangerous deterioration in her health, nor that he must have understood the wrong and injury that he was doing to his wife. The judge did not suppose that her whole well-being depended on sexual intercourse or that she thought that it did. Some women, he said, may be so constituted that their health is not affected by repeated partial intercourse, such as coitus interruptus, while other women enter into the marriage state hoping to fulfil one of its most important functions—the bearing of children. When such women are denied the normal means of child-bearing and their sexual functions are abused by frequent coitus interruptus, especially when it follows substantial periods of complete denial of intercourse, their health is likely to be affected. In his opinion the case before him fell into this class, and he granted the wife her decree. He mentioned, however, during his judgment that mere abstention by the husband from intercourse could not amount to cruelty or give the wife any remedy, even though it might injure her health.

There must, it appears, be aggravating circumstances of the kind related here, such as long periods of total abstention and callous indifference to the harm that was being done. Where such circumstances are present, however, a spouse may have a remedy if the nullity remedy fails.

[1] *Walsham* v. *Walsham*, 1949, 1 All E.R. 775.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on July 16 the following degrees were conferred:

D.M.—J. P. Childs.

B.M.—D. A. T. Tizard, R. T. T. Warwick, W. J. C. Symonds, R. W. Barr Brown, R. Kelly-Wiseham, Sheila J. Thorogood, Anne M. M. Oriel, *G. A. Rose, *D. G. R. Campbell, *G. de B. Mitford-Barberton, *J. W. Yeandle-Hignell, *Susan E. Scott-Stokes.

In a Congregation held on July 30 the following degrees were conferred:

D.M.—G. P. Maher-Loughnan.

M.Ch.—G. J. Fraenkel.

B.M.—G. F. Harris, J. C. F. Poole, R. O. Payne, Patricia M. Gilham, Sabine J. Strich, Alison D. Reid, *D. J. Woolford, *T. C. Barns, *Ruth E. Trilling.

*In absence.

UNIVERSITY OF CAMBRIDGE

Kendal Cartwright Dixon, Ph.D., M.B., B.Chir., has been appointed University Lecturer in Chemical Pathology for three years from October 1.

Mary Etheldreda Priscilla Hele, M.B., B.Chir., has been appointed to the Benn W. Levy Research Studentship in Biochemistry for the period October 1, 1949, to September 30, 1950.

In Congregation on July 30 Kenneth Frank Wilsdon, B.M., B.Ch., F.R.C.S.Ed., was admitted to the degree of M.A. by incorporation.

The following medical degrees were conferred in Congregation on July 30:

M.D.—*A. P. Bentall, *A. Leese, *J. R. Squire, *T. P. Pattinson, *A. P. Norman, J. M. Lipscomb, R. Fletcher.

M.B., B.CHIR.—*R. N. Twistington Higgins, *J. L. Whitby, *G. K. Barker, *P. J. Crosland-Taylor, *M. A. Epstein, *H. P. Lambert, *D. W. L. Leslie, *P. T. Perkins, *A. Polak, *M. T. Pym, *C. B. Walker, *J. F. Watkins, *E. C. B. Hall-Craggs, *L. B. Hunt, *R. G. Watkinson, R. W. Fairhead, *D. Bulmer, *E. H. R. Ford, *D. G. A. Leggett, *J. D. Marsh, *B. W. Peckett, *J. H. Rack, *T. J. Sullivan, I. R. McWhinney, *D. Gough, I. P. James, *P. E. Bodkin, *G. A. Court, *G. A. Gresham, *J. B. Self, *P. W. Thompson, *I. S. Waller, *M. Wilkinson, D. A. A. Beardsmore, E. A. Cooper, E. J. Watson-Williams, *E. C. A. Bott, *J. F. Boyle, *C. McCance, *T. C. K. Marr, *J. H. Neame, *C. A. Rogerson, *T. E. Stockley, *S. A. Wartski, *C. C. Clapham, *J. F. Soothill, *J. Stevens, P. A. Freeman, *D. S. Kerr, M. K. Sykes, *A. J. Lane, *W. P. L. Morrison, *J. M. Roberts, *L. R. Spencer, *R. A. Struthers, *D. G. Thompson, *H. B. Ll. Williams, L. C. Hurst, E. W. P. Jones, *A. Bates, *J. Armstrong, *B. F. Whitehead, R. D. Eagland, M. J. Kehoe, *Janet F. C. Callow, *Ellen Veldhuyzen, *Dorothea P. Wagstaff, *Dinah D. Webb, Billie I. Brown, Patricia B. Corston, Brenda M. Grimmett, *B. J. Hockey, H. R. Odlum.

*By proxy.

In Congregation on August 20 the honorary degree of D.Sc. was conferred on the following: Viscount Addison, K.G., M.D., F.R.C.S., Lord Privy Seal, Leader of the House of Lords, and Chairman of the Medical Research Council; Carl Ferdinand Cori, Professor of Biochemistry in the University of Washington School of Medicine; Sir Charles Robert Harington, Ph.D., F.R.S., Director of the National Institute for Medical Research; Kaj Linderström-Lang, Director of the Carlsberg Laboratory, Copenhagen; Arne Wilhelm Kaurin Tiselius, Professor of Biochemistry in the Royal University of Uppsala, Sweden; Jacques Tréfouël, Membre de l'Institut et de l'Académie Nationale de Médecine and Directeur de l'Institut Pasteur, Paris.

UNIVERSITY OF GLASGOW

The following candidates have been approved at the examination indicated:

D.P.H.—Muriel S. Alexander, J. R. H. Berrie, G. S. Carrick, Flora C. Cowan, N. R. Cowan, Agnes C. Davidson, Katharin I. Kerr, Ruth A. Keymer, D. Livingstone, Margaret J. Macarthur, D. MacInnes, Ann K. MacLennan, J. Maxton, Agnes W. O'Gorman, Martha G. Robson (née Kennedy), Betsy D. Scott, M. Silver, J. M. Wallace, Elizabeth M. Whiteside, Jessie E. Wilson, T. S. Wilson.

UNIVERSITY OF LONDON

Anthony Clegg Cunliffe, M.D., has been appointed to the University Readership in Bacteriology tenable at King's College Hospital Medical School, from October 1.

John Laurence Malcolm, M.B., Ch.B., has been appointed to the University Readership in Experimental Physiology tenable at St. Mary's Hospital Medical School, from October 1.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended August 20. [No. 33

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	22	2	7	3	1	26	4	18	—	—
Deaths		—	—			—	—	—		
Diphtheria	59	8	23	1	6	116	14	23	14	5
Deaths	2	—	—	—	1	—	—	—	—	—
Dysentery	35	4	83	—	1	111	10	58	—	3
Deaths				—	—				—	—
Encephalitis lethargica, acute	3	—	1	—	—	3	—	—	—	—
Deaths		—					—			
Erysipelas			16	6	1				30	5
Deaths			—					—		
Infective enteritis or diarrhoea under 2 years	19	—	4	62	6	32	3	21	45	3
Deaths				6					2	—
Measles*	2,120	158	57	96	6	4,611	189	43	39	25
Deaths†			—	—	—			—	—	
Ophthalmia neonatorum	47	1	17	—	—	59	3	17	—	—
Deaths									—	—
Paratyphoid fever	30	1	3 (B)	8 (B)	—	20	—	1 (B)	—	—
Deaths	—	—	—	—	—	—	3	—	—	—
Pneumonia, influenzal	245	13	2	2	6	266	9	—	3	1
Deaths (from influenza)‡	6	—	—	—	—	4	—	—	—	—
Pneumonia, primary	103	11	127	20	8	112	12	98	12	4
Deaths	22	4		4		6	—		2	
Polio-encephalitis, acute	273	31	14	1	2	72	10	3	4	2
Deaths	14	2				1	—			
Poliomyelitis, acute								8		
Deaths§			—	5				—		
Puerperal fever						1	106	9	8	—
Deaths									—	
Puerperal pyrexia‖	80	6	5	—						
Deaths		—				—	—	—		
Relapsing fever										
Deaths	—	—				—	—	—	—	—
Scarlet fever	678	47	136	61	43	736	38	134	74	22
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Typhoid fever	6	3	1	2	1	8	—	—	1	2
Deaths	1	—	—	—	—		—	—	—	—
Typhus fever										
Deaths	—	—	—	—	—	—	—	—	—	—
Whooping-cough*	1,637	82	41	118	82	3,260	315	24	114	17
Deaths	4	1	1	1	—	13	1	1	—	—
Deaths (0–1 year)	221	29	27	14	19	230	28	52	6	7
Infant mortality rate (per 1,000 live births)	—							11·0		
Deaths (excluding stillbirths)	3,9[illegible]	635	513	167	108	3,771	583	547	125	92
Annual death rate (per 1,000 persons living)			10·3	10·3						
Live births	7,087	999	831	400	247	7,568	1281	917	353	241
Annual rate per 1,000 persons living			16·7	24·8				18·5		
Stillbirths	188	29	[illegible]			211	25	28		
Rate per 1,000 total births (including stillborn)			25[illegible]					30		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Q Fever in London

On July 11, 12, and 13 three members of the staff of the pathological department and one nurse at a London hospital became ill with what appeared to be atypical pneumonia. All recovered, but subsequent investigation has shown that all now have significantly high agglutinations against *Rickettsia burneti*. The rickettsia has also been recovered from one sample of blood. The usual incubation period (10–24 days) has now expired, and there is no evidence of further spread of the disease in the hospital. The source of infection is being investigated.

This is believed to be the first occasion on which *R. burneti* has been recovered in this country. Although Stoker has found suggestively high titres in a few individuals, there has heretofore been no unequivocal evidence of a source of infection here.

Q fever was first distinguished as a human disease in Queensland, Australia, in 1935, and was thought to be tick-borne. Later, in Chicago and Texas, outbreaks occurred in slaughterhouses and were attributed to the inhalation of tick faeces or some other rickettsial-contaminated material. During 1944–5 the disease was recognized in Greece and the North Apennines. It has also been reported from Switzerland, France, Germany, Turkey, Morocco, and Algeria. In the U.S.A. endemic foci have been identified in California. In some outbreaks ticks have not been involved, and the mechanism of spread remains uncertain.

Although the present episode may be no more than an isolated importation it calls for special vigilance. Early recognition of the disease and the correction of any environmental factor likely to facilitate spread may prevent the establishment of endemicity. It is therefore desirable that outbreaks of atypical pneumonia should be brought to the notice of medical officers of health, especially infection in persons handling meat and milk in slaughterhouses and dairies. Facilities for routine laboratory diagnosis are not available in hospital laboratories. Serological studies will be undertaken through the Virus Reference Laboratory at Colindale in selected instances. Not all strains of Q fever are antigenically identical.

Q fever is an acute febrile disease closely simulating virus pneumonia. It is not easily differentiated from influenza, primary atypical pneumonia, psittacosis, and other obscure fevers. The disease is characterized by sudden onset which can be dated, headaches (commonly frontal, behind the eyes), weakness, sweating and chills, and body aches. Pleuritic pain and cough often occur, and the sputum may be blood-stained, although expectoration is as a rule scanty. As in virus pneumonia, physical signs are relatively slight compared with the radiological findings, which are, generally speaking, indistinguishable from those of primary atypical pneumonia. The white count is normal or decreased, with a relative lymphocytosis. Fever is usually high and persists for from one to ten days or more; in most cases it is of from three to six days' duration. Anorexia may be pronounced at the onset, and the fever may be very debilitating.

Q fever is distinguished from the other rickettsial diseases (epidemic typhus, scrub typhus, Rocky Mountain spotted fever, rickettsialpox) by the rarity of cutaneous lesions. A fine vesicular eruption of short duration may occur in less than 10% of cases. In Q fever the Weil-Felix reaction is negative. (See also an annotation in our issue of June 12, 1948, p. 1145.)

Poliomyelitis

Notifications in England and Wales in the week ended August 27 were poliomyelitis 258 (273); polio-encephalitis 22 (22). Figures for the previous week are shown in parentheses.

The following counties reported multiple cases (poliomyelitis and polio-encephalitis together): London 34 (35), Berkshire 3 (11), Cheshire 8 (6), Cornwall 5 (8), Derby 2 (9), Devon 4 (9), Dorset 2 (1), Durham 3 (2), Essex 13 (10), Gloucester 15 (5), Hertford 6 (3), Kent 9 (6), Lancaster 33 (29), Lincolnshire, Lindsey 3 (3), Middlesex 17 (13), Northampton 4 (6) Northumberland 6 (7), Nottingham 7 (10), Somerset 7 (5), Southampton 16 (11), Stafford 4 (6), Suffolk East 2 (0), Suffolk West 2 (3), Surrey 5 (7), Sussex East 4 (2), Sussex West 2 (3), Warwick 7 (4), Wiltshire 3 (4), Yorkshire East Riding 3 (1), Yorkshire North Riding 4 (1), Yorkshire West Riding 33 (50), Monmouth 2 (2).

Of the 15 cases reported from Gloucestershire 14 were in Bristol C.B. For the first time in five weeks there has been a small fall in notifications. Thus the curve of incidence so far this year has been very similar to that in 1947 though at a much lower level. The figures of notifications for the corresponding week (Week 34) of 1947 were: poliomyelitis 626, polio-encephalitis 50.

Discussion of Table

In *England and Wales* infectious diseases were less prevalent during the week. There were decreases in the notifications of measles 1,106, whooping-cough 101, dysentery 27, and diphtheria 19. There was an increase of 37 in the notifications of acute poliomyelitis.

The largest falls in the notifications of measles were Durham 104, Lancashire 85, Kent 80, Northumberland 71, Norfolk 69, Glamorganshire 68, London 65, and Warwickshire 62. The largest variations in the returns for whooping-cough were decreases in Yorkshire West Riding 38 and Staffordshire 33, with an increase of 40 in Lancashire.

Notifications of diphtheria reached a new record low level and were 14 below the previous lowest return. The chief feature of the returns for diphtheria during the week was a decrease in notifications in London 6.

Of the 30 cases of paratyphoid fever 20 were notified in Lancashire (Liverpool C.B. 8). The largest return for dysentery was 10 in Lancashire (Liverpool C.B. 6). An outbreak of food poisoning occurred in Carmarthenshire, and 196 cases were notified in the urban and rural districts of Llanelly.

In *Scotland* there were increases in the notifications of dysentery 29 and scarlet fever 26. Of the 83 cases of dysentery 62 were notified in the city of Glasgow. In the western area there were 9 more notifications of diphtheria than in the preceding week. The rise in the incidence of scarlet fever was contributed by the western area.

In *Eire* increases were recorded in the notifications of whooping-cough 43 and measles 23. There was a decrease of 23 in the notifications of diarrhoea and enteritis. Outbreaks of whooping-cough were notified from Donegal, Donegal R.D. 27, and Dublin, Balrothery R.D. 14, and there was an outbreak of measles in Carlow, Carlow R.D. 18.

In *Northern Ireland* an increase of 14 in the notifications of whooping-cough was the only noteworthy change in the trends of infectious diseases.

Week Ending August 27

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 718, whooping-cough 1,671, diphtheria 52, measles 1,778, acute pneumonia 222, cerebrospinal fever 18, acute poliomyelitis 258, acute polio-encephalitis 22, dysentery 90, paratyphoid fever 25, typhoid fever 10, food poisoning 171.

Medical News

Films on Haematology

The first two of a series of films on "Animated Haematology" were recently shown to an audience in London. The films were produced by the Armour Laboratories in Chicago, with the collaboration of the Department of Medicine of the University of Illinois. The first is entitled "The Haemopoietic Principle," and the second "Bone Marrow." They are 1,600-foot, 16-mm. silent colour films and are suitable for teaching purposes and for showing at medical meetings. They may be borrowed free of charge from Armour Laboratories Limited, 2, Lindsey Street, London, E.C.1.

Pharmaceutical Research Fellowships

The Pharmaceutical Society announces the award of two Fellowships of the value of £300 a year for two years. The Ransom Fellowship has been won by Mr. R. A. Webb, B.Pharm., B.Sc., who will do research work in organic chemistry at the University of London School of Pharmacy. Mr. B. K. Martin, B.Pharm., won the society's own scholarship and will undertake an investigation of the synthesis of pteridines and other related heterocyclic compounds at Nottingham University.

Wills

Dr. John Christopher Davies, of Shrewsbury, left £41,960. Mr. Arthur Hedley Clarence Visick, of Fulford, Yorks, left £13,589. Dr. Henry Colin Maclaren, of Carlisle, left £5,970. Dr. David Cyril Thomas, of Winterton, Norfolk, left £13,130. Dr. Frederick Barnes Elwood, of Belfast, left £33,524. Mr. Ernest Lewis Lilley, of Scraptoft, Leics, left £44,038, including £250 to the Charities Fund of the B.M.A.

COMING EVENTS

N.A.P.T. and Medical Officers of Health

A joint meeting of the National Association for the Prevention of Tuberculosis and the Society of Medical Officers of Health will take place in B.M.A. House on Thursday, September 15, at 2.30 p.m. The chairman will be Professor R. H. Parry, president of the Society of Medical Officers of Health and medical officer of health, City and County of Bristol. The object of the meeting is to exchange views and experience on social and aftercare arrangements by local health authorities under the National Health Service. The following speakers will lead the discussion: Sir Allen Daley, London County Council; Dr. G. W. H. Townsend, Buckinghamshire County Council; Dr. W. Alcock, Burton-upon-Trent; Dr. Neville Irvine (B.C.G. Vaccination); and Miss Anne Topley, Care Almoner, Surrey County Council.

Cerebral Palsy

Dr. Earl R. Carlson, medical director of the School of Corrective Motor Education, Long Island, New York, will address a meeting to be held under the auspices of the British Council for the Welfare of Spastics at the Royal Society of Medicine (West Hall), 1, Wimpole Street, London, W., on Wednesday, September 21, at 5 p.m. The American film, "A Day in the Life of a Cerebral Palsied Child," will be shown after the address.

King's College Hospital Medical School

Sir Hugh Cairns will deliver the inaugural address at the opening of the 1949–50 session of King's College Hospital Medical School on Friday, September 30, at 3 p.m., with Sir William Gilliatt in the chair.

No. 2 General Hospital

The third reunion dinner of No. 2 General Hospital will be held at Simpson's Restaurant, 100, Strand, London, W.C., on Saturday, October 8, at 6.30 for 7.15 p.m., with Colonel E. Scott in the chair. Tickets (14s. for officers and nursing officers; 12s. 6d. for other ranks) may be obtained from Mr. A. E. Porritt, C.B.E., F.R.C.S., 10, Upper Wimpole Street, London, W.1.

French Refresher Course

A refresher course in medicine and surgery—Les Entretiens de Bichat—will be held at the Bichat Hospital, Paris, on October 10–15. Further particulars may be obtained from L'Expansion Scientifique Française, 23, Rue du Cherche-Midi, Paris, 6e.

American Public Health Association

The 77th Annual Meeting of the American Public Health Association and meetings of related organizations will be held at the Hotels Statler and New Yorker, New York City, on October 24–28. Information may be obtained from Dr. Reginald M. Atwater, Executive Secretary, American Public Health Association, 1790, Broadway, New York City.

Alvarenga Prize and Lecture

On July 14 the College of Physicians of Philadelphia (19, South Twenty-second Street, Philadelphia, 3, U.S.A.) awarded the Alvarenga Prize for 1949 to Owen Harding Wangensteen, M.D., Ph.D., Professor of Surgery, University of Minnesota, for his important contributions to the aetiology and therapy of gastric and duodenal ulcer. Dr. Wangensteen will deliver the Alvarenga Lecture on this subject at the College of Physicians of Philadelphia on November 2. The Alvarenga Prize was established by the will of Pedro Francisco daCosta Alvarenga, of Lisbon, Portugal, an Associate Fellow of the College of Physicians, of Philadelphia, to be awarded annually by the College on the anniversary of the death of the testator, which took place on July 14, 1883.

SOCIETIES AND LECTURES

Tuesday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At Anatomy Lecture Theatre, Edinburgh University, September 13, 4.30 p.m., "*The Metabolic Response to Injury*," by Dr. D. P. Cuthbertson.

Wednesday

INSTITUTE OF PSYCHIATRY (UNIVERSITY OF LONDON).—At Maudsley Hospital, Denmark Hill, London, S.E., September 14, 5 p.m., "*Neurological Organization for Motion*." Public Lecture by Professor Warren S. McCulloch (University of Illinois, Chicago). All interested are invited.

Thursday

INSTITUTE OF PSYCHIATRY (UNIVERSITY OF LONDON).—At Maudsley Hospital, Denmark Hill, London, S.E., September 15, 2.15 p.m., "*Emotion from the Physiological Viewpoint*," Public Lecture by Professor E. Gellhorn (University of Minnesota). All interested are invited.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, London, W.—September 15, 3 p.m., "*World Trends in the Teaching of Social Medicine and Public Health*," Bengué Memorial Award Lecture by Professor René Sand (University of Brussels).

APPOINTMENTS

Dr. D. J. M. Mackenzie, O.B.E., Director of Medical Services, Nyasaland Protectorate, has been appointed an Official Member of the Legislative Council of the Protectorate.

EAST ANGLIAN REGIONAL HOSPITAL BOARD.—*Consultant Psychiatrist, Fulbourn Mental Hospital*, R. L. Buttle, M.R.C.S., L.R.C.P., D.P.M. *Second Consultant Pathologist, Norfolk and Norwich Hospital*, A. L. M. Christie, M.Sc., Ph.D., M.B., B.S. *Consultant Chest Physician, Ipswich and East Suffolk Area*, C. J. Stewart, M.D., D.Obst.R.C.O.G.

RAFFERY, LILIAN, M.R.C.S., L.R.C.P., M.M.S.A., M.R.C.O.G., Honorary Visiting Gynaecologist, King George V Springfield Hospital for Tuberculosis, Durban, South Africa.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Eedy.—On August 22, 1949, at Mansfield Nursing Home, to Françoise (née Chanu), wife of Dr. B. N. Eedy, a daughter—Bernardine.

Heap.—On August 21, 1949, at "One Oak," Pickering, Yorks, to Berry, wife of Dr. K. I. Heap, a son.

DEATHS

Alderson.—On September 3, 1949, Wilfred Ernest Alderson, M.D., formerly of 56, Highbury, Newcastle-upon-Tyne, aged 76.

Berry.—On August 31, 1949, at 3, All Saints Road, Clifton, Bristol, Beatrice Catharine, the wife of Professor R. J. A. Berry, M.D., F.R.S.E., aged 71.

Critchley.—On August 31, 1949, Samuel Edward Critchley, M.B., Ch.B., of 532, Chorley Old Road, Bolton.

Dewar.—On September 1, 1949, at Heathfield House, Whitefield, near Manchester, James Dewar, M.B., B.Ch., of Bury.

Fuller.—On August 31, 1949, at 5, Regent's Court, Hanover Gate, London, N.W., Charles Arthur Fuller, V.R.D., M.B., late of Cawnpore, India, aged 80.

Fulton.—On August 30, 1949, at 57, Burnley Lane, Chadderton, Frederick Fulton, L.R.C.P.&S.Ed., L.R.F.P.S.Glas.

Hernaman-Johnson.—On September 3, 1949, at Rotherfield Road, Carshalton, Francis Hernaman-Johnson, M.D., F.F.R., aged 70.

Hincks.—On August 26, 1949, at Wells, Somerset, Arthur Cecil Hincks, *M.C.*, M.B., Ch.B.

Lindow.—On August 26, 1949, Eric Delafield Lindow, M.R.C.S., L.R.C.P., of 19, Beaufort Gardens, London, S.W., late Malayan Medical Service.

Morgan.—On September 1, 1949, at North Walsham, Norfolk, Edward Morgan, M.R.C.S., L.R.C.P., aged 69.

Peacey.—In April, 1949, Winifred Peacey, M.R.C.S. L.R.C.P., of Hayle, Cornwall.

Stewart.—On September 3, 1949, at Wilton Villa, Ashton Road, Denton, Manchester, William Stewart, M.D., M.Ch.

Wells.—On September 2, 1949, at Wilcott, Sanderstead, Surrey, Harry Vernon Wells, F.R.C.S., aged 49.

Any Questions ?

Osteochondritis Dissecans

Q.—*What are the aetiology, prognosis, and treatment of osteochondritis dissecans?*

A.—The cause of osteochondritis dissecans is not known with certainty. It is generally agreed that it results from local loss of blood supply to an area of bone, but the primary cause of this is debatable. It is often attributed to trauma, which may lead to thrombosis of an end artery supplying a segment of bone. This is a reasonable hypothesis, and it is supported by the observation that in the knee the area of osteochondritis usually lies on the infero-lateral aspect of the medial femoral condyle immediately opposite a prominent tibial spine; it is supposed that impingement of the condyle against the tibial spine is the primary factor. When osteochondritis occurs in other areas of the knee, or in other joints, there is often—though by no means always—a history of previous direct injury. The pathological course of osteochondritis dissecans in the knee may be summarized as follows. Initially there is an area of avascularity of bone, which is shown in the radiographs as an area of increased density. The overlying articular cartilage degenerates. After a variable period, usually many months, the avascular fragment of bone separates and forms a loose body, leaving a crater in the bone which becomes filled with fibrin and later with fibrocartilage.

When the diagnosis is made before the fragment has separated it is often wise to await spontaneous separation, heavy use of the joint being avoided in the meantime. But if the knee is opened the avascular fragment should be gouged out, leaving a clean vascular bed. In doing this it is sometimes difficult to define the line of demarcation between avascular and healthy bone. When operation is deferred until spontaneous separation has occurred all that is necessary is to remove the loose body or bodies. After operation, a few weeks' rest, with intensive quadriceps exercises, is advisable. The prognosis depends on the size of the avascular fragment and of the resulting cavity in the articular surface, and on the position of the lesion. When the cavity is small and situated away from the major weight-bearing area of the condyle—for example, at the lateral aspect of the lateral femoral condyle—the prognosis is good; but when the main weight-bearing surface of a joint is involved, and particularly if the lesion is large, there is a risk of the development of degenerative arthritis months or years later owing to the loss of normal articular cartilage over the area of the lesion.

Treatment of Burns

Q.—*What is the modern treatment of burns?*

A.—Experience during and since the war has shown that treatment should have these aims: (1) to relieve the pain which follows the accident, and avoid pain later; (2) to prevent the onset of "shock," and steer the patient through it if it develops, by carefully controlled fluid replacement; (3) to prevent and control infection throughout the period of recovery; (4) to ensure regeneration or replacement of skin as early as possible; (5) to avoid or diminish metabolic disturbances resulting from injury, fever, or anaemia; (6) to encourage normal functioning of the injured parts and of affected joints, etc., and to maintain the patient's morale throughout; (7) by secondary repair or "plastic" operations to correct any defect or deformity which remains or develops after healing is complete.

Amplifying these aims very briefly, the following recommendations are made: (1) For limb burns, if immediate pain is not severe, hold them under the cold tap; if pain is severe, give "omnopon" and scopolamine. Cover burn with a sterile (or freshly laundered) towel until dressing can be undertaken. The avoidance of later pain is almost entirely a question of preventing and controlling infection (see 3 below) and depends on patience and skill in carrying out the dressings. (2) For severe burns involving a large area, intravenous transfusion of plasma or serum should be started if possible within an hour of the

accident, or as soon thereafter as may be. The rate of flow and quantity of fluid to be given should be regulated by repeated haematocrit or haemoglobin estimations, and by the general condition of the patient (see Gibson and Brown, M.R.C. Memorandum No. 249, 1944). Transfusion can usually be discontinued after 24 to 30 hours. Plenty of fluid, but only by repeated sips, should also be given by mouth during the first few hours—sodium lactate 1.75% solution for choice. (3) Burned areas should be first cleaned carefully with "cetavlon" solution 1%. (An anaesthetic is very seldom required if omnopon and scopolamine have been given.) Penicillin cream, 400 units per gramme in a paste of lanette wax and water, is smeared on thickly, and plenty of dressing applied with firm pressure by crêpe bandages (these are essential). Burns of hand and forearm should be elevated above the level of the heart for the first three to five days to reduce effusion. (4) The first dressing should be left untouched (if comfortable and the initial fever has subsided) for from seven to 14 days. Subsequent dressings, if there is no manifest infection, should be applied at intervals of five to seven days. To burns infected with haemolytic streptococci penicillin cream should be applied at intervals of two days until the micro-organisms have disappeared. Whenever possible all dressings should be carried out in "clean" air—that is, in a room supplied with an abundant stream of filtered air—or, where this is not available, in a room with good window ventilation. Great care should be taken that perfect coverage of the burned areas is obtained and maintained. For superficial burns, avoid infection, and epithelial regeneration will need no encouragement. For burns involving "whole-skin" loss of limited extent, grafting may often be undertaken with great advantage on the day of the accident (or within three days), after the burned tissues have been excised. Grafting at later periods should not usually be undertaken when haemolytic streptococci are present. Flexures in particular should be grafted very early. (5) Patients with severe burns should be given an abundant high-protein, well-balanced diet after the first two or three days, with in addition a liberal allowance of ascorbic acid. Anaemia, if severe, may call for one or more blood transfusions. (6) Early physiotherapy and occupational therapy are of value; great gentleness and patience in applying dressings are essential throughout the whole course of treatment.

Incubation Period of Tuberculosis

Q.—*Is any information available about the length of the latent period between infection with the tubercle bacillus and clinical manifestations of the disease?*

A.—In most cases infection with the tubercle bacillus is not followed by clinical manifestations in the sense of recognizable symptoms. A positive tuberculin reaction is the only evidence that infection has occurred. Wallgren has made a special study of "the time-table of tuberculosis" (*Tubercle*, 1948, 29, 245). He found that the important initial manifestations of tuberculous infection in children included transient fever, raised erythrocyte sedimentation rate, erythema nodosum, and the development of tuberculin-sensitivity and of the primary complex. The exact time infection occurred is often difficult to determine, but his studies suggest that the incubation period is usually about five to six weeks, although in exceptional cases it may be as short as three or as long as eight weeks.

Testing Swimming-bath Water

Q.—*A recent article seems to suggest that the results obtained when testing swimming-bath water for residual chlorine with o-tolidine reagent may not be reliable enough, and that, even if the water shows a high chlorine reading, this chlorine is not necessarily all available for sterilization purposes. Is this correct? The bacteriological examination of water means a wait of three to four days. If the residual chlorine test can still be regarded as reliable, it has obvious advantages.*

A.—Monochloramine, dichloramine, and even nitrogen trichloride may be produced when chlorine is added to water containing ammonium, depending on the conditions. The *o*-tolidine reagent will react with all of these. It does not, in the ordinary test, differentiate clearly between these, and it is therefore true to say that the test does not give a determination of chlorine alone. Nevertheless, as the chloramines are also bactericidal, although slower in action than chlorine, the *o*-tolidine reagent is probably still the best to employ for the control of purity. It is, of course, necessary in the control of swimming-bath water to ensure that the test is used after the break-point has been passed. Much work has been done on modifications of the *o*-tolidine test, and it is probable that a method will soon be published which will determine the actual amounts of chlorine, chloramines, and nitrogen trichloride present in chlorinated water.

Hunner's Ulcer of Bladder

Q.—*What are the modern views on the treatment of Hunner's ulcer of the bladder? The condition is complicated by severe rheumatoid arthritis which contraindicates extensive operative procedures.*

A.—It is perhaps unnecessary to say that Hunner's ulcer of the bladder is one of the more intractable conditions with which the genito-urinary specialist has to deal. Many forms of treatment have been tried, but without avail. One recognized form of treatment is distension of the bladder. The patient is taken into hospital or nursing-home and the bladder distended with increasing amounts of fluid. A solution of silver nitrate is often used for this purpose, beginning with a strength of 1 in 8,000 and gradually increasing up to 1 in 1,000. The bladder is distended once daily, the distension and strength of solution being increased according to the toleration of the patient. However, the writer has had little success with this treatment and it has the disadvantage of being painful; the only cure he has obtained when the condition is well established has been by operative measures. The whole of the affected area was excised, and the result was complete cure. If the patient is in great distress, so that life has become a misery, it would be justifiable to operate.

Fröhlich's Syndrome

Q.—*When examining school-children between the ages of 10 and 14 years one occasionally comes across a very fat child—if male, with one or both testes undescended, or, if female, with delayed menstruation. This combination suggests some endocrine dysfunction. It would be interesting to learn if any of the endocrine glands are involved, and if any hormone treatment is available. The hormone therapy for undescended testicle does not reduce the obesity, neither does dietetic treatment. What investigations are needed in these cases and what treatment?*

A.—Adiposity with failure of sexual development and failure of growth is known as Fröhlich's syndrome, and in some classifications a failure of growth is not regarded as essential for the diagnosis. However, from the point of view of treatment, the obesity falls into the same category as idiopathic obesity, for which there is no direct hormone therapy, and for which, as has been frequently indicated in these columns (Aug. 21, 1948, p. 408; Oct. 30, 1948, p. 808; March 5, 1949, p. 421; July 16, 1949, p. 189), the conventional treatment is diet, diuretics, and appetite-reducers, such as amphetamine sulphate. *X*-ray examination of the pituitary fossa should be carried out, but is usually negative.

Price's Precipitation Reaction

Q.—*How does Price's precipitation test for syphilis compare with other precipitation tests and the Wassermann reaction as regards specificity and sensitiveness? What is the technique of this reaction?*

A.—According to its originator, Price's precipitation reaction is less sensitive than the Kahn test, but considerably more specific. It is less sensitive than the Wassermann reaction, but of about the same degree of specificity. The technique of the test is described by Price, I. N. Orpwood (*J. clin Path.*, 1948, 1, 91), and his experience in the use of the test is given in *Brit. J. vener. Dis.* (1949, 25, 67).

Esbach's Test

Q.—*Esbach's test can be very misleading, and it is surprising that textbooks do not mention this. The only reference I have found is on page 640 of Martindale's Extra Pharmacopoeia, 1943 ed., vol. 2. By employing a simple method I have been able to arrive at a more correct quantitative reading of albumin content, and would be glad of an opinion about the correctness of the method and the accuracy of the deductions. Finding a heavy precipitate in Esbach's albuminimeter which I could not reconcile with clinical findings, I turned out the column of fluid and precipitate into a test-tube and boiled it for a few minutes, when much of the precipitate went into solution. After cooling, the contents were transferred into Esbach's tube and allowed to stand for another 24 hours, at the end of which the reading, which had originally been 4 g. per litre, was only 0.5 g. As boiling brings down albumin, it must be concluded that the original high reading was accounted for by substances other than albumin. What are the other substances which precipitate in Esbach's reagent?*

A.—On account of its simplicity, Esbach's test is often used by clinicians, but it gives only a rough measure of protein content and is too inaccurate for use in the laboratory. In this test it is assumed that a given weight of protein precipitated from urine always occupies the same volume regardless of variations in the composition and density of the urine. This cannot be true, because the state of aggregation of colloidal precipitates of proteins is known to vary with physical conditions. Furthermore, the test has not been properly standardized. For instance, there are variations in the composition of the recommended precipitating solution, and the temperature conditions are not specified. The method given in Martindale's *Extra Pharmacopoeia*, which involves heating to 180° F. (82.2° C.) and centrifuging for a few minutes, might well yield different results from the more usual routine. Substances other than protein which may be precipitated are uric acid and urates, and the excretion product of "uroselectan"; other substances mentioned as interfering with the result are creatinine, resin, unspecified acids, methylene blue, and alkaloids.

To explain the decrease after boiling reported in the question would require a careful chemical examination of the particular specimen tested, but it is possible that the boiling may have converted some protein to metaprotein, or have changed it physically so that it occupied less volume. Alternatively, as the question suggests, boiling may have removed some interfering substance. The inquirer's variation of the test—namely, boiling the mixture—has probably little to recommend it. If a satisfactory determination of protein is required, then a recognized chemical estimation should be used—for example, a Kjeldahl or biuret determination. It is unfortunate that several textbooks describe Esbach's test without giving any warning of its inaccuracy, but Harrison makes some pertinent comments on the test (*Chemical Methods in Clinical Medicine*, 3rd ed., 1947, Churchill, pp. 44 and 52).

Sex Hormones and the Hair

Q.—*Three women in their middle fifties have complained recently of a lack of lustre in their hair. In each case the patient dated the condition from a large intake of stilboestrol. The hair was lifeless and in texture resembled cat's fur. Stilboestrol has been withdrawn. Would the male hormone in suitable doses help to restore the condition of the hair?*

A.—It is very unlikely that stilboestrol has adversely affected the scalp hair, as in Simmonds's disease it improves the texture and colour of the hair (S. L. Simpson, *Proc. R. Soc. Med.*, 1948, 41, 192, and Section of Endocrinology, p. 6). It is theoretically possible that the dosage was so large as to produce degranulation of the anterior pituitary cells and a type of hypopituitarism. Testosterone, or methyl testosterone, improves the lustre and colour of the hair in Simmonds's disease (*ibid.*), and might therefore prove helpful in the cases referred to. In very large doses, however, it causes some loss of scalp hair in the temporo-frontal regions, as in virilism; it also makes the hair somewhat coarse in texture.

Delayed Speech

Q.—*What would cause backwardness in speech in a girl aged 4, who seems healthy and intelligent but is still unable to form any sentence of more than two or three words, which are unintelligible to a stranger? She has a brother aged 6 who has always spoken remarkably well for his age, and she meets other children frequently. Is there any treatment?*

A.—There are many causes of retardation of speech in normal children, and some very intelligent children have been known to delay talking until after 4 or 5 years of age and then to speak fluently. It is possible that in this case a cause for the delayed speech may be the unusual ability of the elder brother, who might unwittingly deter his younger sister from talking, either by acting as interpreter so that she need not voice her own demands or by demonstrating too high a standard in a way unintelligible to her. It can be very difficult for a younger child to understand an older one talking rapidly. And then much depends on the way parents and other adults speak: this should be clearly and slowly, encouraging response but without demanding it. There is, of course, a serious possibility of speech being delayed by some type of deafness, and this could be ascertained by tests such as those devised for young children by Dr. and Mrs. Ewing, of Manchester.

NOTES AND COMMENTS

Delirium Tremens.—Dr. R. M. YOUNG (Macclesfield) writes: I have been shocked to read both the answer about delirium tremens and the note from Dr. A. E. Carver ("Any Questions?" July 23, p. 242, and August 27, p. 496). Surely it has been accepted for many years that delirium tremens is a manifestation of vitamin-B$_1$ deficiency, due to the anorexia of the alcoholic in combination with failure of absorption due to the chronic poisoning of the alimentary canal. Be that as it may, your correspondents will find that delirium tremens responds in a matter of hours, almost minutes, to adequate vitamin-B therapy parenterally. A proprietary preparation containing suitable amounts of the whole group exists, or 200 mg. of nicotinic acid can be given intravenously. Aneurin hydrochloride (50 mg.) is given as well. The choice of sedative scarcely matters, but 2–3 oz. (56–84 ml.) of paraldehyde by mouth, suitably diluted, is excellent. A nasal tube may be used if the patient is not able to co-operate; and since, if this is so, exhaustion and dehydration are likely to be severe the opportunity should be taken to give a pint of milk or water with such added nourishment as is at hand—glucose, raw eggs, hydrolysed protein preparations. The patient will wake up clear, rational, and with a ravenous appetite which will complete the "cure." With any other form of treatment the death rate is high. In milder cases the vitamins seem to prevent the pangs of sudden withdrawal and the craving for a "hair of the dog" first thing in the morning. In these and in cases of delirium tremens after the crisis is past the vitamins can be given in tablet form in the following doses (t.d.s.): tab. acid. nicotin., 100 mg.; tab. aneurin hydrochlor., 10 mg.; tab. riboflavin, 3 mg. The patient should be warned to expect the hot flush which follows adequate dosage with nicotinic acid.

Correction.—Dr. ALAN J. HIRD (Glasgow) writes: I am sorry to say that an error has arisen in my article on Mikulicz's syndrome in the *Journal* of August 20. This is on p. 417, column 1, line 26. The term "deep *x*-ray therapy" (200 Kv) should apply only to the general or body irradiation. The local irradiation to salivary and lacrimal glands was with low-voltage therapy (85 Kv) so as to minimize the possibility of undesirable effects upon the eyes or secreting tissues.

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SUPPLEMENT TO THE
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THE SECRETARY REPORTS

GENERAL PRACTITIONER REMUNERATION

It will be recalled that the case for increasing the remuneration of general practitioners in the National Health Service was put to the Ministry of Health in early March, and a deputation from the General Medical Services Committee subsequently visited the Ministry. The reply the Ministry gave was that it was not prepared to discuss the case until complete information about the moneys actually received by general practitioners from the Service was available, and that the collection of this information had begun.

At long last the report on this investigation has been completed, and we received the document on August 18. It is a mass of statistics, containing some 244 pages, for the most part detailed tables. The General Medical Services Committee held a special meeting on August 31 to consider this document. It had expected to be in a position to communicate the substance of the document and its views on it to local medical committees immediately, but the longer the committee scrutinized the document, with the help of an eminent actuary, the more did it become convinced that there were important discrepancies which invalidated the conclusions which the Ministry appeared to draw from the document.

Accordingly, the Committee prepared a list of its criticisms and asked the Ministry to receive a deputation at the earliest possible date, with a view to a revision of the document in the light of the criticisms.

Owing to the absence of important officials concerned the Ministry is unable to receive a deputation before September 23. The Committee, which of course is not responsible for this further delay, will make a statement at the earliest possible moment after its discussion with the Ministry.

Annual Report of the Medical Practices Committee

The first annual report of the Medical Practices Committee has just been published and is well worth reading. The text of the report is reproduced in this issue of the *Supplement*, and it may be useful to draw attention to certain significant points. For example, the Committee states that it has never opposed a desire that a replacement should be allowed for a doctor leaving any practice, whether the desire was expressed by an executive council, a practitioner himself, his partners, or occasionally by outside bodies. The report reveals that partnerships are multiplying and that many assistants have become partners of, or successors to, their principals. The Committee emphasizes the view that preliminary apprenticeship as an assistant is still the best method of entry into general practice.

The Committee has never refused admission to the medical list for the purpose of starting a practice against the advice of the executive council concerned or the local medical committee. In carrying out its statutory duty, however, the Committee has been compelled to admit applicants to the medical list against the advice of some executive councils that they be refused, particularly in connexion with applications made by doctors who were already on the medical list for the area in which they resided and who applied for inclusion in the medical list of an adjoining area.

The power to transfer patients from a doctor whose services are withdrawn to another practitioner is vested not in the Medical Practices Committee but in executive councils. If the transfer is to a doctor already on their list it can be effected by the executive council without the permission of the Medical Practices Committee. Usually the transfer is made in favour of the particular applicant for a vacancy who has been selected by the Medical Practices Committee. The effect of this is that an unsuccessful applicant who appeals to the Minister and succeeds in his appeal finds that his admission to the list may not result in succeeding to the patients, which was his desire and the reason for his application and appeal. Moreover, if an unsuccessful applicant's name is already on an executive council's medical list he has no appeal against the selection of another practitioner to succeed to a practice in that area.

The Committee has completed its survey of the number of general practitioners practising in the various parts of England and Wales, and has published schedules of "open," "closed," and "doubtful" areas (*Supplement*, August 6, p. 70).

The Committee has attached great weight to the undertaking given by the Minister to the profession in April, 1948, that "every doctor will be free to practise where he chooses, unless it is one of the areas where the Medical Practices Committee decide no more doctors are needed in the Service. In all cases except the latter, 'consent' will be automatic."

In areas which have not been declared "closed" or "doubtful," it follows therefore that the consent of the Committee to admit a doctor to the medical list will be granted automatically. The question may be asked, in connexion with the filling of a vacancy, How can the promise of automatic consent be reconciled with the statutory duty of the Committee, in cases where the number of applicants exceeds the number required, to select the persons whose applications are to be granted and to refuse the others?

In its report the Committee clarifies this apparent anomaly. It states:

> "The unsuccessful candidates are informed of their rejection and of their right of appeal if they are not already on the medical list of the executive council concerned, and in all cases where the area is not 'closed' or 'doubtful' are advised that the Committee's decision does not prejudice any application that may be made to come on the list otherwise than in respect of this particular practice. Should intimation be received from any such candidate that admission to the list is desired in these circumstances it is granted forthwith. This procedure may carry all the advantages of a successful appeal to the Minister against the decision of the Committee and is indeed preferable in many cases because admission to the list would be considerably expedited as compared with the time which would elapse before admission to the list on successful appeal."

Even the "closure" of an area, the Committee points out, should convey no more than that the Committee is unlikely to agree to an increase in the number of practitioners practising in the district in question and might agree with an executive council to refuse to allow replacement of what might be regarded as redundant practitioners resigning from the list.

This does not mean, however, that a retiring practitioner could not be replaced. Indeed, it is asserted in the report that, in every case where an executive council in agreement with the local medical committee considered replacement desirable, the Medical Practices Committee would agree. Nor does it mean that under no other circumstances would the Committee admit a practitioner to the list; personal factors advanced by the applicant or, in his favour, by the executive council, the local medical committee, or other interested parties might be considered of sufficient weight to cause the application to be granted.

MEDICAL PRACTICES COMMITTEE

FIRST REPORT

To the Rt. Hon. Aneurin Bevan, M.P., Minister of Health.

The Medical Practices Committee for England and Wales established under the National Health Service Act, 1946, in July, 1948, is concluding its first year's work. In particular it has just completed a comprehensive survey of the distribution of practitioners providing general medical services under Part IV of the Act. During the year the Committee has been closely in touch with the Ministry of Health upon many matters, and the Department has been made fully aware of the detailed decisions of the Committee by receipt of the full minutes of the meeting. The Committee is not enjoined by statute to furnish a general report of its observations and activities; nevertheless, the Committee decided that a review of its work would be of value to itself, and that some general remarks thereon might be of value to the Minister. Accordingly we have the honour to present briefly such a report.

General Tendencies

The Minister is aware that it was hoped that most of the general practitioners in the country would join the Service. A figure of under 18,000 general practitioners for the whole country, including Scotland, was anticipated, and certain considerations important to the profession depended upon this figure being reached. The number of general practitioners in the Service by July 5, 1948, was approximately, we understand, 20,000. There had in fact been about 2,000 new entrants into general practice in the few months immediately prior to the appointed day. This increase was largely due to the impact of the Act and uncertainty in the minds of the profession. Some genuine concern at the possible activities of this Committee was, we believe, a strong factor in the decision on the part of practitioners to attempt to settle a place of practice before the Act came into force. A natural reaction to this has been manifest during the past year. Some of these new entrants into practice have done well and have succeeded in establishing themselves. Not all were wise in their choice of location. Some of those who chose the more desirable residential regions have been obliged to contemplate and to seek transference to other areas or other employment. The same effect of economic circumstances, though to a lesser degree, has been noted with established practitioners. Since the appointed day in areas desirable from a residential point of view many retiring practitioners have not been replaced; the three-man practice may have become a two-man practice, and the single practice dispersed. Many of these practitioners have re-entered practice in other parts of the country and others are awaiting the opportunity to do so. This Committee has never opposed a desire that a replacement should be allowed for a doctor leaving any practice, whether the desire was expressed by an executive council, a practitioner himself, his partners, or occasionally on representations by outside bodies.

At an early stage it became apparent that a large number of doctors who were not in practice wished to join the Service after the appointed day and to know the districts in which they could start a practice. To meet this situation the Committee circularized all executive councils on July 30, 1948, and asked to be informed of any districts in their area which were manifestly under-doctored. The replies received indicated that executive councils generally considered the service in their areas adequate and in few instances only suggested that further doctors were required. Subsequent inquirers were informed of these places.

Apart from this it was not possible before the receipt of the full reports from executive councils to tell intending applicants where further doctors were required. In order, therefore, that such applicants should have a firm opinion as to whether or not any application would be granted before undertaking a financial liability for the acquisition of property, arrangements were made with executive councils for provisional applications to be considered by them for transmission to this Committee. The applicants, in these cases, were informed that their applications would be granted if they could secure surgery accommodation in the district within a period of three months and that this period might be extended if on its expiry they satisfied the Committee they were still actively seeking accommodation.

Partnerships are multiplying and new practices are being started. Difficulty in obtaining suitable premises from which to conduct a practice alone prevents this process from being greatly accelerated. Many assistants have become partners of, or successors to, their principals, and the Committee considers that preliminary apprenticeship as an assistant is still the best method of entry into general practice.

What it is desired to emphasize is that the impact of the Act itself and the economic circumstances of medical practice which flow from it are already exercising an effect upon the distribution of general practitioners in England and Wales. This Committee is in a favourable position to assess this movement, which is in the direction desired and is being achieved without coercion by any statutory body.

Survey of the Country

Probably the most important function of the Committee is the admission of doctors to the list of executive councils under Section 34 of the Act. It early became apparent that the ideas of, and the advice tendered by, some executive councils varied far beyond the limits of what might reasonably be expected as variations in local conditions and customs and indicated their misunderstanding of the Committee's limited powers. The Committee accordingly issued a circular on the subject to executive councils (*Supplement*, December 11, 1948, p. 213). While due weight is always given to the views of an executive council (acting in consultation with the local medical committee), had we acted upon this advice in all cases "the numbers of medical practitioners undertaking to provide general medical services" would have been declared "adequate" in many more areas of the country and such areas closed to new entrants. In order to maintain for the public the greatest possible freedom of choice of doctor and to preserve for the practitioners the right to practise in any part of the country (save in the exceptional circumstances contemplated by Parliament in Section 34/3) the Committee has required of executive councils the most cogent argument and the fullest information that the number of practitioners was indeed adequate and likely to remain so for some time before exercising its powers under the Section to refuse any application.

This method of dealing with the problem, while necessary at the start of the Committee's work, could not be considered satisfactory as a permanent procedure. It was manifestly desirable for the public, the doctors, the Ministry, executive councils, and the Committee itself that the position should be more precisely defined. The Committee could not be in a position to do this until executive councils had rendered full reports on their respective areas. These first reports, which by regulation cover the position up to December 31, 1948, have now been received and studied by the Committee and the position clarified.

As a result of preliminary consideration which the Committee had given to the matter it became evident that most of the executive councils' areas in England and Wales would be regarded as completely open for any doctor to start a practice wherever he chose and that admission to the executive councils' list would follow automatically upon application to be so admitted without any restriction whatsoever.

In considering the reports furnished by executive councils, the Committee noted that in industrial areas the doctors had larger lists than in the residential or urban areas. It may be necessary at some later stage to consider whether or not some special action such as inducement payments or assistance in obtaining premises should be taken to encourage more practitioners to start practice in what may be regarded as the less attractive industrial areas. It became equally evident that in certain executive council areas, or parts of them, it would be a waste of medical man-power to allow additions to the medical list of the executive council concerned for the purpose of practising in those parts and that such areas should be closed.

In a few areas the position was less evident, and the Committee felt a decision might well depend upon day-to-day circumstances and that these areas should be designated as "doubtful." The applicants to practise therein would be warned that the chance of establishing themselves in practice was likely to be difficult and that permission to make the attempt would not necessarily follow upon such application; the Committee would act upon information before it at the time of the application and might then declare the area closed. The types of area mentioned above have been labelled for convenience by the Committee as "A" areas (completely open), "B" areas (doubtful), "C" areas (closed). For its own information the Committee has arranged various subdivisions of these categories; one only such subdivision is likely to be of interest to the Minister, the executive councils, and to the profession—namely A1, which index expresses broadly the opinion of the Committee that such areas require additional general practitioners as a matter of priority. Publication of the names of such areas should encourage practitioners to go where their services are most needed and where the chance of successfully establishing themselves is greatest.

It became obvious that there was considerable misunderstanding about the implications to be drawn when the Committee closed any area. Accordingly a memorandum was prepared giving the Committee's own views on this point, with the idea of removing such misunderstanding (*Supplement*, December 11, 1948, p. 213). The practical effect of this is that, even in a closed area, the Committee would give special consideration to any representation made by either the executive council or the local medical committee, as they are at present constituted, that an application should be allowed. The Committee further considered that special representations of a personal nature made by or on behalf of an applicant might cause the Committee to admit to the list in a closed area. Such circumstances are likely to be exceptional, but the trend of the Committee's policy emphasizes its anxiety to preserve for the public and the profession the maximum possible freedom compatible with the efficiency of the Service.

After consideration of the detailed reports issued by executive councils the Committee made known to them its proposals in respect of their areas and invited the observations of the Council about all except those parts designated "open." Only in a limited number of cases has comment upon such proposals been received.

Having regard to all such advice received, the Committee has now published its decisions classifying the whole of England and Wales (*Supplement*, August 6, p. 70, and August 20, p. 93). The list of closed areas therein cancels and replaces any list or decision to close any area or part of an area which was published or arrived at prior to consideration being possible of the country as a whole. The classifications must constantly remain under review in the light of changing circumstances.

The Committee owes a great deal to the clerks and staffs of executive councils for the manner in which in a great number of cases they have promptly supplied the information desired and in many cases presented reports of the utmost value and beyond the scope requested by the Committee as a minimum of information the report should contain. From the experience so far gained the Committee is in a better position to specify the kind of information it requires for the purpose of future reviews.

One executive council has failed to furnish a report on its area.

Admissions to Medical List

(*a*) *Applications to Start Practices.*—The admission of applicants to the medical list of an executive council after the appointed day is a function of the Committee alone, subject to the right of appeal against the decision of the Committee in the event of a refusal. The Committee has never refused admission to the list for the purpose of starting a practice against the advice of the executive council concerned or the local medical committee. The Committee in carrying out its statutory duty has, however, been compelled to admit applicants to the medical list against the advice of some executive councils that they be refused. This has been particularly noticeable in connexion with applications made by doctors who are already on the medical list for the area in which they reside and who apply for inclusion in the medical list of an adjoining area for the purpose of treating patients resident in that area. Generally the Committee considers that such applications should be granted, but it of course remains the function of the executive council concerned after his admission to its list to satisfy itself that the practitioner's arrangements for attending the patients he accepts are adequate.

The number of applicants for admission to the list as principals since the appointed day is set out in an appendix which also shows the class of application—i.e., resident area or "fringe" area. The small proportion of refusals by the Committee of applications will be noted.

(*b*) *Assistants.*—Some difficulty has arisen in connexion with the admission of assistants to the medical list, and there is a body of responsible opinion that considers assistants should not be so admitted. The Committee has had discussions with officers of your Department, the Executive Councils Association, and representatives of the profession on this question, and it is hoped that an amendment of the Regulations may be made in the near future to clarify the position. The Committee wishes to re-emphasize that it considers that preliminary apprenticeship as an assistant is still the best method of entry into general practice.

(*c*) *Applications for Vacancies.*—A different problem faces the Committee when the question of selecting a practitioner to succeed to an established practice arises. In neither the Act nor the Regulations is any differentiation made between the function of the Committee selecting a candidate for a particular practice and admission to the list for the purpose of starting a practice in an area, and indeed the former case is not specifically dealt with at all.

Executive councils have the power to transfer patients from a doctor whose services are withdrawn to another practitioner. If the transfer is to a doctor already on their list it can be effected without the permission of this Committee. Usually the transfer is made in favour of the particular applicant for a vacancy who has been selected by ourselves. The effect of this is that an unsuccessful applicant who appeals to the Minister and succeeds in his appeal finds that his admission to the list may not result in succeeding to the patients which was his desire and the reason for his application and appeal. Further, if an unsuccessful applicant's name is already on the council's medical list he has no appeal against the selection of another practitioner to succeed to a practice.

The procedure of selection by us where there is a number of applicants for a vacancy necessarily varies according to the manner in which the executive council itself acts. In most cases now the executive council prepares a short list of the most suitable candidates and after interviewing these recommends the candidate for selection. Except where it might appear that the executive council has overlooked some salient point in an application which might prove on appeal to be a decisive factor or has failed to give what the Committee considers to be proper consideration to the applications as a whole, the Medical Practices Committee accepts the recommended candidate. In other cases an executive council may recommend a short list of the applicants whom it suggests we should interview or such may be prepared by the Committee itself. In any event all applications are required to be considered by the Committee, and on occasion we have added to the council's short list.

The total number of applicants called for interview by the Committee to date is 191. We have been impressed by the keenness of most of the applicants and have noted that generally the competition is greater for practices in the southern part of the country. The applications are not all from practitioners wishing to enter general practice as principals for the first time, but include doctors already in the Service or other branches of medicine who wish to make a change for various reasons. Having made its selection, the Committee regards the other applications in respect of the particular vacancy only and refuses them. The unsuccessful candidates are informed of their rejection and of their right of appeal if they are not already on the medical list of the executive council concerned, and in all cases where the area is not "closed" or "doubtful" are advised that the Committee's decision does not prejudice

any application that may be made to come on the list otherwise than in respect of this particular practice. Should intimation be received from any such candidate that admission to the list is desired in these circumstances it is granted forthwith. This procedure may carry all the advantages of a successful appeal to the Minister against the decision of the Committee, and is indeed preferable in many cases because admission to the list would be considerably expedited as compared with the time which would elapse before admission to the list on successful appeal.

After consultation with your officers, the Committee has agreed on a revised procedure for dealing with applications for vacancies, and it is hoped that this procedure will be agreed by representatives of the medical profession and put into operation.

The Committee in any selection it makes and in advice it tenders to and receives from executive councils is in particular mindful of any desires expressed by a practitioner to enter into partnership with others already on the list and who wish to have the applicant as a partner in accordance with Section 34 (9) of the Act. Especially is the Committee anxious that nothing should disturb existing arrangements made between partners in established practices.

Appeals

In several cases the selection of an applicant by the Committee has been the subject of appeal to the Minister. Some of these appeals have been decided after oral hearing and others on written representation only.

The Committee, like any other body attempting to maintain a properly judicial attitude in arriving at its decisions, is naturally anxious that such should not be upset on appeal. Nevertheless where this has been the case the Committee readily acknowledges that the machinery of appointment may well have failed to function to the best advantage. Unfortunately the delay in arriving at a decision on appeals may result in great difficulties and even hardships. If any way of arriving at decisions more speedily can properly be devised it will be to the advantage of all concerned.

124 vacancies have been advertised by executive councils and dealt with by the Committee. A total of 2,998 applications were received in respect of them. This involved some 2,800 refusals by the Committee, and of this number 35 doctors appealed to you against our decision.

Results of appeals are awaited in seven cases, but the Committee is glad to be able to record that of the cases decided its decision has been upheld in all but two. The winning of one of these was indeed a pyrrhic victory.

Certificates

Applications for certificates under Section 35 (9) are regularly received for consideration by the Committee. Many of these deal with the sale of property, and in such cases the assistance of the district valuer is sought through the chief valuer's department. This has proved most valuable to the Committee. In cases where there has been a difference of opinion as to the proper value to be attached to property, a direct approach by the district valuer to the interested parties has seldom failed to result in agreement.

Other certificates in respect of partnership deeds, deeds of variation, etc., are also regularly applied for and the advice of the Committee sought as to the terms of such deeds. In the majority of cases the Committee is able to grant the certificate forthwith. In some instances approach to the parties concerned or their representatives results in such modification as to enable the Committee to certify. The final refusal of certificates has been infrequent.

Applications for certificates under Section 37 of the Act were a major problem in 1948, but are now almost all dealt with, only a few outstanding cases remaining. The Committee has been able to grant the required certificate in most instances; occasionally, when refusal has been necessary, it has felt the greatest regret that this was so. Such refusal would have been more frequent but for the advice of the legal members of the Committee and of the Department. As a result the Committee has been able to issue certificates which it might otherwise have felt compelled to refuse though at the same time believing that injustice would have been done by such refusal.

Inducement Payments

The Department has consulted this Committee in connexion with 112 applications which have been made for inducement payments, and with the exception of eight of these cases the Committee was in agreement with the provisional payments proposed by the Ministry. Of the eight applications where we suggested a higher figure than that proposed, the Ministry accepted our recommendations in four cases.

The Committee is fully conscious of the details of organization, so well accomplished by our secretary, Mr. Bishop, and his staff, and desires to place this on record. Its relationship with the Department has been cordial and the help given to it by the Ministry greatly appreciated.

Liaison between the executive councils through their national association and the representative professional association and ourselves has also been cordial, and has resulted in many of the inevitable differences of opinion and difficulties which were bound to be experienced and have arisen from time to time being satisfactorily met. We believe that the mutual confidence which has been established in many quarters will result more nearly in unanimity.

(*Signed*) W. E. DORNAN (Chairman).
J. A. PRIDHAM. J. C. PEARCE.
H. LESSER. D. B. EVANS.
A. C. GILLIE. R. O. WILBERFORCE.
J. F. MURPHY. P. V. ANDERSON.

A. G. Bishop (Secretary),
Devonshire House,
Mayfair Place, W.1.

June 30, 1949.

APPENDIX

Schedule of Appointments to and Withdrawals from Medical Lists, made by or reported to the Committee

(i) *PRINCIPALS—Resident Areas*

(*a*) Total on medical lists at July 5, 1948		17,438
(*b*) Admissions since July 5, 1948		1,063
(*c*) Withdrawals since July 5, 1948	Deaths 180; Resignations 781	961
(*d*) Refusals (other than for vacancies) since July 5, 1948		14
(*e*) Admission as partners since July 5, 1948 (number included in (i) (*b*) above)		276

(ii) *PRINCIPALS—Fringe Areas*

(*a*) Total on medical lists at July 5, 1948		8,872
(*b*) Admissions since July 5, 1948		876
(*c*) Withdrawals since July 5, 1948	Deaths 13; Resignations 93	106
(*d*) Refusals		3

Included in (i) above for resident areas, and in addition these doctors' names may appear on several executive councils' lists for "Fringe" purposes.

(iii) *PRINCIPALS—Limited Lists*

(*a*) Total on medical lists at July 5, 1948	574
(*b*) Admissions since July 5, 1948	315
(*c*) Withdrawals since July 5, 1948 (Resignations)	47
(*d*) Refusals	Nil

(iv) *PRINCIPALS—Maternity List only*

(*a*) Total on medical list at July 5, 1948	36
(*b*) Admissions since July 5, 1948	3
(*c*) Withdrawals since July 5, 1948	Nil
(*d*) Refusals	Nil

(v) *ASSISTANTS*

(*a*) Number of assistants to resident doctors at July 5, 1948	562
(*b*) Applications granted since July 5, 1948	670

Certificates

	Granted	*Refused*
Section 35 (9)		
Property	57	4
Deed of partnerships	99	4
Section 37	183	25

ANNUAL REPORTS AND MEETINGS

According to a recent circular, a number of boards and committees have raised with the Minister of Health the question of annual meetings and the publication of annual reports by boards of governors and management committees.

The Minister welcomes the holding of annual meetings open to the public, and the issue of annual reports, as a means of stimulating local interest. The reasonable cost of these activities may be charged to the Exchequer account.

The question has been raised whether the accounts of boards and committees, whether audited or not, should form part of the annual report. In the view of the Minister it would be improper for the accounts of individual boards and committees to be published locally until the annual summary accounts have been presented to Parliament by the Comptroller and Auditor-General, as required by Section 55 (4) of the National Health Service Act. These accounts cannot, at the very earliest, be presented before December of each year, and as boards and committees will no doubt wish to issue any annual reports in the spring or early summer it would be possible only to publish accounts relating to the year previous to that covered by the report. Although there would be no objection to such a course the Minister feels that there would be little local interest in accounts issued at such a late date, and it will no doubt be thought preferable that reports should be issued without making any reference to the finances of the board or committee.

It is understood that some boards and committees desire to make their reports available to members of the general public, and where this is the case copies should be sold at cost price. Annual reports should, in the Minister's view, cover the activities of the board or committee as a whole, and separate reports should not normally be produced for individual hospitals in a group.

PROVISION OF DENTURES

A circular recently addressed to dentists may also be of interest to doctors. Apparently some dentists seem to be under a misapprehension about the stage—following extractions—at which a denture may be provided to a patient receiving general dental services. There is no requirement in the regulations governing the provision of general dental services, as there was under the old dental benefit scheme, that dentures shall not be fitted until absorption is sufficiently complete for "permanent" dentures (as distinct from "immediate" dentures) to be supplied. Subject to the general requirement that all treatment must be proper and necessary treatment, it is open to the dentist to provide dentures as soon as he considers that the patient's mouth is in a satisfactory condition to receive them.

No matter at what period after extraction dentures are provided during the currency of the dental estimate form, it should be clearly understood that no fee is chargeable to the patient for their provision. Initial loss of fit due to absorption may occur in some cases and can usually be made good by relining. If in the course of time the degree of absorption is such that function cannot be maintained by relining, a new denture will become necessary. The relining or, more rarely, the replacement can also be provided under the general dental services, subject to the approval of the Dental Estimates Board in the usual way.

TREATMENT EQUIPMENT

Another recent circular from the Ministry of Health states that there are certain types of expensive equipment—for example, oxygen tents, breathing machines, power-driven and gas-operated atomizers or inhalers—which may be needed at short notice for the treatment of patients in hospital or at home. It is important that equipment of this kind should be instantly available, but it would be wasteful and inefficient for each hospital to hold and maintain it. Regional hospital boards and boards of governors are therefore asked to concert arrangements by which certain larger hospitals would be prepared on request to lend equipment of this kind to other hospitals in their areas and, on the recommendation of a specialist, to patients for treatment in their homes. These arrangements should ensure that the equipment is properly maintained so that it would be ready for immediate use, and that adequate provision is made for its prompt delivery and collection.

Although arrangements can be made for the hire of some types of equipment, this is not recommended, as it will generally be found cheaper to purchase outright. These special types of equipment should be lent for the treatment of patients at home only on the recommendation of a hospital specialist after examination at an out-patient clinic or at a domiciliary visit. The patient or his representative should be asked to sign a statement that he understands the equipment remains the property of the hospital and that he will be liable to pay the cost of repair or replacement if it is not returned in good condition. Regional hospital boards should take steps to see that hospital management committees and executive councils are fully informed of the details of any arrangements made for inter-hospital loans and domiciliary use.

HEARD AT HEADQUARTERS

Good at Figures

It was said of the old Insurance Acts Committee that every one of its 40 members was an expert. The same can be said of its successor, the General Medical Services Committee. The Committee spent the whole of a sweltering August day examining the Ministry's report on doctors' remuneration—a report which in fact if not in terms dismisses the claim to a 70% betterment factor. In the course of the day coats came off, and then waistcoats, but mental ardour was undiminished. An actuary of high standing attended the meeting, but several members of the Committee showed that they had a grasp of actuarial principles which would make them competent in that profession should they forsake their own. It was a highly expert discussion in which anyone with "no head for figures" would very soon have been out of his depth. But as a result of that analysis, combined with the first-hand experience of N.H.S. practice, the solid mass of the Ministry's figures began to crumble, and the betterment which it claimed to have been received during the first nine months of the Service looked a very much diminished and tattered figure indeed.

Delays

The long delay in dealing with the question of remuneration must be very tantalizing to the general body of practitioners, and it is natural perhaps for some of them to suppose that it is due to procrastination at Headquarters. Such a judgment is more than usually wide of the mark. Directly the Special Conference of Local Medical Committees (*Supplement*, March 12, p. 129) made its decision on March 3, the document arguing the case (*Supplement*, February 19, p. 83) was sent to the Ministry. But the Ministry would not discuss it until it had obtained figures from the local executive councils about doctors' earnings during the first nine months of the Service. When these returns came in they had to be analysed and summarized. Moreover, some of them were incomplete or obviously erroneous and had to be sent back for local correction and amplification. It was not until August that the returns—a bound volume of 240 foolscap pages—were available for examination and criticism. The Committee was called together at once, some members breaking their August holiday. Even then, although the deputation was all set to meet the Ministry, even within 48 hours, the Ministry was unable to receive it until the third week in September. Whether inevitable or not, and whether blameworthy or not, the delays must be laid at a door in Whitehall and not at a door in Tavistock Square.

Partnerships

One of the surprising things forthcoming from the remuneration tables published by the Ministry is the extent to which the

partnership idea prevails in medicine. In England and Wales actually there are more general practitioners in partnership than working single-handed; in Scotland it is the other way about, but the majority in either part of Great Britain is not great. In England and Wales the number of single-handed practitioners in the National Health Service is given as 7,883 and the number of partners 8,146. In Scotland the single-handed account for 1,202 and the partners for 1,015. In Great Britain as a whole 5,919 are in single-handed practice without an assistant, and 1,166 have one or more assistants. Of the partnerships about half consist of two partners, but one in every eight is a partnership of four or more—the nucleus of a health centre. The partnership idea prevails in medicine to a far greater extent than in any other profession, and it is just a little remarkable, in view of the strong individuality of the average doctor, that he should have submitted himself in such numbers to a voluntary association on which his livelihood depends, and which calls for so much forbearance and give-and-take, and that it should have been in the main so successful.

Questions Answered

Accidents and Emergencies

Q.—*The medical list issued by the London Executive Council, and presumably meant to be exhibited to the public, states that in accident or emergency, if the patient's own doctor or his deputy is not available, treatment can be had from any doctor giving general medical services. The list gives doctors from all over London. Is it not a fact that one is at risk for this type of case only in an area of two miles from one's place of practice, or on one or other side of the Thames, if this is within two miles?*

A.—Normally a practitioner is not required to attend a person at an address other than that at which the patient has been accepted or elsewhere within two miles by road from and on the same side of the river Thames as the practitioner's residence or surgery. Where, however, a patient is absent from the area of his own doctor he is entitled in case of an accident or emergency to apply to the doctor nearest the place where he happens to be.

Hospital Residents' Insurance Contributions

Q.—*What is the position in regard to National Insurance contributions and benefits of hospital residents during the period—say, six weeks—between leaving their old position and obtaining new ones?*

A.—A whole-time salaried hospital officer would be treated for the purposes of the National Insurance Act as an "employed person." As such he would be exempt from the payment of contributions during any week in which he was unemployed and be credited with a contribution for that week), provided he is capable of, and available for, work; has not less than 26 contributions as an employed person paid or credited in respect of the contribution year immediately preceding; and has not less than 10 contributions paid or credited in the 13 weeks immediately preceding the week in question. If he attended at the appropriate employment exchange on each day of unemployment or on such days as he was required so to do, he would be entitled to unemployment benefit; refusal to accept suitable employment offered to him would result in loss of benefit.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.
Non-County Borough Councils.—Dartford, Wallsend.
Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

Correspondence

Doctors and Dentists

SIR,—There were quite a number of letters in recent issues of the *Supplement* dealing with the doctor and dentist question. May I be allowed to answer some of the rather unfair statements, especially those made by Dr. K. V. Deakin (August 27, p. 117)? Being a medical and dental practitioner who some time ago really practised medicine though now slaving as a dentist, I find especially his comparative schedule very amusing though rather poisonous, as it fosters the growing ill feeling between doctors and dentists. Dr. Deakin does not mention the number of doctors in the Service in the Manchester area, nor that of the dentists, as perhaps this point alone may help to clarify the difference of payments made to them. Expenses which he in the doctor's case regards as considerable, and in the dentist's case not so great, amount under present conditions to a percentage of the gross earning considerably higher than Mr. Bevan allows the dentist under his Health Scheme. I would also like Dr. Deakin to have to stand on his legs for up to thirteen hours a day without any more time to sit down than perhaps a lunch break of half an hour, and then perhaps he wouldn't call it ordinary daily hours.

The other points in his schedule show only that in his ideas Dr. Deakin is still living in the 1890's, because otherwise he would know that our practices at present are practically valueless, with no compensation to come on retirement, and also that every sensible dental surgeon regards the prospects as anything but bright, contrary to Dr. Deakin. I am fully aware that the doctor's life is harder than ever. So is the dentist's. Only if both professions stand together, and help each other, then our united prospects may be better. Let us therefore try to find a common platform on which we can fight the injustices of the present Health Scheme.—I am, etc.,

Basingstoke, Hants. K. L. PETER.

SIR,—The report of the General Medical Services Committee on the first year's working of the N.H.S. scheme (*Supplement* August 27, p. 99) makes very sorry reading for the general practitioner. Glasgow's figures approximate to those of Manchester, as pointed out by Dr. K. V. Deakin (p. 117). The average dental remuneration in Glasgow is £3,746, while that of the average general practitioner is £1,340. Even with 50% deduction in the case of dentists and 30% in the case of general practitioners for expenses, the figures are still startling—namely £1,873 net for dental services and £894 for general practitioner services.

One compares with sorrow the relative responsibility in the two cases. The dentist is paid by items of service with practically no responsibility once the patient leaves his surgery, and certainly none when the lesion in question is dealt with. The other assumes continued responsibility, 24 hours a day for 365 days of the year, for all complaints and all illnesses, acting as doctor, psychologist, domestic agency, and family friend. At a time when general practitioners are being overwhelmed with tremendous increases of work under the N.H.S. these relative values give rise to serious anxiety.

The prestige of the general practitioner in this country is in serious danger now. Once that prestige disintegrates (and these figures will never attract the best type into general practice) hospital and consultant service follows rapidly. Professional skill in this country is a pyramid whose wide and firm base is the excellence of its general practitioner service. This is not only a matter of finance, this is the beginning of the end of general practice as this country has known it for generations, unless we take warning now.—I am, etc.,

KATE HARROWER.

SIR,—I feel that I cannot allow the ridiculous letter from Dr. K. V. Deakin (*Supplement*, August 27, p. 117) to pass without comment. As a medically qualified dental surgeon who has experienced some medical practice and is outside the National Health Scheme, I feel that I can speak without bias.

In the first place, a young doctor can start practice with a few pounds worth of equipment against about £2,000 required by the young dental surgeon. I have three surgeries, waiting-room, workroom, etc., with the result that a practice could not be carried on in the average private dwelling, therefore necessitating, as in my case, a separate house costing £230 per annum for rent and rates. I have a weekly wage bill of £37. Has Dr. Deakin anything comparable with that? £50 per month for materials. How absurd of him to suggest that a dentist does not require a telephone or supply a locum in case of illness. Many dentists with a good middle-class practice are finding that expenses amount to nearly two-thirds of the gross takings.

Perhaps if Dr. Deakin would care to exchange certified balance sheets with me, he would think twice before writing such another letter. As a member of the B.M.A. of over thirty years' standing, I am surprised that such a letter is published without comment, as it does not help towards unity with a sister profession in these days when we should all try to pull together.—I am, etc.,

Tunbridge Wells. JAMES MCFARLANE.

SIR,—I feel that I must challenge the remarks of Dr. K. V. Deakin (*Supplement*, August 27, p. 117). I would like to take his table of comparisons point by point.

1. Training for the dentist, "not so long or arduous." I feel that this is a matter for debate.

2. Expenses "not so great." This is a ridiculous statement. Two medical partners need two consulting-rooms, a waiting-room, and one secretary. Two dental partners need a waiting-room, three equipped surgeries, a laboratory, one secretary, two surgery assistants, two or three mechanics, and also an *x*-ray apparatus and all that goes with it.

3. Hours of service for the dentist—"ordinary daily hours." This may be so in city practice but is certainly not so in the smaller town. I am writing this letter at 2.30 p.m. on a Sunday afternoon while an anaesthetic "takes" in my surgery.

4. Car and travelling expenses for the dentist, "unnecessary." Again, as above, it might apply to a city practice so long as the dentist is not connected with any hospital.

5 and 6. Private practice and practices. I would remind Dr. Deakin that compensation for the loss of medical goodwill is officially assured. The dental profession is toying with an imaginative goodwill now, and the intention of the Minister is that we shall transfer our "goodwill" to health centres without any compensation.

7 and 8. It is ridiculous to say that service of dental telephones and supplying of locums is unnecessary. This is a public service—in a small town it is essential, and in a city a practitioner obviously makes arrangements.

9. Dental haemorrhage. This is the work of the dentist anyhow and should be referred to him.

10. Prospects—for the dentist "never brighter." Nearly all dental practitioners have worked harder for the last year than they have ever done in their lives, and it has not been because they want to make money or because they like their work as much as all that.—I am, etc.,

Berkhamsted. C. J. NASH.

SIR,—May I congratulate Dr. K. V. Deakin on his excellent letter (*Supplement*, August 27, p. 117)?

Has not the B.M.A. a Public Relations Department which could bruit his remarks in the popular press? I am certain that the general public have no idea of the low remuneration that their family doctor is paid under the National Health Service for services rendered to them. I wonder if they realize that his remuneration under the National Health Service is very much less than either dentist, chemist, or optician, and that his responsibility is many times greater than any of the aforementioned? Is nothing being done about the very low remuneration of the G.P.?—I am, etc.,

Salford, Lancs. C. M. ISHERWOOD.

Pay-bed Forms

SIR,—Owing to my absence on holiday I have just seen "The Secretary Reports" in the *Supplement* of July 30 (p. 63) in which you reproduce a typical form used in some hospitals to explain to private patients the position with regard to doctor's fees. The authority is Section 5 (2) of the Act. Under this heading the form states, "You will be responsible for paying the doctor's fee up to a maximum of 75 guineas." Note that "doctor" is in the singular. In the next column Para. 3 states "the patient . . . pays the doctor a private fee not exceeding 75 guineas." Again, note the singular.

It seems to me that the Secretary should have expressly pointed out for our information that the use of the singular term "doctor" is wrong. The Statutory Instrument, 1948, No. 1490, is quite definite. It says (p. 3) that "if the total of the maximum charges . . . made by all the medical practitioners concerned in respect of one series of treatments of a patient for relief of the same condition exceeds 75 guineas the amount of the maximum charge . . . shall in the case of each medical practitioner concerned" be reduced in the proportion that 75 guineas bears to the total of the maximum charges.

It is clear from the Second Schedule, containing a list of the maximum charges, that in the case of a major operation the maximum of 75 guineas includes the surgeon's fee and those of the anaesthetist, pathologist, radiologist, and any other practitioner whose services have been utilized. In other words, in the form in question the word "doctor" should have been "doctors."—I am, etc.,

London, W.1. A. RUGG-GUNN.

*** The Secretary writes: The term "doctor" is probably used colloquially in the form quoted for purposes of illustration. The maximum of 75 guineas applies whether treatment is given by one practitioner or by several practitioners.

POINTS FROM LETTERS

Inducement Payments

B.B. writes: I support most heartily Dr. D. N. B. Morrison's contention (*Supplement*, July 23, p. 59). As a practitioner with twenty years' service under the Highlands and Islands medical scheme I have been refused both inducement and basic grants. My mileage is now only 50% of what I received under the other scheme, though I now tend three times the number of patients and car expenses have increased threefold. . . .

B.M.A. War Memorial

Dr. S. G. HAMILTON (Woolacombe, Devon) writes: I should like to associate myself with Dr. W. N. Leak's excellent suggestions (August 6, p. 77) for a War Memorial Room as outlined.

H.M. Forces Appointments

ROYAL NAVY

Surgeon Commander J. Cussen has been placed on the Retired List.

ROYAL NAVAL VOLUNTEER RESERVE

Surgeon Commander D. R. Goodfellow, V.R.D., has been placed on the Retired List.

ARMY

Colonel A. C. Jebb, late R.A.M.C., has retired on retired pay.

ROYAL ARMY MEDICAL CORPS

Colonel F. McKibbin, O.B.E., late R.A.M.C., retired and re-employed, has reverted to the rank of Major at his own request whilst so employed.

Major J. B. Harrower, from Short Service Commission, to be Major.

Major R. T. Wordingham, from Short Service Commission (Specialist), to be Major.

Short Service Commission (Type "B").—Major W. S. Angus, from Emergency Commission, to be Major. Captain M. Wood has retired, receiving a gratuity, and has been granted the honorary rank of Major.

Short Service Commission.—Majors R. H. Smythe and H. A. Ferrante have retired, receiving a gratuity. Captains E. R. Cole

and D. Macdonald have retired, receiving a gratuity, and have been granted the honorary rank of Major.

REGULAR ARMY RESERVE OF OFFICERS

Colonel (Honorary Brigadier) E. P. Allman Smith, O.B.E., M.C., late R.A.M.C., having exceeded the age limit of liability to recall, has ceased to belong to the Reserve of Officers. (Substituted for the notification in a *Supplement* to the *London Gazette* dated July 15.)

ROYAL ARMY MEDICAL CORPS

Captain C. H. Stuart-Harris, from Supplementary Reserve of Officers, to be Major, and has been granted the honorary rank of Colonel.

Captains A. L. D'Abreu and J. M. Black, from Supplementary Reserve of Officers, to be Majors, and have been granted the honorary rank of Lieutenant-Colonel.

Captains L. C-de-R. Epps, A. St. C. Robertson, B. L. Williams, J. R. Blackburne, S. K. C. Clarke, D. H. Sandell, H. A. Dewar, and E. W. Vincent, from Supplementary Reserve of Officers, to be Majors.

Captain F. R. Leblanc, having exceeded the age limit for liability to recall, has ceased to belong to the Reserve of Officers, and has been granted the honorary rank of Major.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

Major (acting Colonel) A. L. Crockford, D.S.O., O.B.E., M.C., T.D., has been granted the acting rank of Brigadier.

Captain W. F. Mair to be Major.

Captain R. West to be acting Major.

Lieutenant T. McCarroll, M.C., to be Captain and has been granted the acting rank of Major.

TERRITORIAL ARMY RESERVE OF OFFICERS: ROYAL ARMY MEDICAL CORPS

Major W. M. Davidson, from Active List, to be Major.

Captain W. F. Mair, from Active List to be Captain, and has been granted the honorary rank of Major.

COLONIAL MEDICAL SERVICE

The following appointments have been announced: M. A. Barnar, M.B., Medical Officer (African), Gold Coast; L. C. Luck, L.R.C.S., Medical Officer, British Guiana; A. J. W. Spitz, M.D., Medical Officer (Temporary), Sierra Leone; J. J. Black, M.B., Senior Medical Officer, Uganda; E. A. Trim, M.D., D.T.M.&H., Assistant Director of Medical Services, Kenya; C. E. W. Hoar, M.B., Pathologist, Nigeria; C. C. Wedderburn, B.M., M.P.H., Assistant Director of Medical Services (Hospital and Personnel), Jamaica.

Association Notices

TUBERCULOSIS AND DISEASES OF THE CHEST GROUP

The inaugural meeting of the Tuberculosis and Diseases of the Chest Group of the Association, whose formation was approved by the Council on June 27, 1949, will be held at B.M.A. House on Friday, Sept. 23, 1949, at 2 p.m.

All those interested in this new group are invited to attend. *Application forms for membership of the group may be* obtained from the Secretary, B.M.A. House, or will be available at the meeting.

SIR CHARLES HASTINGS CLINICAL PRIZE

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of 50 guineas, is again open for competition. The following are the regulations governing the award:

1. The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research, and record in general practice.

2. Any member of the Association who is engaged in general practice is eligible to compete for the prize.

3. The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not be omitted when it bears directly on their results, their interpretations, and their conclusions.

4. Essays, or whatever form the candidate desires his work to take, must be sent to the British Medical Association House, Tavistock Square, London, W.C.1, not later than Dec. 31, 1949. The prize will be awarded at the Annual General Meeting of the Association to be held in 1950.

5. No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. A prizewinner in any year is not eligible for a second award of the prize.

6. If any question arises in reference to the eligibility of the candidate or the admissibility of his or her essay the decision of the Council on any such point shall be final.

7. Preliminary notice of entry for this competition is required, on a form to be obtained from the Secretary.

8. Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

9. The writer of the essay to whom the prize is awarded may, on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate Section of the Annual Meeting of the Association.

10. Inquiries relative to the prize should be addressed to the Secretary.

Diary of Central Meetings

SEPTEMBER

13	Tues.	Proprietary Medicines Committee, 11 a.m.
14	Wed.	Rural Practitioners' Subcommittee, 11 a.m.
15	Thurs.	Publishing Subcommittee, 11 a.m.
15	Thurs.	General Medical Services Committee, 11 a.m.
15	Thurs.	Journal Committee, 2 p.m.
16	Fri.	Committee on Psychiatry and the Law, 2 p.m.
28	Wed.	Private Practices Committee, 2 p.m.

OCTOBER

5	Wed.	Joint Committee of British Medical Association and National Veterinary Medical Association, 2.30 p.m.

Branch and Division Meetings to be Held

NORTH OF ENGLAND BRANCH.—At New Lecture Theatre, Royal Victoria Infirmary, Newcastle-upon-Tyne, Thursday, September 15, 7.15 p.m., Clinical Demonstration by Dr. R. Mason Bolam: "Dermatological Cases"; 8.45 p.m., Address by Dr. G. Brewis: "Present-day Trends in Fevers."

NOTTINGHAM BRANCH.—At 64, St. James's Street, Nottingham, Wednesday, September 14, 8.30 p.m., Agenda: Installation of President, Report of Representatives at A.R.M. at Harrogate, etc.

SHEFFIELD DIVISION.—In General Lecture Room, Sheffield University, Friday, September 16, 8.30 p.m., general meeting. Report by Representatives at A.R.M. at Harrogate.

Meetings of Branches and Divisions

SOUTHERN BRANCH

The 73rd Annual Meeting of the Southern Branch was held in Winchester on July 16. The president, Dr. Howie Wood (Isle of Wight), was in the chair. Fifty-four other members were present.

The report of the Branch Council for the past year was received and approved, as was also the financial statement. The following officers were elected for 1949–50: President, Dr. Marsden Roberts (Winchester); President-elect, Mr. E. Cowper Tamplin (Portsmouth); Vice-presidents, Dr. C. J. Penny (Winchester) and Dr. R. H. Scott (Aldershot and Basingstoke); Honorary Secretary, Dr. R. H. Balfour Barrow (Winchester). Dr. Howie Wood then vacated the chair and invested the new president, Dr. Marsden Roberts, with the president's badge.

Dr. Marsden Roberts first thanked Dr. Howie Wood for his services to the Branch in the past year, and then delivered his presidential address entitled "Rest." He began by telling his audience that when he had made inquiries of the honorary secretary he had learned that many presidents spoke on some aspect of their specialty. As a general practitioner he felt he had no specialty, and when later he mentioned this difficulty to his wife she had told him it always seemed to her that his specialty was "Rest." He felt that his audience might be interested to hear some account of the many Continental motor tours which he had made. These tours were to him the finest form of rest. Dr. Marsden Roberts then told of incidents both grave and gay which had befallen him and his wife on their tours, advising his audience that if they wanted to obtain the most from a holiday they should go abroad.

Subsequently the Branch was accorded a civic reception by the Mayor of Winchester, and the members and their ladies were entertained to tea by the Winchester Division. After tea there was an exhibition of the city plate and charters. Many of the party visited the cathedral, where the Dean of Winchester, Dr. Selwyn, showed the famous "Winchester Bible" and other old manuscripts.

BRITISH MEDICAL JOURNAL

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THE RESULTS OF THYMECTOMY IN MYASTHENIA GRAVIS*

BY

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It is now eight years since the treatment of myasthenia gravis by thymectomy was first described by Blalock, of Baltimore, and seven and a half years since the first thymectomy for myasthenia was performed in this country. The experiment was initiated by Dr. Arnold Carmichael and his former assistant, Dr. James Carson, and I am proud to say that it was to my hands that they entrusted the performance of the first operation. This was at New End Hospital, in association with Mr. J. E. Piercy, in February, 1942, and the experiment has flourished to such an extent that we have now operated on 155 myasthenic patients, and a considerable number of operations have also been done by other surgeons in this country. It may be admitted, therefore, that enough patients have been treated and a long enough time has elapsed for it to be possible to survey the results in such a way as to form a true idea of the value of the operation, both in its immediate and in its remote effects.

A difficulty in the way of assessment of results is immediately encountered in the well-known tendency of myasthenia gravis to show "spontaneous remissions" of symptoms, for it may be said (and it has been said on several occasions) that the effect of operation, if it seems to be beneficial, may be really no different from what might have occurred spontaneously. It is necessary, therefore, to show that post-operative remissions are both more frequent and more prolonged than could have been expected in the course of nature. It will not, I think, be very hard to do this. First, we must get some idea of the remission pattern in a series of patients who have not had surgical treatment, and here we find help in a paper published last year by Professor A. M. Harvey (1948), of Johns Hopkins University.

He first reviewed a series of 87 patients published by Kennedy and Moersch in 1937. Twenty-seven of these patients had complete remissions, ranging from one month to 16 years; but the majority lasted less than one year, and the average was only 2.2 years. Some of these supposed "complete" remissions were probably, in fact, only partial. Of Professor Harvey's own series of 125 patients, 17 had significant clinical remissions, nine of which lasted over two years. Only one lasted over five years. Professor Harvey has noticed that since the introduction of neostigmine ("prostigmin") therapy spontaneous remissions have been less enduring, and that only one patient so treated had a remission of over two years. This observation is important, because practically all the patients in our series had had neostigmine therapy before operation, and if Professor Harvey is right an insignificant proportion of them would have had lasting remissions. Clearly it would be absurd nowadays to withhold neostigmine therapy on the chance of a few patients having spontaneous remissions. All, or practically all, will have had neostigmine, and the probable incidence of spontaneous remission lasting more than two years would be extremely small.

Four Categories of Results

I have referred on other occasions to the difficulty of assessing results in a disease so extraordinarily variable as myasthenia gravis. In my first communication (Keynes, 1946a) the patients were divided into the four following categories according to results, and the same method is still adopted: (A) Quite well; no symptoms; no neostigmine. (B) Virtually well; minimal symptoms; small dose of neostigmine. (C) Some improvement, often considerable; neostigmine still necessary. (D) No change.

Before considering the numbers that we have placed in these four categories it is necessary to emphasize that those patients who have been found to have thymic tumours have been excluded. The course of the disease and the effect of operation in these patients have been so different from the others that we believe a truer view of the value of operation can be obtained if we first consider only those who were free of tumour formation. Tumours can now nearly always be diagnosed by radiology before operation is undertaken, so that these patients can be set aside for a different plan of action; they therefore form a group for separate study. The incidence of tumours has been found to be 11.6% of all patients, so that the number of patients remaining for assessment is still satisfactory after this deduction has been made.

Patients have been carefully followed up, a few necessarily only by post, since they live in distant parts of the country or in the Dominions. The great majority have been seen personally, and not only by me and by my surgical colleague, Mr. J. E. Piercy. Patients at Queen Square have been seen by Dr. Carmichael and other members of the staff; those at New End by Dr. Raymond Greene; and those at St. Bartholomew's by Dr. Aldren Turner and Dr. Scowen. The number of patients treated privately has been insignificant.

The number of patients available for assessment, after deducting the post-operative deaths (10), the tumours (18), and the few that have not yet been assessed (7), is 120.

The figures for the four categories described I find to be as follows:

(A) 39 (32.5%) (B) 40 (33.3%)
(C) 31 (25.8%) (D) 10 (8.3%)

*A lecture given at the National Hospital for Nervous Diseases, Queen Square, on July 7.

Operative Mortality

The results of the operation can naturally be assessed only among those who have survived the operation—though death is unfortunately one of the possible results, and this must be carefully considered. The total number of patients who died as the immediate result of the operation is 10, but a high proportion of these deaths occurred during the early stages of the experiment, when experience of the operative technique and of the management of patients was small. This is reflected in the fact that five deaths occurred among the first 18 patients and only five in the next 119 operations. If it is fair to take this long consecutive series as the basis, then 4.2% represents the present operative mortality in experienced hands. This is a low figure considering the relatively poor human material with which we have to deal, for myasthenic patients with their narrow margin of respiratory efficiency are unfavourable risks.

The cause of death may be attributed in almost all instances to pulmonary complications; in none, so far, to loss of blood at the operation or afterwards. The pulmonary complications have been occasionally those of an acute myasthenic crisis in which the patients drown in their own secretions; more often they have been attributable to atelectasis of part of a lung or to a flare-up of a pre-existing bronchitis. The risk is always greater in the older patients and in those with coexisting disease—and it is of course the older patients who tend to have the coexisting disease. Thus our death roll included a man of 37 with chronic alcoholism, a woman of 46 with rheumatoid arthritis and cardiac degeneration, and a man of 47 with thyrotoxicosis and cardiac degeneration. Whenever a pulmonary infection becomes established a vicious circle tends to follow, since any acute infection in a myasthenic patient tends to make the myasthenia worse and the response to neostigmine less complete.

Moreover, in the early part of the series we were learning, through experience that was sometimes bitter, how best to perform the operation and how to steer a myasthenic patient through the post-operative period. Before February, 1942, no one in this country had ever performed a total extirpation of the thymus gland. Knowledge of its anatomy was hazy, and some of the information regarding its natural history was erroneous. Blalock's first communication gave very little technical help, though it emphasized the necessity for giving the patients an intravenous drip after operation.

Improvement in Technique

I am not now concerned with details of technique, but naturally our handling of the thymus did improve with experience, and soon it became obvious to us that the prime necessity was to keep the patients dry. To give an intravenous drip to a patient who had not lost a great deal of blood, and who did not suffer from much surgical shock, was unnecessary, and in a patient who tended anyway to produce an excessive bronchial secretion it was actually pernicious. As technique improved we realized the importance of removing the thymus without injury to the pleura, since even temporary collapse of a lung is harmful to a myasthenic patient; also it is easier to ensure pulmonary efficiency if the pleura has not been opened than after any transpleural operation or after accidental opening of the pleura, which may be difficult to close. Nevertheless we still have occasional arguments with thoracic surgeons, who are so accustomed to transpleural operations in non-myasthenic patients that they do not yet appreciate the extra dangers introduced by the presence of myasthenia.

Another strange fact that not all physicians seem to know is that it is dangerous to give a myasthenic patient an enema. Almost invariably the patient will collapse with syncope. This sounds improbable, but we do not doubt that it is a real danger. Early experience on several occasions had warned us, but we had not seen it happen for a long time and had almost come to disbelieve it. We tried to ensure, however, that the ward sisters had fully warned everyone concerned. On one occasion recently the warning, though given in writing, had failed to register. An enema was given, and the patient became unconscious and pulseless. We hope that the experiment will never need to be repeated.

I have referred already to the myasthenic crisis characterized by excessive bronchial secretion, sometimes followed by pulmonary consolidation and death. Occasionally death may be due to a more suddenly fatal cause—complete failure of both heart and respiration.

In April, 1948, a girl aged 16 had travelled from Singapore to London for thymectomy to be performed. Six months previously she had developed symptoms of myasthenia, first noticed as weakness of the arms when brushing her hair. Later the symptoms were mainly bulbar, but varied greatly in severity from time to time. On the voyage to England she had several attacks of dyspnoea, which greatly alarmed her. An operation done in July, 1948, was no more than a skin incision and exploration with a finger in the mediastinum, because at this stage the presence of a tumour was suspected, and the incision was closed. She was then given a course of deep *x*-ray therapy to the thymic area. This had to be stopped halfway through because she became much worse, but it was afterwards completed, and ultimately she greatly improved. She increased in weight and became transformed in appearance, so that the next operation was undertaken with great hopes in December, 1948. A somewhat shrunken thymus not showing any obvious tumour was removed without difficulty and the girl was not immediately affected by the operation. Within two hours, however, there was a sudden failure of peripheral circulation, with extreme pallor. Respiration then ceased and she died in the course of a few minutes. Those who were watching her said that the respiration seemed to stop an appreciable time before the heart had quite failed. At the post-mortem examination no adequate cause for her death could be discovered, and it could only be assumed that this was a form of myasthenic crisis following the disturbance of the operation.

This has been the only instance of death taking place so soon after the operation, and this kind of reaction is clearly exceptional.

The First Patients

Having these facts on the debit side of the account, let me now turn to the pleasanter side and give some account of the post-operative course of the patients who survived. First things come first, and so I must describe the first patient on whom we operated.

This patient was a woman aged 31 who had had symptoms of myasthenia for between three and four years. In February, 1942, she was a patient in the National Hospital, Queen Square, and her symptoms were very severe. Also they were getting worse, together with some mild signs of thyrotoxicosis, and it was thought that her prospects of survival were extremely bad. Thymectomy was therefore suggested, and this was done on February 10, 1942, together with a partial thyroidectomy. Her post-operative course was stormy, though on the fifth day she noticed improvement in nearly all her symptoms, and diplopia, present for several years, had disappeared. Nevertheless this same day she had a severe attack of dyspnoea with much mucus, and almost died. Ten days later she was almost completely well, and neostigmine was reduced to one tablet four-hourly with ephedrine. She had some temporary setbacks after this, but soon returned to her occupation as a land-worker, and has remained well to the present time—that is, for seven and a half years.

The second patient in the series had a thymic tumour and succumbed to the operation.

The third patient was one of the worst with whom we have ever had to deal. He was a man aged 34 who had worked in the National Fire Service. Symptoms of myasthenia had started nine months before we saw him, and had rapidly become worse until he was practically helpless, even with large doses of neostigmine. In addition he had a severe thyrotoxicosis with paroxysmal fibrillation. He was clearly going to die quite soon unless something could be done, and we judged that it would be best to deal with the thyroid gland first. A subtotal thyroidectomy was done on May 2, 1942, and his condition was critical for a few days, with rapid auricular fibrillation. However, he recovered, and after a month's interval a thymectomy was undertaken. He now had no symptoms of hyperthyroidism, but his myasthenia was worse, and he was extremely weak. The operation was done on June 15, 1942, and he stood it well. Some of his symptoms, such as those affecting the voice and swallowing, improved rapidly. The recovery of his skeletal muscles was slow, the delay being partly due to pronounced wasting of the muscles of his thighs and shoulder girdle. He was still taking a small dose of neostigmine two years later, but eventually was able to leave it off entirely, and for the last four years he has been quite well. It is now seven years since the thymectomy was done.

The next patient was a woman aged 44 with a six-years history of myasthenia. A thymectomy was done in May, 1942, and there was great improvement at first. Later she relapsed, and four years after the operation was much the same as before it was done. She died in 1947.

The fifth patient was a sailor aged 22 who had had symptoms of myasthenia for only 11 months, but he was already very ill, and without neostigmine was almost helpless. A thymectomy was done in May, 1942, and during the first 14 days he rapidly improved. A relapse then occurred due to an acute mediastinitis, probably following the liberal scattering of sulphanilamide powder in the mediastinum before it was closed (this was never repeated). Four weeks later he was without symptoms, and neostigmine was no longer given. Since that time he has been quite well.

It therefore seems that three of the first four patients who survived operation have had complete and permanent remissions if upwards of seven years is to be regarded as permanent. The evidence already given regarding the incidence of spontaneous remissions seems to make it unlikely that these recoveries were unconnected with the operation.

The Clinical Picture

Knowledge concerning the function of the thymus gland, whether normal or abnormal, is still very imperfect. We suppose that in removing the thymus we are getting rid of the source of a "curare-like substance" which is discharged into the circulation, though the final proof of this is still lacking. The histology of the gland in myasthenia shows that it is undoubtedly abnormal, and before long we hope to have some light upon the biochemistry of the disease; but even then we are unlikely to know why it is that results of thymectomy are so erratic. This uncertainty has discouraged some operators, including even Blalock himself, from advocating surgery. But the manifestations of the disease itself are just as erratic as the results of surgery, if not more so.

The clinical picture is never exactly the same in any two patients. There are great variations in the muscles affected and so in the mode of onset and in the course of the disease. It may first be noticed in the ocular muscles as diplopia—suddenly appreciated, for instance, during a game of tennis; in the levator muscles as ptosis; in the facial muscles, first noticed when applying lipstick; as difficulty in swallowing; or as weakness in the arms or legs. The disease may advance rapidly or slowly, or it may be stationary for long periods. It may develop in a series of relapses, each being somewhat worse than the preceding one. This highly irregular pattern in the natural history of the disease is reflected in the effect of operation, but, provided that the results, taken broadly, are satisfactory, that is no reason for withholding operation.

Sometimes the effect of the operation is appreciated by the patient with an astonishing promptitude. I have known diplopia, present for years, disappear within 24 hours, never to return. Dysphagia is often abolished within a few days. Often within the first week the patient is aware of a new feeling of vigour in the limbs. The order in which symptoms disappear does not, however, obey any sort of rule. If generalizations are to be made, it may be said that ptosis and ocular palsies are usually the slowest features to disappear; sometimes ocular muscles remain permanently paralysed when all other symptoms have gone, and are then unaffected by neostigmine.

A patient who showed this in an extreme degree was a woman aged 24. She had a 19-months history of fairly severe generalized myasthenia with pronounced ptosis. A thymectomy was done in June, 1945. She made a good recovery except that the ptosis remained, and she afterwards went with her husband to Czechoslovakia. In 1947 she returned to England because, although neostigmine seemed to have some effect on the ptosis, she was unable to obtain the drug. When examined she had no symptoms of myasthenia except the ptosis, and neostigmine had little or no effect on this. She was accordingly given splints for her eyelids, and advised that she no longer needed neostigmine.

Although the ptosis is sometimes persistent, the other facial muscles usually recover well after operation.

In May, 1948, a patient from Australia who was in St. Bartholomew's Hospital gained widespread notoriety in the press as "the girl with the frozen smile." She was a girl aged 16½ with an eight-months history of severe generalized myasthenia showing complete immobility of the facial muscles. Her recovery after thymectomy was almost complete. She still takes a small dose of neostigmine, but her smile has been unfrozen, and this change took place within a fortnight of the operation.

Among those who have undergone complete recovery are a few individuals who are unable, for psychological reasons, entirely to give up taking neostigmine. Their dependence on the drug has over months or years induced a state of mind in which independence of it seems too good to be true, and they still believe it is necessary to take a tablet at irregular intervals, particularly in the evening, when normal fatigue is felt. The most extreme example of this was a girl who would take a tablet on Saturday evenings but at no other time. On inquiry it was found that this was preparatory to going to a dance. Examination of these people will not detect any signs of myasthenia.

It has been suggested by Professor Harvey (1948) that the administration of neostigmine might interfere with the effect of operation in the same way as it appeared to do with the occurrence of spontaneous remissions. In this connexion the following history is of interest.

A woman aged 37 was operated on in September, 1943. She had been the first patient to be treated in this country with neostigmine. She had had symptoms of myasthenia for 17 years, and had received neostigmine therapy for nine years. Though certainly better than before, she has not experienced very great benefit, and now, nearly six years later, she is still in category C.

Nevertheless a general survey of the results with special reference to the period of neostigmine therapy did not reveal any constant relation between them, and there is no justification for basing a prognosis on this evidence.

Failures

It will have been noticed that a small proportion of patients have not undergone any improvement at all. They have not necessarily been those who had severe symptoms of the disease or a long history.

A doctor aged 56 had mild myasthenia for one year, mainly affecting the movements of the lower jaw and lips. The thymus when removed in February, 1946, was quite large, though rather fatty in consistency. The patient's immediate response to the operation was excellent, and he left hospital a fortnight later without any symptoms of myasthenia. Nevertheless a month later he had relapsed to the same myasthenic level as before operation, and there he has remained ever since. He takes 45 mg. of neostigmine daily, with good response.

Another patient who failed to improve after a short history of disease was a man aged 47 who had myasthenic symptoms for two years, especially affecting the ocular muscles. His response to neostigmine was slow. After thymectomy, done in July, 1946, he improved a good deal and was able to return to work in a shop; but 18 months after operation he had relapsed to the same state as before.

A third failure was observed in a woman, aged 26, with moderately severe myasthenia of 15 months' duration. Thymectomy was done in January, 1947, and up to the present time she has not improved at all.

Nevertheless the average age of the failures has been nearly 40, including patients of 39, 41, 47, 56, and 61 years. The youngest was 26. Their histories have also tended to be long, including ones of 5, 8, 12, 12, and 20 years. Since, however, there were four others of 3 months, 1 year, 1½ years, and 2 years, clearly no general inference can be drawn at present. The number is too small for an average length of history in this category to have much meaning.

Age of Patient and Duration of Disease

When we examine the ages of the patients in the other three categories we find that A and B have a considerable proportion of patients of the age of 20 or below, whereas in category C only three are under 20. If the average ages in these categories are calculated, however, the differences are inconsiderable: (A) 28.3 years, (B) 28.4 years, and (C) 32.1 years. It seems, therefore, that the influence of age on the results is less important than at first appeared probable. On the other hand, the calculation of the average duration of the disease is more illuminating: (A) 2 years 2 weeks, (B) 5 years 4½ months, and (C) 7 years 7 months. Here the differences are very striking, and it seems clear that a long history is prejudicial to recovery after operation.

This confirms what I have stated in a previous communication (Keynes, 1946b). It seemed that on the whole the best results were obtained in patients with short histories and the worst in those with long histories, though it was seen that there were exceptions in both directions. It still remains true that the quickest and most complete post-operative remissions are to be expected after short histories, but as time passes it becomes plain that many of the long-history patients will ultimately give unexpectedly good results, although it may take longer to achieve them.

In November, 1948, I operated on two women of this type. One, aged 48, had been bedridden for 12 years; the other, aged 37, had not moved except in a wheel-chair for 27 years. After operation both improved slowly over several months, and, though their remissions are far from complete, both are now able to walk.

Many other patients with histories of five years or over have continued to improve slowly and have been upgraded from category C to B, or even to A.

Another long-term patient was a man aged 38 who, when first seen, had not yet been diagnosed as myasthenic. His appearance, however, was typical, and a test injection of neostigmine, to his surprise, established the diagnosis. He then admitted that he had crept through life only with difficulty, and that his condition had been much the same ever since he could remember anything. He afterwards produced photographs of himself at the ages of 2 and 4½ years, from which it was evident that he had been myasthenic since infancy. His history therefore covered almost 38 years, and when he came under observation he was getting steadily worse, with generalized and bulbar symptoms. He eventually decided to submit to thymectomy in September, 1947, and since that time has steadily though slowly improved. Now, nearly two years after operation, he still needs a small amount of neostigmine, but has been assessed as B, being able to lead a normal life.

Myasthenia Gravis in Infants

The history of this patient introduces the subject of myasthenia gravis in infants, which has specially engaged my interest since I was repeatedly told that the disease was unknown in children. A photograph of the last patient described showed him as apparently suffering from myasthenia at the age of 2; but this did not surprise me, because two years previously I had been asked by Dr. Wyllie to see a patient at Great Ormond Street Hospital for Children.

She was a girl of 4½, who had been admitted apparently moribund, with acute respiratory distress and cyanosis. An experimental injection of neostigmine had an immediate result, and it was then realized that she was suffering from acute myasthenia, symptoms of which had been present for at least a year. I removed the thymus in November, 1945, and she made a good recovery. A year later she still had mild symptoms, but was able to lead a normal life and was described as tireless.

Two months after this incident, which was the first of its kind ever known at Great Ormond Street, a child of 2½ was admitted in a similar state. She was cyanosed and helpless, and again was immediately restored by neostigmine. I operated on this child in February, 1946, and removed what I thought was the whole of the thymus gland. She made a good recovery, but it was only temporary. Four months later she had a severe relapse and quickly died. At necropsy a thymus gland was found equal in size to the specimen I had removed. It was evident that I had removed only one lobe of the gland and had failed to find the other—the only occasion, so far as I know, on which this has happened.

I have not seen another myasthenic infant since this date, though Griffith (1949) described an undiagnosed example. This child had died with symptoms exactly resembling those of the Great Ormond Street children, and it is probable that in the past many children have died of myasthenia, the true diagnosis not having been suspected.

Selection of Patients

Whenever the results of any operative procedure are rather better than preconceived ideas will willingly allow, the charge is made that there has been "selection" of patients. The implication is that unfavourable ones have been eliminated, so that the results seem better than they should be. In the present investigation there has admittedly been some selection of patients, but this has not been exercised by ourselves. It has been through the physicians that most of the patients have, very properly, come to the surgeons, and it is they who have made the selection, which has therefore been in the direction of providing unfavourable rather than favourable material.

Physicians have naturally hesitated to submit to operation patients with only the milder manifestations of myasthenia, such as diplopia, and especially those whose symptoms did

not seem to be progressive. On the other hand, they have not hesitated to recommend operation for patients who were seriously disabled by the disease or whose symptoms were becoming progressively worse. On the surgical side very little selection has been exercised, though a very few patients have been rejected on the ground that operation would clearly be fatal. Sometimes patients have been kept under prolonged observation in order to seize the opportunity of operating when the disease was in a favourable phase.

A patient recently admitted to St. Bartholomew's Hospital under Dr. Scowen had been myasthenic for 16 years. There had been periods of remission, usually partial, but on the whole the disease was progressing, and during the last six years had been very bad indeed. It was found that she responded well to injections of neostigmine, and in six years had had 24,000 of these, many given by her husband, who, being by profession a reader of meters, was accustomed to keeping records. Often the patient herself was too weak to reach for the syringe. She spent two months in Dr. Scowen's ward, and underwent some improvement in this period. When the moment was deemed favourable, the operation was done. This was on June 29, 1949, and she is now improving, the daily dose of neostigmine having been reduced from 270 mg. before operation to 180 mg. at the present time.

Dr. Arnold Carmichael has been so impressed with the results of operation that we have operated at his request on one patient who had no symptoms of myasthenia at all. This is not so odd as it sounds.

The patient, a girl aged 14, had had several attacks of myasthenia, with brief complete remissions between attacks. But Dr. Carmichael was satisfied that each attack was proving a little worse than the one before, and therefore asked for the operation to be done at the safest time—that is, during a remission. This patient has now remained well for six months since the thymectomy was done.

We have operated on one other patient during a remission. This was an Irish youth of 21 who had lost all confidence in himself owing to his relapses, though they were mild. He had developed a myasthenic mentality, which prevented him from following any occupation whatever. Now, two years after thymectomy, he has admitted that he is perfectly well, and he started to work some time ago. Such is the power of surgery over a work-shy neurosis even in a myasthenic Irishman.

It is unnecessary to emphasize the importance of a careful follow-up of thymectomy patients, as this applies to most diseases; but it is worth noting that with the passage of time the results after this operation tend to encourage both surgeon and patients. Many of them undergo a slow improvement over a long period, and very few show the opposite tendency. More patients therefore gain promotion in the ABCD classification than have to be put back, so that each time I have published results they have shown slight improvement on the time before. It must be admitted, however, that there are a few qualifications to be made. Even after apparently complete recovery some of the female patients find that there is a perceptible relapse at the menstrual periods. Secondly, both sexes, although their vigour is normal for ordinary exertions, sometimes find their strength is not completely restored for sustained exertion. It may be, therefore, that the Saturday evening tablet is not entirely psychological in its effect. Thirdly, there seems to be in some patients an irreversible change in one or more ocular muscles and in the levator of the upper lid, the movements being unaffected either by operation or by neostigmine.

Side-issues

It will probably be expected of me to say something on an important side-issue—namely, the relation of myasthenia to thyrotoxicosis. Several writers have thought that there might be some such association, the belief being encouraged by the close anatomical and morphological relationship between the thyroid and the thymus, but we have not found any convincing evidence of this. Only four patients in the whole series of 155 have shown a definite thyroid excess, and in only one was it at all serious. Two of these patients I have already described. A third succumbed to the operation.

The fourth was a woman of 27 who was admitted to hospital with a diagnosis of thyrotoxicosis only, although soon after the onset of this in December, 1946, she had had occasional attacks of diplopia. Ptosis of the left eyelid followed, and then weakness of the left arm and both legs. The whole myasthenic picture then became more pronounced. Mr. J. E. Piercy performed first a subtotal thyroidectomy and then a total thymectomy. At the present time she is free of any symptoms of either disease on three or four tablets of neostigmine a day.

It has been pointed out by Dr. Raymond Greene (1949) that all the ocular muscles responded to neostigmine except the external recti, but that these steadily recovered after the thyroidectomy. The ocular movements therefore showed the mixed effect of myasthenic and thyrotoxic asthenia, each muscle responding to the appropriate treatment. Beyond this we have no evidence to offer. An incidence of four patients with thyrotoxicosis in 155 myasthenics does not seem to afford a basis for any conclusions, though it is perhaps somewhat higher than would be expected from mere probability.

Another side-issue which may be included among "results of operation" is the evidence concerning the supposed enlargement or persistence of the thymus gland in myasthenia. It has seemed to us that the size of the gland bears no relation to the severity or incidence of the disease. Apart from tumours the weight has varied from 3 to 36 g., the average being 15 g. It is now established that the thymus normally persists, and that it does not weigh more in myasthenic patients than in normal people of the same age, among whom the variation is just as wide. The only consistent abnormality has been in the microscopical appearance of the gland, as described by Bratton (1948) and Castleman and Norris (1949). This almost always shows conspicuous lymphoid "germinal centres"; these are not found in the thymus glands of other people.

Tumours of Thymus Gland

As I explained at the beginning, I have considered in the foregoing remarks only the results obtained in the treatment of patients who did not have thymic tumours. I do not now propose to deal in detail with those who had tumours, as they must be the subject of a separate study. It soon became obvious, however, that the presence of a tumour implied a very much worse prognosis. Patients with tumours usually have a short history and severe symptoms which respond slowly and imperfectly to neostigmine. The operation risk is increased by these features as well as by the greatly increased difficulty of removal. The immediate response to operation may be dramatic, but the patients tend to show after a short interval a serious relapse, and the symptoms become irreversible. They have usually soon died with respiratory failure. Primary operation has therefore been very unsuccessful in our hands. We now prefer to treat these patients with preliminary deep *x*-ray therapy, followed by extirpation of the thymus with the tumour if it is possible. A few patients treated in this way have given more encouraging results than those subjected to primary operation.

One patient who had a primary removal of a tumour in January, 1947, followed by deep *x*-ray therapy in June was slowly deteriorating, until Dr. Douglas McAlpine treated him with tetraethyl-pyrophosphate, since when he has steadily improved.

Conclusion

The treatment of myasthenia gravis by thymectomy has been called "empirical," and so it still is in the sense that there are a number of questions to be answered concerning the intimate details of the disease. The connexion between myasthenia and an abnormal thymus gland is now well established, but there is no clue to how or why the gland acquires its abnormal function. The chemistry of the secretion which is producing myasthenia is still quite unknown, and no active principle has yet been isolated.

Fundamental knowledge, such as the truth about the physiology of the neuromuscular junctions, is still lacking, so it is not surprising that understanding of abnormal functions is still defective. Surgery may help to provide an answer to these questions, which are far from being purely academic. In the meantime surgery, with the help of neostigmine, has undoubtedly made a practical advance in being able to alleviate the lot of many of the unfortunate sufferers from myasthenia gravis. There are few more pathetic sights than an otherwise perfectly healthy girl or youth reduced to a state of dependence and physical helplessness, and few more gratifying sights than their dramatic restoration to normal activity, a feat which surgery can now on many occasions claim to have achieved.

Summary

From February, 1942, to July, 1949, 155 patients with myasthenia gravis have been treated by surgical extirpation of the thymus gland.

Of 120 patients who did not have thymic tumours and survived the operation, 79 (65%) have shown a complete or almost complete remission of the symptoms. These could not be accounted for as "spontaneous remissions."

The operative mortality in our hands is at present 4.2%.

The results are influenced by the duration of the disease before operation: the shorter the history the better the results.

Early operation is indicated by the above fact, and by the 11.6% incidence of tumours, the development of which should, if possible, be anticipated.

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A statistical study by V. A. Fenger and J. Nielsen[1] shows that in the period 1908–15 the average duration of life of a Danish doctor aged 25 was 3 years shorter than that of his opposite number in the general population. In more recent years this difference has diminished considerably. This study, brought up to 1944, shows that the mortality among Danish doctors is lower than that among the whole population with regard to tuberculosis, cancer, and accidents. But it is higher with regard to suicides, and more than 40% higher with regard to heart disease. A comparison is made with the studies of Dublin and Spiegelman in the U.S.A., and a table is drawn up by the Danes showing how the Danish and American findings compare with each other in respect of each important cause of death.

[1] *Ugeskrift for Laeger*, June 30, 1949, p. 737.

INCIDENCE OF CROSS-INFECTION IN CHILDREN'S WARDS

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In 1945 the British Paediatric Association began to interest itself in the problem of cross-infection in children's wards in hospitals, and an *ad hoc* committee was set up to consider the matter. Its report was published in the *British Medical Journal* of May 4, 1946 (p. 673). During the committee's deliberations it became obvious that the views and experience of individual paediatricians differed widely. There was not only little information on the incidence of cross-infection but also little evidence of the effect of the common methods used to prevent or control it. The result was a report in very general terms "in the nature of a preliminary discussion," and the collection of evidence on the incidence of cross-infection and the evaluation of methods for its control were left for later investigation. This report is the result.

It is not easy to give an adequate definition of cross-infection in this context, but that suggested by the above-named committee was accepted and used—namely, "To denote any infection acquired by a patient in the hospital environment. Clinically, it is an infection arising during the course of another illness for which the patient was originally admitted to hospital, and may attack the respiratory tract, gastro-intestinal tract, wound, skin, or mucous membrane, or be manifested as one of the specific fevers." This definition places the final onus of diagnosis on the paediatrician, who may or may not have help from bacteriological investigation. This does leave room for a difference of personal opinion, but it was felt that experienced paediatricians would hold relatively uniform views, especially as nearly all those taking part in the investigation had preliminary discussions in committee with their colleagues.

The main objects of the inquiry were to determine: (1) the incidence of cross-infection in children's wards (nurseries for the newborn were excluded); (2) the effect of cross-infection on morbidity and mortality; (3) the part cross-infection played in increasing the length of stay in hospital; and (4) the methods used to prevent cross-infection and their relative efficiency.

Information Sought

Fourteen hospitals were selected as representing a cross-section of children's wards in which patients were under the clinical charge of an experienced paediatrician. The hospitals included examples of children's wards in a general hospital, wards in hospitals for children only, wards in teaching and non-teaching hospitals, and wards taking long-stay cases. In all, the records of 26 different wards were utilized.

Special cards were prepared and issued to each ward for recording the information in respect of every patient admitted. These asked for details of the age, sex, diagnosis on admission, how the child was disposed in the ward on admission and during its stay (e.g., bed in open ward, cubicle), and method of dispersal (e.g., transfer to another ward, transfer to isolation hospital, home). If cross-infection took place its date was to be noted, together with

the suspected source of infection and any relevant bacteriological investigation. Any increased length of stay in the ward as the result of cross-infection was to be estimated, and a special comment was asked for if it was felt that the death of a patient was in any way attributable, either partly or wholly, to cross-infection. The types of cross-infection were divided broadly into: acute specific fevers, upper respiratory infections, lower respiratory infections, gastro-enteritis, and other infections.

A record card was filled in for each child on admission and observations made during the children's stay were dated as at noon of each day. In this way 9,619 cases were covered in the survey. Records were kept from March 1, 1946, to February 28, 1947, but, for reasons to be explained later, analysis was made for only 11 months—i.e., from April 1, 1946, to February 28, 1947.

In addition to the individual patient's record each ward unit was supplied with a questionary form. This asked for information on the following:

Official number of cots in ward.
Upper and lower age limit of children admitted.
Type of case admitted (e.g., medical, surgical, tonsillectomy, skins).
Ward design.—Open ward; length, breadth, height, and distance between cot centres. Number of cubicles, distinguishing single, double, and multiple, giving length, breadth, and height of each cubicle and stating whether it was open or closed.
Quality of ventilation in wards or cubicles.
Method (if any) of isolating new admissions.
Whether a special room is available for dressings.
Method of ward heating.
Number of sluices, lavatories, and wash-basins in each ward or cubicle.
Provision for bed-pan sterilization, napkin disposal, dressings disposal, and refrigerators.
Whether or not a special room and/or special staff is available for preparing feeds.
Method of ward-cleaning—dry sweeping, wet or oiled sweeping, oiled floors, oiled blankets, vacuum-cleaning.
Method of air sterilization (if any).
Status and qualification of staff: ward sister, number of trained nurses, number of student nurses.
Number of nurses per ward—average and minimum per day and night.
Whether "runners" are employed at night.
Whether the nursing staff are immunized against (*a*) diphtheria, (*b*) other infections.
Number of maids per ward.
Whether masks are worn by nurses, doctors, students, and maids.
When masks are worn.
Whether visiting is allowed—how often, how long, how many per bed, and whether children visitors are excluded.
Whether acute fevers are transferred or nursed in the ward.
Any other relevant information.

Data Received

Of the total of 9,619 cases surveyed in the 11 months under review, 679 showed evidence of cross-infection during their hospital stay. This represents an overall incidence (irrespective of length of exposure in hospital) of 7.1%. The frequency of the individual types of infection is shown in Table I.

It is interesting to note that 92 of these children experienced at least two cross-infections and 20 at least three. Tabulation of the acute specific fevers by ward age showed that 23 of the 80 cases of measles were "acquired" before the 10th day, which means that the disease was in the incubation period when the child was admitted to hospital. Similarly three of the five cases of mumps developed before the 21st day in hospital, five of the 24 cases of whooping-cough developed before the 10th day, and three of the 20 cases of chicken-pox developed before the 14th day. It might be objected that these were not strictly examples of cross-infection and should therefore be excluded from analysis. The objection rests entirely on the interpretation of the word "acquired" in the definition of cross-infection: if these were to be excluded many other infections, both of the upper and of the lower respiratory tract, which were not traceable because the length of their incubation is not known would also have to be excluded. It may be added that admission during the incubation period of an infectious disease was in no way confined to one hospital. In point of fact it has been shown that the cross-infection rates at the individual ward ages would have been little affected if these cases had been omitted.

TABLE I

Type of Infection	Total No.	Percentage Distribution
Upper respiratory infections	257	37·8
Acute specific fevers	155	22·8
Measles	80	11·8
Whooping-cough	24	3·5
Chicken-pox	20	2·9
Scarlet fever	14	2·1
Dysentery	11	1·6
Mumps	5	0·7
Diphtheria	1	0·1
Gastro-enteritis	141	20·8
Lower respiratory infections	57	8·4
Other infections	69	10·2
Total	679	

This evidence strengthens the view expressed in the previous report that an essential barrier to cross-infection is a senior medical officer who shall be responsible for all admissions to the ward.

Effects of Cross-infection

On the record card of each patient an estimate was given of the increased length of stay in the ward attributed to cross-infection. No additional stay was occasioned to 65%, up to an additional week was necessary for 17%, up to two weeks for 14%, and up to three or more weeks for 3.6%. The average additional length of stay in the whole series was 4.59 days, and for those 225 children who did have to stay longer their average increased stay was 12 days. This is an important economic aspect of the problem, for in addition to the increased bed occupation in the original hospital there must be added the days spent in an isolation hospital, home, or other institution. This increased occupancy of beds is a strong argument which may be used in favour of administrative or structural measures that may be adopted to lessen cross-infection, as any means which will reduce the length of hospital stay will therefore increase the total annual occupancy of the beds.

Hospital infection may not only increase the length of a child's illness but contribute materially to a fatal issue. We all know of the patient with pyloric stenosis who is successfully operated upon but who dies later from a gastro-enteritis developed whilst in the ward recovering from the operation. Information was sought by the specific question, "Did the observer consider death was attributable in part or whole to cross-infection?" The answer was in the affirmative in 41 of the 50 deaths which occurred in children developing an infection while in hospital (death wholly attributable to cross-infection, 13; death partly attributable to cross-infection, 28), so that of 587 patients who incurred an infection in hospital 7% died wholly or partly because of that infection. As illustrative of deaths wholly due to cross-infection may be cited two patients admitted for

repair of hare-lip, both of whom died of gastro-enteritis. The infections in this group were as follows:

Gastro-enteritis	17 cases (1 Sonne, 1 Flexner Z)
Pneumonia	16 ,,
Pneumonia and enteritis	2 ,,
Upper respiratory infection	2 ,,
Measles	1 case
Meningitis	1 ,,
Staphylococcal pyaemia	1 ,,
Stomatitis	1 ,,
Total:	41 cases

Only seven of these children were over 2 years old, and of the remaining 34 cases no fewer than 24 occurred in babies under 3 months old, thus illustrating the dangers of hospitalization to small babies.

Statistical Problems

The main statistical problems presented were (*a*) to calculate an index suitable for comparing the incidence of cross-infection in the various hospitals and wards; (*b*) to select a suitable standard of comparison; and (*c*) assuming that the incidence would be found to vary between the wards, to determine whether the rates showed any association with the architectural and administrative factors of the ward. One inherent deficiency in the data was that only infections which became manifest during the patient's stay in hospital were recorded. No provision had been made for following patients up, with the result that the number of cross-infections which occurred in hospital but which developed after discharge was unknown, and the value of the inquiry is lessened to that extent. This once again stresses the advisability of giving careful consideration to the statistical aspects when investigations of this nature are in their initial stage.

No index of cross-infection would be adequate which failed to take into account the differing lengths of time each child was exposed to risk—i.e., the duration of stay in hospital. From the information provided the numbers of patients exposed to risk of infection in each ward at each ward-age (i.e., age 1=1 day after entry, age 2=2 days after entry, etc.) were obtained. The numbers of cases occurring in each ward were also tabulated, and by relating the total number of cross-infections which occurred at each age in all the wards combined to the aggregate exposures at the relative ages a cross-infection rate at each ward-age for the aggregate of all wards was obtained. These are the standard rates. In calculating them one difficulty which must be recounted necessitated a change in the initial date of the experience. All children admitted for treatment during the period of the survey are admitted at ward-age 0, but the investigation also covered patients who were in hospital when the inquiry started. To overcome this difficulty it was decided that the experiences should begin on April 1, 1946, instead of March 1. This reduced the length of the inquiry to 11 months, but from the March records the length of stay in hospital previous to April 1 could then be calculated for the majority of children who were in hospital on that day.

The smoothed values of these standard rates (Table II) show that the rate of cross-infection in all hospitals combined rose from 3 per 1,000 in the first four days after entry to 4.9 per 1,000 patients who were in the wards on the 20th–24th days, fell to 3.5 per 1,000 for days 55–59, and was as high as 6.8 per 1,000 for those exposed to risk in days 85–89.

TABLE II.—*Cross-infection Rates (smoothed*) per 1,000 Child-days Exposure (5-day groups); All Wards Combined; Both Sexes. Limited to 91 Days After Admission to Hospital.*

Ward Age Groups	Cross-Infection Rate per 1,000 Exposures	Child-days Exposure in Each 5-day Group
0—	2·96	37,306
5—	3·88	30,065
10—	4·47	20,106
15—	4·79	13,981
20—	4·89	10,655
25—	4·81	8,341
30—	4·61	6,641
35—	4·33	5,355
40—	4·03	4,377
45—	3·75	3,560
50—	3·55	3,030
55—	3·48	2,611
60—	3·58	2,274
65—	3·91	2,056
70—	4·52	1,815
75—	5·46	1,568
80+	6·77	1,383

* $y = 2{\cdot}358 + 0{\cdot}259x - 0{\cdot}00801x^2 + 0{\cdot}0000669x^3$
where y = cross-infection rate, x = ward-age in days.

Standard Cross-infection Ratio

For each ward the number of patients exposed to risk at days 0, 1, 2, 3, 4, etc., was known and the number of cross-infections which would have been expected amongst the numbers exposed to risk at each ward-age if the standard rates (all wards combined) had been effective could be calculated for each ward:

$$\frac{\text{Exposed} \times \text{standard cross-infection rate}}{1{,}000}$$

The numbers expected at each age, aggregated to 91 days or 183 days or 365 days, gave the total number of cross-infections expected in every ward for the respective periods at the standard rates. The number of infections which actually occurred expressed as a percentage of the number expected in the same period provided a comparable index of cross-infection for the different wards. If the actual number was in accordance with expectation the ratio would of course be 100. This index has been termed the "Standard Cross-infection Ratio," because the method of its construction is the same as that of the standardized mortality ratio used by the Registrar-General for comparison of the mortality experienced in different occupations.

When the wards investigated are arranged in order according to the magnitude of the standard cross-infection ratio they may be divided into three groups: those with a high incidence, in which the ratio lies between 140 and 350; those with a moderate incidence of between 60 and 140; and those with a low incidence, below 60, even dropping as low as 29 for a stay of up to 91 days. There are nine wards in the group with a high incidence, eight wards in the moderate group, and nine in the low-incidence group (Table III). It is interesting to observe the extreme

TABLE III.—*Wards Arranged in Order According to the Magnitude of the Standard Cross-infection Ratio, Forming Three Groups with High, Moderate, and Low Incidence*

S.C.R.	Ward	Stay Up to 91 Days
High (140 or over)	Hospital A, Ward 1	350
	,, B, ,, 1 (infants)	205
	,, C, ,, 1 (medical, babies)	190
	,, D, ,, 1 (infants)	188
	,, E, ,, 1 (convalescent)	185
	,, F, ,, 1	148
	,, C, ,, 2	146
	,, G, ,, 1	145
	,, H, ,, 1	140
Moderate (60–140)	,, C, ,, 3 (surgical, babies)	133
	,, I, ,, 1	123
	,, C, ,, 4	111
	,, E, ,, 2 (convalescent)	90
	,, J, ,, 1	88
	,, E, ,, 3 (convalescent)	84
	,, K, ,, 1 (infants)	73
	,, L, ,, 1	72
	,, A, ,, 2	58
	,, M, ,, 1	56
Low (60 or under)	,, K, ,, 2	55
	,, B, ,, 2	49
	,, G, ,, 2	47
	,, L, ,, 2	38
	,, L, ,, 3	34
	,, D, ,, 2	33
	,, N, ,, 1	29

variation in the wards, all of which were under the supervision of expert paediatricians. To note a specific example, one hospital which is modern and with isolation facilities has a high cross-infection rate in its babies' ward but a low one in its older children's ward, both wards being identical in design. The paediatric supervision, both senior and registrar, is the same for both wards, the recording of cross-infections was done by the same individual, and the nursing staff was drawn from the same training school. It is interesting to note that no fewer than four different hospitals are represented in both the high and the low group.

The amount of material for survey was inadequate for calculation of standard cross-infection ratios based entirely on patients who on admission were under 1 year old, 1 to 4 years, 5 to 9 years, and so on. All that was possible was to distinguish 10 wards which excluded entirely children under 1 year of age. Table IV compares the standard cross-infection ratio of those wards with that of wards to which infants were admitted.

TABLE IV

Type of Ward	S.C.R.			
	Low	Moderate	High	Total
Wards excluding infants under 1 year ..	6	3	1	10
Wards admitting infants	3	5	8	16
Total	9	8	9	26

A statistical test showed significant association between the standard cross-infection ratio ($\chi^2=5.8$: $P<0.05$) and the admission of children under 1 year of age. This increased danger in infancy is a fact well known to all practising paediatricians.

This relation between age and cross-infection is the only "statistically significant" result of our attempt to correlate incidence with environmental influences. Other factors which were statistically investigated but gave no conclusive results were: type of case admitted (surgical, medical, etc.); relation between standard cross-infection ratio and architectural features of cubicles; average square feet per cot; quality of ventilation; employment of "runners"; method of ward-cleaning; and patients' visitors and frequency of visiting-days. (Because of their negative findings these analyses are not recorded in full.) The unit for these analyses was the ward, and with only 26 units it was hardly to be expected that many significant relationships would appear.

The difference between the wards with regard to cross-infection remains difficult to explain fully. There is no doubt that imponderables must play an important part—namely, the quality of the medical and, particularly in this problem, the nursing care. We have noticed that there has been an increase in infection when there has been a change of nursing staff, though we have no figures to support this, and it would seem that there is still a tendency to understaff babies' wards at night. Thus all the careful work done by the day staff can be undone through a shortage of nurses at night to do the common tasks with adequate care and time.

Another factor which is difficult to assess is the question of immunity of a child admitted to a strange bacterial or viral environment. Bacteriological studies were not undertaken in this review except in a few instances, for in one of the commonest of the infections, gastro-enteritis, there is no specific organism to act as an indicator. It is well known that babies are slow in acquiring an immunity reaction, and this may well be a factor in the increased infection found in the very young.

Conclusion

On the whole we feel that this inquiry, which entailed a great deal of work for many people, has been disappointing in that it has not resulted in our being able to give advice to hospital planners on the value of the common architectural practices in preventing cross-infection. Further inquiry on these matters which will stand up to statistical scrutiny is desirable. We feel, however, that we have at least obtained some figures that are of interest if only in showing for the first time the extent of cross-infection in a sample of hospital wards in this country and in drawing attention not only to its prevalence but also to its dangers.

It should be recalled that the wards chosen were all under expert paediatric supervision and therefore the number of cross-infections was, or should have been, minimal. However, the very fact of the inquiry taking place in a ward helped to draw attention to the condition and so in itself may have reduced the incidence a little. If, then, hospitals of this status have a cross-infection rate as high as 7% it may be suspected that other hospitals with less facilities and less expert staff have a higher rate.

In this respect it has been interesting to note the reaction in some hospitals visited outside the scope of this inquiry to the question, "How much are you troubled by cross-infection?" In many instances the reply has been given that cross-infection has never occurred, from which it seems likely that the problem has not been acknowledged or recognized. If, then, this paper can do something to interest those responsible for the care of children in hospital in this aspect of their work we feel we may have accomplished something of value.

Summary

Records of all children admitted to hospital during the year March 1, 1946, to February 28, 1947, were provided by 26 children's wards in 14 hospitals in Great Britain. From these records information was obtained as follows: (*a*) The overall incidence of cross-infection in 9,619 admissions was 7.1%. (*b*) The average length of increased stay in hospital of these cases that developed a cross-infection was 12 days. (*c*) In 41 children death was attributable partly or wholly to cross-infection. (*d*) An index for the rate of cross-infection was calculated for each ward (standard cross-infection ratio) and was found to vary widely for the different wards even within the same hospital. (*e*) Attempts were made to correlate factors which might be related to the variations, which included ward architecture, equipment, nursing, staffing, visitors, type of case admitted, and the age of the children. The only "significant" finding was that cross-infection was commoner in wards which admitted infants.

The data on which this paper is based have been produced by the helpful co-operation of many sisters and registrars in the hospitals concerned and of the paediatricians who had the children under their care. The following hospital centres have contributed, and we are grateful to all who have helped: Belfast, Birmingham, Cardiff, Glasgow, Guy's, Great Ormond Street (including Tadworth), King's College, Leeds, Liverpool, Newcastle-upon-Tyne, St. Bartholomew's, and Warwick.

We wish to acknowledge many helpful suggestions made by Professor R. M. F. Picken during the course of the analysis. Our thanks are due to Miss Kathleen Davies and Miss Betty Goode, on whom has fallen the burden of the heavy tabulation and computing work, not all of which has been produced in this paper. We are also indebted to the members of the *ad hoc* Committee of the British Paediatric Association on Cross-infection for much valuable advice in the carrying out of this inquiry, and to the British Paediatric Association for a grant towards the computing expenses.

EFFECT OF TETRAETHYLAMMONIUM BROMIDE ON GASTRIC SECRETION AND MOTILITY

BY

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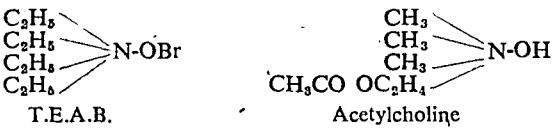
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Tetraethylammonium bromide (T.E.A.B.) is known to produce a blockade of the autonomic nervous system, and has been used with this object in the investigation of peripheral vascular disease. The purpose of this paper is to examine its effects on the secretory and motor functions of the stomach.

Pharmacology

The site of action of tetra-alkyl-ammonium compounds is at the ganglionic synapses of the autonomic nervous system, where a blocking effect was first demonstrated by Marshall (1913). T.E.A.B. is a synthetic compound produced by the substitution of four ethyl groups in the ammonium radical of ammonium hydroxide. The chemical relationship of the drug to acetylcholine is:



T.E.A.B. Acetylcholine

The site of action of the two compounds is the same and is probably determined by their basic structural relationship; side-chain variants determine their pharmacologically different effects. The blocking effect of T.E.A.B. is probably due to the fact that the drug can replace acetylcholine in the neurohumoral chain at the autonomic synapse, thus excluding it. The transience of its action is probably also due to its similarity to acetylcholine, which is destroyed by cholinesterase.

The pharmacological effects are twofold. Sympathetic blockade leads to release of peripheral vasoconstrictor tone, a fall in blood pressure, and an increase in pulse rate. There is increased blood flow to the extremities, with increased skin temperature. Sweating is inhibited. Parasympathetic blockade leads to inhibition of gastric secretion and motility, inhibition of salivation, paralysis of accommodation, and transient impairment of the power to urinate or defaecate.

Side-effects are noted as follows. After moderate doses (less than 500 mg. intravenously or 20 mg. per kg. of body weight intramuscularly) there is a metallic taste in the mouth, with a sensation of warmth and flushing, transient peripheral numbness, light-headedness, loss of accommodation, and transient difficulty in urination or defaecation. After large doses ptosis, weakness, or even severe collapse may occur. While these severe manifestations are rare, the commoner side-effects make out-patient administration impracticable.

Effect of T.E.A.B. on Gastric Secretion

Published work on the effect of T.E.A.B. on gastric function comes mostly from America. Zweig *et al.* (1948) found that in normal subjects the gastric motility was completely inhibited for a total period of 45–100 minutes after intravenous injection. Unstimulated secretion was reduced by 85% and histamine-stimulated secretion by 70%; on the contrary, Neligh *et al.* (1947) noted no effect on histamine-stimulated secretion. Brown *et al.* (1948) demonstrated, in duodenal ulcer patients, inhibition of gastric motility and abolition of insulin-stimulated secretion. Ferrer (1948) reported effective reduction of excessive night secretion in patients with peptic ulcer.

1. *Studies by Alcohol Test Meals.*—We have studied the effect of T.E.A.B. on gastric secretion following an alcohol test meal in 20 cases (17 men and three women, eight of them suffering from duodenal ulcer). The method was as follows:

The patients were starved over nine hours, a Ryle's tube was passed at the end of this period and the fasting juice aspirated. Then 50 ml. of 7% alcohol was given and specimens were removed from the stomach every 15 minutes for one and a half hours and titrated. The following day, at the same hour, this procedure was repeated, but in addition 1 g. of T.E.A.B. was given intramuscularly as a 10% solution half an hour before the start of the test meal. The patients were interrogated regarding symptoms following T.E.A.B. administration. Blood-pressure readings were taken throughout. The average values for the 20 test meals are shown in Fig. 1. There is an average reduction of 5–10 clinical units of free HCl. Some reduction in the free HCl was noted in every case. In several the reduction was of the order of 20 units.

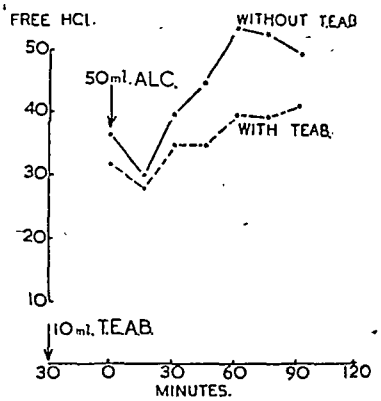


FIG. 1.—Effect of T.E.A.B. on gastric secretion after an alcohol test meal (20 cases, average values).

2. *Studies after Insulin Stimulation of Secretion.*—Because of the known pharmacological effect of T.E.A.B. in blocking vagus synapses it was of interest to investigate its action after the administration of insulin. In 1943 Hollander observed copious acid secretion in the gastric pouch of dogs in which he had induced hypoglycaemia; he found a pronounced acid secretion so long as the vagus supply to the stomach was intact and cessation on complete severance of all vagal fibres. This observation led to the development of the insulin test for vagus activity. It was employed as follows in our cases.

The alcohol test-meal technique already described was followed in 10 patients, with the modification that one and a half hours after the meal in each case 20 units of soluble insulin

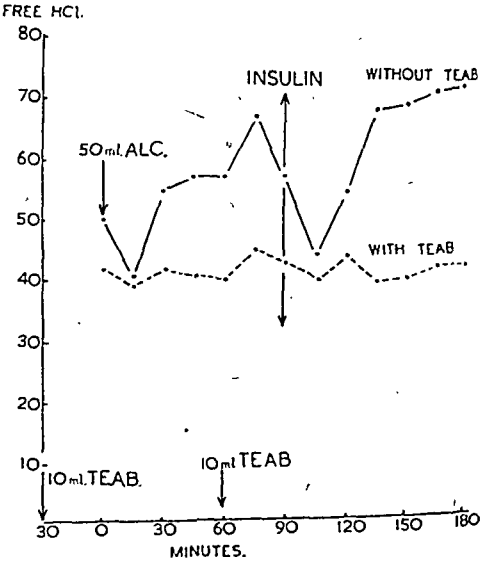


FIG. 2.—Effect of T.E.A.B. on gastric secretion after administration of insulin (10 cases, average values).

was given intramuscularly. A similar procedure was adopted in the same patients (on a subsequent occasion) after the administration of T.E.A.B. (The patients were all adults, eight males and two females, four of them suffering from duodenal ulcer.) The blood sugar in all cases fell below 55 mg. per 100 ml. The symptoms noted included weakness, hunger, and emptiness. The average of the 10 test meals is shown in Fig. 2. It will be seen that after T.E.A.B. the production of insulin hypoglycaemia failed to stimulate the secretion of gastric juice.

3. *Studies after Histamine Stimulation of Secretion.*—The response of the stomach to administration of histamine was studied by the method already described for insulin, an injection of 1 mg. of histamine being given at the end of 1½ hours in each case. In view of the effect of histamine on blood pressure no patient was used in this series whose blood pressure fell below 100 mm. Hg as a result of T.E.A.B. The average results of the 10 experiments (all adults — nine males, one female, including four cases of duodenal ulcer) are recorded over the entire three-hour period (*Fig.* 3). It will be seen that after T.E.A.B. the injection of histamine stimulated the secretion of gastric juice, but the response was not so great as in the control series.

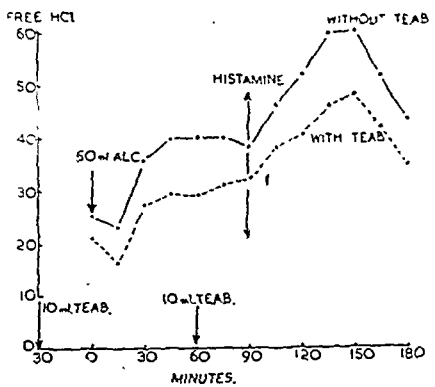


FIG. 3.—Effect of T.E.A.B. on gastric secretion after histamine stimulation (10 cases, average values).

4. *Studies on Spontaneous Night Secretion.*—Much attention has recently been devoted to the secretion of the stomach during interdigestive phases, and particularly at night. It is claimed that the nocturnal secretion is large in volume and highly acid, and that this unbuffered secretion expelled rapidly into the duodenum is of importance in the production of duodenal ulcer. Investigations of the action of T.E.A.B. upon the nocturnal secretion in 10 patients were made as follows.

The patients had nothing to eat or drink after 5 p.m. A duodenal tube with multiple perforations at its tip was passed at 8 p.m., the stomach emptied of its contents, and the secretion aspirated till 8 a.m. by means of constant suction set up by means of an electric pump. Narcotics were withheld. The following evening the experiment was repeated, giving 1 g. of T.E.A.B. four-hourly to a total of 3 g.

Night Secretion Tests (8 p.m.–8 a.m. Continuous Suction). Total Dosage = 3 g. of T.E.A.B.

Without T.E.A.B.			With T.E.A.B.			Average Reduction in Milli-equivalents/Hr.
Volume	Free HCl	Total Acid	Volume	Free HCl	Total Acid	
630	36	57	400	12·5	26·5	79%
105	12	22	55	0	6	100%
595	42	58	400	20	34	70%
750	56	66	305	33	46	76%
410	36	52	300	12	28	75%
640	9	19	274	9	30	60%
740	48	60	480	20	28	69%
1,170	28	34	372	15	33	84%
220	14	32	104	0	6	100%
692	13	22	165	4	24	91%

In 10 cases the volume of secretion was reduced, as was the acidity. The accompanying Table shows that T.E.A.B. brought about an average reduction of 309 ml. in the volume of the night secretion and a reduction of 80% in milli-equivalents per hour of the night secretion. All patients were cases of duodenal ulcer with severe symptoms. None complained of dyspepsia during the administration of T.E.A.B.

Effect of T.E.A.B. on Gastric Motor Functions

This was studied in five patients by means of gastrograms according to the technique described by Kay (1947). After a 12-hour fast the patients (all of whom were cases of duodenal ulcer proved later at operation) swallowed two Ryle tubes fastened together, one having an inflatable balloon attached at its tip.

The balloon was inflated to a standard pressure of 5–10 ml. of water and the column of air was connected to a tambour kymograph unit recording variations in intragastric pressure; the other Ryle tube may be used for aspiration of secretion or performance of the "water test" (Kay, 1947).

In normal individuals the gastrogram has four components (Johnson, 1948): (1) Postural tonus, characteristic of hollow viscera, fairly constant and independent of its degree of distension. (2) Tonus waves: these are regular gentle undulations of postural tone, which may be peristaltic in nature, with a frequency of three a minute. (3) True gastric contractions which are spastic contractions of the whole stomach, considerably increasing intragastric pressure. They are represented by sharp-topped waves lasting 30 seconds, and occur in normal individuals in bursts at intervals of 1½–2 hours with a frequency of 1–2 minutes. They are present in hunger pains and are greatly increased in amplitude and frequency in duodenal ulcer patients. (4) Cardio-respiratory effects: these are frequent small oscillations superimposed on the above intrinsic waves. They are due to respiratory movements of the diaphragm and cardiac pulsations; they occur with a frequency of 20 a minute. In five patients showing frequent true gastric contractions after a control period of 20 minutes, 1 g of T.E.A.B. was injected intramuscularly. After a latent period of 15–30 minutes tonus waves and true gastric contractions were abolished and postural tonus diminished: the effect persisted for 1–1½ hours, tonus waves returning before gastric contractions. There is a striking similarity between the gastrogram shown and that following vagotomy: in four of five patients this inhibition of vagal activity was found, the remaining case showing for 1½ hours diminished frequency, amplitude, and duration of contractions (Fig. 4).

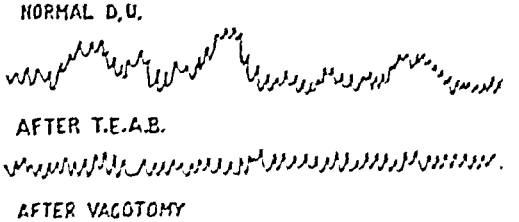


FIG. 4.—Gastrograms in normal duodenal ulcer, after injection of T.E.A.B., and after vagotomy.

Discussion

The administration of T.E.A.B. leads to a slight fall in gastric acidity as estimated by the alcohol test meal. After T.E.A.B. the induction of insulin hypoglycaemia fails to stimulate a rise in gastric acidity. This indicates the presence of vagal blockade and is in keeping with the known action of the drug. It can be assumed that such secretion as occurs after T.E.A.B. is due to the chemical mechanism of gastric secretion. It is interesting to note that after T.E.A.B. the injection of histamine does stimulate gastric secretion, albeit less than normally. This is interesting on account of the fact that histamine acts directly on the oxyntic cells, and so the reduction in acidity in this case cannot be due to an autonomic blockade. Hollander (1944) asserts that the oxyntic cells secrete acid of a constant strength; but if on histamine stimulation they secrete into a stomach which is comparatively amotile there will result a fair degree of buffering and dilution by alkaline and mucoid elements. This fall in acidity may therefore be attributed to retention, to which Johnson ascribes the same effect following vagotomy. He points out that in the amotile stomach there is difficulty in evacuating serial specimens completely, so that dilution of secretion occurs.

The reduction in night secretion is interesting. Because of the motility effect, it could be held that it was in part due to regurgitation of duodenal contents through a relaxed pylorus. A few experiments were abandoned because of bile-staining of the juices drained off; on the other hand, the 10 cases reported were free from bile in the suction specimen, and the volume in the 12-hour specimen after T.E.A.B. was less than that taken off the previous evening.

The average reduction in milli-equivalents per hour was 80%, comparing not unfavourably with 90% following anatomical section of the vagus.

The motility effect has been shown to be similar to that following vagotomy; but T.E.A.B., as well as inhibiting the parasympathetic supply of the stomach, might be expected to effect gastric function in some way by its action on the sympathetic. There are several records of the effect of splanchnic section on gastric secretion in man and animals. Brown (1933) could find no demonstrable change in free or combined acidity following complete removal of the sympathetic chain or coeliac ganglia in cats, and Ray (1942) investigated and found no change in gastric acidity after bilateral sympathectomy.

It has been claimed by Little *et al.* (1947) that T.E.A.B. is effective in preventing or modifying the course of peptic ulcer produced experimentally in animals. In view of its effects on the gastric secretion and motility, and particularly on the volume and acidity of the nocturnal juice, the hope was raised that it might be of value in the treatment of peptic ulcer in man. It is perhaps worthy of note that all 10 patients submitted to repeated injections of T.E.A.B. were free from pain during the progress of the experiment, whereas previously they had had incapacitating symptoms. T.E.A.B. has, however, certain practical disadvantages, especially in requiring to be given by injection and in giving rise to unpleasant subjective symptoms. It remains for future research to find a means of prolonging its action and minimizing its side-effects.

Summary

The chemistry and pharmacology of T.E.A.B. are described.

T.E.A.B. produced a slight fall in gastric acidity in the secretory response to an alcohol test meal.

It negatived the secretory response to hypoglycaemia.

It reduced the response to histamine.

It reduced the volume and acidity of the 12-hour spontaneous night secretion.

It produced a vagotomy-like effect on gastric motility.

Its effect on the cephalic and humoral phases of secretion is discussed after its use in 10 patients submitted to insulin and histamine stimulations respectively. The changes in the concentration of the night secretion in 10 ulcer patients and the effects on motility in five ulcer patients are discussed; a comparison is drawn with that following vagotomy. Its disadvantages are enumerated. Experimental use in peptic ulceration in animals is mentioned and suggestions are made for further use.

We are indebted to Professor C. F. W. Illingworth (under whose guidance this work was done) for help in the preparation of this paper. We wish to thank Mr. A. W. Kay for facilities in recording gastric motility.

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NITROGEN MUSTARD THERAPY

WITH SPECIAL REFERENCE TO HODGKIN'S DISEASE

BY

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Therapeutic trials with the nitrogen mustards in cases of neoplastic disease were started in the United States in 1942. Rhoads (1946) published the first analysis of results obtained, and many further reports have appeared since. Experiences in this country have been given by ApThomas and Cullumbine (1947), Wilkinson and Fletcher (1947), ApThomas (1948), Boyland *et al.* (1948), and Watson and Pemberton (1948). These reports make no claim that the treatment is any more than palliative. The best results have been obtained in cases of Hodgkin's disease, and moderate but variable remissions in other lymphomata and lymphosarcoma, chronic leukaemia, polycythaemia vera, and mycosis fungoides. In carcinomatous conditions the results have been disappointing except in bronchial growths, where in some cases transient benefit has followed treatment. In April, 1946, a trial supply of the "bis" compound was received. As it is now generally available, this interim report summarizing the benefits and dangers attending its use is being published.

Dosage and Method of Administration

The amount of the drug that can be given is limited by the action on the bone marrow, and the American workers recommended that in a standard course the total dose of the "bis" derivative hydrochloride should be 0.4 mg. per kg. of body weight. This was divided into four doses of 0.1 mg. per kg. given intravenously on consecutive days. The vein used for the injection often becomes thrombosed, and to reduce the demand for veins trials were made with fewer but larger injections. This also

had the advantage that the vomiting which followed most injections was repeated on fewer occasions and the course was completed more quickly. When a patient is being treated for the first time it is advisable to start with a small dose—0.1 mg. per kg. or even less in debilitated subjects—and if the response is satisfactory the course may be completed by two further injections of 0.15 mg. per kg. In subsequent courses two injections of 0.2 mg. per kg. are given, or, if it is decided to give maintenance injections at regular intervals, 0.2 mg. per kg. once only, every four to eight weeks. The maximum single dose given to any patient was 12.5 mg. It was found that the best time to give the injections was in the morning after a light breakfast. The question of the time interval that must be allowed before a course is repeated will be discussed later in relation to toxic effects on the bone marrow.

The white crystalline salt is dissolved in about 10 ml. of sterile saline immediately before injection. It must not be allowed to stand after being dissolved, as it undergoes hydrolysis and becomes inactive. All-glass eccentric-nozzle syringes have been used with a size 17 needle; the injection may be given as quickly as the size of the needle permits. It was found that when the injection was made direct into the vein thrombosis occurred in about half the cases. This may lead to considerable difficulty if repeated courses are needed, and it is also advisable to retain one large vein in case blood transfusion is required later. An alternative technique of administration is to inject the drug into the tubing of a running saline drip, by which the incidence of thrombosis is much reduced. When a patient receives the drug for the first time, direct injection may be used, but if widespread thrombosis follows and further courses are likely to be indicated it is wiser to change to the drip-tube method. Veins partly occluded by tumour masses should be avoided. If any of the solution escapes into the subcutaneous tissue, oedema, redness, and discomfort appear in about 24 hours and may last several weeks.

Results

In many of the published reports success has been claimed if any regression of the tumour masses occurred after treatment. The regression may, however, be so slight or so transient as to be of no practical value, and may be unaccompanied by any improvement in the general condition. Stricter criteria have therefore been adopted in assessing this series. The results have been described as conspicuous benefit, moderate benefit, or failure. Conspicuous benefit is considered to have been obtained if a previously incapacitated patient is able to leave hospital and return to and continue in his normal occupation for at least three months; moderate benefit—a remission of similar duration in which the patient is able to leave hospital and be about his home; and anything less than this—a failure. Thirty-eight patients have been treated and a total of 61 courses and a number of maintenance injections have been given. The cases treated and the results obtained are shown in Tables I and II.

TABLE I.—*Summary of Cases Treated and Results*

Nature of Case	Number of Cases	Result		
		Conspicuous Benefit	Moderate Benefit	Failure
Hodgkin's disease:				
Previously untreated	6	2	1	3
Previously treated by surgery	1	1	0	0
Previously treated by *x* rays	14	2	0	12
Malignant lymphoma	3	0	1	2
Acute lymphatic leukaemia	1	0	0	1
Chronic lymphatic leukaemia	1	0	0	1
Lymphatic leukaemia with lymphoblastic lymphoma	1	0	0	1
Multiple myeloma	1	0	0	1
Carcinoma of bronchus	5	0	0	5
Carcinoma of rectum	1	0	0	1
Mycosis fungoides	3	0	1	2
Lipomelanic reticulosis	1	0	0	1

TABLE II.—*Duration of Remission in Cases showing Benefit*

Case No.	Nature of Case	Course No.	Duration of Remission	Classification	Remarks
3	Hodgkin's disease	N.M.1	5 months	Conspicuous benefit	
		N.M.2	3 ,,		
5	Hodgkin's disease	N.M.1-2	12 ,,		On maintenance therapy for six months subsequently
		N.M.3	4 ,,	,, ,,	
		N.M.4	1+ ,,		
6	Hodgkin's disease. Surgical excision	N.M.1	21 ,,	,, ,,	
9	Hodgkin's disease. Previous *x* rays	N.M.1	6 ,,		
		N.M.2	3 ,,	,, ,,	
		N.M.3	3 ,,		
		N.M.4	Nil ,,		
19	Hodgkin's disease	N.M.1	4 months	Moderate benefit	
		N.M.2	1 month		
24	Hodgkin's disease. Previous *x* rays	N.M.1	3 months	Conspicuous benefit	Three subsequent maintenance injections. Total remission 7 months
25	Malignant lymphoma	N.M.1	5 ,,	Moderate benefit	
		N.M.2	1 month		
10	Mycosis fungoides	N.M.1	8 months	,, ,,	
		N.M.2-3	3 ,,		

N.M. = Nitrogen mustard—the "bis" compound

Cases of Hodgkin's Disease that had not received Previous X-Ray Therapy.—In a group of six cases there were two in which conspicuous benefit was obtained. Both had visceral deposits, and one of them (Case 3) had fever and anaemia and the other (Case 5) amyloidosis and hypoproteinaemia. Case 19, with lymphadenopathy, fever, and anaemia, had a remission after the first course of four months during which she was able to leave hospital and do some of her housework; a second course, however, produced less improvement and deep *x*-ray therapy was given. The three failures included one with anaemia, fever, and hepatosplenomegaly, which showed no response at all: one with axillary lymphadenopathy, which rapidly recurred: and one in which enlarged mediastinal glands showed slight regression only. The last two cases were examples of the commonest type of Hodgkin's disease, which presents with localized glandular masses, and on account of the poor results obtained here, and reported by others, no further cases of this type were given nitrogen mustard as the initial treatment. A further case (No. 6) had a large mass of glands excised from the side of the neck. Microscopical examination showed Hodgkin's disease, and a course of nitrogen mustard was given. The patient has remained well and been gaining weight since (21 months).

Cases of Hodgkin's Disease Treated Initially with X Rays.—The 14 patients who were treated initially with deep *x* rays and subsequently given nitrogen mustard fall broadly into two groups. The first (four cases, one conspicuous benefit (No. 24), three failures) had had repeated recurrences in one group of glands and the condition of the skin precluded further irradiation. The disease in patients of the second group had, after a slow or rapid evolution, apparently reached the terminal stage. In some, numerous deposits of Hodgkin's tissue were rapidly appearing in different sites; in others, despite such evidence of activity as fever or anaemia, there were no deposits suitable for local *x*-ray treatment. (Ten cases, one conspicuous benefit (No. 9), nine failures.) In two cases of the more acute type in which the remissions produced by irradiation were of brief duration, those following nitrogen mustard were equally disappointing.

Results in Other Conditions.—There were three cases of malignant lymphomata of other types: a reticulosarcoma which showed no response, a very primitive lymphoma in which dramatic but incomplete and transient regression occurred, and a slow-growing lymphoblastic lymphoma in which there was moderate benefit (Case 25). In the cases of carcinoma of the bronchus treatment failed to relieve either chest or nerve-root pains. The three cases of mycosis fungoides were all of long standing, and although an incomplete remission of reasonable duration was obtained in one the results were disappointing.

Complications and Side-effects of Nitrogen Mustard Therapy

The three most important of these are: changes in the blood, vomiting, and venous thrombosis at the site of injection. The last-named has already been discussed.

The white cell levels changed in nearly all cases. In the first few days a transient increase of neutrophils and reduction of lymphocytes was usually found; much more important, however, was the granulopenia which followed —maximal at the beginning of the second week and returning to normal levels about the fourth. Complete absence of polymorphs from the peripheral blood occurred in two patients. The first had an acute malignant lymphoma, which showed partial regression after a course of treatment. As a desperate remedy this was repeated after two weeks, but the patient died one week later and the agranulocytosis which had developed was probably a contributory factor. The second patient had Hodgkin's disease, and derived some benefit from a course of nitrogen mustard, which was repeated after two months. Typical agranulocytic angina followed, but intensive penicillin therapy controlled the infection and white cells reappeared in the peripheral blood. He was later given a blood transfusion and was able to leave hospital, but he died at home shortly afterwards. In neither of these patients was the haematological response to the first course suggestive of unusual sensitivity, and the pre-treatment levels of polymorphs and lymphocytes were within normal limits in the first case and in the second were 3,900 and 260 per c.mm. respectively.

The depression of the white cell count is the limiting factor when the repetition of courses after a short interval is being considered. In the case mentioned above a second course was given as a desperate remedy after two weeks; on five other occasions a second course was given after four weeks without untoward result. With further experience this procedure was rarely adopted. If the clinical response to the first course is transient or incomplete little benefit may be expected from re-treatment at so short an interval; and if the patient is still in remission it is better to await evidence of renewed activity before undertaking a further course or starting maintenance therapy.

The use of nitrogen mustard therapy in cases of Hodgkin's disease with severe leucopenia has been discussed by Rosenthal (1948), who recommended splenectomy prior to treatment. The following case is of interest in this respect.

Case 5.—Man aged 26. Onset in June, 1944, with fever and enlarged axillary glands. Biopsy in January, 1947, showed Hodgkin's disease with amyloidosis; there were hepatomegaly, ascites, and oedema of the legs; Congo-red test gave 100% absorption, and serum albumin was 2.1 g. %. Two courses of nitrogen mustard at a four-weeks interval (26 mg. and 32 mg.) gave a good remission of twelve months' duration. In March, 1948, a relapse was treated with a further course of 25 mg., again with good response. In July a further relapse occurred and the absolute polymorph count was 128 per c.mm. Sternal puncture showed that 73% of cells were of the granulocyte series, and therefore a further course of 25 mg. was given, which led to a steady rise in polymorph counts. He received four maintenance injections of 12.5 mg. each and remained at work until December, 1948. He died in January, 1949.

The red cells were not usually affected when early cases of Hodgkin's disease were treated, unless the patient was anaemic, in which case a spontaneous rise to normal levels accompanied a good clinical response (Case 3). In terminal cases this treatment may produce extreme depression of the haemoglobin level, although it is difficult to decide to what extent this is due to the treatment rather than to the evolution of the disease. In the following case treatment was followed by an immediate improvement, but in the second week the patient became very anaemic, presumably as a result of the action of the drug on the bone marrow. The patient was, however, kept alive by blood transfusion and subsequently had a satisfactory remission

Case 9.—Man aged 42. Onset August, 1944, with cervical lymphadenopathy; biopsy showed Hodgkin's disease, and a course of deep *x*-ray therapy was given. From April, 1946, to April, 1947, he had recurrent bouts of fever, for which he received further *x*-ray treatments and blood transfusions. He was then admitted to hospital, when examination showed him to be emaciated, febrile, and anaemic (Hb 60%), although there were no localized deposits of disease tissue. He was thought to be in the terminal stage of the disease. A course of nitrogen mustard (28 mg.) produced a dramatic fall of temperature and a great improvement in his condition and appetite. He left hospital a week later, but a fortnight after treatment he became very ill and had petechiae, and his haemoglobin was found to be 32%. A transfusion of 1 pint (570 ml.) of packed red cells was given and the level rose over a period of four months to 100%, and by then his general health was excellent. A further course of 25 mg. was given in November because his haemoglobin level had dropped to 86%; after the injections it fell to 60% but recovered spontaneously. Before this course his platelets were 300,000 per c.mm., but by the 15th day they had completely disappeared from the peripheral blood, and he had a few petechiae on his legs, although a capillary fragility test was negative. The pre-treatment level was not regained until eight weeks later. The remission after this course lasted until February, 1948, when a further 25 mg. was given. The haematological changes on this occasion were much less marked. He started getting severe pain in the neck in May, and local deep *x*-ray therapy brought considerable benefit. A further course was given in July; but this had no effect on the fever, which had recurred, and he died in September, 1948.

Platelet counts were not done in all cases, but in a few there was a pronounced fall during the third week after treatment, although purpura was seen in only one case (No. 9).

Nausea occurred in 80% of courses and vomiting in 70%. The latter started, often very suddenly, about three hours after the injection and lasted from two to six hours. It varied greatly in severity, and in three cases was so bad that the last injection of the course was omitted. It was worse after larger doses, but the increase was not marked. Pyridoxin and phenobarbitone were tried but had no significant influence. One patient in the terminal stages of Hodgkin's disease died 48 hours after an injection of 5 mg. She had rather severe vomiting, which probably hastened her death.

Discussion

There can be no doubt that malignant lymphomata, particularly the Hodgkin type, respond to nitrogen mustard therapy. This is shown clinically by regression of lymph nodes, spleen, and other deposits, remission of fever, and

improvement in strength, weight, and blood picture. It is nevertheless evident that this remedy is not curative, and to assess its value the length and completeness of the remissions which follow its use must be compared with those obtained by deep *x*-ray therapy—hitherto the only comparable form of treatment available. It is also necessary to take into account the particular difficulties of the therapy itself. In the case of the nitrogen mustards there are the dangers of the actions on the haematopoietic tissues and the discomforts of those on the gastro-intestinal tract. With deep *x*-ray therapy the duration of treatment is longer, the necessary apparatus must be available, and irradiation sickness and bone-marrow depression may occur.

The course of Hodgkin's disease is extremely variable. It may progress with all degrees of rapidity, and the prognosis cannot be correlated either with the histological appearances or with the clinical picture at any one time. Assessment of any therapy in this condition is therefore difficult, and can be attempted with confidence only on larger series of cases. It is possible to draw only the most tentative conclusions from a series as small as this.

In cases which present with localized glandular masses, nitrogen mustard therapy has not been found satisfactory, because the remissions are much shorter than those following irradiation.

In other cases, however, the disease is more generalized from the onset, with visceral involvement, fever, and anaemia. The *x*-ray bath technique is usually employed in these patients. The present series includes four cases of this type treated initially with nitrogen mustard; two responded well, one moderately, and in one the treatment failed completely. There were neither histological nor clinical features in the last case to explain the disappointing result. The first indication that the condition is responding is a dramatic fall of temperature after the first injection, and absence of such a fall is an ominous sign. The remissions obtained have been of reasonable duration and comparable to those following *x*-ray therapy. Visceral enlargement is a common feature of these cases, and irradiation is often followed by troublesome nausea and prolonged anorexia. With nitrogen mustard the treatment is completed in four days or less, and, although there is a temporary gastric upset, it soon passes and a good appetite develops if the condition is sensitive. It is in this type of case that further trials of nitrogen mustard therapy are particularly required before it can be decided which form of treatment is the more satisfactory.

In the late cases of Hodgkin's disease the problem is more difficult. In those in which there has been repeated recurrence of enlargement of the same group of glands the skin condition may prevent further irradiation and nitrogen mustard should be tried. In terminal cases a dramatic remission is occasionally obtained, and if the case is a chronic one it may be of reasonable duration. In the acute type, however, in which the condition has progressed rapidly, any remission is likely to be disappointingly short. The bone marrow is very susceptible in some of these cases and blood transfusion may be required. The decision to use nitrogen mustard in the terminal stage of the disease should be made only after careful consideration. The chance of an adequate remission is small, although an extra period of useful life may be gained in occasional cases. The patient is liable to have distressing vomiting, which may precipitate a fatal outcome, and severe leucopenia or anaemia is easily produced.

In the management of the typical case of Hodgkin's disease, presenting first with lymphadenopathy and after a slow evolution showing signs of generalization, both irradiation and nitrogen mustard may have their place. The glands should be treated initially with deep *x*-ray therapy, and after the first two or possibly three courses prolonged remissions may be expected. When the intervals get shorter or signs of generalization appear, the patient should be admitted to hospital and a full course of nitrogen mustard given. Complete blood and platelet counts are required at least once a week for four weeks to detect undue sensitivity of the bone marrow. If the response to this course is satisfactory, maintenance injections at four to eight weeks' interval may be used subsequently. These can be given to out-patients at the week-end without interfering with their work, but blood counts must be done before each one. If particularly troublesome local lesions appear at this stage, deep *x*-ray therapy should again be considered.

Summary

A preliminary report is made of the use of nitrogen mustard (the "bis" derivative) in a small series of cases over a period of three years. The dosage and administration of the drug are discussed. Serious haematological complications occurred in some cases, particularly those of advanced disease. Nausea and vomiting and venous thrombosis were troublesome side-effects.

Owing to the difficulty in assessing the degrees of response in such a variable condition as Hodgkin's disease the results have been classified as conspicuous benefit, moderate benefit, and failure. Benefit implies a three-months remission, with return to work in the first case and ability to return home and be about the house in the second.

Cases of Hodgkin's disease presenting with localized glandular masses respond better to radiotherapy than to nitrogen mustard.

Cases in which the disease from the beginning is widespread, involving the viscera, probably do better with nitrogen mustard than with irradiation.

Nitrogen mustard can be profitably used in some of the cases for which radiotherapy is no longer suitable. Surprisingly good results have been obtained at this stage in one or two patients whose disease had run a prolonged course.

I have to thank Professor H. P. Himsworth for guidance throughout this study, the staff of University College Hospital for allowing me to treat patients under their care, Dr. M. Maizels and his assistants for the extensive haematological investigations, and Mrs. E. L. G. Hilton, Director of the Radiotherapy Department at the hospital, who referred many of the patients for treatment and gave much useful advice. The original supply of nitrogen mustard was received through the Medical Research Council.

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As an introduction to the social welfare services in Britain the British Council arranged a two-weeks course in London during August for 17 holders of United Nations Social Affairs Fellowships from Argentine, Belgium, China, Egypt, India, and Sweden. The course included lectures by experts illustrated by visits in the London area. These enabled the students to see Queen Mary's Hospital, Roehampton, the Vauxhall Motor Works, Luton, and a housing estate at Bushey, Herts. At the end of the introductory course the fellowship holders followed individual programmes of study, planned by the British Council, on detailed aspects of social welfare such as the treatment and prevention of juvenile delinquency, the rehabilitation of the disabled, welfare among children and young people, and welfare in industry.

TREATMENT OF RINGWORM OF THE SCALP

BY

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The treatment of ringworm of the scalp by the application of preparations containing fungicides in various penetrating vehicles was the subject of an investigation by Brain *et al.* (1948). The best results were obtained with an ointment containing phenylmercuric nitrate 0.5% in a base consisting of "Crill No. 6," which is a non-ionizing surface-active compound, and "carbowax 1500" buffered to *p*H 4–5 by the addition of a solution of citric acid and sodium propionate. This investigation has now been extended to the use of salicylanilide in the same ointment base.

Salicylanilide is a white or pale-cream powder, very sparingly soluble in water, but soluble in alcohol and in the ointment base described above. Its use in the treatment of ringworm infections was first reported in America by Schwartz *et al.* (1946), who used an ointment containing salicylanilide 4.5%, hyamine 1%, and carbowax 1500 94.5%. Hyamine is a quaternary ammonium compound having surface-active properties, and was included to promote penetration of the fungicide into the hair follicle.

More recently the treatment of ringworm of the scalp with salicylanilide has been investigated in Scotland by Kinnear and Rogers (1948). These workers used an ointment containing salicylanilide 4.5%, cetrimide ("cetavlon") 1%, and carbowax 1500 94.5%. It is significant that they also used salicylanilide in a "eucerin" base, and found that it was no more effective than other ointments, whilst the conclusion was reached that salicylanilide in the carbowax base was the only preparation investigated which gave satisfactory results.

The following is the report on 27 cases of ringworm of the scalp treated with an ointment which has the following composition:

Salicylanilide	5 g.
Crill No. 6	10 ml.
Solution of citric acid 2% and sodium propionate 1%	2 ml.
Carbowax 1500	to 100 g.

Melt the carbowax 1500 over a water-bath, add the Crill No. 6, dissolve the salicylanilide in the mixture, add the solution of citric acid and sodium propionate, and allow to cool, stirring occasionally.

Instructions to Parents

The same technique of treatment was employed as in the previous cases. Parents were given written instructions and advised to follow them meticulously. The instructions were as follows:

1. Cut the hair of the entire scalp very short and keep it short throughout the treatment.
2. A linen cap should be worn day and night.
3. Wash the scalp every morning with soap and hot water and scrub the affected parts with a soft nailbrush.
4. Apply the ointment to the lesions with the help of a toothbrush and spread the rest of it into the entire scalp.
5. Report to the hospital should any undue irritation occur.

Remarks on Instructions.—(1) It has been found that whenever the mother failed to cut the hair of the entire scalp infected patches or individual hairs escaped the effect of the treatment. This made a prolongation of treatment necessary. (2) The linen cap prevented the spread of ringworm from infected pillows and hats, and protected the rest of the children in the family from contracting the disease. Several examinations of the inner side of headgears under Wood's light revealed the presence of fluorescing stumps. (3) We still think that mechanical friction is of considerable assistance in the elimination of infected hairs, the epilation being the preliminary step to any effective treatment of ringworm. Our further observations (see below) confirm that. (4) The toothbrush is an additional mechanical factor, and is also a good applicator. (5) Severe reactions such as kerion were not sought, and when these occurred parents were told to report as soon as possible in order to control the inflammation.

Parents were given enough ointment to last two to three weeks, and throughout the treatment the patients were seen only three or four times.

Clinical Picture

Every single case was diagnosed clinically, confirmed by Wood's light and microscopy, and the fungus in question identified by culturing. Both the course of the treatment and the follow-up were controlled with the help of a watchmaker's glass. In the experience of one of us (H. H.) it has proved indispensable in assessing the real progress of each case. It was interesting to watch the behaviour of the infected patches from the first day of the examination to the time of discharge of the case.

Under a watchmaker's glass by daylight an infected patch shows characteristic features which make a clinical diagnosis possible: the infected hair is broken, it has lost its elasticity, and it can be laid in different directions without returning to its previous position. It appears slightly darker, owing to the loss of the hair cuticle.

When looked at under Wood's light with the help of a watchmaker's glass the infected hairs appear brilliantly green, like the fluorescent dial of a wrist-watch, and the hair stumps lie loosely on the scalp but are still fixed in their follicles. When treatment has started, and the case is seen after a period of several weeks, a slightly different picture is presented. The hair stumps are polished off and the infected hairs appear now as brightly shining dots like stars on a dark background, and, when the case is responding, rarefaction of the patch is demonstrable. This rarefaction is due to the fact that a few hairs have already started to fall out, so that when the patch has become negative to Wood's light it does not mean that the affected hair has lost its fluorescence, but that epilation has occurred. As a matter of fact, a cured case shows the patch well polished and smooth, whereas a case which has not responded remains covered with hair stumps, and this fact can always be established by examining the patch with bare fingers. The lesions which have responded are smooth to the touch, whereas those that have not responded feel like a fine grater.

After a few weeks the empty follicles become filled with parakeratotic scales, and when such a patch is examined under Wood's light it seems as if the follicles contain white fluorescent hair stumps, indicating a relapse; but when removed with the help of forceps, placed on a slide with a drop of liquor potassae, and examined under the microscope it proves to consist of dried epidermis cells. Sometimes a few real white hair stumps were removed and proved to contain dry dead spores within them. They were of no significance.

Whenever pustulation or kerion formation occurred (which was accidental), both mechanical and ointment

treatments were stopped at once. A lotion containing acriflavine 1 in 1,000 with 10% tannic acid was applied until the lesions subsided. Crusting and scaling were treated with a sulphur-and-salicylic ointment. Individual infected hairs were dealt with by epilation with forceps.

The usual routine was to examine the patients every two, three, or four weeks. Once the case had become negative the mother was advised to continue with the treatment for another week, after which the treatment was stopped. A monthly follow-up for at least three months was necessary before the cases were discharged as cured, but we tried to extend surveillance as long as possible, and succeeded in a great number of cases in maintaining it up to five, six, or seven months.

Analysis of Cases

The accompanying Table gives a detailed account of the course of treatment of the 27 cases.

Cases of Microsporon felineum.—There were 20 cases in this group. Seven boys and 13 girls. The age ranged between 3 and 11 years. Fifteen cases were cured by salicylanilide alone. The time of treatment was between three and 14 weeks. Three cases, after having been treated with salicylanilide for ten weeks were given carbowax ointment containing phenylmercuric nitrate. They were cured in 7, 8, and 10 weeks. Two cases were epilated by *x* rays. Out of 20 cases, 15 responded and five failed.

Cases of M. audouini.—Six cases, all boys between 4 and 8 years; four were cured—two in six weeks, one in 12, and one in 16. Two cases failed, and were cured by *x*-ray epilation (75% cure, 25% failure).

Case of Trichophyton sulphureum.—A 6-year-old boy proved to be very resistant to local treatment, and after four months had to be referred to the radiotherapist for epilation.

Analysis of Cases

Case No.	Sex	Age	Mic.	W.L.	Cult.	Time Treated (Weeks)	Reaction	Cure	Follow-up (Weeks)	Cured by Other Methods
1	M	11	+	+	F	8	—	+	16	
2	M	10	+	+	F	5	—	+	20	
3	F	4	+	+	F	7	—	+	24	
4	M	10	+	+	F	3	Kerion	+	24	
5	F	3	+	+	F	6	—	+	24	
6	F	6	+	+	F	6	—	+	24	
7	F	7	+	+	F	4	—	+	16	
8	F	3	+	+	F	4	Slight folliculitis	+	16	
9	F	10	+	+	F	11	Pustulation	+	24	
10	F	3‡	+	+	F	5	Scurfy scalp; pustulation	+	24	
11	F	3	—	+	F	3	Small kerion	+	12	
12	F	5	+	+	F	14	Mild inflammation	+	28	
13	F	5	+	+	F	5	—	—	8	
14	M	7	+	+	F	5	Mild inflammation	+	16	
15	M	9	+	+	F	8	—	+	20	
16	F*	3‡	+	+	F	10	—	—		*X* rays
17	F*	5	+	+	F	10	—	—		"
18	F†	5	+	+	F	10	—	—		Carbo 7 weeks
19	M†	7	+	+	F	10	—	—		" 10 "
20	M	5	+	+	F	3	—	—		" 8 "
21	M	7	+	+	A	6	—	+	20	
22	M	4	+	+	A	6	—	+	16	
23	M	7	+	+	A	16	—	+	5	
24	M	8	+	+	A	12	—	+	12	
25	M‡	6	+	+	A	10	—	—		*X* rays
26	M‡	4	+	+	A	10	—	—		"
27	M	6	+	—	T.S.	16	—	—		"

* Sisters. † Brother and sister. ‡ Brothers.
A = *M. audouini*. F = *M. felineum*. T.S. = *Tr. sulphureum*.
Carbo = Carbowax ointment containing 0·5% phenylmercuric nitrate.

Comment

There was local reaction in seven cases, ranging from mild folliculitis and pustulation to true kerion formation. All occurred in *M. felineum* cases, none in the *M. audouini* cases.

Comparison of the results achieved with phenylmercuric nitrate with those achieved with salicylanilide reveals very little difference. It is not the fungicide which effects the cure but the penetrating power of the bases employed. The latter bring about a softening of the hair and a loosening of the connexion between the hair and the hair papilla which effect epilation. Any fungicide will cure when the hair is removed. *X*-ray epilation has to be followed by the application of a fungicide.

We would like to point out that in no case have we seen healthy hairs fall out; the removable hairs were always proved to be infected.

In our previous paper we expressed the opinion that variance of response to treatment might be due to the individual resistance of the fungus to the fungicide. This may indeed be the case, but we would like to add another factor which may be important in influencing response to local treatment: that it is probably the hair itself which resists penetration of the base. From the table it will be seen that three pairs of brothers and sisters failed to respond to local treatment. In our opinion this may have been due to an intrinsic quality in the hair of the same family which was resistant to local forms of therapy.

Summary

A report is given on the treatment of ringworm of the scalp by the application of 5% salicylanilide in carbowax 1500.

Chemical properties of salicylanilide and the literature on its use in the treatment of ringworm are reviewed.

Twenty-seven cases—20 of *M. felineum* infection, six due to *M. audouini*, and one due to *Tr. sulphureum*—were treated.

Cure was effected in 75% of the cases.

No significant differences were observed between the responses to treatment of the human and of the animal type of ringworm.

The results obtained with salicylanilide in carbowax 1500 are practically identical with those achieved with carbowax ointment containing 0.5% phenylmercuric nitrate, as employed in our previous series.

We wish to express our thanks to Imperial Chemical (Pharmaceuticals) Ltd. for the supply of salicylanilide used in these investigations, and to Mr. R. C. Syms, chief technician at St. John's Hospital, for his valuable assistance.

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A proposal concerning the formation of a Department of Public Health in the Ministry of the Interior in Western Germany with, ancillary to it, an advisory council and a medical research council to deal with the standardization of drugs, vaccines, and sera is receiving favourable consideration by the German authorities, according to the July report of the Control Commission for Germany (British Element). As a result of a meeting in Geneva on June 1, 1949, at which a British and a German representative from Nordrhein-Westfalen were present, the World Health Organization has set up an International anti-Venereal-Disease Commission of the Rhine. This commission, consisting of experts on venereal disease from France, Holland, Belgium, Switzerland, and Germany—from the countries bordering the Rhine—with representatives of the Occupation Authorities of the Western Zones, made a technical study tour of the main venereal-disease treatment centres in the Rhine River area. This was the first step towards the co-ordination of the anti-venereal-disease services in the five countries concerned.

ASPIRIN POISONING

BY

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Reports of cases of aspirin poisoning, with the exception of those of Balázs (1930, 1931), have in the main been concerned with isolated instances and have discussed the clinical features, the difficulties of diagnosis, the post-mortem appearances, or therapeutic measures (Dyke, 1935; Wyllie, 1935; Neale, 1936; Charters, 1944). Hopkins (1945) was able to collect only 22 cases from the English literature during the years 1919–45, when he reported a case with recovery after the ingestion of 1,250 gr. (81 g.).

In the present paper the clinical features of aspirin poisoning are described from experience of 48 cases of attempted suicide with aspirin seen in the past two years. Two were fatal. These patients were all seen in the psychiatric wards of a general hospital serving, for purposes of Section 20 of the Lunacy Act, an urban population of about a million inhabitants. All cases of attempted suicide in the area notified to the police or to relieving officers before the National Health Act and to duly authorized officers since are brought to these wards, and therefore an unusual opportunity exists for observing a high percentage of the cases of attempted suicide in a large population.

From the figures presented in Tables I and II it is apparent that there has been a relative and an absolute increase in the number of cases of aspirin poisoning with

TABLE I.—*Incidence of Aspirin Poisoning: Males*

	1940	1941	1942	1943	1944	1945	1946	1947	1948
Aspirin poisoning ..	2	1	0	6	3	5	4	2	9
Total attempted suicide	47	37	27	39	37	61	81	57	65
Total admissions ..	447	337	343	363	366	348	350	320	315

TABLE II.—*Incidence of Aspirin Poisoning: Females*

	1940	1941	1942	1943	1944	1945	1946	1947	1948
Aspirin poisoning ..	0	2	7	4	7	3	4	16	21
Total attempted suicide	35	33	31	43	35	45	53	67	95
Total admissions ..	427	375	350	339	375	357	401	438	450

suicidal intent in 1947 and 1948 in this area. During this period there were 48 cases of aspirin poisoning out of 284 cases of attempted suicide. The increase is mainly confined to females. Aspirin is the household remedy in most common use, and this ready availability is no doubt the most important factor in the increased incidence. Several other interesting points emerge from an examination of these tables. In males there was a higher attempted suicide rate over the period 1945 and onwards, whereas in females this increase did not occur until 1947. Before 1947 aspirin was used in about 10% of attempts at suicide in females, while over the past two years this figure has increased to between 20 and 25%. It has often been observed that attempts at suicide are relatively infrequent during the first quarter of the year. Table III illustrates not only this but also that, remarkably, no cases of aspirin poisoning occurred during this period of 1947 or 1948.

TABLE III.—*Quarterly Incidence of Attempted Suicide: Females*

	1947			1948		
	Total Patients	Attempted Suicide	Aspirin Suicides	Total Patients	Attempted Suicide	Aspirin Suicides
Jan.–March ..	110	9	0	104	17	0
April–June ..	112	18	6	130	40	12
July–Sept. ..	117	22	3	95	19	6
Oct.–Dec. ..	99	18	7	121	19	3
Totals ..	438	67	16	450	95	21

In the description that follows no special attempt is made to classify the cases according to the psychiatric manifestations. Hopkins (1937) described psychotic patients adopting self-mutilation, cut throat, hanging, immersion, and the caustic poisons for purposes of attempting suicide. The more bizarre the attempt the more questionable is the mental state. In my series of cases the psychic manifestations were in the main relatively mild.

No minimum fatal dose has been established, although most of the recorded deaths occurred within the range of 400–600 gr. (25.9–38.9 g.), but recovery has taken place after very much larger amounts. Hopkins (1945) reported 1,250 gr. (81 g.) (treated within three hours); Evans (1938) 1,500 gr. (97.2 g.) (treated within two hours); and in one of my cases 2,000 gr. (129.6 g.) (treated within five hours). In these three cases gastric lavage was performed early and powder was found in the stomach washings. In contrast to these cases, which recovered after early recognition and treatment, Biddle (1938) reported a fatal case with epileptic convulsions preceding death, which took place after 17 hours. The patient was a schizophrenic with delusions, and her story of having taken the aspirins was not believed.

Clinical Features

These are determined by two factors—excessive dosage and individual susceptibility. The earliest symptoms are mainly gastric and occur shortly after taking the drug. There is first a feeling of gastric discomfort, followed by pain in the epigastrium, nausea, and later vomiting. These symptoms are doubtless due to the direct irritant effect of the aspirin on the gastric mucosa (Douthwaite and Lintott, 1938). Aspirin is relatively insoluble, and large fragments will remain in contact with the gastric mucosa for a long time. The presence of an irritant in the stomach often leads to some degree of pylorospasm, which will delay the passage of the aspirin. This explains the finding of aspirin powder in the stomach after the normal emptying-time, and the value of gastric lavage up to many hours after the ingestion of the tablets.

Giddiness, tinnitus, and deafness occur later, and in the average case last for as long as 48–72 hours. The face often shows a blotchy erythema with some oedema, especially around the eyes. Profuse perspiration has been a constant finding. The patient is literally bathed in sweat until the toxaemia is overcome, and is very restless and resentful of interference. In Hopkins's (1945) case hallucinations occurred over a period of four days, but I have not met with this symptom. In more severe cases coma supervenes and the patient shows the features of shock, with subnormal temperature and low blood pressure. Renal symptoms have not played a prominent part in my cases, and I observed no abnormality apart from the presence of traces of albumin in the urine. Other authors have found greater evidence of renal damage. The speed with which treatment is usually possible may have some bearing on this finding. Haematemesis was not observed in my series. A pyrexia of up to 100 or 101° F. (37.8 or 38.3° C.) was often seen during the first 48 hours in severe cases.

Many of the clinical features are the result of acidosis with reduction of the alkali reserve. Respirations are deep

and rapid, but in spite of the apparent urgency of the respiratory embarrassment there seems to be little discomfort, and in no case has the patient complained of it. Severe or acute allergic reactions were not seen. The only findings suggestive of allergy were the slight oedema around the eyes and the blotchy erythema of the face. Dehydration, which develops if an adequate intake of fluids is not assured, is the result of the profuse perspiration and the rapid deep respirations.

Diagnosis and Prognosis

Diagnosis may be a difficult problem, especially where no history is available, and patients who have taken poison with suicidal intent may on occasion withhold this information even when conscious. One patient denied that she had taken any drug even after she had vomited material with the appearance of aspirin and giving the chemical reactions of acetylsalicylic acid. Aspirin poisoning should be considered when there is a blotchy erythema of the face with profuse perspiration and tachypnoea and tachycardia without distress, cyanosis of severe degree, and pathological signs in the heart or lungs.

Examination of the urine is a particularly valuable diagnostic measure. Aspirin is excreted in the urine as salicylic acid, which gives a purple colour with ferric chloride. To about 5 ml. of urine 10% ferric chloride is added drop by drop. A white precipitate of ferric phosphate is obtained and the urine then turns purple if salicylates are present. To distinguish this coloration from that produced by the presence of aceto-acetic acid, boil thoroughly 10 ml. of the urine, cool, and add ferric chloride. If the urine contains salicylates it will still give a purple colour; if it contains aceto-acetic acid there will be no colour change; and if it contains both substances the purple colour will be less intense than before (Harrison, 1947). Confirmatory tests are also described by that author.

In mild cases recovery is rapid, symptoms clearing in the first 48 hours. In the more severe cases coma may supervene and death may occur at any time during the first 72 hours. This is usually preceded by a rise in temperature; epileptic convulsions have been described, and stertorous or gasping respirations occur more regularly, with myoclonic twitching of the face and limbs. During 1947–8 there were two deaths out of the 48 patients seen. The first was the result of bronchopneumonia even though treatment was instituted early and the patient had been in good condition when first seen; in the second the patient was moribund on admission to hospital, having taken the aspirin almost three days previously.

During the period 1940–8 there were seven deaths associated with aspirin poisoning. Obvious pathological symptoms were present in two of these and the aspirin was only contributory. In the first there was a large cerebral haemorrhage, and in the second advanced generalized atherosclerosis with hypertrophy of the left ventricle and renal changes. Most of these seven patients had taken 500 gr. (32.4 g.) of aspirin, one dying after 400 gr. (25.9 g.) and another after 625 gr. (40.5 g.). In none of the seven cases had the patient been brought to hospital within the first twelve hours—i.e., during the period that gastric lavage would be of value. The majority were not seen until after the first 24 hours, and in two cases there was a lapse of at least 48 hours. The patients were either comatose on admission or rapidly became so after admission, and death occurred within five hours in three of the cases. The treatment in these cases included the use of stimulants (nikethamide, strychnine, etc.), drainage of C.S.F., intravenous fluids, and sodium bicarbonate. From the records available these measures do not seem to have greatly modified the clinical picture before death.

Briefly, the post-mortem findings have been those of an asphyxial death: cyanosis of the skin and viscera, petechial haemorrhages on serous surfaces, and congestion of the lungs. In one case bronchopneumonia developed on chronic bronchitis, and two others showed gross morbidity as indicated above.

Treatment

In general, early gastric lavage is the most important single therapeutic factor. All the measures advocated by Dyke (1935), Neale (1936), Oakley and Donnell (1942), and Charters (1944) have their place, depending on the clinical picture and the general condition of the patient. Although the degree of toxaemia inevitably depends on the amount of aspirin taken, subsequent clinical events bear a more direct relation to the speed with which treatment is instituted. If gastric lavage can be performed within the first few hours of taking the drug recovery can almost be assured. In the case described below 2,000 gr. of aspirin had been taken, yet the patient recovered, although she was dangerously ill for about 36 hours before improvement was apparent. In this connexion it is noted that all the deaths occurred in patients whose admission to hospital had been considerably delayed. Where this delay occurred treatment had no apparent effect on the patient's condition.

The bulk of the patients were brought to hospital within a few hours of taking the drug. Where the diagnosis was clear from the history—and a history was usually available—immediate gastric lavage was performed. A clinical impression is that washing the stomach with a weak solution of sodium bicarbonate is a better measure than using simple water. The stomach is washed until no trace of aspirin powder can be seen in the washings, and then, before the tube is withdrawn, one pint (570 ml.) of a solution containing 1% sodium bicarbonate is left in.

Later sodium bicarbonate is given in doses of 60 gr. (3.9 g.) at two-hourly intervals for a time and then four-hourly, depending on the clinical picture. If there is evidence of increasing acidosis two-hourly doses should be given, but as soon as acidosis is being overcome four-hourly doses are sufficient. In all but the deeply comatose—and this is a rare event if treatment is started early—the sodium bicarbonate can be given by mouth in water, soda-water, or milk. Fluids should be pushed to prevent dehydration. Shock is treated by the usual simple methods of warmth and intravenous fluids, the latter especially if there is any dehydration. Where there is evidence of vasomotor collapse with a pronounced fall in blood pressure "eucortone" or desoxycortone acetate is valuable.

The patient is made more comfortable with sponging, but care should be taken to prevent pulmonary infection, and penicillin should be given prophylactically until acidosis has been controlled. Where treatment as described above was adequately and speedily carried out, especially the gastric lavage, improvement was rapid, and within 48 hours the condition of the patient was good and such symptoms as tinnitus, deafness, tachypnoea, and excessive perspiration to all intents disappeared. It is doubtful whether intravenous sodium bicarbonate can influence severe and late cases. Lumbar puncture was used in such cases but only with other medication, and it is again doubtful whether the result was modified by this measure. A practical difficulty in carrying out lumbar puncture may be the

The other three patients could have been saved only by earlier transfusion or by surgery.

The age distribution, given in Table I, confirms the increasing incidence of this disease among older patients already shown in other recent series. This has an important bearing on the death rate. One would expect better results in a series with an unduly high proportion of young patients in it.

Thirty-three ulcer cases were treated surgically: 16 as soon as they could be prepared by transfusion, 13 because they had a second brisk haemorrhage, and four because prolonged medical treatment failed to control their haemorrhage. The ages of these four were 23, 24, 31, and 36. They were operated on because it was considered that nothing else would save them. The case history below is given as an example of unduly severe haemorrhages in a young man.

Case 15. Chronic Duodenal Ulcer.—This patient was an extremely fat man of 24 who had had attacks of dyspepsia at six-monthly intervals for five years. Just before his admission he vomited "two pints (1 litre) of blood." He looked very fit and his Hb was 80, but his pulse was 116. At the end of a 2-litre drip transfusion his pulse was 130 and he had vomited a great deal of blood and had had several melaena stools. Forty-eight hours after admission he had received by drip 6 litres of blood. His pulse was now 140. It was quite obvious that a vessel was bleeding faster than he could be transfused, and must be stopped. At operation I accidentally knocked the clot off the gastro-duodenal artery and started a haemorrhage which reminded me of a slipped renal pedicle. The torrent was soon stopped with two stitches, and a high gastrectomy was completed at leisure without his condition deteriorating further. The 3 litres of blood used in the theatre and afterwards brought the total to 9 litres.

TABLE II.—*Chronic Gastric Ulcers Treated Surgically*

Case No.	Age and Sex	Prev. Hist. (Yrs.)	Prev. X-ray Films	Prev. Haem.	Blood (litres)	Operation	Ulcer	Result
17	54 M	Many	—	—	1½	Same day	Multiple small	R.
18	47 M	1½	G.U.	—	2	" "	Small	"
19	64 M	29	G.U.	—	2	" "	Large, into pancreas	"
20	60 F	5	—	5 yrs	2	" "	Large	"
21	46 M	3	G.U.	—	2	Next morning	Large, into pancreas	"
4	47 M	5+	—	4 yrs	3	Same day	Large	Died
22	53 F	20	—	1 yr	4	Next day	"	R.
1	23 M	5 wks	—	—	7		Small	"
23	38 M	3	Neg.	2 yrs	3	Two days later	Large	"
24	46 M	2	Neg.	—	8	" "	"	"
3	55 M	Many	G.U.	—	6	" "	Large, into pancreas	"
2	36 F	Very slight	—	—	2	Bled for 5 days	Small	"
5	45 M	14	—	—	7		Large, into pancreas	Died
25	56 M	1	G.U.	6 mths	3	Same day	"	R.
33	62 M	Many	—	—	4	Next morning	Large	"
34	57 F	Many	—	—	3	For 2nd haemorrhage	"	"

R. = Recovered.

The Chronic Gastric Ulcer Group

Of the 39 cases in this group 23 were treated medically either because they were not considered fit for surgery or because the haemorrhage was not dangerously severe. Of these medical cases eight subsequently required gastrectomy. The 16 surgical cases were all treated by gastrectomy, the operation being technically easy in most of them and the ulcer usually easy to find. The bleeding vessel in all cases but two was a branch of the left gastric artery eroded in the subserous fat on the lesser curvature. The surgical deaths both occurred in this group. In neither case was death attributable to the fact that the operation had been performed in the presence of haemorrhage.

TABLE III.—*Chronic Duodenal Ulcers Treated Surgically*

Case No.	Age and Sex	Prev. Hist. (Yrs)	Prev. X-ray	Prev. Haem.	Blood (litres)	Operation	Comment	Ulcer	Result
26	54 M	5	D.U.	—	2½	Same day	—	Into pancreas	R.
27	31 M	5	—	—	5	After 3 weeks	Continued to bleed	"	"
15	24 M	5	—	—	9	After 3 days	"	„(G.D.A.)	"
28	53 M	4½	Neg.	—	7½	After a week	"	"	"
29	47 M	15 (Perf.)	—	—	3	Same day	Massive haem.	„(G.D.A.)	"
30	67 M	5	D.U.	—	6	" "	" "	"	"
31	42 M	1	—	—	3	After 3 days	Continued to bleed	Small	"
32	62 F	4 (Perf.)	—	—	2	Same day		"	"

G.D.A. = Gastro-duodenal artery. R. = Recovered.

The Chronic Duodenal Ulcer Group

There were 41 patients in this group and eight were treated surgically. They all recovered after partial gastrectomy. Three of them were desperately severe cases whose recovery under medical treatment would have been very unlikely.

Case 30.—This patient, a man aged 67, did not start to bleed until the day of his admission, and when he arrived he was so collapsed that it was doubtful whether he would survive long enough to be transfused. No pulse was palpable and no blood pressure could be recorded. Four hours later he was fit enough for the theatre. Operation revealed the gastro-duodenal artery lying exposed in a duodenal ulcer crater in the pancreas. It was underrun and a gastrectomy was performed. He was very ill for some days owing to leakage from his stump, but soon made a rapid recovery. He received 6 litres of blood, most of which was required to replace what he had lost during the short time he was bleeding.

TABLE IV.—*Acute Gastric Ulcers Treated Surgically*

Case No.	Age and Sex	Dyspepsia	Prev. Haem.	Blood (litres)	Operation	Comment	Result
9	40 F	None	2	3	Next day	Had bled previously	R.
10	59 F	Slight	—	2	After 4 days	Continued to bleed	"
7	52 F	"	—	1½	After 2 days	Chronic ulcer suspected	"
6	43 M	4 years	—	2	Same day	"	"
8	40 M	3 "	Many	1½	" "	Had bled previously	"

R. = Recovered.

The Acute Ulcer Group

This common lesion of the stomach or duodenum was the cause of approximately one-third of the haemorrhages admitted to hospital. The diagnosis is not always correct, being based largely on negative evidence and subsequently confirmed in most cases by a negative radiograph. It is a lesion probably rapid in its development and similarly rapid in its healing. The vessels by which it bleeds are the arteries of the submucosa. Most of these vessels are small, and the involvement of a large vessel is probably a chance affair determined by the accident of the site of the ulcer.

TABLE V.—*Operations for Haemorrhage Following Gastro-jejunostomy or Gastrectomy*

Case No.	Age and Sex	Date and Nature of Operation	Ulcer	Blood (litres)	Treatment (Same Day)	Result
13	49 M	1924, Gastro-jejunostomy	Small Chr. G.U.	1	Gastrectomy	R.
14	42 M	1946, Gastrectomy	Large Chr. G.J.U.	3	2nd Gastrectomy	"
12	66 M	1916, Gastro-jejunostomy	Large Chr. G.U.	½	Gastrectomy	"
11	63 M	1924, " "	Acute G.J. ulcers	2	G.J. undone	"

R. = Recovered.

As these ulcers respond so well to medical treatment, and as they would never require surgery if they did not bleed, operation should be undertaken only in order to save life or because a chronic ulcer is suspected. If they are operated upon, local excision would be the best procedure if one could be sure that there was only one ulcer and if it is likely to be technically easy. All the 48 patients in this group recovered. There were five surgical cases, four of them being treated by gastrectomy.

Gastro-jejunal Ulcers

The diagnosis of gastro-jejunal ulcer was made clinically in patients who had had a previous operation—either a short-circuit or a gastrectomy. This diagnosis was sometimes wrong, but it is used as a convenient one for this group, which presents a special problem for the surgeon, who has to weigh the fact that a chronic ulcer is almost certainly present and demanding surgery against the added difficulties and dangers of a complicated resection. Of the seven patients in this group three bled from the original gastric or duodenal ulcer for which the short-circuit had been performed and one from an acute jejunal ulcer. The recovery of the four surgical cases was largely due to early operation. They were all operated on very soon after admission.

Case 14.—This patient, a man aged 42, was known to have a large gastro-jejunal ulcer which had followed an inadequate gastrectomy for duodenal ulcer. He was extremely collapsed and actively bleeding when he was admitted. To make him fit for operation 2½ litres of blood were required. Exploration revealed an enormous gastro-jejunal ulcer which penetrated deeply into the pancreas. In the base of the ulcer was a large artery with a fresh thrombus in it. A further 2 in. (5 cm.) of stomach was resected, and a fresh anastomosis was formed. A year later he underwent his third gastrectomy (and vagotomy) for another ulcer, which this time eroded deeply into the liver.

Other Cases.—Two patients not included in the series were treated surgically. One had a large carcinoma and recovered well after a total gastrectomy. The other patient bled profusely a week after the suture of a perforated gastric ulcer. He died after a long, tedious resection.

Summary and Comment

For several years all patients suffering from haematemesis or melaena admitted to the Royal Berkshire Hospital have been treated in the surgical wards. In the last three years 135 patients with peptic ulcer haemorrhage have been so treated, with a mortality of 7.4%. Under the age of 40 there were no deaths, no women died, and no patient died from an acute ulcer. Thirty-three patients were treated by operation, with two deaths. Although some patients were treated medically and some by surgery the principle of treatment was the same in all cases, and no comparisons can or should be made between the medical and the surgical results. This principle was that each patient was considered as a potential surgical case and was operated upon as soon as his life appeared to be endangered by his complaint. If surgery is to be used in this way it is justifiable only if a low surgical mortality can be achieved. A low mortality is dependent on careful judgment in the selection of cases, adequate and efficient transfusion, and early operation.

It was in consultation with Dr. John Mills, director of the pathological department, that most of these patients were treated, and I would like to express my gratitude to him both for this help and for the efficient transfusion service that he maintains. I am also grateful to my colleagues, who allowed me to treat these patients in my wards.

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IONTOPHORESIS IN THE TREATMENT OF PERIPHERAL VASCULAR DISEASE

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Among the methods of treatment designed to overcome vasospasm or to produce vasodilatation in peripheral vascular disease the use of choline derivatives is suggested by the work of Dale and Gaddum (1930) and Dale, Feldberg, and Vogt (1936). Acetylcholine is unstable and rapidly hydrolysed in the tissues (Renshaw *et al.*, 1938). Its action on the autonomic nervous system is a double one, producing both muscarine- and nicotine-like effects. Some of its esters do not share these defects, and in this study we have been able, using the method of ion transfer, to compare the actions of the anions of two substances: acetyl-β-methylcholine ("mecholyl" and "amechol") and carbaminoylcholine ("carbachol," "doryl," and "moryl").

Pharmacology

The action of carbaminoylcholine, the official name of which is carbachol, resembles that of acetylcholine, but is more prolonged. The Simonarts (1934) showed that its nicotine-like action was stronger than in the case of acetylcholine. Fraser (1938) pointed out that its action on the cardiovascular system passes off in 30–40 minutes, though its effect on the gastro-intestinal tract and urinary bladder may persist for several hours.

Acetyl-β-methylcholine also has a relatively prolonged action, and Simonart (1932) showed that the methyl-group substitution deprived acetylcholine of its nicotine-like action. Its effects, in contrast to those of carbachol, are most pronounced on the cardiovascular system.

The method of ion transfer has been shown by Kovacs (1934), Saylor, Kovacs, *et al.* (1936), and Kramer (1937) to be superior in peripheral vascular disease to oral, subcutaneous, and intramuscular administration of compounds of this type. Montgomery, Holling, and Friedland (1938) determined by direct (plethysmographic) measurement the increased blood flow produced in the limbs of normal subjects by mecholyl iontophoresis, and their results fully confirmed the belief that this treatment effected dilatation of blood vessels specifically in the treated part. It is a further advantage that such unwanted general effects as micturition, defaecation, salivation, and bronchial spasm are much diminished when parasympathetic stimulants are given iontophoretically.

Method

The technique of Kovacs, Saylor, and Wright (1936) has been employed throughout. Reinforced asbestos paper is saturated with a 0.5% solution of the substance to be used and wrapped round the leg or thigh. A malleable metal plate, connected to a positive galvanic pole, is placed over this and held in position with a rubber bandage. A large flat electrode moistened with normal saline is placed under the back and connected to the negative pole. The electrodes should not be applied over any raw or inflamed areas or over recent scar tissue. The skin should always be protected by the asbestos paper from direct contact with the metal electrodes, so that burns may be avoided.

The current is turned on gradually at the beginning of each treatment and reduced slowly to zero at the end. A current of 5 mA passing for five minutes is used at the first session, these figures being gradually increased on subsequent occasions, but 30 minutes' treatment at 30 mA is not usually exceeded at any one time. The most useful warning of overdosage is the patient's reaction. Any more than a slight redness or sweating of the part treated is an indication for stopping treatment.

No rigid rules can be made for frequency of treatments, though thrice weekly was most usual in our cases. Duration of therapy is determined by the patient's response; but where treatment has been given over a period of three to four weeks without benefit the method is unlikely to be of value.

Severe general parasympathetic effects may conveniently be dealt with by an injection of 1/100 gr. (0.65 mg.) of atropine sulphate. Bronchial asthma, hyperthyroidism, and recent cardiac infarction are all contraindications to iontophoresis with these substances.

intervention was necessary. Satisfactory or partial improvement was seen in 56 cases (67%). A general survey of the table shows clearly that better results were obtained by the use of acetyl-β-methylcholine (Groups I and III) than with carbachol (Group II). The eight cases of senile gangrene were relatively resistant to iontophoresis with either compound, and similarly disappointing results were found in Raynaud's and Buerger's diseases and in acrocyanosis, but the number of cases was too small to allow any conclusions to be drawn. It is likely that some of these cases were more suitable for sympathectomy. We were unable to confirm the good results of Murphy (1937) in the treatment of thrombophlebitis by this means, and have latterly abandoned it.

The most satisfactory results were seen in 24 cases of intermittent claudication and 21 cases of diabetic gangrene. Improvement was observed in 19 cases of the former (79%) and in 16 cases of the latter (76%).

From our results we cannot infer, as did Kramer (1937), that iontophoresis with parasympathetic stimulants pro-

Condition	Group I (1938–41)				Group II (1941–6)				Group III (1946–8)				Totals
	No. of Cases	Improvement			No. of Cases	Improvement			No. of Cases	Improvement			
		Satisfactory	Partial	Nil		Satisfactory	Partial	Nil		Satisfactory	Partial	Nil	
Arteriosclerosis:													
Intermittent claudication	5	3	1	1	8	2	4	2	11	5	4	2	24
Senile gangrene	4	0	2	2	3	0	1	2	1	0	0	1	8
Gangrene in diabetes mellitus	10	6	4	0	3	1	1	1	8	2	2	4	21
Painful vasospasm ..	0	—	—	—	3	0	3	0	5	3	2	0	8
Raynaud's disease	1	0	1	0	2	0	0	2	1	0	1	0	4
Buerger's disease	1	0	0	1	1	0	0	1	0	—	—	—	2
Thrombophlebitis	6	2	1	3	7	1	2	4	0	—	—	—	13
Acrocyanosis	3	0	2	1	0	—	—	—	0	—	—	—	3
Totals	30	11	11	8	27	4	11	12	26	10	9	7	83

Results

Numerous workers, particularly in America, have obtained good results in peripheral vascular lesions. Kramer (1937), using mecholyl iontophoresis in 30 cases of various types, observed beneficial results in 22. Murphy (1937) treated 33 cases of thrombophlebitis by the same means, and found substantial improvement in 31. Ready healing of associated varicose ulcers was seen. Saylor, Kovacs, *et al.* (1936) obtained satisfactory results in 23 out of 26 patients with varicose ulcers.

The present series, comprising 83 unselected cases, covers the period from 1938 to 1948. The cases are divided into three almost equal groups by the exigencies of the recent war. Having used mecholyl from 1938, we were deprived of it in 1941 and used doryl, moryl, and carbachol as substitutes. It was not until 1946 that acetyl-β-methylcholine again became available as amechol.

The standard adjuvant treatment given to these patients consisted of rest, warmth, and antiseptic measures where necessary; in cases of diabetes mellitus the blood-sugar level was kept within reasonable limits. The patients were usually in bed, though the majority of cases of intermittent claudication were treated as out-patients. The results obtained are detailed in the accompanying table.

Discussion

The method of treatment described cannot be regarded as an isolated piece of therapy, nor is a cure claimed in any case. The pathological basis of most of these conditions is patently irreversible.

Improvement was judged to be satisfactory when either all symptoms disappeared or only minimal local surgical duces its best results in vasospastic cases. The great majority of our cases of intermittent claudication and diabetic gangrene showed mural calcification of the vessels radiologically, and we feel that this finding should not be regarded, as it often is, as a contraindication to the iontophoretic use of such compounds. It is our firm belief that this method is applicable, in the first instance, to all cases of peripheral vascular disease. Our aim has been, by perseverance with the treatment, to avoid the need for surgery or to reduce to a minimum such operative measures as may eventually prove necessary.

Summary

The treatment of 83 cases of peripheral vascular disease by iontophoresis is described. The greater value of acetyl-β-methylcholine for this purpose is shown.

This work could not have been undertaken without the unfailing help of Miss A. M. Clark and Miss A. Fazakerley, successive heads of the department of physiotherapy at the David Lewis Northern Hospital.

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Medical Memoranda

A Case of Cutaneous Horn of the Arm

Cutaneous horns of varying sizes are described in the literature. The largest that I have found recorded is the case of Dr. Herman Carache, mentioned in Sutton and Sutton's *Introduction to Dermatology*. This was a scalp horn 8 in. (20 cm.) long, complete, but with a small base. The interest of the following case lies in the large size of the horn, together with its history and the unusual site from which it grew.

CASE REPORT

The patient, a man aged 53, sustained burns of the whole extent of the dorsum of the left upper arm and parts of the leg and back by a German flame-thrower in the 1914–18 war. The greatest loss of tissue was from the arm area, which was skin-grafted (heterogeneous Thiersch) from a nursing sister's thigh. He was in hospital for 18 months.

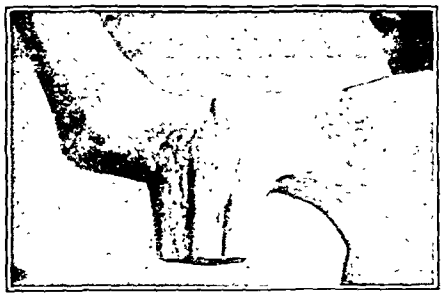


FIG. 1.—Showing extent and attachment of the horn.

The graft remained healed for twenty years, until 1938, when a minor injury to the arm broke the skin. This healed with simple treatment, but after a few months a tumour began to form at the site of this latter skin lesion. At first it was small—"the size of a hazel-nut"—but it steadily grew in base area and length. The direction of the growth was downwards in a curved manner. The tumour was painless, and when it became embarrassingly large the patient or his wife periodically cut off a piece with a hacksaw. Last year the medial side of the base became painful and forced the patient to seek medical advice.

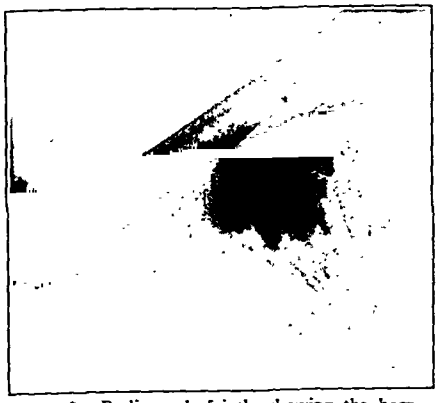


FIG. 2.—Radiograph faintly showing the horn.

On presenting himself at the out-patient department of this hospital the clinical findings were as follows: A large hard horny mass (Fig. 1) growing from a scarred area at the back of the left upper arm, tapering from an oval base; greasy surface longitudinally ridged; yellowish buff in colour; circumference of base 13 in. (32.5 cm.), length of horn 5½ in. (13.75 cm.), but it had been pared down. The cut surface had areas of dark discoloration and was similar in appearance to a sponge. The medial side of the junction of horn and skin was inflamed and tender and had signs of new extensions of the horn. The growth was movable over the deep structures of the arm. Skin-scarring extended in the posterior axillary fold and back of shoulder and elbow. Shoulder abduction was limited to 90 degrees; other movements were full. No axillary glands were felt. The patient brought with him a small bag containing the pieces he had sawn off. These numbered 17 and were of various sizes and similar in appearance and consistency to the main mass. A radiograph (Fig. 2) faintly showed the horn.

The growth was removed by Mr. N. Ross Smith and a skin flap was fashioned from the chest wall, which has healed well by first intention. At operation the base was found to be quite smooth and there was no infiltration.

The specimen has been accepted by the Museum of the Royal College of Surgeons, where the horn was patiently reconstructed from the main mass and the fragments (Fig. 3), showing what it might have looked like had it not been pared down by the patient.

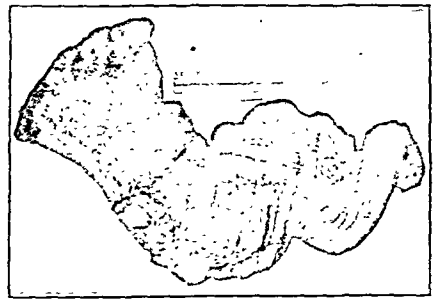


FIG. 3.—The reconstructed horn.

I am greatly indebted to Mr. N. Ross Smith, under whose care the patient was admitted, for help and advice and permission to publish this case. My thanks are due to Mr. L. S. Allison for the first photograph, to the Curator of the Royal College of Surgeons Museum for the photograph of the reconstructed horn, to Miss M. Gall for the radiograph, and also to the patient for his helpful co-operation.

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Calcified Cyst of the Spleen

In the *British Medical Journal* of December 25, 1948 (p. 1106), Donovan described a case of calcified cyst of the spleen and stressed the rarity of the condition. It therefore seems worth while to record the following case.

CASE REPORT

The patient was a man aged 62 with no significant past history. He stated that for the last 12–15 months he had had a feeling of lassitude and gradually deepening depression. This was the feature of his illness which most affected him. His appetite was very poor and he thought he had lost several stones in weight in the past few months.

On examination he was seen to be grossly anaemic (haemoglobin 5.8 g. per 100 ml., red cells 4,100,000). In the right iliac fossa and hypogastrium a rather vaguely outlined fixed mass was palpable. No glandular enlargement could be made out. On deep inspiration the tip of his spleen could just be felt. It was firm in consistency. Radiologically the result of a barium enema was rather indefinite, but suggested a

neoplasm of the caecum. Owing to his general condition surgical intervention was considered to be inadvisable for the time being, but before there was sufficient improvement to warrant it he collapsed suddenly and died.

At necropsy, on opening the abdominal cavity a great quantity of serous fluid was found. A large solid tumour involving the caecum and invading the surrounding structures was also seen. There was a small recent perforation through the growth, shut off by adhesions from the rest of the peritoneal cavity. The tumour was immobile and quite inoperable. Histological sections proved it to be an adenocarcinoma.

The spleen contained, at its lower pole, a single cyst 4 cm. in diameter, with a calcified wall so hard that it necessitated bisection with a saw. It contained a few millilitres of rather iridescent yellowish fluid and many cholesterol crystals. The lower quarter of the cyst wall did not appear to be covered by the splenic capsule, nor was it adherent to adjoining structures. Histological section of the wall showed it to consist of hyaline and acellular fibrous tissue in an advanced state of calcification. There were no apparent changes in the spleen either adjacent to or remote from the cyst.

Other features noted at the necropsy were a moderate degree of atheroma of the aorta, arteriosclerotic kidneys, a cirrhotic liver, and bilateral bronchopneumonia. There was oedema of the meninges and subcutaneous tissue. Both pleural cavities and the pericardial sac contained serous fluid.

COMMENT

As in the case described by Donovan, no history of trauma was obtained. The splenic artery was not involved. The condition of the spleen, although it was just palpable, was discovered only at necropsy and seemed to have no bearing on the patient's illness.

No scolices or hooklets were found in the cyst fluid, nor was there an eosinophilia in the blood. Serological and sensitivity tests for hydatid disease were not carried out, as the condition was not suspected before death. The finding of cholesterol crystals suggests that the cyst was in fact an old haematoma, although no haematoidin crystals or other blood elements were seen.

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Volvulus of the Entire Small Intestine

Torsion of the mesentery of the whole small intestine is uncommon. I have been able to find accounts of only 61 cases in the literature.

CASE HISTORY

A male Bedouin Arab aged 35 complained that 14 hours reviously he had suddenly been stricken with severe central abdominal colic which was followed by frequent vomiting at first of food and later of bile. The bowels had not been opened.

On examination he appeared dehydrated. Small quantities of bile-stained mucus were being vomited. The abdomen was distended and diffusely tender. Peristaltic sounds were absent. The hernial orifices were normal and rectal examination was negative.

I performed laparotomy at once (September 17, 1942) under open ether anaesthesia. Dark-red congested loops of small intestine appeared to fill the abdomen. The caecum was collapsed and much raised in position, but an empty loop of small intestine could not be found. The entire small intestine was therefore delivered without the incision. It could then be seen that there was a torsion of the whole mesentery, which arose from a deep trough of peritoneum, most striking in appearance. A deep vertical fold of peritoneum had been pulled up by the raised caecum from the right iliac vessels, while another deep ridge had been drawn down from the duodeno-jejunal flexure on the left side. The intestine was rotated counter-clockwise through three-quarters of a circle, thus restoring the normal axis of the mesentery, which was seen to be abnormally long. The gut was viable, so it was replaced and the abdomen was closed in layers. Saline was given subcutaneously and per rectum. Convalescence was uneventful.

DISCUSSION

The predisposing cause of volvulus is an abnormally long mesentery with a narrow base (Burgess, 1902; Dott, 1923). Volvulus is not rare in the newborn, especially in infants who already have a malrotation deformity of the intestine (Fletcher, 1922; Dott, 1927; Metzger, 1939; Voss, 1939; Thompson, 1940; Pouyanne, 1941). In adults, however, even if there is a congenitally long mesentery, some exceptional circumstance must initiate the twist. This is most often the ingestion of a large meal of coarse food on an empty stomach (Pupini, 1932; McKechnie and Priestley, 1936; Kerr and Kirkaldy-Willis, 1946). Shortly before the onset of symptoms my patient had consumed an enormous meal of mutton, rice, and unleavened bread after fasting from dawn till dusk, for he was a Moslem and the season was the feast of Ramadan. In Russia volvulus is commoner in times of famine (McClure, 1935). The activating mechanism may well be that a sudden body movement or strain causes a loaded loop of jejunum to descend by gravity, displacing lighter empty loops. This would accord with the fact that the direction of volvulus is clockwise in 75% of the recorded cases in which it is mentioned.

In diagnosis, repeated vomiting of small quantities of bile-stained material is stressed by Burgess (1902), Garrow (1917), Charsley and Richardson (1928), McClure (1935), Stalker (1939), Thompson (1940), and Barbosa (1944). Some of these authors state that faecal vomiting does not occur even late in this condition. In addition, the abdomen rapidly becomes silent to auscultation. The very quantity of distended congested small intestine is perplexing when the abdomen is opened at operation. Vaughan (1903) and Barbosa (1944) stress the difficulty of recognizing the condition at all, and point out that in at least four of the reported cases the surgeon was unable to discover the cause of the obstruction and closed the abdomen without remedying it. Diagnosis was made at necropsy.

Routier and Delbet (quoted by Vaughan, 1903) separately observed a peritoneal fold running upwards from the right iliac vessels similar to that which I have described. It therefore seems that without complete evisceration of the small bowel the diagnosis cannot be made or derotation be accomplished.

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Reviews

THE SURGICAL PATIENT

Care of the Surgical Patient. By Jacob Fine, M.D. (Pp. 544; illustrated. £2.) Philadelphia and London: W. B. Saunders Company. 1949.

This is not a textbook of surgery but a practical guide to the management of the surgical patient. It represents the practice of the Beth Israel Hospital in Boston. Associated with the editor are 22 of his colleagues, each of whom is responsible for a separate part.

The book is made up of six sections. Part 1, "General Considerations," includes such subjects as fluid balance, shock, and infections. Part 2, "Regional and Special Surgery," discusses abdominal, neurosurgical, orthopaedic, plastic, and dental surgery. Part 3 is on endocrine and hormone therapy. Part 4 on coincidental medical illnesses in surgical patients. Part 5 gives an account of clinical and laboratory methods, and Part 6 describes pre-operative and post-operative care. This last section contains articles on anaesthesia and the treatment of acute poisoning.

To the English reader certain terms require to be defined. What, for example, is a Zimmer collar (p. 79)? Or a Barton bandage (p. 106)? Or a Koenig-Rutzen bag (p. 155)? Illustrations would be helpful. Is it true to say that sooner or later the Brown-Séquard syndrome appears in cases of tumour of the spine or spinal cord? Except occasionally in the cervical region, this syndrome is rare in cases of cord tumour and is not often found on clinical examination. Frontal craniotomy is favoured for pituitary tumours; but the curious qualification is made that, "in case the field defect indicates congenitally short optic nerves, the transphenoidal approach is preferable" (p. 72). This requires explanation, as the transphenoidal approach has been so widely abandoned. Again, illustrations would be of value.

There are not many pictures in the text, and these have in many cases been borrowed from Hamilton Bailey, de Quervain, or others, and unfortunately lack text references. Objection is likely to be taken to the misleading association of Sir Gordon Gordon-Taylor's name with the statement (footnote, p. 116) that simple mastectomy combined with post-operative radiation gives the highest cure rate obtainable in cases of cancer of the breast. Most surgeons in this country still prefer to remove lymphatic nodes rather than irradiate them.

The field covered by this book is a large one; it is well ploughed in certain parts, but in others the surface is merely scratched. Its chief appeal will probably be to the students of the Beth Israel Hospital, whose teachers have provided them with a valuable guide-book and companion for their use in the surgical wards.

LAMBERT ROGERS.

NURSING IN NEUROSURGERY

Nursing Care of Neurosurgical Patients. By Roland M. Klemme, M.D., F.I.C.S., F.A.C.S. (Pp. 117; illustrated. 15s.) Springfield, Illinois: Charles C. Thomas. Oxford: Blackwell Scientific Publications. 1949.

The number of new specialties in surgery, with their increasing complications of technique, make it difficult to arrange adequate teaching of all branches within the limits of the medical student's curriculum. This is a serious problem with the student, but it is much worse with the trainee nurse. One solution is for her to acquire a good background of general principles and afterwards add the frills by a study of specialized monographs. For this purpose Dr. Klemme's small volume, based on his lecture notes, will be found very good indeed.

The book opens with a short but adequate account of the relevant anatomy, supplemented by diagrams from Gray and Kuntze. This is followed by a section on clinical signs and symptoms which is to be commended as simple, direct, and dogmatic. An article on the care of head cases is valuable for its excellent summaries of the nature and significance of various post-operative disturbances. The operations on the spinal cord and those performed for the neuralgias are well described in a similar manner.

Instruments and appliances are discussed at length in a separate chapter, with diagrams illustrating the best theatre layout. The details under this heading should be of great value to the nurse who is worried about preparation for a neurosurgical case.

Proof-reading has, as usual, failed to prevent an occasional misprint—there is a strange muscle, the "strapezius," on page 6—and here and there the book would gain by a translation from American into English. For instance, in a description of Parkinson's syndrome (p. 17) it is stated that "better than 85% are superimposed on encephalitis as a residual." After some cogitation the reader will no doubt decide that this means "more than 85% follow encephalitis."

While it is unlikely that other neurological surgeons will follow exactly all the technique described, the book is notable for its plain and explicit directions; the reader is never bemused by alternative methods or conflicting theories. This is a work which should be available for reference in any hospital which is out to do its best in the training of its nurses.

E. D. TELFORD.

AN AUSTRALIAN TEXTBOOK

Practical Obstetrics. By Bruce T. Mayes, M.V.O., F.R.C.S.Ed., F.R.A.C.S., F.R.C.O.G. (Pp. 306; illustrated. £2 5s.) Sydney: The Australian Publishing Co., Pty. London: George G. Harrap. 1949.

Professor Bruce T. Mayes's book is a series of clinical discussions on some of the important practical problems in obstetrics. The author had no intention of writing a complete textbook: his object was to explain and discuss the problems which are frequently encountered by Australian general practitioners. His topics have been wisely chosen, and he quite rightly emphasizes the striking work that was performed by N. M. Gregg in Australia on congenital cataract following German measles in the mother. Accounts of the diagnosis and management of pregnancy, toxaemia, eclampsia, and lower-segment caesarean section are well done, and the stress which has been placed upon the practical side is particularly praiseworthy. There is much evidence that Professor Mayes, as he acknowledges, has enjoyed writing the book, and it is certain that his work will be widely read and praised in Australia.

Great courage is required to write a book of this kind, for clinical opinions are open to criticism in detail, and this is particularly true of practical obstetrics. The Lövsett manœuvre is well described, though somewhat sketchily. Pudendal block should have been given greater prominence, particularly as the book is intended for general practitioners. Acute inversion of the uterus has been afforded a chapter, whereas more could have been written on the methods available for inducing premature labour. Drew Smythe's catheter—one of the most useful instruments in the practice of obstetrics—has not been mentioned.

Specialists should derive much pleasure from reading the book. The style is lively and many of the statements are provocative. There is much that can be criticized in detail, but the author holds one's attention from the first page to the last. The illustrations are of excellent quality, particularly the photographs of operations and demonstrations, and the line drawings merit special praise.

WILFRED SHAW.

PAEDIATRIC INVESTIGATIONS

Diagnostic Tests for Infants and Children. By H. Behrendt, M.D. (Pp. 529. £2 17s.) New York and London: Interscience Publishers Inc. 1949.

The procedures described in Dr. H. Behrendt's new volume are essentially tests for function. Convenient classification has been achieved according to the organ or system under investigation. Most sections begin with a brief description of the aim of the test succeeded by an account of the modifications caused by the age of the subject; then follow a note on procedure and an unusually large section on interpretation. Tests used at all ages are given little notice, and simple testing of the urine for

Whatever may be the explanations for the failures, it must be admitted that treatment is beset with difficulties which are enhanced by our ignorance of the normal function of the thymus. On thymectomy for tumours it is interesting that Blalock, with his limited experience, felt that the indications were definite and the results satisfactory, whereas Keynes with his far greater experience is convinced of the very much worse prognosis in these cases. In the non-tumour cases the gland appears normal on inspection, but there are histological changes. Bratton[7] has stressed a qualitative difference in the islands of parenchyma and the formation of "germ centres" in the medulla. These appearances have been noted also by Collins[8] and by Sloan[9]; similar features were present in Blalock's cases, but it is impossible to say whether they are a cause or an effect of the disease, though they are seen only occasionally in the thymus in non-myasthenic cases. Several series published in the past and culled partly from necropsy records have contained an undue proportion of tumours of the thymus: the present series shows the true incidence of tumours to be in the region of 11.5%. Bratton has emphasized that the incidence of myasthenia gravis in cases of thymic tumour is about twice the incidence of thymic tumours in cases of myasthenia.

In the future fruitful investigations may be undertaken jointly by the biochemist and the experimental physiologist. It has been shown that the serum from a patient with myasthenia gravis will interfere with the transmission of an impulse in the ordinary muscle-nerve preparation,[10] but the real cause of this effect is unknown. Biological and chemical assay of the excised glands may yield further information on this and other points. While the results of fundamental investigations are awaited it is desirable that the treatment of these cases should largely be undertaken by a highly skilled few. The technique of thymectomy has been ably demonstrated by Mr. Keynes in a film, and he is to be congratulated on his low mortality rate. To suggest that only continued observation of this steadily growing series will provide further and much-needed evidence of the true value of operation is not to detract from the brilliance of the work already done.

AIR HYGIENE

The contrast has often been pointed out between the sanitary qualities of water and air in modern civilized conditions. That a water supply should be free from infection is now taken for granted, but the more difficult problem of ensuring that the air we breathe shall be equally innocuous is not only unsolved but until recent times was almost untouched. It began to be taken seriously during the middle 'thirties, and became a subject of intensive research in this country in the early part of the war, when conditions in air-raid shelters and elsewhere seemed to favour the spread of air-borne epidemics. A team of workers directed successfully by the late Sir Patrick Laidlaw, Dr. C. H. Andrewes, and Dr. R. B. Bourdillon carried out a comprehensive study of the whole subject of air disinfection, the results of which have now been published as a Medical Research Council report entitled *Studies in Air Hygiene*.[1] This is a lengthy monograph of 356 pages, containing a large amount of highly technical information as well as descriptions of experiments and assessments of their significance which will command wide general interest.

The first essential in any such work is an accurate quantitative method of determining the bacterial content of air, and for this purpose the slit sampler invented by Bourdillon and his colleagues is evidently superior to any other device, even among those used in very extensive studies of this subject which have been proceeding at the same time in the U.S.A. This ingenious machine has been perfected and modified for different purposes, and over 40 pages of the report are given to descriptions of the apparatus and its use. Its principle is that air is sucked at a known velocity through a narrow slit immediately above a slowly revolving plate of culture medium: particles containing bacteria impinge on the surface of the medium and adhere to it. The resulting colonies can be counted, and, since the volume of air sampled per minute and the speed of rotation of the plate are predetermined, the number of bacteria-carrying particles per cubic foot of air can be calculated. The great advantage of this method is that it immediately shows the effect of any change in atmospheric conditions: an "event" such as the shaking of a blanket is reflected in a high concentration of colonies in the sector of the plate exposed at that time.

The slit sampler has been used not only in many laboratory experiments and in studies of air contamination in hospitals, but in other field trials here reported for the first time. These include investigations made in private houses, factories, and in a cruiser and a submarine at sea in time of war. The liability of naval crews to air-borne infection is notorious, and this last study shows exactly where and in what conditions the overcrowding in the crew's quarters leads to excessive air contamination, despite vigorous ventilation. Curiously enough, the bacterial content of air in the submarine was consistently fairly low; possibly this is due to adhesion of bacteria-carrying particles to oily surfaces as the air circulates through the engine-room. On the basis of such studies it is suggested that 50 colonies per cubic foot of air on blood agar at 37° C. should be regarded as a limit not to be exceeded, and that such

[1] *Spec. Rep. Ser. med. Res. Coun., Lond.*, No. 262. London: H.M.S.O

counts offer a better method than any other available of deciding whether the air of an occupied space conforms to a satisfactory hygienic standard.

The main object of most of the work described was to define efficient and practicable methods of disinfecting air which is inevitably contaminated. Tests of various methods are described in detail, followed by reasoned statements of their possible applicability in different conditions. Ultra-violet radiation has distinct spheres of usefulness, though owing to its incapacity to destroy bacteria in dust particles it may need to be combined with measures for dust suppression. Useful chemical reagents fall into four classes. Hypochlorous acid, liberated by spraying a sodium hypochlorite solution, is effective and can be disseminated by a hand-spray: its use in offices and other such buildings is considered worth while during an air-borne epidemic. Resorcinol and other related compounds are also effective and harmless, but act for only short periods. Triethylene glycol has been extensively studied in the U.S.A. and was not included in this investigation. The main contribution of the M.R.C. workers in this field has been to demonstrate the activity as air disinfectants of lactic acid and related compounds. Lactic acid itself, though harmless, is somewhat irritating, but α-hydroxy-α-methylbutyric acid is less so and has the advantage that it volatilizes adequately from an unheated surface of sufficient extent. If this substance becomes available in sufficient quantity practical trials of its use would seem to be well worth undertaking.

The keynote to the general conclusions of this report is that air disinfection is practicable only in special circumstances. There is no prospect whatever of the widespread adoption of any of these methods in public buildings and conveyances: such problems are almost insuperable, owing either to the great size of the task or to the variable conditions for which provision would have to be made. It is also emphasized that appliances used for this purpose are apt to be neglected: "people lose interest" in them, as is perhaps natural when the result of their use is at best only the negative condition of absence of infection. The nearest approach to large-scale air disinfection advocated here is the spraying of sodium hypochlorite in offices and workrooms during an epidemic, as already mentioned. It is, of course, recognized that much can be done in such places by good ventilation and lighting and by measures to suppress dust. Otherwise the indications for chemical or other special treatment of air are more or less restricted to the hospital and the laboratory, where known dangers have to be countered in a space of manageable size and in circumstances permitting full control. There is a great deal to be gained by applying these principles and methods to the control of hospital cross-infection alone, and the medical historian of the future is likely to rank the British contribution to progress in this subject as one of our main medical achievements during the war period.

NITROGEN MUSTARDS

Although the pharmacology, biochemistry, and chemistry of the nitrogen mustards were first investigated in England[1-4] reports of their use in the treatment of blood diseases came first from America[5-7] and later from this country.[8] Two aliphatic compounds of this series, HN2 or methyl-*bis* (β chloroethyl) amine hydrochloride and HN3 or *tris* (β chloroethyl) amine hydrochloride, have been used extensively in the palliative treatment of Hodgkin's disease and allied conditions. In this issue of the *Journal* Dr. J. D. N. Nabarro reports on the use of the *bis* derivative in a small number of patients over a period of three years. He found that when the glandular masses were localized radiotherapy gave better results than nitrogen mustard. On the other hand, cases in which the disease is widespread from the beginning respond better to nitrogen mustard than to radiation. Occasionally in the terminal stages of the disease a dramatic remission may occur after the administration of nitrogen mustard. Recently an aromatic nitrogen mustard, *bis* (β chloroethyl) β naphthylamine, has also been tested in the treatment of Hodgkin's disease and other conditions.[9] This last compound has some advantages over the aliphatic chloroethylamines, since it is much less toxic, can be administered orally, and does not cause the nausea and vomiting which almost invariably accompany treatment with HN2 or HN3.

The value of these substances in the treatment of cancer is still difficult to assess, but they appear to have a definite place in the palliative treatment of lymphadenopathies. In other forms of malignant disease their action is much less certain: the results obtained in most cases of cancer arising other than in lymphoid tissue and the lungs have not been encouraging. Symptomatic improvement has followed the administration of HN2 in a proportion of cases of carcinoma of the lung. Rhoads[10] was probably the first to describe a case of this kind; he studied the effects of nitrogen mustard on various types of neoplastic tissue and observed a remarkable temporary remission in a patient with anaplastic carcinoma of the lung. Out of forty-one patients with lung carcinoma treated with HN2 at the Royal Cancer Hospital[11] by Boyland and his colleagues about one half obtained symptomatic relief and showed objective signs of improvement. In these the pain, cough, dyspnoea, and general malaise were relieved, and decreases in caval obstruction, in the amount of sputum and pleural exudate,

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[7] Spurr, C. L., Jacobson, L. O., Smith, T. R., and Barron, E. S. G., *ibid.*, p. 306.
[8] [illegible] and Cullumbine, H., *Lancet*, 1947, 1, 899.
[9] [illegible] Empire Cancer Campaign, 1948, p. 59.
[10] [illegible] 1, 656.
[illegible] W. H., Craver, L. F., and Burchenal, J. H., *Cancer*, 1948, 1, 616.
[11] *Brit. J. Cancer*, 1949, 3, 118.

and in the size of metastases were observed. Some patients increased in weight during treatment, and in others there was radiological evidence of improvement, with some remission of physical signs in the chest. The remissions which occurred were only temporary, lasting from two weeks to three months. Although no serious adverse reactions were noted the authors considered that nitrogen mustard does not greatly advance the treatment of carcinoma of the lung. It may prolong life in some cases, though this is difficult to assess, and it sometimes relieves distressing symptoms and thus may make the patient's remaining days more tolerable. Very similar results have been obtained by Brown and Davis in Glasgow[12] and by American workers[13]; the latter consider that nitrogen mustard may be more effective and less hazardous than radiotherapy in cases with rapidly growing anaplastic lung cancer.

That the chloroethylamines have a demonstrable clinical effect on bronchogenic carcinoma in man has been established, but it has not been possible so far to show that they have a corresponding effect on other types of carcinoma. This probably indicates some specificity of action on certain tissues. It must be remembered, however, that patients are acutely conscious of symptoms arising from disease of the lungs and of variations in their severity. In bronchogenic carcinoma a slight diminution in the size of a tumour or in the amount of tissue reaction around it may be sufficient to afford notable relief from the distressing symptoms. This apparent specificity of the nitrogen mustards is analogous to that of oestrogens in cancer of the prostate and breast and of urethane in leukaemia. These two substances are also carcinogenic: oestrogens induce mammary cancer and urethane induces cancer of the lung in mice. Boyland and Horning[14] have recently shown that the aliphatic nitrogen mustards can induce carcinoma of the lung, sarcomas, and lymphosarcomas in mice. The aromatic nitrogen mustards have induced cancer in rats. Thus the nitrogen mustards resemble the oestrogens and urethane in that they themselves are carcinogenic. Though the effects obtained with these agents are comparable, the mechanism of their action is unknown. Better understanding of this may lead to the discovery of drugs of greater practical importance than the nitrogen mustards.

SEX DIFFERENCES IN MORTALITY

A difference between the death rates of males and females has been a feature of the vital statistics of England and Wales since registration was introduced in 1836. The advantage possessed by the females over the males for all ages combined has not always appeared in the various age groups. One hundred years ago the females had a higher death rate than males at ages 10–20 and 25–45. The rate of decline in the death rates in the last decades of the nineteenth century varied in different age groups, but generally the fall was greater among females than among males. The only exceptions were at ages 5–9 and 10–14, and at the beginning of the present century the females had a higher death rate at these ages than the males. It was commonly thought that working conditions were partly responsible for the higher death rate among men during adult life. In the past 50 years, however, conditions of work have improved considerably; shorter hours are worked, and the gross industrial toxic risks have been eliminated. As a consequence of the improved standard of living the male death rate has fallen rapidly, but curiously enough the female death rate has fallen even more rapidly. At the present time the death rate of women is lower than that of men in each age group, though of course the fatality rate of some diseases is higher among women than among men. Perhaps the best-known exception to the general trend is the higher death rate from whooping-cough among female than among male children.

It has been suggested that the different social habits of males and females may in part explain the difference in the mortality rates, and this is possibly true for those diseases in which alcohol worsens the prognosis. One of the many interesting permanent features of the vital statistics of England and Wales is that the ratio of the death rate in rural areas to that of the general population is proportionately lower for males than for females. Most of the explanations put forward to explain this and other differences are too speculative to be satisfactory.

The latest inquiry into this problem is that of Johnstone and Hosker,[1] who took the Registrar-General's supplement on occupational mortality[2] as their main source of information and compared the experience of males, single women, and married women. With the exception of appendicitis every disease which causes a higher mortality among men than among women also causes a higher mortality among single women than among married women. In married women the death rates from cancer of the uterus and, after the age of 45, from diabetes are higher than in single women, but married women have a lower mortality from bronchitis, pneumonia, tuberculosis, peptic ulcer, cancer of the breast, and pernicious anaemia. They also commit suicide less often than single women. Differences between the death rates of men and women similar to those in England and Wales occur in other countries: for instance adult females have a higher mortality from diabetes than adult males in the U.S.A., Canada, and New Zealand; and in girls under 15 years of age in these countries the death rate from whooping-cough is higher than in boys. Johnstone and Hosker conclude that occupational differences must be one of the important reasons for the dissimilarity of male and female death rates.

TOXIC FACTOR IN BLEACHED FLOUR

Not quite three years ago Sir Edward Mellanby's first report[1] on the experimental production of canine hysteria was published in the *Journal*. Hysteria was produced in dogs and subsequently in ferrets[2] by feeding them with flour treated with agene (nitrogen trichloride), the flour improver and bleacher which has been in common use in this country and in the U.S.A. for the past twenty-five years. Later work on agene-treated flour fully confirmed

1 *Brit. J. soc. Med.*, 1948, 2, 106.
2 The Registrar-General's Decennial Supplement, England and Wales, 1931. Part IIa. *Occupational Mortality*, 1938. London: H.M.S.O.

1 *British Medical Journal*, 1946, 2, 885.
2 Ibid., 1947, 2, 288.
3 Ibid., 1948, 1, 350.
4 Ibid., 1948, 1, 843.
5 Bentley, McDermott, Pace, Whitehead, and Morán, *Nature*, 1949, 163, 675
6 Butler and Mills. *Nature*, 1949, 163, 835.
7 Bentley, McDermott, Pace, Whitehead, and Moran, *Nature*, 1949, 164, 438

Mellanby's conclusions and was discussed at the time in these columns.[3] These confirmatory studies led the Food and Drug Administration of the United States Government to prohibit the use of agene, a prohibition which came into force as recently as August 1.

It was subsequently pointed out by British and American workers that the toxic agent was formed from the protein of the wheat and particularly from the gliadin fraction.[4] Since Mellanby's first observations on the subject there has been increasing interest in the identity of the toxic substance responsible. A great deal of work has been carried out by Moran and his co-workers[5] at the Cereals Research Station of the Research Association of British Flour Millers and also by other workers.[6] This has now been rewarded by the isolation at St. Albans of a crystalline substance which either is or contains the toxic factor.[7] The crystals are of needle-like appearance, melt sharply with decomposition at a temperature of 232° C. (uncorrected), and their biological activity is unaffected by further recrystallization. As in previous work, the maize protein, zein, has been used as the starting-point. In the normal way it would be said that this crystalline isolate was a pure substance, and that it only remained to establish its composition and chemical identity. But the indications are that it will prove to be a peptide; and with peptides, as with proteins, there has been a recent reminder that apparently "pure" and homogeneous crystals may turn out to be mixtures of different substances. None the less, this is an important advance, and the further progress of this work will be awaited with interest.

POLIOMYELITIS VIRUSES

The Fourth International Neurological Congress which has just ended its meetings in Paris was remarkable for a number of important and interesting communications. The discussion on virus infections of the central nervous system was of topical interest. The production of allergic encephalomyelitis and the relation of this condition to post-vaccinial encephalitis and to paralytic rabies on the one hand and on the other hand to disseminated sclerosis were the subject of a number of papers. The epidemiology of insect-born encephalitides was reviewed and a number of cases of recurrent benign meningitis were described; whether this condition is due to a virus or to allergy is still undecided. New strains of rabies virus with reduced neuronotropy have been investigated and may be of value for rabies immunization.

Perhaps the most important discussion, however, was on poliomyelitis. It was suggested that in backward countries the acquirement of virucidal bodies to the Lansing strain of poliomyelitis without overt signs of infection may result from prolonged breast-feeding whereby immune bodies are passively transferred from mother to child; the young child thus passively immunized acquires an active infection as a result of the prevalent defective sanitary conditions. The new phenomenon of virus exaltation in relation to poliomyelitis viruses was also described: doubtless more will be heard of this condition, which is the reverse of virus interference.

Few of the neurologists attending the Congress had yet realized that what is now described as poliomyelitis is a symptom complex produced by at least three distinct groups of viruses. The term poliomyelitis in fact must now be used only in a general sense, much in the same way that typhus is used to describe broadly a number of distinct infections due to different species of rickettsiae. Historic or classical poliomyelitis includes the group of viruses isolated from human faeces, nasal washings, or spinal cords. It is not a uniform group, but consists of at least four varieties which are antigenically distinct. The first of these is the Lansing type, which has been transmitted from man to monkeys and thence to cotton rats and mice. Six of these rodent-adapted strains are known, and have been isolated from patients in the Middle East and America, while virucidal bodies to these viruses have been found in Europe, America, Asia, and Africa. Three other antigenically distinct strains of true poliomyelitis virus are recognized, and there may be others, since not all material from patients dying with poliomyelitis yields positive results on inoculation into monkeys.

The second group of viruses all showing antigenic similarities and capable of producing paralysis in man comprises the Mengo encephalitis virus from Uganda, the EMC (encephalomyocarditis) virus isolated from a monkey in California, and the MM and Columbia SK viruses, which were probably derived from rodents. One of this Columbia SK group of viruses may have been responsible for an outbreak of poliomyelitis in American troops in the South West Pacific area. This group of viruses is transmissible to man, monkeys, and rodents such as mice and hamsters. These viruses can be inoculated by a variety of routes, including intramuscular injection, and they are pantropic, producing lesions in organs other than the central nervous system. Immune bodies to this virus are widely distributed.

The third group of viruses isolated in America is transmissible only to suckling mice or hamsters; distinct antigenic varieties occur, and there is now evidence that these viruses exist in Western Europe. It must be emphasized that these three groups of poliomyelitis viruses are quite distinct from the mouse encephalomyelitis viruses, often incorrectly termed "mouse poliomyelitis," which are transmissible only to mice and hamsters. Such viruses have been isolated from mice in America and in Britain. The virus infection of pigs which attacks the anterior horn cells of the cord is also distinct from human strains.

It is thus obvious that certain views on poliomyelitis will have to be revised. Some work is already in progress here on the newer aspects of poliomyelitis, but, as it now appears probable that recurrent epidemics will visit this country at frequent intervals, it is essential that a comprehensive attack should be made on these problems.

TONOSCILLOGRAPHY IN PERIPHERAL VASCULAR DISEASE

Nomenclature is an ever-increasing burden to the medical profession, and to many the term tonoscillography may seem just one more weighty straw. In this word the prefix "ton" (from τόνος, meaning tension) indicates that the height of the blood pressure is obtained simultaneously with the size of the arterial pulsations from the written record of an oscillogram. Ejrup,[1] of Stockholm, has broken entirely new ground by applying the results of

tonoscillography after exercise to problems connected with the diagnosis, prognosis, and treatment of vascular disorders of the extremities. If his findings are confirmed and his technique found not too time-consuming for general application in less expert hands than his own the early diagnosis of these conditions and the assessment of their severity should become much easier.

The idea of simultaneous automatic recording of blood pressure and arterial pulsation is not new,[2-5] but Ejrup's apparatus is both original and simple. It consists of two cuff-pressure systems actuated independently by automatic valves which inflate or deflate the cuffs at accurately controlled pressures and time intervals. The cuff applied to the proximal part of the limb to be studied—the pressure cuff—is connected to a manometer which by means of a lever inscribes a record on a continuous recording strip. The lower or pulse cuff is lightly distended at a fixed pressure, and small volume variations of arterial pulsations are recorded electrically with a movable pen attached to the same lever as the pressure cuff while the latter is steadily inflated. Diastolic pressure is recorded at the point where the form of the pulsations suddenly alters, and the point where all pulsation ceases indicates the systolic pressure. Automatic recordings are taken in this manner every 20 seconds—venous congestion being avoided by complete emptying of the cuffs in the intervals. Strict precautions are of course necessary in order to obtain comparable records. Although systolic end-points are clear, diastolic pressure is by no means always obvious in the published records.

By employing Nylin's[6] standard exercise step-tests Ejrup found that a raised blood pressure and increase in pulse amplitude in the legs invariably occurred immediately after exercise in healthy subjects. Records after exercise were remarkably constant in the same individual on different occasions, in contrast to resting records, which showed considerable variations. In patients with organic arterial obstruction, on the other hand, whether due to Buerger's disease, arteriosclerosis, or embolism, a characteristic inverse response was obtained: there was a decrease or even absence of all pulsations after exercise and a lowering of the pressure at which pulsations disappeared—i.e., an apparent lowering of the systolic pressure. In 10 cases in which the site of obstruction was determined by arteriography the level on the leg at which the inverse reaction appeared could be predicted with precision by the tonoscillograph. All but two of the 54 cases of intermittent claudication showed an inverse response, and patients with unilateral symptoms always gave a bilateral inverse response, more pronounced in the painful leg. A similar inverse reaction was also found to occur in aortic coarctation, in which, as is well known, arterial pulsation in the legs is diminished. Some of the 17 patients in this series complained of claudication, but a typical inverse response after exercise was found in every case. Treatment by the Crafoord resection operation resulted in the disappearance of the inverse reaction, and normal responses were obtained.

Ejrup's method of study of obstructive arterial disease of the extremities gives objective information which cannot be obtained by the more usual and comparatively cruder methods of oscillography. The new technique appears to make possible the accurate and early diagnosis of obstructive arterial lesions in the limbs and precise location of the site of the obstruction. It can provide confirmatory evidence of coarctation of the aorta, and it may perhaps prove valuable in determining the presence of other causes of obstruction to aortic flow, or of lesser degrees of narrowing of the aortic isthmus, in the cases in which other investigations give equivocal results and in which the femoral pulse is easily felt. The latter type of abnormality is probably more often missed than detected, particularly when associated with patency of the ductus arteriosus.[7] Ejrup claims that his method of tonoscillography is of value in differentiating functional disorders of the limbs from those due to obstructive arterial lesions, and that it can also be used to measure the extent of remission or progression of disease following treatment (of which many forms have been advocated) for arterial disorders of the extremities. Confirmation of his findings will be awaited with interest.

FUNCTIONAL VENTRICULAR FIBRILLATION

Arrhythmias originating in the ventricle, apart from isolated or short sequences of extrasystoles, are usually an expression of serious ischaemic heart disease, and are much more rarely encountered with an apparently normal heart than the corresponding disorders in the auricle. Ventricular fibrillation is, indeed, most often a terminal event, or, if survived, is an indication that the patient has not long to live. An unusual, perhaps unique, case has recently been reported by Moe,[1] who was able to record attacks of ventricular fibrillation in a man of 38 in whom no evidence whatever of organic heart disease could be discovered. After a period during which he noted palpitation the patient had a number of syncopal attacks, and a cardiogram obtained during one of these showed ventricular fibrillation lasting for 18 seconds, the patient being unconscious, the pulse impalpable, and respiration stopped. Before the fibrillation solitary extrasystoles and groups of extrasystoles were recorded, and after it a bradycardia, probably due to A-V nodal rhythm. A record on the following day showed normal rhythm with flat T waves, but on the second day these had become normal. Ten syncopal attacks were observed in one day, the number probably being augmented by treatment with injections of adrenaline; this was given on the supposition that the attacks were due to heart block. After appropriate treatment with quinidine the attacks soon ceased and have not recurred, except on one occasion when the quinidine was temporarily discontinued. Short runs of ventricular extrasystoles are the only arrhythmia which has since been recorded, and the patient remains well taking 0.1 g. of quinidine daily. Clinical and *x*-ray examination has failed to reveal any sign of organic heart disease. If Moe's interpretation of this case is correct, the possibility of functional ventricular fibrillation appears to be established.

[1] *Acta med. scand.*, 1948, 130, 416.

[1] *Amer. Heart J.*, 1948, 35, 41.
[2] Bergman, A., *C. R. Soc. Biol., Paris*, 1922, 87, 1046.
[3] Fidblom, E., *Acta med. scand.*, 1936, 88, 45.
[4] Stockvis, von B., *Cardiologia, Basel*, 1940, 4, 75.
[5] Weiss, H., *J. Lab. clin. Med.*, 1941, 26, 1351.
[6] Nylin, G., *Z. klin. Med.*, 1931, 118, 584.
[7] Gilchrist, A. R., *Brit. Heart J.*, 1945, 7, 1.

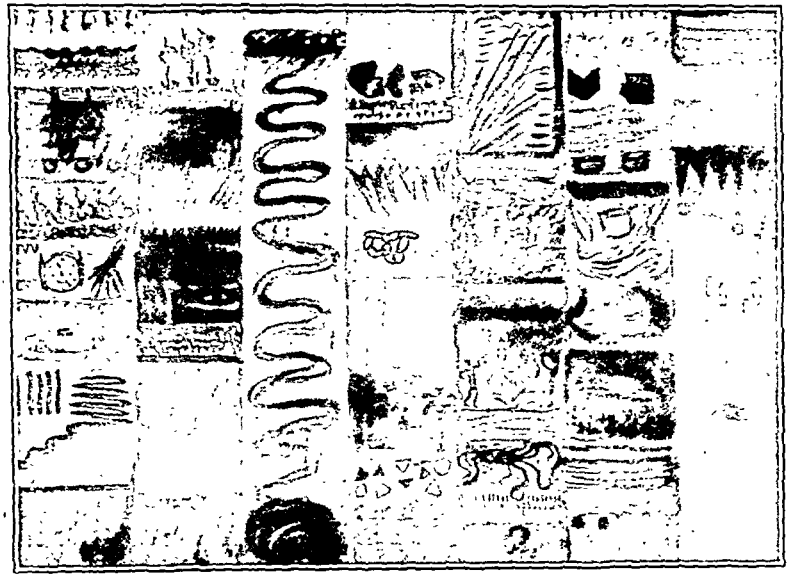


FIG. 1.—A Week.

THE PATIENT WITH THE PAINT-BRUSH

EXHIBITION OF PAINTING

An exhibition of paintings by patients from the Mental Treatment Centre, Hill End Hospital, St. Albans, was opened by Mr. Victor Pasmore at Trefoile House on September 7. The exhibition contains over 50 pictures that have been painted since the previous display 18 months ago. Most of these are the efforts of people who have painted only during a few months' stay in hospital and have never used a paint-brush before.

The paintings differ widely in character. Some are frankly objective, others are more obviously a means of emotional release. Yet each represents a form of personal creativeness and is stamped with the individuality of the painter. The artist's work is something into which his personality enters and through which his imagination finds release, which establishes painting as a useful adjunct to standard psychotherapy.

The exhibition shows also the latent powers of artistic expression possessed by those who make no pretence to special talent. Mr. Pasmore emphasized that these paintings had been executed for enjoyment and not for the purpose of analysis, and he observed that the gallery strongly resembled an exhibition of children's art. This, he said, indicated the fallacy of the opinion that fresh artistic creation was impossible after early youth.

The pictures reproduced here represent three of the different styles seen at the exhibition. "A Week" is a patient's impression in paint of seven days in his life while in hospital. "The Ravine" and "Autumn Tapestry" are imaginative studies in contrasting design.

Mr. N. C. Colquhoun and Dr. W. J. T. Kimber, medical director of the hospital, were in charge of the painting class. The exhibition is open between 9 a.m. and 6 p.m. and will continue until October 1.

Photographs of the paintings by *Sport and General*.



FIG. 2.—Autumn Tapestry.

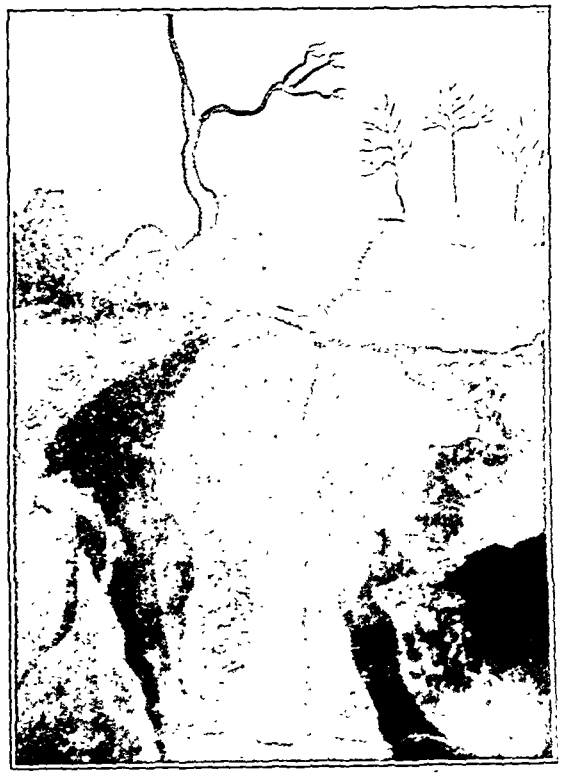


FIG. 3.—The Ravine.

BRITISH ASSOCIATION

MEETING AT NEWCASTLE-UPON-TYNE

The 112th annual meeting of the British Association was held at Newcastle-upon-Tyne from August 31 to September 7, and was the fourth largest meeting in the association's history.

The presidential address on world population and world food supplies, given by Sir John Russell, formerly director of the Rothamsted Experimental Station, was commented on in a leading article in the last issue of the *Journal* (p. 585). Sir John Russell concluded that "the increased food production that may be confidently expected is more than ample for population increases at Western rates," but that "it could easily be outstripped locally where Eastern rates of increase prevail."

Sir John referred also to the induction of lactation in cows by diethylstilboestrol as the first stage in making the male redundant, and discussed the possibilities suggested in livestock breeding by the combination of artificial insemination and transplantation of ova. Edwards has estimated that by suitable dilutions the number of inseminations from one bull could rise to 10,000 or even 15,000 per annum. J. Hammond, jun., and Bhattacharya at Cambridge have shown that a cow injected with pregnant mare serum will produce a number of ova per oestrum instead of one, and attempts are now being made to transplant these into other cows, one into each, fertilize them by artificial insemination, and so get a dozen or so offspring from the chosen mother. One cow so treated might produce 75,000 ova in her lifetime, and scrub cows, otherwise of little use, might be employed as her incubators.

The Cell

The presidential address in the section of physiology was given by Professor R. A. Peters (Oxford). He discussed the cell from the point of view of the biochemist, beginning with a reminder that the development of British anti-lewisite, now available as an antidote to certain antimony and mercury compounds, as well as arsenicals, had originated in the application of a rational biochemical approach to the problem of arsenical poisoning. Like iodoacetic acid—which occupies an important position in the historical development of biochemistry—the arsenicals act by blocking a particular stage in the chain of enzyme-activated conversions which leads from glycogen to lactic acid. Such a block should lead to the accumulation of the last preceding substance. This has not been demonstrated *in vivo* in iodoacetic acid poisoning. But in the case of arsenical poisoning the accumulation of pyruvic acid has been shown *in vivo* as well as *in vitro*, thus providing a bridge between the laboratory schemes worked out by biochemists and what takes place in the human body. The participation of thiamin in the co-enzyme needed in the same stage of the glycogen–lactic acid sequence has also been demonstrated. A further such "bridge" is in the accumulation of citrate *in vivo* in fluoroacetic acid poisoning, as required in the current cyclic scheme of changes postulated to explain the oxidation of the "two-carbon" fragments formed in the metabolism of carbohydrate and fat. Such bridges are important because of—to quote Sherrington—the "mush of unrecognizably disintegrated cells" from which biochemists start their preparations; but Professor Peters added: "The onus is no longer on us if this biochemistry is not taken seriously."

Proceeding to the properties of the cell as a whole, Professor Peters recalled, first, that chemical reactions which required different conditions must be capable of proceeding simultaneously (the "microkitchen" argument); secondly, that the heart cell could respond as a whole to an amount of acetylcholine which would cover only one-six-thousandth part of its surface; and, thirdly, that the substance of the cell could be thought of as a jelly, which in essence was a fluid. He could not picture the reaction of the cell as a whole to a single local stimulus on the basis of "bags" of enzymes floating in a protoplasm which was itself without structure, and such reactions did not become intelligible until he took the view that the cell was organized as a whole. The benzene ring reacted as a whole, and its organization as a whole enabled properties to be interpreted which would be otherwise unintelligible; and so he believed it would be with the living cell.

Finally, he referred to the individuality of the cell as suggested by the failure of skin grafts, even from near relatives. Such failures, he suggested, appear to be explicable only by taking the view that there is some protein constituent in the skin graft which is different for every individual. The identification of genes with enzymes he thought uncertain; and as regards cell division and growth, it seemed a better approach to tackle first the non-dividing cell.

In the discussion, to which Professor Peters's address served as the introduction, Dr. R. Barer (Oxford) described the advantages of new methods of microscopy in relation to cell structure. The phase-contrast microscope enabled the intact living cell to be studied under improved conditions, and the reflecting microscope allowed absorption measurements to be made in the ultra-violet and infra-red regions with no change of focus. He demonstrated electron-micrographs obtained by Draper and Hodge,[1] showing the localization of minerals in skeletal muscle. The essential features were the combination of long filaments running lengthwise, with extremely fine transverse striations and wider transverse bands. Professor A. C. Frazer (Birmingham) referred to possible molecular arrangements of lipoproteins which could be concerned in cell structure, and Dr. E. N. Willmer (Cambridge) spoke on "the cell from the aspect of tissue culture."

Microbial Digestion

A discussion on microbial digestion in the alimentary tract was held jointly by the sections of physiology and agriculture. It was introduced by Dr. D. P. Cuthbertson, director of the Rowett Research Institute, Aberdeen. He said that, since *all mammals so far examined had a microbial population* in the large intestine, this form of digestion must be general and normal. In carnivores, such as the wolf, fermentation on any large scale did not take place, but in most other mammals the caecum and colon had the size and the environment suitable for bacterial growth. Only substances produced outside the living microbial cell, or made soluble by autolysis of the dead cell in the large intestine, were made available to the host. In the ruminant the rumen and reticulum, the first two of the four compartments of the stomach, formed a large fermentation vat where coarse fodder material, indigestible to the non-ruminant, could be rendered available to the organism and new compounds of importance to the animal could be synthesized.

Dr. S. K. Kon (Reading) discussed the microbial synthesis of vitamins of the B complex and of vitamin K. This had been shown to take place in the intestinal tract of most avian and mammalian species, but in ruminants occurred also in the rumen, so that conditions for utilization were specially favourable. Studies with animals having permanent fistulas into the rumen showed that the rumen contents were substantially richer on a dry-weight basis than was the original diet. This applied to almost all the vitamins of the B complex which had been measured. The young ruminant, however, was without this active microbial flora during the first few weeks of life, and was as dependent on an external supply of vitamins as the dog or the rat.

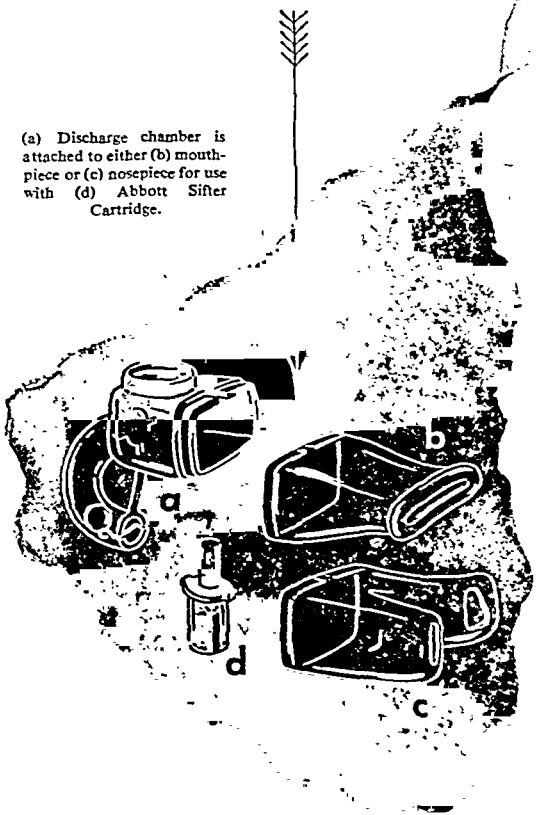
American investigators had compared the input and output of different vitamins in healthy adults receiving diets deficient in one or more of these factors. The average faecal excretion of all the vitamins studied was as high on the restricted as on the normal diet, so that there must have been appreciable synthesis; but average urinary output was lower, thus illustrating the point that the value to the host of such synthesis was limited by intestinal absorption. On the other hand, an interesting condition, that of refection, could arise when certain non-ruminants received a diet rich in raw starch. In this condition animals normally dependent on a supply of vitamins in the food could dispense with it entirely. The occurrence of refection in the rat was dependent on the presence of raw starch and of starch-splitting organisms in the caecum. The animal became a vicarious ruminant, the caecum combining some of the functions of the rumen and the true stomach.

[1] *Nature*, 1949, **163**, 576.

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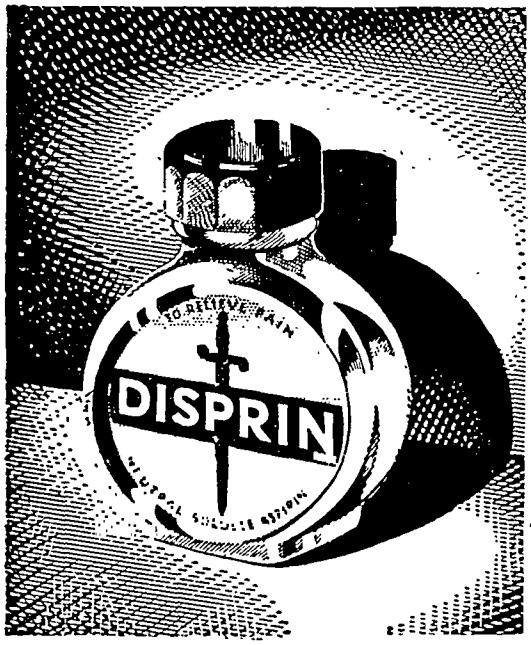
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* The Inhalation of Penicillin Dust, *J. Amer. med. Ass.*, 138: 344, October 2.

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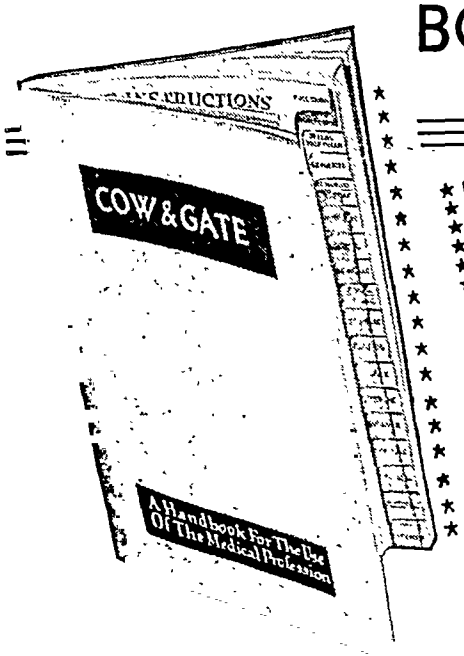
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Dr. J. Tosic (Rowett Institute) mentioned the ability of micro-organisms found in the rumen to assimilate cobalt and other trace elements from their external environment, and discussed the connexion of this with possible mechanisms of cobalt and other trace element deficiencies in the ruminant.

Pernicious Anaemia

Discussion of microbial digestion led into a further discussion on folic acid, vitamin B_{12}, and anaemia. Vitamin B_{12} is the first pure substance of biological origin in which cobalt is contained.

Dr. E. Lester Smith (London) stated that knowledge of the absorption by ruminants of vitamin B_{12}, probably made by bacteria, had come to light through work on the need of chicks and other animals for a factor present in animal but not in vegetable proteins. It was then found that this factor could be synthesized by certain bacteria, and about the same time it became clear that it was none other than vitamin B_{12}. One organism that made useful amounts was *Streptomyces griseus*, already in commercial use for streptomycin production, and crystalline vitamine B_{12} has already been isolated from this source.

Dr. C. C. Ungley (Newcastle) distinguished between the megaloblastic anaemias according to the presence or absence of gastric atrophy. In Addisonian pernicious anaemia the effects of vitamin B_{12}, given by various routes and with and without gastric juices, suggested that it permitted the detoxication of the haemolytic factor. Vitamin B_{12} was also as effective as liver extract in the treatment of the neurological changes. Pteroylglutamic acid (folic acid), on the other hand, was only temporarily or partially effective. But in the second group, without gastric atrophy, pteroylglutamic acid was effective in small doses, and vitamin B_{12} even in large doses was either ineffective or only partially effective.

Planes of Nutrition

Planes of nutrition in livestock were discussed in the section of agriculture in relation to shortages of feeding-stuffs and the economic return, measured by the conversion of one foodstuff into another. Mr. R. W. Pomeroy (Cambridge) spoke of sheep and pigs. In sheep, a low plane of nutrition during early pregnancy had no effect on the size of the foetus, but a high plane during late pregnancy made it more likely that the lamb could be sold as a "fat lamb" direct from the ewe. Such a combination therefore gave the greatest return from available extra feeding-stuffs. In pigs, with more numerous progeny, the problem arose of the feeding of the young pigs as well as of the sow. Young pigs benefited most from a high plane of nutrition up to 100 lb. (45 kg.) live weight; less from a high plane of nutrition thereafter. The most efficient conversion of foodstuffs was through a high plane of nutrition followed by a low, and the difference compared with the reverse procedure was as much as 70%. Sows usually proceeded without intermission from lactation to pregnancy, and a high plane of nutrition was needed for recovery from lactation. With less certainty, it was argued that a high plane of nutrition during late pregnancy was undesirable, on the grounds that excessive lactation was promoted and also a clumsiness of movement which could be dangerous to the young pigs.

Dr. S. Bartlett spoke of dairy cattle. He suggested that cows, cowmen, and examination candidates were all of the opinion that there was only one way of feeding dairy cattle, and that was as laid down in official publications. There were discrepancies between British and American figures for extra milk yield; but if farmers could be induced to supply extra food, and cows to eat it, an adequate physiological response should be obtained.

In the section of physiology Dr. R. Passmore (Edinburgh) summarized the results of a dietary survey of 298 students under 21 years of age which had been carried out by the Department of Public Health and Social Medicine of the University and the Scientific Advisers' Divisions of the Ministry of Food.[1] The minority of students on an ill-balanced diet were evenly distributed among both sexes and among those living at home and in lodgings, the diets of those living in university hostels being on the whole well-balanced. From interviews with students it was concluded that even at university level there was a real need for elementary health education, ignorance being more important than lack of money in determining bad feeding.

[1] A. H. Kitchin, R. Passmore, M. Pyke, and G. M. Warnock, *Brit. J. soc. Med.*, 1949, 3, 10.

Psychology and Industry

Sir Godfrey Thomson's presidential address to the section of psychology consisted of a criticism, on the ground of method, of the tendency to multiply mental factors. His general attitude was that factors of different sorts were useful and vivid additions to the psychologist's vocabulary, but that "they are not at all unitary and only partially innate, being built up in the individual mind by many external influences." Probably the general level of intelligence owed most to heredity—a "ceiling" which the individual might fail to reach but could not surpass. With other so-called mental factors, Sir Godfrey suggested that much more was due to environment.

A discussion on human problems in the design of machinery and working methods was opened by Dr. N. H. Mackworth (Cambridge). Dr. G. B. Frisby (National Institute of Industrial Psychology), who followed, argued that satisfaction in work should be regarded as a basic requirement. A machine limited by its design the freedom of action of the worker, and so did methods of manufacture, even in assembly and other manual work. Lay-out, special jigs, and tools all determined that the job should be done in one way decided not by the worker but by the production engineer. This favoured the "we—they" attitude. The size and complexity of the individual task were also reduced, and the tendency had been to accept as inevitable both this increased subdivision and the reduced satisfaction that went with it. There was a need for research on the nature of the satisfactions which could be felt from work. For example, could pride in skill persist where the creative element had disappeared? In any event, if the production engineer proceeded in his breakdown of jobs beyond the point at which loss of satisfaction occurred for the majority of his workers, then efficiency would decline. Speed, shown by the stopwatch, might increase, but persistence might fall, and labour wastage and absenteeism might increase.

Piltdown Man

The status of the Piltdown skull, found by Mr. Charles Dawson a few miles north of Lewes in 1908, seems to have been finally settled by two communications to the section of anthropology. Dr. K. P. Oakley (British Museum) presented the results of the fluorine test by which the age of bones found in the same geological sequence can be roughly compared. Skull and jaw had proved approximately contemporary—thus settling one argument which has persisted even to the present year—but neither was likely to be older at most than 100,000 years. There could be no question, therefore, that Piltdown Man and, say, Pekin Man could be approximate contemporaries.

Dr. Robert Broom (South Africa) reported in a written communication that he had independently reached the conclusion that the Piltdown jawbone belonged to the same individual as the brain case; that this was a big-brained type of man which evolved on a quite different line from true *Homo*; and that the "simian shelf" in the lower jaw was probably an indication of parallel evolution rather than of close affinity with the anthropoids.

THE LISTER INSTITUTE

Macbeth exclaimed, "Bring me no more reports; let them fly all," and in the office of a medical journal it is difficult not to sympathize with him. Of some reports it can be said that their copiousness is in inverse proportion to the importance of what they describe; but of others that their volume is as meagre as the work itself is outstanding. The latter is true of the annual report of the governing body of the Lister Institute of Preventive Medicine for 1949. This is a thin pamphlet of 13 pages and describes the year's work of a staff of about 50 highly skilled research workers, all engaged on special lines of study. The report is so short that the work done at Chelsea

Bridge Road remains largely uninterpreted, even to the expert engaged on a parallel line of research. It is true that most of the work is a continuing study—that is to say, reportable results are not necessarily forthcoming in a particular year—but the pursuit should be worth reporting as well as the goal. To name only a few of the lines of research which are proceeding makes their potential importance evident.

Work is being carried out on the factors concerned in the virulence of *Haemophilus pertussis* for mice, and the influence of such factors on the immunizing properties of whooping-cough vaccines; on methods of preserving vaccinia virus without the use of refrigeration; on precipitating antisera against the blood of man and animals with the object of identifying blood meals of blood-sucking insects; on the haemolysis of erythrocytes from different species of animals by clostridium toxins; on the nature of the linkages in gramicidin most susceptible to acid hydrolysis; on the examination electrophoretically of a group of sera from cases of pneumoconiosis; on factors in blood clotting; on the metabolism of nicotinamide and related compounds as affected by diet—and on many other lines of investigation in the bacteriological, biochemical, biophysical, and nutritional fields.

Some of the nutritional studies are interesting. One of them is on the effect of vitamin A on gastric conditions. Cases of peptic ulceration, or of gastric pain without ulceration, treated with vitamin A as out-patients at the Royal Free Hospital have been followed up. Healing of the ulcer has been demonstrated radiographically in some cases. Continuous treatment for six to ten weeks seemed the most satisfactory, and prolongation of continuous treatment for long periods caused relapse in a few cases. Sometimes, after an interval of six to twelve months after treatment, pain would return, and another course of six weeks' treatment was then necessary. Cases studied at the Medical Branch of the General Post Office at Mount Pleasant have also been followed up, and the results confirmed those obtained at the Royal Free Hospital. Vitamin A has been studied further in relation to the stomach of rats. Search has been made for the factor which prevents proliferation of the gastric epithelium when the animals are deprived of this vitamin. Efforts to find the factor in casein prepared in various ways have proved unsuccessful, and recourse has been made to certain vitamin-A-deficient flour diets. Flour of 85% extraction has been used, and in a preliminary experiment with 18 rats epithelial proliferation, though not entirely absent, was very much less than with any other diet tried. It did not appear to be of significance whether the flour was bleached or unbleached.

The Blood Products Research Unit of the Institute has issued during the year large quantities of dried human plasma and plasma fractions for clinical use, also 2,500 ampoules of gamma globulin for clinical trial in cases of measles.

It is announced that Lord Horder, owing to the increasing demands on his time, has resigned his seat on the governing body after fourteen years' service. Dr. A. N. Drury has been appointed in his stead. The governing body again records its appreciation of the continued co-operation and collaboration of the Medical Research Council, the work of whose external scientific staff is described in the report.

DRUG ADDICTION IN BRITAIN

REPORT TO THE UNITED NATIONS

The British Government's Report[1] for 1948 to the United Nations on the traffic in opium and other dangerous drugs was published last week. Approximately 395 addicts are known to the Home Office—198 men and 197 women. Of these, 112 are doctors, 3 dentists, 1 a veterinary surgeon, and 3 pharmacists. Information about addicts is generally obtained by Home Office inspectors and by the police in the course of normal routine inspections of the registers kept by wholesale and retail chemists, and by visits to doctors who are prescribing for patients who are addicts. All the addicts are reported to have obtained their supplies from legitimate sources—i.e., on prescription. During the year eight doctors were convicted of violation of the narcotic laws, and in six of the cases the authority to possess, supply, and prescribe dangerous drugs was withdrawn by the Secretary of State. Eighteen men and six women were reported as having been cured of their addiction during the year; eleven of these were doctors. Approximately 12% of all the addicts are reported to be using pethidine either alone or together with another drug.

The only regular illicit importation of dangerous drugs to this country is carried on by merchant seamen, who are usually Chinese, Indian, or African. The drugs they bring in—mostly Indian hemp and opium—are used almost entirely by themselves or by their fellow countrymen. This illicit traffic is largely confined to the seaport towns, but during the year three negroes were arrested in Birmingham for being in unlawful possession of Indian hemp. It was discovered that they had obtained their supplies in Liverpool, where three other men engaged in trafficking were arrested. There was only one case during the year in which drugs from legitimate sources were suspected of having been diverted into the illicit traffic. In this case two men, both addicts, were proved to have forged certificates showing that accomplices of theirs were registered as drug addicts abroad. The accomplices were then introduced to two doctors in London who, because of the forged certificates, were induced to prescribe heroin and cocaine.

Supervision is exercised by Home Office inspectors over persons authorized to possess and use dangerous drugs. Inspection of retail pharmacists is carried out as a matter of routine by the police forces throughout the country. The inspectors, who advise and assist the police in this work, also visit retail pharmacists either casually or in the course of special inquiries. Doctors' records of dangerous drugs may be inspected by regional medical officers, who are ready to give advice on cases of addiction. If a doctor, dentist, pharmacist, or veterinary surgeon has been convicted of irregularities connected with the supply of dangerous drugs the Secretary of State is empowered to deprive the offender of his authority to possess, supply, or prescribe the drugs.

During the year pethidine and amidone were added to the list of drugs for which a separate register or part of a register must be kept. No modifications in the administrative arrangements for implementing the information convention were made during the period.

[1] *The Traffic in Opium and Other Dangerous Drugs.* Report to the United Nations by His Majesty's Government in the United Kingdom of Great Britain and Northern Ireland for 1948.

Nova et Vetera

THE PITCAIRNS

Three Pitcairns have acquired places in medical history—Archibald (1652–1713), William (1711–91), and David (1749–1809). David was the nephew of William, and William was of the family of Archibald, although what William's precise relationship to Archibald was, Munk does not say. Archibald Pitcairn, according to Munk, was "celebrated as the founder of the mechanical sect of medicine." This is hardly accurate: Borelli (1608–79) came before him. Borelli, however, was not much of a physician, and Haeser assigns to Archibald Pitcairn the honour, if it is an honour, of carrying the application of iatro-mechanical physiology in practical medicine to its highest point. Haeser gives Alexander Pitcairn a page and a half, but had probably formed the opinion—certain to be entertained by a modern reader—that iatro-mechanism was rather silly. He permits himself to say that Pitcairn, "like all one-sided theorists," was apt to swear by empirical remedies, and instanced the human skull and earthworms as part of Archibald Pitcairn's pharmacopoeia. It is, humanly speaking, certain that neither William nor David Pitcairn ever prescribed either, but William had great faith in opium and there is a story that his nephew David, when a medical student in Edinburgh, saved the life of Professor William Cullen's son by conveying his uncle's advice to administer laudanum freely.

Haeser has nothing to say of William and David Pitcairn, neither of whom published anything; both kept such theories

as they had to themselves. William Pitcairn prescribed opium freely, but David seems to have had little faith in drugs. Of him it is said that when a young physician commented on the inertness of his prescription in a case of consumption he replied: "The last thing a physician learns, in the course of his experience, is to know when to do nothing, but quietly to wait and allow nature and time to have fair play in checking the progress of disease and gradually restoring the strength and health of the patient." Not so terse as Hippocrates, but Hippocratic.

Uncle and nephew were esteemed by the public and their colleagues. William Pitcairn was president of the Royal College of Physicians for ten years, 1775–85, and retired from practice in 1784, when he was appointed treasurer of St. Bartholomew's Hospital. He was physician to the hospital for 30 years (1750–80). His nephew David followed very closely in his steps; he was elected physician to St. Bartholomew's in 1780. If Munk's dates are right there seems an irregularity in the hospital's practice, because in 1780 David Pitcairn was neither M.D. (he graduated M.B.Cambridge in 1779 and M.D. in 1784) nor a licentiate of the College—he was admitted candidate in 1784 and Fellow in 1785. It is possible that, as his uncle was president, the College did not enforce its legal rights.

David Pitcairn followed his uncle as physician to Bart's within a week, and might well, after a somewhat longer interval, have succeeded him as president of the College had not his health failed in his fiftieth year. Residence for 18 months in Portugal was followed by improvement, and on his return to England David Pitcairn partly resumed work, but his health was broken and he died in 1809, two years younger than his uncle was when first elected president of the College.

As the judicious reader will have noted, Munk, whom I have followed, could add little to what was so well said in *The Gold-headed Cane*, and Macmichael (1784–1839) was a very young man when David Pitcairn died. The only estimates by contemporaries which survive are the eloges of deceased Fellows, then pronounced not by presidents but Harveian orators and not in English but in Latin (in not very good Latin, according to a better judge than I am). But an elogist is likely to dwell on good traits. Cadogan emphasized William Pitcairn's kindness to his professional colleagues, Heberden (the younger) David Pitcairn's excellence as a clinical teacher and his kindness to hospital patients. Great teachers are as rare as great investigators and inevitably fill less space in medical histories. Trousseau is mentioned by the learned Haeser only as a French physician influenced by German medicine, but any reader of his *Clinique Médicale* (1861) can understand why he impressed medical students. David may be the greatest of the three Pitcairns, because a tradition established by a fine teacher outlives him and still works for good when he is forgotten.

Heberden co-ordinated the treatment of the poor and the power of the teacher in his eloge of David Pitcairn (pauperes pene innumerabiles cura sublevavit, multosque discipulos, praeceptis ex re natis, ad medicinam faciendam optime instituit). Another great Bart's teacher, Peter Mere Latham (1789–1875), was in the succession. Latham and Trousseau, in eloquent words which have survived, impressed on their pupils the importance of *humanitas*, which, like *honestas*, means so much more than the English derivative. The Bob Sawyers of a century ago needed that lesson more than their great-great-grandchildren. Callousness and brutality in students are no longer to be feared. But in an age of gadgets and official forms, when "case" and "patient" are used as synonyms, it may still be worth while for the young physician to borrow a friend's—or his grandfather's—"Lewis and Short" and look up *humanitas*.

MAJOR GREENWOOD.

The Pharmaceutical Society of Great Britain was represented at the Assembly of the International Pharmaceutical Federation in Amsterdam in August by the President, Mr. H. Clement Shaw, Professor Brindle, Professor Todd, Dr. J. M. Rowson (who read a paper at the Assembly), Mr. E. A. Brocklehurst, Miss M. A. Burr, Mr. J. F. McNeal, and Mr. H. N. Linstead (joint secretary). Mr. F. W. Adams (joint secretary and registrar) accompanied the delegation.

Correspondence

Distinction Awards

SIR,—While I am wholly out of sympathy with the theme and spirit of Dr. H. E. A. Boldero's letter (September 10, p. 594), yet I can still congratulate him upon having packed into its short space more sophistries than I should have thought possible save in an election address.

All the usual rationalizations of the temperamentally acquiescent appear there in their tawdry unreality. The proposition that because a national health service is a desideratum, therefore all that is now happening is "the wish of the people," whereas, as everyone knows, it represents nothing more than a Cabinet policy; the implication that, save for a few unpractical reactionaries, the entire profession is hastening to help and guide "the Government of the day" (how familiar the phrase is to Fellows of the Royal College of Physicians); and, worst of all, the sinister reminder to young consultants that unless they go quietly they will, financially speaking, have their necks wrung like chickens. "Bow to the inevitable, there is a cheque behind it" is in effect Dr. Boldero's stirring appeal to youth.

Against this too familiar pattern there rises to meet our ears the orchestra of complaints and lamentations against the working of the Health Service that echoes loud in every issue of the *Journal*, coming from every professional group save—so far—the graded consultants. The body of general practitioners festers with resentments, and the graded hospital officers have grievances not less bitter. To this cacophony there will surely be added in due time the complaints of those consultants who are dissatisfied with their "distinction" gradings, and if these go underground and are not heard in the medical press they will be none the less deeply felt and will destroy the harmony of medical staffs. All this is very different from Dr. Boldero's pleasant fantasy of a profession striving almost unanimously to help the Government to perfect the manifestly imperfectible. Surely if things were as Dr. Boldero would have us believe we should be piping more tunefully and with a better grace.

It is possible that I am in a minority amongst my fellow consultants on this issue, for the power of money is great; but I believe that the only real distinction now left to the consultant is to be of this select minority and to remain *hors concours* in the competition for State subsidies.

If consulting practice as we have known it at its best is to die, it will not be because of the fears of the younger men but because the old men who should have foreseen and averted their painful dilemma lacked vision and the spirit of courageous leadership. To be acquiescent in the drift towards the helotry that faces us is not, *pace* Dr. Boldero, to be constructive. And to bow to the inevitable—that we have made such by bowing to it—is not the high spot of heroic virtue. At least, we did not think so in 1940.—I am, etc.,

London, W.1. F. M. R. WALSHE.

Co-operation with Institutes of Education

SIR,—In your educational number Professor W. R. Niblett (September 3, p. 526) urges co-operation between institutes of education and medical schools, and you comment favourably on this suggestion in a leading article. I should like to endorse the great value of such co-operation. Soon after the start of the Institute of Child Health at the Hospital for Sick Children, Great Ormond Street, in 1946, contact was made with the Director of the Institute of Education of the University of London. Soon afterwards a standing joint committee was formed to deal with matters of mutual interest. There is a free interchange of staff for teaching purposes, and the Child Care Training and Research Scheme at the Fourdling Hospital site is a joint effort of the two bodies. Moreover, the Institute of Education has organized a series of conferences on teaching methods for the staff of the Institute of Child Health, when selected speakers opened discussions on such subjects as the use of the lecture, the value of tutorials, visual aids, and voice production, which were extremely helpful. The need

for collaboration with an institute of education is perhaps more obvious for a school or department dealing with children than for those covering the older age range. I am certain, however, from our own happy experience that Professor Niblett's advice should be widely followed. It is perhaps immodest to add that the fruitfulness of the collaboration is not, I think, one-sided.—I am, etc.,

Institute of Child Health, University of London. ALAN MONCRIEFF.

Essential Hypertension in Pregnancy

SIR,—Mr. R. H. Paramore writes (August 27, p. 486) that he is not satisfied with the statement made by Mr. John Sophian (August 6, p. 335) in the sense that vascular spasm is the primary change inducing hypertension and that it is the cause of renal cortical ischaemia.

To this concept Mr. Paramore opposes his hypothesis that anuria, whether in the pregnant woman or not, is not the result of a decreased intrarenal blood flow, but on the contrary that it is due to an increased blood flow to the renal medulla, which maintains the "obstruction" of the uriniferous tubules. He attributes to the reduction of the medullary blood flow the benefits derived from repeated spinal anaesthesia, which he so wisely advocated more than twenty years ago. He is probably right in this, but perhaps not in the sense that he thinks it to be.

In favour of his views he mentions Clifford White's histological findings in renal tubules which were obtained from "a minute piece of the kidney" (in White's words) from two uraemic patients; indirectly, he also seems to value the fact that he did not find "any reference to the effect of the secretion of urine on the blood flow through the kidney" in the book *Studies of the Renal Circulation*, in which I was a collaborator. He considers this omission of fundamental importance. While I hope to contribute soon to the discussion of these and other related problems in a more extensive manner, I must now advance that on p. 36 of the English edition of our book there appears a reference to our observations on the correlation between a diminished urine flow and a diminished cortical circulation.

As our immediate purpose was to study the renal circulation and not the renal function we were for the moment satisfied with the confirmation of the findings made more than a century ago by Claude Bernard, who showed that the electric stimulation of the splanchnic nerves caused the urine flow to decrease or even to cease, an observation which has been untiringly repeated since then. We also dispose of a copious mass of information about the renal vascular response to this and other types of stimulus, such as certain hormones (adrenaline, "pituitrin," "pitressin"), toxins from staphylococci, streptococci, and *B. welchii*, and even to simple oxygen lack. The effect of all these apparently different vascular stimuli is to cause constriction of intrarenal vessels. If the stimulus is sufficiently powerful it might cause total renal ischaemia, whereas if the stimulus is of a moderate nature it might only cause a reduction of the calibre of the more excitable intrarenal vessels, such as those of that part of the cortex which is not anastomosed with either perirenal or medullary vessels. It is a consequence of the cortical arterial constriction that the medullary vessels appear engorged in some cases of fatal anuria. In others the whole of the kidney suffers from anoxia.

As a surgeon who has had for many years the misfortune of being confronted with serious forms of traumatic and surgical shock I have difficulty in understanding how shock might help in increasing urine flow. Up till now kidney failure in shock has been one of the greatest surgical problems. We know through a series of careful clinical and experimental observations that "primary" or immediate shock is characterized by renal vascular spasm (see among many others the papers from the school of van Slyke). Probably this vascular spasm is beneficial, as it reduces both the circulatory area of the vitally non-essential organs and it also helps to maintain the blood volume by stopping urine formation.

After a certain time the renal anoxia caused by vascular spasm gives way to that of peripheral collapse of "secondary" shock. In this later stage urine flow is interrupted, not by a functional and reversible mechanism such as arteriolar spasm, but by damage to that part of the kidney which is more sensitive to the lack of oxygen—that is, the tubular cells. I cannot understand how high spinal anaesthesia may contribute to the flow of urine otherwise than by releasing the arteriolar constriction. This seems to be the mechanism of the kidney which "obstructs" the flow of urine. Mr. Paramore gave an early answer to this most pressing necessity by advocating the method which in its more elaborate modern form has in the hands of Dr. Robert A. Hingson produced such satisfying results.—I am, etc.,

Oxford. J. TRUETA.

Medical Education

SIR,—Having read the series of articles in your educational number (September 3) I feel that consideration has been directed in the main too much towards the route and too little towards the destination. The ultimate aim must be the production of a general medical practitioner, yet this point certainly was not emphasized in your *Journal*. Specialization follows after qualification.

Are we in danger of forgetting this? It would appear that we are, since more and more time is being asked for and undue importance attached to the subsidiary clinical subjects. Instead of their being separate entities they should be fused and administered under the general headings of medicine, surgery, obstetrics and gynaecology, and pathology. For example, *place paediatrics under medicine, despite the recent development* of professorial chairs in paediatrics. Maternity and child welfare and venereal diseases would come under obstetrics and gynaecology, and haematology would assume its rightful place in the more general subject, pathology. These few examples may irritate specialists in the subjects mentioned, but they serve to illustrate the point I wish to make, that with integration would come realization of sphere of influence. And the time has come for specialists in certain subjects to realize that in their subject the requirements for the medical student may be generalizations rather than minutiae. A director of clinical studies would go far to make fusion and administration less difficult.

Professor W. Melville Arnott (p. 497) fears that the increased number of students may result in large ward classes. This need not be so if a considerable part of the present wastage of clinical material is utilized. The greater the number in the class often means the more competitive the spirit in that class. The area union of hospitals should make this problem easy of solution provided the universities are willing to pay their teachers a rate of salary comparable to that in the National Health Service and thus attract sufficient numbers. So far as lecturing is concerned, to lecture to a few is most discouraging. I had the privilege recently of attending a lecture to a class of 250 students of obstetrics in Sydney, Australia. There Professor Bruce Mayes has a microphone installed in his lecture room! The 250 were the survivors from a class of nearly 600 that had started the course. Yet I was assured that each student delivered more than thirty obstetric cases him- or herself—a triumph for administration and utilization of available material.

Let us unite, even at the sacrifice of personal pride in the importance of one's subject, to integrate the subjects in the curriculum so that we produce in the end a man or woman trained in the essentials for general practice. In the words of *The Times* (August 27), "If general practice is not raised to a new level of competence—some would say, restored to its rightful place—the whole of British medicine will suffer."—I am, etc.,

Oxford. G. GORDON LENNON.

Postgraduate Education of General Practitioner

SIR,—The new academic year is approaching and in consequence much is being heard of undergraduate education. I feel it is also an opportune moment for something to be said about the postgraduate education of the general practitioner. If the general practitioner is to play his part in modern medicine it is essential that he should be able to maintain his contact with



"the patient who won't fit in...."

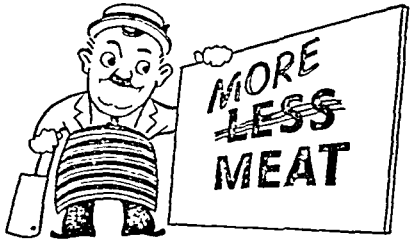
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its rapid advance. Much lip service is paid to his importance, but I feel that too little attention is given to the means which would enable him to justify that importance. Fortnightly or week-end courses, which appear to be the main suggestions to this end, can never be effective; they are liable to provide the practitioner with a mass of information of which at the best he could absorb a little and which at the worst would only confuse him further.

There are, to my mind, two possible answers to this problem. First, the long-term answer, the integration of the general practitioner with the local hospital. This, though a formidable problem, is not impossible and might bring advantages from the patient's point of view. Secondly, short five-working-day periods of attachment to a moderate-sized hospital where each day men of the standing of clinical tutors could teach for a period of three hours on selected cases. I feel that three hours' teaching is as much as most people can use without boredom. The rest of the day the practitioner could partake in the work of the hospital, much as do junior housemen and clerks. The advantage of the five-day period is that few men could not spare this once or twice a year.

In a further effort to enable the general practitioner to keep up to date I would like to suggest that, at periods appropriate to the advances in the subject, monographs similar to that on sulphonamides published by H.M. Stationery Office should be made available. Unless one is conversant with the particular specialty, articles such as are printed in the various journals cannot be evaluated by the practitioner. I feel that the monograph should not be by an individual, who may have a personal bias, but by a committee, who could state the present body of fact and belief on which the bulk of practice must be based.

This, as behoves a letter, is merely in the form of a suggestion which will I hope stimulate our teachers to consider what can be done to help the general practitioner to fill adequately his place in the new medicine which is before us.—I am, etc.,

Blackburn, Lancs FRANK LIVESEY.

Training in Public Health

SIR,—I read with interest your leading article (September 3, p. 523) on training in public health. It is indeed encouraging to note that you have such confidence in the future of the public health service—a view which is shared by few at present engaged in preventive medicine.

I believe there to be a great future in public health, but with this assumption—namely, that the preventive approach will be introduced more and more into the medical curriculum. In this connexion much of the D.P.H. course could usefully be taught to undergraduates. If this were so our colleagues in the curative branches of medicine would not only have some sympathy towards our motives but would give us their active co-operation. When all doctors have instilled into them the importance of social and environmental factors in the causation of disease, and when we can all work together in health centres, I see no reason why G.P.s and specialists alike should not constantly seek the advice of the M.O.H. on the social and environmental problems of their patients. The M.O.H. could then indeed become a "*true specialist in preventive medicine.*"

This brings me to an extract from your article: "Financially the rewards of a career in public health will always be less than clinical medicine can offer." Why? Is it not somewhat illogical to state categorically that the financial rewards of preventive work must always be less than those for curative work? Must prevention take second place to cure? Would not the only just solution to the salaries question be to take the three main branches of the profession—general practice, public health, and specialist—and give them a common minimum and a common maximum and work out a salary structure in each within the same limits? The newly qualified doctor could then choose his career according to his inclinations without being biased by financial interest.

The opportunities in public health are infinite—one can only hope they will be grasped with both hands. The first round of the public health battle, that against epidemic infectious disease, has to a great extent been won. Now we can turn our energy against the social and environmental factors in the aetiology of other forms of disease. Shall we move along these lines? I hope so, but I believe the bias of medical education will be the deciding factor.—I am, etc.,

Chester. B. G. GRETTON-WATSON.

Goethe, an Appreciation

SIR,—Another great admirer of Goethe's *Faust*, I have been surprised to see that none of those who recently contributed in expressing their love of this unique work quoted the scene from Part I which has a direct bearing on medicine and which would have fitted so well into your educational number. Having pulled the scholar's leg mercilessly over the choice between logic, metaphysics, and law, Mephistopheles continues as follows (in Bayard Taylor's translation):

"To grasp the spirit of Medicine is easy:
Learn of the great and little world your fill,
To let it go at last, so please ye,
Just as God will!
In vain that through the realms of science you may drift;
Each one learns only—just what learn he can:
Yet he who grasps the moment's gift,
He is the proper man.
Well made you are, 'tis not to be denied,
The rest a bold address will win you;
If you but in yourself confide,
At once confide all others in you.
To lead the women, learn the special feeling!
Their everlasting aches and groans,
In thousand tones,
Have all one source, one mode of healing:
And if your acts are half discreet,
You'll always have them at your feet.
A title first must draw and interest them,
And show that yours all other arts exceeds;
Then, as a greeting, you are free to touch and test them,
While, thus to do, for years another pleads.
You press and count the pulse's dances,
And then, with burning sidelong glances,
You clasp the swelling hips, to see
If tightly laced her corset be.
Student: That's better now! The how and where one sees.
Mephistopheles: My worthy friend, grey are all theories,
And green alone Life's golden tree."

Has anyone ever poked better fun at our respected brotherhood? And as to Part II, I entirely agree with Mr. H. Corsi (September 3, p. 546): it is by no means inferior to Part I. The scene which precedes Dr. Corsi's second quotation (Act 2, i), where the Student returns and proves himself very much a match for the Devil, will hold its significance for all generations of teachers and pupils. Altogether it is nearly impossible to get through a day's events without wanting to quote from *Faust* again and again. Rarely has profound wisdom been expressed in such beautiful language.—I am, etc.,

Pinner, Midd'sex. E. ELKAN.

Poliomyelitis and Social Environment

SIR,—The careful study of poliomyelitis and the social environment by Professor A. Bradford Hill and Dr. W. J. Martin (August 13, p. 357) must have had a salutary effect on a number of observers who, like myself, were of the opinion that there was a relationship between the two. No one could question their results, but at the same time they have dealt with one side of a question which would appear to have two different aspects.

To quote from their own conclusion: "According to this experience favourable mortality rates indicating the favourable social conditions of a locality need not raise fears of an unduly heavy risk when poliomyelitis becomes widespread." The possibility that poliomyelitis is related to social environment might also be considered from the point of view of incidence among social class rather than incidence in an environment which contains all social classes, and my own experience, which

I realize to be very limited, has been to associate the disease with a favourable social grading.

I find on discussion with colleagues that they also feel that there is a social class distribution in relation to poliomyelitis which is quite different from that of other infectious diseases, and I would like to suggest that a second survey to prove or disprove this contention should be conducted. Simply with the idea of stimulating interest in this direction I gathered case histories of twenty-one consecutive cases which have come under my observation and placed them into social classes according to the occupation of the principal wage earner of the family. The result was as follows: Class 1, 3 cases; Class 2, 5 cases; Class 3, 7 cases; Class 4, 4 cases; and Class 5, no cases. The remaining two were a student at a primary school training college and an infant in a county council children's home.

If the above suggestion was supported by an observation on a sample of sufficient size to permit of statistically accurate deductions being made it would provide interesting material for speculation. Apart from complex associations which might be brought forward, there is a simple fact that during the period when poliomyelitis is epidemic there is a much greater amount of travel among families with larger incomes. This in turn could be an effective factor in either of two directions. In the first place it could be an application of the conclusion reached by Ritchie Russell[1] on the effect of prolonged fatigue as a predisposing factor. In the second place it could help to explain the peculiar way in which cases occur during an epidemic. These generally start with foci in a few areas and are followed by sporadic cases in many different areas.

If more accurate social histories were taken from all cases occurring during an epidemic year and the lines of travel of the affected persons in widely separated areas in the country correlated, it might be found that the apparent sporadic occurrence of cases was to a large extent mythical, and that explosive outbreaks are occurring—the cause being disseminated by victims who are passing through a long and symptomless incubation period. This would surely present a more reasonable picture of a disease which reaches its height in the middle of a hot, dry summer and is practically unknown in January.—I am, etc.,

Brill, Bucks. V. O. B. GARTSIDE.

REFERENCE

1 *British Medical Journal*, 1947, 2, 1023.

Streptomycin in Infantile Gastro-enteritis

SIR,—In your annotation entitled "Streptomycin in Infantile Gastro-enteritis" (August 27, p. 478) you refer to an article of ours (*Lancet*, 1948, 2, 555) and say we found "that oral streptomycin alone was effective whether or not other foci of infection were present. . . ."

In fact, our experiences were quite the reverse. In discussing case 18 we said: ". . . The recurrence of diarrhoea and vomiting was due to the parenteral infection, and this should have been recognized and treated before streptomycin was considered. In the presence of such an infection streptomycin by mouth is valueless." Again, in the summary we wrote: "The administration of streptomycin by mouth does not obviate the necessity of treating parenteral infection, which may play a part in the causation of gastro-enteritis." We consider this so important that it is worth while drawing your attention to the error in the annotation.—We are, etc.,

URSULA JAMES.
IVOR R. H. KRAMER.

London, S.W.3.

Vitamin E

SIR,—I have just read your account (May 28, p. 951) of the International Conference on Vitamin E held recently in New York, as well as the annotation on vitamin E in the same issue (p. 949). As the person who first noted that α-tocopherol had a definitely beneficial effect on certain types of heart disease, diabetes (independently of Butturini, whose observations antedated mine by four years), and arterial peripheral vascular lesions I might be able to contribute something to the general principles underlying the use of this vitamin in these conditions.

In the first place, it is a common error to assume that vitamin E is used in these conditions as a form of replacement therapy or to remedy a deficiency. I believe that these conditions do not result from vitamin-E deficiency and that the vitamin is used as a chemical substance (in much larger doses than are needed to raise blood levels to normal) to obtain a specific physiologic effect. This can be supported by the observation that 20 mg. per day of *d*-α-tocopherol acetate will raise the blood tocopherol level to normal (about 1 mg. per 100 ml.), whereas for a therapeutic effect in the previously mentioned conditions it is necessary to give initial doses of 200 to 600 mg. daily for several weeks. The dosage may then be reduced, but in most cases at least 200 mg. per day will be required indefinitely as a maintenance dose.

Unfortunately, all of the papers which I have read by authors who had noted no satisfactory results have failed to use the method which I have suggested. I have yet to hear from any physician who has followed this method and has been disappointed in his results. It must be noted that in patients with heart disease who require digitalis the digitalis must be continued after the vitamin E is begun, but at somewhat lower doses than ordinarily used. *I would certainly appreciate hearing* from any British physician who might try this method.—I am, etc.,

281, Oxford Street, London, Ontario. A. VOGELSANG.

Cortisone

SIR,—In 1933, while doing clinical research which sought to show the existence of a tuberculous diathesis based on over-activity of the lactogenic principle of the pituitary gland—producing what I believed was tantamount to a culture medium for the tubercle bacillus, consisting of excess releasable lipin-protein in all cells at times other than the puerperium—I decided to test the action of suprarenal gland extract as a possible pituitary depressant in this respect in a case of pulmonary tuberculosis. The suprarenal extract used was in the ordinary tablet form supplied by Burroughs Wellcome and Co.

Six days after administration had commenced, the patient, a man of 25 years and of the stoutish, smooth-skinned type, exhibited all the classical signs of rheumatic fever. The treatment was stopped, and with the introduction of salicylates all the signs of rheumatic fever disappeared within ten days. Although the use of the suprarenal extract came under suspicion as an exciting factor in this flare-up, that suspicion was not strong enough to prevent a further test. But on its readministration all the signs of rheumatic fever recurred; they again subsided quickly on its withdrawal, and without the assistance of salicylates. The conclusion had to be that a suprarenal secretion, probably in excess, could be a cause of rheumatic fever, and, for the purposes of my theorizing, that its action on the pituitary was an exciting rather than a depressing one. Further experience suggests that stilboestrol had it then been available, was the substance I was seeking for my purpose, as was suggested in my paper, "Early Pregnancy and Epitheliomata," published in the *British Medical Journal* (1924, 2, 1149). Stilboestrol will depress the pituitary.

I have always favoured a theory that the rheumatic fever and tuberculous diatheses were related in a way which could perhaps be explained graphically, as is done in the case of organic compounds by the addition or removal of side chains, and that whereas rheumatic fever and pulmonary tuberculous diatheses were dependent on a pituitary-stimulated over-supply to all cells of a basal vital food product (a lipin protein) at all times, and not confined to the female only—as at times of full mammary activity—certain forms of arthritis, on the other hand, were the result of a deficiency in this same product. It seemed, therefore, that suprarenal gland extract would be of value in cases of menopausal arthritis, and I tried it in three cases of this disease in 1937, but with only a suggestion of an improvement. It is clear now that the extract was not sufficiently refined.

I think the above facts ought to be reported, because, of course, the use of 17-hydroxy-11-dehydrocorticosterone or "cortisone" in rheumatoid arthritis appeals to me as a discovery that will bring real results, but also strongly because

my own findings suggest avenues for research into the cause of rheumatic fever as well as the treatment of tuberculosis. My efforts also seem to point to a real danger if this new substance, once it becomes available, is used anything like as empirically by medical men generally as were the sulphonamides and penicillin.—I am, etc.,

St. Annes-on-Sea, Lancs. C. W. A. EMERY.

Foreign Body in the Stomach

SIR,—The following may be of interest as suggesting a new technique in the extraction of foreign bodies from the stomach without operation. I have not come across anything in the medical press up to now embodying a similar experience.

A boy aged 9 years swallowed an aluminium and enamel bottle top about the diameter of a halfpenny or rather less. It remained in the stomach for a week in spite of efforts to coax it through the pylorus by a skilful radiologist. I therefore decided to remove it, as I feared, possibly erroneously, that it might cause symptoms of aluminium chloride poisoning. Under general anaesthesia I made a small left paramedian incision and located the foreign body in the stomach. I caught up an avascular area between two tissue forceps and isolated the area with gauze swabs. On incising the stomach and seeking the foreign body with a pair of sponge-holders I failed to locate it. I then explored the stomach from cardia to pylorus with my forefinger and again failed to locate the object. To my astonishment the pylorus was dilated to the size of a florin and patulous. On picking up the stomach wall with the tissue forceps I must have shot the foreign body through this dilated pylorus as through the neck of a sack. I then found that as soon as I had opened the abdomen my anaesthetist had given a dose of curare to give as much relaxation as possible, as I was working through a small incision. The bottle top was duly recovered by the natural route 48 hours later.

I assume that all this came about through the complete relaxation under curare, and that a similar result may possibly be achieved in other cases of the same kind without the necessity of open operation.—I am, etc.,

Plymouth. C. F. MAYNE.

Hypnosis in Treatment

SIR,—You have done the ordinary non-specialist doctor a service in publishing articles on hypnosis at this time when everybody seems to be aware of it and interested in it, gleaning information either from articles in journals or from witnessing stunt displays of hypnosis in music halls. The doubt which exists in some of our minds is concerned with the question, Is it safe?

It is agreed that the central phenomenon is that of dissociation, in which I suggest it is the higher intellectual and critical faculties which are in abeyance and suppressed. The mind is then influenced on the feeling level and to a lesser degree on the intellectual level by the hypnotist: in effect we may say that the hypnotized subject is to a great extent depersonalized.

There are many of us who believe the individual personality to be sacrosanct on philosophical, ethical, religious, or moral grounds, and we attempt in our doubtless ignorant way to support and strengthen the personalities of those anxiety-type patients who consult us, so that they can have some objective view of their difficulties and overcome them themselves with our help rather than surrendering their personalities to a hypnotist, however skilled he may be and however high his motives.

I agree that there are conditions of hysteria where hypnosis is useful and valuable, as in battle conversion hysterias. But I feel that before hypnosis becomes more widespread there should be an inquiry into its effects on the whole personality, including its potentialities, by psychologists, general practitioners, religious leaders of several denominations, and philosophers.

The last war has shown us how some individuals with the most aware and most integrated personalities were able to face and overcome the severest tribulations without depersonalizing themselves. Pain is always enhanced by fear, especially when the fear is long sustained and not attached to immediate and obvious objective reality. I believe that dissociation is effective in producing an anaesthesia of the sense of fear rather than a resolution of it; the enemy is avoided rather than defeated.

Modern medical science permits marked relief from physical pain without having to resort to hypnotism. Under hypnotism the subject is depersonalized and behaves in a manner which has little relevance to what is generally judged on empirical grounds to be objective reality and which may be to a large extent inappropriate to his situation. This is done by the voluntary surrender of the higher functions of the mind to another person, with evidence of feelings of relief from tension, or of satisfaction.

An occasional pleasing experience of this sort may easily become a routine habit, with the result that the personality never faces and overcomes a problem but becomes anaesthetic to it, and thereby is likely to be weakened by this practice in the long run. I hope that the experts will be able to reassure us.—I am, etc.,

Birmingham. K. M. HAY.

The Value of Drugs

SIR,—On glancing through "Any Questions?" (August 6, p. 345) my attention was arrested by a categorical and presumably authoritative denial of the rationale of administering vitamin A and D as a general prophylactic against infection.

While keeping an open mind on the subject, it does seem to me that the simple bald statement in reply raises an enormous question that affects the whole of medicine and could hardly be dealt with in the limited space of your columns. It is simply this: With the exception of recognized specific remedies, how many of the various mixtures and preparations in common use can be definitely shown to have a positive and beneficial effect on the patient? Many of my more cynical colleagues, I fear, would be inclined to answer that question in one word.

It does seem that when so much difficulty is experienced in assessing the therapeutic value of new methods of treatment many of the "mixtures" and "tonics" that we are forced to prescribe would show up very poorly under the searchlight of modern scientific investigation. If it were possible to know the verdict of such investigations on the value of more popular mixtures and drugs we could at least have the satisfaction of knowing that even though we deceive our patients we do not deceive ourselves.—I am, etc.,

Bristol. J. E. G. HOPE SCOTT.

Syringes

SIR,—While the doctor in a single practice must admire the care and efficiency of the syringe service described by Dr. T. G. Benjamin (July 30, p. 282), he will be unable to adapt the system economically or satisfactorily for his own use.

For nearly two years I have been using one firm's portable water-boiling syringe sterilizer. It consists of a metal case with bakelite surround. The lid, on removal, carries with it a cylindrical metal cage divided into four sections. Three sections can hold syringes (or, incidentally, small instruments). The fourth is adapted to take six needles, well protected and separated from each other. The whole is contrived so that the syringe can be selected and assembled very rapidly without the hand touching anything but the barrel. A flex with universal plug allows the sterilizer to be boiled from any average lamp or wall socket. Finally the whole fits into a small transporting case with a carrying handle.

I use two of these sterilizers: one remains at my place of work and the other comes on rounds. This last is sterilized at home. As soon as it has boiled sufficiently the lid with the cage is lifted clear and the sterilizer emptied. The remaining steam quickly dissipates and the lid and cage are replaced, leaving practically dry syringes and needles ready to be used when required. If necessary (and this is rare) the sterilizer can be refilled with water and boiled up again very quickly in the patient's home.

In the sterilizer I carry two syringes of 2 ml. and one of 5 ml. capacity, which covers almost all everyday requirements. Needles of different sizes are set up in routine positions so that the required size can be selected at once. Though this does not fulfil the ideal of the M.R.C. recommendations for dry sterilization and individual packings, it is a very good second best, and a great time-saver and convenience.

Finally, I should be interested to follow Dr. Douglas Gairdner's advice on Luer syringes (July 30, p. 282), but a supplier tells me that these are becoming increasingly difficult

to obtain and that an order for Luer-fitting needles may take six months to fulfil. I am well content with the metal-topped and glass-pistoned Record syringe.—I am, etc.,

Cambridge. A. S. PLAYFAIR.

SIR,—Dr. Douglas Gairdner (July 30, p. 282) and Mr. John Foster (August 13, p. 387) may be interested to know that hypodermic syringes with nozzles of the Luer type have already been standardized for use in this country. They form the subject of B.S.1263, which was issued in 1946. Agreement on this standard was reached by a technical committee representative of the various using, manufacturing, and other interests concerned, who felt that the Luer nozzle presented advantages over other nozzles, including the Record type.

It was realized at the time that the change over to this standard syringe could only be gradual and would take some little while. The Record type of syringe has been used extensively in the past, and in consequence it was realized that there would be a continuing demand for replacements of needles until the syringes themselves were replaced.

It is, however, somewhat disappointing that there should still be such a large demand for supplies of the Record needles, as the production of needles to fit the Luer type of syringe is thereby being prejudiced. It was confidently hoped that with the support of the Ministry of Health for the adoption of syringes with the Luer nozzle the change over would be more quickly effected, as it is obviously in the interests of all concerned that those syringes with the much more satisfactory type of nozzle should come into use as quickly as possible.

Manufacturers of needles and syringes are ready to meet all demands made on them incorporating the B.S.1263 or Luer nozzle fitting, and it now only rests with the hospitals and other users to make their contribution by adopting syringes with the Luer nozzle as soon as they can.—I am, etc.,

S. J. EVERETT,

Thornton Heath, Surrey. Chairman of B.S.I. Committee on Syringes.

Gravitational Ulcers of the Leg

SIR,—Dr. S. T. Anning (August 27, p. 458) rightly stresses the role of the deep veins in the causation of gravitational ulcer. Deep thrombosis is a factor in a far higher proportion of patients than is generally realized. I do, however, join issue with him on one most important point, when he states that the treatment of superficial varicose veins in patients with venous stasis is neither rational nor useful, and more often than not harmful.

Unfortunately this is still widely taught, but I believe it to be entirely incorrect and based on the strange misconception that the superficial varicose veins aid the circulation by acting as collateral vessels to the blocked deep veins. On the contrary, in varicose veins of the kind under consideration the blood flow in the erect position is almost invariably downwards. This can be easily demonstrated. When this is so the veins are no asset, but a liability in every way.

One is sometimes asked how in these circumstances the blood returns from the lower limb. The answer is, of course, that there are not two, but three, interconnected systems of veins. For convenience one may refer to them as the deep, the varicose, and the unnamed. With the deep veins thrombosed, and the varicose veins taking the blood the wrong way, there must be a third system to do the work. These unnamed veins are the key to the situation; they comprise veins within and between the muscles, sometimes segments and duplications of deep veins which have not been affected by the thrombosis, and such subcutaneous veins as are still competent. Most of them are small, but their total blood capacity is considerable. They carry upwards not only the blood brought to the limb by the arteries but—and this is the essential point—also that which flows back into the limb via the incompetent varicose veins. This is the basis for ligating varicose veins in cases of deep venous thrombosis. It cannot be other than beneficial if the flow in them is downwards. How beneficial it will be depends on what proportion of the load on the unnamed veins is due to the venous reflux. This is difficult to assess before operation. One has to be prepared for little obvious improvement, but in the majority of cases the improvement is striking. A complete cure in so far as the patient's symptoms and healing of the ulcer are concerned (which means that the unnamed veins are now capable of carrying the load) is exceptional. Even with the help of other treatment, especially the support which is advisable in nearly all cases, real cure is unusual. One has to face this and so has the patient.

Ligation never makes the venous stasis worse; it can and should be done regardless of the state of the deep veins. Many authors avoid committing themselves on this point. Their remarks often take the form of an injunction to use discretion in advising operation for patients with a history of thrombosis. The reader, seeking guidance, too often does not get it. Aware of the danger of oversimplification, I am convinced that the indication for ligation is simply retrograde flow of blood in the vein concerned. Theoretical considerations and observation of many cases allow of no other conclusion. Students are still burdened with various tourniquet tests to determine patency of the deep veins. These tests are of interest in that they demonstrate quite strikingly certain features of blood flow and its derangement in cases of venous block and valvular incompetence. It is often possible to locate the level of communications between deep and superficial systems, but in my experience this is usually either obvious from the pressure of a thumb at the appropriate level or still doubtful after repeated application and removal of tourniquets at different levels. While not denying the occasional clinical usefulness of tourniquet tests when simpler methods fail, I suggest that their practical value is small and that their real place is in the applied physiology class.

Dr. Anning mentions having seen disastrous results of treating superficial varices in several patients. There are two explanations. First, this is a progressive disease; both extension of thrombosis and recanalization of blocked deep veins may worsen the venous stasis. Secondly, I suspect that those patients who have been notably worse soon after treatment have had their varices injected as well as, or instead of, ligated. The risk of sclerosants causing further deep thrombosis must be small, since many surgeons of experience have employed them in these cases for years, but I believe the method to be unsound and that it should not be used for patients who have or have had deep thrombosis.

That ligation of superficial varicose veins is by no means the whole answer to gravitational ulcer is obvious, but it is a valuable method of treatment, and it does in fact have a rational basis. The veins are derelict. Their contribution to the circulation is one of sabotage, hampering the work of such veins as are still endeavouring to maintain the circulation.—I am, etc.,

Bristol. H. J. CROOT.

SIR,—Dr. S. T. Anning (August 27, p. 458) has performed a valuable service in dispelling some of the mist which obscures our understanding of ulceration of the legs. His main conclusion will bear restatement: so-called varicose ulcers are not the result of varicose veins. A long experience of the cases seen in a varicose-vein clinic has convinced me of the truth of this after having observed: (1) that the great majority of leg ulcers occur in patients who either have no varicose veins or have varicosities which from their small size or number or by their remote situation cannot be regarded as the cause of the ulcers; (2) that vast numbers of people with varicose veins of long standing and of every degree of severity never develop ulcers.

Recognition of these simple facts suggests one immediate line of progress—to abandon the term "varicose ulcer." This in itself would do much to promote a more rational approach to the whole problem. What name should we use in its place? Dickson Wright's term "gravitational ulcer" goes straight to fundamentals in so far as the elimination of the effect of gravity is the most potent single factor in curing these ulcers. It is, however, insufficiently comprehensive to cover the syndrome which, besides ulceration, may include oedema, induration, and eczema, and whose most distressing symptom is pain. Bauer's term, "lower leg syndrome," acknowledges the multiplicity of the manifestations of the malady, but it is cumbersome and omits reference to the effect of gravity. "Gravitational syndrome" suggests itself as an improvement.

Concerning aetiology, the emphasis in Dr. Anning's paper is upon a pre-existing thrombosis of the deep veins of the leg and thigh. In questioning my own patients, however, I have been puzzled by my frequent failures to obtain a history of "white leg" or other thrombotic manifestation. For a time convinced as I was that the fault lay in the deep veins, I thought that a "silent" thrombosis must have been the cause in the majority of these cases of gravitational syndrome. I have sought confirmation of this by phlebography, surgical exploration, and biopsy.

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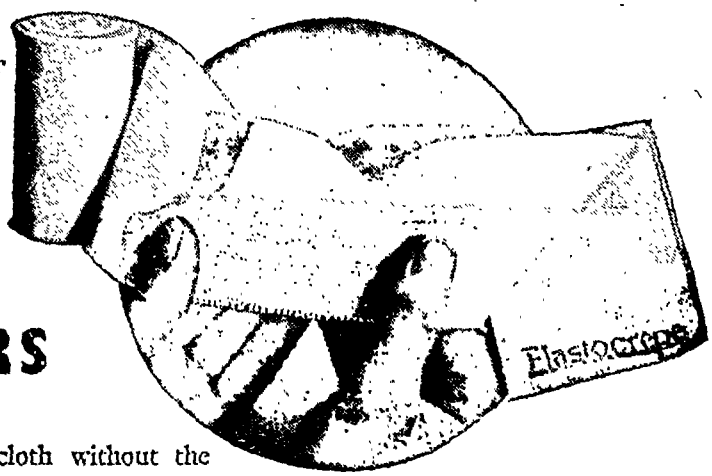
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Vol/E/25

Bauer[1] has pointed out that for this purpose injection of the contrast medium into the small saphenous vein behind the external malleolus is of little value. Not only is the filling of the deep veins very uncertain by this method, but, since the contrast medium follows the normal direction of flow of the venous blood, an identical appearance is given by a patent femoral vein whether or not the valves are competent. These objections are overcome by using Bauer's method of retrograde injection. The patient is tilted feet down at an angle of 45° and the injection is made into the upper end of the femoral vein. The radio-opaque substance flows down the vein by gravity.

If the vein is normal the medium is held up by the first valve an inch or two below the point of injection, and below this the radiograph shows no shadow or only a very faint one. If the vein has deficient valves the medium immediately drops along the whole length of the femoral and popliteal veins into the deep veins of the leg. The cusps of the valves are usually visible, indicating that they are functionally incompetent but neither congenitally absent nor destroyed by disease. If the vein has been previously thrombosed and recanalized a narrow, irregular channel replaces the normal broad, smooth appearance, or a leash of fine satellite vessels derived from the adventitia is substituted for it. No trace of valves is visible.

In the cases of gravitational syndrome which I have investigated by retrograde phlebography I have been struck by the preponderance of femoral veins of wide calibre and smooth outline showing total or partial incompetence of the valves. Surgical exploration of these veins has revealed no periphlebitis. Microscopical examination of pieces excised shows either a normal appearance or varying degrees of fibrosis of the media with degeneration of the intima but no evidence of thrombosis.

It seems, therefore, that the statement made by these patients that they have had no previous thrombosis is true, confirmed as it is by phlebography, surgical exploration, and histological examination. Bauer has called these cases of gravitational syndrome "idiopathic," and the cause of the dilatation and valvular incompetence of the deep veins may be a combination of wear and tear, hereditary weakness, and such metabolic disorders as those at which you hint in your annotation (p. 480).

As regards treatment, we know that practically all gravitational ulcers can be healed by sufficiently prolonged recumbency and many by the continuous support of suitable bandages. The problem suggested by the foregoing observations is whether this slow process of healing can be appreciably hastened by permanent interruption of the femoral or popliteal vein to remove the hydrostatic pressure of the contained column of blood from the vessels of the lower part of the leg. It is certain that the indiscriminate performance of the operation of high saphenous ligature is not the right treatment of gravitational syndrome.

Dr. Anning is to be congratulated on giving an impulse to the critical examination of the question of what may be achieved by surgical attack on the deep veins.—I am, etc.,

FRANK FORTY.

Edgware, Middlesex.

REFERENCE

1 *J. Int. Chir.*, 1948, **8**, 937.

Amoebiasis in England

SIR,—I was very interested to read somewhat belatedly the article by Drs. A. R. D. Adams and D. R. Seaton (July 16, p. 136) referring to amoebiasis in England. Had the cases occurred in, say, Rugby or Cambridge they would, I think, have been of more interest, but occurring in Liverpool they are surely not unexpected. Liverpool is a seaport and has a floating population of seamen, including Lascars and Indonesians who come from places where the cyst-carrier rate is high. They also do not share our own ideas of hygiene. Apart from the ship's officer and the doubtful infection by the father who was born in India (though a case has occurred in Australia, where amoebic dysentery is non-existent, of a relapse 20 years after contraction in Gallipoli, and which, incidentally, went on to liver abscess) some surprise seems to be voiced on the occurrence. One of the families contained a docker, and it is not unreasonable to suppose that all had contacts with dockside folk, and, as has been pointed out, they were all from unhygienic surroundings.

I must also take exception to the term "acute" amoebic dysentery. Amoebic dysentery, as seen by the vast majority of Service and colonial doctors, is a chronic or, at worst, a sub-chronic disease, in that if untreated or incompletely treated it takes many years to kill, if at all—the majority of cases clearing up and becoming cyst carriers. Even Manson-Bahr only admits to seeing a "few cases only" of acute amoebic dysentery. It has been left to workers in Java and on the Burma-Siam "railway of death" to see the real acute amoebic dysentery. These cases pass up to 40 to 50 stools per day and die in about 10 to 14 days, if untreated, in great agony—conscious to the last, with vomiting and maniacal symptoms.[1] —I am, etc.,

LENNOX MACFARLANE.

Tripoli.

REFERENCE

1 MacFarlane, L. R. S., *J. R. Army med. Cps*, 1947, **89**, 223, 255

Memorial to Charles John Bond

SIR,—It has been decided in Leicester to raise a fund for a memorial to the late Charles John Bond, C.M.G., F.R.C.S., and it is thought that there may be friends of his elsewhere who would like to know about this project and be given an opportunity of showing their appreciation.

Bond was born in Leicestershire in 1856, and after his training at University College Hospital, London, he returned to live and work in Leicester until his death in 1939. He was pre-eminently a scientist, and his publications, which are very many and of great interest, show his surgery to have been far ahead of his time. His work was done in the Leicester Royal Infirmary, but also, as was the custom in those days, often in the patient's home in the country under very simple conditions. In an exceedingly busy life he never ceased from original and experimental research. This he did in a wide range of subjects which brought him international recognition. He began with two papers on anatomy as a student, passing in turn to surgery, gynaecology, haematology, and genetics. The breeding experiments in birds and plants were carried out in his own garden. For 40 years he was the close friend of the late Sir Victor Horsley, F.R.S., and Bond showed in his book *Recollections of Student Life and Later Years* how closely their work was integrated.

During the 1914–18 war he was gazetted honorary colonel in the Army Medical Service and became consulting surgeon (with the late Lord Moynihan) to the Northern Command. He was a member of the Medical Research Council of the Privy Council, and he represented the Medical Research Council on the Inter-Allied Commission on Treatment of War Wounds held in Paris from 1916 to 1918. During these years he studied wounds, immunity, the effect of antiseptics on body tissues, and leucocyte activity, finding time to publish his own observations: these are of particular interest to read in relation to the work done in these subjects in the second world war 25 years later. Throughout his work, in all its ramifications, he correlated his wide experience and philosophy with the sociological problems of the times. Were he alive to-day he would undoubtedly have been keenly interested in the State Service which he foresaw as early as 1912. Nothing was too big to daunt him nor too trivial to be ignored. He observed, recorded, and deduced with courage, but there was a characteristic humility and consideration for the opinions of others.

Surely it must be unique for a surgeon to have carried out so much valuable work on so many subjects, based on a sound pathological foundation, unattached to any of the great teaching hospitals. Bond decided to work in the provinces, where, it is true, the material is always abundant and good but where there was no medical school, and for many of the earlier years of his life there was no laboratory accommodation. It seems fitting that such a life should be commemorated for our inspiration.

It is proposed to place a plaque in the Leicester Royal Infirmary and also to create a fund to enable students in biology at the Leicester University College to have greater opportunities for research and travel. Any contribution to this memorial should be sent to the Honorary Treasurer, Dr. L. K. Harrison, 2, Springfield Road, Leicester.—We are, etc.,

JOAN B. WALKER.
N. I. SPRIGGS.
Joint Hon. Secretaries.

Leicester.

Family Planning

SIR,—I receive literature from the Family Planning Association in which the following adequate reasons for family limitation are recognized: (*a*) too many children already (6 to 15); (*b*) "younger married women who are determined not to be driven into the slums, as their parents were driven, by the birth of a child year after year, on an income hopelessly inadequate to support them."

For many years now I have been dealing in my practice with women of all ages and economic groups who are led to seek my advice on contraception. My yardstick is this: Here we have a woman of child-bearing age who prefers not to conceive. She is recognized by the laws of this country as being a fit and proper person to vote at any election, to be conscribed for military purposes, to sit in the Lower House, to become a magistrate, and, in general, to be entitled to sex equality. I do not inquire into the particular personal reason the woman may have in seeking my advice. Subject to whatever interpretation one may feel inclined to put upon the marriage vows, and given always the husband's approval, I inquire no further. From that point on I consider that my position is purely that of technical adviser. Am I wrong?—I am, etc.,

Worthing. O. P. CLARK.

The Osler Family

SIR,—I am glad I wrote (July 9, p. 45) that Edward Osler's well-known hymn is *almost* the sole survivor of many; for in the same issue (*Supplement*, p. 40) in the account of the official religious service at Harrogate a much better-known hymn, "Praise the Lord, ye heavens adore Him," is ascribed to him under the disguise of "Ostler." The two authentic verses of that hymn are anonymous, but derived from the Foundling Hospital's eighteenth-century collection, and to that extent medical. In some books—e.g., the *English Hymnal*, 1906, Oxford, number 535—a third verse, by Edward Osler, is added. In some other books it is entered as a separate hymn: it begins, "Worship, honour, glory, blessing, Lord, we offer to thy name."

The name, which a Greek scholar once fancifully derived from *Oiseleur* (fowler), is, of course, the same as Ostler, though William Osler's family pronounce the *o* long, like "owe-slur." The word has descended in the scale of respectability. In the thirteenth century, when names became hereditary, it meant a hosteler, from *hospitalarius*, appropriately having to do with guests.—I am, etc.,

Montreal. W. W. FRANCIS.

POINTS FROM LETTERS

Percussion Finger

Dr. Z. P. FERNAND (Leeds) writes: Dr. A. Niven Robertson's personal note on "percussion finger" (August 20, p. 440) interested me, apart from his being one of the pioneer municipal tuberculosis clinicians of the period following the 1914–18 war. In 1925, as chief clinical T.O., Leeds (population 500,000, with the highest known notification of 1,709 tuberculosis cases), a prominent "hoof," as my staff then styled it, was found on the dorsum of the terminal phalanx of my middle finger, nearer the proximal end. The swelling was not painful but very noticeable and distinctly palpable. Though I left municipal service two years later, the nodule is still palpable though not so noticeable.

Reform in Medical Education

Dr. H. M. FLANAGAN (Lincoln) writes: There is a tendency nowadays among some to lean more and more on the usually overworked laboratory at the expense of clinical methods. The trend towards the ultra-mechanistic approach to the human organism, in a rashly enthusiastic effort to force the invaluable scientific method in medicine, is one which will ultimately lead to more confusion and final sterility. In medical education one commences with an interest in sick people, but is invited to begin with molecules and atoms. Perhaps to start with medicine and work back through anatomy and physiology to chemistry and physics is impractical, but it is the natural process of the inquiring mind, confronted with a complaining patient, to work back to understand his disorder in terms of fundamentals like biochemistry. It would tend to follow the history of medicine and so keep the student's interest at a similar high level to that of medical pioneers down the centuries.

Obituary

F. HERNAMAN-JOHNSON, M.D., F.F.R.

With the death of Dr. Francis Hernaman-Johnson at the age of 70, on September 3, British radiology has lost another of the few remaining pioneers in this branch of medicine. Dr. Hernaman-Johnson was physician to the Charterhouse Rheumatism Clinic for many years and chairman of the council of the British Rheumatic Association.

Francis Hernaman-Johnson was born at Crosby, Lancashire, and was educated at the Merchant Taylors' School there. He went on to study medicine at Aberdeen University, where he graduated M.B., Ch.B. with honours in 1904, proceeding M.D. in 1910. He obtained the Cambridge D.M.R.E. in 1931, and in 1939 was a foundation fellow of the Faculty of Radiologists. As a student he won many prizes and honours, including a Liddell bursarship, the first medal for advanced physiology in 1902, and the Duthie scholarship a year later.

Part of his clinical training was undertaken at St. Bartholomew's Hospital, and after graduating he joined the Royal Navy, serving for three years, some part of which he spent at the Royal Naval Hospital, Plymouth. On leaving the Navy, Hernaman-Johnson went into practice at Bishop Auckland, Durham. At that time he was interested in electrotherapy, and it was almost inevitable that he should be attracted to the growing field of radiological work, a part-time activity expected of many electrotherapists in those early days. Soon he was appointed consultant radiologist to the Darlington Education Committee. During the 1914–18 war he was attached to the Cambridge Hospital, Aldershot, and was consulting radiologist and electrotherapist to the Aldershot Command, being mentioned in dispatches for his services. After the war he settled in London.

Dr. Hernaman-Johnson was consulting radiologist to the French Hospital, and he was on the honorary staff of the Croydon General Hospital, the Margaret Street Hospital for Diseases of the Chest, and the Carshalton Memorial Hospital. He had been a member of the Roentgen Society since 1911 and was a member of the council in 1926. He was president of the Section of Radiology of the Royal Society of Medicine in 1934–5, and was the first Warden of the recently formed Faculty of Radiologists. He was also the first Skinner Lecturer of the Faculty.

Right from the early days Dr. Hernaman-Johnson took a great interest in the use of *x* rays in therapy and especially in the treatment of rheumatism. This interest continued throughout his life, and he contributed numerous papers to this and other journals on such subjects as the value of *x* rays in chronic arthritis, constitutional effects of *x* rays, the relative values of *x* rays and radium, and on radiotherapy from many other aspects.

Dr. Hernaman-Johnson was an expert and thorough worker, always anxious for the progress and advancement of his specialty. He never spared himself, and he inspired confidence in his patients and his colleagues. In recent years he had devoted much of his time and energy to the British Rheumatic Association. He was active in promoting schemes for occupational therapy and rehabilitation and for providing homes where patients could rest in between courses of treatment. He brought the same keen interest to his work for the Scientific Advisory Committee of the Empire Rheumatism Council.

One other facet of Hernaman-Johnson's many activities should also be recorded. Using the pseudonym "Francis Wimbrook," he wrote a number of articles for the lay press, and a "psychological thriller" called *Accident* which was staged at the Richmond Theatre. A novel, *Behold the Axe!* was published only last year.—R.J.R.

H. LESLIE-ROBERTS, M.D.

Dr. Hugh Leslie-Roberts, who died on September 8 at his home in Heswall, Cheshire, at the age of 89, was formerly consulting physician to the skin department of the Liverpool Royal Infirmary. He retired from practice in 1938, and his wife, who was the daughter of Mr. Samuel Parker, died only a few weeks ago.

Hugh Leslie-Roberts, the son of Alderman J. F. Roberts, of Manchester, was born in 1860 and began his education at Owens College, Manchester. Subsequently he studied in Edinburgh, where he graduated M.B., C.M. in 1887, proceeding M.D. in 1893. He also spent some time on post-graduate studies in Hamburg and Berlin, and in Paris and Vienna. It was in 1890 that he settled in Liverpool, and three years later he was appointed to the staff of the Liverpool Royal Infirmary. For many years he was lecturer on diseases of the skin at Liverpool University, and apart from his contributions to the medical press he published a treatise on mould fungi parasitic on man. As early as 1894 he was secretary of the Section of Dermatology at the annual meeting of the B.M.A. He was vice-president of the Section in 1904 and 1912 and president in 1922.

Dr. ARTHUR CECIL HINCKS died in the Wells Cottage Hospital on August 26 after a long period of ill-health. He was born at Hay, Hereford, in 1882, and was educated at Christ Church College, Brecon, and Birmingham University, where he played in the rugby fifteen and was captain of the hockey eleven. He graduated M.B., Ch.B. in 1906, and after holding resident appointments at the General Hospital, Birmingham, he came to Wells in 1909 as a partner of Dr. Allan and Dr. Lauder Smith. At the outbreak of the 1914–18 war Dr. Hincks joined the 4th Somersets, but before they left for India he was transferred to the 26th Field Ambulance and went to France with the Expeditionary Force. For conspicuous gallantry and devotion to duty he was awarded the Military Cross in 1915. In the recent war he served as a major in the local Home Guard and was also an A.R.P. lecturer and instructor. He took an active part in the work of the British Legion and had been president of the local branch. For many years Dr. Hincks had been medical officer of health for the city of Wells and senior physician at the cottage hospital. He was a keen churchman and had held office as sidesman and churchwarden. Despite all these and many other interests he found time to serve his colleagues on the local medical and panel committee and on the Somerset Insurance Committee. He was chairman of the East Somerset Division of the British Medical Association in 1932–3; a representative on the Branch Council from 1934–48; representative of the Division in the representative body in 1941 and from 1943–48, when he resigned on account of ill-health. He was also a member of the Local Medical War Committee from its inception. With his passing the people of Wells have lost a family doctor who will ever be remembered with respect and affection by all those with whom he came in contact. To Mrs. Hincks and the members of his family the deepest sympathy is extended by all his colleagues. —G.E.M.

Mr. HARRY VERNON WELLS died on September 2 at Sanderstead, Surrey, at the age of 49. A student at Charing Cross Hospital, he graduated M.B., B.S. in 1926 and went on to take the F.R.C.S. three years later. He was resident casualty officer and later surgical registrar at his teaching hospital.

J.B.S. writes: I must express the heartfelt sorrow his partners and patients feel. It is safe to say there was no man more loved by those who knew him. Wells had been in Sanderstead for seventeen years. He came here with an established reputation, both from Charing Cross, where his chiefs could not speak highly enough of him, and from Birmingham, where he worked for some years. When he joined me in practice here I could see at once what a marvellous technique he had, especially in abdominal surgery. His cases, of course, included every branch of general surgery. There were a number which I referred to him quite hopelessly, but his technique and optimism triumphed over and over again. I have never met a better man: he was uniformly courteous, always sincere and kind. That is not to say he was not firm, even obstinate, about some things, but he always knew his own mind. In the long years of our friendship he never once failed my partner and myself in any difficulty, and we shall miss him greatly.

He volunteered for service in the Army or Air Force at the beginning of the war and again later on, but he was refused by the medical board. He was very troubled about this, and wrote to the president of one of the boards complaining that somebody must have misunderstood his condition, as he felt in perfect health and was quite able to undertake any effort. A very kind letter from the president of the board comforted him, but he was assured that he would not be accepted. However, surgical work in connexion with Purley Hospital was quite sufficient to give him far more to do than he ought to have done. There were very few surgeons left in this district, and there was hardly a night when Wells was allowed to sleep in peace during the war years. He was sent for in every important emergency and for most major operations. I think it sad that no public acknowledgment has been made of his services so freely and unselfishly given, though his friends let him see how much they valued him and his work. I want to express everybody's sympathy with his wife, Dr. Mary Wells, in her loneliness and bereavement.

Medico-Legal

BREACH OF TERMS OF SERVICE

N.H.S. Patient Charged a Fee

A report from the Medical Service Committee which was adopted by the Executive Council for the County of Surrey on March 9 gave the findings of the committee in three cases of complaints against doctors. One was dismissed as frivolous, on another no action was recommended, and in the third case the doctor was held to be at fault.

In this instance the complainant's written statement alleged failure on the part of the doctor to comply with the terms of service in that he (*a*) made a perfunctory examination; (*b*) uttered remarks to which the complainant took exception; (*c*) in issuing a medical certificate used an incorrect form for the purpose; (*d*) demanded and accepted a fee of five shillings; and (*e*) ordered drugs required for treatment on a form other than that supplied by the council. In the view of the committee the following facts were established. The complainant was accepted by the doctor for inclusion in his list, and on several occasions before this complaint was made the complainant had received treatment as a registered patient. On September 23, 1948, the doctor carried out an abdominal examination of the patient and took his temperature. During the course of this visit the doctor made observations inconsistent with the dignity of his profession. He then ordered the drugs needed on a form other than that provided by the council, and he issued a private certificate. The doctor then demanded and accepted a fee of five shillings in respect of his treatment of the patient.

On October 18 the patient wrote a letter asking for a receipt for the five shillings which had been paid. On October 19 the doctor issued a receipt on a form provided by the council in respect of treatment given under Paragraph 5 (2) of the First Schedule to the National Health Service (General Medical and Pharmaceutical Services) Regulations, 1948.

The committee agreed that certain inferences might properly be drawn from these facts. (1) The doctor was aware that he

had accepted the complainant for inclusion in his list. (2) The doctor carried out a satisfactory examination and ordered such drugs as he considered necessary. (3) The doctor failed to comply with the terms of service, however, in that he ordered drugs for the treatment of the complainant on a form other than that provided by the council, and in that he demanded and accepted a fee in respect of the treatment given.

The committee therefore recommended that the council should recover from the doctor, by a deduction from his remuneration, expenses incurred by the complainant owing to the failure of the doctor to comply with the terms of service, and that the council should make representations to the Minister of Health that, owing to the failure of the doctor to comply with the terms of service, the sum of ten pounds should be withheld from his remuneration.

Universities and Colleges

UNIVERSITY OF BIRMINGHAM

Humphrey Francis Humphreys, M.B., Ch.B., M.D.S., F.D.S. R.C.S., Professor of Dental Surgery in the University, has been appointed Vice-Principal of the University from September 30 in succession to Professor M. L. E. Oliphant, F.R.S., Poynting Professor of Physics.

SOCIETY OF APOTHECARIES OF LONDON

Professor E. C. Dodds, F.R.S., Master, presided at recent meetings of the Court of Assistants, at which Mr. Duncan C. L. Fitzwilliams was elected Master from August 24 and Dr. Frank Howitt and Dr. G. Roche Lynch were elected Wardens.

The report of the sudden death through an accident of Dr. Christopher Thackray Parsons, Past Master, was received with regret.

John Francis Carter-Braine took his seat upon the Court of Assistants.

The following appointments were made: Mr. L. Vernon Cargill to the Chelsea Physic Garden Committee of Management for a further four years from August 20; Professor Dodds to the Ministry of Health Joint Committee in connexion with Part IV of the National Health Service Act; Sir Cecil Wakeley to the British Postgraduate Medical Federation for a further year from October 1.

Mrs. Cecil Wall presented a large collection of manuscripts by the late Dr. Cecil Wall, Archivist, on the history of the society and its hall.

The following were granted the Diploma in Industrial Health upon examination: J. A. Herd, C. N. D. Cruickshank, C. Crowley, G. G. Mathew, W. G. White.

The Diploma, L.M.S.S.A., was granted upon examination to the following: H. T. H. Beach, J. L. Jarvis, D. Redpath, G. E. Hanks, F. W. Retief, M. P. Cardew, K. C. Horrocks, E. M. Tiger, H. V. White, M. P. M. Coupland, R. J. Aspinall, C. J. G. Menzies, C. R. May, M. C. H. Jackson, H. E. G. Dyer, F. Walton, F. E. Bramwell, E. R. Goodall, D. J. Joubert, G. B. Stephenson, W. G. Burvill Holmes, G. T. Cecil, G. A. R. Giri, P B. Poole, A. K. Kantarjian, L. Kader, J. D. Morris, C. T. Jones, E. W. Melia, M. C. Gilbert, A. S. Murad.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

The William Meredith Fletcher Shaw Memorial Lecture will be delivered by Professor R. W. Johnstone, C.B.E., M.D., F.R.C.S.Ed., F.R.C.O.G., at the College, 58, Queen Anne Street, London, W., on Wednesday, October 12, at 2.30 p.m. His subject is: "Scotland's Contribution to the Progress of Midwifery in the Eighteenth and Early Nineteenth Centuries." An invitation is extended to doctors interested in the subject, but admission is by ticket only, obtainable from the secretary.

The Services

The announcement of the award of the Efficiency Medal (Territorial) to Captain (now Temporary Lieutenant-Colonel) A. B. Dick, R.A.M.C., in the *London Gazette* of May 2, 1947, and printed in the *Journal* of May 31, 1947 (p. 789), is deleted in a list of errata published in a *Supplement* to the *London Gazette* dated August 12, 1949.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended August 27. [No. 34

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The *16 principal towns in Scotland*. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	18	2	16	2	—	29	4	14	1	—
Deaths		—	—				1	—		
Diphtheria	52	6	25	—	3	123	11	34	10	5
Deaths	1	—	—	—	—	1	1	1	—	—
Dysentery	90	10	68	1	—	70	9	55	5	—
Deaths				—	—				—	—
Encephalitis lethargica, *acute*	2	—	—	—	—	2	1	1	—	—
Deaths		—					—			
Erysipelas			17	8	5			28	15	1
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				74					40	
Deaths	28	2	3	9	—	24	—	10	1	2
Measles*	1,778	120	75	68	41	3,774	149	25	11	15
Deaths†			—	—	—			—	1	—
Ophthalmia neonatorum	38	2	8	—	—	55	6	10	—	—
Deaths										
Paratyphoid fever	25	3	—	7 (B)	—	17	3	1 (B)	—	—
Deaths	—	—	—	—	—	3	2	—	—	—
Pneumonia, influenzal	222	9	—	—	12	240	16	—	2	3
Deaths (from influenza)‡	3	—	1	1	—	4	1	—	—	—
Pneumonia, primary			74	19				95	16	
Deaths	122	20		3	7	99	9		1	3
Polio-encephalitis, acute	22	5				7	—			
Deaths										
Poliomyelitis, acute	258	29	9	—	1	70	6	3	2	—
Deaths§	20	4				3	—			
Puerperal fever		—	5				2	5		—
Deaths										
Puerperal pyrexia‖	91	7	9	—	—	100	8	10	—	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	718	53	131	40	59	812	42	191	52	17
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	10	1	1	4	—	12	1	3	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,671	79	66	69	72	3,162	248	60	48	8
Deaths	3	1	—	—	—	7	2	—	—	—
Deaths (0–1 year)	260	35	32	30	11	247	32	37	10	7
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,054	648	517	144	88	3,955	619	533	134	91
Annual death rate (per 1,000 persons living)			10·4	8·9				10·8	8·4	
Live births	7,297	1143	866	410	227	7,298	1234	903	398	236
Annual rate per 1,000 persons living			17·4	25·4				18·2	24·9	
Stillbirths	189	14	33			222	18	30		
Rate per 1,000 total births (including stillborn)			37					32		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

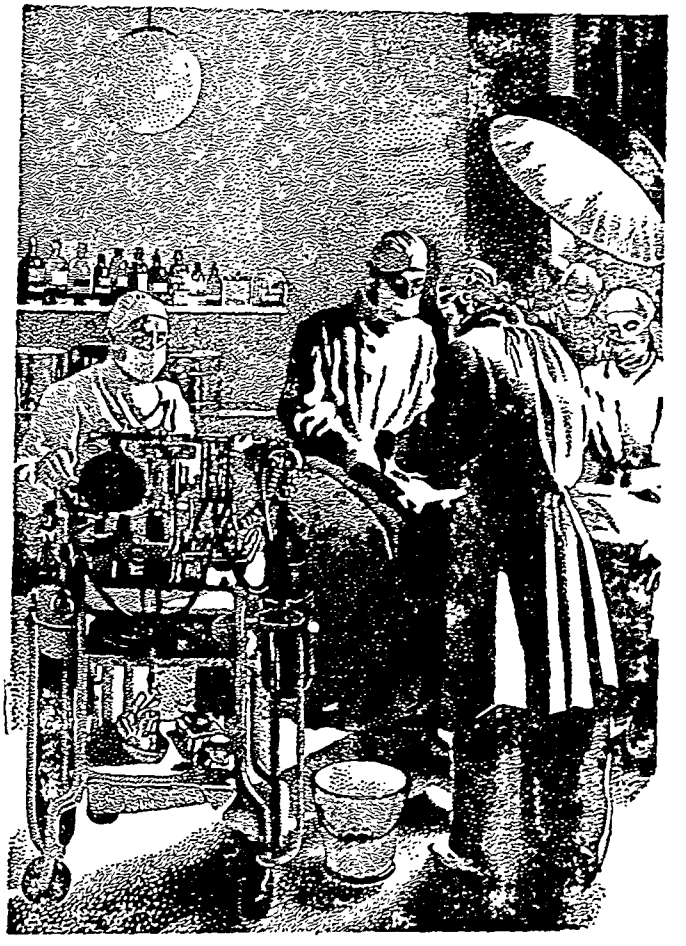
† Deaths from measles and scarlet fever for England and Wales, London (*administrative county*), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

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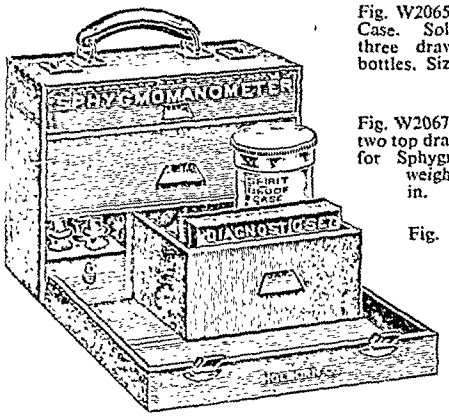


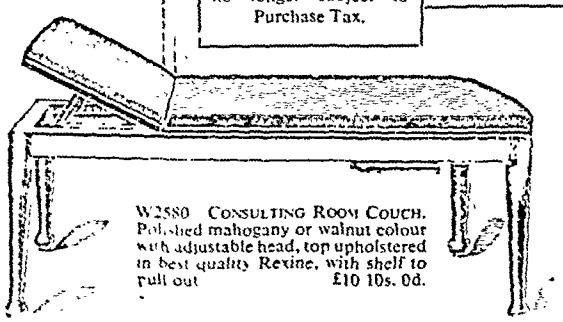
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EPIDEMIOLOGICAL NOTES

Food-poisoning at Llanelly

The recent outbreak of food-poisoning at Llanelly due to *Salmonella typhi-murium B* started explosively on August 15, when 62 cases were notified, and rapidly tailed off within a week, although some cases from secondary "cropping" have been notified since. Altogether 214 cases have been notified, and of these 142 were seen in the first three days.

The source of the infection was a large tin of artificial cream at a pastry shop, where five carriers were discovered; the cream was being used "cold" in the finishing of the pastries. In the course of the investigation five carriers were also discovered in an ice-cream shop, but no contamination of the ice-cream appears to have occurred. The source of infection of the carriers themselves is problematical, sporadic cases of the disease having occurred in the area since the large outbreak at Ammanford three years ago, which was traced to a butcher's assistant infecting cold made-up meats. This butcher's assistant, from the evidence available, appeared to have been infected originally by eating unwashed imported fruit.

The infection was generally mild. The presenting symptoms were diarrhoea and vomiting, which usually came on within 24 hours and only exceptionally lasted longer than three days. Of the 12 cases admitted to hospital only three were seriously ill; an old lady of 80, a young man of 20, and a baby who had a congenital defect. Chloromycetin appeared to have a beneficial effect on these three cases. A man of 63 who was also affected died in hospital from coronary thrombosis a week after admission. Post-mortem examination revealed no trace of the *Salmonella* infection, and confirmed the recent coronary thrombosis with widespread arteriosclerosis and myocardial degenerative changes.

Poliomyelitis

Notifications in England and Wales for the week ended September 3 were poliomyelitis 289 (258), polio-encephalitis 19 (22). Figures for the previous week are shown in parentheses.

The fluctuation during the past three weeks is not considered to have any special significance. The rise to 308 notifications since the last report should not be taken as indicating the likelihood of any further rises of considerable magnitude.

The multiple cases in counties were as follows: London 43 (34), Berkshire 5 (3), Chester 3 (0), Cornwall 5 (5), Cumberland 1 (1), Derby 2 (2), Devon 7 (4), Dorset 2 (2), Durham 8 (3), Essex 21 (13), Gloucester 13 (14), Hertford 3 (6), Huntingdon 2 (0), Kent 10 (9), Lancaster 28 (33), Leicester 11 (1), Lincolnshire, Kesteven 2 (0), Lincolnshire, Lindsey 5 (3), Middlesex 18 (17), Northampton 3 (4), Northumberland 10 (6), Nottingham 6 (7), Somerset 9 (6), Southampton 10 (16), Stafford 3 (4), Suffolk East 2 (1), Surrey 7 (5), Sussex East 2 (5), Sussex West 3 (2), Warwick 8 (7), Wiltshire 4 (3), Worcester 4 (0), Yorkshire West Riding 37 (33), Glamorgan 5 (1).

Discussion of Table

In *England and Wales* there was a decrease in the notifications of measles 342 and acute poliomyelitis 15. Increases were recorded in the incidence of dysentery 55, scarlet fever 40, and whooping-cough 34.

A decreased incidence of measles was recorded in practically all areas; the largest falls were Kent 62, Middlesex 45, Lancashire 44, and Yorkshire West Riding 44. The only notable exceptions to the general trend for measles were increases in the notifications in Durham 52 and in the rural district of Cambridgeshire 37. There were no large changes in the local returns of scarlet fever.

The largest fluctuation in the incidence of whooping-cough was a rise of 36 in Durham. Notifications of diphtheria were 7 below the record low level of last week.

The rise in the incidence of dysentery was due to two outbreaks, one affecting 29 persons in Staffordshire, Wolverhampton C.B., and the other with 25 notifications in Monmouthshire, Rhymney U.D. There were 9 cases of paratyphoid fever in Lancashire. The largest number of notifications of food-poisoning was in Carmarthenshire, Llanelly M.B. 22 (see above).

In *Scotland* there were falls in the notifications of acute primary pneumonia 53 and dysentery 15 and rises in the incidence of whooping-cough 25 and measles 18. In Glasgow 46 of the 68 cases of dysentery were notified. There was also an increase of 9 in the notifications of cerebrospinal fever in Glasgow.

In *Eire* decreases were recorded in the notifications of whooping-cough 49, measles 28, and scarlet fever 21, while the incidence of diarrhoea and enteritis rose by 12. Of the 74 cases of diarrhoea and enteritis 62 were notified in Dublin C.B.

In *Northern Ireland* the notifications of scarlet fever increased by 16, while a fall of 10 was recorded in the incidence of whooping-cough. The rise in the notifications of scarlet fever was due to the experience of Belfast C.B.

Week Ending September 3

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 701, whooping-cough 1,615, diphtheria 53, measles 1,168, acute pneumonia 216, cerebrospinal fever 25, acute poliomyelitis 289, acute polio-encephalitis 19, dysentery 98, paratyphoid fever 30, typhoid fever 9, food-poisoning 277.

Medical News

Oliver Memorial Fund

The committee of this fund has made the second award for service in connexion with blood transfusion to Dr. H. F. Brewer, clinical pathologist to St. Bartholomew's Hospital. Dr. Brewer has been medical officer to the British Red Cross London Blood Transfusion Service for 16 years, and has been intimately connected with the development of this pioneer service. His attention to the welfare of the donor has engendered a spirit of confidence among the members, and data obtained from the periodic examination of donors after multiple bleedings established the safe minimum intervals between donations for males and females. In the years immediately before the war the Red Cross Service made the first provision for the distribution of reliable and cheap anti-A and anti-B grouping sera, and Dr. Brewer played a significant part in ensuring this. His influence was continued throughout the war as director of one of the London blood supply depots.

Association des Médecins de Langue Française

The *Association des Médecins de Langue Française* was founded in 1911 to facilitate contacts between French-speaking doctors in different countries. The association arranges conferences in French-speaking countries to bring members together for discussion of various medical questions. Between the two wars the association had several hundred members in France and in other countries, and a conference was held every other year. Since the end of the war one meeting took place in Paris in 1947, and a second is planned for this October in Geneva. New members will be cordially welcomed, and the secretary, Professor Cade, would greatly appreciate information about changes of address from former members, particularly from those living outside France. The registered office of the association is at the Faculty of Medicine of Lyons, and all details about membership can be obtained from Professor A. Cade, 10, rue de la Charité, Lyon, Rhône.

Wills

Dr. Charles William Menelaus Hope, formerly consulting surgeon for diseases of the ear, nose, and throat to King's College Hospital, left £39,375. After making a number of bequests he left the residue of his estate as to one-third to King's College Hospital, and two-thirds to King's College Hospital Medical School. Dr. Henry Wilkes Gibson, of Emsworth, Hants, left £32,538; Dr. William Gordon Alexander, of Broadway, Worcs, left £6,008; Dr. Harold Godfrey Young, of Hatfield, Herts, left £7,492; and Dr. John Donald Matheson MacKellar, of Dewsbury, Yorks, left £10,165.

COMING EVENTS

British Rheumatic Association Exhibition and Conference

The British Rheumatic Association has arranged a two-day conference to be held at Chelsea Town Hall, London, S.W., on Wednesday and Thursday, September 28 and 29. The opening address, on "Modern Views on the Treatment of Rheumatoid Arthritis," will be delivered on September 28, at 2.30 p.m., by Dr. W. S. C. Copeman, and at 5 p.m. Dr. W. S. Tegner will discuss "The Care of the Rural Patient." On September 29, at 2.30 p.m., addresses will be given by Miss Nora Hill, Principal of the Disablement Branch of the Ministry of Labour, and Air Commodore G. O. Venn, Executive Director of "Remploy," Ltd., and at 5 p.m. there will be a symposium on "The Home-bound Employed," in which the special problems of rheumatic patients will be presented from the points of view of the doctor, the industrialist, and the patient by Dr. Francis Bach, Mr. Sydney Arthur, and Miss B. M. Stow, Chairman of the Association of Occupational Therapists, respectively. Tickets for the conference (price 10s. each) will be allocated in order of application. The association has also arranged an exhibition to be held on September 27 (2 p.m. to 10 p.m.), September 28 and 29 (10 a.m. to 10 p.m.), and September 30 (10 a.m. to 6 p.m.), which will be open to the public (entrance fee 1s.). Full particulars may be obtained from the association at 5, Tite Street, Chelsea, London, S.W.3.

Medical Students' Conference

The Glasgow Branch of the British Medical Students' Association has arranged a conference for medical students to be held from September 26 to 30, during which lectures will be delivered as follows: In the Pathology Lecture Theatre, Western Infirmary, Glasgow, Tuesday, September 27, 11.15 a.m., Professor C. F. W. Illingworth, "Peptic Ulcers"; Wednesday, September 28, 11.15 a.m., Professor D. F. Cappell, "The Rhesus Factor"; Thursday, September 29, 11.15 a.m., Dr. T. Anderson, "Antibiotics in the Treatment of Infection"; Friday, September 30, 11.15 a.m., Professor S. G. Graham, "Acidosis and Alkalosis," and 2 p.m., Dr. W. A. Taylor, "Hypertension." On September 30, from 9.15 a.m., there will be a demonstration on hypertension in the pathological department of the Western Infirmary. The following lectures will be delivered in the Zoology Lecture Theatre of the University of Glasgow: Monday, September 26, 4.15 p.m., Professor P. I. Dee, F.R.S., "Nuclear Physics in Medicine"; Tuesday, September 27, 4.15 p.m., Dr. P. R. Peacock, "The Effects of Radiations on Experimental Tumour"; Friday, September 30, 4.15 p.m., Professor L. S. P. Davidson, "Partition Chromatography." Members of the medical profession are invited to attend the lectures.

C.M.F. Surgeons' Club Dinner

The annual dinner of the C.M.F. Surgeons' Club will be held at Claridge's Hotel, Brook Street, London, W., on Thursday, September 29. Applications for tickets, with cheques for 25s., should be sent to Mr. Guy Blackburn, M.Chir., Keat's House, Guy's Hospital, London, S.E.1. Evening dress will be worn. Guest tickets are not available.

Contraceptive Technique

A lecture and demonstration of contraceptive technique will be given by Dr. Marie C. Stopes and Dr. Beddow Bayly at the Mothers' Clinic, 108, Whitfield Street, London, W., on Thursday, October 6, at 2.30 p.m. Medical practitioners should apply for tickets well in advance.

Prevention of Accidents

The Royal Society for the Prevention of Accidents will hold a National Safety Congress on October 4–7 at the Central Hall, Westminster. Among the speakers will be Dr. C. A. Boucher, of the Ministry of Health, and Dr. J. A. Gorsky. Particulars may be obtained from the society at Terminal House, 52, Grosvenor Gardens, London, S.W.1.

Welsh National School of Medicine

The opening address of the 1949–50 session of the Welsh National School of Medicine will be delivered on Thursday, October 6, by Dr. William N. Pickles, Medical Officer of Health for Aysgarth.

SOCIETIES AND LECTURES

Tuesday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At Anatomy Lecture Theatre, Edinburgh University, September 20, 4.30 p.m., *"Bone and Joint Pathology,"* by Professor S. L. Baker.

Wednesday

NORTH-EAST LONDON CLINICAL SOCIETY.—At Clinical Theatre, Prince of Wales's General Hospital, Tottenham, N., September 21, 8.15 p.m., medical films and discussion on public health matters

Thursday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At Anatomy Lecture Theatre, Edinburgh University, September 22, 4.30 p.m., *"The Bacteriological Principles Governing Chemotherapy,"* by Professor C. H. Browning, F.R.S.

Friday

BIOCHEMICAL SOCIETY.—At Department of Biochemistry, School of Medicine, Leeds, September 23, 11 a.m., 279th meeting.

MIDDLESEX COUNTY MEDICAL SOCIETY.—At Edgware General Hospital, Edgware, Middlesex, September 23, 4 p.m., annual general meeting. *"Focal Hypersensitivity as a Pathological Syndrome,"* by Dr. J. L. Hamilton-Paterson.

ROYAL SANITARY INSTITUTE.—At National Museum of Wales (Reardon Smith Lecture Theatre), Cardiff, September 23, 10 a.m., *"The National Health Service Act (Sections 24 and 28): Advice, Care, and Aftercare,"* discussion to be opened by Mrs. Clarice O'Shea; *"Food Control,"* by Mr. W. M. Shortt, M.Sc., F.R.I.C.

APPOINTMENTS

Drs. F. A. Ibiam, O.B.E., and K. A. Abayomi have been appointed Members of the Executive Council of Nigeria.

HUGHES, A. C. C., M.B., M.R.C.P., Chest Physician, Chester Area, Liverpool Regional Hospital Board.

LANDON, JOHN, M.R.C.S., L.R.C.P., D.P.H., Medical Officer of Health for the Boroughs of Bexley and Erith and Urban District of Crayford and School Medical Officer, Borough of Bexley.

REES, F. T., *M.C.*, M.R.C.S., L.R.C.P., Director-General of Medical Services, Ministry of Pensions, in succession to Sir Francis Prideaux, C.B.E., M.R.C.S., L.R.C.P., who retires on September 30.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

McQuaid.—On September 9, 1949, to Ena (née Green), wife of Dr. T. M McQuaid, 96, Psalter Lane, Sheffield, a son.

MARRIAGES

Black—Gordon.—On August 20, 1949, at St. Paul's Church, Enfield, Alexander L. Black, M.B., F.R.C.S.Ed., to Jeanie F. Gordon, M.B., D.C.H.

Moore—Hewitson.—On September 1, 1949, at St. Albans Abbey, W. E Dodwell Moore, M.B., B.Ch., to Nora Hewitson, M.B., B.S.

Smith—Blatherwick.—On September 10, 1949, at Mere, Wiltshire, D. W. G Smith, M.B., M.R.C.P., D.P.H., to Marjorie Blatherwick.

DEATHS

Densham.—On September 8, 1949, at Parkstone, Dorset, Ashley Densham, M.R.C.S., L.R.C.P., aged 79.

Finn.—On September 11, 1949, at Gatcombe House, Ashwick, near Bath, Patrick Taaffe Finn, L.R.C.P.&S.Ed., L.R.F.P.S.

Forgan.—On September 6, 1949, at Highgate, Robert Berry Forgan, L.R.C.P.&S.Ed., L.R.F.P.S., aged 62.

Gerhard.—On August 29, 1949, at Overbrook, Philadelphia, U.S.A., Arthur Howell Gerhard, M.D., aged 73.

Hay.—On September 8, 1949, Edmund Hay, M.B., C.M.Ed., of 384, Prince Regent's Lane, London, E.

Kearney.—On September 5, 1949, James Kearney, L.R.C.P.&S.I. and L.M.

McCall.—On September 9, 1949, at Rudgwick, Sussex, Annie McCall, M.D.

Martin.—On September 5, 1949, at St. Mary's Hospital, Paddington, London, W., William Whittle Martin, M.B., Ch.B., D.P.H., of the Manor House, Southwick, Sussex.

Moll.—On September 8, 1949, Henry Henderson Moll, M.D., F.R.C.P., aged 53.

O'Connor.—On September 5, 1949, at Old Manor House, Epsom, James Alphonsus O'Connor, M.B., Ch.B., late Indian Army, aged 55.

Roberts.—On September 8, 1949, at Hessle Moor, Heswall, Cheshire, Hugh Leslie Roberts, M.D., aged 89.

Robertson.—On September 6, 1949, at 178, Burnage Lane, Manchester, William Robertson, L.R.C.P.&S.Ed., L.R.F.P.S., aged 78.

Seah.—On August 29, 1949, at Findon, Sussex, Eng Khway Seah, F.R.C.S., aged 50.

Strain.—On September 10, 1949, William Loudon Strain, M.B., C.M., of 4, Hove Court, Raymond Road, Wimbledon Hill, London, S.W.

Walker.—On September 3, 1949, at Aberdeen, James Robert Hall Walker, M.D.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Myasthenia Gravis

Q.—*In view of the antagonism between the action of the thyroid gland and of the thymus, would methyl thiouracil be worthy of trial in myasthenia gravis?*

A.—Thymectomy is of value in myasthenia gravis. An important paper on this subject appears in the opening pages of this issue of the *Journal*. Thyroidectomy is not known to be of any value in myasthenia gravis uncomplicated by thyrotoxicosis, and it is doubtful if it is of value in true myasthenia gravis, which may be present at the same time as thyrotoxicosis but not a sequel to it. On the other hand, thyroidectomy is definitely of value in that form of myasthenia which is a complication of thyrotoxicosis. It is difficult, however, to conjecture that methyl thiouracil would be of any value in idiopathic myasthenia gravis. If it did prove of value it might not be regarded as suitable therapy, because of the need for its persistent application for the duration of the disease. In assessing any form of treatment it must be remembered that myasthenia gravis undergoes spontaneous remissions which may last for many months.

Threadworms in Infants

Q.—*What is the best treatment for threadworm infestation in children under the age of 2? Tablets or capsules are unsuitable for infants because of the inadequate swallowing reflex, and frequent enemata are contraindicated on psychological grounds. Is there anything that can be given in liquid form and still be effective in the large bowel?*

A.—The best treatment for threadworms in an infant under 2 years is gentian violet. The usual plan of dosage is to give 1/6 gr. (11 mg.) daily for each year of age, in divided doses, two or three times a day before meals. The course is usually one of five days with five days' break and then a second five days of the drug. Meanwhile gloves and pyjamas should be worn to prevent night scratching (if napkins have been left off) and a little ammoniated mercury ointment smeared round the anus at night. Unfortunately to give gentian violet there is no satisfactory alternative to capsules, and the administration of these to a young infant is a skilled job. Probably the best solution would be the temporary admission of the child to hospital for each of the five-day periods. If psychological trauma is feared from this, a nurse might visit at home, but the situation demands a nurse trained in work with children, and she is more likely to be successful in hospital. It is worth while remembering that threadworm infestation is often familial, and if a young baby has threadworms then the same may apply to older children or even to the parents, in whom there may be no symptoms. While the infant is in hospital the rest of the family might be investigated and treated if necessary.

Antiseptics for Minor Dressings

Q.—*For constant use in minor dressings acriflavine has the disadvantage that it stains the hands, dressings, towels, etc. Is there any comparably bland antiseptic that does not produce staining (mercury perchloride, for example), and that can be substituted for routine use in the surgery?*

A.—Yes: 5-aminoacridine hydrochloride ("monacrin")—a substance of the same chemical nature as acriflavine, and having a similar action on bacteria and a rather lower tissue toxicity, but non-staining. If the inquirer is referring to prophylactic application to accident wounds there is much to be said for abandoning the use of solutions altogether and thus largely overcoming the difficulty of staining. The alternative method is insufflation of a powder for which the formula in common use is 1 part of proflavine (2:8-diaminoacridine sulphate) in 99 parts of sulphathiazole. Proflavine stains, but for various reasons—notably its constancy of composition, lower tissue toxicity, and lower solubility—is otherwise superior to acriflavine. The advantage of using a relatively much less soluble antiseptic in powder form is that a more persistent effect is obtained than with a solution.

Mercury perchloride is not "bland," it is exceedingly toxic, and should never be applied to any part of the body except, possibly, the intact skin.

Dose of Chloral for a Baby

Q.—*How far can chloral be safely pushed in the symptomatic treatment of restlessness in a newborn child delivered with forceps? Would you consider a four-hourly dose of 1 gr. (65 mg.) harmless if given over a period of two or three days, or could such a dose cause liver damage and/or respiratory embarrassment due to lack of movement brought about by the narcosis? Is it justifiable to give chloral as a routine to "stressed babies"?*

A.—It appears quite safe to give chloral hydrate 1 gr. four-hourly to a newborn child, and this is a recognized form of treatment for infants suspected of cerebral irritation. Usually the dose is gradually reduced as the irritability improves. It is inadvisable to give chloral routinely to "stressed babies." There is usually a cause for the irritability, and this should be sought and corrected. However, there is the irritable infant of a "highly strung" mother that usually responds well to 1 gr. of chloral hydrate before each feed, and this can be continued for several months. Children tolerate chloral very well and rarely show toxic symptoms. It is unlikely to cause respiratory embarrassment in the newborn, but if cyanosis is present oxygen could be given.

Dermatitis Due to Cold Permanent Waving

Q.—*What is the treatment for dermatitis of the scalp caused by cold permanent waving?*

A.—If not due to idiosyncrasy, this is probably a chemical alkaline dermatitis. It may be necessary to cut the hair if there is much exudate and matting. A 0.5% aluminium acetate lotion, or washing the scalp with permanganate of potash 1 in 8,000 followed by the application of liquid paraffin or olive oil, would be suitable. An ointment composed of gentian violet 2½ gr. (0.16 g.), salicylic acid 5 gr. (0.32 g.), coconut oil 120 gr. (8 g.), Halden's emulsifying base 120 gr., with soft paraffin up to 1 oz. (31 g.), is also effective, the head being wrapped in a turban after the ointment has been applied, although the staining may not be appreciated.

The questioner might be interested in an article by Cohen (*Arch. Derm. Syph., Chicago*, July, 1949, p. 14).

Stilboestrol for Prostatic Cancer

Q.—*What is the scheme of dosage of stilboestrol for prostatic cancer, and how long can treatment be continued?*

A.—For cancer of the prostate it is usual to start with a dose of 5 mg. of stilboestrol daily. This is continued for one week, and the dose is then reduced to 0.5 or 1 mg. daily. The amounts given depend on the fall in the acid phosphatase level in the serum, which should be estimated at intervals, and on the response of symptoms, such as the relief of pain. There is therefore no fixed maintenance dose. This treatment can be continued indefinitely, and patients have been treated for several years.

Ozone as an Aerial Disinfectant

Q.—*A machine producing ozone is being installed to improve the stuffy atmosphere of a workroom. Is the prolonged inhalation of even small amounts of ozone harmful?*

A.—The action of ozone on the tissues is similar to that of chlorine: it irritates the mucous membranes, particularly the respiratory and ocular membranes. The *Heating, Ventilating and Air Conditioning Guide*, 1946, states that "the allowable concentrations in the breathing zone are very small, between 0.01 and 0.05 part per million parts of air. These are much

too small to influence bacteria. Higher concentrations are associated with a pungent, unpleasant odour and considerable discomfort to the occupants. One part per million causes respiratory discomfort, headaches, depression, and a lowering of the metabolic rate. . . ." Experimental evidence on the merits of ozone as an aerial disinfectant has led to the conclusion that ozone in concentrations that can be breathed over long periods without irritation cannot be expected to provide any effective protection against airborne bacterial infection. Perhaps the best way to improve a "stuffy atmosphere" in a workroom is by attention to ventilation.

Food Value of Glycerin

Q.—*Has glycerin any food value and does it conduce to putting on weight? I have used jam and marmalade made with glycerin instead of sugar for diabetic patients, as it has little carbohydrate value.*

A.—Glycerin is a trihydroxy-alcohol. It is absorbed readily, and after absorption acts as a source of energy. It is alleged that it lessens glycosuria in diabetics. As a food it spares fats but does not influence protein metabolism.

Fat Deposits

Q.—*A woman has large pads of fat over each hip-joint and the inner aspect of both knees; the swellings in the latter site are discoloured, somewhat inflamed, and a little painful. The upper part of her body, arms, face, neck, and breasts are normal. The patient suffered considerable privation as a Japanese P.O.W. and had beriberi. Treatment by diet, radiant heat, medicines, and glandular products has had little effect. Would this be a case of Dercum's disease, and can you suggest any treatment?*

A.—This description is not typical of Dercum's disease, in which the fat deposits are strikingly tender. It is somewhat more suggestive of symmetrical lipomatosis. However, in both conditions treatment is most unsatisfactory, and the patient in question appears to have tried almost all known therapeutic methods without benefit. As the deposits are so localized, it would be worth her while to consult a plastic surgeon, as possibly excision could be undertaken.

Kaolin and Bismuth

Q.—*During the war, in the treatment of gastric and intestinal conditions, bismuth compounds were largely replaced by substitutes that were more accessible or less costly. Now, although bismuth is readily obtainable, there appears to be a tendency to continue to prescribe the substitutes. Is there any authoritative evidence that salts of bismuth have a superior therapeutic value?*

A.—During the war bismuth compounds were replaced by kaolin. This is a fine powder, like bismuth carbonate, which acts by adsorbing irritant substances. Neither bismuth carbonate nor kaolin has much power to neutralize hydrochloric acid. There is no evidence that bismuth salts have a superior therapeutic value.

Barley Sugar and Cerebral Metabolism

Q.—*I have an elderly male patient suffering from a moderate degree of Parkinsonism. He finds that barley sugar gives him more direct benefit than any of the new drugs on the market. I note that Quastel states that the brain only absorbs nourishment in the form of glucose. Does this mean that table sugar and many forms of confections consisting of sucrose are of no therapeutic value?*

A.—Barley sugar is a vitrified form of sucrose. If the patient derives benefit from its use, therefore, it seems unnecessary to resort to glucose or to foods containing it. While Quastel would agree that glucose, which may be derived with fructose from the hydrolysis of sucrose, is the most plentiful metabolite supplied by the blood stream to the brain, he would hardly support the view that it is the brain's sole source of nourishment. He has himself shown that the brain may metabolize other substances, including glutamic acid.

NOTES AND COMMENTS

Transitory Retrobulbar Neuritis.—Dr. HUGH GARLAND (Leeds) writes: Your feature "Any Questions?" is often useful in supplying the answer to problems the answer to which might otherwise be difficult of access. The quality of the answers is usually high, but I would call your attention to the answer to the question, "What may be the cause, apart from disseminated sclerosis, of a transitory attack of retrobulbar neuritis?" (August 13, p 397). Your anonymous authority prefaces his answer by dividing the causes into three groups, of which the first is "functional disease." One can only assume that by this he refers to hysteria, but, if so, why not say so? He then states that various authors differ in their views about the place of nasal disease and focal sepsis as causes of transitory retrobulbar neuritis without making any critical comment of his own. Surely there is no shred of evidence that retrobulbar neuritis ever results from such localized sepsis. He goes on to state that there is a natural tendency to spontaneous recovery, but the question only relates to transitory attacks. He then proceeds to give a list of causes (presumably which he himself accepts) of the most remarkable diversity. Has anybody ever seen transitory amblyopia caused by alcohol, tobacco, or diabetes? The optic atrophy, enlarging scotomata, and progressive visual failure sometimes complicating pernicious anaemia are by no stretch of imagination transitory, and even with intensive liver treatment improvement is extremely slow. Is there any proof that either syphilis (and, if so, syphilis of what structure?) or plumbism ever causes transitory blindness? Why should post-partum as opposed to any other form of haemorrhage be singled out as a cause of this condition? His next cause is one of classic simplicity, "sepsis." Disturbances of nutrition as a cause of failing vision is presumably a reference to that form of optic atrophy seen not infrequently among prisoners-of-war, but there is nothing transitory about this condition, and so far as I know all the affected persons were left with permanent disorders of vision. In what way, one might ask, can menstrual disorders cause transient amblyopia, unless this be hysterical? And the same would apply to pregnancy.

One by no means uncommon cause of transient monocular blindness which is not mentioned is the aura of an attack of migraine. You might say that here the basis of the visual defect is not "retrobulbar neuritis," but I would suggest that if most of the above causes ever, in fact, operate they certainly do not produce an inflammatory lesion of the optic nerve. The final statement is that "some attempt has been made in this list to indicate the frequency of the causes," but I can find no reference to the frequency either of a single cause or of the condition itself. Surely it is time for the universal recognition of the fact that transient "retrobulbar neuritis" should always be regarded as a manifestation of disseminated sclerosis or one of the rarer demyelinating diseases of the central nervous system.

Acroparaesthesia.—Dr. M. G. GOOD (London, N.W.11) writes: With regard to the question on acroparaesthesia (*Journal*, August 27, p. 495), I should like to say that my personal experiences do not agree with the opinion expressed in textbooks on the nature of this disease, which in recent years seems to have become more frequent. In the last five years or so I have successfully treated more than a dozen cases, mostly in women, rarely in males. In my experience acroparaesthesia is caused by an "idiopathic myalgia" of the elbow. The characteristic "myalgic spots" are regularly to be found in the origin of the flexors and/or extensors of arm and wrist. An appropriate treatment with small quantities of procaine relieves the complaints and cures the disease without delay.

Angioneurotic Oedema.—Dr. S. H. CRAIG (Feeny, Co. Londonderry) writes: With reference to the question and answer under this heading ("Any Questions?" August 20, p. 448), I have suffered from this trouble for 30 years. I had very severe attacks, but I found that sodium citrate 1 dr. (4 g.) in water, increasing the dose by 1 dr. with every attack until I got up to 4 dr. (16 g.), acted like magic and never once failed. The attacks have been getting less frequent and are now only a few times a year.

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SUPPLEMENT TO THE
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LONDON SATURDAY SEPTEMBER 17 1949

THE SECRETARY REPORTS

GENERAL PRACTITIONER CONDITIONS OF SERVICE

Drops of water are said to wear away the stone, and the General Medical Services Committee continues to make representations to the Ministry on a number of points affecting the general practitioner service under the Act. Remuneration is, of course, in the forefront, and the Committee hopes this will be carried a stage further when its representatives meet the Ministry on September 23.

Other matters which are being pressed to a conclusion include the provision of medicines and appliances for private patients; permission to keep stocks of medicines and dressings for emergency use in surgeries; relief from the obligation to issue medical certificates for surgical corsets; permission to obtain *x*-ray and pathological examinations by direct application to the hospital department concerned; provision for charging fees for services outside the range of general practitioner treatment; the payment of a fee to a doctor called in to an emergency following a dental operation, the dentist not being available; the reimbursement of doctors for postage on documents to executive councils; the reintroduction of rules for the conduct of patients which were in operation under the N.H.I. Act; a revision of the wording on the medical card; and permission to reverse telephone charges when a call is made to a hospital on behalf of a patient.

Public Relations at Work

A correspondent recently asked, possibly rhetorically, whether the B.M.A. had a Public Relations Department. He said the public had "no idea of the low remuneration that every family doctor is paid under the National Health Service." The Public Relations Department recently had printed and issued over 600,000 leaflets on precisely this subject, together with 20,000 posters. Supplies have been sent by post direct to every practitioner who asked for them. The Public Relations Department spends a large part of its time answering inquiries from journalists about such matters as remuneration, overwork, delayed admission of patients to hospitals, unreasonable demands on doctors by patients, and various charges of abuse brought against the working of the Health Service. One pressman recently telephoned the Department to say that he had noticed that cases of opium addiction officially notified in this country showed a slight increase and included a large proportion of members of the medical profession. Had the B.M.A. any comment? It was pointed out to him that the increase was very small. "Yes," said the journalist, "but couldn't I say that it was the result of worry caused by the National Health Service?"

Doctors in the Territorial Army

Several letters of complaint have lately been published in the *Supplement* from doctors who are members of the Territorial Army. It appears that the Ministry of Health has asked local executive councils to decide whether such doctors should or should not be embodied with the Territorial Army in another emergency. If the Ministry is advised by the local executive council that a particular doctor is indispensable in civilian practice in his area then he will not be embodied with the rest of the Territorial Army. The doctors concerned are apparently not to be consulted.

Two issues arise here. First, the existing and highly successful machinery for the mobilization of doctors for National Service is the machinery devised by the medical profession itself—namely, the Central Medical War Committee, Scottish Central Medical War Committee, and the Local Medical War Committees. This machinery is still in existence—it has continued to exist since the end of the war at the express request of the Minister of Health himself. In communicating with the executive councils about the embodiment or deferment of particular Territorial Army doctors the Ministry of Health has deliberately by-passed this machinery. Secondly, the decision whether or not a particular Territorial Army doctor is to be embodied with the remainder of the Territorial Army is apparently to be made behind the doctor's back. Many of these practitioners have voluntarily given long hours of their spare time on weekly drill nights and a week or more of their annual holiday at annual camps. If another emergency arises some of them will find that, by arrangements made without their knowledge or consent, they are not called up with their comrades and all their voluntary spare-time work is wasted. The Association is protesting most vigorously against this tactless and inconsiderate procedure.

World Medical Association

The British Medical Association is to be the host of the General Assembly of the World Medical Association when it meets in London next month. It promises to be an interesting meeting. Twenty-two countries will be represented, and eight international medical organizations will send observers. The delegates of the British Medical Association will be Dr. Guy Dain and Dr. J. A. Pridham, with Dr. E. A. Gregg and Dr. S. Wand as alternates. Dr. Charles Hill is to be elected President of the World Medical Association for the coming year. The outgoing President is Professor Eugene Marquis, of France.

Among the subjects to be discussed by the Assembly will be a draft international code of medical ethics. The preparation of this code follows upon the W.M.A.'s consideration of the part played by certain members of the profession in the perpetration of war crimes and the adoption last year of the "Declaration of Geneva." The new "code" is to be an amplification for practical purposes of the principles laid down in the Declaration. During the past year the council of the W.M.A. has been collecting information about the schemes for "social security" in existence in the different countries, with special reference to the medical services and the extent to which they conform to the principles of public medical service adopted at Geneva last year. The council has also been collecting information about postgraduate education for both specialists and general practitioners, and this will be the subject of a report to the Assembly.

The *Bulletin* of the W.M.A., under the editorship of Dr. Morris Fishbein, of the U.S.A., with the assistance of collaborating editors from other countries, will reach its third number in October. It appears to be serving a useful purpose in medical literature, and the Assembly will consider what improvements can be introduced.

PHYSIOTHERAPY SERVICES

REGIONAL ARRANGEMENTS

The Minister of Health, according to a recent memorandum issued by the Ministry, is advised that the maximum benefit of modern physiotherapy is to be obtained under specialist supervision in fully staffed and equipped hospital departments. Furthermore, the shortage of adequately trained personnel, which will continue for an indefinite period, makes it imperative to concentrate them in hospital departments where their services can be employed to most advantage. Accordingly, physiotherapy in the National Health Service should be provided only under specialist prescription as part of the hospital and specialist service, and responsibility should be accepted by regional boards only for treatment prescribed by hospital specialists and carried out under their supervision.

General practitioners who consider that their patients require physiotherapy will normally refer them to a hospital, and if the specialist prescribes physiotherapy it should be provided in accordance with the arrangements outlined in this memorandum. General practitioners of course can use their own equipment to administer physiotherapy treatment to patients, but boards and management committees are not concerned with such arrangements.

Regional hospital boards are therefore responsible for organizing a satisfactory physiotherapy service in their regions. Regional hospital boards were advised in R.H.B.(48)53 (now superseded by this new memorandum R.H.B.(49)114) that in rural and other areas where it appeared necessary to supplement the hospital facilities they could contract with existing public organizations which provide physiotherapy services (e.g., British Red Cross Society, District Nursing Associations, etc.), or, very exceptionally, with private physiotherapists, to treat patients for whom physiotherapy had been prescribed through the hospital service. The system of contracting with private physiotherapists has proved in some areas to be expensive, and is necessarily an uneconomic method of providing treatment under the National Health Service. Accordingly, where it proves necessary to supplement hospital facilities—either because of distance or because of lack of accommodation in the hospital, or for other reasons—regional hospital boards should organize full-time or part-time clinics in suitable towns or villages which should be conducted by physiotherapists based on the nearest hospital with an adequate physiotherapy department. This expanded and mobile physiotherapy service should be organized on the same lines as the orthopaedic service in some areas, making use of existing halls, health centres, or other suitable buildings. Physiotherapists now in private practice should be employed full time or on a part-time basis in the hospital service.

As these clinics come into operation in areas where there is a need for them, contractual arrangements will become unnecessary, and they should be discontinued as soon as possible. In the Minister's view it will be found more effective as well as more economical to employ additional physiotherapists, whether whole-time or part-time, as members of the staff of the hospital service and carrying out their work within the service, than to seek to continue contractual arrangements whether with individual physiotherapists or with public bodies employing them.

Evening Sessions and Domiciliary Treatment

Loss of time by patients at work with consequent loss to the national economy should be prevented by arranging evening sessions. It is estimated that between 10 and 15% of patients attending physiotherapy departments require evening treatment, and arrangements for it should be made wherever the need exists.

Only in exceptional cases, when it would be harmful to convey the patient to the nearest hospital or clinic, should treatment be provided in the patient's home. Responsibility for domiciliary treatment should be accepted by boards only when prescribed by a hospital specialist either at hospital or through a domiciliary consultation. In such cases treatment should normally be given by physiotherapists based on the nearest hospital or clinic as part of their full-time or part-time work.

Representations have been made to the Minister that there are some signs of a decline in the amount of work being done by blind physiotherapists. It is important that the fullest possible use of their services should be made. The Minister recognizes the peculiar convenience to the blind of work near their homes, and suggests that hospital management committees and boards of governors should give careful consideration to the possibility of appointing blind physiotherapists to any suitable vacancies on the staff of hospital departments and associated clinics, particularly any situated near the blind physiotherapist's home.

DOMICILIARY MIDWIFERY

DOCTORS AND MIDWIVES

In order to avoid the difficulties arising between doctor and midwife regarding the capacity in which the midwife is to act in a particular case, the Local Medical Committee and Health Department at West Bromwich have devised a simple scheme of notification which seems to have worked well in practice. A card which fits part 1 of Form E.S. 24 has been designed to read as follows:

NATIONAL HEALTH SERVICE
MATERNITY MEDICAL SERVICE

To the Domiciliary Midwife,

Re Mrs. .....

.....

I have agreed to take this case.

Date..... .....
(Signature of Doctor.)

Your services will be required as $\frac{MN}{M}$

The card is placed under Part 1 of Form E.S. 24 with a carbon so that the particulars are automatically entered. Either midwife (M) or maternity nurse (MN) is deleted according to whether the doctor proposes to be present at the confinement in any event or only if specially required. The card is given to the patient who is instructed to hand it to the nurse. The nurse is thus made aware of her exact position in the case and of the name of the doctor who has accepted the case.

Further, when acting as a midwife, she knows which doctor to notify when the confinement has taken place. In West Bromwich the M.O.H. has undertaken to notify practitioners that the birth has taken place, the name of the doctor concerned being given to the M.O.H. by the midwife on the formal notification form.

EMERGENCY TREATMENT: ROAD ACCIDENTS

Model forms for use in submitting claims for payment of the fees allowed under the Road Traffic Act, 1934, are still obtainable from the Secretary of the British Medical Association. Under this Act a fee of 12s. 6d. is payable where emergency treatment or examination is immediately required as a result of bodily injury (including fatal injury) to any person caused by, or arising out of, the use of a motor vehicle on a road and the treatment or examination so required is effected by a registered medical practitioner. An oral request for payment of this fee may be made to the person responsible, or, if no oral request is made, a claim must be submitted in writing within seven days from the date of the emergency treatment. The person who was using the vehicle at the time the event occurred out of which the bodily injury arose is the person responsible for the payment of the practitioner's fee, and the fee is payable whether or not the patient is on the doctor's list. Where more than one car is involved it is not for the doctor to decide which is to blame, and the claim in doubtful cases may be submitted to the driver of either vehicle.

PAY OF MEDICAL OFFICERS IN THE ARMED FORCES

An interim reply has been received from the Ministry of Defence to the Association's proposals for improvement of pay of medical officers in the armed Forces. In the reply it is pointed out that changes in the emoluments of Service medical officers cannot be considered in isolation from the emoluments generally of the Service of which these medical officers are members. As a result any proposal for the revision of the pay of Service medical officers raises issues of much complexity. It is hoped, however, that decisions will be reached before long.

The reply then goes on to make the interesting statement that the remuneration of personnel in the armed Forces is decided by the Government and that "negotiations" with associations representing any section of the armed Forces have never been undertaken. It is stated that such "negotiations" would be incompatible with Service discipline. This doctrine may or may not be true, but the Ministry of Defence has to recruit doctors from the same market as everybody else, and the plain fact is that voluntary recruitment of medical officers to the armed Forces has dwindled practically to nothing. It has not escaped attention that the Army is even attempting to hire civilian specialists to serve for limited periods on special terms. One does not know what will be the effect of these appointments on the regular specialist medical officers when the latter find that the short-term civilians are receiving much higher rates of pay.

HEARD AT HEADQUARTERS

Transatlantic Methods

Medical men who have been visiting the United States this summer have come back full of admiration for the technical wonders of American medicine, especially for the clever, dexterous surgery and the efficient hospital organization. Some of the rewards of medical men in the States also make the mouth water. One British surgeon who lately visited New York came back with the opinion that in that city most of the surgeons are earning incomes of about 100,000 dollars a year. In California one proctologist was mentioned whose income is 170,000 dollars. The visitors speak also rather wonderingly of the cost of private hospital beds. The cost is so high that even well-to-do patients can afford to remain only the minimum time. Accommodation which would rank here at about 14 guineas a week runs to 40 guineas in the States. Yet the most enthusiastic admirers of the American way of life seem to retain an unconfessed partiality for the British way of medicine.

The Phone-sitter

We have always had the feeling that more might be done with the telephone. Some intelligent extension, for example, might enable the instrument, when a call is unanswered, to leave a message. That does not seem much to ask in view of other triumphs in sound transmission and recording. Failing a really satisfactory system of that kind, some doctors have gone to work on their own and established a phone-sitter. In South Derbyshire, in a large group of villages centred on Swadlincote, they have organized an emergency telephone system. If the telephone call is made after surgery hours and the doctor is not at home the caller may, through an emergency call, be put in touch with another doctor who is available. The operator at the private emergency phone, whose number is being published throughout the district, has a list of names and numbers of all South Derbyshire doctors, and knows at what times they are available in the evening. If a doctor is urgently needed and the caller gets no answer from his own doctor, he rings Swadlincote 7441 and immediately is given the name of a doctor known to be available. The second doctor only puts in the one attendance, of course, the patient belonging to the first doctor. The interest of telephone exchange operators, industrial concerns, police, nurses, local hospitals, and public health services is being sought, and the plan bids fair to be a success and to bring much-needed relief to harassed practitioners, who deserve their evening off like other people.

A Busy August

What has been the position of doctors this summer from the point of view of work? The verdict of some in busy town practices is that it has been the busiest August in their experience. In holiday centres, too, visitors have shown themselves N.H.S.-conscious to a surprising degree. One practitioner says that it is not so much the number of callers that he minds as that, once the caller is admitted, it is so difficult to get rid of him. It is not one complaint he mentions but a group of complaints, and he wants attention for them all. Sometimes, too, the patients are not as considerate and polite as they might be expected to be. One doctor with a busy practice in the Midlands says that his wife, attending the telephone, has never been so much insulted before. The voice at the other end is more abrupt and demanding than it used to be. "I have told the doctor to come, and that is all there is to it," or some such phrase, is too often the caller's last word.

Questions Answered

Part-time Specialist

Q.—*I desire to know what is the correct procedure for me to undertake if necessary to be recognized as a part-time consultant, having already been so classified as a specialist-surgeon by the B.M.A. and yet again accepted as such by the R.A.M.C.*

A.—If a specialist already has an established appointment on the staff of a hospital, he will be classified by the review committee. If he holds no such post, he will acquire specialist status only after successful application for an appropriate appointment.

Compensation

Q.—*Can you advise me when compensation will be paid if one leaves the Service, and has the rate of same been arrived at*

A.—Compensation is payable on retirement from practice as a medical practitioner providing general medical services under Part 4 of the Act or Part 4 of the National Health Service (Scotland) Act, 1947 (Compensation Regulations, 13 (3)). It will not be possible to fix the exact rate, expressed in years' purchase, payable to individual practitioners until the aggregate of all claims is known. This cannot be ascertained until at least two months after the passing of the Amending Act. Any doctor who claims to suffer hardship through delay is entitled to apply for a payment on account.

Deductions from Assistant's Salary

Q.—*I shall be grateful if you will give me the details of the deductions required to calculate the net amount to be paid to an assistant whose gross salary as outdoor assistant is £1,000 per annum. I refer, of course, to deductions for stamps, superannuation, etc. He is paid monthly.*

A.—Deduction should be made as follows: (1) *Superannuation.* The principal is responsible for the recovery from the assistant of 6% of the assistant's salary (excluding car allowance), *i.e.*, £60 per annum. (2) *National Insurance.* The assistant is required to pay 4s. 11d. per week (3s. 10d. in the case of a woman) as the employee's contribution to National Insurance. The monthly deduction in respect of superannuation and national insurance in the case of an assistant earning £1,000 would be approximately £6 1s. 4d. (3) *P.A.Y.E.* The assistant should produce income-tax form P.45 or obtain a code number from the local Inspector of Taxes. The principal should obtain a tax deduction card, P.11, from the local office, which will also furnish him with the necessary tables showing the amount of tax to be deducted monthly.

Correspondence

Grading of Hospital Staff

SIR,—Our profession was once characterized by dignity, chivalry, and, above all, humanity. Have we lost our soul in the trials and frustrations of the past year? The most colossal injustices are being perpetrated. Every doctor to whom one may speak is horrified. Yet the only reaction appears to be an occasional letter in the Press. The Ministry's guiding principle in extending this obnoxious grade of S.H.M.O. is "divide and rule."

A meeting some months ago of all consultants in this sub-region unanimously demanded that this grade be used only according to the Ministry's original promise. Whilst our colleagues are being deprived of their livelihood we, who are more fortunate, are advised by our leaders to enter the Service, for have they not secured the remarkable concession that clinical teachers will be adequately paid?—a nice commentary on the representative nature of the negotiating body! We were then told that many of the anomalous gradings were due to lack of precise information and would, of course, be amended on appeal. Now that the appeal results are coming through we find that the grading committee is unrepentant in its perversity.

In this city we have four general surgeons solely in consulting practice. Two of them, both about 40 years of age, both over twelve years qualified, both with fellowships and hospital appointments, have been graded S.H.M.O. These men have done nothing but surgery for the past twelve years and are recognized by all the practitioners in the town as consulting surgeons. They run their hospital out-patients along with us and do the customary major operative lists. There is no possible question that these men fall within the category envisaged by the Spens Committee for consultant status and salary. An anaesthetist, only six years qualified, is graded as a consultant (good luck to him).

An even better example of the chaotic state of this region. An officer at the mental hospital left six months ago to take up another post where he has now been graded as a consultant. Our grading committee, unaware of his move, has published the result of its deliberations on him—a J.H.M.O.

The medical advisory committee to the regional hospital board, of which committee I am a member, has protested vehemently against these proceedings. We are completely powerless, and it seems that the board itself is equally so.

Let us review the constitution of these grading committees. Who proposed the members we do not know. We do know that they had to be approved by the Ministry of Health. We know that they were summoned to a secret meeting at the Ministry. What instructions did they receive? Were they told that in order to avoid the expense of honestly implementing the Spens Report a certain proportion of consultants must be downgraded? All the committees, review boards, etc., are unpaid except this grading committee. It is significant that them alone the Ministry pays for their work. Are they paid in pieces of silver?

Those responsible for this travesty of justice are our own colleagues, as the Minister is never tired of reminding us. Will the profession still remain silent? We have men of good will—Lord Horder, Dr. Walshe. There is much we can do. We can resign from all committees and refuse to take any part in running the Service until these injustices are remedied. We must act now, and unanimously.—I am, etc.,

Southsea. J. C. PRESTWICH.

Grading Ophthalmic Specialists

SIR,—Mr. Frederick Ridley (*Supplement*, August 20, p. 96) must be congratulated for so bravely coming to the aid of his less favourably placed ophthalmic colleagues. As he says, there is a very large body of clinical assistants holding postgraduate diplomas, many of whom have held house and registrar appointments, all with several years of whole-time ophthalmic experience. Prior to N.H.S. these men and women were accepted as specialists in their own locality by general practitioners, and many occupiers of provincial honorary staff appointments would come in this category had they elected to remain in the academic centres.

As Mr. Ridley observes, these "specialists" do not fit fairly into S.H.M.O. grading, and it is manifestly unjust that a provincial "honorary" should be refused consultant status, as, if rumour be true, is already occurring. In ophthalmology this group of clinical assistants (Mr. Ridley's "second and much larger group") outnumbers the honorary staff consultants and on an S.H.M.O. grading will be asked to accept a salary far less than that earned prior to N.H.S. I feel Mr. Ridley's terminal suggestion should be considered by the authorities, or it will be difficult to cope with ophthalmic out-patients if the clinical assistants are antagonized.—I am, etc.,

London, W.1. H. F. MELHUISH.

Grading of Anaesthetists

SIR,—Your correspondent "K" (*Supplement*, August 13, p. 83) strikes an important note when instancing that all the visiting staff in teaching hospitals were "unanimously" graded as consultants, irrespective of the fact that some were indulging in private general practice and N.H.S. general practice and some had no higher qualification. Particularly was this so with occasional "anaesthetists." Even in the instance of the smaller hospitals many of these "consultants" slipped through the back door. Of all the disproportionate anomalies, surely the most glaring is the payment of the same fee to an anaesthetist as to a surgeon.—I am, etc.,

"K.2."

Qualifications of Specialists

SIR,—Your correspondent, "Sic Vos Non Vobis" (*Supplement*, August 20, p. 96) strikes the right note in his plea that specialists should have three higher qualifications. I feel, however, that he has been too lenient in his requirements, and that every would-be specialist should have at least five higher qualifications. After all, every physician or surgeon should be able to interpret his own *x*-ray pictures, and so should possess a diploma in radiology. Similarly, in order to prevent unnecessary operations or investigations being performed upon neurotics, a diploma in psychological medicine should be held. It has, moreover, long been held that the modern surgeon is becoming a mere technician, and so a good case could be made for insisting that every surgeon be a Member, and preferably a Fellow, of the Royal College of Physicians.

After these academic qualifications have been obtained, a medical practitioner should spend at least 30 years in the practice of his chosen specialty, and only then should be eligible for the post of consultant. It is only in this way that we can uphold the high prestige of our noble profession.—I am, etc.,

PER ARDUA AD ASTRA.

N.H.S. Pros and Cons

SIR,—With all the criticisms levelled against the National Health Service you may be interested in my observations of practice under the scheme as compared with a large general practice in Johannesburg, South Africa. I have been on exchange for five months now, and can record my own opinions as I find conditions in this practice. I am not in a position to compare this practice with other similar-sized practices under the National Health Service, but I have had an opportunity to discuss and compare notes with other general practitioners in this area, and their experiences do not differ substantially from mine.

ADVANTAGES

The main advantages of practice here are:

(1) *Security of Income.*—A practitioner with a large panel is assured of a reasonable income and can budget accordingly.

(2) *Expenses are Low.*—One does not have to employ a receptionist; there are no bills for stationery, account forms, stamps, etc. (In my own practice nearly 1,000 accounts are sent out at the end of each month.)

(3) *Visits.*—Are localized to within a small radius of the surgery, thus reducing wear and tear on the car and saving a good deal of time. (In Johannesburg my partner and I each cover some 60 miles a day visiting patients.)

(4) *Regular Hours.*—With the regular surgery hours one has a fair amount of leisure between morning and evening surgeries. In my experience here most patients are co-operative. Most of the calls are in before the end of the morning surgery, and can be completed before lunch. With the exception of confinements I have had very little night work, and the few night calls have been genuine. Few of our patients take undue advantage of the "free service."

(5) *One is Not Harassed.*—I find worry far more exhausting than work. In private practice one is often tyrannized by patients demanding preferential treatment "quickly." Here, if I am harassed it is by the work, not by the patients.

(6) *Freedom of Prescription.*—It is a great feeling of satisfaction to be able to prescribe what one feels necessary without having to consider the expense to the patient. Recently a consultant prescribed a course of sex hormones for one of our patients. These hormones are most expensive, and the course of injections prescribed would have cost the patient privately about £30. People of slender means can now afford the luxury of diagnosis and treatment.

(7) *Freedom to Call on Ancillary Services.*—Another great "worry saver" is the ability to call on the experts in a difficult case without having to consider the expense to the patient.

The nursing services are a great help, and I must make special mention of the group bed service. I have found the ladies in charge most friendly and helpful in finding beds for hospital cases. The time they save one in arranging for a patient's admission and transport is invaluable.

DISADVANTAGES

(1) *Volume of Work.*—The main disadvantage of the Service is occasioned by the volume of additional work entailed in catering for a vast number of people. A large number of people attend every surgery, and one has to see them all in a limited time period. One naturally cannot give every patient a routine examination, but comparatively few need it. One learns quickly to "spot" the really ill patients, and, speaking for myself, I have not hesitated to spend as much time as necessary on those really needing it. In the days when one dispensed for private patients a lot of time was spent in the dispensary.

It is impossible to take a lengthy history and keep a record of every case.

(2) *The Hospital Services are Overtaxed.*—Patients have to wait a long time for hospital appointments, and the supply of beds is totally inadequate to the demand. The result of this is that the practitioner has to wait a long time before he gets a report on a referred case.

(3) *Clerical Work.*—A great deal of time is taken up in writing certificates, reports on patients, filing of new cards, removing and dispatching of deletions, etc. This is inevitable; the alternative would be chaos. So far as the authorities are concerned, they have done their best to minimize the work for the doctors. Most certificates merely need the signature, date, and diagnosis. A clerk, even part-time, can take a lot of the routine clerical work off one's hands.

On the whole the advantages more than outweigh the disadvantages, and I feel sure the Service will improve considerably as time goes on. It is certainly a boon to the man of limited means. With the introduction of a higher capitation fee and a reduction in the size of panels I feel the practitioner would devote more time to the individual patient.—I am, etc.,

J. S. ZIDEL.

Thornton Heath, Surrey.

Telephones

SIR,—I notice with pleasure that the medical profession is at last waking up to this telephone ramp or racket. I refer to Dr E. J. Jenkins's letter (August 27, p. 417) and Dr. Thomas Leven in "Points from Letters" (p. 420).

In the days when I was so stupid as to think the duty of the executive council was to help the practitioners on its lists I sent the clerk the following letter, dated March 4, 1949:

"DEAR SIR,—I should be obliged if I could have the benefit of the advice and guidance of the executive council.

"I find that my telephone rental exceeds my income from the National Health Service. Until I joined this Service the G.P.O. allowed me to keep on the "domestic" rate, but now insist that I should pay "trade" rates and have it dated back to July, 1948. (Naturally I am protesting in the hope of putting off the evil day.) Do the council consider that a telephone is essential for doctors on their list? Would the council grant me permission to do away with it for professional purposes? Even if this be given, the G.P.O. will not allow a domestic telephone if there is a professional plate outside the house, and so, as my plate does not seem to produce any benefit to me, perhaps the council will allow me to remove that as well in order to satisfy G.P.O. regulations. Members of other professions satisfy these regulations and rent a "domestic" telephone by having their advertisement on an enormous board outside their churches, chapels, synagogues, or what not. When we have our health centres I am willing to have my advertisement plate there complete with my domestic telephone number. Although I am fed up with some of the regulations to say that a N.H.S. doctor may have a telephone and a plate, it is future that the council should be good enough to gracefully give permission for their removal. At present they could grant the basic salary in order to keep up these appearances, but that is another matter."

"As my telephone account is now overdue an early reply would oblige."

The reply, dated March 29, stated the matter had been considered by an appropriate committee but they were unable to agree to your suggestions." I followed this up with a request as to what were the barest essentials required by the executive council for a practitioner to provide out of his own pocket. After two "hasteners" I received the helpful reply on May 18 that the clerk had nothing to add to his letter of March 29.

I think it disgraceful that the G.P.O. should differentiate against us doctors as compared with ministers of religion, and I think it most uncharitable that our executive council should not help us to overcome this ramp. I should like to know if any of your correspondents can suggest what action the executive council could take if one did do away with the telephone. Dr. Jenkins and I may be legally correct to do away with our telephones, but we have to reckon with our employer, the executive council, which, having the ear of the Minister to the exclusion of its employees, can do as it pleases with its panel slaves. I add my support to Dr Thomas Leven that the B.M.A. should demand that this expense of telephones be met by the National Health Service, but I am pessimistic as to the result.—I am, etc.,

South Harrow, Middlesex. I. PITT PALMER.

Consultants and Specialists

SIR,—With regard to distinction awards, and a few other problems that are a source of worry at present, may I make a few suggestions that might prove helpful? Distinction awards could best be voted for, by a secret ballot, by the assistants of each consultant. They, above all others, are in a position to judge how much time and attention is given to patients. Each consultant could be judged by the proportion of letters to him that he received. But let the ballot be secret, for human nature is frail.

Drugs for private patients. Though it seems unfair for patients who for some good reason of urgency, such as being very short of time, chose to be private patients to have to pay for their drugs on top of their doctor's fees, there is no denying that those who think in terms of private patients are in the habit of luxury prescribing. Why should all secret drugs in the *British Pharmacopoeia* be allowed? If anything under a special trade name was ordered it would have to be paid for unless a satisfactory explanation could be given.

Why not abolish the Consultants and Specialists Committee or make it function? There are at present only "consultants" and "also-rans"—i.e., various odds, ends, and "part-time medical officers." This is by one of the latter.—I am, etc.,

London, W. ANTHONY HOWARD.

Good and Evil

SIR,—Dr. L. S. Woolf (*Supplement*, August 27, p. 195) surely mistaken in thinking that in the future doctors should be able to get places in heaven with the good they do if they get them under the N.H.S. Such a view is in part completely at variance with Anglican doctrine and in part a view is accepted we may soon find ourselves in the position of "in N.H.S. benefits" and that only. Some people will be able to replace the fear of hell with the fear of the Minister of Health. The righteous will of course do all possible to earn their full stipend and pay for what they need in the form of penance.

That the N.H.S. could run as Dr. Woolf says and pay bonus of grace to others that are worthy of such payment is a matter of opinion and not of fact. In the absence of evidence in the form of actual service and practice I

whole idea of the N.H.S. itself. It was said long ago by one who laid down absolute and final standards of good and evil, "Ye shall know them by their fruits," and "Can a corrupt tree bring forth good fruit?"

There will certainly be "no health in us" as a profession or a nation whilst we continue to argue about details of the N.H.S. in operation, and fail to see that it is only a particular instance of the age-old problem of good and evil.—I am, etc.,

Bournemouth. DAVID HARDIE.

This Medicine

SIR,—Shortly after a prospective Tory M.P. had phoned to ask me how he could claim the refund of a chemist's bill for 7s. 3d., incurred privately, a farmer drove in. He had come to ask for a certificate in support of his application for supplementary petrol, because he had had to drive himself to hospital for out-patient treatment. The next phone call was from a glider factory, requesting some certificates about an employee's illness, so that their auditors would not query items of "sick pay."—I am, etc.,

RICHARD N. THEAKSTON.

Payment of Locums

SIR,—I know that I shall be raising a hornets' nest about my ears in bringing this problem up at all, but I feel it will be worth it. The common belief held by the public that doctors, as a class, were not particularly interested in money and not moved by mercenary impulses is now, very rightly, fast disappearing. How rightly is shown by the mean and ungenerous way in which most doctors, when acting as principals, behave to their assistants or locums.

Take the case of the locum. The average fee offered is 14 guineas a week, plus 2 guineas a week car allowance, plus accommodation. Some more generous-minded principals offer 16 guineas a week. We all know perfectly well that the spending power of the £ now, as compared with 1914, is, according to official figures, only 7s., and I feel strongly that 3 guineas a day (especially when the day usually means being on call for 24 hours) is the minimum that ought to be enforced on all doctors when employing a professional colleague. And 2 guineas a week car allowance is simply ridiculous. We all know perfectly well that when our own cars break down the least we have to pay for the hire of a car is 10 guineas a week. Here again a minimum of 4 guineas a week car allowance would be by no means unreasonable and should be agreed to generally by the profession.

The remedy is not the obvious one, and is not necessarily in the hands of the locum. Too often the locum or would-be locum is too hard up to make a stand about this, and has to submit to being exploited by his professional colleagues.—I am, etc.,

"AN OCCASIONAL LOCUM."

Permanent Assistant

SIR,—I have been reading the correspondence regarding principal and assistant with interest until I noticed the letter by "P. Q. R." (*Supplement*, August 27, p. 118). I qualified M.B., Ch.B., 1941, and having spent the usual time as resident in hospital I joined the R.A.M.C. Coming back to this country, I entered general practice as an assistant after a three months' refresher course in hospital.

In my three years as an assistant I have spent a year with three different principals, for the simple reason that at the end of a year's tenure when I asked what my prospects were I was politely told that I was a permanent assistant, and that they had no intention of taking a partner ever. In each case I moved, realizing the logic of their argument, which enables them to have more than half their work done whilst they can enjoy the extra capitation fees 6,500 patients bring. It surely is time that the plight of assistants was investigated. To the public we are assistants and will always be treated as such, yet if there are any night calls the assistant is there to do them. Also it is galling to read advertisements for trainee assistants with a salary of up to £200 a year more than your own.

And finally the prospect of being an assistant for years to come, moving gipsy-like from place to place, hoping for one's Shangri-La, is not a pleasant one, but is one that must face many doctors of my own age, who are not allowed to put up their own plate, who are exploited by their well-to-do principals as a form of slave labour, and whose chance of acquiring a practice under this National Health Scheme is as rosy as that of the poor befuddled fool who fills in his football pool each week. All I can say to "P. Q. R." is that he is a lucky member of the community to be in the position he is in, for I would willingly get into debt to obtain a practice of my own.—I am, etc.,

X.Y.Z.

Practice Vacancies

SIR,—Dr. W. Stanley Sykes (*Supplement*, August 27, p. 118) by juggling with some figures comes to the conclusion that at the age of 55 and after 28 years of practice he still has 72 years before he retires. Notwithstanding his protestations at disconcertment, he must like the new scheme, or he could retire within three months and collect his compensation without the expense of advertising or a commission to an agent. Or is it that in the 27 years of practice under the much-vaunted "free medicine" he has not been able to provide for his retirement?

Let us now look at his facts and figures from a more realistic viewpoint. Is it not possible that the great number of practices advertised for sale each week pointed to dissatisfaction of the doctors concerned with their lot? As I do not suspect Dr. Sykes of being a disciple of Bernard Shaw, nor are the majority of general practitioners potential Methuselahs, his inferences from the number of 20,000 G.P.s in practice are erroneous. Let us take that on the average they will work a further 20 years each. This will cover the older men with anything up to 10 years' work ahead and the youngsters with 30 years of activity to look forward to. This means that even without any extension of the scheme 20,000 new G.P.s will be absorbed within 20 years. One thousand a year, not counting the needs of hospitals, public health authorities, etc. Surely a very attractive profession to consider with its generous retirement scheme.

I spent my holiday this year in a famous French seaside resort, well known for the longevity of its population, which is 10,000. During the first week there I saw six funerals, and on inquiry I learned that these were all of local inhabitants. Had I used Dr. Sykes's system of statistics I would have arrived at a death rate of 31.2 per thousand. For comparison I give you the figure for Romford for 1948—8.2 per thousand.—I am, etc.,

Romford, Essex. LEON M. SHIRLAW.

Association Notices

Diary of Central Meetings

SEPTEMBER

28	Wed.	Private Practices Committee, 2 p.m.
29	Thurs.	Non-professorial Group Committee, 2 p.m.
29	Thurs.	Ethical Rules Subcommittee, 2 p.m.
29	Thurs.	International Relations Committee, 2.30 p.m.
30	Fri.	Ophthalmic Group Committee, 2 p.m.

Branch and Division Meetings to be Held

KENSINGTON AND HAMMERSMITH DIVISION.—At Postgraduate Medical School, Ducane Road, London, W., Friday, September 23, 8.30 p.m., clinical meeting.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

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THE USE OF EXPERIENCE*

BY

Sir HENRAGE OGILVIE, K.B.E., M.Ch., F.R.C.S.

Surgeon to Guy's Hospital

We are constantly receiving impressions by all our senses—by touch, sight, sound, taste, and smell—and all these impressions are experience. The baby starts to convert experience into knowledge: before it can talk it is already grouping impressions by their likeness or their difference, and forming vague conceptions like "mother," "food and hunger," "dangerous and friendly." The growing child, the adolescent, the grown man and woman, continue the same process. Impressions crowd in upon them, giving them the raw material—experience—which is converted into the finished article—knowledge—in the factory of the mind.

Experience comes to all. It comes equally to rich and poor, old and young, just and unjust. Yet some learn from it no more than a reflex existence, the knowledge to eat and sleep and breed, to read the thoughts of others on the printed page or live the emotions of others on the lighted screen, to exchange a small assortment of hackneyed phrases with other robots. Some build up knowledge and become wise: they develop a personal outlook that enriches others and adds to the store of their time. The reason for these differences lies not in the quality of the seed but in that of the soil on which it falls. Impressions are fleeting things. They cannot live unless they are welcomed, studied, compared, classified, and grouped. Experience can be made useful only by certain qualities of the mind, some given by inheritance, some by parental example, some by the influence of teachers or writers.

Failure to Learn from Experience

People fail to learn from experience for three reasons. First, because they have not learned the habit of thought. They bolt their impressions without savouring them, as a dog bolts his food. They do not take their raw material into the factory, but let it pass straight from the delivery gate to the refuse dump. They never classify—that is, they never say to themselves, "Something like this happened before in the same circumstances." Thus they never take the next step, from experience to experiment, to deciding, by repeating the circumstances, whether the likeness observed between two experiences was an accident or a consequence.

Secondly, because they have classified too much, or rather because they have allowed their habits of thought to become automatic. They have organized their factory for mass production, so that it cannot deal with the unusual order. They unconsciously shut out all new experience by classifying everything under headings already fixed. Thus astronomers dismissed for years the observed experience of the variations in the perihelion of Mercury by classifying them under the heading of instrumental error, and correcting for them by averaging observations. Thus scientists in the last war boosted a valueless antiserum for gas gangrene because it had been proved in the laboratory to protect mice from the effects of the intraperitoneal injection of cultures of *Clostridium welchii*, and supported their advocacy by a series of meaningless observations in the field, while ignoring the significant experience that men transfused early and adequately with whole blood seldom got gas gangrene.

Thirdly, because, having made the whole of one branch of knowledge their province, they fail to attain that last achievement of education, the knowledge of where their experience is inadequate, of where their knowledge ceases and their ignorance begins. Having acquired supreme mastery of one department of learning they are apt to assume that the whole is theirs, to forget that the highest wisdom is the realization that no man can know everything, that he is indeed wisest who knows his ignorance and where to turn for help when he needs it. One of the greatest physicists since Newton died needlessly and before his time because he treated his own strangulated hernia with household remedies and turned only many hours too late to those who had made such ailments their life's study and who could have saved him.

The beginner fails to use experience because to him it is so multitudinous that he cannot handle it until he has acquired some of the technique of the warehouseman or filing clerk. The learned man is often blind to new experience because the mass of knowledge he has acquired seems to him complete, and he sits, old, weary, and disinterested, among his hoards, looking with lack-lustre eyes on any new treasure that is offered to him for acceptance. The ideal is the man of learning and wide classified experience who is yet able to see and appreciate at its proper value the new fact which does not fit into its appropriate niche. Such are our geniuses. Such was Hunter. Such are Einstein and Fleming.

Broad Principles

Where so many fail, how are we, who wish to do better than the plodders but can never hope to catch the leaders, to make the best use of the experience that life offers to us? Most of us realize that such use as we have made of experience has been due to chance rather than to conscious planning on our part. Most of us cherish the belief that

*Hunterian Oration (abridged) delivered to the Hunterian Society on March 7. The full text will appear in the Society's *Transactions*.

were we to start again on a well-designed and documented system we should get much further. We can, however, agree on certain broad principles.

First, we should make our experience as rich and as varied as we can; not hunting sensations, for the conscious search for new stimuli soon deadens the ability to receive any and abolishes that eager scrutiny with which we should examine those fresh experiences that come naturally, but welcoming experiences from whatever source. We should keep our receptors uncovered and sensitive. We should not refuse to see, hear, touch, or taste anything because we have been warned against it or because it comes to us in unpalatable guise.

Secondly, we should examine each fresh experience with careful scrutiny and an open mind. Even though it be one of a group with which we are already well familiar, does this one contain anything new? Does it repeat and confirm the category to which we had already allotted the others, or does it bring some fresh aspect which should impel us to pull the others out of their pigeon-hole and look at them again?

Thirdly, having examined and accepted it we should turn it over more carefully in our minds, appraise it, classify it, and allot it to one of the trays on our mental desk—"action," "pending," or "finished."

Fourthly, in all our use of experience we should jealously preserve our individuality. Each of us is something new in this world. There has never been anything quite like us before and there never will be again; and that "us-ness" is our most precious possession. We must look at the guidance and the knowledge we get from books and from teachers as a help but not as a directive.

Fifthly, we should pause from time to time for a complete spring-cleaning. We should haul out all our treasured stores of experiences, dust them, and stand back and look at them. Are they all worth keeping? Would some of them go better in another place? Do some of the bits that seemed to be disconnected when we put them away fit together now? Where have we got to? How did we get there? What lies on each side of us? How are those faring who are going along the same road? What lies ahead? Is it the right path, or have we reached a turning-point? Whichever is our goal, how do we get there?

Lastly, we should all the time remember that we are at one stage of a journey. So far so good; or is it? A further journey and possibly better things lie ahead. As we travel we must keep a spirit of alert and adventurous inquiry. We must never look on any conclusion as final, but merely as the best we have been able to do with the material we have encountered so far. We must seek Truth, remembering that when we meet her it may be in a guise we do not expect and coming from a quarter we have despised, and when we have found her we must follow her.

Experience and Judgment

What have any of us learned from experience? If we are honest with ourselves we must answer, "Not as much as we should have." Without a lifelong and unflinching honesty with ourselves we can learn nothing. We may dress the shop window as we like, we may develop a sales personality that is convincing to others, but unless our accounts and our stock-taking are entirely honest we shall finish as cheapjacks. The greatest of the men before us said, "The art of Medicine is long and time is fleeting. Experience is fallacious and judgment difficult." But with experience, carefully recorded and sorted, judgment will come.

Experience properly used gives us a set of standards which fresh experiences can be judged. We learn to size up our patients quickly and fairly accurately as human beings—if they are genuine, self-dramatizers, or humbugs; if they are brave or timid, if they are minimizers or exaggerators, if they are concealing something or merely nervous; and in the light of this assessment we are able to apply a correcting ratio to the symptoms they relate that gives them an absolute value in our diagnostic assessment. We learn to evaluate pain, particularly its severity and its nature, and to construct a scale of our own by which we associate certain pains with certain diseases. We learn that too much pain in too many places is just as much an indication that nothing is seriously wrong as no pain. We learn to know when a patient is ill, when one who has been ill is getting better, or when one who was on the road to recovery has taken a turn for the worse. We come to say by instinct rather than reason, "That child is too ill to be suffering from appendicitis," "That pain is not severe enough for gall-stone colic." We learn what disease to expect at certain ages, in either sex, and in persons of certain appearance, occupation, or bodily habitus. We become so familiar with all the characters of common complaints that a single unfamiliar feature strikes a warning note without our having had recourse to the intellectual process of reasoning.

Physical Signs

We learn to use physical signs, first by rule of thumb, later as conveying certain specific but limited information that is entirely accurate within those limits. Some of the physical signs that were drilled into us as students have no more value than in repeating an obvious fact in alternative and less simple language. All the eponymous signs linked with the exophthalmos of Graves's disease, Stellwag's sign, von Graefe's sign, Moebius's sign, tell us nothing except that the patient is pop-eyed, a fact we already know. Before any of those signs are present the experienced eye can detect an early exophthalmos in a slight puffiness of the upper lid that separates the appearance of the patient from that of the many thousand normal men and women whom we observe daily with no more than a casual glance in the bus and the tube. More important than the names of these buried worthies and the elicitation of their signs is the establishment, without leading questions, that the eyes have, in fact, become more prominent. This can be done by asking if friends have remarked on any change in her appearance, or by looking at a photograph taken before the illness started. The fact that a tumour in the flank can be pushed between a hand in front and one in the loin does not necessarily mean that the tumour is renal; all it tells us is that the tumour and the kidney move as one. In most cases a tumour that gives this sign is one arising in the kidney, but I have recently seen a large mucocele of the gall-bladder and a cystadenoma of the head of the pancreas give the same sign.

We must regard the rules of diagnosis with the same critical impartiality. Courvoisier's law, that in obstruction of the common bile duct by stone dilatation of the gall-bladder is rare while in obstruction due to other causes it is common, is nearly always reliable, but Courvoisier's explanation of his law, that in cholelithiasis the gall-bladder cannot distend because it is fibrosed, is rubbish. The gall-bladder full of stones is often normal in appearance, concentrating power, and microscopical structure, and if the stone obstructs the cystic rather than the common duct it can distend to the most enormous size. In any case fibrous tissue, however dense, becomes plastic when it is inflamed, and in the presence of low-grade infection even the toughest

fibrous structures in the body, the capsule of the hip-joint and the atlanto-occipital ligaments, can stretch. The gall-bladder in common-duct obstruction by stone does not dilate, because the obstruction is partial and intermittent.

We learn by experience the simple truth that our task is to treat the patient and not the disease, that very often the disease that is so obvious to us is not the trouble that is worrying the patient, or perhaps that it is just part, and not necessarily the most important part, of a general derangement of function. The disproportion between the lesion and the general health of the patient in cancer is a matter of constant wonder to the observant doctor. Often we see a patient on the cemetery side of 50 whose sallow complexion and rapid loss of weight and strength tell the unmistakable story of malignancy, yet we find nothing until a routine radiograph shows a small carcinoma of the lung. Yet again we see a man or woman with advanced cancer in a state of rude and robust health.

The temptation to treat a clamant lesion is almost irresistible, particularly to the surgeon.

A public-school boy was recently sent to me for internal derangement of the knee. He could produce a crack like a pistol-shot from both knees by kneeling down and then bending forwards. I could reproduce the same crack in a muffled form, and found it came from the posterior horn of the internal cartilage, and not, as I expected, from the external one. It was very tempting to suggest bilateral meniscectomy. But these cartilages, though they cracked, never locked his knees; though they were abnormally mobile they were not dislocated. He had a history of asthma and fainting attacks and a pronounced cardiac arrythmia, and his knee noises were part of a general locomotor atony that was obvious in a laxity of all his joints and that would have been made worse by meniscectomy at this stage. He required careful observation and nursing through the hazards of adolescence by a wise physician, with surgical intervention as a possible side issue in the future.

During the summer a lady of 73 came to Guy's with veins the diameter of a fountain-pen running their tortuous course from the groin to the axilla on each side, but not approaching the umbilicus. She clearly had obstruction of the inferior vena cava. In a search for the cause of this obstruction I asked for a barium meal, which showed the largest duodenal diverticulum ever recorded, a cavity the size of a tennis ball full of air and bismuth. I admitted her for laparotomy, but, fortunately for me and for her, I was served by a registrar who is wiser than I. "Why operate?" he said. "The lady has an obliterated inferior vena cava, but that is a historic event; her compensation is complete, she has no oedema of the legs, and her renal veins are not involved. She has an enormous diverticulum, but that is no more than a show-ground exhibit; it may originally have had something to do with the thrombosis, but it is now symptomless and harmless. She is as fit as any woman of her age, fitter than most." So we sent her out, with strict instructions to come again to Guy's if she felt ill, for though her lesions may not need operation they certainly need preservation for posterity.

War Experiences

War is the winnowing-ground of experience. During the recent war we learned much of the fundamental problems of injury and infection. We also had the opportunity, never offered in peacetime, of studying the common ailments in significant numbers. In this way we learned some things that are surprising, even shattering. We learned that non-specific epididymitis, which is barely mentioned in text-books, is eight times as common as gonococcal epididymitis and 28 times as common as tuberculous epididymitis. We learned that stress fractures, peacetime rarities, become quite common when adolescents are suddenly called from sedentary jobs to strenuous exercise. We learned that the average operation for the repair of an inguinal hernia in a young man, performed by the average British surgeon in the average British hospital, has a recurrence rate of 20%, and that three-quarters of the recurrences take place in the first six months. We learned that the treatment of varicose veins in this country is not much above that of the African witch doctor. The recruit seen to have visible veins on the lower limb was sent automatically to a vein clinic, automatically transferred to hospital, and automatically treated by the method in vogue at the moment, just as a pig that walks up the ramp of a Chicago factory is pretty sure to come out the other end as two hams, two sides of bacon, and several pounds of sausage.

I and my fellow consultants came to two firm conclusions—that the presence of visible veins along the saphenous system or even of mild aching in hot weather after long standing is not necessarily an indication for treatment, and that the injection of sclerosing substances has no place as the sole or as the primary treatment of varicose veins. I personally would discourage the injection of varicose veins at any stage. They should either be left alone or be treated by high saphenous ligation, a safe but no means simple operation that is nearly as badly done to-day as is that for hernia. The communications between the superficial and the deep veins must also be closed. This may be done by several methods, only one of which is really reprehensible—retrograde injection of sclerosing solutions through a ureteric catheter. I know of two deaths that have followed this procedure. I have also seen a young officer changed thereby from a good rugby threequarter to an oedematous invalid.

The Hollow Needle

This needle has been a mixed blessing. It must bear the responsibility for spinal anaesthesia, and for a number of procedures that substitute blind chemical destruction for clean anatomical removal, such as the injection treatment of veins, haemorrhoids, herniae, hydroceles, ganglia, bursae, and other local swellings. On the other hand, it has allowed the intravenous administration of fluids—a method that may be life-saving, but one that is greatly misused to-day. Some people never seem able to allow their patients to use the channels designed by nature to receive nourishment and to evacuate waste. Food and fluids given by the alimentary canal allow the tissues to select and keep what they want, and to reject what is harmful or surplus to requirements. Fluids given intravenously by-pass all the defences set up by the body to protect itself against excess of any constituent, against bacterial entry, against thermal, chemical, or physical damage; they give the patient what the surgeon thinks his tissues need and what they are dammed well going to get. Nearly all drips set up at the start of an operation are not merely unnecessary but harmful. At least half of the drips set up afterwards are an automatic routine or an assurance against worry rather than a considered form of therapy.

Experience and Wisdom

But I would return to my main theme, that from experience we should derive wisdom. Let us remember that experience is never finished and wisdom is never complete; that we are always more likely to meet the common than the unusual, but that what appears at first to be a simple and familiar clinical problem may yet be something we have never met, even something hitherto unrecorded; that no problem is so straightforward that it does not need careful study, or so difficult that some solution will not appear if we seek steadfastly.

As a surgeon gets older he tends to accumulate the rarities, the difficult decisions, the doubtful issues that his colleagues are only too pleased to pass on. I will mention a few that I have had in the past year.

An old man came to hospital with vague indigestion. An indefinite swelling could be felt on the left of his abdomen. A barium meal showed that the whole of his alimentary canal was to the right of the vertebral column, indicating that it was displaced by a retroperitoneal tumour. An intravenous pyelogram showed two renal pelves on the same side of the abdomen. For a moment I jumped at the diagnosis of a fused kidney, till I realized that the two pelves were not on the side of the swelling but on the opposite side. Operation disclosed a large retroperitoneal lipoma, extending from the pelvic floor to the diaphragm and from the flank to the midline. It was removed with little difficulty and not much bleeding, and was found to weigh 14 lb. (6.35 kg.).

Another man presented with indigestion, wasting, and glycosuria. Radiographs showed that he had a chain of large stones in his pancreatic duct. I could get no advice from books or from my friends how such a problem should be tackled, but I remembered how Roscoe Graham had learned that even a small adenoma could be felt in the head of the pancreas if the pancreas and duodenum were lifted together off the right kidney and palpated between finger and thumb. When I did this I was able to push the stones towards the ampulla of Vater and remove them through the duodenum.

Even the simplest case may be more complex than it looks.

A man arrived at Guy's complaining of a small sinus in the right iliac fossa but otherwise perfectly well. The students immediately suggested actinomycosis, but all of us were astonished to find that lipiodol injected into the sinus outlined all the burrows of a honeycombed liver and then passed through the diaphragm to give a perfect bronchogram.

On the other hand, a case that seems to be desperate may turn out to be quite trivial.

A lady of 50 had been known to have a duodeno-colic fistula since she was 18. Such a lesion is extremely rare, but repeated radiographs had shown that it was, in fact, the cause of the recurring attacks of postprandial diarrhoea from which she had suffered. Between attacks she enjoyed excellent health, and concurred with the advice of her medical attendant that the only risk she ran was that of falling into the hands of a surgeon. However, at 50 an attack that started in the usual way went on to steady deterioration. Her diarrhoea became more profuse at every meal, and finally the stools contained almost unaltered food. She lost weight rapidly.

When I saw her she was a skeleton. Three days later she had lost another 4 lb. (1.8 kg.) and weighed 5 st. 2 lb. (32.66 kg.). Operation, which I had wished to postpone till she got into better shape, had to be undertaken as an emergency. I expected, from the recent history, to find that an old fistula had become carcinomatous. Actually I found a little tube like a section of appendix joining the third part of the duodenum to the back of the ascending colon. A snip with scissors and two purse-string sutures, and the job was finished. A collection of calcareous lumps showed that the original fistula had been caused by a caseating tuberculous gland opening simultaneously into the two viscera; recent ptosis had distorted and blocked the duodenum distal to it.

Surgery of Cancer

In much of major surgery the surgeon knows the size of the job he has to undertake and the strength of his material. By forethought and preparation he can often simplify the task and fortify the material, and if he finishes with those two requirements of a successful operation, a job well done and a live patient, he can look forward to lasting success. In the surgery of cancer, which forms such a large part of his work, he is in the dark. He can assess the size and site of such metastases as are visible, palpable, or radiologically demonstrable, but he cannot even guess whether malignant cells have already got by the lymph stream to further or aberrant glands or by the blood stream to distant parts of the body. Such cells, if they are few in number, will be undetectable by any means, and they may not declare themselves for years.

In 1937 I performed a conservative resection for a rectal carcinoma in a woman of 50. Throughout the war she lived happily and functioned normally. In November, 1945, she developed jaundice, and sank rapidly. She died in January, 1946, nearly ten years after her resection, believing she had gall-stones. The metastases which killed her must already have been present but impalpable at my original operation.

In many cases, particularly when no alternative method of treatment is available—and this applies to all cancers of the alimentary tract—the attempt must be made to eradicate the disease. Operation may seem a desperate chance, but the alternative is no chance at all. The patient is like a man in a burning aeroplane and we are offering him a parachute; to jump is his only chance. A surgeon would have no hesitation in taking the chance were he the patient Dixon, of the Mayo Clinic, used to say, "If ever I get cancer, I am going to a surgeon with good hands and not too much sense."

Cancer surgery is full of disappointments, but it also has its pleasant surprises.

In 1935 I saw a man of 55 with a carcinoma just above the pelvi-rectal junction. At laparotomy I found that the growth was fixed in the pelvis. On freeing it I found that the right wall of the pelvis, the appendix, and the ileum 4 in. (10 cm.) above the caecum were all involved in growth. I removed the appendix, then resected 3 in. (7.5 cm.) of ileum and joined the intestine end to end. I removed the pelvic colon and its mesentery widely down to the upper third of the rectum and did an end-to-end anastomosis, and finally I cut away the peritoneum on the right pelvic wall where it was involved in growth and touched the remaining bare area with the cautery. This patient is as fit to-day as any man of 69, and brought his wife over from Guernsey just before Christmas to have her varicose veins done.

Shortly before I went to Africa in 1940 I saw a woman with a carcinoma at the pelvi-rectal junction in the Southern Hospital, Dartford. At operation I found the whole pelvic floor so widely involved that, though I removed all visible and palpable growth and metastases as widely as I could, I felt that cure was out of the question. I therefore did a Hartmann's operation, leaving the levatores ani and a stump of rectum and anal canal. I saw her again when I came back in 1944. She had returned to her work as a school teacher, had put on weight, and showed no sign of recurrence, so in 1943 Mr. Sol Cohen detached the colostomy and reimplanted it in the stump of her rectum, giving her once again the supreme satisfaction of normal defaecation.

High cure rates and pleasant surprises are usually associated with cancer of the large bowel, but even cancer of the stomach, that most dread form of malignant disease, sometimes belies its reputation.

Just before Christmas, 1946, a proctological friend, who had arranged for a patient to come into the Royal Masonic Hospital for investigation under the provisional diagnosis of carcinoma of the transverse colon, asked me to take charge as he was about to leave for Switzerland. The radiological investigation revealed a large carcinoma of the stomach, invading the transverse colon and its mesentery. I did a high subtotal gastrectomy, removing the stomach in continuity with the middle third of the transverse colon and its mesentery—a satisfactory technical job, but a dismal prognosis. I warned his wife that he was unlikely to live more than three months at most. This summer

he rang me up and asked if he could show me how well he was. Certainly, eighteen months after my hopeless forecast, he looked as well as any man of his age in Europe and showed no sign of cancer. Fortunately he was pleased about it and did not threaten to sue me for £6,000 damages.

Fallacy of Statistics

Such experiences, indeed my whole experience, have left me with profound mistrust of statistics. I have not published mine since I was young and credulous; indeed, I do not know them now unless I ask my registrar to look them up for a particular purpose, and I do not pay any attention to those of others. Personal statistics, as I have said on many occasions, are at the bottom of all unsound teaching: they are either too good to be true or too true to be good.

Those who see statistics in the making are well aware how errors may creep in or be pushed in. Falsification may appear in many ways. The ailing may be transferred to another ward, another block, another hospital, there to die; they may develop complications and be entrusted to the care of a physician and disappear from the surgeon's series; the unsuccessful cases may be indexed under another diagnosis, or appear in the list of operations done by the assistant or the registrar. Quite apart from the temptation to dishonesty, there is, in the keeping and publishing of statistics, an almost insuperable temptation to the surgeon to depart from the only criterion of surgical rectitude—the best interests of the particular patient who is in the ward to-day and will be on the table to-morrow.

The surgeon who never does a severe operation has the fewest deaths, but he saves the fewest lives. The man who limits his operations on hypertension to a small group of young people who respond well to all tests has a wonderfully low death rate and high cure rate, but he passes by all those who need help most. The surgeon who closes up a high proportion of his cancer laparotomies as "inoperable" and reserves his resection for the early growths can show a fine record on paper; how will he himself show up before the recording angel? I personally suspect the man with huge figures and a negligible mortality of being a surgical spiv.

One gastric surgeon surprised the world some years ago by recording 500 gastrectomies for ulcer with 0.6% mortality. Fine! He then reached a total of 1,000 cases with a mortality of 0.6%. Grand! A little later he popped up with 2,000 with a mortality of 0.6%. Marvellous! He now has 3,000 with a mortality of 0.6%. Incredible; especially as the gastrectomies are all done under inhalation anaesthesia with open ether in a clinic where the science of anaesthesia is much where Morton left it. It is clear that to this man, a skilled surgeon, the figure of 0.6% is a symbol, a creed, a banner beneath which he goes into battle. It is his story, and he is going to stick to it. As for myself I shall leave him stuck. The only figures which I find statistically significant are those recorded anonymously and analysed impartially by someone with no personal interest in the verdict. Such are the many statistics published by Colonel Harnett on behalf of the British Empire Cancer Campaign, and Truscott's analysis of twenty years' records of cancer of the breast at the Middlesex Hospital.

I have said, in my Rutherford Morison lecture, that a man is brought into surgery by a love of his fellow men and a sincere wish to help them. As the years go by experience will increase that love and, if he uses it right, will make his power to help more effective. But he must leave it to others to judge in how far he has succeeded.

SEROLOGICAL CLASSIFICATION OF VIRIDANS STREPTOCOCCI FROM SUBACUTE BACTERIAL ENDOCARDITIS, TEETH, AND THROATS

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In a previous report on the treatment of 18 cases of subacute bacterial endocarditis with penicillin (Ward, Meanock, Selbie, and Simon, 1946) it was stated that the biochemical characters of 14 strains of streptococci isolated from these cases indicated that some were similar to *Streptococcus salivarius*, described by Andrewes and Horder (1906) as the most common organism of this type in the mouth and nasopharynx and of frequent occurrence in subacute bacterial endocarditis, while the others were similar to a number of strains isolated by Okell and Elliott (1935) from cases of subacute bacterial endocarditis and from blood cultures in cases of dental sepsis.

It thus appeared likely that our strains of streptococci were of a type often found in subacute bacterial endocarditis and of common occurrence in the region of the mouth. In our further investigation of streptococci from these sources it became evident that biochemical tests were of little value for the classification of the viridans streptococci because of the inconstancy of biochemical reactions within the defined species or groups, as originally pointed out by Andrewes and Horder (1906). We therefore decided that an attempt should be made to classify these streptococci by serological methods.

In this communication it will be shown that when streptococci from cases of subacute bacterial endocarditis are tested with a number of antisera prepared by injecting rabbits with selected strains the reactions so obtained form a pattern on which a serological classification can be based. It will also be shown that streptococci from throat and teeth also react with these antisera to form a similar pattern, indicating a close relationship between the streptococci of subacute bacterial endocarditis and those commonly found in the region of the mouth. Some data are also presented on the relationship between streptococci isolated at different stages in several cases of subacute bacterial endocarditis.

Material and Methods

The investigation was based on 28 strains of streptococci isolated during the past three years at the Middlesex Hospital from 19 cases of subacute bacterial endocarditis and one case in which this condition was suspected, and two cultures of a strain of "streptococcus s.b.e." (Loewe, Plummer, Niven, and Sherman, 1946)—one from a case of subacute bacterial endocarditis and one of the same strain after passage through a rabbit—which were provided by Dr. Erna Altüre-Werber, of the Jewish Hospital, Brooklyn, N.Y. When the work was sufficiently advanced to show that these streptococci and similar streptococci from the throat, teeth, and other sources could be classified

serologically, an examination was made of three further collections of streptococci from cases of subacute bacterial endocarditis. The first of these, consisting of 39 strains from 30 cases, was supplied by Professor J. W. McLeod, of Leeds; the second, consisting of 14 strains from 13 cases at St. Bartholomew's Hospital, London, was supplied by Professor L. P. Garrod; and the third, consisting of 14 strains from 13 cases at St. Mary's Hospital, London, was supplied by Sir Alexander Fleming.

Streptococci from the throat and teeth were also investigated to see how far they could be correlated with the endocarditis strains. The 52 throat strains used were isolated from throat swabs taken by Dr. W. J. L. Sladen from 21 members of the Falkland Islands Dependencies Survey in November, 1947, immediately before the expedition sailed for the Antarctic. Of the 51 strains from teeth 15 were isolated from teeth extracted from four endocarditis cases under the care of Mr. J. W. Schofield and 36 were obtained during routine extractions in 18 cases under the care of Mr. A. L. Packham; 32 of the latter were isolated from the apices of extracted teeth and four from the blood stream of three patients immediately after extraction. Ten other strains of viridans streptococci were examined—three from specimens of sputum, four from abscesses, one from urine, and two from blood cultures in cases in which subacute bacterial endocarditis was suspected but not established.

After isolation and verification of the purity of the cultures the streptococci were transferred to tryptic digest broth with 10% horse blood, incubated overnight, and stored at 4° C. for periods up to six months.

Serological Tests

Preparation of Antisera.—The methods for producing antisera were essentially those used by Lancefield (1933). The immunizing antigen was prepared from 15 ml. of an 18-hour culture of streptococci in 1% glucose digest broth; the culture was centrifuged and the deposit of streptococci was resuspended in 15 ml. of normal saline. The antigen, which was kept at 4° C. when not in use, was injected intravenously into a rabbit in 1-ml. amounts daily for six days. The rabbit was then rested for eight days and given a second course of six daily injections with a fresh preparation of antigen followed by a rest period of eight days. This procedure was repeated until the serum developed enough antibody to give a satisfactory precipitin reaction with the homologous organism. The rabbit was then bled from the carotid artery or by cardiac puncture and the separated serum, with the addition of merthiolate to give a concentration of 1 in 15,000, was kept frozen in the refrigerator.

Untreated streptococci were at first used for immunization and produced good antisera in two rabbits, but several rabbits died with the lesions of bacterial endocarditis after one or two courses, so that subsequent antigens were treated either by heating at 60° C. for 30 minutes or by the addition of formalin to give a concentration of 0.2%. In some cases antisera giving a wider range of reactions were produced by the injection of antigen prepared from a strain after it had been grown for several subcultures in the presence of its homologous antiserum, a method that was used by Lancefield (1940) to produce variation in streptococci.

By these methods a total of 28 antisera were prepared against eight strains of streptococci isolated from cases of subacute bacterial endocarditis at the Middlesex Hospital, one strain of the American "streptococcus s.b.e." (No. 2) and one (No. 30) from a suspected case of subacute bacterial endocarditis. Twenty antisera were used for classification, comprising two (Nos. 2 and 3) produced by the injection of untreated streptococci, two (Nos. 1 and 16) produced by the injection of streptococci treated with formalin, and 16 prepared against four streptococci (Nos. 5, 8, 10, and 30). Each of these four streptococci was used to produce four antisera—two by the injection of heat-treated and formolized organisms and two by the same procedures after growth of the streptococcus in its own antiserum. In the classification of our streptococci shown in Table I the

TABLE I.—*Classification of Streptococci from Subacute Bacterial Endocarditis, Throats, Teeth, and Other Sources by Precipitin Reactions with Antisera*

Group	No. of Strains		Reactions with Antisera							
			5	30	8	3	16	2	1	10
I	32	6	+	+	+	+	−	−	−	−
		12	+	+	10	1	−	−	−	−
		14	+	−	6	2	−	−	−	−
Ia	41	17	+	+	+	+	−	2	5	13
		15	+	+	2	5	−	1	5	13
		9	+	−	+	4	−	1	4	7
II	28	20	−	−	−	−	+	+	+	−
		2	−	−	−	−	+	1	−	−
		6	−	−	−	−	1	3	+	−
IIa	55	29	15	7	4	1	+	+	+	21
		15	11	10	4	1	+	7	−	3
		11	8	3	3	1	4	6	+e	4
III	25	13	6	−	−	−	−	−	−	+
		5	−	+	−	1	−	−	1	+
		7	−	+	−	−	−	−	−	−

The streptococci are classified into five groups each containing three series of strains, in each of which the reactions with the appropriate antisera are indicated thus: + = all strains positive; − = all strains negative; numeral = number of strains positive.

reactions indicated as positive under antisera Nos. 5, 8, 10, and 30 represent positive reactions with any or all of the four antisera prepared against each streptococcus.

Preparation of Extracts of Streptococci.—The method used for the preparation of extracts of streptococci for precipitin tests was the formamide method described by Fuller (1938) for the extraction of polysaccharides and destruction of protein substances.

Precipitin Tests.—The method used for the precipitin test followed that of Lancefield (1933), 0.1 ml. of streptococcal extract being layered above 0.1 ml. of antiserum in a 4 by 0.5-cm. tube. In positive reactions a precipitate at the interface usually formed within 10 minutes, but in some cases there was a delay of up to 30 minutes when the final reading was made. A diffuse flocculation was sometimes observed, but this type of reaction was ignored, as it could not be reproduced and was therefore obviously not specific.

Biochemical Tests

In the fermentation tests the test reagents were purified and used at a concentration of 1% in 1/5 strength infusion broth to which was added 1% bactopeptone, 0.5% NaCl, 2% horse serum, and phenol red as indicator. The results were finally read after incubation for three days at 37° C. Starch-splitting was tested by a plate method following that described by Andrewes (1930) and Hodgson, Heggie, and Sutherland (1943). Bile resistance was tested by the method of Belenky and Popowa (1929) on 5% blood agar with 40% bile prepared from "difco" dried ox bile.

Results of Serological Tests

Positive precipitin reactions to our antisera have been obtained with 181 of the 209 strains of streptococci examined. These positive reactions are tabulated in Table I, where it will be seen that the streptococci are classified according to their reactions with groups of antisera. In

the first group of streptococci are 32 strains which react only with members of the first group of four antisera. In Group Ia are 41 strains reacting mainly with the same four antisera but having side-reactions with other antisera but not No. 16. Group II consists of 28 strains which react only with members of the second group of three antisera, while in Group IIa are 55 strains which react mainly with the same three antisera but have side-reactions with other sera. In Group III are 25 strains which react with antisera 30 and 10, only eight strains having side-reactions with other antisera.

The results obtained with all the streptococci are shown in Table II, which also includes details of the classification

TABLE II.—*Serological Classification of Streptococci from Various Sources*

	No. of Strains	Group					Lancefield				No Reaction
		I	Ia	II	IIa	III	A	D	G	K	
Endocarditis											
Middlesex Hospital	27	5	8	4	3	5	0	2	0	0	0
Leeds	39	10	7	4	5	7	0	2	0	0	4
St. Mary's Hospital	14	1	3	1	0	2	1	1	1	1	3
St. Bart's Hospital	14	1	1	5	4	1	0	0	0	1	1
"Streptococcus sp. e"	2			1	1						
Total endocarditis	96	17	19	15	13	15	1	5	1	2	8
Teeth	51	7	12	8	19	3	0	0	0	0	2
Throats	52	7	9	4	19	6	0	3	0	0	4
Total teeth and throats	103	14	21	12	38	9	0	3	0	0	6
Other sources	10	1	1	1	4	1	0	0	0	0	2
All streptococci	209	32	41	28	55	25	1	8	1	2	16

of streptococci from different sources. It will be seen that we have succeeded in classifying all 27 strains from cases of subacute bacterial endocarditis at the Middlesex Hospital and 61 of the remaining 69 endocarditis strains. The 79 endocarditis strains in our serological groups are fairly evenly distributed in the five groups, but there is a preponderance of Group I streptococci in the Leeds collection and of Group II and IIa in the strains from St. Bartholomew's Hospital. The 17 endocarditis streptococci which do not fall into our classification consist of nine strains reacting with Lancefield group antisera and eight with which we have failed to obtain any reaction with the antisera at our disposal.

It is also shown in Table II that 94 of the 103 strains of streptococci from teeth and throats have been classified with our antisera. There is no difference in distribution within the five groups between the strains from these two sources, in spite of the fact that only streptococci showing α-haemolysis on blood agar were selected from cultures of teeth, whereas the streptococci from throats included 13 strains producing no change in blood agar. The distribution of the streptococci from teeth and throats in the five groups, unlike that of the endocarditis strains, is uneven, in that 38 strains, or over one-third, are found in Group IIa and only nine, or about one-tenth, in Group III. The proportion of streptococci from teeth and throats not falling within our classification is even smaller than in the case of the endocarditis strains, there being only nine such strains, three of which react with Lancefield Group D antiserum.

Of the 10 streptococci examined from other sources, four belong to Group IIa, four are distributed among the four other groups, and two do not react with any of the antisera at our disposal.

Regarding the relationship of the streptococci falling within our serological classification to streptococci of the Lancefield groups, we have found cross-reactions with only one streptococcus, No. 30, a strain which was not associated with subacute bacterial endocarditis. This streptococcus is heat-resistant, ferments mannitol, and reacts with Lancefield Group D antiserum, but it also reacts with five of our antisera, Nos. 5, 30, 8, 3, and 10 (Table I), and is thus a typical member of our Group Ia. Three of the antisera prepared against this streptococcus react with only a few streptococci and not with any of our Lancefield Group D streptococci, but the other antiserum, prepared after growing the streptococcus in its own antiserum, reacts with about half our strains and also with five of our eight Lancefield Group D streptococci.

Results of Biochemical Tests

The results of some of the biochemical tests on the streptococci falling into our classification are shown in Table III. All strains ferment dextrose and sucrose. Only

TABLE III.—*Biochemical Reactions*

	Percentage of Strains Giving Positive Reactions in Group					No Reaction
	I	Ia	II	IIa	III	
Fermentation of:						
Lactose	71	79	90	71	76	70
Inulin	16	7	4	7	16	14
Raffinose	37	38	36	49	44	42
Salicin	62	57	14	34	52	42
Trehalose	81	74	32	45	60	42
Splitting of starch	25	36	7	29	52	35
Growth on 40% bile blood agar	46	45	4	18	54	42
No. of strains in each group	32	41	28	55	25	16

one strain, No. 30, which has already been mentioned, ferments mannitol. Fermentation of sorbitol, resistance to a temperature of 60° C. for 30 minutes, growth at 45° C., or growth in 6.5% of sodium chloride are found in only a few strains, which are evenly distributed in the five serological groups. All except three strains produce clot and acid in litmus milk and clot in milk to which 0.1% methylene blue has been added, although it has been stated by Sherman and his co-workers that all known streptococci seem to be inhibited by this concentration of methylene blue except the members of the lactic and enteric groups (Sherman, 1937; Sherman, Stark, and Mauer, 1937).

The results in Table III show some correlation between the biochemical reactions and the serological classification of our streptococci. In Groups I and Ia a relatively high proportion of the strains ferment salicin and trehalose, whereas comparatively few strains in Group II ferment these substances. In Group II also there are only two strains that split starch and only one capable of growing on 40% bile blood agar, whereas a moderate proportion of the strains in the other groups respond to these tests. In Group IIa the proportion of positive reactions is intermediate between those in Group II and Groups I and Ia, thus showing a correlation with the serological characterization of Group IIa by its side-reactions with the antisera determining Groups I and Ia. In Group III there is a moderate proportion of positive reactions to all the tests shown in Table III, with a higher proportion of strains capable of splitting starch than in the other groups. The streptococci not reacting with any antisera do not show any marked difference from the other groups.

Streptococci in Relapses of Subacute Bacterial Endocarditis

The properties of streptococci isolated at different times from 11 cases of subacute bacterial endocarditis are shown

TABLE IV.—*Properties of Streptococci Isolated at Different Times in Cases of Subacute Bacterial Endocarditis*

Cases	Days After First Isolation (0 = First Isolation)	Serological Group	Biochemical Reactions: Lactose	Inulin	Raffinose	Salicin	Trehalose	Starch	Bile
Middlesex Hospital									
A (363)*	0	III	+	+	+	−	+	+	+
	2	III	+	+	+	−	+	+	+
B (295)	0	II	+	−	+	−	−	−	−
	40	II	+	−	+	−	−	−	−
C	0	Ia	+	−	−	+	+	−	+
	77	I	+	−	−	+	+	−	+
D (289)	0	I	+	−	−	+	+	−	+
	65	Ia	+	−	+	+	+	+	+
	823	I	+	+	+	+	+	+	+
		Ia	+	−	+	+	+	−	−
		Ia	+	−	+	+	+	+	+
		Ia	+	−	+	+	+	−	+
St. Bartholomew's Hospital									
B	0	IIa	−	−	−	−	−	−	−
	334	II	+	−	−	−	−	−	−
St. Mary's Hospital									
F	0	I	−	−	−	−	+	−	−
	246	Ia	−	−	−	+	+	−	−
Leeds									
G	0	I	−	−	−	+	+	−	+
	41	I	+	−	+	+	+	−	+
H	0	Ia	−	−	+	−	+	+	+
	45	I	+	−	−	+	+	−	−
I	0	IIa	−	−	−	−	+	−	−
	87	IIa	−	−	+	−	+	−	−
J	0	I	+	−	−	−	+	−	+
	40	I	+	−	−	−	+	−	−
	61	I	+	+	−	+	+	−	−
	77	IIa	−	−	−	+	+	−	+
	122	III	+	−	−	+	+	−	−
K	0	I	−	−	+	−	−	−	−
	194	D	+	−	−	+	+	−	+
	250	D	+	−	−	+	+	−	−

* Reference to case No. in communication of Ward, Meanock, Selbie, and Simon (1946).

in Table IV. In all these cases, with the exception of Case A, the second strain has been isolated during a relapse after treatment with penicillin. In eight cases only two strains have been examined, and in four of these cases both strains are of the same serological group, while in the other four cases the two strains are closely related, one belonging to a group and the other to the corresponding subgroup. In Case D the primary strain, the relapse strain, and four strains isolated at necropsy more than two years later—three from vegetative lesions in the heart and one from the spleen—all belong to Group I or its subgroup, Group Ia. In Case J the primary strain and the first two strains isolated during relapse are all of Group I, but the two later strains belong to Groups IIa and III, although all five strains react with our antiserum 5.

In all the nine cases of relapse that have been mentioned the serological properties of the streptococcus first isolated after penicillin treatment are so similar to those of the initial strain that it would seem that recrudescence of the original infection is a much more frequent cause of relapse than reinfection with another streptococcus. That reinfection does occur, however, is well shown by Case K, in which the second infecting organism is a Lancefield Group D streptococcus presumably derived from an abscess in the buttock from which a *Streptococcus faecalis* was isolated.

The biochemical properties of these streptococci, also shown in Table IV, largely confirm the serological findings. Of the nine cases in which there is a close serological relationship between original and relapse strains, six show identical biochemical reactions or a difference in only one test and two show only two differences, both in the direction of negative to positive, while only in Case H are there more than two differences or differences in both directions.

Distribution of Serological Groups in Teeth and Throats

In cases in which more than one streptococcus has been examined from the teeth of one patient it has been usual to find streptococci of different serological groups. Thus, of 11 strains isolated from seven extracted teeth from a case of subacute bacterial endocarditis (Case C, Table IV) nine are distributed in all our five groups and two are the only strains from teeth in our collection that do not react with any of the antisera at our disposal. The four strains that we have isolated from the blood stream immediately after the extraction of teeth are also a representative series, two from one patient being of Groups I and Ia and two from two patients being of Groups II and IIa. Our findings are similar to the 48 streptococci isolated from the throat in the 17 cases in which more than one streptococcus has been examined. In only one of these instances is one serological type alone represented, and in only two are there only streptococci of a group and its corresponding subgroup.

The limited data so far available thus show that there is no tendency for the streptococci of the teeth or throat in a single person to belong to one serological group.

Endocarditis Streptococci in Relation to Response to Penicillin Treatment

In Table V is shown the relationship between the response to treatment with penicillin and the sensitivity to penicillin and serological group of the streptococci isolated before penicillin treatment in the 59 cases in which the necessary information is available. Response to treatment is assessed as bad when the patient died without control of the infection. This table has been examined by Mr. T. E. Cowan, F.C.I.S., F.R.S.S., records officer, Middlesex Hospital, who states: "I agree that the main point brought out is that in total the proportion of bad responses to penicillin treatment increases with resistance of the infecting organism to penicillin. The regularity of the arithmetical progression is sufficient to justify this view. I do not think it can be taken that the classification according to the serological group of the infecting streptococci shows a correlation between the serological group and the response to infection; the numbers examined are too small to be statistically significant."

TABLE V.—*Relationship of Result of Penicillin Treatment of 59 Cases of Subacute Bacterial Endocarditis to Penicillin Sensitivity and Serological Group of Streptococcus Isolated Before Treatment. Streptococci Reacting with Lancefield Group Antisera Are Not Included*

Serological Group of Streptococci	Response of Case to Penicillin Treatment	No. of Strains with Coefficient of Penicillin Resistance* of: 0·25–0·75	1	1·3–2	4–6	33, 50	Totals in Serological Groups: Bad Response	All Cases
I	Good	3	1	0	0	1	3	8
	Bad	1	0	0	2	0		
Ia ..	Good	3	0	2	4	0	5	14
	Bad	0	0	3	2	0		
II	Good	3	2	3	1	0	4	13
	Bad	0	1	1	1	1		
IIa ..	Good	1	4	0	2	0	1	8
	Bad	0	0	1	0	0		
III ..	Good	3	2	3	2	0	1	11
	Bad	0	0	0	1	0		
None ..	Good	2	1	1	0	0	1	5
	Bad	0	1	0	0	0		
Totals in sensitivity groups	Bad response	1	2	5	6	1	15	59
	All cases	16	12	14	15	2		

* Penicillin resistance *in vitro* expressed as multiple of resistance of standard Oxford staphylococcus.

Discussion

The difficulties presented by the complex antigenic structure of the viridans streptococci have hitherto prevented an

adequate classification of these organisms by serological methods. The situation is well exemplified by the observations of Gordon (1922), who found that 16 strains of *Str. salivarius* represented at least 12 different types, whereas 125 of 131 strains of *Str. pyogenes* were of the same serological type. We also have found that the viridans streptococci are a heterogeneous group of organisms, but we have succeeded in making a serological classification by using antisera with a wide range of action and basing our classification on the reactions obtained with groups of these antisera.

In this way we have been able to classify 181 (92%) of the 197 strains of our collection that do not belong to the Lancefield groups into five groups containing 32, 41, 28, 55, and 25 strains respectively. This represents a higher degree of success than that attained by Solowey (1942), who, with a similar collection of 205 strains of viridans streptococci, classified 136 strains (66%) into 14 groups, 11 of which contained only one to five strains each. It is noteworthy that Solowey's three main groups, comprising 77, 23, and 13 strains, were based on reactions with groups of seven, five, and two antisera respectively, whereas the other smaller groups were determined by reactions with single antisera.

It would thus seem in the present state of our knowledge that these streptococci are amenable to classification only by studying their reactions to groups of antisera with a wide range of action. It would also appear necessary to prepare bacterial extracts for the precipitin test by the formamide method of Fuller (1938), which in our experience provides a much more efficient antigen than the acid extraction method of Lancefield (1933), which was used by Solowey (1942).

We have shown that viridans streptococci isolated from cases of subacute bacterial endocarditis have a distribution in our serological groups similar to that found in streptococci from teeth and normal throats. The same observation has been made by Solowey (1942) on the basis of her serological classification, and we agree with her that no distinction can be made between the viridans streptococci derived from these different sources. It would, however, appear from our results that streptococci of Group IIa, the largest group in streptococci from teeth and throats, have less tendency to produce subacute bacterial endocarditis than the streptococci of the other four groups. These observations nevertheless give further support to the view we have previously expressed in common with others that the viridans streptococci of subacute bacterial endocarditis come from the region of the mouth (Ward, Meanock, Selbie, and Simon, 1946). In the earlier communication we noted the association between dental sepsis and the initiation of the symptoms of subacute bacterial endocarditis, and here we have not only confirmed the finding of Okell and Elliott (1935) that viridans streptococci may escape into the blood stream during dental extraction but have also found that these streptococci belong to the same serological groups as those of subacute bacterial endocarditis.

It is not, however, generally agreed that the great majority of the streptococci of subacute bacterial endocarditis are derived from the region of the mouth. It has recently been reported from America that about one-third of the streptococci isolated from cases of subacute bacterial endocarditis belong to a hitherto undescribed group of the viridans type, usually referred to as "streptococcus s.b.e.," which is not a normal inhabitant of the human mouth and has been given the name of "*Streptococcus sanguis*" (Loewe, Plummer, Niven, and Sherman, 1946; White and Niven, 1946).

The two strains of "streptococcus s.b.e." that we have examined have few of the biochemical properties ascribed to this group by the American authors, but in this respect are very similar to other streptococci of Groups II and IIa to which they belong in our classification. On the other hand, our findings with an antiserum we have produced with one of our strains of "streptococcus s.b.e." (No. 2), which reacts with about 27% of our endocarditis strains, are similar to those of Schneierson (1948), who, working with American strains from cases of subacute bacterial endocarditis, found that 23% of a total of 34 strains gave a positive precipitin reaction with an antiserum prepared against a strain of "streptococcus s.b.e." Washburn, White, and Niven (1946) have described two serological types of "streptococcus s.b.e.," but have also found cross-reactions with other types of viridans streptococci.

It would thus seem that further clarification is necessary before it is possible to assign the position of "streptococcus s.b.e." in relation to the other viridans streptococci. This is a question of some importance, because this group of streptococci is regarded as being somewhat more resistant to penicillin than the other viridans streptococci. In our experience, however, there appears to be no significant correlation between the serological characters of the streptococci of subacute bacterial endocarditis and penicillin sensitivity or response of the case to penicillin treatment (Table V) except for the streptococci of Lancefield Group D, which are highly resistant to penicillin.

Another question that has recently been raised concerns the position of *Str. salivarius*, which was originally described by Andrewes and Horder (1906) as the most common streptococcus in the human throat and of frequent occurrence in subacute bacterial endocarditis. Sherman, Niven, and Smiley (1943) have now assigned this name to a streptococcus which is found in the human throat but has never been isolated from cases of subacute bacterial endocarditis and is identified by the production of large mucoid colonies on sucrose agar. We have confirmed that streptococci of this type are present in small numbers in a high proportion of normal throats, and that they form a homologous group in both their biochemical and their serological characters. They form a distinct group of streptococci, differing widely from all the streptococci that we have isolated from cases of subacute bacterial endocarditis and from the streptococci that are encountered in cultures obtained from teeth and throat by the usual routine methods. We are, however, of the view that, although *Str. salivarius* is an ill-defined species, its definition should remain sufficiently wide to include streptococci of the type originally observed by Andrewes and Horder (1906) and not be restricted to streptococci not usually met with either in the examination of throat swabs by routine bacteriological methods or in cases of subacute bacterial endocarditis.

Our finding that streptococci isolated during relapses after penicillin treatment in subacute bacterial endocarditis are usually similar to the strains isolated before treatment is of some clinical importance in that it indicates that relapses are generally due to a recrudescence of the original infection and not to reinfection. It would seem, therefore, that relapses after penicillin therapy are usually due to inadequate treatment. That the dosage of penicillin in many cases may have been inadequate in relation to the resistance of the infecting organism is indicated by the findings in Table V, in which a bad response to penicillin treatment is correlated in 11 of 29 cases with a coefficient of resistance of 1.3 to 6 and in only three of 28 cases with a coefficient of resistance of 1 or less. It can therefore be expected that a

general increase in dosage from half a million units of penicillin a day for 28 days to two million units a day for six weeks, as recently recommended by Christie (1949), will improve the results of penicillin treatment.

There are, however, cases in which relapse cannot be ascribed to undue resistance of the infecting streptococcus to penicillin, and it may be that the causal organisms are so protected by dense vegetative lesions that they are inaccessible to the action of penicillin. It is now accepted that in conditions where the sources of infection are accessible the chances of a recrudescence of the infection can be greatly reduced by the removal of infected and avascular tissue after infection has been brought under control by penicillin (Hudson, Meanock, McIntosh, and Selbie, 1946). It is thus possible that surgery may yet provide a solution to the problem of persistent relapses after penicillin therapy in subacute bacterial endocarditis by evolving methods for the removal of the infected vegetations and the reconstruction of damaged valves.

Summary

Streptococci of the viridans type from cases of subacute bacterial endocarditis and from normal throats and extracted teeth have been differentiated into five serological groups.

The distribution in the five serological groups of the streptococci from subacute bacterial endocarditis is similar to that of the streptococci from throats and teeth, indicating that the streptococci of subacute bacterial endocarditis are derived from the region of the mouth.

Streptococci isolated during relapses after penicillin treatment in subacute bacterial endocarditis are usually similar in their serological and biochemical characters to the streptococci isolated before treatment, indicating that relapses are generally due to a recrudescence of the original infection and not to reinfection by another streptococcus.

The relationships of "streptococcus s.b.e." and *Str. salivarius*, as described by Sherman and his co-workers, to other members of the viridans group of streptococci are discussed.

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TREATMENT OF EARLY SYPHILIS WITH PENICILLIN COMBINED WITH NEOARSPHENAMINE AND BISMUTH

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Since the introduction of penicillin for the treatment of syphilis routine standard courses of treatment have been in use in the Army for the treatment of early cases. In 1944 the first scheme of treatment to be used consisted of 2,400,000 units of penicillin in aqueous solution given intramuscularly in 60 divided doses, each of 40,000 units. In 1946 it became obvious from a scrutiny of the records of patients so treated that there was a failure rate of 8% in the first six months (Marshall, 1946).

In consequence, a course which consisted of 4,000,000 units of penicillin in aqueous solution given intramuscularly in divided doses over a period of 12½ days was introduced at certain military hospitals. Also, in view of the fact that Eagle and his co-workers (1946) showed that there was a synergistic action between penicillin and arsenic in the treatment of rabbit syphilis, a standard scheme was introduced at certain other scheduled hospitals in the United Kingdom, consisting of 2,400,000 units of penicillin together with ten daily injections of 0.06 g. of "mapharside." In addition, at one military hospital in the United Kingdom a series of cases of early syphilis was treated by means of a somewhat similar course with the addition of 1 g. of bismuth (Willcox, 1946).

The cumulative relapse rates following treatment by means of the above four schedules were calculated by James, Mackay, and Wright (1948) in a series of 281 cases, using a formula evolved by the Honorary Consultant in Statistics to the Army. By this means it was found that the cumulative relapse rates at twelve months in the case of patients treated with 2,400,000 units of penicillin were 14% for sero-negative primary syphilis, 13% for sero-positive primary syphilis, and 17.5% for secondary syphilis. The results of the other courses of treatment were essentially much the same.

In 1946 reports from the United States had shown that penicillin K was less effective than penicillin G in the treatment of rabbit syphilis, and that commercial penicillin had tended to contain increasing amounts of penicillin K. The Subcommittee on Venereology of the Army Medical and Personnel Research Panel therefore adopted a scheme of treatment by which a total of 4,000,000 units of penicillin was given over a period of ten days, combined with a course of neoarsphenamine and bismuth (Eames, 1948); the addition of the latter conformed to the original suggestion of Harrison (1945). This schedule is the one considered here.

Treatment, Surveillance, and Sources of Material

The treatment was carried out as follows. During an initial period in hospital a course of 4,000,000 units of commercial penicillin (50,000 units in aqueous solution intramuscularly at three-hourly intervals over a period of ten days) was given. On the second, fifth, and ninth days

the patient received an intravenous injection of neoarsphenamine, 0.3 g., 0.45 g., and 0.6 g., respectively, together with an intramuscular injection of 0.2 g. of bismuth (1 ml. injectio bismuthi *B.P.*). On completion of this treatment, and subject to the clinical condition, the patient was returned to full military duty. Out-patient treatment was started seven days after his last injection of arsenic as an in-patient, and consisted of eight weekly injections of 0.6 g. of neoarsphenamine and 0.2 g. of bismuth. Thus the total treatment was 4,000,000 units of penicillin, together with 6.15 g. of neoarsphenamine and 2.2 g. of bismuth.

It is the routine in the Army for all cases of syphilis, after completion of active treatment, to have clinical and serological examinations at two-monthly intervals for six months, quarterly for one year, and six-monthly for a further year. A complete cerebrospinal fluid examination is carried out at the end of the first six months and also during the last six months of this surveillance. Both Wassermann and Kahn tests (qualitative and quantitative) were invariably made at each serological examination in our series of cases.

Nominal rolls of all cases treated at the special treatment centres in the United Kingdom by the schedule described above had been maintained from its inception. Thus it was possible to trace the records of all patients in whom treatment was initiated during the period December, 1946, to March, 1948, by examination of the record cards maintained at the Central Syphilis Register.

Some of the cases on the nominal rolls described above were not suitable for the purposes of this investigation, as those previously treated and cases of congenital, latent, and tertiary syphilis had been included. These were discarded, together with any case in which there was a doubt about the initial classification of the disease. All of the patients were males of military age, the vast majority falling between the ages of 19 and 25. All were suffering from early syphilis—namely, sero-negative primary syphilis, sero-positive primary syphilis, and early secondary syphilis.

In all cases of sero-negative primary syphilis the *Treponema pallidum* had been demonstrated in a scraping taken from the primary lesion and examined by dark-field. All other cases showed a positive serology, and the secondary cases showed such manifestations as a rash and/or mucous patches or condylomata. *Tr. pallidum* was demonstrated in 87% of sero-positive primary cases and in 65% of secondary cases.

The record cards of 1,284 patients were examined, and of these, after discarding those of the patients described above, 1,028 were found to conform to the terms of reference of the survey. The distribution of patients according to the stage of the disease is shown in Table I.

TABLE I.—*Analysis of Cases According to Stage of Disease*

Sero-negative primary	353	(34·6%)
Sero-positive primary	443	(42·9%)
Early secondary	232	(22·5%)
Total	1,028	(100%)

As the form of treatment under survey was not begun until December, 1946, it was possible to consider a maximum follow-up of only 18 months.

Criteria of Efficacious Treatment

In reviewing the results of treatment a patient was considered to have made satisfactory progress, to have relapsed, to have failed to respond to treatment, or to have become reinfected.

A case was regarded as having progressed satisfactorily if it conformed to the following criteria: (i) all lesions of syphilis had healed at the conclusion of treatment and surveillance; (ii) serological tests for syphilis were negative at the end of surveillance; and (iii) the cerebrospinal fluid examination was normal.

Relapse was diagnosed from the presence of fresh clinical manifestations of syphilis from which the *Tr. pallidum* could be isolated, or a change in serology from negative to positive, or abnormal C.S.F. findings. All patients still having a positive serology four months after treatment had ceased were classified as treatment failures, when further treatment was begun.

Patients were classified as "defaulters" at that time when for any reason they ceased to be followed up, or, alternatively, in the case of patients treated during the last months of this investigation, at the stage in which, though satisfactory progress was being made, the survey period closed. Thus a patient completing treatment in December, 1947, would be shown as "defaulting" at nine months if satisfactory progress was made up to September, 1948, as no records would be available after that date (see Table II).

TABLE II.—*Showing "Default" from Surveillance*

	Sero-neg. Primary	Sero-pos. Primary	Secondary	Total
Initial no. of cases examined	353	439	230	1,022
Cases completing all treatment	274	321	159	754
Cases "defaulting" in first 2 months	90	137	70	297
Cases left at beginning of 3rd month	184	183	89	456
"Defaulters" (3–5 months)	37	30	10	77
Cases left at beginning of 5th month	145	152	69	366
"Defaulters" (5–7 months)	29	32	14	75
Cases left at beginning of 7th month	113	113	54	280
	37	38	24	99
	72	69	29	170
	34	30	15	79
Cases left at beginning of 13th month	36	38	14	88
	22	22	7	51
	11	13	7	31
	5	9	5	19
	6	3	1	10
	6	3	1	10

The totals shown as remaining at the beginning of any one month are those making satisfactory progress only.

It is impossible to classify any case defaulting from surveillance before the fourth month of follow-up if the serology remains positive with no clinical signs of relapse. Such were therefore rejected from the pool of data. Thus, of 1,028 patients initially considered only 1,022 could be utilized, as two (0.86%) in the group diagnosed as secondary syphilis and four (0.9%) from the sero-positive primary group had to be rejected.

Results of Therapy and Discussion

Tables II, III, and IV show in crude figures the results of treatment and follow-up of all categories of patients treated. It will be seen that there is an extremely high rate of "default." This was consequent upon the rapid rate of release from the Forces over the period during which this investigation was carried out.

TABLE III.—*Muco-cutaneous Infectious Relapses—Crude Figures*

Months After Treatment	Sero-neg. Primary	Sero-pos. Primary	Secondary	Total
0–2	1	1	0	2
2–4	3	2	0	5
4–6	2	4 (1)	0	6 (1)
6–9	1	0	0	1
9–12	3 (2)	1	0	4 (2)
12–15	0	1 (1)	0	1 (1)
15–18	0	0	0	0
Total	10	9	0	19

Figures in parentheses denote cases considered to be possible reinfections—e.g., 2 of the 3 at 12 months.

TABLE IV.—*Total Relapses—Crude Figures*

Months After Treatment	Sero-neg. Primary	Sero-pos. Primary	Secondary	Total
0–2	2	2	1	5
2–4	3	3	1	7
4–6	4	6 (1)	1	11 (1)
6–9	2	1	0	3
9–12	3 (2)	3	0	6 (2)
12–15	0	1 (1)	1	2 (1)
15–18	0	0	0	0
Total ..	14	16	4	34

Figures in parentheses denote cases considered to be possible reinfections—e.g., 2 of the 3 at 12 months.

Of the 353 sero-negative primary cases beginning treatment, 14 were considered to have shown unsatisfactory progress: these are analysed in detail in Table V. It will

TABLE V.—*Analysis of Relapses Occurring in Sero-negative Primary Syphilis*

Type of Relapse	No. of Cases					Total Cases
	2 mths	4 mths	6 mths	9 mths	12 mths	
Muco-cutaneous relapse ..		1	1	1		3
Clinically diagnosed as re-infection	1	2	1		2	6
Serological relapse ..	1		1	1	1	4
Asymptomatic neuro-relapse			1			1

be seen that no patient relapsed after the twelfth month, but, in view of the relatively small number of cases remaining (36) at the time, this is not necessarily significant. The one case of asymptomatic neuro-relapse which occurred was diagnosed on an abnormal cerebrospinal fluid found on routine lumbar puncture during the sixth month.

Of the above 14 cases considered to have relapsed six were diagnosed by the clinician concerned as reinfections. In view of the uncertainty of differentiating between relapse and reinfection at the present time, and as the cases did not completely satisfy the criteria of Halley and Wassermann (1928) or Moore (1943), they have been classified as relapses (see Table V). All these cases had been previously sero-negative, in all of them *Tr. pallidum* had been demonstrated in the new lesion, and all gave a history of recent exposure. In only two cases, both occurring one year after treatment ceased, were all Moore's criteria fulfilled (see Table VI),

TABLE VI.—*Application of Moore's Criteria of Reinfection to Cases so Diagnosed Clinically*

Type of Case	Serology Before Possible Reinfn.	Time Since Treatment Ceased	History of Recent Expo-sures	New Site for Primary Sore	Change in Sero-logy	Conclusion
Sero-neg P.	Neg.	2 mths	Yes	No	No	M/C relapse
" " "	"	4 "	"	?	"	" "
" " "	"	4 "	"	Yes	"	" "
" " "	"	6 "	"	"	"	" "
" " "	"	1 year	"	"	Yes	Poss. reinfn.
" " "	"	1 "	"	"	"	" "
Sero-pos. P.	"	6 mths	"	"	"	" "
" " "	"	6 "	"	"	No	M/C relapse
" " "	"	1 year	"	?	Yes	" "
" " "	"	15 mths	"	Yes	"	Poss. reinfn.

but in neither of these was there adequate proof that the new sore occurred in a different lymphatic shed from the original. In these two cases there was a sero-reversal after the appearance of the new sore, and they can therefore be considered to be possible reinfections. In no case, however, was there any record of an infected consort being traced.

Among the 439 cases of sero-positive primary syphilis there were 20 which made unsatisfactory progress. These are analysed in Table VII, from which it will be seen that serological relapse is more common than in sero-negative primary syphilis, and that, for the first time, treatment

TABLE VII.—*Analysis of Relapses and Failures Occurring in Sero-positive Primary Syphilis*

Type of Relapse	No. of Cases						Total Cases
	2 mths	4 mths	6 mths	9 mths	12 mths	15 mths	
Muco-cutaneous	1	1	1				3
Muco-cutaneous and serological		1	1				2
Clinically diagnosed as re-infection			2		1	1	4
Non-infectious relapse: Serological relapse ..	1	1	2	1	2		7
Treatment failures: Serological fast	4						4

failures (serological-fast cases) appear. Those cases which were in the first instance clinically diagnosed as reinfections are considered in Table VI. Two of these cases fulfil all of Moore's criteria; but again, with the notes available, difficulty arises regarding the exact site of the alleged fresh primary sore.

Thirteen of the patients treated for secondary syphilis failed to show satisfactory progress, nine of these being treatment failures (Table VIII). There were no muco-

TABLE VIII.—*Analysis of Relapses and Failures in Early Secondary Syphilis*

Type of Relapse	No. of Cases						Total Cases
	2 mths	4 mths	6 mths	9 mths	12 mths	15 mths	
Serological relapse	1	1				1	3
Asymptomatic neuro-relapse			1				1
Treatment failures	9						9

cutaneous relapses in this group of cases, and no case was diagnosed as a reinfection.

Moore (1948) expressed the opinion, which he said was instigated by the statisticians, that in order to avoid getting a false statistical picture it would be unwise, owing to inevitable attrition, to draw conclusions about the effects of treatment in early syphilis without at least a thousand cases to begin with, and that when evaluating such material it was essential to use an actuarial method.

Of the 1,022 cases originally considered suitable, 754 completed the full scheme of treatment, and it is from this number that the cumulative relapse rates are calculated (see Table II). The results can therefore be considered as only approximate. It is impossible to assess the sampling error in the method of calculation used, and towards the latter end of the survey this is not inconsiderable.

An extremely large number of patients were lost to observation during the post-treatment surveillance period owing to release from the Service. In order to allow for this, the cumulative relapse rate (both total and infectious muco-cutaneous) has been calculated from the crude figures shown in Tables II, III, and IV. Treatment failures are not included in the cumulative relapse rates shown, but are considered separately. The method of calculation used by James, Mackay, and Wright (1948) has been utilized.

The total and infectious (muco-cutaneous) cumulative relapse rates are shown in Table IX. Here all those cases diagnosed as reinfections by the clinician concerned are classed as relapses. If the four cases which were possible reinfections (see above) are considered to be in fact such, then the rate is as shown by the figures in parentheses. It will be seen that the total cumulative relapse rate at 18 months is somewhat less for early secondary than for sero-positive primary syphilis. This is a trend which is in accordance with the results of others. For all types of

TABLE IX.—*Analysis of Cumulative Rate of Relapse During Surveillance*

Time	Sero-neg. Primary	Sero-pos. Primary	Secondary	Total
	Infectious (Muco-cutaneous) Relapse Rates			
6 months	3·8%	4·5% (3·8%)	0%	3·3% (3·0%)
12 ,,	10·0% (6·6%)	6·3% (5·6%)	0%	6·6% (5·0%)
18 ,,	10·0% (6·6%)	9·9% (5·6%)	0%	8·2% (5·0%)
	Total Relapse Rate			
6 ,,	5·7%	6·9% (6·2%)	3·6%	5·7% (5·2%)
12 ,,	12·6% (9·3%)	13·0% (12·3%)	3·6%	12·1% (9·3%)
18 ,,	12·6% (9·3%)	16·4% (12·3%)	12·4%*	15·0% (10·8%)

Figures in parentheses show cumulative relapse rates when possible reinfections are accepted as such.
* The sampling error here is considerable in view of the small number of cases involved

cases considered the muco-cutaneous relapse rate, which from a public health point of view is an important yardstick by which to judge the efficacy of treatment, is either 8·2 or 5% at 18 months. The Clinical Co-operative Group figures (Moore, 1943) show that 85% of such relapses occur in the first two years of surveillance after long-term arsenical and bismuth therapy.

Moore (1947), utilizing a total dosage of 2,400,000 units of penicillin, quotes a cumulative relapse rate at 11 months of 15%, and of 21% for a schedule of 2,400,000 units of commercial penicillin with the addition of 320 mg. of arsenoxide (in eight daily injections each of 40 mg.). Reynolds (1948), in considering various schedules of treatment for early syphilis by means of commercial penicillin alone (totals of 4,800,000 units two-hourly for eight days, 4,800,000 units three-hourly for eight days, and 9,600,000 units three-hourly for 15 days in divided doses), gives a combined cumulative relapse rate of 16.43% during the twelfth month of follow-up. At the end of the twelfth month the cumulative relapse rate (total) for the scheme discussed in this paper is either 12.1 or 9.3%, depending, as stated above, on whether certain of the cases diagnosed as reinfections are included as relapses or not. At the end of the eighteenth month these figures are 15 or 10.8%. The cumulative relapse rates thus appear to be at least as satisfactory as, if not superior to, those obtained with the various schemes of treatment reported in the last few years.

Toxic Reactions

It was not always easy to judge from the clinical notes made at the time whether such toxic reactions as were observed were definitely due to penicillin or to arsenic. This is especially the case as regards ninth-day erythema, which tends to occur at about the same time as urticarial reactions due to penicillin. However, in most cases the clinician treating the patient expressed an opinion concerning the causation, and in cases in which there appeared to be a doubt the toxic reaction has been considered as being due to arsenic. In consequence the actual arsenical toxicity rates may in fact be less than those given below.

Reactions due to penicillin, either local or generalized, were rarely recorded. Such cases of penicillin urticaria as were noted responded to treatment, usually with no interruption of the routine antisyphilitic therapy.

There were 33 cases in which the toxic effects occurring were considered to be due to neoarsphenamine. In 28 of these no more arsenical treatment was given to the patient after the toxic reaction; in the remaining five cases treatment was interrupted, but was later resumed. Seventeen cases of arsenical toxicity occurred in the first three weeks of treatment; the remainder showed a fairly even scatter throughout the rest of the period of treatment.

Six cases of jaundice occurred in the series, but, since it is generally accepted that this condition is of infective origin, they are not included in the series of toxic effects considered to be due to neoarsphenamine. Of these six patients, one developed jaundice during the first ten days of treatment, the remaining five at intervals between two and five months after the beginning of treatment.

The following analysis of the 33 reactions caused by neoarsphenamine shows that the vast majority were in the nature of a dermatitis: *Toxico-dermal reactions:* ninth-day reaction, 9 cases; dermatitis, 19; pruritus, 1 case. *Gastro-intestinal reactions:* nausea, 1 case. *Other reactions:* encephalopathy, 1 case; agranulocytosis, 1 case; albuminuria, 1 case.

During the hospital phase of treatment, in addition to the nine cases of ninth-day erythema observed, six patients showed toxic reactions due to arsenic: of these, one developed a punctate dermatitis and treatment was interrupted for a week but was later resumed: in the five others, which included one case diagnosed as arsenical encephalopathy, treatment with neoarsphenamine was discontinued. In five of the nine cases of ninth-day erythema arsenical therapy was also discontinued. During the out-patient phase of treatment toxic reactions occurred in 18 patients, and in all of them treatment with neoarsphenamine was permanently stopped.

There was no fatality among the patients in whom toxic reactions occurred, and in only three cases could there have been considered to be a danger to life. These latter consisted of one case of exfoliative dermatitis, which occurred in a patient with sero-negative primary syphilis 74 days after the onset of treatment; one case of agranulocytosis with angina, which occurred in a patient with sero-negative primary syphilis 23 days after treatment started; and one case of arsenical encephalopathy occurring nine days after the beginning of treatment in a patient with secondary syphilis. All these patients received BAL (OX 217) in the following dosage: 4 ml. four-hourly for three doses on the first and second days of treatment, and daily doses of 4 ml. for the next two to five days.

Since records are complete for the in-patient period of treatment, toxic reactions within the first ten days can be expressed as a percentage of all cases completing hospital treatment. With regard to reactions occurring in the out-patient period of treatment (late toxic reactions), the number of patients completing all treatment and the number "*defaulting*" during the out-patient phase are known. A reasonable estimate of the total number exposed to the risk of toxicity will therefore be the total of those known to have completed treatment, plus half the number of patients "defaulting" during this phase (Table X). With this assumption, for all the patients

TABLE X.—*Crude Figures of Number of Patients Exposed to Toxicity*

	Sero-neg. Primary	Sero-pos. Primary	Secondary	Total
(*a*) No. of patients starting hospital treatment	353	439	230	1,022
(*b*) No. of patients completing O.P. treatment	274	321	159	754
(*c*) No. of patients completing part of O.P. treatment	79	118	71	268
(*d*) Estimated no. of patients exposed to risk of toxicity in O.P. portion of treatment = (*b*) + ½(*c*)	313	380	194	887
(*e*) Total no. of early toxic reactions (first-phase treatment)	5	5	4	14
(*f*) Total no. of early toxic reactions in which treatment stopped	3	4	2	9
(*g*) No. of toxic reactions in O.P. treatment phase	6	10	3	19

treated, the toxicity rate during the early portion of treatment is 1.37%, and that for the out-patient phase of treatment 2.14%—thus giving an estimated total toxicity rate of 3.51%. In Table XI these figures are broken down according to the stage of disease when first treated.

TABLE XI.—*Analysis of Rates of Toxic Reactions*

	Sero-neg. Primary	Sero-pos. Primary	Secondary	Total
Toxicity rate during hospital phase of treatment	1·41%	1·13%	1·72%	1·37%
Late toxicity rate	1·91%	2·63%	1·54%	2·14%
Overall toxicity rate	3·32%	3·76%	3·26%	3·51%

Summary and Conclusions

An analysis of the results of treatment of 1,028 patients treated for early syphilis, with a schedule consisting of 4,000,000 units of penicillin combined with one course of neoarsphenamine and bismuth, is described.

There was a high rate of "default" from surveillance due to the rapid release of patients from the Service. In order to offset this and to obtain a true statistical picture an actuarial method has been used.

If all patients who were considered by the clinician concerned to have become reinfected were accounted for as relapses, then the total cumulative relapse rate at 18 months was found to be 15% and the cumulative muco-cutaneous infectious relapse rate 8.2%. If four of the ten cases clinically diagnosed as reinfections are accepted as such these relapse rates would be 10.8 and 5% respectively. These results would seem to be more satisfactory than those reported by others using commercial penicillin alone and in combination with mapharside by the semi-intensive method.

Treatment failures (cases showing sero-resistance) were small in number, being 0.9% of sero-positive primary cases and 3.87% of secondary cases.

Toxic reactions were of a very low incidence, occurring in 3.51% of all patients treated, and there were no fatalities.

We are indebted to Brigadier J. Bennett, Director of Medicine and Consulting Physician to the Army, and Brigadier H. T. Findlay, Director of Pathology, for permission to submit this paper for publication, and to the venereologists working at the various treatment centres for their co-operation. Our thanks are also due to Major R. B. Stalbow for his advice in regard to the statistical problems involved.

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The current issue of the *Practitioner* is devoted to a review of the first year's working of the National Health Service. All the contributors are anonymous, but there is an editorial assurance that they are outstanding in their own spheres. A physician concludes that "there is no evidence that the health of the nation has benefited from the first year of the National Health Service. On the other hand . . . no great harm has resulted." A surgeon puts forward a number of constructive suggestions, and an obstetrician takes the view that "the field is set for a wonderful experiment which could not fail to yield encouraging and possibly dramatic results." General practitioners put forward their own distinctive views, and two newly qualified practitioners contrast their enhanced material security with certain spiritual doubts.

SEX HORMONE UPSET IN AFRICANS

BY

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Only in the last few years has interest begun to be focused on the non-parasitic pathology of Africans. The gaps in our knowledge are so immense that it is extremely unwise to be dogmatic on any point in African pathology. Nevertheless, from the few centres where pathological investigations, and particularly necropsies, are being carried out reports are accumulating which show that there are striking differences between the incidence of various lesions in Africans and in Europeans. These have been reviewed by Lewis (1942) and Gelfand (1948). Owing to the total absence of reliable statistics it is usually very difficult to express these differences, and all figures must be interpreted with great caution. Certain of these differences are explicable on climatic or parasitic grounds, others, such as sickle-cell anaemia, on racial grounds, but the majority still defy explanation.

In this paper I suggest that certain of these so far unexplained differences are explicable on the assumption that, because of the almost universal liver damage, Africans are subject to oestrinization on almost a national scale, or even on a continental scale. As chemical analyses of the urines to ascertain sex hormone excretion have not yet been performed, it is proposed to review the evidence supporting this hypothesis.

Malnutrition in Africans

It has long been known that there is a very high incidence of liver disease in Africans and that cirrhosis is extremely common (Vint, 1931); in fact, in East Africans and in the South African Bantu it has been found to be almost universal (Davies, 1948a, b, c; Gillman and Gillman, 1948). Recently evidence has accumulated which suggests that this liver damage is largely the result of malnutrition, assisted perhaps in certain areas by the effects of parasites (Davies, 1948a, b, c). Owing to malnutrition a fatty liver develops early in childhood and cell accumulations then occur with fibrosis, with or without the deposition of iron. Cirrhosis of the liver of a Laennec type often develops even in young children. In those less affected who survive, the liver is permanently marked and often functionally upset.

After childhood is passed recurrent episodes of malnutrition or chronic infections will precipitate further attacks, so that these patients present, both clinically and pathologically, a state somewhat similar to that seen in young children. Other causes of liver damage, such as infectious hepatitis and post-arsenical jaundice, are also common in Africa, and there is reason to suppose that nutritional hepatic necrosis occurs in Africans as it is suspected to do in Ceylon (Fernando, Medonza, and Rajasuriya, 1948). Clinically, Trowell (1946) has found that this malnutritional syndrome, kwashiorkor, is extremely common in African children, and, owing to the prolonged period of breast-feeding and the absence of a proper weaning period, few African children escape without at least a minor attack of the condition. This clinical observation is fully in accord with the pathological finding of almost universal liver damage at necropsy.

There is thus evidence that from early childhood a high proportion of Africans have damaged livers. This has

many profound effects, but in particular it has been shown that when the liver is damaged, as in cirrhosis, it is unable to inactivate oestrogens (Glass, Edmondson, and Soll, 1940). Nor is cirrhosis necessary, for Hibbs (1947) and Klatskin, Salter, and Humm (1947) have described gynaecomastia in malnutrition. It has been shown that the liver fails to inactivate oestrogens where there is vitamin B deficiency (Biskind and Biskind, 1942) or where there is a lack of lipotropic factors (György, 1945). Lipotropic factor deficiency gives rise to fatty infiltration of the liver similar to that found in kwashiorkor (Davies, 1948a, b, c). Therefore, if Africans have damaged livers, which generally is known to be the case, then signs of oestrinization should be widespread in Africa.

Evidence of Oestrinization in Africans

If from an early age Africans are subjected to oestrinization many profound changes might be expected. Most of the experiments performed to show the effect of oestrogens have been carried out in mice and other laboratory animals, and it is as yet uncertain how far similar changes occur in humans. The general change in males is to produce "feminization" associated with certain mental changes. Feminization will be manifested by changes in the general body configuration and by gynaecomastia. The endocrine glands are affected and the incidence of certain endocrine disorders should be altered. The known carcinogenic properties of oestrogens might be expected to be shown by a high incidence of certain types of cancer, and since, if this theory is correct, oestrinization occurs from an early age, then the age incidence of these cancers would probably be lower than in Europeans. In African females a high incidence of cystic hyperplasia of the breast, of endometriosis, and of endometrial cancer might be expected. All these possibilities will be briefly examined.

Changes in the Body Configuration of Africans.—Lewis (1942) points out that the anthropologists have long sought to explain the origin of racial characteristics by the action of hormones and have so explained the slender build of the Bantu (castration effect). Gordon (1933), dealing with amentia in the East African, stated: "I may mention that I have found gynaecomastia to be common and also a marked general feminoid tendency in the males of our own tribes." He also mentioned the frequency of bilateral hyperplasia of the parotids, a condition now known to be associated with malnutrition in Africans (Davies, 1948a; Gillman, Gilbert, and Gillman, 1947). It may be mentioned in passing that the work of Gordon and of Vint (1933) on the African brain and mentality, which attracted great interest, would appear to have been carried out on Africans showing what we now recognize as severe stigmata of malnutrition possibly associated with endocrine upset. In association with this feminization it may be noted that the body and beard hair of Africans is often very soft and downy and they rarely shave, while in health their skins are beautifully soft and satiny.

Gynaecomastia—This is uncommon in temperate regions. Karsner (1946) gives its incidence in the U.S. Army as 16 per 100,000 and in the U.S. Navy as from 6.96 to 9.46 per 100,000. There is no doubt about its frequency in Africans: Gelfand (1948) comments on its prevalence in Rhodesia, and in a recent survey of 500 railway workers in Nairobi Trowell (1948) found it present in moderate degree in 3% of these and in severe degree in 2%. Thus 5% of these supposedly healthy men exhibited this lesion, which Karsner (1946) concluded to be an indication of oestrogen upset in the male. My colleague Mr. E. M. K. Muwazi informs me that in certain parts of Uganda operations for the removal of these unsightly male breasts are often demanded, and in Mulago Hospital this is an operation not infrequently performed. Testicular atrophy is often associated with gynaecomastia, and while no figures can be given there is no doubt that testicular atrophy and oligospermia are common in Africans.

Inguinal Hernia.—Dr. Burrows has kindly drawn my attention to the effects of oestrogens in causing inguinal hernia to develop in mice. While no figures of exact incidence can be given there is no doubt that hernia is very common in Africans. Connell (1930) has mentioned its frequency in African males and also its relative infrequency in African women. Herniae are extremely common in Uganda and a vast number are operated upon each year. Undescended testicle does not appear to be common, but I am informed (McAdam, 1949—personal communication) that at operation the cord is often found to be short.

Thyrotoxicosis.—The rarity of thyrotoxicosis in Africans is a striking feature of African medicine. While goitre is not uncommon, and is even remarkably common in certain endemic foci—e.g., in Sierra Leone (Blacklock, 1925)—thyrotoxicosis is very rare (Gelfand, 1948). Of the many thousands of biopsy specimens examined in Kampala between 1931 and 1949 only two specimens were found to come from Africans diagnosed as having thyrotoxicosis and with the history supporting this diagnosis. In the same period only one case came to necropsy. Thyroid adenomata, however, are common. Oestrogens are reported as having an inhibitory action on the thyroid (Cameron, 1945), and, though this not so great as to be effective in moderate or severe thyrotoxicosis, in mild cases they may be effective (Farbman, 1944). While the cause of the rarity of thyrotoxicosis in Africans is obscure, it is possible that oestrinization might account for its rarity.

Effects in the Female.—Cystic hyperplasia in women is now attributed to excessive oestrogen stimulation (Willis, 1948). Ellis (1937) refers to the frequency of this condition in African women, finding that in the women he examined 51% had nodules of cystic hyperplasia and 14% had cysts. He thought that, since he found carcinoma of the breast to be unusual in African women, cystic hyperplasia could not be a precancerous lesion. Evidence of the effects of excessive oestrogen stimulation upon the endometrium appears, in my experience, to be frequently seen in the biopsies submitted, but as these are from selected cases no figures can be given. Evidence of infertility is also difficult to produce, but the abortion rate is believed to be high. In their studies in Ulanga, Tanganyika Territory, the Culwicks (1938) found that the fertility rate of the older women was very low, possibly correlated with a severe famine in their youth, but that the fertility rate of the young women, while low, was much higher than that of the older women.

Cancer in Africans

The influence of oestrogens in the causation of cancer has aroused very great interest. The study of the incidence of cancer in Africans is beset with immense difficulties. There is an almost total lack of reliable vital statistics in Central Africa; women come to hospital less often than men, and the severe bed-pressure means that where nothing further can be done patients have to be returned to their homes, while adequate diagnostic facilities are concentrated in a few centres only.

An important consideration is that relatively few Africans live to enter the cancer age, for, as Barnard and Robb-Smith (1945) point out, almost half the total cancer mortality in England and Wales occurs in persons of 65 years and

over. Statements about the ages of Africans must be accepted with great caution, but it has been shown (Davies, 1948c) that the average age at death of persons coming to necropsy at Mulago Hospital is just over 28 years, and that of 2,162 patients only 21 definitely were above the age of 60 years and 1,635 were below the age of 40 years. Considering this, there would appear to be no shortage of cancer in Africans.

In the absence of proper statistics it is possible to put forward for consideration only the figures obtained from the necropsy records of Mulago Hospital over the period 1931–49 and the figures of the cancers diagnosed from biopsy specimens in the Kampala Laboratory over the same period. This laboratory serves the whole of Uganda, with a population of about five millions. All Asiatic and European cases have been excluded, and, so far as possible, all cases which subsequently came to necropsy at Mulago Hospital; and, while it is not possible to say that all such have been excluded, it is certain that the overlap is slight. Endless discussion could take place over the exact ascription of many of these tumours, so the diagnosis recorded in each case has been accepted as the correct one. Cases of metastatic cancer in which the primary source was not stated are not included in Table I.

TABLE I.—*Cancers in Uganda Africans*

Site	Biopsy	Necropsy	Site	Biopsy	Necropsy
Carcinoma					
Skin:			Gall-bladder	0	2
Epithelioma	152	2	Ureter	1	0
Rodent ulcer	8	1	Urethra	1	0
Penis	176	1	Bladder	10	3
Eye	19	0	Prostate	7	5
Lacrimal gland	3	0	Testis	2	2
Buccal cavity and lip	21	1	Ovary	28	4
Antrum	5	1	Uterus, body	21	1
Nose	1	0	Uterus, cervix	36	1
Branchial	3	1	Vagina	6	1
Oesophagus	2	3	Vulva	14	0
Salivary gland	43	0	Breast	64 (5♂)	0
Stomach	6	8	Thyroid	6	0
Small intestine	2	2	Bronchus	0	0
Colon	5	4	Pancreas	4	12
Rectum and anus	19	3	Kidney	5	4
Liver	20	39			
	485	66		205	35
Sarcoma					
Round-cell	37	2	Spindle-cell and fibrosarcoma	68	3
Giant-cell	8	1	Myxosarcoma	10	0
Kaposi sarcoma	14	2	Special types	21	4
Reticulo-endothelial Tumours					
Endotheliomata	90	4	Lymphosarcoma	27	11
Reticulum-cell sarcoma	30	7	Hodgkin's disease	30	4
Leukaemia and chloroma	1	10	Plasmocytoma	3	0
Special Tumours					
Melanoma	72	2	Thymoma	0	0
Gliomata	1	7	Retinoblastoma	10	0
Adrenal neuroblastoma	2	2	Adamantinoma	16	1
Teratoma	12	5	Carcinoid of appendix	1	0
		16			1

	Biopsy	Necropsy	Total
Carcinoma	690	101	791
Sarcoma	158	12	170
Reticulo-endothelial tumours	181	36	217
Special tumours	114	17	131
Total	1,143	166	1,309

A number of interesting features are displayed in this table, but comments will be made only on points bearing on the hypothesis under discussion. The details can be compared with those of other published series of cancers in Africans: Smith and Elmes (1934, Nigeria), Ledentu (1934, Cameroons), Vint (1935, Kenya), and Elmes and Baldwin (1947, Nigeria).

Carcinoma of the Male Breast

A high incidence of carcinoma of the male breast has been recorded by several observers. Their findings are summed up in Table II and compared with the figures given by Willis (1948).

TABLE II.—*Comparative Figures of Carcinoma of the Breast*

Locality	Total Carcinoma	Total Breast Carcinoma	Male Breast Carcinoma	As % of Breast Carcinoma	As % of all Carcinoma
England and Wales, 1938	—	7,278	60	0·82	—
Victoria State, 1933–42	—	2,455	26	1·0	—
Nigeria, 1934	225	29	3	10·3	1·3
Kenya, 1935	277	25	5	20·0	1·8
Cameroons, 1934	63	11	3	27·2	4·7
Nigeria, 1947	568	84	7	8·3	1·2
Uganda, 1949	791	64	5	7·8	0·63

This table underestimates the total malignancy found in male breasts, for Vint's series contained two breast sarcomas and Elmes and Baldwin recorded two sarcomas in their cases, and in the Uganda series there were two sarcomas and one malignant endothelioma of the breast. Sarcoma of the breast is a very rare tumour, and it is possible that these cases might be anaplastic carcinomas; but the effect is still the same, as it confirms the frequency with which malignant tumours occur in the breasts of African males. To these figures may be added the statement of Gelfand (1948) that he has encountered some cases of carcinoma in the male breast.

This high incidence of male breast cancer in Africans awaits explanation, as does the high incidence of gynaecomastia. It is very difficult to incriminate such agents as parasites or trauma, and all the evidence suggests an endocrine cause.

Reticulo-endothelial Neoplasms

Oestrogens are known to have some influence over the occurrence of leukaemias and lymphosarcomas and other systemic neoplasias of the reticulo-endothelial system in mice (Furth, 1946; Greenstein, 1947). Such neoplasms figure prominently in this series, but it is difficult to estimate their exact incidence in other reports from Africa. Elmes and Baldwin do not mention leukaemia or Hodgkin's disease, but found 53 lymphosarcomas in their 1,000 cases. The generalized glandular tuberculosis seen in Africans can mimic the lesions of Hodgkin's disease, and many recorded cases may really be tuberculosis (Davies, 1947).

Many of the endotheliomas arose from lymph glands, and these tumours were the subject of a special study by Hennessey (1942). Vint recorded 15 endotheliomas from Kenya (2.7% of his tumours). But in view of the strictures passed by Willis (1948) upon this diagnosis it is difficult to assess the true status of these tumours. In spite of this, however, reticulo-endothelial neoplasms are common in Africans and usually occur in young persons. Thus of nine necropsy cases of lymphosarcoma the average age was 23.9 years, the oldest being a man of 42: of six cases of reticulum-cell sarcoma the average age was 38.9 years, the oldest being a man of 50; and of five leukaemias all were young adults with an average age of 25.9 years.

Willis (1948) states that while lymphosarcoma is not rare in youth it is predominantly a disease of middle and old age (the mean age of his cases was 52 years). Gelfand (1948) states that leukaemia in the African, whether myelogenous or lymphatic, runs an acute or subacute course.

While the youth of these subjects may be only a reflection of the short life of Africans, these tumours appear predominantly in young males and run an acute course. Another common tumour of Africans which Willis puts in this class of tumours is Kaposi sarcoma, which has a peculiar sex incidence. Elmes and Baldwin record its incidence as 2.4 : 1 in their cases. It is possible that some cases of this disease are masquerading in this series under other names endothelioma or fibrosarcoma.

Primary Liver Carcinoma

This is a very common tumour in Africa, and so far no satisfactory explanation of its frequency has been adduced, but it has been suggested elsewhere that this might also be induced by oestrinization (Davies, 1948b). It has an almost constant association with a slowly developing Laennec type cirrhosis, and Schenken and Burns (1943) have caused hepatomas to develop in mice by oestrogen administration. In Africans it is predominantly a disease of young adult males, the age incidence in this series of 20 necropsy cases being an average of 36.6 years. From such cancerous livers carcinogenic substances have been isolated, probably sterols, as they have from non-cancerous African livers but not from the livers of Europeans or American negroes. Failure of oestrogen inactivation would account for the finding of carcinogens in both cancerous and non-cancerous Bantu livers.

Uterine Carcinoma; Testicular Tumours

Uterine Carcinoma.—Considering the greater ease of diagnosis of cervical cancer as compared with endometrial cancer, the incidence of the latter in Uganda would appear to be relatively high. Willis quotes various authorities who suggest that the proportion of cervical to body cancer is about three or four to one.

Testicular Tumours.—These would appear to be rare in Uganda and in Nigeria, and no interstitial-cell tumours are recorded.

Discussion

The evidence which suggests that oestrinization is widespread in Africa and accounts for many of its peculiar pathological conditions requires to be supported by studies of the sex hormone excretion of Africans. To judge by what is known to be true of cirrhotic cases (Lloyd and Williams, 1948), these should present evidence of sex hormone upset. I know of no place in Central Africa where such studies are being carried out, but it would seem that if they were done they might produce extremely interesting results.

If the importance of oestrinization in Africans can be proved it will clearly be a matter of great value in the development of Africa. It is not to be supposed that the evil effects of oestrinization or other hormonal defects induced by malnutrition are confined to the conditions briefly discussed here. Oestrin produces changes in personality and mentality which may be of the greatest importance in African life. While only African pathology has been discussed, the known high incidence of primary hepatic carcinoma in other parts of the world, such as Java and Malaya, may mean that this hypothesis is applicable to conditions there. It is realized that much written here is mere speculative opinion and that other alternative explanations are possible to cover these differences between African and temperate pathology. But all I wish is to lay this hypothesis before those interested in tropical medicine and suggest that the possibility of sex hormone upset in malnourished Africans is a subject worthy of further study.

Summary

It is suggested that the different incidence of a number of pathological states in Africans from that found in Europe can be explained upon the hypothesis that, owing to widespread malnutrition and consequent liver damage, Africans are subject to wholesale oestrinization.

This hypothesis arose out of an investigation into malnutrition carried out in conjunction with Dr. H. C. Trowell and Dr. E. G. Holmes. I am grateful to them, to Dr. A. B. Raper, and to others of my colleagues for help and advice, and also to Dr. H. Burrows. The paper is published with permission of the D.M.S., Uganda.

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On the island of Tinian in the trust territory of the Pacific administered by the United States Navy nearly 100 lepers are receiving medical treatment that will enable many of them to return to their former homes and occupations. Work at the leper colony is part of a health service the United States Navy is performing in the Marianas, Caroline, and Marshall Islands. The Navy, acting for the United States Government, directs civil administration in the former Japanese-mandated islands under a trusteeship agreement with the United Nations. A first step in the medical programme was the gathering of information on the health and incidence of disease among the 50,000 natives of the islands. As the 100 inhabited trust islands are scattered over a wide area the U.S.S. *Whidbey*, a small cargo ship fitted as a medical centre, is headquarters for the staff making the survey. The *Whidbey* started making the rounds in the Marshall area in August, 1948. It stops at each inhabited island long enough for a physical and dental examination of every inhabitant. The ship's medical staff consists of two doctors, one dentist, one medical service corps officer, and 10 hospital ratings. One of the most important functions of the staff is to discover cases of leprosy. Although emergency treatment is given on the vessel when necessary, other ships collect the lepers and take them to Tinian Island.

DIRECT VEIN GRAFT IN RUPTURE OF POPLITEAL ARTERY

REPORT OF A CASE

BY

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Since the advent of anticoagulants, especially heparin, it has been advised many times in textbooks and in discussions that where there is a gap in the course of a main vessel resulting from trauma, or possibly from the excision of an aneurysm or other operative procedure, and where direct suture is impracticable, reconstitution should be effected by vein-grafting. There are, however, very few such cases reported in the literature in which grafting has been successful. In a subject with healthy arteries it is probably safe to say that the main vessel can be interrupted with impunity, provided that there is not such extensive damage to the soft parts that the collateral vessels themselves are divided and precluded from carrying out their function. Where such damage exists, and where there is other reason to suppose that sufficient collaterals will not function properly, the restoration of blood flow can be secured by means of a vein graft with or without the use of a vitallium tube.

The following case in which a direct vein graft without a tube was used to bridge a gap in the popliteal artery is of interest. The immediate result was successful, but other circumstances led to an amputation six months later.

Case Report

On July 1, 1947, a farm labourer aged 19 was driving a tractor and backing towards an upturned harrow when he fell backwards off the driving-seat on to the spikes of the harrow. He sustained a lateral perforating wound of the left knee, the harrow point passing across the popliteal surface of the femur and grazing it. The wound of entry was considerably lacerated and there was much damage and bruising of the subcutaneous and deep tissues in this area. At the time of examination some two hours later the foot was cold and pulseless and there was a sock anaesthesia. His general condition was good.

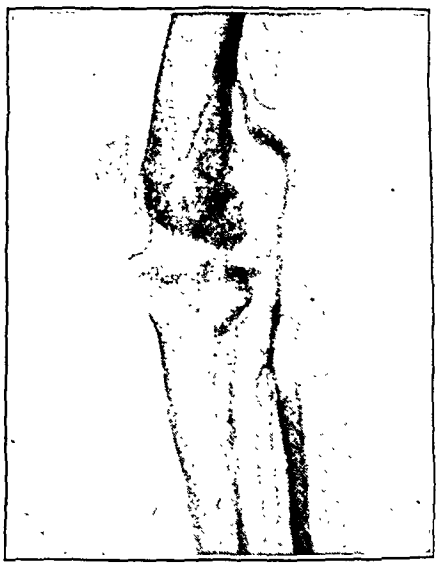
Operation was performed with a pneumatic tourniquet *in situ*. The wounds were explored and devitalized tissue was excised. Through an additional posterior midline incision the contents of the popliteal fossa were examined. The popliteal artery was extensively bruised and in spasm over a distance of 2 in. (5 cm.) and the media in one segment was partially divided. The posterior tibial nerve was intact, but the lateral popliteal nerve showed considerable bruising. The affected segment of the popliteal artery was excised and extensive subintimal haemorrhages were found in this part.

As there was much damage to the collaterals, the result of the original trauma, it was felt to be essential to restore the blood flow in the main vessel, and as no vitallium-flanged tubes were available a piece of the internal saphenous vein was excised from the opposite thigh and sutured to the patent cut ends of the popliteal artery. Suture was effected at each end by eight interrupted sutures of silk on the finest needle. The tourniquet was released and, although the graft bulged somewhat, pulsation was immediately apparent, extending into the distal segment of the popliteal artery, and there was no leakage. The wound, owing to its dirty and soiled condition, was lightly packed with petroleum jelly gauze.

A pronounced reactive hyperaemia was immediately apparent in the foot, and both the dorsalis pedis and posterior tibial pulses were full and easily palpable (blood pressure 200/130). The patient was given heparin, but in spite of the fact that the clotting-time was never above eight minutes severe haemorrhage recurred on the following day and re-exploration and a transfusion were necessary. A tributary of the popliteal vein was found to be bleeding and was tied. The graft was pulsating satisfactorily. Heparin was stopped.

The next day haemorrhage occurred again, and this time was seen to be coming from the popliteal surface of the damaged femur. The graft was still pulsating well and there was no undue bulging; a further transfusion was given. Convalescence proceeded satisfactorily, but from the time of the accident anaesthesia was present over the distribution of the lateral popliteal nerve, and there was similarly a motor paralysis of the lateral and anterior tibial muscles.

On August 25—i.e., almost eight weeks after the injury—an arteriogram (see illustration) showed slight stricture at the site of the anastomosis, but the blood flow was satisfactory and the blood supply of the foot was completely adequate, although the pulses of the affected leg were not quite so good as those in the contralateral limb. Unfortunately a flexion contracture of the knee-joint started and, in spite of treatment, became more pronounced. On January 8, 1948—i.e., six months after the injury—the popliteal area was again explored and was found to be a mass of extremely dense fibrous tissue; in the process of dissecting this out the popliteal artery was irreparably damaged and gangrene of the toes occurred, necessitating amputation of the leg below the knee at the site of election on March 16.



Arteriogram taken eight weeks after injury.

Comment

Experimentally, Murray (1940) has shown that direct vein-grafting of a gap in an artery is completely successful provided the animal is given heparin for about 72 hours, the bleeding-time being maintained at 12 to 20 minutes. He examined the grafts after a four-weeks interval, when patency and hypertrophy of the graft were seen, the latter being confirmed microscopically—in fact, it appeared that the vein had become like an artery.

Certain points of interest arise from my case: (1) The graft was working satisfactorily and was in fact not easy to distinguish from normal popliteal artery when directly inspected 48 hours after the transplantation. (2) The blood pressure following operation was up to 200/130 for some time, and the graft did not bulge significantly. (3) Owing to excessive haemorrhage following operation heparin was not used for more than 24 hours, nor was the clotting-time increased above eight minutes, yet the graft remained patent. I do not suggest that heparin is inadvisable or unnecessary in such cases. (4) Should flanged vitallium tubes not be available, or should they not be considered advisable, it seems that a direct vein graft to bridge the gap in an artery is a rational procedure and has a good chance of success.

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THE AGGLUTININ ANTI-M ASSOCIATED WITH PREGNANCY

REPORT ON TWO CASES

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In the following two cases of pregnancy the agglutinin anti-M was detected.

Case 1

Mrs. A, aged 27, was expecting delivery of her first child on December 22, 1946. The serological findings are shown in the Table.

May 20.—Mrs. A : Group A Rh-negative (cde/cde). W.R. negative. No abnormal antibodies active at 37° C.

August 1.—Mr. A : Group O Rh-positive. His cells were not agglutinated at 37° C. by his wife's serum (saved from May 20 and stored at −20° C.).

December 3.—Mrs. A : Serum contains an antibody active at 37° C. agglutinating 13 different red cell suspensions (two Rh-negative and 11 Rh-positive), each known to contain the antigen M, but did not agglutinate seven different red cell suspensions all lacking in the antigen M.

December 10.—Mrs. A : Red cells—Group A Rh-negative N.P. Serum—action of antibody identical with that of a known anti-M when tested against 100 unknown cells. Titre of antibody 128 at 37° C., 20° C., and 4° C., with a weak reaction at 37° C. and a visual reaction at 4° C.

December 16.—Mrs. A was delivered of an apparently healthy child showing no clinical signs of haemolytic disease of the newborn. The placenta was normal in appearance and weight. *Baby A* (cord blood) : Apparently Group A Rh-negative ; M,N,P. The direct Coombs test was negative. The child's cells were strongly agglutinated at 37° C. by its mother's serum. Haemoglobin at 24 hours was 162% Haldane. *Mrs. A* : Findings as before. The titre against the same M-positive cell 64 at 37° C. (weak reaction), 64 at 20° C., and 128 at 4° C. (visual reaction). *Mr. A* : Group O Rh-positive (cDe/cde) ; M,N. His cells were strongly agglutinated at 37° C. by his wife's serum.

December 23.—Mother and child were discharged from hospital. The child was fully breast-fed and clinically normal.

Table Showing the Serological Findings in Family A

Date	Mrs. A	Mr. A	Baby A
20/5/46	Group A Rh-negative (cde/cde). No abnormal antibodies at 37° C.	—	—
1/8/46	—	Group O Rh-positive. Cells not agglutinated by wife's serum	—
3/12/46	Antibody present active at 37° C.	—	—
10/12/46	Group A Rh-negative; N,P. Antibody identical with anti-M against 100 unknown cells. Titre: 1: 128 at 37° C. (weak reaction); 1: 128 at 20° C.; 1 : 128 at 4° C. (visual reaction)	—	—
16/12/46	Titre: 1: 64 at 37° C. (weak reaction); 1: 64 at 20° C.; 1: 128 at 4° C. (visual reaction)	Group O Rh-positive (cDe/cde); M,N. Cells agglutinated at 37° C. by his wife's serum	Group A Rh-negative ; M,N,P. Coombs's test negative. Cells agglutinated at 37° C. by maternal serum
5/4/47	Titre: 1:8 at 37° C.	—	Group A Rh-negative ; M,N,P

April 5, 1947.—Baby A : Aged 3½ months. Examined by paediatrician and judged to be normal in all respects. Blood typed as Group A Rh-negative ; M,N,P. Mrs. A : Anti-M still active at 37° C. with a titre of 8.

Case 2

Mrs. B, a 3-gravida, was admitted to the puerperal sepsis ward on March 13, 1947, three days after delivery, requiring transfusion. Blood was sent for Rhesus typing and cross-matching.

March 14.—Group O Rh-negative (cde/cde); N. No abnormal antibodies were demonstrable at 37° C., but at 20° C. and 4° C. an antibody was present, behaving as an anti-M with a titre of 2. Cross-matching was carried out at 37° C. and 4° C., and Group O Rh-negative N blood was transfused satisfactorily.

March 26.—Infant B : Aged 15 days. Clinically normal, having shown no signs of haemolytic disease of the newborn since birth. Blood Group O Rh-positive (CDe/cde); M,N. The direct Coombs test was negative. The child's cells were strongly agglutinated by its mother's serum at 20° C. but not at 37° C. Mr. B : Group A Rh-positive (CDe cde); M. His cells were strongly agglutinated by his wife's serum at 20° C. but not at 37° C.

Discussion

The findings of an abnormal antibody in maternal sera during pregnancy may generally be taken as indicating iso-immunization, with the future possibility of haemolytic disease of the newborn. It is our contention that the detection of anti-M in maternal serum during the course of pregnancy or the puerperium should not be considered as having the same significance as the detection of such abnormal antibodies as the Rhesus iso-agglutinins. In fact, anti-M, like anti-P (Dunsford, 1949), is to be considered as a naturally occurring antibody, comparable with anti-A or anti-B, but of rarer occurrence.

The literature contains few references to the iso-agglutinin anti-M. Wiener and Forer (1941) and Wiener (1942) have reported what appears to be immune anti-M in two cases following incompatible transfusion, but such an occurrence is so rare and anti-M so weak an antigen in man that M and N factors are ignored in normal transfusion work. Anti-M in association with pregnancy has been reported in only two cases (Paterson *et al.*, 1942 ; McFarlane, 1945), while we have knowledge of three more recently discovered cases. De Kromme and Van Der Spek (1948) have reported a case in which it was suggested that anti-N was associated with haemolytic disease of the newborn, but it was not investigated fully nor was the association proved.

In the cases of Paterson *et al.* and McFarlane and in our Case 2 anti-M was present as a typical cold agglutinin active at 20° C. and 4° C. In no case was there evidence of haemolytic disease of the newborn. Following these three cases, that of our Case 1 is of additional value in that the antibody was strongly active at body temperature with a titre of 128, but again there was no evidence of haemolytic disease of the newborn.

It is believed that Rh is a stronger antigen in man than M (McFarlane, 1945), and if anti-M and anti-Rh are produced by a similar process—namely, iso-immunization—it would be reasonable to suppose that Group N, Rh-negative multigravidae who have borne M or MN Rh-positive children, and have produced anti-M, should also have produced anti-Rh. McFarlane's case and our Case 2 both fall into this category, but in neither case was anti-Rh detected. This suggests that the anti-M present was a natural and not an immune antibody. It will be appreciated that a case reported by Wiener and Forer (1941) in

which both anti-M and anti-Rh were produced by an incompatible transfusion, and another discovered by Stratton (personal communication), with both antibodies present in pregnancy, do not negative this hypothesis.

Secondly, clinical and serological manifestations of haemolytic disease of the newborn were entirely absent in the case of Mrs. A, in whom the antibody was known to have increased in titre during the pregnancy and to have become active against the cells of the foetus and its father at body temperature. Similar findings with an immune iso-agglutinin are almost invariably followed by affection of the newborn.

Finally, a technique of differentiating immune and naturally occurring antibodies was applied to these sera. This technique, described by Boorman and Dodd (1947), is the comparison of the titre of the agglutinin in saline with the titre of the agglutinin when human serum, lacking the antigen to the antibody under examination, is used as diluent in place of saline. Boorman and Dodd found enhancement of titre in serum in which immune antibodies were present, whereas naturally occurring antibodies showed no enhancement. In the cases of Mrs. A and Mrs. B there was no evidence of titre enhancement, further confirming the theory that these anti-M agglutinins were of natural occurrence.

Reason must be given why in the case of Mrs. A the titre of the antibody rose during the intrauterine life of the foetus if the antibody was of natural occurrence. This phenomenon has been reported by Jonsson (1936) and others in the case of naturally occurring anti-A and anti-B, and not infrequently observed by one of us (I.D.). Similar observations have been made in Rh-negative women who, having produced Rh antibodies in previous pregnancies, reproduce these antibodies in increasing titre in a subsequent pregnancy, even though carrying a normal Rh-negative foetus. This can be explained by the supposition that there has been a non-specific stimulation of already existing antibodies during the course of pregnancy.

In the case of Mrs. A an explanation of the alteration of the antibody activity so that agglutination of the infant's and of the father's cells occurred at 37° C. is found in the work of Kettel (1930), who proved that the thermal amplitude of a cold agglutinin—e.g., anti-M—is directly proportional to its titre. The titre of 1 : 128 of Mrs. A's anti-M is the first reported to have reached sufficient strength to react at body temperature.

Tovey (1944) has suggested that anti-M or anti-N agglutinins will appear only rarely in the serum of a mother who is carrying a baby of dissimilar M or N type. This he suggests is due to the pronounced non-specific absorptive capacity of human tissues for these iso-agglutinins. This may explain why Mrs. A's anti-M, though active at 37° C., did not cause haemolytic disease of the newborn.

Summary

Two cases in which the agglutinin anti-M was associated with pregnancy are reported, and the literature on the subject is reviewed.

Reasons are suggested for considering these anti-M agglutinins to be naturally occurring antibodies.

The relation of anti-M to the aetiology of haemolytic disease of the newborn is discussed.

We wish to thank Mr. J. E. Stacey and Mr. L. B. Patrick for permission to quote their cases whilst one of us (C.C.B.) was at the Jessop Hospital for Women, Sheffield; also Dr. E. F. Aubert (late regional transfusion officer) and his successor, Lieutenant-Colonel R. H. Malone, for their valuable advice and permission to publish this note. Dr. A. E. Mourant, of the Ministry of Health Blood Group Reference Laboratory, was kind enough to confirm the findings of Mrs. A's serum.

Note.—An anti-M with the same thermal amplitude as Mrs. A's has been reported to us by Dr. Tovey, of the Regional Blood Transfusion Laboratory, Bristol, and one of us (I.D.) has recently found another anti-M associated with pregnancy, in which case the child, though M-positive, was clinically normal.

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THE RHESUS FACTOR D^U

A NOTE ON ITS PRACTICAL IMPORTANCE

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Rh testing is being undertaken in many laboratories either as a test in antenatal cases or for selecting Rh-negative blood donors. Fisher has suggested that the reactions of the various Rh types should be explained in terms of three pairs of allelic genes, C-c, D-d, and E-e, controlling the presence of the corresponding antigens.

Additional alleles, C^w and D^u, have been detected at the C-c and D-d loci, and it is with D^u at the D-d locus that this paper deals. This theory is fully explained by Mollison, Mourant, and Race (1948).

The D antigen is the most important of the Rh antigens, and a person is now referred to as being "D-positive" or "D-negative" according to whether his erythrocytes do or do not possess the D antigen. In the Manchester area there are about 18% of D-negative and about 82% of D-positive persons, so that, if the rarer subgroups are excluded from our consideration for the moment, it will be seen that this classification roughly corresponds to "Rh-positive" and "Rh-negative."

The D^u Group

When blood cells were being typed for Rh it was noticed that some anti-Rh (anti-D) testing sera reacted with certain blood samples positively, whereas others, apparently equally good testing sera, failed to react with these cell samples. Further examination of these cells revealed that they reacted with up to 45% of anti-D sera only; these cell samples may of course also react positively, or negatively, with anti-C and anti-E sera in the usual way. This special type of D antigen was tentatively called D^u (Stratton, 1946); subsequently cells of types CDu/cde, cDu/cde, and cDuE/cde were discovered and recognized (Race, Sanger, and Lawler, 1948a, 1949b; Stratton and Renton, 1948).

It was later found that some types of D^u cell were so weak in their reactions that they would give saline agglutination with no anti-D typing sera, or in some cases with only a very few. Nevertheless, it was found that these cells would

give a positive Coombs reaction when tested with certain strong incomplete anti-D sera, but they failed to give a positive albumin reaction in the same circumstances.

It should not be imagined that the difference between Du and D is one of strength of reaction only; we have conclusively shown that there is a qualitative difference between D and Du and between one Du blood and another. Moreover, we were able to show that Du is an inherited allele or modification of D.

It will be observed that the anti-D sera which react with Du are really anti-D + Du sera, whereas those which fail to react with Du are anti-D sera alone. The term Du therefore defines a series of alleles or modifications of the main antigen D at the D-d locus which differ qualitatively and quantitatively from D, and in many cases from each other. The reactions of Du may therefore be summarized as follows:

1. They react with anything from 0–45% of anti-D sera (anti-D + Du) by saline agglutination; those that react with none are referred to as "low-grade" type Du and those that react with many as "high-grade."

2. They all give positive Coombs reactions when examined with certain strong incomplete anti-D sera.

3. With the exception of a few of the high-grade Dus, they all fail to give positive albumin reactions with incomplete anti-D sera.

Thus the reactions of Du-positive cells vary from those scarcely distinguishable from D right down to those detectable only by the Coombs test, using special incomplete anti-D sera. These reactions are shown in the Table.

Table Showing Percentage of Anti-D Sera Giving Positive Results (the Actual Percentage of Positive Results Depends on the Individual Cell Sample Tested)

Test	Antigen in Cells			
	D	High-grade Du	Low-grade Du	d
Agglutination in albumin* ..	60–90%	0–10%	Nil	Nil
Agglutination in saline† ..	60–100%	5–45%	Nil	Nil
Coombs's reaction*	90–100%	70–100%	20–60%	Nil

* The sera tested were the strongest available. † The sera tested were a random selection.

It was found by examining large numbers of cell samples that about half the cells apparently of genotype Cde/cde are in reality CDue/cde and about one in nine of those apparently cdE/cde are really cDuE/cde. The proportions are probably greater than this, since our study was made especially into low-grade forms of Du-containing cells.

Practical Importance

When testing blood samples for Rh the nature and extent of the test depend upon the reason for its performance. If the test is being done in the case of antenatal patients or other persons to determine whether or not they can be immunized to Rh, then it is necessary to determine only whether the person is D-positive or D-negative.

On the other hand, when testing a person's cells to ascertain whether he is Rh-negative for the purpose of being a blood donor, one must make sure that the donor is not only D-negative but C-negative and E-negative as well. This is because the recipient's serum may contain not only anti-D but anti-C and, rarely, anti-E antibodies as well.

We have examined several blood samples from mothers of genotypes Cde/cde and cdE/cde whose sera contained anti-D antibodies. Careful examination failed to show the presence of Du in any of these cell samples, and consequently, so far as we have ascertained at the present time, the presence of Du indicates that the cell sample is D-positive. Therefore, in the first instance mentioned above, when testing antenatal patients, anti-D + Du sera may be used and a Du person considered to be D-positive.

A child suffering from hypoplastic anaemia has been treated by Professor Gaisford with multiple blood transfusions from the age of 10 months; he is now 6 years of age, and during this period he has been transfused approximately six times yearly and has received about 100 pints (57 litres) of D-positive blood. Recently he was found to be of group CDue/cde, but no abnormal antibodies have been detected in his serum. In addition, he has more recently received a few pints of Rh-negative blood until the nature of the Du group was more fully understood, but it seems that this child has failed to respond to the D antigen.

That a child of this age can respond to antigenic stimuli is shown by another case. A boy suffering from a similar condition was seen by one of us (F.S.) when about 8 years of age. He was Rh-negative and had strong Rh antibodies in his serum. He had likewise been treated over a period of about three years with multiple transfusions.

Van Loghem (1947, 1948) showed that Du may become antigenic to D-negative persons, since immunization of an Rh-negative volunteer with blood of CDue/cde resulted in the formation of incomplete anti-D antibodies; whilst in Mollison's case (personal communication) a CDue/cde baby suffered from haemolytic disease of the newborn caused by incomplete anti-D antibodies in the maternal serum.

In the second instance, therefore, in which we are selecting Rh-negative donors for transfusion purposes, it is necessary to exclude the Du-containing groups. The most practical way to avoid these is by using anti-C and anti-E sera in addition to anti-D when typing the blood. This will not only eliminate D-positive blood but also Cde/cde and cdE/cde as well as CDue/cde and cDuE/cde—that is to say, the vast majority of Du-positive blood. In certain populations—for example, negro—where the incidence of cDe/cde may be as high as 45%, this will not suffice, and it will be necessary to do a Coombs test, using incomplete anti-D sera to exclude group cDue/cde, which has a very low frequency in England (probably about 0.015%).

Furthermore, Du is of practical importance when it is proposed to use Cde/cde and cdE/cde cells for determinating the presence of anti-C and/or anti-E agglutinins respectively in Rh antisera. If these cells are used but in reality contain the Du group and are CDue/cde and cDuE/cde, the Rh antisera will falsely be thought to contain anti-C or anti-E, whereas the reaction may be due to the presence of anti-D reacting with the Du component of the cells. This is of very great importance if the sera are to be used subsequently as test sera, and considerable confusion will result.

In the cross-matching test it is as well to remember that, should one encounter a donor whose cells contain Du and a recipient's serum containing incomplete anti-D antibodies, the albumin test, often recommended for cross-matching, will be negative but the Coombs test will reveal the incompatibility. In general, when investigating sera for atypical antibodies both the Coombs and the albumin tests should be used, in case the antibody be of a type which reacts in only one of these tests. For our own part we are led to believe that the Coombs test is the one to be preferred in the detection of antibodies where only a single test can be performed.

Conclusion

In conclusion it should be emphasized that only a proportion of anti-Rh agglutinating sera react well with Du-positive cells, and, since Du bloods differ from one another

and from D qualitatively as well as quantitatively, sera giving the strongest agglutination with Du cells are not always those with the highest titres when tested against D-positive cells. In carrying out an examination of Du cells, using incomplete anti-D sera and the Coombs test or albumin test, the sera have also to be specially selected for this purpose.

The observations made in this paper apply, in the main, to the differentiation of Du from d. The determination of Du cells and their isolation and differentiation from the D-containing erythrocytes, on the other hand, is a difficult and complicated matter. The differing reactions of Du blood and the difficulties of knowing precisely what antibodies anti-Rh sera contain add to these difficulties.

To overcome this it is necessary to examine large numbers of cells of all types containing both the D antigen and the Du antigen combined with C and/or E, as well as cells containing the C and E antigens alone (i.e., types Cde/cde and cdE/cde); each type should be examined with very many varieties of anti-Rh agglutinating sera and incomplete antisera. The results should be tabulated and compared one with another, and any new cell should be put through this process and its reactions compared with those of other cells; by this means it is possible to give the type of the new cell which has been tested. In making our comprehensive table, for example, we used 49 Rh-agglutinating sera and 12 incomplete Rh antisera.

Full theoretical and explanatory results are not given in this short paper, but a further publication will show these and the manner in which they have been worked out.

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New regulations have been introduced by the Government to improve the standard of purity of milk. The Minister of Agriculture and Fisheries becomes responsible for the registration of dairy farmers and farms, the inspection of cattle on dairy farms, and the enforcement of the regulations on dairy farms (unless they relate to diseases communicable to man). If the Minister proposes to refuse or cancel a registration, provision is made for objections to be referred to a tribunal and for representations to be made to the Minister. Local authorities are still responsible for the provisions which apply to milk distributors other than dairy farmers and for the registration of these milk distributors and of dairies. Local authorities also continue to be responsible for the provisions relating to diseases communicable to man. The present powers relating to infected milk are extended to enable a medical officer of health to stop the sale of milk, or to require milk to be diverted for heat treatment, if there is evidence that it is infected with organisms of disease communicable to man. A medical officer of health may also require milk to be diverted for heat treatment if he has reasonable grounds for suspecting that it is so infected. There are a number of minor changes in the regulations relating to buildings, the cleansing of vessels and utensils, and the distribution of milk and its protection against contamination. In particular, provision is made for modern practices in dairying, including the use of mechanical refrigeration for cooling and approved chemical agents for the cleansing of appliances. A Central Advisory Committee and County Advisory Committee will be set up to review and make recommendations on the operation and administration of the regulations.

NOTES ON AN EXPERIMENTAL STUDY OF INTELLECTUAL DETERIORATION

BY

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The term "intellectual deterioration" means for the clinician a decline in intelligence as a result of a brain lesion, chronic mental illness, or old age. The psychologist has been satisfied to define intellectual deterioration operationally in terms of the tests he uses to measure it. These tests have been designed on the assumption made originally by Babcock (1930) that vocabulary level is a valid index of the pre-morbid intelligence of the patient. By a comparison of the score on a vocabulary test with the score on a pure test of intelligence an assessment of the degree of deterioration is made.

Hunt (1944), however, has questioned the assumption that vocabulary level is a valid index of pre-morbid ability. He points out that vocabulary may suffer as a consequence of the disorder; also that for unintelligent subjects vocabulary may be an imperfect indicator of ability.

The theory underlying the design of tests of intellectual deterioration can be verified only by a large-scale study of individuals suffering from a disorder known to cause intellectual deterioration which responds to clinical treatment. The present investigation was performed as a preliminary to the design of a large-scale investigation, and the results seemed of sufficient interest to report.

The Investigation

The subjects tested were three women and one man suffering from myxoedema. This disease seemed suitable for the investigation, as it causes apparent intellectual deterioration and responds rapidly to treatment by thyroxine. The main disadvantage from the point of view of research is its rarity. In the course of over a year only four subjects were found at the endocrine clinic of a large hospital. These were tested before starting treatment and three months later, when by clinical criteria they had recovered.

Tests Used

1. *Raven's Progressive Matrices Test.*—This is a non-verbal intelligence test. The untimed version was given.

2. *The Mill Hill Vocabulary Scale.*—This is a 32-item vocabulary test of the synonyms type. The scores on both these tests were converted into intelligence quotients (S.D. 16 points) by means of a table constructed in this department. An index of deterioration is obtained from these two tests by the formula:

$$\frac{\text{Matrices I.Q.}}{\text{Vocabulary I.Q.}} \times 100,$$

A quotient below 90 implies a certain degree of intellectual deterioration.

3. *The Shipley* (1940) *Test.*—There are two subtests: (*a*) A 20-item "abstractions" intelligence test consisting of a series of problems graded in difficulty in which the subject fills in a missing letter or figure. The first of these is: 1, 2, 3, 4, 5, – and the reasoning becomes more complex as the test progresses. There is a ten-minute time limit and the score is expressed as an abstractions mental age. (*b*) The second part of the Shipley test is a 40-item vocabulary test of the synonyms type, with a ten-minute time limit, from which a vocabulary mental age is obtained. From a comparison of the abstractions and vocabulary raw scores Shipley gives an index of deterioration (called by him a conceptual quotient) which is designed on virtually the same principle as the matrices/Mill Hill vocabulary

index. He considers any C.Q. over 90 as probably normal, under 70 as pathological, with various gradations between these.

The scores on the matrices and abstractions tests were not corrected for the natural decline of intelligence with age, as we were interested not in an individual patient's score on the tests but rather in the changes in the scores on the tests after treatment.

Results

The test/re-test results are given in the accompanying Table. The most obvious result is that the intelligence level of the group tends to rise. On the matrices test the

Table Showing Test Results

Case	Sex	Age		Matrices	Mill Hill Vocab.	D.I.	Abstr. Mental Age (months)	Vocab. Mental Age (months)	D.I.
1	F	60	Test	72	94	77	—	181	—
			Re-test	94	100	94	—	194	—
2	F	27	Test	69	97	67	125	189	66
			Re-test	84	111	76	125	208	60
3	F	46	Test	80	100	80	177	189	93
			Re-test	98	100	98	207	198	104
4	M	45	Test	79	106	74	162	204	88
			Re-test	102	106	96	166	204	89

D.I. = Deterioration Index.

Statistical significance of the differences between test/re-test scores:

Matrices	Students t	= 13·67;	P = <0·01
Mill Hill vocabulary	"	= 1·51;	P = 0·23
Shipley abstractions	"	= 1·20;	P = 0·35
Shipley vocabulary	"	= 2·57;	P = 0·08

gain is of 22, 18, 18, and 24 points, giving a mean gain of 20.5 I.Q. points. The results on the abstractions test are equivocal, partly because one paper was spoiled. One subject's score rises by 2½ years of abstraction age and one by four months; the other remains unchanged.

However, the most important result from both the theoretical and the practical points of view is that the vocabulary scores also show a tendency to rise (though less markedly). Thus the Mill Hill vocabulary I.Q. rises in two out of four cases by 6 points and 14 points, which gives a mean gain of 5 vocabulary I.Q. points for the whole group. The Shipley vocabulary mental age rises in three cases by 13, 19, and 9 months—a mean gain on the whole group of 10.2 months of vocabulary mental age. This finding would seem to undermine the assumption that vocabulary level is unaffected by pathological processes in the brain and that it is a valid index of the pre-morbid intelligence of intellectually deteriorated patients. The variability of the vocabulary scores also raises interesting problems regarding the nature of the aphasic disorder suffered by patients who are intellectually deteriorated.

The assessment of intellectual deterioration is a practical problem in the psychiatric clinic. The results provide evidence on the use of indices of deterioration to express the differential decline in abilities. As patients recover clinically these indices should rise, thus approaching the normal. This is so for all indices derived from the matrices and Mill Hill vocabulary tests. But of the three indices of deterioration derived from the Shipley tests one actually falls, thus showing the patient to be more deteriorated after treatment, despite the fact that her intelligence level has risen by 18 points of I.Q. on the matrices test. The other Shipley indices of deterioration rise after treatment, but neither before nor after treatment do they indicate any degree of deterioration, although this is clearly shown in the indices derived from the matrices and Mill Hill vocabulary tests. Further, statistical tests of significance show that, whereas the changes in the scores on the abstractions test are insignificant, those on the Shipley vocabulary test approach the 5% level. The evidence would seem to speak against the use of the Shipley test for the estimation of intellectual deterioration, and would suggest that an index of deterioration derived from the matrices and Mill Hill vocabulary tests is more valid. Further, no provision is made by Shipley for correcting scores on the abstractions test for the natural decline in intelligence with age. This is essential in estimating the extent of intellectual deterioration for any individual case. It may be done for the matrices test from data provided by Foulds and Raven (1948).

The criticism may be levelled against our findings that the increase in the intelligence and vocabulary scores could arise simply as a result of the practice effect of repeating the tests. Statistical tests of significance show, however, that the changes in scores on the matrices test are significant at the 1% level, and that the changes in scores on the Shipley vocabulary test approach the 5% level. Although the changes in scores on the Mill Hill vocabulary test are not statistically significant at the usually accepted levels, it must be noted that this vocabulary test is untimed, which would tend to diminish the possibility of practice effect. Also the alternative version of the test, given additionally to the first patient, showed a similar rise in vocabulary. It therefore seems unlikely that the changes after treatment in the intelligence and vocabulary scores are entirely the result of practice.

Summary and Conclusions

The intelligence level of three patients suffering from myxoedema was raised greatly after treatment by thyroxine.

Scores on two vocabulary tests also rose, but by a smaller amount.

The results provide some empirical evidence contrary to the general assumption that vocabulary level is unaffected in cases of intellectual deterioration.

Until a more accurate method is available a comparison of scores on the matrices and Mill Hill vocabulary tests is recommended for the estimation of intellectual deterioration.

I would like to thank Dr. P. M. F. Bishop, Guy's Hospital, for allowing me to test patients under his care.

Note.—I would be grateful if any physician in charge of patients suffering from myxoedema who is interested in having them psychologically tested would inform me at the Institute of Psychiatry, Maudsley Hospital, London, S.E.5.

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The place of clinical pathology in medicine and the status of its practitioners have lately been engaging the attention of the health authorities of Cuba. As a result of negotiations between the Sociedad Cubana de Medicos Laboratoristas Clinicos and the Cuban Health Authorities the following principles have been accepted by the National Council of Public Health of Cuba and approved by the Cuban Minister of Public Health, Dr. Carlos M. Ramirez Corria: (1) It is acknowledged that clinical pathology is exclusively a branch of the medical profession, and as such it should be subject to the laws that govern the practice of medicine in general. (2) The director of any clinical laboratory should be a fully recognized medical practitioner. (3) It is to be understood that the clinical laboratory is where the physician specializes in this specific branch of medicine by practising clinical analysis and following scientific laws, with the purpose of guiding the practitioner in diagnosis, prognosis, and treatment. (4) The clinical pathologist should keep secret the results of his work, with the exception of those which are specified by law.

Medical Memoranda

Tuberculous Meningitis with Paraplegia as the Dominant Feature

The following case is put on record as it presented certain unusual features which caused difficulty in arriving at a correct diagnosis.

CASE REPORT

A Gurkha recruit aged 16 was admitted to hospital on May 14, 1948, with a small septic laceration of the left knee. This healed without obvious complication, but on May 18 he developed a sudden rise of temperature. This was provisionally diagnosed as a malarial attack, which was treated by routine methods. However, as no malaria parasites were seen in blood-slides and his pyrexia did not subside with antimalarial measures, it was considered that he might have developed a secondary generalized infection from the primary focus on the left knee. Penicillin and sulphathiazole were therefore given, but without clinical improvement.

On May 23 he had to be catheterized, and patches of anaesthesia were found distributed over the lower chest and flanks. During the next 24 hours he developed a rapidly progressive paraplegia and became drowsy. Lumbar puncture performed at this time revealed diminished C.S.F. pressure, a raised protein content, and 9 cells per c.mm. A blood count showed 27,000 white cells (90% polymorphs).

I was invited at this stage to see the case in company with Lieutenant G. Watts, R.A.M.C., and found the patient practically comatose. There was some stiffness of the neck, the pupils were dilated and fixed, and he had a complete flaccid paraplegia with loss of all reflexes, including the abdominal reflexes. The level of loss of sensation was difficult to determine accurately owing to his inability to co-operate, but he reacted to pin-prick above approximately the fourth dorsal level. There was no clear line of demarcation of sensory loss. The spine showed no obvious abnormality.

A cisternal puncture revealed a pressure of 200 mm. of water. The C.S.F. was clear and there were only 4 cells per c.mm. Tubercle bacilli were not found. A tentative diagnosis of spinal compression following an epidural abscess was made. It was surmised that the septic laceration of the knee had been the portal of entry for organisms causing a generalized infection.

The patient died on May 25. Owing to religious objection a post-mortem examination limited to the spine and skull only was permitted.

Pathology.—On exposing the theca no epidural abscess was found. The dura was much thickened, and on being incised the subdural space was seen to be filled with thick gelatinous and fibrinous pus. The dura was covered with shaggy exudate and studded with tubercles. A similar appearance was observed on the surface of the cord. These changes were most pronounced between the levels of D 10 and D 4, and had apparently produced a complete spinal block. The base of the brain presented similar but very much less marked appearances, and the lining of the ventricles was studded with small tubercles.

Histological examination showed that the cord itself was largely unaffected, but the pia and arachnoid were grossly thickened and contained large numbers of lymphocytes, histiocytes, polymorphs, and giant cells. Bacteriological culture gave a growth of human tubercle bacilli.

COMMENT

A case of tuberculous meningitis with pronounced early spinal symptoms is described. This form of the disease seems to be comparatively rare, and in this instance it ran a very rapid course, there being only seven days between the onset of the pyrexial stage and death. The sudden fever and the presence of a focus of sepsis on the knee suggested a pyogenic cause for the spinal signs, and the true diagnosis was revealed only at necropsy.

Four cases with a similar chain of features occurring in Singapore between 1938 and 1942 were described by Ransome and Montiero (1947). Though there are certain differences between their cases and the one described here, the march of events was the same—pyrexia, paraplegia, meningeal signs, and death. In their cases the onset and course of the condition were more gradual, the illness lasting about three weeks. In describing the nervous signs they noted the patchy sensory loss and the difficulty in demarcating the limit of sensation, but stated that the muscular paresis of the legs never became complete. However, in the main essentials the case here described corresponds with the clinical and pathological picture as observed by Ransome and Montiero.

I am indebted to Captain J. C. Gould, R.A.M.C., for his report on the pathological findings.

EDWARD KNOWLES, M.Ch.Orth., F.R.C.S.,
Late Lieutenant-Colonel, R.A.M.C.; Orthopaedic Specialist, Far.E.L.F.

REFERENCE

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Case of Oesophageal Carcinoma

This is, I believe, the first recorded case of carcinoma of the oesophagus in a patient suffering from anorexia nervosa.

CASE REPORT

The patient was an unmarried woman aged 38. During a pleasure cruise in the Thames Estuary 21 years ago she became much alarmed when a large wave broke over her. She began to "tremble and go stiff all over," she lost her voice; all inclination for food left her, and she had a "breakdown." She had to give up her job. Anorexia persisted thereafter, and she said that she had lived on 2 pints (1.1 litres) of milk and two cups of sweet tea each day until her admission. Her weight, which was 5 st. 1 lb. (31.75 kg.), tended to confirm the truth of this statement. Eighteen years ago amenorrhoea and daily vomiting began and persisted for a year; there was no further change until three months before admission, when retrosternal oppression occurred during meals, and rapid loss of weight began. A month before admission vomiting started, and for the last few days had been almost continuous.

On examination she was a sallow, emaciated virgo intacta, with no stigmata of hypovitaminosis. Slight proteinuria and a few small, easily felt hard lymph nodes in the left posterior triangle were the only positive physical signs. A provisional diagnosis of anorexia nervosa was made, but the recent alteration in symptoms suggested oesophageal obstruction, and a barium swallow was carried out; this revealed a tight stricture in the lower third of the oesophagus, which was subsequently shown by oesophagoscopy and biopsy to be due to the presence of a squamous-celled carcinoma.

Radiotherapy was begun, and gastrostomy was performed. The liver was rapidly invaded, however, and become enormously enlarged and irregular. After the appearance of ascites and oedema of the legs, downhill progress was rapid, and four months after admission the patient died.

At necropsy an ulcerating growth of the oesophagus involving the whole wall from the bifurcation of the trachea to the cardia was found. The liver weighed 4,150 g. and was packed with carcinomatous masses. There were two enlarged lymph nodes containing secondary deposits at the bifurcation of the aorta, and one in the left side of the neck. Microscopically, many branches of the portal vein in the liver were shown to contain plugs of growth.

COMMENT

The feature of interest in this case is the relation of the long-standing psychological disturbance to the development of oesophageal cancer. Lawrence Abel (1929) states that two-thirds of his cases of carcinoma of the oesophagus were preceded by an incident of emotional stress, and Guisez (1925) has said that half of the cases in his series had a similar history. Abel suggests that the neoplasm arises at the site of pre-existing spasm of the muscle wall, and refers to his own observations and those of Guisez that mental stress is often a cause of oesophageal spasm.

If the patient's symptoms before the development of carcinoma had been due to oesophageal spasm, it is reasonable to suppose that during the twenty-years history some of the oesophageal dilatation and hypertrophy characteristically the result of spasm ought to have developed. This was not so, and one is forced to the conclusion that in this patient, at any rate, whatever aetiological relation there may have been between mental stress and oesophageal cancer, spasm played no part.

Dr. E. R. Cullinan, under whose care this patient was admitted, has kindly given permission for the publication of this report.

IAIN MACDOUGALL, M.D., M.R.C.P.,
St. Bartholomew's Hospital.

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Localized Fat Atrophy After Jelly-fish Sting

The following case is worth recording because of its unique nature.

CASE REPORT

A V.A.D. nursing member aged 27 was bathing in the sea at Trincomalee, Ceylon, at about 10 p.m. on February 26, 1948. As she was climbing up the steps to come out of the water the anterior part of the left thigh and the left leg just above the ankle came in contact with the tentacles of a jelly-fish, which for the moment became wrapped round the limb. A severe stinging sensation was at once felt, followed almost immediately by large urticarial weals on the sites of contact. She returned home and went to bed, though the pain continued throughout the night and was severe enough to interfere with sleep. There was never any collapse, dyspnoea, respiratory embarrassment, or generalized urticaria, and she reported sick at the hospital the next morning.



When seen about 12 hours after the accident she was still complaining of an exceptional amount of pain, and urticarial weals with vesiculation were present across the anterior aspect of the middle third of the thigh and the leg for about 4 in. (10 cm.) above the ankle. There were no general symptoms beyond slight malaise. The patient was rested in bed and calamine lotion applied; the urticaria subsided in a week, leaving a purplish red discoloration of the skin, which persisted, though gradually fading, for about six months. Some oedema of the left foot and ankle appeared on the second and third days and lasted for some three weeks.

The discoloured skin of the affected areas remained remarkably sensitive, and even three months later a stinging sensation could be appreciated on contact with water.

On May 9 the patient again reported, stating that for the past three weeks she had noticed her left leg becoming thinner. The cutaneous discoloration was still just apparent; there appeared to be a complete disappearance of the subcutaneous fat in these areas, the left thigh being 1¾ in. (4.4 cm.) thinner at 6½ in. (16.5 cm.) above the patella, and the left leg ¾ in. (1.9 cm.) thinner at 2 in. (5 cm.) above the ankle. There was no loss of power, no muscular wasting, and no reflex or sensory changes. A radiograph of the lower limb showed no abnormality. No treatment was given and the patient was again seen on November 21. A certain amount of redeposition of fat had taken place in the intervening six months—the left thigh now showing 1¼ in. (3.16 cm.) of wasting and the left leg about ½ in. (1.25 cm.)—and the tendency seemed to be towards a slow return to normal. The accompanying photograph, which was taken on November 22, shows the degree of fat atrophy then present.

COMMENT

Jelly-fish of various types are very prevalent round the coast of Ceylon during the months of February and March, and a number were known to be about at the time: it is regretted, however, that the exact species responsible was not identified.

Jelly-fish stings are capable of causing a variety of local and general symptoms, mostly suggestive of excess histamine liberation. Urticaria in varying degrees of severity is the most usual local reaction, and may be followed by a profuse weeping eczema (Allen, 1920: quoted by Joslin *et al.*, 1940). General symptoms include shock, cardiac distress, and dyspnoea, but these were entirely lacking in this case. The degree of skin discoloration and the length of its persistence were both exceptional, though it is not very uncommon for some reddening of the skin to be present at the end of three months.

Lipodystrophy, or atrophy of the subcutaneous fat, is well recognized in diabetic patients treated with insulin, and is especially frequent in children and to a less extent in women, but is scarcely ever seen in adult males (Joslin *et al.*, 1940). This observation may have some bearing on the present case: it has been suggested that the androgen may protect the adult male and lack of it may account for the frequency in women and children, for hypogonadal adult males may occasionally suffer from insulin lipodystrophy (Walderstrom: quoted by Joslin *et al*, 1940). I have been unable to trace any similar case in the literature.

My thanks are due to the Medical Director-General of the Navy for permission to publish this case.

M. A. RUGG GUNN, M.D., M.R.C.P.,
Surgeon Commander, R.N.

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A new type of rubber surgical glove has been developed in the U.S.A. to relieve cases of dermatitis caused by the continual wearing of rubber gloves, which is a problem chiefly faced by surgeons, who may have to cease working for considerable periods to obtain relief. A rubber company of Akron, Ohio, has announced that it is now producing this special glove, and a number of doctors have reported that they are effective.—B.U.P.

Reviews

ADVANCES IN RADIOLOGY

Modern Trends in Diagnostic Radiology. By J. W. McLaren, M.A., M.R.C.S., L.R.C.P., D.M.R.E. (Pp. 464; 381 illustrations. £3.) London: Butterworth. 1948.

Dr. J. W. McLaren took on a difficult task when he accepted the editorship of this work, and its signal success says much for his judgment in selecting a team of distinguished writers, choosing the subjects for them to write about, and, most important of all, excluding what is already established or beyond the limit of future probability. He has cast his net wide for both subjects and authors, and sets the standard himself in an early chapter on radiology in research. This section emphasizes the research work of A. E. Barclay, whose recent death was lamented by the whole world of radiology.

In a brief review it is not possible to do justice to the articles in this book—all of them good, and some superlatively so. It is therefore courteous to mention the work of some of Dr. McLaren's distinguished colleagues from abroad. The article by Baclesse on tumours of the pharynx and larynx is of first importance, and adds much to our knowledge. Waldenstrom on pulmonary haemosiderosis, Nordentoft on colonic disease in children, Steinert on renal tuberculosis, and Edling on urethrocystography, all maintain the high standards of Scandinavia. Later in the book comes an excellent article by the late Eric Lysholm on ventriculography and associated subjects. Of equal merit is a contribution on cerebral angiography by Engeset and Kristiansen, of Oslo.

Of the British contributors, Meiklejohn has made a noteworthy contribution on occupational pulmonary diseases, and L. G. Blair and Whateley Davidson have written most readably on the lung. Of particular interest is Holmes Sellors's account of post-operative chest complications. Peter Kerley has written a brilliant and typically provocative description of sarcoidosis. Blair Hartley knows a great deal about foetal abnormalities, and writes with authority about all sorts of monstrosities. Eric Samuel gives an excellent account of modern gastro-intestinal work. James Brailsford discusses abnormalities of the spine, a subject of which he has made a lifelong study.

The book ends with two unusual articles of great worth. Sir Lionel Whitby's chapter on blood changes is brilliant, and should be read by all who have charge of *x*-ray departments, and W. A. Levitt's account of the law relating to radiology is a model of lucidity.

This book is a pleasure to read and a credit to the editor and his colleagues. It is pleasant to think that it has been so well received as to demand an early second edition, now well on the way.

S. COCHRANE SHANKS.

VARICOSE VEINS

Les Varices et leurs Associations Pathologiques. By Louis Gerson. Second edition. Preface by Professor L. Justin-Besançon. (Pp. 260; 57 figures. 850 francs.) Paris: G. Doin. 1948.

This book on varicose veins and their pathological associations is an enlarged and revised edition of a volume which appeared in 1934. The physiology of the venous system and the aetiology of varicosities are considered briefly, and there are accounts of the clinical types of varicose veins and their complications, and of methods of treatment.

Many of the clinical descriptions are good, particularly those discussing the aetiology of the different types of ulceration, the skin changes, and other complications. English readers will, however, find much to criticize in the over-elaboration of pathological interpretation, the tendency to theoretical generalizations, and the narrow attitude towards treatment. The author considers that local congenital defects are the most important aetiological factors—thus accounting for varicosities in unusual situations. There are many who will disagree with the view that the main internal saphenous vein invariably dilates from the top, and also with the statement that oedema is frequently present in uncomplicated varicose veins. There is a full account of the author's technique of injection and the possible complications. The solutions specially favoured are sodium salicylate, iodine in sodium iodide, sodium morrhuate, and quinine urethane. There is no attempt to link injection treatment with direct surgical attack, and all operative treatment is in fact ignored.

The various types of phlebitis receive scant notice in relation to their frequency and importance. Phlegmasia alba dolens is considered in some detail, but the author's interpretation of this subject will appeal to few. His conception is that phlegmasia is an allergic phenomenon developed in an individual who has had septicaemia and been sensitized to the streptococcus. It is on this assumption that all the local complications of ulceration are interpreted. The illustrations are good, but references to the literature are scanty and consist of a few French papers only.

REGINALD PAYNE.

BIOLOGICAL ASSAY

Principles of Biological Assay. By C. W. Emmens, D.Sc., Ph.D. With foreword by Sir Percival Hartley, C.B.E., *M.C.*, D.Sc., F.R.S. (Pp. 206. £1 1s.) London: Chapman and Hall. 1948.

The gratitude of all responsible for conducting biological assays is undoubtedly due to Dr. Emmens and his publishers. There is no other book in the English language that covers exactly the same ground as this. It explains in detail and with great patience how modern methods of factorial design and statistical analysis may be applied to the planning and execution of biological assay as well as to estimating potency and to evaluating the error of the estimate. The subject is discussed from the fitting of curves to the analysis of co-variance. Both types of biological response are considered—those expressible as a continuous variate and those of the quantal type, with the application of probits to them.

Although the book is not easy reading, and is presumably not intended for casual dipping or even continuous perusal, few who practise biological assay will fail to find in it answers to some of the problems already encountered. All will gain valuable suggestions for improving, and often for simultaneously simplifying, current procedures.

Yet there remains a faint sense of dissatisfaction with this book, not only due to the fact that the title is misleading—for it describes far less the principles than the practice of applied statistical methods. A book still needs to be written that will consider, from the standpoint of the chemist and biologist, with due regard to statistical concepts, the methodological and even ethical problems that continuously confront the bio-assayists. One of these problems is the subject of a specific injunction by Dr. Emmens (p. 69), when he writes, "If we design a test so that a particular set of degrees of freedom is allotted for error, only this set should be used whether or not other sources of variation prove to be significant in the particular test analysed." But there are many other questions to which he does not refer or only does so in passing. What, for example, is his opinion of the almost universal practice among pharmacologists and others of "adjusting" dosage so that it is proportional to the body-weight of the test animal? If this weight does not affect response, why adjust? If it does, is not a full analysis of co-variance needed to establish the simple linear relationship that alone could justify the practice in question?

A few errors have been detected in the text of this book, and it is unfortunate that Dr. Emmens writes of "test material" (p. 6) and "test objects" (p. 56) in referring to the animals or tissues used for biological assay, for the former expression, at any rate, is taken by most assayists to mean the sample to be assayed. On the other hand, at least one reader is gratified to find Dr. Emmens writing of a "four-point assay" without reference or other comment, in spite of the fact that the expression was introduced as recently as 1942 (*Biochemical Journal*, 36, 407), with quotation marks. The phrase seems to have passed into current usage without any kind of official sanction. This leaves open the awkward question whether a "six-point" assay means two by three or three by two: it has

been used in both senses. The useful term "metameter," suggested by Hogben and first introduced with due acknowledgment in the same paper as "four-point assay," apparently does not appeal to Dr. Emmens. He has devoted little space to discussing the choice of metameter, often one of the most difficult of all the decisions the bio-assayist has to take. And there is much more to say than he does about litter-mate control.

The production and arrangement of the book are admirable. Because of the large number of diagrams and tables, including those for χ^2 (p. 142) and corrected probits (p. 142), the price of the book must be adjudged entirely reasonable.

A. L. BACHARACH.

TRAUMATIC SURGERY

An Atlas of Traumatic Surgery. By Josep Trueta, M.D. Barcelona, Hon.D.Sc., Hon.F.R.C.S Canada. (Pp. 150; 188 figures. £1 10s.) Oxford: Blackwell Scientific Publications. 1949.

Except for a brief introduction this book consists entirely of the clinical notes of patients suffering from serious injuries of the limbs—injuries for which many surgeons would have regarded immediate amputation as imperative a short time ago. That the limbs have been restored to useful function is a tribute to the methods advocated (and largely introduced) by Professor Trueta. He has wisely placed this record before surgeons with little comment, for the evidence he produces is overwhelming. Only those who in the two great wars have had to struggle with similar cases can really appreciate his superb achievements. When they remember that he began his work under the terrible conditions of the Spanish war they must equally admire his courage.

Although most of the cases described occurred under the conditions of war the methods adopted have a full application in those grave injuries which happen in peace and appear to be inseparable from mechanical progress. By these means many limbs may be conserved, but it must not be imagined that they are to be saved by petroleum jelly gauze and plaster. Professor Trueta makes his technique look so simple that one is apt to forget the skill and infinite attention to detail that lie behind it. Only by similar attention can these results be reproduced. The book presents a record of which Professor Trueta may well be proud and for which many surgeons engaged in the treatment of injuries must be grateful.

HENRY SOUTTAR.

PATHOLOGY FOR SURGEONS

Surgical Pathology. By Peter A. Herbut, M.D. (Pp. 710; 410 illustrations. £3.) London: Henry Kimpton. 1949.

The diagnosis and successful treatment of many surgical diseases depend on the naked-eye recognition during operation of the pathological lesions they produce. In other words, the successful surgeon must, within the limits of his own field, become a highly skilled morbid anatomist. His training in this "pathology of the living" depends to a large degree on close collaboration with a skilled morbid histologist. The more "pathologically minded" the surgeon and the more "surgically minded" the histologist, the more successful, especially from the patients' viewpoint, will the partnership become. The body of scientific knowledge built up in this way is what surgeons really mean by "surgical pathology."

There is clear evidence throughout this book that the author, a pathologist, has worked in the closest collaboration with a team of keen surgeons. The bulk of the text is made up of clear and concise descriptions of the naked-eye and histological features of all the more common (and a considerable number of the rarer) surgical lesions. These are illustrated by many clear and well-chosen photomicrographs.

The book is arranged according to anatomical regions, and the author has in mind the needs of the otorhinolaryngologist, the urologist, and the gynaecologist as well as the general surgeon. There are no introductory chapters on general pathology or bacteriology, as in several other books which carry the same title, but each chapter opens with a short account of the anatomy and embryology of the region under discussion. For this reason the book would be of little value to the undergraduate before he had completed a full course of study in general pathology. It is clearly intended for the postgraduate who has made surgery his career, and within its limitations it will certainly be of great service to him.

The book contains occasional sentences which convey the sort of information provided by a punch-card system. We are told, for instance, in the description of an infected human bite that the lesion is found most frequently in "young white male adults in the third decade of life," and in connexion with tattooing we are informed that "the incidence of syphilis among tattooed persons is less than it is among the general population of the same stratum." Progressive myositis ossificans is said to be associated with a "small big toe." The description of gangrene due to arterial ischaemia is short and should be expanded. An accurate account of gas gangrene should also be included. It is disappointing to find no detailed account of healing, and the description of the repair of a fracture is far too short. There are a number of simple spelling mistakes. These criticisms should not detract from the value to the surgeon of the large amount of accurate descriptive pathology contained in the book.

GEOFFREY HADFIELD.

CHILD ANALYSIS

Contributions to Psycho-Analysis. 1921–1945 By Melanie Klein. With an introduction by Ernest Jones. (Pp. 416. 21s.) *London: The Hogarth Press.*

Although the distinction of being the first child-analyst in this country belongs to Mary Chadwick, a pupil of Sachs who employed the principles of Freud and Hug-Hellmuth in the psycho-analysis of children, there is no doubt that progress in this field in Britain was guided at first by Melanie Klein, and subsequently controlled by Anna Freud. Mrs. Klein invented the "play-technique" of association, and during the early phase of her work made valuable contributions to our knowledge of "pre-genital" phases of infancy and childhood, a period which till then had been only scantily observed. Indeed had Klein been content to consolidate this earlier work on the "oral-sadistic" phase, on forerunners of the super-ego, and on the animistic reactions of the small child, her scientific reputation would stand much higher than it now does.

Unfortunately, in her later phase Mrs. Klein undertook the thankless task of reconstructing hypothetically the mental development of infants from birth to the age of two and a half (when they are first capable of direct analysis). Influenced mainly by psychiatric concepts, she began to postulate certain nodal "positions" during the first year, labelling these respectively "paranoid," "depressive," and "manic" positions. To these postulates she added the theory that the Oedipus phase is already activated by oro-phallic sadistic impulses in the second quarter of the first year; and that already at this period an effective super-ego organization exists. These views were adumbrated in her papers on mourning and manic-depression, and caused profound divergences of opinion in the British Psycho-analytical Society.

All but the last three papers in the present volume belong to her earlier phase. Although of unequal merit, they are worth reading not only for their clinical content but for their picture of pre-genital development. The last paper, on the Oedipus complex, was written after a two-year wrangle in the society, and presents the issues in a very minor key. One would not gather from it that her theories on the dynamic influence of sadistic fantasy, on narcissism, and on "internal objects" are opposed in many fundamental respects to the theories of Freud. There is, in fact, a very remarkable resemblance between the Kleinian concept of fantasy and the Jungian archetype of the collective unconscious; also between her evaluation of psychic traumata and that of Rank.

The depth of the cleavage can be gathered from the fact that Ernest Jones, usually an acute and objective critic of psycho-analytical developments, has contributed a laudatory introduction which does not err on the side of impartiality.

EDWARD GLOVER.

MEMORIES OF A LONG LIFE

Mostly Memories. By William Guy, LL.D.(Penn.), F.R.C.S., F.R.S.Ed. (Pp. 360; illustrated. 15s.) Edinburgh: C. J. Cousland and Sons. 1949.

Dr. Guy will be 90 in December of this year, and like most people who reach an advanced age he lives largely in his memories. These are on the whole happy ones and well worth recording.

He is a "truant" doctor, a Norwich general practitioner's son who had his medical education at Edinburgh. This he followed with seven years of general practice in Cumberland before he took to dentistry—the specialty in which he eventually reached the top of his profession. He took his F.R.C.S.Ed. from the Edinburgh Dental School, where he was later part-time dean for 34 years.

What most impresses one in reading this book is the versatility of the man. Not content with the conduct of a successful practice and his task of reforming the school, he took an active part in the affairs of the British Dental Association. He became an outstanding figure in the association, filling almost every responsible position in it, and thereby helping to make dental history.

Dr. Guy gives a detailed account of the various campaigns in which he was engaged—usually successfully. His influence can be traced in the legislation which prescribed the registration of dentists; in the establishment of the Dental Board; and in the formation of the Army Dental Corps. He served on the General Medical Council as one of the first of the dental representatives. Here he tells us he established a reputation for being "pig-headed," of which he is not ashamed, for he says he never had any liking for the line of least resistance. He was active in the proceedings of the International Dental Federation, and has much to say about his attendance at its annual meetings. This bare recital of a selection from his interests will suffice to show that he was, as he says, "a very busy man," but it by no means covers his extraordinary range of activities. In Edinburgh social life he was for many years a prominent figure, in great request as an after-dinner speaker with a gift for expression in topical verse. Of this he gives us many examples, frequently in parody, often in the vernacular. Those members of our Association who were present at the Edinburgh meeting in 1927 may remember him as the chairman of a smoking concert given to the representatives, at which he enabled us to realize why he was such a popular local celebrity.

This book should be welcome in various quarters. Edinburgh people, resident or exiled, will like his affection for the city of his adoption. Dentists who take pride in the progress of their profession should be glad to read about the man who did so much for it in so many ways. And anybody who likes to read about well-known people will find many stories of eminent actors and artists whom he met or entertained. Dr. Guy is to be congratulated on his long, useful, and happy life, and on his wonderful memory.

ALFRED COX.

It is heartening to see once more upon a title-page the name of Crile, and to know that the son of a distinguished father has already proved his worth. *Practical Aspects of Thyroid Disease*, by George Crile, junior (pp. 355; 101 figures; £1 10s.; Philadelphia and London: W. B. Saunders Company; 1949), is a readable and useful book in which the author has for the most part drawn upon his own experience of a thousand cases of diseased thyroid. Though an expert surgeon, he affords due prominence to the recent advances in non-operative treatment and gives the indications for medical and surgical therapy with just discrimination. The most interesting sections for most readers will probably be those on the treatment of hyperthyroidism by propylthiouracil and radioactive iodine. To quote one passage: "At the present time the mortality and morbidity following treatment of hyperthyroidism with propylthiouracil over a period of one year are probably lower than that of thyroidectomy in the hands of skilful surgeons and are much lower than that of thyroidectomy in the hands of the surgeon who occasionally performs a thyroidectomy." This, from a surgeon, should induce both surgeons and physicians to look into this book. It is of handy size, well printed, and freely illustrated. The chapters on technique contain little that is new, but the section on cancer of the thyroid is of special interest.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*

The Theory and Practice of Massage and Medical Gymnastics. By B. M. Goodall-Copestake. 7th ed. (Pp. 424. 21s.) London: H. K. Lewis. 1949.

The Pharmacologic Principles of Medical Practice. By J. C. Krantz, jun., and C. Jelleff Carr. (Pp. 980. 55s.) London: Baillière, Tindall and Cox. 1949.

Biological Treatment of Diseased Organs in Human Beings and Animals. By P. Niehans. (Pp. 11. No price.) Interlaken: Otto Schlaefli. 1948.

A Handbook on Diabetes Mellitus and its Modern Treatment. By J. P. Bose, M.B. 4th ed. (Pp. 227. Rs. 10/8.) Calcutta: Dhur. 1949.

Medical Etymology. By O. H. Perry Pepper, M.D. (Pp. 263. 27s. 6d.) Philadelphia and London: Saunders. 1949.

A Textbook of Medicine for Nurses. By E. Noble Chamberlain, F.R.C.P. Foreword by Dame E. Musson, D.B.E. 5th ed. (Pp. 491. 21s.) London, New York, and Toronto: Cumberlege, Oxford University Press. 1949.

Diseases of Women. By Ten Teachers under the direction of C. White, F.R.C.P., F.R.C.S., F.R.C.O.G. Edited by C. White, F. Cook, and Sir William Gilliatt. 8th ed. (Pp. 461. 25s.) London: Arnold. 1949.

Fundamentals of Inorganic, Organic, and Biological Chemistry. By J. I. Routh, Ph.D. 2nd ed. (Pp. 346. 16s. 6d.) Philadelphia and London: Saunders. 1949.

Royal National Hospital for Rheumatic Diseases, Bath: Report 1947-1948. Vol. 2. (Pp. 256. No price.) Bath: Royal National Hospital for Rheumatic Diseases. 1949.

A Textbook of Neuropathology. By B. W. Lichtenstein, B.S., M.S., M.D. (Pp. 464. 47s. 6d.) Philadelphia and London: Saunders. 1949.

Massage and Remedial Exercises. By N. M. Tidy, T.M.M.G. 8th ed. (Pp. 487. 25s.) Bristol: John Wright. 1949.

Everyday Psychiatry. By J. D. Campbell, M.D. 2nd ed. (Pp. 394. 36s.) London: J. B. Lippincott. 1949.

Everyday Sex Problems. By N. Haire, Ch.M., M.B. (Pp. 268. 10s. 6d.) London: Frederick Muller. 1948.

Advances in Internal Medicine. Edited by W. Dock, M.D. and I. Snapper, M.D. Vol. 3. (Pp. 478. 51s.) London: Interscience Publishers. 1949.

El Ingles para Medicos y Estudiantes de Medicina. By R. Mackin and A. Weinberger. (Pp. 152. 7s. 6d.) London: Longmans, Green. 1949.

Die Geschwürskrankheit des Magens und ihre Chirurgische Probleme. By O. Bsteh. (Pp. 175. 22s. 6d.) Vienna: Wilhelm Maudrich. 1949.

Tuberkuloselexikon für Ärzte und Behörden. By W. Rose. (Pp. 372. M. 14.80.) Stuttgart: Georg Thieme. 1949.

Psychotherapeutische Studien. By E. Kretschmer. (Pp. 211. M. 13.5.) Stuttgart: Georg Thieme. 1949.

Rh-Syllabus. By A. S. Wiener. (Pp. 28. M. 2.40.) Stuttgart: Georg Thieme. 1949.

Die Naturgemässe Heilweise. By A. Hoff. (Pp. 296. M. 18.50.) Stuttgart: Marquardt. 1949.

Nierenfunktionsproben und ihre Praktische Bedeutung bei Hämatogenen Nierenkrankheiten. By V. Lachnit. (Pp. 203. Sch. 54.) Vienna: W. Maudrich. 1949.

Hypertrophie des glandes paraprostatiques et cancer de la prostate. By P. Niehans. (Pp. 20. No price.) Berne: Hans Huber. 1948.

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CHILD HEALTH PLANNING

A recent Chadwick lecture entitled "A Health Service for Children," by Dr. Helen Mackay, was briefly reported in the *Journal* (April 30, p. 768), but now that it has been published as a pamphlet[1] it is possible to consider her conclusions in the light of developments already envisaged or actually achieved under the Health Act or in other ways. Deficiencies in existing provisions, according to Dr. Mackay, were in three categories. First was the lack of training of the general practitioner in paediatrics, and hence the great pressure on the hospitals for services which might often be much better provided in the home. No doubt the new proposals of the General Medical Council will in time help to remedy this, and medical-school deans might well study carefully the suggestions made by Professor W. S. Craig and his colleagues[2] in this *Journal* for showing students how mothers and children can be helped by a family doctor in the course of a general practice.

Next Dr. Mackay comments on the lack of close association between doctors working in the preventive services and those working in hospitals or in practice. "In many areas the position appears to have deteriorated since July 5 last," she states. This is a serious matter, and it is pertinent to inquire how far local health authorities have taken the advice on the integration of their services with those of the hospital boards which was given by the Ministry of Health in a circular letter[3] sent out in 1947. This suggested, in effect, the encouragement of more specialization in maternity and child-welfare work and splitting of the duties, so that so far as child health is concerned medical officers experienced in child welfare should, in the words of the circular, "gradually be allocated to the authority's child-welfare centres, and spend part of their time participating in the work of an appropriate paediatric department in a children's hospital." Unfortunately the operative word appears to be "gradually," for in the period since the time of the circular, now nearly two years, there has been little, if any, indication that authorities were doing more than filling vacancies by medical officers expected to attend antenatal clinics and welfare centres as before. The third main deficiency in Dr. Mackay's opinion is lack of trained staff in the hospital services. "At present," she states, "only a minority of hospitals dealing with children have any medical staff trained in paediatrics." It is to be hoped that such a situation will not be allowed to continue because of the need for economy. No ultimate saving to the nation will ensue if the medical care of children is "second rate," and the same applies to nursing care. The Nurses Bill threatened, or so it appeared to many, to end the training of nurses in the special care of the child, but a Government amendment suggests that some sort of reprieve has been granted. To replace a nurse with three years' training and experience in a children's hospital by a nurse with adult training and a short postgraduate course in children's nursing would be a retrograde step.

From defects Dr. Mackay passes to regional planning. For much of this she is clearly basing her views on those published by the Paediatric Committee[5] of the Royal College of Physicians, of which she was a member. But she has also had the advantage of translating the findings of the College report to an advisory committee in the North-east Metropolitan Region, where a start has been made with this and with a child health committee which includes representatives of the local health authorities. Detailed discussion of regional plans must depend very much on what is available locally, but there can be no quarrel with the proposal that in every region there should be centres "possessing the outlook and facilities of university centres, for treatment, teaching, and research." This is almost already true outside the London area, and no doubt Dr. Mackay had very much in mind the fact that London at present has only one university institute of child health.

Perhaps the most significant part of Dr. Mackay's lecture begins with the statement, "Each child will have his own general practitioner." From this is developed the idea of one member of a team at a health centre with special interest and training in paediatrics, and of a large part of the clinical work in schools and child-welfare centres being done by general practitioners interested in paediatrics. As a transition stage it is urged that forthwith "wherever there are local general practitioners who take an interest in paediatrics they should be brought into the paediatric services and their abilities used to the full." This close association at the level of everyday work between hospital paediatricians, medical officers of the health services, and general practitioners is a recurrent theme in Dr. Mackay's lecture, and could be developed at once with little cost and without waiting for buildings.

[1] *A Health Service for Children*, 1949. Published by the Chadwick Trust, London.
[2] *British Medical Journal*, 1949, 1, 801.
[3] Ministry of Health Circular 118/47.
[4] *British Medical Journal*, 1949, 1, 962.
[5] Final Report of the Paediatric Committee, Royal College of Physicians of London, 1946.

DIABETES AND GOUT

Recent observations have shed new light on the well-known relation between diabetes and gout. It will be remembered that in 1943 Shaw Dunn made the interesting discovery that alloxan, when injected into rabbits in sufficient amount, altered the blood sugar, and after 24 hours a permanent diabetic condition resulted. The observation has appeared until recently to be no more than a curious phenomenon of no physiological importance. Several workers have investigated the mechanism of the action of alloxan and have shown that substances containing sulphydryl (–SH) groups are concerned. When alloxan was injected it was found to cause a rapid decrease in the amount of glutathione in the blood,[1] and Lazarow[2] made the complementary observation that when glutathione or cysteine was injected beforehand alloxan failed to cause diabetes. Evidence has been obtained that the protective action of cysteine is due to the reduction of alloxan to its close relation dialuric acid.[3] The latest developments, indeed, hinge on dialuric acid, for it occupies a position midway between uric acid and alloxan. In 1909 Ascoli and Izar[4] showed that dog's liver contained an enzyme which converts uric acid to dialuric acid, so that probably uric acid can be converted to dialuric acid in man. There has been a difference of opinion whether this substance causes diabetes,[5] and the outcome appears to be that if there is too little glutathione in the blood dialuric acid can be oxidized to alloxan, and then diabetes occurs. Thus glutathione can protect the body against alloxan by converting it to dialuric acid, but lack of glutathione allows dialuric acid, formed from uric acid, to be turned into alloxan.

The experiment of producing diabetes in rabbits by injecting them with uric acid has actually been done by Griffiths.[6] He fed rabbits on a diet deficient in methionine and cysteine, and in the course of six weeks the glutathione was reduced to half. When one gramme of uric acid was injected into the peritoneal cavity the mean blood-sugar changes of four rabbits were very similar to those observed in four other rabbits after the injection of alloxan. There was the same initial hyperglycaemia giving place to hypoglycaemia, and the prolonged hyperglycaemia at the end of 24 hours. The injection of uric acid had no action on the blood sugar of rabbits receiving the same diet plus a supplement of methionine.

Evidence indicating a connexion between purine metabolism and diabetes has also come from another direction. Conn and his colleagues[7] at Ann Arbor have shown that in man diabetes can follow the injection of purified preparations of the adrenocorticotropic hormone of the anterior lobe of the pituitary body. There is hyperglycaemia and glycosuria, and the sugar-tolerance curves become like those of a diabetic. The excretion of uric acid in the urine is increased, and the amount of glutathione in the blood falls progressively. If an injection of glutathione is given intravenously there is a rapid fall of the blood sugar, and the urine temporarily becomes sugar-free. The authors express the view that the primary disturbance is in purine metabolism and that a substance like alloxan is produced, which in turn causes diabetes. Other observations on the effect of the adrenocorticotropic hormone have been made by Hellmann,[8] who has injected it into patients with gouty arthritis. He found it caused a rise of uric acid in the serum and an increased excretion in the urine: he also observed glycosuria. The injection of this hormone would, of course, stimulate the adrenal cortex to increase the output of its own hormones, and when the injections were discontinued the output of these hormones would cease. Three days after the injections were stopped Hellmann's patients had an acute attack of gouty arthritis, and this attack was arrested by giving adrenocorticotropin once more. We have yet to learn whether treatment of rheumatoid arthritis with compound E ("cortisone"[9]), which is a hormone of the adrenal cortex, or with adrenocorticotropin causes glycosuria.

These observations indicate a close relation between purine metabolism and blood-sugar control. The importance of this relation is emphasized by the results of metabolic studies on birds.[10-12] In the duck and the chicken the largest doses of alloxan produce no blood-sugar change. In the pigeon there is some rise of blood sugar, but the bird dies from a deposit of sodium urate over all the serous surfaces. The facts suggest that the duck is immune to alloxan because it converts it to uric acid and excretes it; the pigeon is less immune because it carries out this process less efficiently.

[1] Leech, R. S., and Bailey, C. C., *J. biol. Chem.*, 1945, **157**, 525.
[2] *Proc. Soc. exp. Biol., N.Y.*, 1946, **61**, 441.
[3] Lazarow, A., Patterson, J. W., and Levey, S., *Science*, 1948, **108**, 308.
[4] *Z. Physiol. Chem.*, 1909, **62**, 347.
[5] Brückmann, G., and Wertheimer, E., *J. biol. Chem.*, 1947, **168**, 241.
[6] Ibid., 1948, **172**, 853.
[7] *Science*, 1949, **109**, 279.
[8] Ibid., 1949, **109**, 280.
[9] Hench, P. S., Kendall, E. C., Slocumb, C. H., and Polley, H. F., *Proc. Mayo Clin.*, 1949, **24**, 181. See also leading article in *British Medical Journal*, 1949, **2**, 24.
[10] Mirsky, I. A., and Foley, G., *Proc. Soc. exp. Biol., N.Y.*, 1945, **59**, 35.
[11] Scott, C. C., Harris, P. N., and Chen, K. K., *Endocrinology*, 1945, **37**, 201.
[12] Goldner, M. G., and Gomori, G., *Proc. Soc. exp. Biol., N.Y.*, 1945, **58**, 31.

VIRIDANS STREPTOCOCCI IN BACTERIAL ENDOCARDITIS

The viridans streptococci—so called because on blood-containing media they produce green pigment—are the most frequent cause of subacute bacterial endocarditis, and it has been a common assumption, since Andrewes and Horder's early work, that they are derived from the mouth, where similar streptococci are found normally or associated with dental sepsis. Strong support for this

view came from Okell and Elliott,[1] who were able to culture non-haemolytic streptococci from the blood of 30 out of 40 patients immediately after dental extractions and from 12 out of 110 patients with gross oral sepsis. Further work showed that any trauma, however trivial, to septic gums or the removal of tonsils was likely to produce a temporary bacteriaemia, and that if there were diseased heart valves subacute bacterial endocarditis was a possible sequel. Among those interested in the pathogenesis of infection it is now accepted that some organisms which normally have a saprophytic existence in one part of the body may initiate infection in another part. The coliform group causing urinary infection is a good example, and the term "potential pathogen" is often applied to these bacteria. However, lessons learnt from the classification of proven pathogens, like the pneumococci, haemolytic streptococci, and staphylococci, suggested that a subdivision of these potential pathogens might yield useful information on certain points: whether, for example, a particular group within the species was most likely to be associated with infection, as happened with the Lancefield group A streptococci, and whether the strains causing infection could be more closely identified with saprophytic strains, as has proved to be the case with certain types of pneumococcus causing bronchopneumonia.

Attempts to classify bacterial species like the coliform bacilli or the viridans streptococci according to their biochemical properties have not been very successful, and the tendency lately has been to use the methods of antigenic analysis or susceptibility to specific bacteriophage for the subdivision of these families. In America attempts have already been made to classify the viridans streptococci serologically, and in this issue Professor Selbie and his colleagues report their findings in an antigenic grouping of over 200 strains of this organism from cases of subacute bacterial endocarditis and of some 50 strains each from normal throats and from dental extractions. Classification has been based on precipitation reactions with streptococcal extracts (prepared by the Fuller formamide method) against antisera to eight different strains produced in the rabbit by repeated injections of live or killed suspensions of the streptococci. By analogy with the Lancefield grouping of the haemolytic streptococci this method of antigenic analysis is likely to give only a broad grouping, dependent presumably on a carbohydrate fraction in the viridans streptococci. The authors found that most of their strains gave precipitation reactions with several antisera, and on the basis of these "pattern" reactions they have recognized three broad groups with two subgroups. Most of the endocarditis strains (181 out of 209) were distributed fairly evenly among the five groups, and all but nine of the 103 strains from teeth and throats gave positive reactions the majority of which fell into group IIa. These results indicate broadly that viridans streptococci associated with subacute bacterial endocarditis belong to the same family as the strains found in the mouth, but they do not necessarily mean that a group I streptococcus isolated from the blood is identical with a group I strain present in the throat or causing dental sepsis in the same patient; for that, more precise antigenic analysis like Griffith typing will probably be needed. It was usual to find strains falling into several groups among the streptococci isolated from the throat or from apical abscesses in individual patients, whereas strains isolated from the blood of relapsed cases of endocarditis treated by penicillin most often belonged to the same group as the original strain. These findings have been interpreted as an indication that the relapse was due to a recrudescence of the original endocardial infection and not to reinfection from the mouth, but it is doubtful if with this broad serological classification such a claim is justified, although it gains some support from the close similarity in the biochemical reactions of strains isolated from the blood of relapsed cases. No mention is made of the non-haemolytic streptococcus called by Kilian Clarke[2] *Streptococcus mutans* because of its variable morphology, and associated by him with the aetiology of dental caries. This streptococcus is a single serological type and has occasionally been found as a cause of bacterial endocarditis, which is further evidence of the close association between the organisms in the mouth and the endocardial strains, as is also the occurrence of *Haemophilus para-influenzae*, another inhabitant of the mouth, as a cause of infective endocarditis.

Penicillin therapy has profoundly altered the prognosis in this previously fatal infection, particularly if the dosage is increased to 2 million units a day for six weeks as recommended by Christie.[3] But it must be remembered that "cured" patients are often left with grossly damaged valves which usually impair cardiac efficiency and leave the patient a prey to subsequent infection. It would be interesting to know the after-histories over a five- to ten-year period of patients with infective endocarditis cured by penicillin. Much more needs to be done to prevent this infection. Rheumatic fever is the main predisposing factor, and its steadily diminishing incidence should reduce the number of young people with endocarditis; but given a patient with diseased valves—congenital defect and syphilis are the other main contributors—every effort should be made to prevent the superimposition of an infective endocarditis. Oral sepsis is a continual danger to such a patient and should be radically treated, while the

[1] *Lancet*, 1935, 2, 869.
[2] *Brit. J. exp. Path.*, 1924, 5, 141.
[3] To be published shortly.

extraction of teeth, tonsillectomy, or indeed any manipulative measure that may result in a temporary bacteriaemia should be carried out only under a penicillin or sulphonamide "umbrella." This is a matter which vitally concerns the dental surgeon, who should become well acquainted with the risk of oral sepsis or of any dental operation in a patient with defective heart valves.

PENICILLIN IN EARLY SYPHILIS

Though nearly six years have passed since Mahoney and his colleagues successfully treated four seamen suffering from early syphilis with penicillin, international opinion on the optimum treatment of early syphilis is still divided. In the United States, where the records of well over half a million patients who have been treated with penicillin alone are being carefully followed and statistically investigated, adjuvant arsenicals and bismuth are held to be not only unnecessary but undesirable. In Europe, where penicillin has been available only since the end of the war, and until recently has been strictly rationed, there is a widespread unwillingness to accept it as proved on alien evidence that even in its earliest stages a grave, chronic, constitutional disease can be permanently cured by a few days' treatment. In this country, though penicillin is now accepted as an ideal treatment of attack, there is a not unnatural reluctance to abandon its well-tried predecessors. Most venereologists, with a few notable exceptions, still prefer to compromise and to consolidate their treatment with a standard course of about ten weekly injections of neoarsphenamine and bismuth, which would by itself, incidentally, cure at least 70% of early infections.

Elsewhere in this issue J. W. Eames and D. H. Miller have tried to assess the results of this combined treatment in the face of a high default rate from surveillance due to the rapid release of their patients from the Services. With statistical and actuarial aid they claim to have demonstrated a cumulative post-treatment relapse rate of 15% at 18 months in addition to a treatment failure rate (sero-resistance) of 3.9% in secondary cases and 0.9% in seropositive primary cases. That these results are appreciably worse than those reported after similar treatment by McElligott, Jefferiss, and Willcox[1] in this country and after penicillin alone by Sternberg and Leifer[2] and others in the United States is doubtless due to a laudable desire to take no chances with patients whose follow-up is likely to be jeopardized by an early return to civil life. Many will be surprised, however, to read that all patients whose blood tests were positive four months after the end of treatment were summarily classified as failures and treated again. Apparently no attempt was made to gain some idea of the serological pattern—to find out whether the titre of the test was rising, falling, or stationary. It is now well recognized that the serum reactions in treated early syphilis often take many months to revert to negative and that so long as the titre continues to decline a slow disappearance of reagin, even lasting a year or longer, is in no way suggestive of failure of treatment. Indeed in some cases of true relapse the initial serological response is often surprisingly rapid.

There is still a tendency for the clinician to place too blind a faith in blood tests and also perhaps for the serologist to believe too implicitly in his own technical modifications and in the specificity of his antigens. Until standard methods and, what is even more important, standardized reagents are employed it will still be possible for a patient to be cured in one clinic and not in another. The new cardio-lipin-lecithin antigen is becoming increasingly popular in the United States, and is said to be stable and unaffected by changes of climate or temperature. When its optimum level of sensitivity has been ascertained and its manufacture standardized and simplified the problem of the exact significance of serum reactions may perhaps be nearer solution than it is to-day.

That the toxic effects of arsenic are rarely seen in military patients is doubtless due to their age, sex, and good physical condition. A far greater toll is usual in civil clinics, where women, the undernourished, and men in the higher age groups are treated, and most venereologists would be glad to dispense with these potentially toxic drugs. If consolidation treatment in early syphilis has any advantage, and this is generally denied in the United States, weekly injections of bismuth, or of procaine-penicillin with aluminium monostearate, or of both concurrently would seem to be safer and equally efficacious for this purpose. Be this as it may, a few weeks' consolidation treatment of any kind has the advantage of impressing the patient with the gravity of his disease and will underline the importance of adequate observation after treatment.

The accurate assessment of a new therapeutic agent in a disease so chronic and so protean in its manifestations, as well as in its reactions to treatment, is a difficult task. Prolonged and careful clinical observation and serological studies are important, but in addition that unpredictable element, the host factor of the individual patient, can never be neglected. It is easy to acclaim a dramatic cure or a failure of treatment, but more difficult to state dogmatically to what extent the treatment, or the lack of it, has been responsible for the result. It is only by careful observation of a large number of patients over a long period, and by careful comparison with the results obtained by treatment with the arsenicals, that we can even begin to come to a decision. Meanwhile the Syphilis Study Section of the National Institute of Health, of the United States Public Health Service, has been carrying out a carefully controlled experiment on a vast scale for more than three years. Up to the present these American workers are increasingly convinced with each succeeding year that penicillin alone with adequate surveillance is the best known treatment for early syphilis.

[1] *Brit. J. vener. Dis.*, 1948, 24, 45.
[2] *J. Amer. med. Ass.*, 1946, 133, 1.

VITAMIN B_{12}

In previous annotations[1] we have commented on the isolation from large amounts of liver of minute quantities of a red crystalline compound containing cobalt and having great anti-pernicious-anaemia activity. This substance has also been isolated from fluids in which certain micro-organisms, notably *Streptomyces griseus*, have been grown.[2] Dunlop

and Wilson[3] in this country have recently reported good haematological responses in two cases of classical Addisonian pernicious anaemia, using extracts of the metabolism fluid of a strain of streptomyces. This encourages the hope that an alternative source of supply for the anti-anaemia principle may be developed, especially because of the present difficulty of obtaining livers of satisfactory quality. In addition, microbiological assay methods which have been developed during the isolation of this pure factor may eventually do away with the tedious necessity for clinical trial of all batches of anti-anaemia principle.

Many of the investigations carried out with folic acid are now being repeated with this new substance, hitherto known in the U.S.A. as vitamin B_{12} and now available commercially in that country under the trade name of "cobione." Spies and his co-workers, who have done much work on folic acid, have recently published their findings[4] in 21 patients with nutritional macrocytic anaemia, sprue, or pernicious anaemia. In all there was great improvement in the anaemia and also in symptoms such as sore tongue (though, as Brown[5] has recently shown, glossitis of this type may sometimes be relieved by substances other than the anti-pernicious-anaemia factor, such as calcium pantothenate, niacin, riboflavin, and folic acid) and in the abdominal discomforts of sprue. Improvements may occur after the injection of 10 μg. or even less, but it is thought that the optimal dosage may be nearer 100 μg. No information is yet available about the amount required to maintain a remission. In addition to these cases Spies treated with vitamin B_{12} 14 patients with pernicious anaemia complicated by subacute combined degeneration of the cord, and the symptoms due to peripheral nerve or posterior column involvement were much diminished. This finding, which confirms earlier reports, is in complete contrast with the effect of folic acid, which not only does not prevent development of neurological complications but in many cases appears to precipitate them. In macrocytic anaemia of pregnancy, however, the results were different. In a detailed account[6] from the Mayo Clinic a case of severe macrocytic anaemia occurring in the seventh month of pregnancy is described; the patient failed to respond to large doses of liver extract or to moderate amounts of vitamin B_{12}, but she improved immediately when folic acid was given.

Investigation of the relation of this new substance to Castle's intrinsic and extrinsic factors has yielded some unexpected results. In earlier trials vitamin B_{12} was given by injection, and its action appeared to correspond to that of the anti-anaemia principle thought to be formed by the interaction of the two factors and stored in the liver. However, a recent paper by Berk and other workers (including Castle)[7] records the effect of oral administration, with and without the addition of normal gastric juice, in cases of pernicious anaemia. By itself vitamin B_{12} had practically no effect, but in combination with 150 ml. of normal gastric juice 5 μg. of the substance led to reticulocyte responses of from 4 to 16% and increases of up to nearly a million red cells per c.mm. This type of activity is obviously similar to that of the extrinsic factor, and the question arises whether the intrinsic factor is some substance which merely facilitates the absorption of vitamin B_{12} without itself actually entering into the final composition of the anti-anaemia principle as has hitherto been believed. This view is supported by the finding by the same workers that commercial highly purified liver extract when given by mouth is likewise potentiated by the addition of normal gastric juice. Hall and his colleagues[8] have confirmed these findings, but point out that the quantities so far used have been small and that larger doses will have to be given before it can be stated unequivocally that vitamin B_{12} is without activity when given alone by mouth to patients with pernicious anaemia. Spies in the paper already cited also noted in one case failure of vitamin B_{12} to produce a response when given by mouth, though it was effective when given with gastric juice from an individual with duodenal ulcer. Apart from the theoretical importance of this finding, there is the practical conclusion that even if supplies of vitamin B_{12} become available for general use it will still have to be given by injection in the treatment of pernicious anaemia.

1 *British Medical Journal*, 1948, 1, 889; ibid., 1948, 2, 949.
2 Rickes, E. L., Brink, N. G., Koniusky, F. R., Wood, T. R., and Folkers, K., *Science*, 1948, 108, 634.
3 *Lancet*, 1949, 1, 754.
4 *J. Amer. med. Ass.*, 1949, 139, 521.
5 *British Medical Journal*, 1949, 1, 704.
6 *Proc. Mayo Clin.*, 1949, 24, 149.
7 *New Engl. J. Med.*, 1948, 239, 911.
8 *Proc. Mayo Clin.*, 1949, 24, 99.

LUMBAR "FIBROSITIS"

Our correspondence columns have recently borne testimony to the lack of unanimity of opinion on the subject of "fibrositis." The clinical entity is well recognized, but pathologically it probably represents a composite group of abnormalities; when no definite lesion is demonstrable some would prefer to talk simply of "myalgia"—an adequately descriptive term which makes no pretension to deeper understanding. From the whole group of patients with this symptom complex Copeman and Ackerman[1] have recently separated those in whom lumbar and gluteal fat herniation gives rise to backache and referred pain in the leg. Dissecting the cadavers of previously healthy soldiers, they constantly demonstrated the presence of deposits of fibro-fatty tissue beneath the superficial fascia in well-defined areas along the outer borders of the sacro-spinalis and above the crest of the ilium. This constant localization of fat they termed the "basic fat pattern." In certain areas there were small fat herniations through the fascia, particularly where it was pierced by the cutaneous branches of the lumbar nerves and their accompanying blood vessels.

We published in July an article[2] in which Copeman discussed the significance of these findings in relation to certain "rheumatic syndromes." In cases of lumbar myalgia there were local tender nodules, pressure on which reproduced the pain. The distribution of these "trigger areas" corresponded with that of the "basic fat pattern." Excised nodules were seen to consist of oedematous fibro-fatty tissue herniated through the fascia and continuous with the underlying deep fat. Relief of pain followed excision or disruption of the nodule by injection of 10–20 ml. of procaine, followed by extensive teasing and undercutting with the needle-point. Copeman and Ackerman claim that the demonstration of these lesions provides scientific justification of the customary treatment of "fibrositis" by heat, massage, and movement, because these procedures improve the blood

1 *Arch. intern. Med.*, 1947, 79, 22.
2 *British Medical Journal*, 1949, 2, 191.
3 *J. Urol.*, 1948, 59, 1061.

supply and lymphatic drainage and help to destroy the nodules or reduce the herniation. They are careful to point out, however, that this abnormality is not present in all cases of myalgia. The frequent indiscriminate use of physiotherapy for backache can lead only to much waste of effort and eventual disappointment, particularly when the disability is primarily psychoneurotic or postural in origin.

Orr, Mathers, and Butt,[3] confirming Copeman and Ackerman's work, have demonstrated the presence of nerve fibres in the tender fibro-lipomatous nodules excised from the lumbo-dorsal region of patients who complained of pain which simulated that of uretero-renal disease and in whom no urological disease was found. In each case removal of the nodule effected cure. This series illustrates the need for caution in the interpretation of pain arising from deep structures. Sensory impulses from superficial tissues can be accurately localized, but, since the deeper structures are poorly represented in the sensorium, pain arising therefrom is felt diffusely throughout the corresponding spinal segment, so that visceral disorders may be suggested by pains arising from somatic structures, and vice versa. Not only fat herniations but also other musculoskeletal disturbances such as old, unnoticed crush fractures, Pott's disease, disk prolapse, and soft-tissue injuries may mimic visceral disease and lead the unwary to recommend unnecessary investigations and even repeated and unsuccessful visceral surgery, particularly when pain is referred to the abdomen. There is also the danger that musculoskeletal derangements causing ill-localized pain may all too easily be diagnosed as "fibrositis" or "muscular rheumatism."

MOUSE CANCER TREATED BY STREPTOTHRIX CULTURE

There have been many attempts to influence the growth of transplantable tumours of the mouse by injecting the products of growth of micro-organisms—from the toxins of streptococci to those of *Trypanosoma cruzi*. Although favourable results have been claimed, usually the products have proved either too toxic or too erratic in action to prove of value. A recent report comes from de Angelis,[1] who claims that the culture fluid of a mycete originally isolated from granulomatous lesions in a cat, and hence called *Streptothrix felis*, has a specific action on tumour cells. The exact method of preparing mycetin, as the active product is called, is not disclosed, but it appears to be a sterile neutral filtrate of cultures of the streptothrix. In mice the highest tolerated dose injected subcutaneously is 0.4 ml. Sometimes only one subcutaneous injection, at other times two or three, were required to bring about a cure; the injections were made as far away as possible from the site of the tumour. De Angelis chose the adenocarcinoma of Ehrlich as the experimental tumour, and the results he reports are certainly startling. Of 106 mice treated 12–14 days after transplantation of the tumour 102 were completely cured and four died from causes unconnected with the experiment; all the control mice, of which there were 102, died. When the tumours were allowed to grow larger—from 15–20 days after transplantation—injections of mycetin cured 112 of 116 mice; two died from an accident, and in two there was no absorption of the growth. Of 98 controls, all died. One hundred and eight mice with tumours of greater age were treated: 94 were cured, four died with a reduction in size of the tumour, and 10 were unaffected. Thus the results were successful in 93% of all the mice treated (330). Mice which had been cured were resistant to further inoculation with the same carcinoma. In interpreting experiments on transplantable mouse carcinomata it must always be remembered that damage to the tumour and consequent absorption may be due not to direct damage to the cancer cells but to interference with the blood supply of the actively growing tumour cells—haemorrhage leading directly to cell necrosis. No attempt seems to have been made to determine whether or not mycetin acts directly on tumour cells or on the blood vessels of the carcinoma.

[1] *Oncologia*, 1949, 2, 43.

THE DEVALUED POUND

Though Sir Stafford Cripps dwelt on the increased cost of wheat, and therefore of bread, as a consequence of the devaluation of sterling, which he announced on September 18, he mentioned briefly that "dollar goods . . . will cost more in pounds, shillings, and pence." Among these we suppose will be a number of drugs and raw materials used in medicine which are imported from hard-currency areas. They include cascara sagrada, which is derived from the California buckthorn; senega, the dried senega snakeroot of North America; valerian, which is imported from Belgium, though the plant from which it is extracted grows wild in Britain; and hamamelis, from the Virginia witch-hazel. The balsams of Canada, Peru, and Tolu (in Colombia) may cost more, as well as the oils of chenopodium, turpentine, and sassafras. If molasses goes up in price, acetic acid, ethyl acetate, and amyl acetate, which are derived from it, may follow suit. Bismuth, mercury, and silver are also imported from America, and we may have to pay more for olive oil, which comes from Italy, since we shall be competing with hard currency to buy it. Aureomycin is still obtainable only from the U.S.A. Presumably the price of American books and journals will increase, and possibly that of some cotton used in dressings. It seems even that we can hardly take comfort in the thought that the price of tobacco will rise and thereby deter some of our patients from poisoning themselves so heavily, for the cost of the American tobacco in cigarettes is so small that it contributes very little to the price of the finished article.

Since the pound is now equivalent to $2.80 instead of $4.03, American goods will cost about 30% more—that is, in the words of Sir Stafford Cripps, "if dollar prices do not fall." Speculation on the rate of international exchange and the price of gold may be left to the economists, who are better equipped to pronounce on a subject where—to misappropriate a maxim of Bernard Shaw's—the golden rule is that there are no golden rules. But it seems possible that the cost of the Health Service will rise slightly in the next few months unless alternative sources can be found from which to import a number of materials essential to medicine.

FOURTH INTERNATIONAL NEUROLOGICAL CONGRESS

MEETING IN PARIS

[FROM A CORRESPONDENT]

The fourth International Neurological Congress was held in Paris from September 5 to 10, under the patronage of the President of the French Republic and of the French Foreign Ministers. The president of the Congress was Professor T. Alajouanine, of Paris, and the senior vice-president Professor J. A. Barré, of Strasbourg. Sir Charles Sherrington and Dr. Gordon Holmes were the British *présidents d'honneur*, and Dr. Anthony Feiling the British vice-president. A national committee had been set up in each of the participating countries to prepare the programme, and the four official languages were British, French, Spanish, and Russian. Great credit is due to the French neurologists and officers of the Congress both for their skill in organization and for their hospitality to the many overseas representatives who attended.

The late summer was at its finest in France as in England, and the many scientific meetings took place under conditions of most oppressive heat, made all the worse by the necessity to close and darken the lecture-rooms of the School of Medicine when showing slides. The neighbouring cafés were thronged through the day with distinguished neurologists of all nations refreshing themselves and recovering between sessions. The Congress opened with an evening reception by the president and members of the French Society of Neurology. French social occasions have a delightful informality unfamiliar in this country. Those who attended found no reception at all in the sense of having to queue up and be received before enjoying the excellent hospitality. It was as well on so hot a night that with the minimum of delay life could be preserved by bumpers of iced champagne.

On Monday, September 5, the members of the Congress were welcomed to Paris by the president, M. Pierre de Gaulle, brother of the general, and the members of the Municipal Council at a crowded gathering in the Hôtel de Ville. The social occasions of the Congress concluded with the official banquet on Friday. There was only a short speech from Professor Alajouanine, presiding, and a brief acknowledgment from the veteran Professor Austregesilo, of Brazil, with none of the prolonged post-prandial oratory commonly inseparable from such functions in Britain.

Many short papers on a wide range of subjects were read. Longer papers were devoted to electroencephalography and electromyography, the thalamus and its pathology, the surgery of pain, and virus diseases of the nervous system. Some of the more important points in the discussion on this last subject were reviewed in an annotation last week (*Journal*, September 17, p. 643).

Electroencephalography and Electromyography

Dr. Frédéric Bremer (Brussels) presented a report upon the physiological basis of electroencephalography in which he discussed the origin and significance of cerebral electrical rhythms.

Dr. Herbert H. Jasper (McGill University), speaking on electroencephalography in neurosurgery, emphasized that the most important application of E.E.G. was in the investigation of epilepsy. Second in importance was its use in estimating the severity and location of damage in cases of head injury. He placed third its employment in locating expanding intracranial lesions (he considered air-encephalography more reliable). Fourth came its diagnostic applications in vascular, infective, toxic, and degenerative lesions. Dr. Jasper gave in detail his findings in the different forms of epilepsy. With cerebral tumours and abscesses, he considered that in expert hands location could be achieved by E.E.G. in 80–85% of cases.

"The most important advance of interest to the neurosurgeon is the perfection of methods for recording electrical activity directly from the exposed cortex (electrocortigrams) and from subcortical structures (electrothalamograms). Finally, with the intimate collaboration of neurosurgeon, neurologist, neuro-anatomist, and neurophysicist, the brain is being induced to reveal its secrets through a study of its electrical actions."

Of current investigations now being carried out in various laboratories the most important were studies of the functional anatomy of the thalamo-cortical projection systems, which played such an important part in regulating the electrical activity of the cortex.

Dr. Denis Hill reviewed the electroencephalographic concept of psychomotor epilepsy, emphasizing its protean causations.

Dr. Fritz Buchthal (Copenhagen) gave a wide survey of electromyography, with diagrams of central and peripheral lesions of the nervous system. He considered the electromyogram an important aid in the differentiation of neurogenic from intrinsic muscular paresis or atrophy. It was often the only way of deciding whether interruption of a motor nerve by injury was complete or not.

Professor W. E. Le Gros Clark (Oxford) introduced the subject of the thalamus and its pathology with a summary of the present state of anatomical knowledge. He referred to increased knowledge of the direct anatomical connexions between different thalamic nuclei and functionally distinct areas of cortex, and drew attention to our ignorance as yet of the significance of this in differentiating the functions of the various thalamic nuclei. Dr. W. R. Hess (Zurich) gave a parallel report upon thalamic physiology, and Van Bogaert (Amsterdam), Lhermitte (Paris), and others contributed clinical studies of thalamic problems.

Virus Infections

Professor A. B. Sabin (Cincinnati) discussed the classification of virus infections. Virus diseases in man were divisible into two broad groups: those due to a virus having its basic reservoir in human beings, and therefore world-wide in distribution; and those due to viruses whose basic reservoir was extra-human, with consequent variations in distribution in the world. The most important virus in the first group was that of poliomyelitis; others in this class were herpes simplex and lymphogranuloma venereum.

Of the viruses with an extra-human basic reservoir there was the large group of arthropod-borne encephalitides, and the group of viruses transmitted to man by the secretions or excreta of animals—e.g., rabies and lymphocytic choriomeningitis. To these two classes of virus must be added a third, that of diseases such as encephalitis lethargica in which the virus had yet to be isolated. Dr. Sabin differentiated neurotropic from neuronotropic viruses, the latter having the power of multiplying within neurones and being able to pass synapses. A feature of virus infection in man was that only a small proportion of those infected ever showed symptoms.

Professor W. McD. Hammon (University of California) gave a detailed account of research into the epidemiology of arthropod-borne viruses and expounded the theory that their true reservoir, in which they survived, was the mite, though they had in the U.S.A. various secondary hosts, such as birds and horses.

Dr. Sven Gard (Stockholm) discussed the virus of poliomyelitis. He described the discovery of a group of viruses closely related to that of poliomyelitis, and referred to the occurrence of myocarditis in this disease—a subject requiring further study.

Dr. Lépine (Institut Pasteur) spoke about the viruses of herpes, choriomyelitis, and rabies; and Dr. G. M. Findlay (London) discussed factors influencing infection of the C.N.S. by viruses.

Neurosurgery and Thymectomy

There was a masterly report on the surgical section of pain tracts and pathways in the spinal cord and brain stem by Olaf Sjöqvist (Sweden), covering all aspects of the subject. Case reports of prefrontal leucotomy and lobectomy for intractable pain came from Dr. Krayenbühl (Zurich), and Professor René Leriche (Paris) surveyed the whole field of surgery of the sympathetic system for the relief of pain.

Mr. G. F. Rowbotham (Newcastle) described his experience over many years in the surgical treatment of migraine and gave his case results. He had practised various procedures, singly and in combination, such as trigeminal root section, section of the middle meningeal artery, cervical sympathectomy, and division of the external carotid artery. He advised, in cases of frontal headache, division of supraorbital and cervico-temporal

arteries in the scalp, and of the middle meningeal artery and petrosal nerves intracranially. Later, if necessary, trigeminal tractotomy might be performed, or even sympathectomy.

Dr. Henry R. Viets (Massachusetts General Hospital) described the results of thymectomy in 36 patients operated on since 1941. Seven of these patients had thymomas and three of them were still living. One had survived six years and the other two were greatly improved after operation. All but four of the 29 patients with myasthenia gravis and with no thymic tumour had survived. The results were excellent in five, good in five, fair in four, and poor in four. It was too soon to estimate the results of operation in the remaining seven cases. He urged that patients should be adequately maintained on oral neostigmine before operation, and neostigmine might with advantage be given intravenously during thymectomy. The significance of germinal centre formation in the thymus was not clear, but the finding of a large number of germinal centres was highly suggestive of myasthenia gravis. In his view the results obtained by thymectomy over the last nine years justified the continuation of the operation in the treatment of myasthenia gravis.

Shorter communications were very numerous, covered a wide range, and attained a high standard of interest and originality. Mention should be made in particular of Dr. S. P. Meadows's (London) paper on carotid cavernous aneurysms and pulsating exophthalmos, and that of Dr. A. G. Frovig (Oslo) on the syndrome of bilateral obliteration by arteritis of the common carotid artery.

On Saturday, September 10, at the last session, Dr. Pearce Bailey (Washington) reviewed the difficult position of neurology in the U.S.A., sandwiched as it was between neurosurgery and psychiatry, and he urged more active organization amongst neurologists.

ANNUAL CONGRESS OF PHYSIOTHERAPISTS

AN EXPANDING PROFESSION

The annual congress of the Chartered Society of Physiotherapy was held at St. Pancras town hall from September 14 to 18. Each day was fully occupied with a programme of lectures, demonstrations, and hospital visits, and the members were entertained at receptions by the Royal College of Physicians and by the Council of the Society.

The opening lecture was given by Dr. J. A. CHARLES, Deputy Chief Medical Officer, Ministry of Health, with Dr. W. S. C. COPEMAN, chairman of council, presiding. Dr. Charles reviewed the developments in health services and social insurance in various countries. The beginnings of social insurance in France, he said, could be traced back to the immediate post-revolution period. Virtually the entire population of France was now included in social insurance schemes, contributions to which represented up to 16% of income. The fee payable for a consultation was variable: one rate for a general practitioner, double for a specialist, treble for the member of a teaching staff of a hospital, and the rate varied again according to region. The French regarded their system, despite its large staff of functionaries, as less bureaucratic than ours. Direct payment of fees by the patient was considered to be a great bulwark against a salaried service. The doctor charged the patient according to an official tariff, and the patient was reimbursed up to 80% from the fund. Capitation fees were anathema to the French doctor.

In Sweden the basis of medical care was twofold: organized sickness insurance within a circumscribed field and a magnificent hospital system. Sickness insurance would next year become a compulsory system covering the entire population. The patient paid the doctor and recovered two-thirds of the expenditure from the sickness fund. Sweden's great problem was shortage of doctors. Medical fees were moderate by our standards, but on the average doctors were well up in the highest income levels, their scarcity increasing their power as a pressure group. It was proposed to open new medical schools. With regard to the United States, Dr. Charles gave some figures comparing maintenance costs in the same 14 hospitals 60 years ago and now; the average daily maintenance cost per patient in the 'eighties was 1 dollar 39 cents; to-day it was 14 dollars 61 cents. Nearly one million new hospitals beds were needed in the United States.

Coming finally to this country, Dr. Charles claimed that the National Health Service had proved popular beyond all expectation: 95% of the people had chosen their general practitioner; the indexes kept by executive councils included names from every class of the population, and 95% of doctors, 90% of dentists, and practically all pharmacists were in the Service. The overall cost of the service for England and Wales was £232 million in the present financial year, roughly 2s. 1d. per head per week. It might be that within this field there was a possibility of saving here and there, but the cost must be viewed against the background of the £300 million a year lost to industrial production on account of illness. The benefits which the Service would bring, used wisely and intelligently, were tremendous.

Physiotherapy and Chest Surgery

Mr. T. HOLMES SELLORS lectured on "Physiotherapy in Chest Surgery." The subject, he said, was one which had been specially developed in this country; it was not practised at all widely in other countries he had visited. In chest surgery the association between the surgeon and the physiotherapist was very close. The surgeon was completely dependent on good physiotherapy for the operative preparation of the patient and for restoration to health and posture after operation. He regarded the physiotherapist as an essential member of the team. Many people in hospital were quite prepared to carry out physiotherapy, but the results were not satisfactory. An extremely high standard was demanded and was achieved in special chest units and hospitals only where physiotherapists were engaged in this type of work for practically the whole of their time. It took from four to six months for the physiotherapist to master chest practice. Any general hospital—he was not now speaking of a special chest hospital—which had 100 or 150 beds would provide nearly enough in-patient and out-patient work to occupy one physiotherapist.

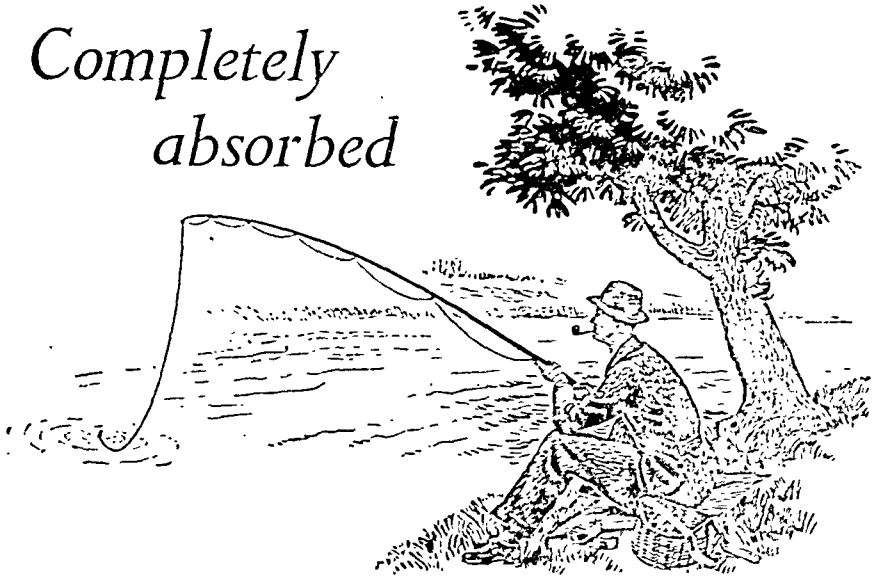
On the admission of the patient the physiotherapist must study his respiratory capacity, and then institute breathing exercises appropriate to the type of treatment which was going to be undertaken. Patients with low vital capacity and stiff chests could be educated in two or three weeks and made "safe for surgery." Chest surgeons prided themselves on the fact that their post-operative complications were fewer than in general surgery, and for this result thanks were due to the physiotherapist. Expiratory exercises played little part in chest surgery except in such conditions as asthma and in squeezing out secretions from the lung in bronchiectasis. It was inspiratory effort that was emphasized, and this not just a diffuse movement, like a general heave of the chest, but a controlled localized movement. A patient, if intelligent, could be trained to move one part, and one part only, of his chest.

The physiotherapist must always be aware of the rate at which chest deformity could develop. It called for concentrated effort on the part of the physiotherapist to transmit her enthusiasm and persistence to the patient. There was great value in the psychological stimulus that she could give. Liaison between the physiotherapist and the occupational therapist, again, could be very valuable. Mr. Sellors went on to describe various chest conditions and the work of the physiotherapist in regard to them. After an operation such as thoracoplasty in a female patient it was possible to maintain the patient's posture so that although the chest was flattened above and below, unless she wore evening dress, no deformity was visible.

New Hope in Rheumatoid Arthritis

In another lecture Dr. W. S. TEGNER discussed the present situation in regard to rheumatoid arthritis. The theory of a septic focus was dying hard, but it had never been possible to isolate a toxin capable of producing rheumatoid arthritis. The theory of sensitization and allergic response had been formulated but never proved. An American report suggested that in every group of sufferers one-fourth recovered, one-fourth

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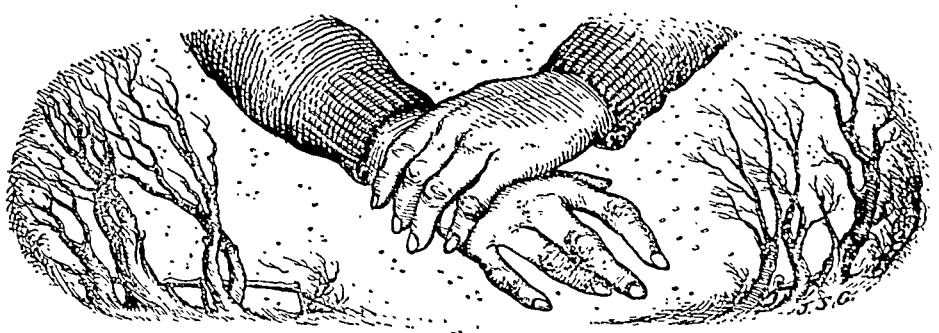
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became crippled, and half had a long period of exacerbations and remissions. Another American report put the recoveries at only 15%. Starvation, surgical operation, and anaesthesia had a favourable effect on the disease, but more surprising was the ameliorative effect of obstructive jaundice and of pregnancy.

A specific treatment which had long been advocated was by intramuscular injections of gold. The claims made for gold therapy were unjustifiably optimistic. Hench had found the improvement after gold therapy to be far less than the improvement during an attack of jaundice or during pregnancy.

The lecturer then described the work carried out on "compound E." or "cortisone." He had seen some of the patients treated in America and had never seen such rapid cures or remissions. It could certainly be said that a rare and expensive product had been found which profoundly altered the pattern of the disease. The patients responded to it physically and mentally in a remarkable manner. The psychological effect was to produce a euphoria which was more than the effect of well-being after recovery from illness. There was need for a dispassionate survey of the results of this discovery and of the relation of cortisone to the aetiology of rheumatoid arthritis. Every effort must also be made to produce cortisone economically at reduced cost. There was no evidence that it had any value in osteoarthritis. The speaker also uttered a warning against all sorts of "pseudo-cortisones" which were springing up. He believed that the introduction of the real cortisone would bring about the rapid disappearance of other specific treatments, including gold, and he hoped it would not be long before supplies were available in this country, but care must be taken that it was not wasted on the wrong patients.

Physiotherapy in Obstetrics

Lectures accompanied by films and lantern demonstrations were given by Dr. Dudley Hart on ankylosing spondylitis; by Mr. L. W. Plewes on industrial rehabilitation; by Dr. Griffith Pugh on the effects of cold on the human body, and Dr. J. T. Ingram on the health of the skin. Dr. E. J. Crisp gave a survey of the present-day scope of ultra-violet irradiation.

The role of the physiotherapist in the training of the expectant mother was the subject of an address by Professor W. C. W. NIXON, and was followed by a demonstration of exercises in which patients from the Royal Free Hospital participated. Professor Nixon said that in surgery the physiotherapist had played a conspicuous part in preserving and restoring normal function. Formerly the masseuse was looked upon as an intruder. It had taken time to convince the surgeon about the possibilities of physiotherapy, but now the physiotherapist had been recognized as playing a necessary part not only in post-operative but in pre-operative care. In obstetrics the physiotherapist had started her work in the post-natal period, but from that it was a short step to antenatal physiotherapy. She had an important role to fulfil in training the woman for her confinement, including the preparation for the actual delivery. This was what should be regarded as the greatest athletic event in a woman's life, and for any athletic event training was necessary. The mothers had been quick to respond. Instead of paying rather half-hearted visits to the antenatal hall they had, thanks to the physiotherapist, come to feel that something definite was being done for them. Too often in the antenatal clinic the accent had been on the abnormal rather than on the normal. The physiotherapist restored the balance by presenting the physiological aspect of pregnancy and making it real through a series of antenatal exercises. Instead of being passive examinees, the expectant mothers became active participators. Who could teach relaxation better than the physiotherapist? Those who had the care of expectant mothers knew that the great problem was to eliminate fear, and this was most successfully done by proper training during pregnancy. Physiotherapists had done much to bring home to mothers the idea that labour was a normal process, and to evoke that confidence which made for a happy labour. He thought that physiotherapists should be given the privilege in the labour ward of seeing the results of their instruction.

Causation and Prevention of Deformity

The Founders' Lecture was delivered on the last day of the Congress by Sir HARRY PLATT, who discussed the causation and prevention of deformity. Deformity, he said, was formerly accepted as the inevitable accompaniment of many accidents and diseases, but now the emphasis was on prevention, and in such prevention the physiotherapist played an important part. Acquired deformity might be most conveniently studied in the form of joint contracture, of which he distinguished three main clinical types—namely, the contractures of flaccid paralysis, those of spastic paralysis, and those which resulted from intrinsic changes in the muscles. Taking as an example the contractures in poliomyelitis, he said that these were initiated by a state of muscle imbalance in which the active muscles began to shorten. Such contractures in poliomyelitis might occur within the first few weeks after onset. They were in general not difficult to prevent. In the majority of orthopaedic hospitals and clinics the old practice of rigid immobilization in the early stages of poliomyelitis had been abandoned. The limbs were now supported in correct postures, and as soon as they could be handled without distress the joints were treated by physiotherapeutic methods, so that by the time the patient was on his feet no contractures should be present.

It must never be forgotten in poliomyelitis, however, that throughout the recovery stage the tendency to contracture remained. When the patient began to walk other deforming influences were added—growth, gravity, posture, counter-resistance, and so on. The physiotherapist in charge of a re-educational programme should be constantly on the look-out for deformities such as lateral curvature of the spine or inversion of the foot, or claw foot. Perhaps the most difficult problem in poliomyelitis was to prevent or control lateral curvature of the spine, which might be established during the first few weeks after onset or might develop gradually in the first year with a spine in which the equilibrium had appeared to be normal. The spine needed to be watched until growth was finished, because the deforming forces of asymmetrical posture and attitude might continue during the whole period of growth.

In tuberculous disease, again, particularly in children, the joints must be protected from deforming influences long after the disease itself had apparently subsided. The contractures in rheumatoid arthritis were of the usual gravity-aided type, modified occasionally by extreme malposture. The joints usually required a short period of rest and fixation, succeeded by purposive mobilization, still under adequate mechanical control. Finally, Sir Harry Platt touched upon the contractures in elderly bed-fast patients—contractures which it was now seen could and should be prevented. The rehabilitation of the aged was a challenge to social medicine.

Physiotherapy under the Act

Lord HORDER, president of the Society, was in the chair at the dinner, which was the closing event of the Congress. In proposing the health of "The Guests," he referred with regret to the fact that at the last moment the Minister of Health, who was expected to be the principal guest, had been detained by important Government business. Sir WILSON JAMESON, Chief Medical Officer of the Ministry, who came in his stead, described himself as a "simple-minded, ingenuous doctor, and a mere Civil Servant," no substitute for his colourful chief. What was now called medical rehabilitation, Sir Wilson Jameson continued, was no single-handed job; it required the collaboration of a number of people—doctors and nurses, physiotherapists and social workers. That was why the Ministry had adopted the policy of making physiotherapy part of the hospital and specialist services. He knew that there were good arguments for making it part of the general practitioner service, but it was not practicable to do this. There was a shortage of physiotherapists, and therefore it was necessary to use them where maximum facilities were at hand and where man-power could be economically employed. But the Minister had sent to regional boards a circular asking them to extend services to small towns and villages where necessary and in certain cases to afford domiciliary treatment. Thus he hoped that in

course of time the service would be extended, and that quite a number of physiotherapists would be able to take up part-time clinic service and so be compensated for any loss of private practice which the National Health Service had brought about. If there was a shortage of physiotherapists there was no shortage of applications for training; the difficulty was non-availability of premises and lack of teachers. Speaking of the Health Service as a whole, Sir Wilson Jameson said that it had been with them for a year and would be amended in the light of experience. It would never be a success unless there was willing co-operation on the part of those who worked it and of the public for whose benefit it was established. There was great need for the education of the public in the economic use of the Service. "There is a limit to what the country can afford—even for health."

The health of the Society was proposed by Sir HARRY PLATT, who, in sketching the future of physiotherapy, prophesied increased specialization. In the great hospital departments specialization must be the rule. The toast was responded to by Dr. W. S. C. COPEMAN, chairman of council, who said that in 1920, when the Society acquired its charter, the membership was 6,070; it was now 17,333. He spoke of his recent visit to the United States, where he had found physiotherapy not as fully recognized and developed as in this country, but training facilities, research fellowships, and physiotherapy departments in teaching hospitals were now being extended.

Nova et Vetera

THE M.R.C.P.

From early in the sixteenth century to 1858 the London teaching hospitals usually required their physicians or assistant physicians to be Fellows or licentiates of the Royal College of Physicians of London. This was indeed a legal obligation, because the College had a monopoly of licensing physicians to practise in or within seven miles of London. In 1858 a Medical Act abolished the monopoly, but the custom of the hospitals continued with a merely verbal change—the substitution of "member" for "licentiate." After 1858 the College assigned the word licentiate to a qualification granted on wholly different terms from those imposed on the old licentiates, but granted a diploma of membership on the old terms—namely, a rigorous examination by the Board of Censors.

In the eighteenth and even early nineteenth centuries the College was a small body. In 1817 there were 89 Fellows and 224 licentiates. It is now more than ten times as large. In 1948 there were 747 Fellows and 2,691 members. Through the last half of the nineteenth century growth was comparatively slow, because College by-laws forbade Fellows or members to dispense medicines or practise in partnership. Early in the present century members were freed from these restrictions, and their numbers increased. In July, 1938, there were 161 candidates for the membership examination. After the war the number increased sharply; in July, 1948, there were 596. Every reader knows the reasons for this, knows why just four short of the gallant six hundred charged the guns of Pall Mall East a year ago and sustained, in a Pickwickian sense, as heavy casualties as the heroes of Balaclava.

Medical correspondence columns have recorded differences of opinion on the merits of this examination. Thus under the present regulations any holder of the M.R.C.S., L.R.C.P. diploma or graduate in medicine of a recognized university may submit himself for examination four times a year on payment of a fee of ten guineas and may continue to do so until his patience, or his money, is exhausted. The College, very wisely, appointed a strong committee to inquire into the position, and their report (discussed in an annotation in the *Journal* of August 6, p. 327) is an interesting document. It would have been even more interesting to the historically minded had a comparison been made between the examination of, say, 40 years ago and what it now is. Now, as 40 or 100 years ago, the whole responsibility rests on the President and Board of Censors. It is certain that in one respect the examination has been modernized. Down to 1924 the censors encouraged, or tolerated, a belief that physicians should be acquainted with the learned languages; candidates were required to attempt to construe a passage in Greek or in Latin. But in 1924 a candidate—a lady whose clinical marks were brilliant—eschewed both classical questions; she was therefore subjected to a special interrogation by the President and, having correctly construed pons varolii, approved. The registrar of that day, an excellent scholar, suggested, with the meiosis lovers of Horace usually display, that such a test verged on the farcical; so obligatory Latin (or Greek) was eliminated, and, perhaps, the censors of the eighteenth century turned in their graves.

MAJOR GREENWOOD.

Reports of Societies

ASPECTS OF LEUCOTOMY

U.S.A. SYMPOSIUM IN LONDON

The presence in this country of a number of American psychiatrists returning from the fourth Congress of Neurology at Paris was made the opportunity for calling a special meeting of the Section of Psychiatry of the Royal Society of Medicine on September 12 and 13. The chairmen at the four sessions were Dr. J. R. REES, Dr. W. REES-THOMAS, Sir HENRY DALE, and Professor F. L. GOLLA.

Theoretical Considerations in Brain Surgery

An opening paper on the theoretical aspects of frontal leucotomy and similar brain operations was read by Dr. PAUL H. HOCH, of New York City. From observations on patients who had undergone operation he concluded that the basic intellectual and emotional life of the individual, necessary for the functioning of his personality, was not located in the frontal lobe alone but distributed over the cortical areas and in the corresponding thalamic regions. It was nevertheless possible that the highest functions, such as creativeness, planning, and fusion of intellectual and emotional performance, were to be ascribed to the frontal lobe. The diffuse distribution of psychic functioning in the thalamus and cortex did not mean that the brain always acted as a whole but that these functions were distributed and safeguarded by diffusion all over the cortex. There were concentrations of function in certain areas, which areas could interfere more than others with psychic activity, but the view that elementary intellectual and emotional functioning could be located in certain areas, and that there were centres for basic personality traits and drives, was not tenable. Alterations of personality could be brought about by ablating the cortex, operating on the thalamus, or by cutting the connexions between the thalamus and cortex. To achieve therapeutic results it was necessary to remove a certain amount of cortex or to interrupt a certain proportion of cortico-thalamic connexions. If not enough pathways were cut or not enough cortex was detached, no improvement would result; if too much was done, marked personality damage was produced. Professor Hoch added that he did not want to convey the idea that other factors did not enter into personality changes, but he believed that the quantitative factor, especially in relation to pathways or connexions, should be carefully studied and evaluated.

He also devoted some attention to the problem of changes in personality which attended the operative results. Clinically the most conspicuous impairment was a certain inertia or apathy. The patient showed no sustained effort, no drive to creative achievement, no foresight. A "don't care" attitude developed. The depth of emotional experience was reduced and social sentiments often impaired. These personality changes, which were not always permanent, were, he believed, due principally to the elimination of anxiety, tension, and ego awareness. "Our society is built on a certain amount of anxiety. Without it, no socialization of the human being would be possible." Anxiety,

sublimated, performed as creative energy. The elimination of this anxiety involved personality damage.

"However, this does not mean that brain damage is absolutely necessary to achieve results, though some maintain this view. We do not know the optimum operation yet. It is possible, as some of the recovered cases indicate, that the operation can be balanced well between symptom-reduction and damage. In most instances to-day we probably damage more than necessary. Our present methods of operation are crude and not reliable, but the question is open, and will have to be investigated further."

It was possible, in his opinion, to relieve the patient of his symptoms and not inflict a great deal of damage to the personality. Successful transorbital lobotomies indicated this clearly. With more knowledge of what amount of cortex should be detached or what pathways should be cut an ideal operation was conceivable which would cure without impairment.

Safety and Effectiveness of Leucotomy

Dr. WALTER FREEMAN, of Washington, said that safety and effectiveness were the two main considerations in choosing an operation for the relief of mental disorder, but accuracy was coming to be an important feature, and availability was also stressed in view of the large number of patients who were being considered for psychosurgery. Safety had already been achieved in large measure. The various operations on the frontal lobes had never carried as high a mortality as 10% in any considerable series; usually the mortality had been about 3%, and some teams claimed 1% or less.

Effectiveness was largely dependent on the psychiatrist. Brazilian psychiatrists apologized for poor results, stating that only the most chronic and deteriorated patients were operated on. The English Board of Control, in publishing in 1947 the results of 1,000 leucotomies, found a direct relationship between the duration of the psychosis and the results of operation. Topectomy had brought precision to operations upon the frontal lobes in that symmetrical areas had been removed. Research had shown that most leucotomies were unnecessarily extensive. The selective leucotomy used largely in England was also proving the value of limited operations.

Dr. Freeman said that he and J. W. Watts had studied the plane of section in relation to social effectiveness, and had found the following: "Incisions made 10 mm. behind the sphenoidal ridge would, in most instances, relieve a severe chronic psychosis and enable the individual to engage in a simple occupation. Incisions 15 mm. or more behind the sphenoidal ridge result in helpless invalidism. Incisions anterior to the sphenoidal ridge permit the patient, if relieved of his psychosis, to engage in constructive work and also to enjoy recreational, social, and intellectual pursuits."

Leucotomy and Shock Therapy

A comparison between psychosurgery and shock methods was given by Dr. LOTHAR B. KALINOWSKY. The indications for the two procedures, he said, did not overlap as often as might be expected. In most cases shock treatments could be applied to the utmost before surgery was considered, but there were many other cases in which shock therapy was not indicated. Selection of patients for psychosurgery was one of the most responsible tasks for the modern psychiatrist. It was a new challenge to them to revive objective means of diagnosis, to adhere to a well-established terminology, and thus to arrive at a diagnostic grouping resembling so far as possible the diagnostic methods in other fields of medicine.

After a long discussion on what constituted adequate shock treatment, Dr. Kalinowsky went on to claim that there was no evidence that previous shock treatment added to the hazards of surgery. No relation between convulsive therapy and post-operative convulsions must be assumed; convulsive therapy did not predispose to epilepsy, and was even used in its treatment. Schizophrenics who failed to respond to shock therapy fell into three groups: those who for some reason failed to respond although they belonged to a category of schizophrenia which usually responded well; those who offered poor prospects for any treatment; and those for whom shock treatment was scarcely indicated. Patients in the first of these groups should be submitted to surgical treatment rather early before deterioration set in. For those in the second group, mostly hebephrenics, psychosurgery should rarely be recommended; their clinical level might be temporarily improved by an occasional E.C.T. In the third group psychosurgery was from the outset superior to shock therapy, and would have an increasing importance when it was learned how to avoid the side-effects of the operation. To this group belonged schizophrenics in the younger age groups with predominantly neurotic symptomatology; they were often wrongly diagnosed as neurotics, but closer observation revealed somatic delusions, bizarre expression of symptoms, and occasional hallucinatory experiences. Another group with a poor response to shock therapy but gratifying results following psychosurgery were cases of late schizophrenia with a predominantly paranoid symptomatology and well-preserved personality.

This speaker also discussed the question of relapses after shock therapy and psychosurgery respectively. The worst drawback in all shock treatments was the tendency to relapse. Even in adequately and successfully treated cases the rate of late relapses was considerable. But true relapses after leucotomy were rare. A leucotomized patient who had reached a certain equilibrium, even if the result was only fair, would not easily relapse.

Another difference to which he drew attention was in the patient's post-treatment amnesia for his symptoms. The insulin patient often had good insight and remembered most of his pathological experiences. The E.C.T. patient remembered little of his sickness. The leucotomized patient, if he lost his symptoms, had hardly any insight and even denied any improvement. The patient who had undergone shock therapy realized the difference and was usually very grateful; the leucotomized patient never. Both procedures left many basic questions open, but while something was known about the mode of action of psychosurgery nothing was known about the manner in which shock treatments worked.

Physiological Basis of Shock Therapy

Professor E. GELLHORN followed with a discussion of the physiological basis of shock therapy. His argument was that the procedures employed in shock therapy acted primarily through central autonomic discharges and through their effect on the cerebral cortex. In the experimental animal the techniques used in shock therapy for mental disease invariably excited the hypothalamic sympathetic system. He suggested that this state of heightened hypothalamic and medullary discharges resulted from two fundamentally different mechanisms. Insulin hypoglycaemia and barbiturate medication overcame the inhibition of cortical control; in convulsions induced by electric shock or metrazol direct excitation of these centres appeared to be the mechanism primarily involved. His theory was not that insulin coma and electrically or chemically induced convulsions acted through the secretion of adrenaline, but that these procedures greatly increased the reactivity of autonomic centres which in turn might influence the brain in such a manner as to restore normal behaviour.

Recent Techniques

A new technique in leucotomy was demonstrated by Dr. WALTER FREEMAN, of Washington. This was a modification of transorbital leucotomy, an operation which did not attract much attention until 1947 and, although a quick and safe method, gave disappointing results in the large number of chronic schizophrenic patients who were naturally considered for operation. Studies were therefore undertaken on the cadaver to ascertain whether the incisions could safely be extended so as to sever a large proportion of the radiation from the thalamus to the frontal pole. This proved easier than could have been expected. Merely by elevating the handle of the instrument when the point was in a certain position within the frontal lobe it was found possible to sever this radiation opposite the head of the caudate nucleus, and without additional danger to important vessels. By this new twist, which he termed the deep frontal cut, transorbital leucotomy could be made as extensive anatomically and as effective clinically as

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Correspondence

Research in Renal Disease

SIR,—It is gratifying to receive, both in your columns and privately, such encouraging support for the plan outlined in my letter (May 21, p. 910) to secure for nephrology the status of a major medical specialty and the facilities for developing it in the best way—in particular, university recognition and the foundation of one or more institutes of nephrology.

Many specialties are now in the queue for reorganization as independent but integrated regional or national special services, and I venture to suggest that none has greater claim to priority than nephrology: first, because renal disease is probably the commonest cause of death in this country; secondly, because there is no organization for dealing on an adequate scale with the problems of patients suffering from these disorders, whereas most other specialties have some kind of organization which enables them to function, if inadequately; and thirdly, because of the exceptionally long period required for the training of personnel.

Provided the will is present there does not seem to be any insuperable difficulty in making a modest beginning forthwith by establishing at least one model renal centre of this kind, and it is to be hoped that action along these lines will speedily be taken.

A unique opportunity is now offered for establishing on a sound basis what is virtually, as an organized discipline, a new specialty. Unless it is seized there is a danger that hospitals, not necessarily of the most suitable type, will set up token units of a few beds in charge of those without adequate training and experience, and the service will be discredited at the outset. It is within my knowledge that several units of this kind are already in contemplation.

While opportunities should never be denied those wishing to take a special interest in any branch of medicine, it is essential, if the best candidates are to be attracted to the new service, that the staff should be recruited from among those who have fitted themselves by training for this special work.

I have been asked why in my previous letter I stated that nephrology should be based on a university postgraduate renal hospital and school, and not on an undergraduate teaching hospital as are most other specialties. The reason is that in my experience the highest standards of practice, nursing, and routine laboratory work in a specialty so dependent upon accurate detail as nephrology are unattainable in a general hospital, where the sharing of ancillary services is inevitable; and still less in an undergraduate teaching hospital, where in addition the emphasis must lie on general principles rather than on scientific detail and advanced technique.

At the same time there are aspects of research in renal disease that can best be approached in a general hospital. It is important, moreover, that undergraduates and student nurses, as part of their general training, should see in a properly organized department run by experts what can and what cannot be done for patients suffering from renal disease. In my view, therefore, every first-class general hospital should have its own largely autonomous and self-contained renal unit linked with, and staffed by, the central renal hospital and school. Organized in this way, every unit in the renal service would be brought not only directly but effectively under university influence.—I am, etc.,

London, W.1. A. A. OSMAN.

Reform in Medical Education

SIR,—Your educational number and the letter of Dr. R. D. Lawrence (September 10, p. 594) are welcome indications of the realization of the necessity for radical reform in medical education in this country. Dr. Lawrence rightly remarks that teaching ability is a minor consideration in appointments to a teaching hospital. His outlook, limited as it is by tradition and practice, leads him to suggest that the natural source of medical teachers arises amongst the registrar type.

Now it is universally admitted that one of the most important points in the teaching of clinical medicine is the recognition of disease in its earliest manifestations. One wonders how often the registrar type sees disease in its early stages. The most successful clinical teacher is he who can help the student to hear the faint voice of the patient's tissues talking through the patient's voice, and to continue to listen to that voice ignoring the siren voice of the patient's mother and the strident voice of the patient's wife.

The natural source of this ability is the type of doctor who is accustomed to seeing disease in its earliest form, and who has learned to ignore the fond but foolish mother and the clanking of the matrimonial ball-and-chain. He is, of course, the experienced general practitioner, and no medical institution would be complete without a corps of teaching practitioners who would give the benefit of their valuable experience to medical students, the majority of whom are destined to follow in the footsteps of their teachers.—I am, etc.,

Luton. C. BASTIBLE.

Distinction Awards

SIR,—It is true that private practice still remains at the disposal of those who feel that their merit deserves remuneration, as we are reminded in a letter on distinction awards (August 27, p. 484). I believe it would sorely tax the wisest to diagnose this attribute in a colleague, and indeed the word is incapable of precise definition. Grades of merit, failing more accurate definition, are therefore impracticable.

The assumption that it is merit that wealthy people are peculiarly capable of diagnosing and prepared to reward is, of course, no more true than that a full-time hospital doctor is necessarily less meritorious than his part-time colleague.—I am, etc.,

Lepton, near Huddersfield. GEORGE JENNINGS.

SIR,—Dr. F. M. R. Walshe and his supporters have failed to find an equitable method of assessing merit. To conclude from this failure that available funds must be handed back to the Treasury is as feeble as it is improvident; to condone, by reason of this failure, a standard salary to all consultants is to surrender to the commonplace mind, which Dr. Walshe once attacked so brilliantly.

Distinction in medicine may be interpreted now, as ever, as distinction in professional service to the community. Financial reward in proportion to the value of such service is both attractive and just; the budding consultant needs some such stimulus, and will not be misled by hocus-pocus about the rewards to be gained in private practice in the future.

I agree with your correspondents who reject the idea that consultants (or any committee of them) can offer a competent or unbiased opinion upon their own or their colleagues' value to the community, and it is this aspect alone which threatens the profession with internal strife and undesirable practices. In an attempt to be constructive I wish to draw attention to a body of reasonably impartial observers who are available to effect the necessary comparisons, and whose assessments have decided consultants' monetary rewards in the past to the apparent satisfaction of all parties. I submit that general practitioners are still in a unique position to assess all of the following essential components of their consultants' service to the public: (1) Clinical and technical competence. (2) Industry. (3) Sense of responsibility and courtesy to colleagues—e.g., promptness and quality of reporting to the family doctor. (4) Maintenance of morale in hospital, as shown, for example, by readiness of "firms" to accept cases at night. (5) Efficiency of out-patient organization and overhaul of waiting-lists. The higher the standard reached in these aspects of service, for each of which I hold the consultant responsible, the greater the benefit to the public and the greater the entitlement to reward from the public purse.

My suggestion is that the awards be made in proportion to the votes gained in the respective departments and specialties at an area ballot in which G.P.s will record their preferences. Sums of money should be set aside for distribution to teachers, research workers, and other specialists whom the family doctor is not competent to compare. Teachers could be awarded in

proportion to the votes of their students, research workers by a body elected by themselves for the purpose, and workers such as anaesthetists by surgeons or others competent to assess them. The ballots should be held every, say, two years, in order to keep the recipients on their toes.

It will be appreciated that this suggestion does not involve any radical change. Consultants will be supported by those they serve well, as in the past, and the die-hards should experience no anguish in adapting themselves to what would merely be a novel method of expression of the family doctor's approval.—I am, etc.,

Sheffield, 3. B. BURNS.

SIR,—In your issue of September 3 (p. 545) you published two letters on the subject of distinction awards. In one Dr. C. C. Beatty suggests—rather flippantly—the possibility of a points system; in the other Mr. F. Ridley not only treats the question with the seriousness it deserves but draws up a detailed plan.

I am gratified to see that in section 1 of this plan he awards marks for an arts degree. Never has a high standard of culture been more needed by consultants than to-day. The standard attained by a minister should not be unattainable by any consultant worthy of the name.

In section 2 it is surprising—or is it in these days when the mighty are being put down from their seat and the humble exalted?—to find the undergraduate teaching hospital rated lower than the postgraduate teaching hospital. Mr. Ridley's outlook is in keeping with the times.

As regards the marks he would award to local presidents and secretaries of medical academic societies, I foresee a hitherto unknown attendance and enthusiasm on the part of their members if elevation to the presidency and secretaryship may mean a higher category and a greatly increased income. There are, I think, other and less desirable consequences likely to ensue, but their nature can be left to the imaginations of the readers of this correspondence.

Section 3 provides a new version of an old adage, for should Mr. Ridley's plan be found acceptable to the authorities the pen will prove thenceforth far mightier than the scalpel and the stethoscope. Already an aspiring consultant can scarcely hope to gain recognition unless he publishes thousands and thousands of words—usually of no world-shattering importance—in accredited medical journals. One's reason reels when one contemplates the outpouring of words there is certain to be when he recognizes that his publication may qualify him to receive as many marks as he can win by spending fifteen years or more on the staff of an undergraduate teaching hospital.

At first my heart went out in sympathy towards the members of the awards committee, as in my mind's eye I watched them reading closely all the published work of all consultants; but then I saw a better way. Who after all is best qualified to judge the value of a contribution to the press? Surely its author. In such a case let him assess his own marks. Thus will the awards committee be relieved of this part of its onerous and invidious burden and an egalitarian spirit be fostered.

A further sign of the times is the fact that Mr. Ridley, so far as I can see, attaches no value to such vexatious and intangible considerations as clinical acumen and judgment, or operative skill, which the old-fashioned generation to which I belong used to think of some importance in the make-up of a consultant. Nevertheless, he may be right, for under the new regime they would seem destined to be increasingly discounted as time marches on.—I am, etc.,

London, W.1 J. W. LINNELL.

SIR,—Sir Henry Dale has recently written, "Science is one of the human activities which can only live in freedom. If anyone would know what would happen to it in the stranglehold of official tyranny, he should read this terrible indictment." This is part of an introduction to John Langdon-Davies's book on the Lysenko affair. Communistic science is a branch of ideological politics.

Dr. Boldero's recent letter to the *British Medical Journal* (September 10, p. 594) is fundamentally an expression of similar, although less complete, servitude to the State, and the same acquiescent attitude has been true of those who have taken his view that medicine as such must surrender its essential freedom to political considerations. It is not without significance that many prominent members of the profession holding this view, and who have helped to enforce it, have been deans, and very successful deans, of medical schools. The whole outlook and training of a dean is one of honest and faithful subservience to an institution. That of a scientist is independence, and, if necessary, defiance of authority.

Sir Hartley Shawcross has recently spoken very forthrightly against the nationalization of the legal profession, indicating that such a step would be towards totalitarianism. Law, however, is essentially an administrative activity and is not founded on continually growing, living sciences. But medicine, in whose independence Sir Hartley is not so interested, is founded on physiology, chemistry, physics, psychology, and many other live activities of human civilization and development. It was all the more essential that medicine, which in itself is partly, at any rate, a branch of active science, should not have fallen under the domination of the State.

Science in the past has frequently had to hold up its head and indeed suffer in opposition to the political powers of the day. Galileo was one example, and it was Pasteur who said, "*Tout le monde est contre moi.*" This view of medical scientific freedom is one that has been renounced by Dr. Boldero and those who have felt and acted as he has done, and who have given precedence to political considerations. The present difficulties, of which that of the distinction awards is at the moment most prominent, are merely examples of further steps into the mire, and are unavoidable by those who have strayed from the sound way of following principles rather than expediency. If medicine is to save itself from the political quagmire it will have to retrace its steps painfully and with great difficulty, turning its eyes again to those fixed principles and steadily refraining from following political will-o'-the-wisps.—I am, etc.,

London, W.1. GEOFFREY BOURNE.

SIR,—The battle of distinction awards has been won and lost. After full debates in correspondence columns and medical committees it seems clear that a majority of consultants do not propose to offer effective opposition to their imposition. But the issue was closer even than it now seems in retrospect, and many of the majority only reluctantly came to their decision and after many hesitations. What of the minority? That their case cannot be dismissed by superficial explanations is proved by the very existence of a powerful revolt against increased monetary rewards, led by men of whom many might legitimately be regarded as possible recipients of such rewards. The arguments influencing the minority have been variable, those most stressed being the practical difficulties of distinguishing between true distinction and garnished mediocrity, and the fear that the scheme would widen divisions both among consultants themselves and in the profession at large.

Although less clearly formulated, I believe that two other powerful arguments have exerted even greater influence. While no financiers, we suspect that in the present state of the country and the world the theory of financial rewards of the whole health scheme rests on fallacious foundations. And, more important still, we believe that the almost complete reliance on the State which the acceptance of the distinction awards implies means the disappearance of an independent medical profession. If such is our faith, what should now be our action? I suggest we can do no other but individually inform the awards committee that we do not wish to be considered and request that our names be so listed when the awards are published. Thus we may provide a leaven of sacrifice which will preserve the soul of medicine.—I am, etc.,

London, W.1. DAVID H. PATEY.

SIR,—It is of interest to record how very closely the opinions of the consultants of a non-teaching group on distinction awards agree with those of your Leeds correspondents (August 27, p. 484). It was the unanimous view of the Medical Advisory Committee of the Chelmsford Group that the reward for

exceptional merit for the part-time consultant would be most accurately assessed and most suitably adjusted by the maintenance of reasonable facilities for private practice, and that for those consultants undertaking hospital duties of similar responsibility the correct method of remuneration was "the rate for the job."

Distinction awards based on past records assessed by a committee without personal knowledge of the consultant or his present work were generally regarded as most undesirable. They would be embarrassing to the recipient and unfair to colleagues with precisely similar duties. Even if this system was desirable it would be manifestly impossible to allocate the awards with justice.

I do not think these views are exceptional. They may be taken as a random sample which represents the opinion of part-time consultants throughout the country, and it is a calamity that this scheme, full of dangerous potentialities, has been accepted without obtaining the opinion of those most vitally concerned.

The continued existence of the part-time specialist presupposes legitimate opportunities for private practice. At the present time this is slowly being reduced by the very high charges made for private accommodation in hospitals and the progressive conversion of such accommodation to other purposes. This policy calls for review.

The situation is otherwise for whole-time medical officers and research workers. In the past they have been less favoured and in their case rewards for special merit may be more fairly assessed and more reasonably granted.

I do not believe that "the considerable sum of money allocated for these awards" (Dr. H. E. A. Boldero, September 10, p. 594) will blind part-time consultants to their many objectionable features.—I am, etc.,

Chelmsford. H. BATHURST NORMAN.

Surfeit of Diplomas

SIR,—Now that thoughts are directed at last towards planning a satisfactory medical education to form a sound basis for the complicated structure of medical practice in this country, it is meet that all of us who feel strongly on the matter should contribute. My contribution here is on the problem of multiple academic degrees. Generally speaking, all concerned are agreed that a change must come about; indeed, it has been forced on us by events. However, in putting it into effect there are two opposing camps: (1) The conservatives, who believe in keeping multiple degrees and would merely improve things as they are; (2) the radicals, who advocate the abolition of multiple degrees and the adoption of the American and Continental systems. Recognition of the specialist and teacher would be by work done and published, and by common agreement among colleagues and patients.

It seems to me, as a specialist struggling with the odd and wasteful process supported by this first group and reluctant to approve changes supported by the second group, that the near-ideal compromise has not been stressed sufficiently. British medicine has a long and glorious tradition, and has maintained its high standard throughout the world for many years. Therefore, to imitate others seems like a retrograde step. At the same time all criticism recently levelled at the multiple degrees, particularly the M.R.C.P., with which I am most acquainted, is sound and demands urgent attention. A compromise might perhaps be reached on the following scheme.

(1) The standard of the qualifying degree throughout the British Isles should be unified, and perhaps modelled on the M.B.(London). The degree might be taken anywhere in the universities, but the examination and its administration should be centralized. This would abolish immediately the necessity of having such examinations as the M.R.C.P. and F.R.C.S. as they now stand, the only use of which is to make sure that the prospective consultant is a sound doctor. Incidentally, by such a measure the level of medical education and training for general practitioners will be raised, and it would be unnecessary for the better ones to prove that they are better by taking a Membership or a Fellowship—or, worse, some extra specialist degree bearing no relation whatever to their interest and practice.

(2) Those intending to practise in some specialist branch of surgery or medicine would then proceed on a postgraduate course of training for a sufficiently long period—at least two and a half years—culminating in some such specialist degree as the D.P.M., D.C.H., or M.R.C.O.G. These degrees also should be uniform and centralized to prevent present anomalies. This would ensure that a man practising as a specialist received adequate training in his chosen specialty. Progress from this stage (Registrar Class I) onwards would be entirely on personal merits, clinical and scientific published work, and the acknowledgments both of colleagues and patients. No further time should be wasted in the acquisition of degrees.

(3) Those intending to specialize in major surgery or medicine would proceed on a similar course, perhaps of longer duration—say, five years—and culminating in an examination for Membership or a Fellowship. Here again further progress should be on the principles mentioned above.

(4) Those intending to become teachers or research workers, or those who wished to improve whatever status and knowledge they had, should have an opportunity to take an M.D. or an M.S., or the equivalent, by thesis and examination on their thesis only.

Thus, a pathologist would have an M.B. and an M.D. in pathology; a psychiatrist an M.B. and a D.P.M.; a physician an M.B. and M.R.C.P.; a teacher in paediatrics an M.B., D.C.H., and M.D.(Paediatrics); and a teacher of medicine an M.R.C.P., M.D., and eventually a Fellowship. There should be no hindrance to the election to an Honorary Fellowship to all those who, in the opinion of the College, deserve such a distinction. I would suggest that some such scheme would do away with most of the evils of multiple degrees and yet preserve the essentials in the traditional system of British medicine; it would satisfy all but the most sanguine.—I am, etc.,

D. CAPPON,

London, S.E.27. L.M.S.S.A., L.R.C.P., M.R.C.S.(England), M.B., B.S.(London), M.R.C.P.(Edinburgh), D.P.M.(England).

SIR,—I read your erudite article on the above-mentioned theme (September 3, p. 520) with considerable interest. I feel that never was there a time when various public bodies were so degree- and diploma-conscious as they are to-day, and seek to equate an impressive string of appendages to one's name with clinical prowess which may by no means be the case.

In this connexion is there not perhaps a surfeit of final qualifications? In a typical London medical school students are preparing for at least five different qualifying "finals"—those of the older universities, London University, the Royal Colleges, and the Society of Apothecaries. Matters are complicated by the fact that they are all held at different times of the academic year. I hinted in a letter published in 1947 that it might be worth having one qualifying examination, as is the rule on the Continent, and that it be held not more than twice a year so as to disturb as little as possible didactic continuity.

All clinical students work under the same chiefs, attend the same lectures and out-patient classes, and frequent the same ward rounds and operating lists, and yet are working for different examinations. I do feel that standardization of the finals is a very urgent academic reform which would be appreciated by clinical teachers throughout the country. When all is said and done, the actual standards of the various finals do not vary an enormous amount, as candidates take the same subjects in all cases. Perhaps the M.R.C.S. is a trifle stiffer than the B.S., and the obstetric examination of the Society of Apothecaries is probably the stiffest obstetric final of any qualifying body, owing to its process of elimination after the paper and *viva voce* parts of the examination.

All these finals make for bad feeling between students, the older universities tending to frown on London University and the university candidate feeling superior to those taking the various qualifying diplomas of greater historic origin.

I feel overseas visitors to Britain must be well-nigh bewildered by the long list of British medical degrees and diplomas offered by numerous academic bodies. Academic medicine could well be simplified.—I am, etc.,

J. B. GURNEY SMITH.

Epsom.

Tuberculosis: Certain Unexplained Mortality Figures

SIR,—Mr. Walter Elliot has drawn attention (August 6, p. 297) to the rise in the death rates for pulmonary tuberculosis in Scotland since 1939, and has invited suggestions for solving the problem.

Of the three possible types of causes for an increase in the death rate due to tuberculosis Mr. Elliot has mentioned environmental and bacteriological causes. A third group of causes for the increase in the death rate comprises those of a statistical nature. Apart from the effect of a rise in the age-specific death rate (civilians) for the age groups 15–34, due to recruitment of the healthier individuals, there is another type of statistical cause which may account for a good deal of the rise in death rates.

Not only can the depletion in the number of persons at risk in certain age groups and the resulting increase in the age-specific death rate push up the crude death rate, but an increase in the population at risk in the critical age groups, without a change in the age-specific death rates, can have the same effect on the crude death rate; and it is the crude death rates only with which Mr. Elliot's analysis is concerned.

That something of this type of cause is responsible for the increase in the death rate in question becomes apparent if we examine (1) the change of death rates due to tuberculosis with age, and (2) the change of the age structure of the population in Scotland within the relevant period.

(1) The highest death rates due to tuberculosis of the respiratory system for Scotland in 1945 are for males in the ages from 15–45, and for females from 15–34. We can get an idea of the age distribution of deaths due to tuberculosis by calculating the median age of death together with the interquartile range, giving the ages around the median age within which 50% of deaths due to tuberculosis occurred. For Scotland in 1945 we then find for males a median age of 38.3 with an interquartile range from 25.4–52.8, and for females a median age of 26.8 with an interquartile range of 19.5–33.0 years.

(2) The change of the age structure of the population of Scotland, on the other hand, can be epitomized by saying that Scotland has an ageing population. That is to say that the older age groups are becoming increasingly important. By "older" is here not meant only the age groups of the very old, say from 65 upwards; the ageing of a population is characterized by a relative increase of all age groups except those of infancy and childhood.

This can be visually demonstrated by using the concept of the so-called population pyramid (Crew, *Measurements of the Public Health*, p. 32). Looking now at the population pyramid for Scotland, we find an excess of persons in what has been shown above to be the most critical periods of death from pulmonary tuberculosis—i.e., from 15–55, males and females together. This must have the effect, by itself and even without an increase in the age-specific death rate due to tuberculosis, of pushing up the crude death rate due to tuberculosis, because the age groups for which the risk was greatest have now greater weight than in former times.

An explanation of this kind does not, of course, exclude a simultaneous rise in the age-specific death rates. It would, however, strengthen the argument put forward here if it could be shown that the change in the age-specific death rates during these years was less pronounced than that in the crude death rate. The Table gives the civilian death rate per 100,000 of the population at the critical ages from 1939–46.

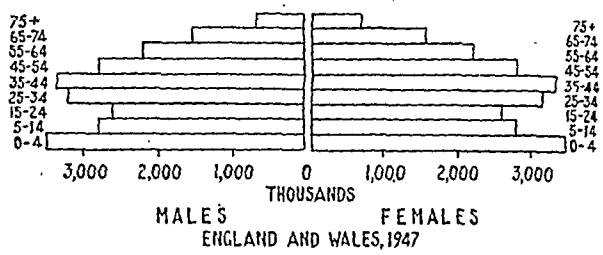
Age Groups		1939	1940	1941	1942	1943	1944	1945	1946
15–24	M	64	95	89	102	89	100	102	84
	F	102	111	134	142	143	143	124	137
25–34	M	82	114	129	114	136	132	142	94
	F	33	97	96	99	97	103	120	128
35–44	M	97	113	107	95	113	106	108	102
	F	48	52	53	51	51	53	42	53
45–54	M	106	125	115	112	110	102	101	119
	F	36	34	36	32	25	21	27	29

The features of this Table which would seem to confirm the explanation given above are, briefly:

(1) The age-specific death rates for the age groups 15–34 years, whose increase up to 1945 must no doubt be partly put down to the recruitment of healthy individuals from 1939 onwards, show for males in 1946 a surprisingly deep drop. Since this drop is not reflected in the overall death rate for 1946 it would seem to support the statistical explanation given here. Female death rates, however, in these age groups show no such drop, and we must assume some physical cause to be operative here.

(2) There is no consistent rise in the death rates for the age groups 35–54.

The question now arises why such an effect of an ageing population upon the death rate due to tuberculosis should be less pronounced for England and Wales, which, as is well known, have also an ageing population. The population pyramid for England and Wales for 1947 seems to provide the answer. The pyramid is based upon



ENGLAND AND WALES, 1947

the civilian population estimated for the middle of 1947 by the Registrar-General, males and females together, and is made symmetrical because I have not before me reliable figures for males and females separately.

The critical age groups, 15–35 years, present a very different picture in the two pyramids for England and Scotland. Whereas they are bulging out in the pyramid for Scotland, indicating greater weight in these age groups, they are receding in the pyramid for England and Wales. This means that the purely statistical cause for the increase in the death rate due to tuberculosis—viz., the greater weights of the critical age groups—would not operate in England.—I am, etc.,

Bristol, 8. G. HERDAN.

Myxoedematous Madness

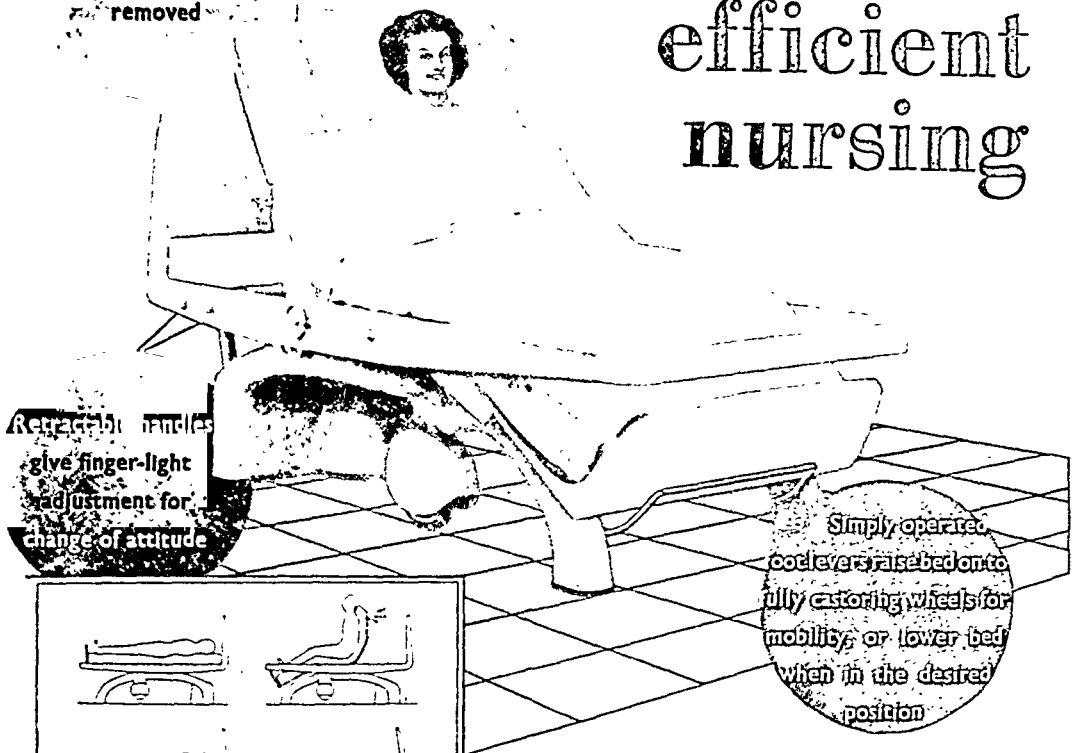
SIR,—Though some may find the title of "Myxoedematous Madness" (September 10, p. 555) euphonious or striking, it has in my mind the serious defect that it strongly suggests that a specific kind of psychosis due only to myxoedema exists. This possibility seems to be scouted in your annotation (p. 587), where you appear to support the suggestion that myxoedema only serves to precipitate latent psychotic illness. On the other hand, Dr. R. Asher, despite the wide range of psychotic symptoms which he ascribes to myxoedema, considers the myxoedema to be the basic cause of psychosis in his 14 patients, and infers that the pattern of psychotic disorder can also be ascribed to myxoedema. Further than this, and apparently on account of his observation of these 14 cases, he suggests that all the common psychoses have a similar underlying cause in that they are determined by organic disease.

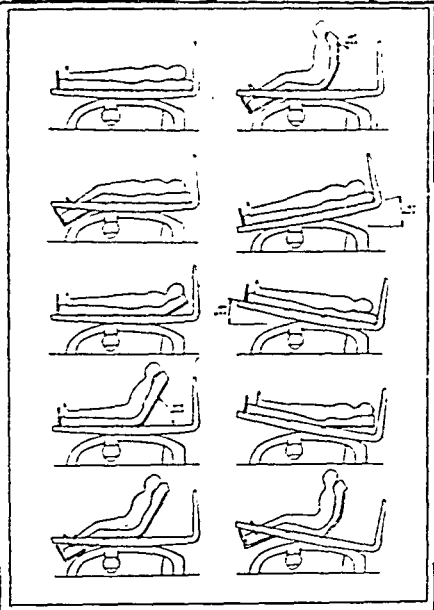
Let us all thank Dr. Asher for telling us that a frank psychosis may occur in association with myxoedema, and for describing so lucidly his findings in 14 cases. I shall now hope to earn the gratitude of the profession by pointing out that the average doctor must also be on his guard against the occurrence of psychosis in association with any physical disease: I shall further try to gain thanks by showing that this association does not necessarily imply that one disease is the cause of the other.

In a city of about 150,000 female inhabitants, all but a negligible number of psychotics were admitted to one hospital. In three years five cases of myxoedema with psychosis were seen: the incidence in that period is thus about 1.1 per 100,000 per year of the total female population in that city. Of these cases one could best be described in Zondek's words, "mixed thyroidism," as she showed clinical signs of Graves's disease, myxoedema, and melancholia; two were cases which developed after partial thyroidectomy; the other two cases were straightforwardly myxoedematous. All the patients suffered from melancholia, none was cured by thyroid alone over a prolonged period—although this proves nothing—and all required electroplexy. Two patients in particular showed projected delusionary formations and other paranoid trends, but a study of the psychopathology showed clearly that these means of discharging tension were secondary products of a melancholic state.

I do not know the incidence of myxoedema among the general population, but I would suggest that psychosis with myxoedema in women is not more common than one would

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2. No uterine cramps, suggestive of block of the uterine flow or damming back into the tubes were reported in any case of this series.

3. No bladder irritation was reported.

4. The average number of tampons used in a period was ten.

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expect it to be, with the knowledge in mind that: (1) myxoedema occurs most often (78% of all adult cases) in women between 30 and 50; (2) most cases of female melancholia occur between these ages, with the peak at 45; (3) myxoedema is a "trigger" *par excellence* in causing stress. It has objectionable effects in itself, and it often causes the members of the sufferer's family to lose patience with her and bully her.

With this experience in my mind, I find Dr. Asher's opening sentence to be much exaggerated in two particulars—namely, "Myxoedema is one of the most important . . . and one of the most frequently missed causes of organic psychoses." I cannot think it anything but misleading, in the present state of our knowledge, to call it an organic psychosis. That psychosis with myxoedema is little known and that little is written about it I would ascribe primarily to its relative infrequency, and secondarily to the general ignorance of certain physicians of psychiatric states. Lack of knowledge is daily demonstrated of, for example, mental change associated with hyperthyroidism, rheumatism, alimentary disease, epilepsy, cardiac disease, and other pathological states too numerous to mention. For this I do not blame them but the medical schools and their psychiatric colleagues: though to be sure a physician would not be ill advised first to consult colleagues before he rediscovered something forgotten in the field of psychiatry.

It is undeniable that Dr. Asher has rendered a valuable service in reminding us of the occurrence of psychosis with myxoedema, and in giving us such interesting and illuminating descriptions and photographs. I sincerely hope, with everyone else, that those of us who are undoubtedly missing cases of myxoedema, with or without psychosis, will successfully bear these thoughts in mind. At the same time I believe he has done much to spoil his good work by coming to certain conclusions, which he has stated, without adequate evidence to support them. In fact I consider these conclusions to be retrograde and founded upon a prejudice—that same prejudice which has sent thousands of workers in a fruitless, endless search, like the search for the philosopher's stone, for the physical causes of schizophrenia, paranoia, and the affective psychoses, while they ignored the gold of psychopathology which was theirs for the trouble of a few questions.

In conclusion, Sir, may I remark, apropos your annotation, that the mental symptoms of myxoedema are not of the same nature as those of senile deterioration?—I am, etc.,

Sutton, Surrey. E. B. DAVIES.

Myxoedema and Basal Metabolism

SIR,—Errors in estimating the basal metabolism can probably account for the statement made by Dr. R. Asher (September 10, p. 555): "I have seen many cases of myxoedema with normal or raised B.M.R."

Observations and determinations on many cases of frank and of so-called masked myxoedema, using the surface area measurements and Aub-DuBois standards, amply confirm the views of such an authority as Dr. J. H. Means[1]: "The failure to find a metabolic level as low as minus 35 when the clear-cut picture of myxoedema is present is very unusual." When the myxoedema is not clear-cut clinically I have found the specific action of thyroid on the basal metabolism of value.[2]

Many errors of a technical nature can arise in estimating a basal metabolism, and it is unfortunate that the final result of plus or minus a certain figure should only be looked at and accepted as being necessarily accurate.

In the same way a case of diabetic coma with a reported blood sugar of 90 mg.% in the first instance should not be recorded as an unusual case of diabetes, nor should blood sugars be considered of no value in diagnosing this condition. It seems more reasonable to suspect an error in the blood sugar determination.—I am, etc.,

London, W.1. J. DOUGLAS ROBERTSON.

REFERENCES

1 Means, J. H., *The Thyroid and its Diseases*, 1948, p. 214. Philadelphia.
2 Robertson, J. D., *Ann. roy. Coll. Surg. Eng.*, 1949, 4, 3.

Sensitivity to Streptomycin

SIR,—The following brief particulars about two nurses who are sensitive to streptomycin may be of interest and help to others in hospitals where similar difficulties are being encountered.

A male nurse frequently got puffiness round the eyes and a vesicular dermatitis, especially on the arms, when working on a tuberculosis ward where streptomycin is used in moderate quantities, and his allergic manifestation occurred even when the nurse did not himself administer streptomycin. At first some doubt was entertained whether it really was streptomycin that was responsible. A patch test with 1:1,000 streptomycin produced no conclusive evidence and no local erythema developed at the site of the test, but when an intradermal test was used by means of 25 mg. streptomycin in 0.1 ml. of sterile water the allergic reaction was immediate and alarming. This was a general reaction, with no local erythema at the site of the injection: there was widespread vesicular dermatitis, subcutaneous oedema, and puffiness of the eyes.

The other nurse was sensitive to a much milder degree. Her patch test also gave no local reaction, but following 25 mg. of intradermal streptomycin a similar allergic reaction of much milder nature followed several hours afterwards.

The points that have emerged from this experience are that a nurse may exhibit sensitivity to streptomycin even though care has been taken to avoid handling the drug; that intradermal sensitivity tests to streptomycin may result in an alarming allergic reaction; and that the local reaction may be negative even though the general one is obvious. This disadvantage of streptomycin may be rare, but when it occurs is hard to mitigate or prevent. This note is written in the hope that by reporting experiences some way of protecting persons sensitive to streptomycin may be found. I am indebted to Dr. P. S. Feeny and Dr. A. D. Porter, visiting dermatologists, for advice.—I am, etc.,

Braintree, Essex. M. C. WILKINSON.

Pavlov and Conditioned Reflexes

SIR,—From my school days upwards I have been familiar with the maxim *De mortuis nil nisi bonum*. Yet Professor E. D. Adrian's article and your leader (September 10, pp. 553, 584) fail, in my opinion, to draw adequate attention to the immense amount of harm and confusion of thought which have resulted from Pavlov's doctrine of conditional reflexes.

Pavlov introduced the term "conditional reflex" in a paper entitled "Experimental Psychology and Psychopathology in Animals" read before the International Congress of Medicine in Madrid in April, 1903. The term "conditional," though adhered to in French and German translations, was altered in English and American translations to "conditioned," and the curse thereof remains with us even unto this day. True, Pavlov did excellent work on the physiology of the digestive system, for which he was awarded a Nobel prize, but he was no psychologist. His co-worker, Professor Y. P. Frolov, records that Pavlov fined any laboratory attendant who dared to suggest that the subjective or mental state of a dog might influence its reactions to the food it was offered. To Pavlov everything (love, hate, jealousy, and fear) was explicable in terms of reflex. He even wrote about a "reflex of freedom," and so on and so forth. Yet later he was forced to admit that animals proved susceptible to suggestion. His experimental dogs were kept in unnatural seclusion more rigid than any solitary confinement in prison, and psycho-analysts have never so isolated their patients during treatment as did Pavlov his dogs.

Were it not that the mistakes men make—even great men—often live after them one might henceforth for ever hold one's peace; but lesser lights have so used and abused Pavlov's work as to confuse issues and offer foolish explanations of phenomena that I feel constrained to utter protest. For instance, in my specialty I have come across the so-called conditioned reflex treatment of alcoholists. The punitive and disgust factors in this treatment are all too obvious, and if drastic punishment were able to cure the offender here, surely, should be an example of it. Yet unless the underlying motivations of this or any other line of misconduct be got under control no permanent readjustment can be effected. This is slowly becoming apparent even to those who engage in the treatment just mentioned.

to mobilize the quiescent stores of fat in the body and the tissue fluids. Restriction of liquids is especially important to secure dehydration. The effect can be observed when a dry diet is prescribed. The "eat as much as you like" does not apply to the liquids.

An advantage of this sort of diet is that the circulation is stimulated as a result of increased tissue metabolism. The system is obliged to make up the lack of the substances missing by its own stores, mobilizing alternately fat, carbohydrates, or proteins. Providing and preparing the necessary dishes is simple and control is easier. This is important, because hearty eaters are as prone to cheat as drug addicts. It is a well-known fact that patients on controlled diet in hospitals or nursing-homes lose much more weight than those who try to keep on a diet at home. It is not necessary to measure calories, but it should be kept in mind that reducing diets below 1,000 calories are only possible if the patient is kept in bed, and at around 1,500 calories it is absolutely necessary to avoid depletion of vitamins by supplying the daily amount in the form of suitable preparations.

If a weekly loss of about four pounds is achieved for a few weeks the "zigzag" diet may be stopped and replaced by the one recommended by Marriott.—I am, etc.,

Budapest. EMERIC DOMANY.

Weight Changes in Pregnancy

SIR,—Under "Notes and Comments" (August 6, p. 346) reference was made by Dr. F. R. Kinkead Allen to an article written by Dame Louise McIlroy and myself (*J. Obstet. Gynaec. Brit. Emp.*, 1937, **44**, 221). This reference was that in 1,000 cases the average total gain in weight among primiparae was 11 lb. 3 oz. (5 kg.) and for multiparae it was 11 lb. 7 oz. (5.2 kg.). It was not stated over what period of pregnancy the observations for these weight gains were made. Reference was also made to Chesley's article on weight changes (*Amer. J. Obstet. Gynec.*, 1944, **48**, 565), but the period of pregnancy during which these observations were made was also omitted.

Your readers might be interested to know that our records were made during the last 16 weeks of pregnancy, while Chesley's covered the last six months. In our series of 1,000 cases the average weight gain was 11 lb. 4½ oz. (5.1 kg.); in Chesley's series the figure was 23.5 lb. (10.6 kg.).

The results of another investigation carried out by one of us during the war on weight changes in pregnancy and infant birth weight are shown in tabular form below.

Average Weight Gains in Pregnancy and Birth Weights of Infants

	Average Total Gain in Weight in Pregnancy				
	For 704 Primiparae		For 296 Multiparae		For 1,000 Cases
Pre-war period: From 24th week of pregnancy*	11 lb. 2 oz. (5·05 kg.)		11 lb. 7 oz. (5·19 kg.)		11 lb. 4½ oz. (5·12 kg.)
	For 547 Primiparae		For 312 Multiparae		For 859 Cases
War period: From 20th week of pregnancy†	14 lb. 6 oz. (6·525 kg.)		12 lb. 15 oz. (5·868 kg.)		13 lb. 14 oz. (6·294 kg.)
	Average Weight of Babies in the Above Cases				All Infants
	Female	Male	Female	Male	
Pre-war period	6 lb. 15 oz. (3·144 kg.)	7 lb. 4 oz. (3·29 kg.)	7 lb. 5 oz. (3·318 kg.)	7 lb. 6 oz. (3·346 kg.)	7 lb. 5 oz. (3·318 kg.)
War period	7 lb. 4½ oz. (3·304 kg.)	7 lb. 6 oz. (3·346 kg.)	7 lb. 8 oz. (3·402 kg.)	7 lb. 11½ oz. (3·5 kg.)	7 lb. 7½ oz. (3·388 kg.)

* These analyses were made from the case notes of patients attending the antenatal clinics of the Royal Free Hospital, London, and Thorpe Coombe Maternity Hospital, Walthamstow, London.
† Thorpe Coombe cases only.

—I am, etc.,

London, E.17. HELEN E. RODWAY.

Manipulation for Rheumatism

SIR,—The relation of fibro-fatty nodules to "rheumatic" syndromes, discussed by Dr. W. S. C. Copeman in his Hunterian Oration (July 23, p. 191), and the suggestion by Tegner and others (July 23, p. 201) that some rheumatic cases are of psychological origin, may distract attention from the fact that many rheumatic diseases respond favourably to manipulation and that most cases of low backache and allied diseases do so either temporarily or permanently, and are therefore probably of articular origin.

A series of 152 consecutive cases of low backache and allied diseases seen by me in the past year has yielded the following results:

Not manipulated		26
Manipulated		126
Result unknown	16	
Complete abolition of symptoms	39	
Good result with few residual symptoms	41	
Abolition of symptoms with recurrence later	25	
Manipulation failed	5	

No anaesthetic is required for this manipulation, which appears to act on the sacro-iliac joint, and is carried out as follows: (1) The patient lies on his back on the floor, with the hip and knee of the affected side each flexed to a right-angle. (2) The operator lifts the knee so that the buttock of the affected side is raised from the ground and maintains this position for a few seconds. The patient should now be free from pain. (3) The patient rolls away from the operator, who continues to lift the knee, so that the patient is lying on his sound side with the hip just clear of the ground. (4) A light blow is now delivered by the knee of the operator to the region of the greater trochanter of the affected side. In a bilateral case both sides should be manipulated.

The principle of this manipulation is that, with traction applied to the flexed and abducted hip, the innominate bone shall be driven forwards. It has been instructive to observe that the "fibrositic," neurological, psychological, and visceral symptoms present in many of these cases have abated or disappeared once the low backache has been dealt with in the manner described.—I am, etc.,

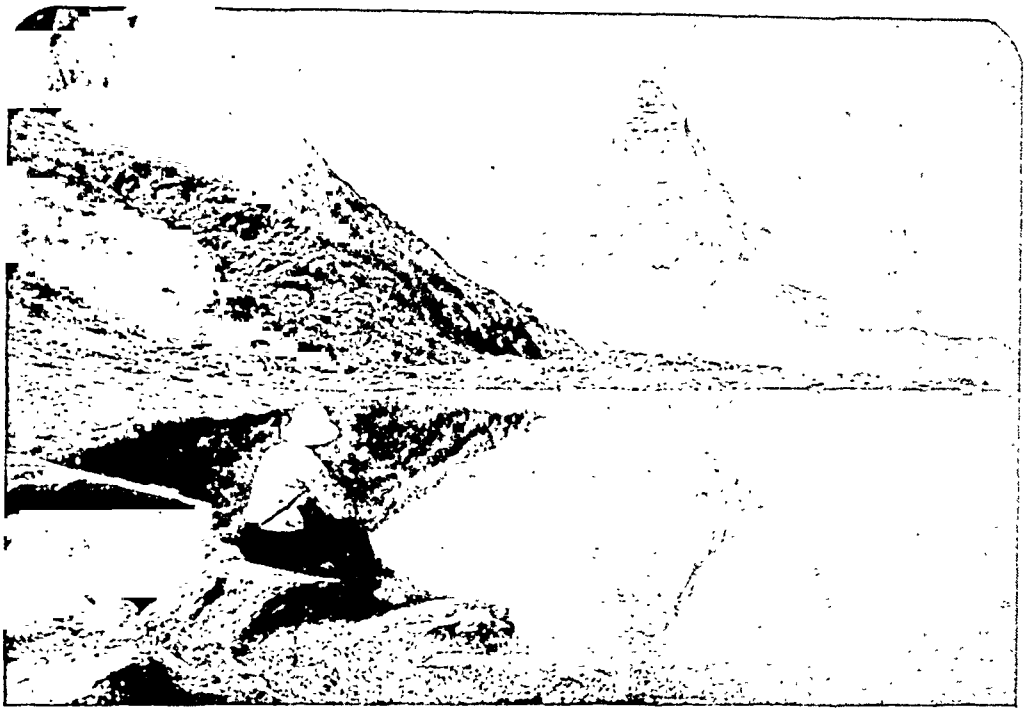
Lowestoft. N. B. EASTWOOD.

Psychogenic Rheumatism

SIR,—The article on psychogenic rheumatism by Drs. W. Tegner, D. O'Neill, and A. Kaldegg (July 23, p. 201) invites criticism. The diagnosis is in the main based on negative criteria—i.e., absence of physical signs. It is, however, clear that negative criteria are not a reliable guide to diagnosis. At the Seventh International Congress on Rheumatic Diseases at New York two Oslo physicians, Professor H. Seyffert and Dr. Monichen, expressed their conviction that the diagnosis "psychically conditioned pain is usually the indication of the doctor's inability to detect the organic cause of the pain in question." I wonder whether according to the followers of psychogenic pain the neuralgia of the fifth nerve, which has no pathology, would be considered as belonging to the same category of syndromes.

Another pertinent question is, What are the physical signs of ordinary or common "fibrositis" (non-articular rheumatism)? The diagnosis is, as a rule, based on tenderness to pressure, a subjective phenomenon which does not appear to differ very much from the tenderness due to skin hyperaesthesia which was found by the authors as "a typical reaction to examination." Or do the authors imply that every case of fibrositis is psychogenic, as maintained by Dr. J. Cyriax[1]?

In my opinion and experience psychogenic pain does not exist. In our world there is only one reality—that which exists in our minds. Hence the patient may rightly claim that the pain and sufferings he or she feels are very real indeed. I by no means deny the well-known fact that pain may be elicited or aggravated by psychological factors, but none the less it is real and somatically conditioned. There are no separate tight compartments of mind and body, which influence and depend on each other. I think it is true to say that the mind governs the body and the body governs the mind.



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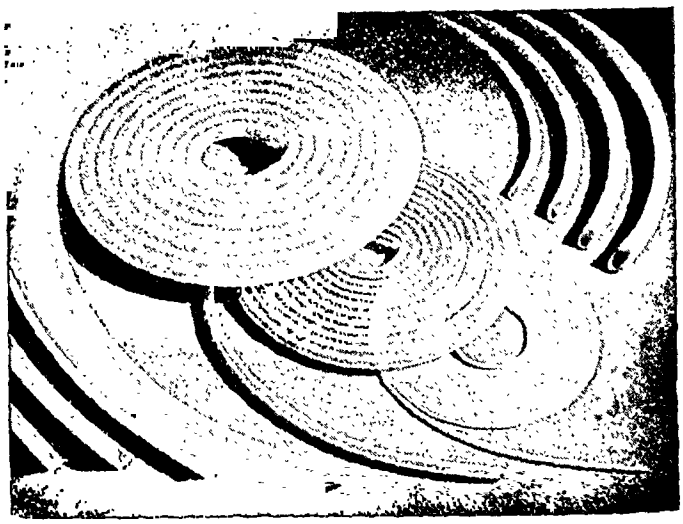
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According to the general theory developed by the writer[1-3] pain is due to a relatively diminished blood flow, probably by reason of pathological local vasomotor-autonomic imbalance in the affected parts. I am pretty certain that a doctor who happens to suffer from rheumatism would be very chary of diagnosing psychogenic pain *in himself*. Doctors have been accustomed to look on a patient from the point of view of diagnosis and therapy only. But I often feel it would be very useful and interesting to picture in our minds what the disease looks like when seen from the patient's viewpoint.

I have examined many a patient diagnosed as suffering from psychogenic pain, imaginary disease, etc., in whom the diagnosis of rheumatic or idiopathic myalgia could be ascertained by objective criteria and who could be relieved and helped by appropriate treatment. Why follow the deceptive will-o'-the-wisp of psychogenic rheumatism, imaginary disease, or the conception of "fibro-fatty tissue" in new rheumatic syndromes if the modern methods allow us to ascertain or exclude rheumatic myalgia with certainty by objective criteria? The apparently new fashion of coining and describing more and more syndromes has already led to confusion in rheumatism. It is time, I think, to return to a unitary disease—i.e., rheumatic myopathy—responsible for non-articular and articular rheumatism. It seems certain that in science progress depends largely on simplification of terms and conceptions.—I am, etc.,

London, N.W.11. M. G. GOOD.

REFERENCES

1 *British Medical Journal*, 1948, **2**, 251.
2 *Med. Pr.*, 1949, **221**, 171.
3 *Acta med. orient., Tel-Aviv*, 1949, **8**, 33.

Conceptions of Right and Wrong

SIR,—Dr. Frederick Dillon (August 27, p. 485) seems to have been somewhat misled as to the degree of "guilty knowledge" (*mens rea*) inferred by the word "wrong" as used in the M'Naghten rules, and has come to the unhappy conclusion that as a result of the reference made by Sir Hartley Shawcross to it in the recent Haigh trial it has been given two distinct interpretations. This is not so.

The rule as to criminal liability of persons afflicted with insane delusions is based on the answers of the judges given to the House of Lords extra-judicially in consequence of M'Naghten's case in 1843. One of these answers (the first) accounts for the question put by Sir Hartley in Haigh's case. "The party accused . . . is punishable according to the nature of the crime committed, if he knew at the time of committing such crime that he was acting contrary to law" (i.e., the law of the land).

Let us now pass to the third answer given by the judges, which clearly deals with the point upon which your correspondent appears to be a little confused. " . . . To establish a defence on the ground of insanity it must be clearly proved that at the time of committing the act the party accused was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing (this refers to the physical character alone), or, if he did know it, that he did not know he was doing what was wrong. The mode of putting the latter part of the question to the jury on these occasions has generally been whether the accused at the time of doing the act knew the difference between right and wrong, which mode, though rarely if ever leading to a mistake with the jury, is not as we conceive so accurate when just put generally and in the abstract as when put as to the party's knowledge of right and wrong in respect of the very act with which he is charged. If the question were to be put as to the knowledge of the accused solely and exclusively with reference to the law of the land it might tend to confound the jury by inducing them to believe that an actual knowledge of the law of the land was essential in order to lead to a conviction, whereas the law is administered upon the principle that everyone must be taken conclusively to know it without proof that he does know it. If the accused was conscious that the act was one which he ought not to do, and if that act was at the same time contrary to the law, he is punishable; and the usual course, therefore, has been to leave the question to the jury whether the party accused had a sufficient degree of reason to know that he was doing an act that was wrong."

I think this will afford the authoritative explanation of the meaning of the word "wrong" which Dr. Dillon requires.

Sir Hartley Shawcross at the Haigh trial referred to the word "wrong" in its strict sense as being contrary to the law of the land. It is, however, sufficient that the accused is capable of distinguishing between right and wrong, *irrespective of* whether he appreciates that the "wrong" amounts to a criminal offence, for *ignorantia legis excusat neminem*.

The point is, did the accused at the time he committed the act know that he was doing something which was wrong? The fact that it should also amount to a crime is the reason why he is before the court and the M'Naghten rules are applied at all. If it was merely an act which was morally wrong but not contrary to the law of the land, then these rules could have no application, for the question of criminal proceedings would not arise.—I am, etc.,

Lincoln. J. E. WILSON.

Paddington Green Children's Hospital

SIR,—The Paddington Green Children's Hospital is to be closed down. I think that this news should be widely spread, and I ask you to allow me to give my personal view of this, which I consider to be a tragedy.

The following general facts should be advertised, if only that they can be corrected if wrongly stated. After the war the idea was spread around that the small hospitals would not survive unless they got under the wing of larger institutions. Reluctantly, Paddington Green allowed itself to be taken over by St. Mary's, with which teaching hospital it had always been on the friendliest terms. Since it was taken over there has been a happy experience of co-operation between the parent and the adopted child. Subsequently St. Mary's took over other hospitals, including the Princess Louise Hospital for Children.

Suddenly the St. Mary's Hospital Board announced its intention of destroying Paddington Green and of using its walls as the basis for a new wing for the care of adult skin and throat cases. In the printed statement (marked "confidential" for some reason not given) it is made clear that regional needs are not under consideration, but only the needs of St. Mary's as an undergraduate teaching hospital. Apparently someone at St. Mary's has blundered, and more children's beds have been taken over than are specified as minimum requirements in the Goodenough Report. The board's way out is to destroy one of the two children's hospitals adopted and so make the numbers of skin and throat beds add up nicely. No mention is made of out-patient and casualty needs.

This state of affairs must surely interest the profession and also the general public. The teaching of medical students is apparently a matter of compliance with the Goodenough recommendations, and it is not a matter of letting students feel that the direct needs of the public are also important.

It is not for us to praise our own hospital, but who will defend it if we do not do so? I personally think that mothers and children get excellent service at Paddington Green, and 39,000 mothers bring their children to the hospital every year. No alternative provision whatever is to be made for these mothers. Certainly these 78,000 persons (mothers and children) cannot be wanted in the terribly overcrowded out-patient department at St. Mary's.

As my specialty is towards the psychological side, I can perhaps say that the physical paediatrics practised by my colleagues is as good as any. Moreover, the parents and children are treated as human beings. Any children's hospital is a very specialized affair. The matron, the nurses, the dispenser, the almoner, the telephone girl are all there because mothers and children interest them. The special departments are adapted to the handling of parents and children. Such an institution cannot be created suddenly. Paddington Green has been 80 years in the making. Many of the parents came to the hospital when they were children themselves. Locally, a children's hospital has a value even when it is not used, as a

place that is known and that can be used in case of doubt or emergency.

It seems to me that it is a disgrace and a very irresponsible thing that a teaching hospital board should come to a decision like this without reference to local out-patient needs. I feel that if the scheme is carried through the reputation of St. Mary's will suffer for a long time, both locally and generally in the profession.

I am near enough to the end of my service to Paddington Green to be able to publish my personal view without its being thought that I am just annoyed about my personal loss. As a matter of fact I do feel annoyed and insulted—in fact, we have all been stunned. This was one of those things that could not happen, the destruction of a good thing and for a paltry reason.

There seems to be no way of getting this matter brought into the open except in your invaluable correspondence columns.—I am, etc.,

London, W.1. D. W. WINNICOTT.

Princess Tsahai Memorial Hospital

SIR,—May I ask for the hospitality of your columns to inform your readers that the building of the Princess Tsahai Memorial Hospital in Addis Ababa is now complete : 85% of the necessary £100,000 has been raised, and two-thirds of the interior equipment has been shipped. The appeal committee wishes to order the remaining equipment, and I appeal strongly to the generous British public to assist in raising the £15,000 still necessary to bring this worthy project to fulfilment. High hopes have been raised of services to be rendered by the hospital, more especially because it will be feasible to attach to it a nursing and midwives' training school (for which funds are in sight) and eventually a medical school.

The late Princess Tsahai was a noble-spirited girl who died at 23 after giving five years' devoted service in British hospitals during the late world war. One of her matrons wrote that she possessed "patience, loyalty, gentleness"; another described her as "gentle and dignified." Her father, the Emperor Haile Selassie, earned respect and admiration for his courage and bearing from all who met him in his days of adversity. His interest is deeply engaged in seeing the hospital at work.

Cheques and postal orders will be very gratefully received by the honorary treasurers of the appeal committee, Lord Horder and Lord Amulree. They should be drawn in favour of the Princess Tsahai Memorial Hospital and sent to the honorary treasurers, care of Messrs. Gould and Prideaux, the honorary accountants, at 88, Bishopsgate, London, E.C.2.—I am, etc.,

House of Lords WINSTER.

POINTS FROM LETTERS

Marking Gas Cylinders

Mr. K. C. WARD (Loughborough) writes: It is strange that no one has yet found a simple expedient for the distinguishing of gas cylinders that could be adopted universally. Surely it would not be too big a drain on the financial resources of the National Health scheme for the Minister to provide every hospital with a supply of paint transfers. One of the pharmaceutical staff could then be responsible for marking each cylinder by means of the transfers with the name of the contents, and this would ensure that even though the paint round the neck of the cylinder was chipped, destroying any easily visible marking, some alternative means of ready identification would be there. It really is distressing to read of these by no means uncommon fatalities due to confusion of gas cylinders.

Anterior Poliomyelitis and Herpes Zoster

Dr. COLIN GRAHAME (Boreham Street, Sussex) writes: Some features of similarity in these two diseases should be worthy of consideration at the present time. Although it is said the viruses of the two affections are distinct, it would be interesting to learn if herpes zoster has become more common during the last 30 years. I am of the opinion that some points of similarity are sufficiently significant to suggest that herpes zoster should be a notifiable disease, at least temporarily until statistical records could be compared. . . . The vanguard of success in mastering anterior poliomyelitis is still observation, and its association in relation to other diseases is very important. It is also time that the designation of infantile paralysis was discarded for that of "infectious paralysis."

Obituary

H. H. MOLL, M.D., F.R.C.P.

Dr. Henry Moll, senior physician to the United Leeds Hospital, died suddenly at Leeds on September 8 at the early age of 53. He was born in Milan in 1896. His father, who lives in Milan, was born in Lyons, and his mother, who died young, belonged to a Scottish family which for several generations has divided its life between Edinburgh and Leghorn.

Henry Henderson Moll received his early education in the Lyceum at Milan, and he began his medical course in the University of Pavia. His studies were interrupted by the first world war, in which he served as a medical student, with the rank of sergeant. He concluded his medical studies in Rome and obtained the M.D. of this university with the highest honours. He came to England in 1920 and immediately applied himself to intensive study at St. Bartholomew's Hospital and at the West London Hospital. Dr. Moll came to Leeds in 1922 as a resident officer at the General Infirmary, Leeds.



He took the Leeds M.B., Ch.B. in 1925. His breadth of experience and great industry were soon recognized, and he was appointed an assistant physician to the hospital. By the time of his tragically early death he had reached the highest position on the medical staff of the General Infirmary. Throughout the war he worked at the Pinderfields Emergency Hospital at Wakefield. He remained on the staff of this hospital, and at the time of his death he was absorbed in the creation of a hospital school for asthmatic children there.

Dr. Moll preserved throughout his professional life a great interest in asthma and diseases of the chest. He wrote an important study on bronchiectasis, which has been often quoted. He was in charge of an asthma clinic and research unit for many years at the General Infirmary, Leeds, and he was an advisory member of the Asthma Research Council. His great interest in allergy found expression in the support he gave to the newly founded British Association of Allergists; shortly before his death he attended a general meeting of this association at Cardiff and made a valuable contribution to a discussion on the treatment of bronchial asthma. On this occasion he was invited to allow his name to go forward for election as a member of the council of the association. Dr. Moll will be remembered by generations of students of the Leeds School as a fine teacher, careful in preparation, precise and sometimes a little dogmatic in the presentation of his theme. Students remembered what Dr. Moll had told them and always found it possible to apply this knowledge in practice. Moll himself was a fine embodiment in our own times of the practice of past centuries when there was an interchange between English universities and the classical universities of Italy, the oldest in Europe.

A reserved person who became for those who knew him a most warm and genial spirit, Dr. Moll's courtesy and

gentleness were graces which his friends will never forget. His interests outside medicine were in music and painting, and nothing gave him more delight than the work of Cesca, his wife, an artist of distinction. He was devoted to his family. To his wife and four children, the eldest of whom is 12, the sympathy of all who knew him will be extended.—G.W.B.

JOHN GERRIE, F.R.C.S.Ed.

Mr. John Gerrie died suddenly on July 4, in Harrogate, while attending the Annual Meeting of the British Medical Association. The announcement of his unexpected death at the early age of 41 seemed almost incredible, for with his burly and robust figure he seemed the embodiment of health and fitness. An Aberdonian by birth, he was educated at Robert Gordon's College and graduated M.B., Ch.B. with honours at the University of Aberdeen in 1930. His undergraduate career was a distinguished one, and he was awarded many medals and prizes, particularly in the field of surgery. Immediately after graduation he was for a time assistant in the department of anatomy under Professor Alexander Low, thus laying a secure foundation for the specialty to which he was later to devote himself, and acquiring a training in morphology and embryology which was reflected in his later published work. There followed a series of resident hospital appointments at Queen Mary's Hospital, Stratford, at the Central London Throat Hospital, and at the Manchester Ear Hospital. Although his bent was already towards otolaryngology, he wisely decided to spend some time in general practice, and for some three or four years he practised in partnership in Greenwich. In 1934 Gerrie obtained the F.R.C.S.Ed., and shortly afterwards he was appointed assistant surgeon in the ear, nose, and throat department of Aberdeen Royal Infirmary. In addition he held appointments at the Royal Aberdeen Hospital for Sick Children and at the municipal hospitals. He rapidly built up an extensive practice, and some three years ago he became full surgeon in charge of his department and was appointed lecturer in diseases of the ear, nose, and throat in the university. During the war years his work was extremely onerous and taxed his strength severely, and not until the end of the war was he able to resume his research work.

By his medical colleagues, by his students, and by his patients John Gerrie will be remembered not merely for his skill in his specialty but perhaps still more for his sterling qualities as a man—for his friendliness, his sense of humour, and above all for his kindness. From his experience in general practice he had learned much, and in his work he spared himself neither time nor trouble to ensure the comfort, both mental and physical, of his patients, and especially of young children. This quality was very clearly seen in one of the earliest papers which he published on basal narcosis for tonsillectomy in children. To this problem he gave much time and thought in an endeavour, happily successful, to make the operation of tonsillectomy in children less of an ordeal to the small patient. Perhaps his most important paper was that on the phylogeny of the mammalian tympanic cavity and auditory ossicles, published in 1948, in which the influence of his earlier anatomical training comes out clearly, and which forms a valuable contribution to our understanding of the tympanic cavity and its development. In his scanty leisure his main interests and hobbies were in art and music, in the former of which he had considerable talent, as shown by the fact that the illustrations in the paper referred to above were from his own drawings.

His students, with whom he was on the friendliest terms, have placed on record a few sentences from one of his own lectures which exemplify his attitude to his life and to his work: "To win a child's confidence is half the battle. One must come down to its level—no difficult thing for me." Therein lay his success, for to the end of his tragically short life he retained a certain quality of boyishness which was one of his most engaging qualities and to which children instinctively responded. He could become one of them without side, self-consciousness, or condescension. In his relations with his hospital colleagues Gerrie was equally happy. In many ways he was typical of the land in which he was bred and of the university in which he was trained, for with few initial advantages he had made his way in his profession by dint of his conscientiousness, his natural ability, and his capacity for sustained work.

His life was summed up in his home and in his work, in both of which he was supremely happy. Only two years ago one remembered the joy and happiness of his wife and himself in the birth of their twin children—a son and a daughter. To his widow and his young family the sincere sympathy of his many friends and colleagues is extended in full measure.—A.G.A.

DR. ANNIE DOROTHEA SYMONS died suddenly on August 18 at her home in Bournemouth at the age of 59. She intended to be a medical missionary, and her fees at the Royal Free Hospital, where she qualified in 1924, were paid by a missionary society. However, after qualifying she was never fit enough to pass the necessary medical examination. She went to Bridgwater General Hospital as a house-surgeon, and later she took over a practice which became vacant in Bournemouth. Working from a small, noisy house on the main road in Boscombe, she built up a very large practice. Dr. Symons had great personal charm, keen intuition, and clinical insight, and she won the affection and confidence of all. Her acts of kindness to her patients extended far beyond her medical obligations. In March, 1948, Dr. Symons had a serious operation and knew that there was no hope of recovery. She was never able to return to full work, but did all that her strength would allow right up to the end. Her calm acceptance of the position and her courage, humour, confidence, and happiness in the last days of acute physical distress were an inspiration to her colleagues and friends.

Universities and Colleges

UNIVERSITY OF BIRMINGHAM

The opening ceremony of the new session of the Faculty of Medicine will take place in the Nurses' Recreation Hall, Nuffield House, Queen Elizabeth Hospital, on Tuesday, October 4, at 3 p.m., when the Lord Archbishop of Canterbury, P.C., D.D., D.L., will distribute the prizes awarded for the session 1948–9 and deliver an address to students. Past and present members of the Medical School are invited to attend, and tickets may be obtained from the Sub-Dean, the Medical School, Birmingham, 15.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At a meeting of the Royal Faculty of Physicians and Surgeons of Glasgow held on September 5, with Dr. W. R. Snodgrass, president, in the chair, the following candidates were admitted Fellows of Faculty *qua* Physician: J. B. Barr, A. J. MacK. Campbell, R. Fife, W. M. Fyfe, S. C. Ghosh, J. T. Hutchison, A. C. Kennedy, A. W. Lees, R. F. Maggs, A. G. Melrose, G. A. V. Ribeiro, Irene P. Rowlands, R. S. Singh, T. J. Thomson, G. F. Walker. The following were admitted Fellows of Faculty *qua* Surgeon: A. El H. Bayoumi, A. K. Brown, H. McC. Carson, G. A. Clark, H. B. Crum, F. G. Day, J. S. F. Hutchison, J. Lockie, I. R. McCaul, J. R. Macintyre, A. Mellick, P. S. Olivier, F. Riggall, P. L. Rishi, D. J. Toomey, W. F. Toomey, H. B. Watson.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended September 3. [No. 35

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949					1948 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	25	5	13	—	—	29	3	19		—
Deaths		—	—				—	—		
Diphtheria	53	8	23	2	7	105	7	46		2
Deaths	1	1	—	—	—	2	—	1	—	—
Dysentery	98	7	75	1	1	64	4	41		1
Deaths				—	—				1	—
Encephalitis lethargica, acute	2	—	—	—	—	1	—	1		—
Deaths		1					—			
Erysipelas			18	7	—			27		1
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				159						
Deaths	18	—	6	11	1	28	—	5	4	1
Measles*	1,168	92	39	63	20	2,962	120	19		48
Deaths†			—	—	—			—	—	—
Ophthalmia neonatorum	46	6	12	—	—	42	3	7		—
Deaths										
Paratyphoid fever	30	2	2 (B)	4 (B)	—	11	—	1 (B)		—
Deaths	—	—	—	—	—	1	—	—	—	—
Pneumonia, influenzal	216	6	—	3	3	246	9	4		—
Deaths (from influenza)‡	2	1	—	—	1	—	—	1	—	—
Pneumonia, primary			100	12				115		
Deaths	83	13		9	7	104	18		2	2
Polio-encephalitis, acute	19	2				3	—			
Deaths										
Poliomyelitis, acute	289	41	11	2	—	70	7	5		—
Deaths§	10	1				2	—			
Puerperal fever		—	4				—	18		—
Deaths										
Puerperal pyrexia‖	108	13	11	—	—	94	2	11		—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	701	71	127	69	51	734	34	175		37
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—		—
Deaths				—	—				—	—
Typhoid fever	9	2	—	—	1	9	—	24		—
Deaths	—	—	—	—	1	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—		—
Deaths				—	—				—	—
Whooping-cough*	1,615	77	72	61	78	2,996	238	86		11
Deaths	2	—	—	1	—	5	1	—	—	—
Deaths (0–1 year)	184	19	35	21	11	241	23	29	14	6
Deaths (excluding stillbirths)	3,732	602	514	136	111	3,749	592	522	138	83
Annual death rate (per 1,000 persons living)			10·3	8·4				10·5	8·6	
Live births	7,501	1219	834	434	231	7,592	1312	935	382	239
Annual rate per 1,000 persons living			16·7	26·9				18·9	23·9	
Stillbirths	185	21	32			210	22	37		
Rate per 1,000 total births (including stillborn)			37					38		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Typhus Fever in a Ship

The s.s. *Monte Montjuich* arrived in the Port of London from Melilla (North Africa) on August 17. On August 22 two members of the crew were admitted to hospital with suspected enteric fever, and a third on August 25. The vessel then sailed for Newport (Monmouth) and arrived on August 28. A fourth member of the crew was sent to hospital on arrival with a similar diagnosis. Two further similar cases occurred on September 6, while another member was under treatment in hospital for middle-ear disease.

All the usual sanitary measures were taken on board, and in addition fumigation was carried out in Newport, when 805 rats were destroyed. The ship sailed for Rosario, Argentina, on September 7.

Laboratory tests on these cases proved negative until September 2, when Widal tests on the first two patients suggested a paratyphoid B infection. On September 7, however, a repetition of the Weil-Felix tests on serum from the seven patients were found to be positive for typhus infections, but further investigation on board was not possible, as the ship had sailed that morning. All the patients are recovering, and the attack was a mild one in every case. There was no evidence of lice infestation.

It is not yet apparent whether the infection was of murine or louse-borne origin, and further work is in progress on this point. All seven patients were removed to isolation, and the disease has remained confined to members of the crew of the ship. Spread in the British Isles is not expected.

Food-poisoning in North Staffordshire

An outbreak of food-poisoning occurred in a semi-urban area in North Staffordshire on August 31 and September 1. All the 40 cases notified were adults, and all reported that they had eaten brawn prepared and retailed by a local butcher. Cases were strictly confined to houses where brawn had been consumed; persons who had eaten the brawn were the only ones to be affected; no further cases occurred after the brawn had been withdrawn from sale. From the amount of brawn sold it was estimated that the number of persons at risk was 100 to 150.

The time between ingestion and onset of illness in all cases was from two and a half to three hours. The main symptoms were nausea, vomiting, and abdominal pain followed by diarrhoea. In a few cases the pain was reported to be severe. Several patients were said to have "collapsed," and of these two old people became dangerously ill. Cyanosis of the lips was reported among the more severely affected cases. Recovery seems to have been practically complete within 48 hours. There were no deaths.

Samples of the brawn were obtained from the butcher's shop and from two households; all proved to be heavily contaminated by coagulase-positive *Staphylococcus aureus*. The faeces of three severely affected patients showed no pathogenic organisms. A swab taken from a small boil, from which pus could be expressed, on the butcher's right hand yielded a pure culture of coagulase-positive *Staphylococcus aureus*. Cultures of staphylococci obtained from the brawn and from the pustule on the butcher's hand were sent to a reference laboratory for bacteriophage investigation, and they were characterized as "untypable."

There seems to be little doubt that the cause of the outbreak was staphylococcal enterotoxin, and in the light of various factors it seems clear that contamination occurred after the process of cooking. Although it cannot be definitely stated that the contamination of the brawn was caused by organisms from the pustule on the butcher's hand, the possibility remains and provides another instance of what appears to be a fairly common cause of such outbreaks.

Poliomyelitis

Notifications in England and Wales in the week ended September 10 were: poliomyelitis 284 (289), polio-encephalitis

22 (19). Figures for the previous week are shown in parentheses.

Multiple cases (poliomyelitis and polio-encephalitis together) were reported from the following counties: London 31 (43), Berkshire 4 (5), Chester 6 (3), Cornwall 3 (5), Derby 2 (2), Devon 5 (7), Dorset 5 (2), *Durham 7 (8), Essex 16 (21),* Gloucester 10 (13), Hereford 2 (10), Hertford 5 (3), Kent 9 (10), Lancaster 38 (28), Leicester 7 (11), Lincs, Kesteven 2 (2), Middlesex 19 (18), Northumberland 8 (10), Nottingham 16 (6), Oxford 4 (1), Soke of Peterborough 5 (0), Somerset 5 (9), *Southampton 15 (10), Stafford 4 (3), Surrey 9 (7), Sussex E.* 4 (2), Warwick 10 (8), I. of Wight 2 (0), Wiltshire 8 (4), Yorks East Riding 3 (1), Yorks West Riding 25 (37), Glamorgan 7 (5), Monmouth 2 (1).

Notifications in England and Wales in the corresponding week of 1947 (*week ended September 6*) were: *poliomyelitis* 662, polio-encephalitis 46. These were the highest weekly figures recorded in that year.

Discussion of Table

In *England and Wales* the only large variations in the returns of infectious diseases were an increase of 31 in the notifications of acute poliomyelitis and decreases in the incidence of measles 610 and whooping-cough 56.

A fall in the incidence of measles was general throughout the country; the largest decrease was 62 in Durham. The only fluctuations of note in the local incidence of whooping-cough were decreases in Warwickshire 50 and Durham 28, with an increase of 24 in Lancashire.

The incidence of scarlet fever remained constant in most areas, the only large variation in trend being an increase of 24 in Lancashire. Notifications of diphtheria were only one more than the record low level of the preceding week.

Fresh outbreaks of dysentery were notified in Yorkshire, Leeds C.B. 31, and Northumberland, Gosforth U.D. 21. Only one further case of dysentery was recorded in Staffordshire, Wolverhampton C.B., where 29 cases were notified in the preceding week. Of the 30 cases of paratyphoid fever 17 were notified in Lancashire (Liverpool C.B. 8). The largest outbreaks of food-poisoning were: Staffordshire (Newcastle-under-Lyme R.D. 38 (see above)). Lancashire (Blackpool C.B. 25, Liverpool C.B. 13, Farnworth M.B. 10), Surrey (Croydon C.B. 18), Kent (Margate M.B. 16), and Northumberland (Wallsend M.B. 14).

In *Scotland* a decrease of 36 in the notifications of measles and an increase of 26 for acute primary pneumonia were the only appreciable fluctuations in the totals for the week. In Glasgow 52 cases of dysentery were notified, an increase of 6. The increase in the incidence of pneumonia was mainly contributed by Glasgow. Only two areas returned notifications of acute poliomyelitis, Edinburgh 3 and Glasgow 8.

In *Eire* notifications of diarrhoea and enteritis rose from 74 to 159; the largest returns were Dublin C.B. 119 and Cork C.B. 18. Notifications of scarlet fever were 29 more than in the preceding week due to a general rise in incidence.

In *Northern Ireland* the chief feature of the returns was a decrease of 21 in the notifications of measles. Of the 7 cases of diphtheria 5 were notified in Co. Antrim.

Week Ending September 10

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 729, whooping-cough 1,228, diphtheria 66, measles 875, acute pneumonia 205, cerebro-spinal fever 38, acute poliomyelitis 284, acute polio-encephalitis 22, dysentery 59, paratyphoid fever 20, typhoid fever 3, food-poisoning 212.

The Ministry of Health has asked hospitals to minimize the consumption of electricity during the peak hours in the coming winter, with the object of spreading the load. The consumption of electricity should be restricted from 8 a.m. to 9.30 a.m. on Mondays to Fridays from October 1, 1949, to March 31, 1950, and from 4 p.m. to 5.30 p.m. on Mondays to Fridays from November 1, 1949, to January 15, 1950.

Medical News

New Members of M.R.C.

By an Order of the Committee of Privy Council for Medical Research, made after consultation with the Medical Research Council and with the president of the Royal Society, the following have been appointed to be members of the Medical Research Council from October 1, 1949: Dr. N. Hamilton Fairley, F.R.S., Sir Percival Hartley, F.R.S., and Professor J. McMichael, F.R.C.P.

Register of Hydrotherapy Assistants

The Chartered Society of Physiotherapy has decided that in order to ensure a satisfactory standard of treatment in hydrotherapy establishments and in order to bring this class of worker under the aegis of the chartered society as the responsible professional body, it will make itself responsible for the training and registration of persons carrying out, or assisting in carrying out, certain hydrotherapeutic treatments at hydrotherapy establishments throughout the country. The council of the chartered society has therefore agreed to inaugurate a scheme of training leading to examination and registration on a "Supplementary Register of Hydrotherapy Assistants" to be maintained by the chartered society.

Christmas Cards

The Grenfell Association has again prepared a series of Christmas cards depicting typical scenes in Labrador and in Northern Newfoundland where its medical work continues. Profits from the sale of these cards will help to maintain hospital and nursing stations, and will also be applied to the campaign against tuberculosis, which is one of the most serious problems in this part of the world. Some of the cards are in black and white, and others are in colour. An illustrated leaflet showing the kinds of cards available and their prices can be obtained (price 1d.) from the secretary, the Grenfell Association, 66, Victoria Street, London, S.W.1.

Buckston Browne Prize Essay

The council of the Harveian Society of London has selected "*The Management of the 'Hopeless' Case*" as the subject for the Buckston Browne prize essay. The prize, consisting of a medal, together with the sum of £100, will be awarded for the best essay on the subject; is open to any member of the medical profession registered in the British Isles or Dominions; and is limited to candidates under 45 years of age. Essays must be sent in by October 1, 1950. Further particulars may be obtained from Sir Cecil Wakeley, P.R.C.S., 73, Portland Place, London, W.1.

Wills

Dr. Donald George Hall, of Hove, left £41,711, including £500 to the Medical Benevolent Fund. Dr. Alfred Heathcote Copeman, also of Hove, left £39,212; Dr. James Robertson Wills, of Peterborough, left £12,342; Dr. David Riddell, of Windermere, formerly High Sheriff of Westmorland, £37.829; Dr. Samuel Morris Green, of Prescot, Lancs, £13,442.

COMING EVENTS

Royal Free Hospital School of Medicine

The inaugural address for the 1949–50 session of the Royal Free Hospital School of Medicine will be delivered by Mr. James Laver, Hon.R.E., at B.M.A. House, Tavistock Square, London, W.C., on Friday, September 30, at 3 p.m. His subject is "Clothes and Psychic Health."

Conference on Foot Inspection

A conference on "Foot Inspection in *Childhood* and Adolescence" has been arranged by the Foot Health Educational Bureau, to be held at Caxton Hall, Westminster, London, S.W., on Friday, September 30, from 2.15 to 5 p.m. The speakers will be Dr. W. G. Booth and Mr. T. T. Stamm.

Conference on Juvenile Delinquency

A Conference on the Scientific Study of Juvenile Delinquency will be held at the Royal Institution, 21, Albemarle Street, W., on Saturday, October 1. The conference was convened by the British Psychological Society, the Howard League for Penal Reform, the Institute for the Scientific Treatment of Delinquency, the Institute of Sociology, the National Association for Mental Health, and the Royal Medico-Psychological Association. The Earl of Feversham will open the meeting, which will be divided into morning and afternoon sessions. In the morning a discussion will be held on the limits of present knowledge, under the chairmanship of Mr. J. C. Maude, Recorder of Plymouth. The speakers will include Dr. J. D. W. Pearce and Dr. Hermann Mannheim. In the afternoon Miss Margery Fry will take the chair in a discussion on future research. Dr. John Bowlby and Dr. Dennis Carroll will be among the speakers.

Exhibition of Medical Photography

The Exhibition of Medical Photography organized by the Medical Group of the Royal Photographic Society of Great Britain is to be shown in the Museum, Manchester Royal Infirmary, from Monday, October 3, to Saturday, October 8. The exhibition will be open from 9 a.m. to 6 p.m. daily, and on Saturday until 1 p.m.

Postgraduate Lectures in Ophthalmology

A series of postgraduate lectures in ophthalmology will be given in the Department of Ophthalmology of the University of Glasgow on Wednesdays, October 5, 12, 19, and 26, at 8 p.m. A discussion will follow each paper. The meetings are open to all medical practitioners and senior students interested in the subject. Details will be published in the *Journal* under "Societies and Lectures" week by week.

Welsh National School of Medicine

Dr. W. N. Pickles is delivering the annual inaugural address to the Welsh National School of Medicine on October 6. His subject is "Epidemiology in Country Practice."

Charing Cross Hospital Medical School

The inaugural address will be given by the Rt. Hon. Sir Norman Birkett, M.A., LL.B., in the council room of the hospital on Thursday, October 6, at 4 p.m. The prizes will be presented by Lady Birkett. The medical school will be open for inspection from 2 to 3.30 p.m.

Kettle Memorial Trust Lecture

The Fifth Kettle Memorial Trust Lecture will be delivered by Dr. Beatrice Pullinger at the Royal College of Surgeons of England (Lincoln's Inn Fields, London, W.C.), on Friday, October 7, at 5 p.m. Her subject is "The Significance of Functional Differentiation in Mammary Tumours."

Prevention of Accidents

A conference organized on behalf of the Association of British Chemical Manufacturers by the Royal Society for the Prevention of Accidents will be held at the Royal Hotel, Scarborough, on October 7–9. Among subjects to be discussed are the safe use of solvents, the installation and maintenance of breathing apparatus, and the use of electric apparatus in hazardous atmospheres. The fee for the conference, including accommodation, is £5. Particulars can be obtained from the Royal Society for the Prevention of Accidents, Industrial Safety Division, 131, Sloane Street, London, S.W.1.

Medical Golf

The Furness Division of the British Medical Association has arranged another golf tournament to be held at Grange Golf Club on Sunday, October 9, at 2.15 p.m. It is hoped that all members who participated in the previous one at Ulverston will again enter for this competition, and that any other member of the Division who plays golf will also enter. Names should be forwarded to the honorary secretary of the Furness Division, Dr. J. Mitchell Stuart, c/o the Clinic, Vickers-Armstrongs, Ltd., Naval Construction Works, Barrow-in-Furness, by September 26, so that arrangements may be completed.

Industrial Nursing

The Royal College of Nursing will hold a conference on "The Industrial Nursing Service" on October 7–8 at the Royal College, Henrietta Place, Cavendish Square, London, W.1. Those requiring tickets should apply as soon as possible to the Conference Secretary at the address above.

SOCIETIES AND LECTURES

Tuesday

INSTITUTE OF SOCIOLOGY.—At Royal Society, Burlington House, London, W., September 27, 5.30 p.m., discussion meeting jointly with British Society for the History of Science, "*Goethe and Modern Thought*," by Mr. Humphry Trevelyan. Professor William Rose will open the discussion.

Friday

CAMBRIDGE MEDICAL SOCIETY.—At Addenbrooke's Hospital, Cambridge, September 30, 2.30 p.m., "*Meddlesome Midwifery*," talk by Miss Janet Bottomley.

APPOINTMENTS

Dr. Isabel G. H. Wilson has been appointed a Senior Commissioner and Member of the Board of Control on the retirement of Miss Ruth Darwin.

Dr. Wilson graduated at Edinburgh in 1921, took the D.P.M. in 1924, and proceeded M.D. in 1926. She was elected F.R.C.P. in 1947. In 1938 she prepared jointly for the Board of Control a report on cardiazol treatment and hypoglycaemic shock treatment in schizophrenia.

EAST ANGLIAN REGIONAL HOSPITAL BOARD.—*Consultant Physician for Mental Deficiency in Western Part of East Anglian Region*, W. Sharp, M.B., Ch.B., D.P.M. *Consultant Psychiatrist for Child Guidance Services in the Ipswich Area*, J. G. Howells, M.B., B.S., D.P.M.

SOUTH WESTERN REGIONAL HOSPITAL BOARD.—The following appointments have been announced: *Director, Rheumatism Unit and Advisor on the Service—South Western and Oxford Regional Boards*, G. D. Kersley, M.D., F.R.C.P. *Surgeon, South Devon and East Cornwall Hospital, Plymouth*, J. P. Childs, M.Ch., F.R.C.S. *Anaesthetist, Neurosurgery Department, Frenchay Hospital, Bristol*, P. L. F. Mortimer, M.B., B.S., D.A. *Assistant Dental Surgeon, Plastic Surgery Department, City General Hospital, Gloucester*, H. Handley, B.D.S. *Medical Director, Mass Radiography Unit, Plymouth*, G. Sheers, M.B., B.Chir. *Physician-Superintendent, Quantock Sanatorium, Somerset*, B. J. Douglas Smith, M.B., B.S.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Ferguson.—On August 29, 1949, at Birch Hill Hospital, Rochdale, to Eileen (née O'Brien), wife of Dr. T. I. V. Ferguson, a son.

Gidley.—On September 4, 1949, at Manor Hospital, Nuneaton, to Maisie (née Merry), M.B., B.S., D.A., a son—Alexander Claude.

Graves.—On September 13, 1949, to Valerie (née Scotland, M.B., B.S.), wife of Dr. J. C. Graves, 9, Westgate Avenue, Holcombe Brook, Lancs, a daughter.

Rose.—On September 9, 1949, at 80, Harborne Road, Birmingham, 32, to Dr. Mary Rose (née Lavender), wife of G. K. Rose, F.R.C.S., a son—Robert Ewart.

MARRIAGES

Daniel—Williams.—On August 27, 1949, at Cwmtwrch, Owen Daniel, M.B., F.R.C.S., of Glanamman, Carms, to Rhianydd Williams, of Cwmtwrch, Breconshire.

Davidson—Fortune.—On August 29, 1949, at Caxton Hall, Westminster, John Howard Davidson, M.B., B.S., to Phylis Mary Veronica Fortune.

Protheroe Smith—Fletcher.—On September 13, 1949, Edward Protheroe Smith, M.R.C.S., L.R.C.P. (late of Redditch), to Margaret, daughter of the late Mr. and Mrs. T. W. Fletcher, of Webheath, Worcs.

DEATHS

Bickerton.—On September 13, 1949, at 33, Portland Place, London, W., Reginald Ernest Bickerton, D.S.O., M.B., Ch.B., Colonel R.A.M.C., T.A.

Elworthy.—On September 11, 1949, Reginald Robert Elworthy, O.B.E., M.D., of 18, St. Margaret's Drive, East Twickenham, Middlesex.

James.—On September 12, 1949, Edmund Arnold James, M.B., Ch.B., of Trencrom, St. Helen's Place, Castleford, Yorks.

Jenkins.—On September 15, 1949, Charles Evans Jenkins, M.R.C.S., L.R.C.P., of Dunedin, Sale, Cheshire.

Kinloch.—On September 14, 1949, at 305, Upper Shoreham Road, Shoreham-by-Sea, Sussex, William Anderson Kinloch, M.B., C.M., aged 76.

Macdonald.—On September 10, 1949, at Lynton, Thrupp Lane, near Stroud, Glos, Alexander Tulloh Inglis Macdonald, M.D., formerly of Bootle, Liverpool.

Mannington.—On September 12, 1949, at Hillbrow, 49, St. Helen's Crescent, Hastings, Sussex, Frank Mannington, F.R.C.S., formerly of Muswell Hill, London, N., aged 75.

Munro.—On September 18, 1949, at Beech House, Egremont, Cumberland, James Gibson Munro, M.B., Ch.B.

Rowand.—On September 15, 1949, at a nursing-home, St. Andrews, Andrew Rowand, M.D., formerly of 19, Queen's Gardens, St. Andrews, aged 86.

Sanders.—On September 16, 1949, Ernest Leonard Sanders, M.B., Ch.B., of 122, Lauriston Place, Edinburgh, 3.

Smith.—On September 16, 1949, at Mount Vernon Hospital, Harry Smith, M.R.C.S., L.R.C.P., D.P.H., of Sunnyways, Gerrards Cross, Bucks.

Smyth.—On September 11, 1949, at Four Walls, Formby, Lancs, John Francis Smyth, M.D., D.P.M.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Streptococcus Viridans and Bacterial Endocarditis

Q.—*Is there any evidence that the Streptococcus viridans found in the mouth and throat is the same as that found in a case of bacterial endocarditis?*

A.—The evidence that the *Streptococcus viridans* found normally in the mouth and throat is the infecting organism in subacute bacterial endocarditis is largely circumstantial. Gum sepsis, including periodontal abscess, is most often due to infection with non-haemolytic streptococci of the *viridans* and *salivarius* types. Any trauma of an infected gum, such as by tooth extraction, usually results in a temporary bacteriaemia, and if there are damaged heart valves, due to congenital defect or previous rheumatic infection, the blood-borne streptococci may settle on the valves and set up a subacute bacterial endocarditis. There is a considerable amount of published and unpublished work supporting this association between gum sepsis, tooth extraction, and bacterial endocarditis. More definite proof that the particular strain of *Str. viridans* causing bacterial endocarditis is identical with the organism present in the mouth cannot easily be supplied, since the green-producing streptococci are found to be a heterogeneous group when attempts are made to classify them either by fermentation reactions or serologically. In a paper elsewhere in this issue F. R. Selbie, Rosemary D. Simon, and R. H. M. Robinson describe how serologically similar strains have been isolated from the blood and mouth of patients with subacute bacterial endocarditis, but final proof of identity would require more precise antigenic analysis. In this connexion it may be noted that a particular serological type of non-haemolytic streptococcus called *Str. mutans*, and associated by Kilian Clarke with dental caries, is sometimes the causal organism in bacterial endocarditis. *Haemophilus para-influenzae*, another normal inhabitant of the mouth, is also occasionally associated with bacterial endocarditis. Thus, even if there is no absolute proof that the causal organism is most often derived from the mouth, the evidence is strong enough to justify the use of a "chemoprophylactic umbrella" when any mouth operations are carried out on a patient with damaged heart valves. The questioner should also refer to the leading article at p. 692 of this issue.

Coeliac Disease

Q.—*What are the latest views on the treatment of coeliac disease in children? Is it true that the use of vitamin B and liver therapy has largely removed the need for dietary restrictions? If not, is it important to restrict the intake of carbohydrates as well as of fats? How can an adequate diet, say for a child aged 3, be arranged with present food restrictions? What is the best method of administering the necessary vitamins, and are these obtainable in solution in palatable fat-free form?*

A.—No great advance in the treatment of coeliac disease has been made recently. Three principal forms of diet have been evolved—the low-fat diet, the starch-free normal-fat diet, and the Bircher-Benner diet; in the latter fats are restricted and starchy foods replaced by fruits and salads. In any diet it is wise to restrict starchy foods and essential that there is a high protein and calorie intake. Treatment with injections of liver extract and vitamin B has proved useful, particularly during the acute phases of the disease, but only in addition to dietary measures. It is likely that liver extracts supply some factor which is liable to become deficient in coeliac disease.

It is difficult to devise a suitable diet which is economical and which the child will eat, but the low-fat diet is perhaps the easiest. On receipt of a detailed medical report, including the results of stool analysis, the Ministry of Food allows a child of 3 years five extra rations (the allowance for a child under 5 being half the adult ration) of meat and a tin of half-cream dried milk weekly on the surrender of all fat coupons. Dried bananas are obtainable through food offices, but these are not so popular as the fresh fruit, which are well tolerated when really ripe and which will generally be reserved by a greengrocer when he knows of the child's illness. In the same way a butcher can usually be persuaded to reserve such things as liver. Salads and many fruits are well tolerated. Soya biscuits, or one of the specially prepared breads with a high-protein, low-starch content, can be eaten instead of ordinary bread. Dextrimaltose or glucose can be obtained on a doctor's certificate, and 1 to 2 oz. (28 to 56 g.) should be given daily. Cow's milk should be hand skimmed and given to drink or used to make junkets and puddings. Vitamin C may be given by mouth in the form of concentrated orange-juice, and vitamins A and D as halibut-liver oil or one of the proprietary concentrates in doses of 10 to 20 drops daily. Watery preparations of vitamin A and D are available, but are more expensive and are not essential.

The questioner should refer to *Arch. Dis. Childh.* 1949, 24, 81, and *Practitioner*, 1948, 160, 291.

Dichloracetylene Poisoning

Q.—*What are the toxic effects of dichloracetylene? Have any cases of poisoning been reported, and are there any reports in the literature on the post-mortem examination of fatal cases? If so, what were the essential findings?*

A.—Dichloracetylene is very toxic and unstable, but has little or no use in industry, as distinct from acetylene dichloride (or dichlorethylene), which is less toxic and is an industrial solvent. Dichloracetylene is a liquid boiling at 32° to 33° C. at a pressure of 748 mm. Hg; it is unstable and readily catches fire in air on warming. It is narcotic and causes death from respiratory paralysis. There is a reference in the literature to the corresponding dibromacetylene as an intensely poisonous liquid, causing headaches, indigestion, exhaustion, and most noticeably loss of memory (Lawrie, *J. Amer. chem. Soc.*, 1906, 36, 490), but no reference to any post-mortem findings has been traced. Stringent safety precautions against fire and toxic hazards would be required in the preparation and use of dichloracetylene, and should take the form of complete enclosure in a closed system.

Control of Ants

Q.—*I should be grateful if you could tell me what are the dangers of food being infested by ants and what modern methods are available to protect food from these pests.*

A.—Food is not exactly "infested" by ants in the sense that certain other insect pests live and breed in it. However, the workers of certain species of ant make raids on food in larders, etc., and carry back portions to the nest. Two kinds of house-haunting ants are common in Britain: (*a*) The black garden ant (*Acanthomyops niger*) often enters dwelling-houses through a window or through crevices in the floor. The best control measure is to trace the ants back to their nest in the soil and destroy it. (*b*) In steam-heated institutions, such as hospitals, the tiny sand-coloured Pharaoh's ant (*Monomorium pharaonis*) is a very intractable pest. The nests are deep in the walls and usually inaccessible. Spraying with D.D.T. has been tried without success. The most promising control measure is the use of a poison bait (e.g., 51% water, 0.8% sodium fluoride, and 48.2% thick syrup). The bait is kneaded into small pieces of cake or bread and scattered out of the way of children or domestic animals. Baits must be renewed weekly for at least three or four months to obtain eradication.

Succinate-salicylate Therapy

Q.—*M.'M. Szucs claimed recently that succinate-salicylate therapy was of value in arthritis (Ohio St. med. J., 1947, 43, 1035). What is the theory underlying this method, and have the views put forward by Szucs been confirmed or not?*

A.—The claims made by Szucs for the use of succinate-salicylate therapy in arthritis have not been confirmed by subsequent medical experience. Observers in both Canada and

America, where this work originated, have reported that succinate-salicylate has the value of its salicylate content only, and that the addition of the succinate portion, although attractive in theory, is of no practical clinical advantage.

Effects of Testosterone

Q.—*A male patient aged 53 has been receiving injections of 25 mg. of testosterone dipropionate at weekly intervals for some months, after an initial intensive course of three injections a week, for the treatment of debility. He improved to start with, but he is now very apprehensive about any ill effects. Are there any known ill effects, either near or remote, associated with continued dosage with testosterone dipropionate?*

A.—There are no recorded ill effects from therapeutic doses of testosterone as, for example, those given in the above case. Theoretically, testosterone might produce enlargement of the prostate gland, but this is a theoretical rather than a practical consideration. Theoretically it might also produce enlargement of the pituitary gland and an increase in the number of chromophobe cells, possibly with the formation of chromophobe adenoma, as is possible with massive doses of oestrogens, but here again, in the opinion of the writer, these considerations have no practical bearing on clinical testosterone therapy. In younger people testosterone in large doses, while possibly increasing eroticism and potency and the size of the penis, would cause involution of the testes; but in a patient of 53 this fact would not have the same significance as in a person of 23, and in any case the doses used would have to be much greater to produce this result.

Facial Disfigurement

Q.—*Are there available any cosmetics or other preparations which would enable a young girl suffering from adenoma sebaceum of the face, which causes a good deal of disfigurement, to conceal the marks?*

A.—Special make-up preparations are sold by most of the big cosmetic firms and are designed to hide blemishes and disfigurements. Most of them were developed during the war, and it must be admitted that many are inferior in quality and unsatisfactory in use. This appears to be due to the limitations imposed on the importation of the necessary ingredients for this kind of preparation. A special cream is obtainable from a London firm which has the advantage of covering the defects efficiently without cracking or flaking.

Treatment of Chronic Alcoholism

Q.—*I wish to try "antabuse" on a chronic alcoholic whose liver is somewhat enlarged, and I should like to know if this is a contraindication. If not, what dosage do you recommend?*

A.—"Antabuse," or tetraethylthiuramdisulphide, acts by depressing the oxidation of acetaldehyde, which is presumably due to a depression of liver function. Nevertheless, it is clear that if the patient is cured of his alcoholism his liver may then recover; it is therefore right to try to cure him. The dose is 1.0 to 1.5 g. initially and 0.5 g. thereafter daily. The care required in treatment is indicated in the article by A. E. Carver (*Journal*, August 27, p. 466) and in the earlier paper by Martensen-Larsen (*Lancet*, 1948, 2, 1004).

Aplastic Anaemia and Agranulocytosis

Q.—*What drugs have been known to cause aplastic anaemia and agranulocytosis? Have thyroid tablets or Lugol's iodine ever been incriminated?*

A.—Administration of the following agents has been followed by aplastic anaemia: benzol, the arsphenamines, gold salts, sulphonamides, dinitrophenol, trinitrotoluene, mustard gas and nitrogen mustards, bismuth, mercury, colloidal silver, various hair dyes, volatile insecticides, and possibly analgesics such as amidopyrine, acetanilide, and phenacetin. Agranulocytosis has resulted from the administration of the sulphonamides, thiouracil, amidopyrine and its compounds, gold salts, the arsphenamines, dinitrophenol, and possibly from the barbiturates, phenazone, phenacetin, "neostibosan," quinine, cinchophen, bismuth, phenylethylhydantoin, and pamaquin. Radioactive substances may give rise to either of these syndromes. Neither Lugol's solution nor thyroid tablets have been known to cause agranulocytosis or aplastic anaemia. It should be noted that in many instances there is a personal idiosyncrasy to the causative drug, and with most of these agents the syndromes are rare.

Non-spermicidal Lubricants

Q.—*I have heard that some lubricants used to facilitate intercourse may have a deterrent effect on conception. Is this correct, and can you suggest a suitable lubricant which is free from this disadvantage?*

A.—When conception is desired, it is necessary to ensure that penetration is painless and complete. In many cases this can be achieved only if the vagina is fully lubricated. It is important to avoid petroleum jelly, for, besides being a most unsatisfactory lubricant for the vagina, it has a mechanical action deleterious to sperm activity. There are two or three "water-soluble" lubricants obtainable which have practically no spermicidal action.

NOTES AND COMMENTS

Pus Cells in Semen.—Dr. H. A. DAVIDSON (London, S.W.) writes: The answer to the question on pus cells in semen ("Any Questions?" August 13, p. 398) is liable to mislead the questioner and possibly expose his patient to unnecessary psychological and physical hardship. It is by no means evident from the question that the patient's fertility is impaired. Although it is stated that "motile sperms are absent," no mention is made whether any immotile sperms were found. If they were, one would need to know the age of the specimen and the method of collection, for even normally fertile semen, if too old or collected in a condom, might contain no motile spermatozoa. The answer states that an attempt must first be made to discover the source of the pus cells. It would seem more urgent to ascertain first whether in fact the patient is subfertile or not. Normal semen may contain up to two million leucocytes per millilitre, and even frank pus admixed from the prostate, seminal vesicles, or urethra would not necessarily impair its fertilizing capacity. It is disturbing to read the statement, on such incomplete evidence, that the outlook is poor, and, much as one would agree with the need for testicular biopsy if in fact the semen contained few or no spermatozoa, one wonders why the finding of "healthy testicular tissue" should call for an attempt to stimulate spermatogenesis. Finally, an obvious slip of the writer's pen should be rectified: Chorionic gonadotropin is prepared from pregnancy urine and not, as stated, from pregnant mares' serum.

Herpes, Varicella, and Queen Anne.—Dr. W. A. BELLAMY (Aylesbury, Bucks) writes: For some years now the *Journal* has printed numbers of letters from correspondents who have noticed the incidence of herpes and chicken-pox in the same patient. Is it not time we all realized that Queen Anne's dead?

Correction.—Dr. A. G. WATKINS (Cardiff) writes: In the acknowledgments at the end of the article "Incidence of Cross-infection in Children's Wards" (September 17, p. 616), in acknowledging a grant towards computing expenses, it was wrongly stated that the grant was made by the British Paediatric Association. It is the Ministry of Health to whom the authors are indebted, and they take this opportunity of apologizing for this mistake.

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THE SECRETARY REPORTS

GENERAL MEDICAL SERVICES

With the major issue of remuneration awaiting discussion with Ministry officials on September 23, the General Medical Services Committee was able, at its meeting last week, to devote a full day to routine business, most of the points concerning the terms and conditions of service of general practitioners. Here are some of the points dealt with.

(*a*) There has been a good deal of concern during the past year about the extent to which executive councils' lists are inflated—i.e., the extent to which persons appear on the list twice. No doubt clerks of executive councils have done their utmost to eliminate this. Yet from time to time evidence is forthcoming that inflation still exists. Following the committee's representations on the point, the Ministry of Health has arranged by way of an experiment for a few executive councils to send to a number of persons whose identity numbers are not known a communication asking for those numbers. The reply is being prepaid, and if the result of the experiment shows that a measure of inflation has been eliminated general action of a similar kind will be considered.

(*b*) It has been decided to ask the Ministry to add to the list of appliances which general practitioners may order for their patients ligature material, male and female urinals, and "lastonet."

(*c*) The committee's legal advisers take the view that a doctor in the Service is required under the regulations to issue Ministry of National Insurance certificates to a patient even though he may know that the patient is receiving treatment from an unqualified person. This intolerable position arises because the certification regulations for the new Service have not exactly followed those in force under National Health Insurance. The committee is taking up the point with the Ministry.

(*d*) The committee examined the administration of the Special Inducement Fund in the light of experience gained in the first year of the Service. It is not satisfied that the method of dealing with applications conforms with the original discussions on the application of this fund. The committee intends to put to the Ministry a proposal for widening the scope of the fund so as to include definite cases of hardship.

(*e*) The committee has approved a draft circular which the Home Office intends to issue for the guidance of police authorities in connexion with emergencies involving the services of general practitioners. It is felt that this circular will clarify the position.

Temporary Residents

It is clear from the correspondence coming to this office that there is still some confusion about the procedure to be followed by patients seeking treatment as temporary residents. Anyone staying away from home for a period of less than three months can apply to any public practitioner for treatment as a temporary resident. It is not necessary for the applicant to produce a medical card or to be on the list of a public practitioner in the home area. Having accepted and treated a temporary resident, the practitioner claims payment by filling in and returning to the local executive council of his area a form (E.C.19) provided by that body for the purpose. The same arrangement applies to anyone moving from place to place. If the period of stay extends beyond three months the residence is no longer regarded as temporary.

Remuneration of Colonial Medical Officers

The Working Party of officials from the Colonial Office and B.M.A. House which has been assessing the monetary value of all the various advantages and disadvantages of a Colonial medical officer's life has now completed its work and presented its report. The task has been difficult, and the Working Party has had the assistance of an actuary and an accountant and other experts. In due course it is intended to publish a full report of these calculatiohs and of the current negotiations with the Colonial Office. No further statement can be made at present, as the outcome of the negotiations depends to some extent upon the discussions which are now proceeding with the Ministry of Health on the betterment factor which has been or ought to be applied to the Spens recommendations.

Dentists' Hours of Work

One always suspected that much of the criticism which the dental profession has been receiving in recent months was both ill-informed and unfair. The Report of the Ministry of Health Working Party on Chairside Times, which is summarized on another page, confirms these suspicions. "Most dentists," says the Report, "are working longer hours than is comfortable, or than would be good for them if continued for too long a period, and many of them are working more quickly than they would normally. These conditions have been forced upon them by the influx of work which has resulted from the expanded Health Service. As a body they have been trying to cope with the difficult problem of keeping pace with demand without loss of efficiency, and, as a body, the Working Party thinks that they should have received more gratitude and less adverse criticism than has actually been the case." The Report states that the "comparatively few cases of very long hours (and of very high earnings) should not be regarded as a major factor when terms of service are under consideration. Such cases should be judged from the point of view of efficiency only." "Up to the point where efficiency becomes impaired, neither the State nor the patient suffers from the excessive efforts" of "a comparatively small minority." "It has to be recognized," adds the Report, "that by means of organization and careful management output (or should it be 'input'?) can be increased to a considerable extent without loss of efficiency."

Arbitration Award

I was particularly interested to read that the salaries of secretaries of boards of governors, sometimes known as house governors, have been dealt with by an Industrial Court. The award should prove of interest to those engaged in medical administration. It is as follows:

Salary on appointment	£1,750 per annum
After one year's service	£1,800 „ „
After two years' service	£1,850 „ „
After three years' service	£1,925 „ „
After four years' service	£2,000 „ „

(plus a weighting allowance of £50 per annum in the Metropolitan Police Area).

Officers already in posts in July, 1948, in hospitals which were then transferred into the National Health Service are to have the option of remaining on the salaries or salary scales and other conditions of service which they had before July, 1948, if these were more favourable than those of the award.

TERMS AND CONDITIONS OF SERVICE OF HOSPITAL STAFFS

The Ministry of Health has amended the Terms and Conditions of Service of Hospital Medical and Dental Staff for England and Wales (*Supplement*, June 11, p. 314). Details are given below.

Remuneration and Grading

Main Scale for Consultants (Document, paragraph 1 (*a*)).—A practitioner appointed as a consultant before the age of 30 should start at a salary of £1,400 per annum, rising to £1,550 per annum after one year's service, to £1,700 per annum after two years' service, and thereafter in accordance with the scale set out in paragraph 1 (*a*) (1) of the document. He should *not* remain on a salary of £1,400 per annum until he reaches the age of 31. In effect, the salary scale for consultants is a continuous scale from a minimum of £1,400 per annum to a maximum of £2,750 per annum; and under paragraph 1 (*a*) (2) of the document age merely determines the point of entry to this scale.

Senior Hospital Medical and Dental Officers (Document, paragraphs 2 (*a*) and (*b*)).—There is no provision in the Terms of Service for the remuneration of senior hospital medical officers or senior hospital dental officers below the age of 32, and it is not intended that any officer below the age of 32 should hold such an appointment. Any officers below that age who have not been graded as consultants should therefore be graded as senior registrars, junior hospital medical officers, or general practitioners under paragraph 10 (*b*) or 11 of the document, as appropriate.

Medical Superintendents and Deputy Medical Superintendents (Document, paragraph 2 (*c*); see also paragraph 15).—The reference to the particular grades of consultant or senior hospital medical officer cannot override the grading of a particular officer by a professional review committee. If a medical superintendent or deputy has been graded in some other grade, the whole-time salary of that grade will be used for the purpose of the calculation under (i). The word "etc." should be inserted after "senior hospital medical officer."

Part-time Appointments

Appointments with More than One Board (Document, paragraph 5 and R.H.B. (49) 100/B.G. (49) 84).—R.H.B. (49) 100/B.G. (49) 84 refers only to consultants, but the principles laid down in that memorandum should be applied also to medical and dental officers of any grade who hold appointments with more than one board or management committee.

Residence.—A residence clause has been included in the *pro forma* contract for whole-time consultants and senior hospital medical and dental officers, and it has been assumed that residence may be required as a matter of course in the case of house officers, other resident junior officers, certain medical superintendents, etc. Guidance has been requested on residence conditions for part-time consultants and other part-time senior officers living considerable distances from the hospitals where their principal duties lie and having no private consulting-room nearer the hospital (see paragraph 19 (*b*) of the document). This may involve, in some cases at least, the payment of wholly unreasonable sums, not only by way of travelling expenses but also in taking travelling time into account in arriving at the number of notional half-days from which remuneration is calculated. If the officer's duties do not make it essential for him to reside within a certain distance of the hospital where his principal duties lie, and he himself wishes to live further away, a residence condition need not be insisted upon; but where the officer who has no nearer private consulting-room lives more than 10 miles or a half-hour's journey away from the main hospital, boards should, unless the circumstances of the individual warrant exceptional treatment, and as an alternative to requiring residence within a certain distance of it, apply a maximum of 10 miles (each way) to the appropriate allowance for travelling expenses in getting to it, and half an hour (each way) to the travelling time taken into account in assessing the number of notional half-days under paragraph 5 (*a*) of the document.

Work Done for Colleagues during Holidays, etc. (Document, paragraph 5).—Anticipated duties under Clause 7 of the *pro forma* contract for part-time officers (i.e., time which it is known will be given in doing colleagues' work during holidays) should be taken into account in the pre-contract assessment of the average number of hours per week on which the part-time remuneration is based, and not paid at locum rates. This does not, of course, affect the application of the maximum under paragraph 5 (*d*) of the document. It is open to boards to vary the wording used in Clause 7 of the *pro forma* contract so as to include duties at other hospitals than those mentioned earlier in the contract.

Locumtenent Arrangements (Document, paragraph 7)

(*a*) *Locums Standing in for Whole-time Officers.*—The rates of payment in paragraph 7 of the document are related to notional half-days. The table in paragraph 5 (*a*) of the document should therefore be used in determining the number of half-days. Locums whose duties amount to more than 28 hours per week (including those who are replacing whole-time officers) would thus be paid for nine half-days per week—i.e., in the case of consultants, 45 guineas per week; in the case of senior hospital medical officers, 31½ guineas per week.

(*b*) *Application of the Lower Rate.*—Any practitioner other than a consultant who is doing duty as a locum in a consultant post should be paid at the 3½-guinea rate. Any practitioner doing duty as a locum in a post other than consultant, registrar, junior hospital medical officer, or house officer should be paid at the 3½-guinea rate.

(*c*) *House Officers, Junior Hospital Medical Officers, and Registrars.*—As stated in paragraph 31 of R.H.B. (49) 85, engagement of a locum should in practice rarely be necessary in the case of absence of any officers other than those specially referred to in paragraph 7 of the document. Where, in very exceptional circumstances (e.g., during sickness when no arrangements can be made), engagement of a locumtenent to fill a house officer, junior hospital medical officer, or registrar post cannot be avoided, the locum should be paid for the period of his services at the same rate as the officer whose place he is filling. No higher rate should be paid without the prior approval of the Minister.

Part-time Consultants Performing Teaching Duties (Document, paragraph 9 (2))

Paragraph 9 (2) of the document should be amended by deleting the words "or separately from" and "like other consultants" and inserting the words "for this clinical work" after "remunerated." This expresses without ambiguity the original intention. Remuneration for teaching duties which are separate from clinical work (e.g., lectures, tutorials, etc.) is the responsibility not of the board but of the university or medical school. Such duties (as distinct from teaching during ward rounds, out-patient clinics, etc.) are not considered to be "clinical work" under this paragraph and should therefore not be taken into account in the pre-contract assessment, under paragraph 5 (*a*) of the document, of the time required for the duties attaching to the post.

Transferred Officers (Document, paragraph 12 (c))

(*a*) *Transferred Officers who Choose to Accept the New Terms and Conditions of Service.*—Officers whose salary before transfer (including any value attached to emoluments) was higher than the salary which they would receive, under the new terms and conditions of service, from July 5, 1948, and who choose to accept the new terms and conditions of service, shall enter the new salary scale at their existing salary (determined as below) but shall remain on that salary on a mark-time basis until the new scale overtakes it. In cases where emoluments were previously enjoyed, the mark-time salary shall be an inclusive figure arrived at by adding the value of the

emoluments to the old cash salary. The mark-time salary so determined shall be subject to the appropriate deduction under paragraph 17 of the document.

(*b*) *Distinction Awards.*—The monetary value attaching to a distinction award is an element in remuneration (as stated in paragraph 1 (*b*) of the document). A consultant who has exercised the option under paragraph 12 (*e*) is therefore not entitled to receive any payment in respect of a distinction award subsequently made to him so long as he remains on his previous salary scale and conditions of service. Under paragraph 12 (*e*) as now drafted he would be obliged to do so as long as he remains "in the same appointment or another appointment of the same or greater responsibility," carrying a basic salary scale below that which he enjoyed before July 5, 1948. Such an officer should, however, be allowed to reconsider his option if he receives a distinction award. In order to introduce this change without further complexity of language, paragraph 12 (*e*) of the document has been redrafted: the following revised version should be substituted:

(*e*) *Transferred Officers.*—Officers who were transferred under *Section 68 of the National Health Service Act, 1946, shall be entitled* to retain their previous salary scale and conditions of service (including emoluments) on a personal basis for as long as they remain in the same appointment, provided that travelling and subsistence allowances as set out in paragraph 19 shall be adopted for all officers irrespective of the allowances for which they may have been eligible before transfer.

On taking up a new appointment or on promotion, however, they shall conform to the new rates of remuneration and conditions of service: provided that if in comparison with the post held at the appointed day the new appointment is of equal or greater responsibility, measured by the rate of remuneration, they may choose to continue on their pre appointed-day remuneration and conditions of service (except for travelling and subsistence allowances): for the purposes of this proviso the conferment of a distinction award shall be treated as a new appointment.

Incremental Dates

In the case of officers holding appointments at July 4, 1948, who do not elect to retain their previous salary scale and conditions of service, the salary payable from July 5, 1948, is determined in accordance with paragraph 12 of the document, and whatever the date of first appointment the next increment on the new scale would be payable on July 5, 1949. For example, a practitioner appointed as a consultant on August 1, 1945 at the age of 32 would be paid a salary of £1,950 per annum from July 5, 1948, and would receive his next increment on July 5, 1949.

Retention of Fees (Document, paragraph 14)

In former public assistance institutions which now provide both hospital accommodation under Part II of the National Health Service Act and residential accommodation under Part III of the National Assistance Act, there is no objection to a member of the medical staff of the hospital having a limited "list" to enable him to give services under Part IV of the National Health Service Act to any residents in the "Part III accommodation" who choose him as their family doctor. In this case the same limitations should apply as to the limited lists referred to in paragraph 58 of R.H.B. (49) 85/H.M.C. (49) 70/B.G. (49) 71. Any capitation fees received would be kept by the practitioner concerned, the work being regarded as within Category II of paragraph 14 of the document. Accordingly, in paragraph 14 (1) of the document the words "(except in respect of members of the hospital staff)" should be amended to read "(except in respect of patients for whom he is allowed a limited 'list'—e.g., members of the hospital medical staff)."

Tenure of Post (Document, paragraph 15)

By virtue of paragraphs 15 and 16 of the document, a consultant who is over 70 is not permitted any kind of paid appointment (although, as indicated in paragraph 65 of R.H.B. (49) 85, domiciliary consultation fees may be paid to him). It is recognized that there may be cases where a consultant over 70 can quite properly and usefully be employed on duties which are limited in scope—e.g., as consultant adviser to a regional board, visiting outlying hospitals for "pastoral visits," etc.—and there is no reason why such an arrangement should not be made and paid for in the usual way. In no circumstances, however, should a consultant over 70 be employed in a paid capacity in such a way as to block promotion for younger officers. It would, for example, be wrong for the duties attaching to a post to be reduced at any time because certain of them were given to a consultant over 70.

Subsistence Allowances (Document, paragraph 19 (f) (3))

The following proviso, *omitted in error in revising earlier* versions of the proposed terms of service, should be inserted before proviso (*a*) in paragraph 19 (*f*) (3) of the document:

"(*a*) day allowance shall not be paid in respect of any period spent at a hospital as part of the normal duties of the officer concerned;"

The present provisos (*a*) and (*b*) should become (*b*) and (*c*).

Membership of Medical Defence Societies

It is understood that some hospital authorities have in the past required members of their medical staffs to be members of a medical defence society. The Minister sees no objection to the continuance of this practice.

Medical Superintendents of Mental Institutions (Document, paragraph 2 (c))

Questions have been raised regarding the interpretation of paragraph 2 (*c*), which refers to the computation of the salaries of medical superintendents in relation to clinical and administrative duties, particularly in the case of medical superintendents of mental hospitals and mental deficiency institutions.

R.H.B. (49) 85/H.M.C. (49) 70/B.G. (49) 71 stated (paragraph 11) that in computing the salary rates of these officers "boards may ignore any administrative duties of which they find it impracticable to relieve a medical superintendent where these duties occupy only a small proportion of the officer's time." Regional hospital boards will, of course, bear in mind the importance of reducing to a minimum the time given by the medical staff to administrative work. But they should take into account the fact that the position of medical superintendents in mental hospitals and mental deficiency institutions is affected by the requirements of Statutory Instrument, 1948, No. 419, under which the medical superintendent's special position as chief officer necessitates his exercising a general control over all departments of the mental hospital or mental deficiency institution. Moreover, much of the work which is sometimes regarded as administrative necessarily falls to the medical superintendent because it is essentially clinical in character. Under this heading would come the statutory medical work and the activities directly connected with the treatment, training, and occupation of patients, as well as general supervision of entertainments and the provision of amenities. As the medical superintendent is the person to whom any order of detention is addressed, the arrangements for the general welfare of patients are his concern both as a clinician and as an administrator. But the time given to purely administrative work need not, it is estimated, exceed 10% of the time given by a whole-time officer, and this may properly be regarded as so small a proportion of the time that there need be no abatement of the remuneration at clinical rates for the whole of his time.

BLIND PHYSIOTHERAPISTS AND THE N.H.S.

Sir Ian Fraser, M.P., chairman of St. Dunstan's, speaking at the annual conference of St. Dunstan's physiotherapists at Brighton on September 10, stated that he had led a deputation of physiotherapists to see Mr. Bevan. They had asked that private practices among blinded physiotherapists should be encouraged, or at any rate should not be discouraged. It was now clear, said Sir Ian, that discouragement was to be their portion; they must more and more fend for themselves. Mr. Bevan, however, had issued a circular to hospital regional boards urging them to favour the employment of blind physiotherapists in the National Health Service (*Supplement*,

September 17, p. 136). While most of them preferred private practice, they thanked the Minister for this. Sir Ian added that in his judgment the N.H.S. might diminish private practices but it would not destroy them altogether. So long as there was freedom of choice left to the individual there would be some people who would prefer treatment by a doctor or physiotherapist outside the Health Service.

Dr. Charles Hill expressed his sympathetic understanding of the desire of the blinded physiotherapist for private practice and advised them to follow every move in the National Health Service and work out their particular proposals on a short-term policy. The danger of the N.H.S., he said, was the danger usually associated with big machines or concerns—namely, a centralized control and the loss of freedom of action or choice by the individual.

The conference was attended by about 100 ex-Service blinded physiotherapists, all members of the Chartered Society of Physiotherapy. The assembly included physiotherapists from all parts of England, Scotland, Wales, and Ireland, some of whom were blinded in the first world war and some in the second, and also a sprinkling of men of the last war who are still in their studentship but who took the opportunity of meeting future colleagues and of becoming acquainted with existing conditions in the blind-physiotherapy world.

HOSPITAL ESTIMATES

The Ministry of Health has sent a circular to hospitals describing the basis on which their estimates should be prepared.

Maintenance Expenditure

The Minister asks that the strictest economy should be exercised and that provision should be made only for new services and the extension of existing services to such extent as the board considers to be urgently necessary and practicable. In preparing the estimates the provisions of the Nurses Bill now before Parliament should be disregarded. When the Bill becomes an Act guidance will be given on the financial provisions as they affect hospital maintenance expenditure, and any adjustment necessary can then be made when the revised estimates for 1950–1 are prepared in the autumn of 1950.

Capital Expenditure

The Minister is aware that many urgent schemes are under consideration and is investigating whether it will be possible, within the financial and productive resources that can be made available to the social services, to make available in the next few financial years a larger share for hospital works. If an adequate place is to be secured in the allocation of national resources for urgently necessary hospital developments, it is essential that the Minister should have before him outline programmes of essential works for three years ahead.

For the year 1950–1 boards should draw up their urgent capital works programme as a part of an ordered programme extending over the financial years 1950–1, 1951–2, and 1952–3. The starting point for the programme for 1950–1 will be the expenditure on works initiated in 1949–50 to which the boards are already committed. In order that schemes of war damage repair may be allowed for, these should be indicated specially.

The outline programmes for 1951–2 and 1952–3 should indicate as nearly as practicable the principal development works likely to cost more than £10,000 together with a rough estimate of the magnitude of the expenditure involved. A provisional figure for works under £10,000 should be included, but the works need not be specified. Boards will not be held strictly to the outline programme when the time comes for drawing up their capital estimates for 1951–2 and 1952–3, since each outline programme must be open to review when the actual estimate for any year is being prepared, but an early indication of their content will enable them to be discussed informally in good time with the Ministry, thus reducing the need to examine them when the time comes for formal submission. Boards should draw up their scheme in such a way that if reduction proves necessary when the estimates for 1950–1 are considered a portion of the work planned can be moved forward into the following year.

Capital Estimates for 1950–1.—Regional hospital boards should submit a list of capital works in the regulation form in three parts:

(1) Works in progress at March 31, 1950, with the expenditure falling in the year 1950–1.

(2) Proposed works to be started in 1950–1, with the expenditure falling in that year and that required in later years to complete them.

(3) Reserve list of essential works which should be started in 1950–1 if possible, similarly divided as to expenditure for 1950–1 and later years; the presumption would be that if any of these works have to be deferred they will have the first call on the budget for 1951–2.

The total for (1) plus (2) should not exceed the figure of total capital expenditure notified in March, 1949, for the year 1949–50. The total for (3) should be approximately 50% of the total of (1) and (2). Boards of governors should submit similar lists. The lists should be restricted to really urgent projects, and in the case of London undergraduate hospitals *and the provincial teaching hospitals the total for (1) plus (2)* should if possible be kept within the range £50,000 to £100,000 according to need; in the case of the London postgraduate hospitals within a range of £10,000 to £60,000 according to size of hospital and need; the total for (3) should normally not exceed one-third of the total for (1) and (2).

Outline Programmes for 1951–2 and 1952–3.—In the case of regional hospital boards the total for 1951–2, including the amounts to be carried forward if *all* projects in lists (1), (2), and (3) for 1950–1 are put in hand as planned, should not exceed twice the total of (1) and (2); similarly, that for 1952–3 should not exceed three times that amount.

As regards boards of governors, the rate of capital expenditure on teaching hospitals during the past year or so has been proportionately much higher than at other hospitals. The outline programmes for 1951–2 and 1952–3 should therefore be kept within the same limits as those given for the capital estimates for 1950–1. The same reservation about increases to meet special needs of individual hospitals applies, however.

Exceptional provision will, if possible, be made for starting one new major hospital project in 1951 and another in 1952.

These figures represent the maximum which the Minister can hope to be allocated for hospital development in the years in question. The actual amounts will depend on economic considerations and the needs of other social and industrial services, and may well be substantially less.

GROUP PRACTICE

The Department of Health for Scotland has sent executive councils a memorandum on ways in which general practitioners "may find it helpful to work in co-operation." Recommendations were prepared by a special subcommittee of the Scottish Health Services Council, and they have been endorsed by the Standing Advisory Committee on General Practitioner Services.

The following developments appear to the committee to be desirable and feasible:

(1) Many general practitioners already give mutual assistance in greater or less degree by deputizing for each other in absence. In the committee's opinion many such agreements could with advantage be expanded to enable a group of practitioners to give mutual relief in off-duty periods.

(2) In the same way, arrangements might be made among a group of general practitioners for the receipt of telephone messages for any of their number who are not immediately available—such arrangements to make provision for the calling of a deputizing doctor in urgent cases.

(3) A group of neighbouring doctors might combine in the employment of clerical assistance.

(4) There might be provided simple laboratory and other aids to diagnosis for the benefit of a group where it would not be feasible to make such provision for an individual practitioner.

(5) Co-operation between a group of general practitioners on the one hand, and district nurses and health visitors on the other, might be furthered by arrangements made between the group and the local authority.

(6) Similarly, arrangements might suitably be made between groups of general practitioners and particular hospital units for consultation references, clinical discussions, and ward visits.

The committee recommends that, as a first step, the Secretary of State should ask each executive council and the local authorities in its area to review conditions there, and to consult together on arrangements which might usefully be made to implement all or any of these suggestions. The executive councils, before entering into discussion with the local authorities, should consult the respective local medical committees, who have already been approached in this matter by the British Medical Association. At the stage they consider appropriate executive councils should indicate to the appropriate boards of management of hospitals what part the hospital service might play in making these arrangements and invite their help.

OVERWORKED DENTISTS

REPORT OF WORKING PARTY

The majority of dentists who took part in the survey carried out by the Working Party, whose report has recently been published,[1] "are working at a pace which is punishing, and which many of them realize cannot be maintained."

The Working Party was appointed by the Minister of Health and the Secretary of State for Scotland in February of this year "to ascertain the average chairside time taken by general dental practitioners in England, Wales, and Scotland (1) in the National Health Service and (2) in private practice to complete each of the types of dental treatment set out in Part I of the First Schedule to the National Health Service (General Dental Services) Fees Regulations, 1948, excluding any items for which it is impracticable to establish an average time—e.g., orthodontic treatment." Its members were: Mr. W. Penman, F.I.A. (chairman), Mr. J. J. Gillard Bishop, L.D.S., Mr. A. H. Condry, Mr. J. Lauer, L.D.S., Mr. A. Macgregor, L.D.S., with, as secretaries, Mr. S. Donald Cox and Mr. L. G. Hitching, L.D.S.

The number of letters sent out for the main inquiry was 505, and 261 returns were received. Information was also obtained from 52 dentists working in dental practices of a "clinic" type, and from 16 dentists not engaged in the General Dental Services.

As a result of its inquiry the Working Party considers that most dentists are working longer hours than is comfortable or than would be good for them if continued for too long a period, and many of them are working more quickly than they would normally. These conditions have been forced upon them by the influx of work which has resulted from the expanded Health Service. They have been trying to cope with the difficult problem of keeping pace with demand without loss of efficiency, and the Working Party considers that they should have received more gratitude and less adverse criticism than has actually been the case. There is little hope of an early improvement. The present volume of work is limited by the inability of dentists to do any more, and it will probably be many years before there is any appreciable increase in the number of dentists.

Chairside Hours

The Spens Committee considered that, in general, working more than 33 hours a week at the chairside tends to impair efficiency, and that 33 chairside hours a week means about 42 working hours a week. The Working Party found that 70 dentists were working for a shorter time than the Spens standard, 25 were working to about the standard, and 166 were working for longer. On the average these 166 dentists did 73% of the work, their work on the average being 25% in excess of the Spens standard. Commenting on the Spens Committee's observation that work beyond the standard hours tends to impair efficiency, the Working Party remarks that the dentists' replies disclosed an abnormally high percentage of sickness.

The Working Party recognizes that certain dentists are working too long, too quickly, and with an eye fixed too closely on the monetary reward for their labours, some of them to such an extent as to create grave doubts about whether they can be working efficiently. But by means of organization and careful management work can be increased to a considerable extent without loss of efficiency. The comparatively few cases of very long hours and very high earnings should not be regarded as a major factor when terms of service are under consideration: they should be judged from the point of view of efficiency only.

Private Practice

Comparing the work of private dental practitioners not in the Health Service with that of Service practitioners, the Working Party found that private practitioners did a larger proportion of fillings and a much smaller proportion of extractions and dentures. The private operations of dentists in the National Health Service when compared with their Service operations show a reduction in the proportion of fillings and a very large increase in the proportion of extractions. The Working Party suggests "with some diffidence" that to a large extent this private work is done for people who are in a hurry.

The private work done by Service dentists represents only about 41% of their total operations. The Working Party regards that figure as disposing of the suggestion which has sometimes been made that any considerable section of the dental profession is using the National Health Service on a substantial scale as a cloak under which to obtain comparatively high private fees as the price of giving priority treatment.

Earnings

On the average the National Health Service dentists were earning about 19% in excess of the Spens standard prior to the introduction of the now abandoned "ceiling" of £409 a month (plus half the fees in excess of this sum) and the subsequent reductions in many items of the scale of fees. The remuneration for N.H.S. work was about 14% in excess of the Spens standard, and the other 5% is an estimate of the amount attributable to private work. This 19% is covered as to about 11% by hours in excess of the Spens standard, and as to about 8% by speed of work in excess of what was assumed in 1948. Although the times taken for private work are usually somewhat longer than the corresponding times for National Health Service work, they are not unduly longer.

[1] *Report of the Working Party on the Chairside Times Taken in Carrying Out Treatment by General Dental Practitioners in England, Wales, and Scotland.* H.M.S.O., 1s. 6d.

LOAN OF PATIENTS' RECORDS

The Ministry of Health has informed hospitals that patients' records may be lent on request to the medical boards and medical appeal tribunals of the Ministry of National Insurance to help the assessment of claims for disablement benefit, provided that the Ministry of National Insurance first obtains the consent of the patient in writing. The papers will be treated as confidential, and will be handled only by the regional medical officers (and their confidential lay staff), boarding doctors, specialists to whom claimants may be referred, and, in the case of appeals, by the members of the appeal tribunal.

Photostatic copies will not be made, but the regional medical officer may make extracts of the relevant portions of the case papers which have been taken into account by the medical boards. The patient will not be given information other than those extracts which are directly relevant to his claim, and if these extracts contain any information which might be harmful to the claimant the regional medical officer will take care to give it only to the claimant's own doctor or, as appropriate, to his trade union or legal representative.

GENERAL MEDICAL SERVICES COMMITTEE

A meeting of the General Medical Services Committee was held on September 15, with Dr. S. Wand in the chair. The chairman welcomed Mr. J. G. Gilbert, who was present for the first time as a representative of the British Dental Association.

The chairman reported that owing to the absence of senior officials of the Ministry of Health on holiday it had not been possible to arrange a meeting on the question of remuneration before September 23.

Absenteeism and Medical Certification

The chairman said that there had been comments in the Press following the Prime Minister's statement to the Trades Union Congress on absenteeism, and some of these comments reflected on the integrity of practitioners in giving certificates.

In the course of discussion it was strongly denied that laxity in certification was a major factor. Several other likely factors were mentioned in the experience of those concerned. In general, people were taking more notice of minor ailments, there was a disposition to stay longer on the sick list, as the original Beveridge report had foreseen, and another factor was the reluctance of patients to re-start work in the middle of the week.

A letter was read from the Ministry of Health laying it down that fees for medical examinations of candidates for appointments in the National Health Service should be paid by the appointing authority. It was mentioned—not in the letter—that the maximum fee which hospital authorities were permitted to pay was one guinea. The committee took the view that as it had been agreed that for similar examinations on a short form for candidates for appointments in Government departments a fee of 25s. should be paid, which fee had been obtained in many instances, this should be the recognized fee for medical examination of National Health Service staff.

Rural Mileage

Dr. J. C. Pearce, chairman of the Rural Practitioners Subcommittee, presented a report the principal matter in which concerned mileage. He said that various criticisms of the mileage arrangements had been made, and the first thing that the subcommittee had set itself to do was to make sure that the global sum was sufficient. For that purpose an inquiry had been made. While the population for whom mileage was paid had gone up two and a half times, the mileage grant had gone up three and a half times. The subcommittee felt that the global sum must be regarded as sufficient. The trouble really arose over distribution, in which there were obvious anomalies. The subcommittee's view was that it would be best to leave the question of local distribution to determination by the area concerned, and to ask local medical committees to supply detailed information of practices containing peculiar difficulties or hazards (e.g., mountainous areas, islands, lighthouses, etc.), which should be dealt with in a special way.

The chairman said that it had now been proved that the pool was reasonably adequate, but that the distribution in the past had been not quite fair. It was known that there were some desperately bad cases which would have to be looked into with a view to making special arrangements; but in the ordinary way of straightforward mileage he hoped that rural practitioners would agree that on the new basis of redistribution of an adequate pool they could try it out for at least twelve months.

Insurance Certificates and "Covering"

An interesting point was brought forward on a question of "covering" an unqualified practitioner. The solicitors to whom the point had been referred held the view that a practitioner had an obligation under existing regulations to issue insurance certificates even though he knew that the patient was receiving treatment from an unqualified practitioner. It appeared that whereas in the old Medical Certification Rules it was stated that medical practitioners "who are attending" insured persons should give certificates, the N.H.S. Regulations, 1948, omit the quoted words. There are also other differences between the two sets of regulations.

One member suggested that a practitioner who gave a certificate to a patient whom he knew to be attended by an unqualified practitioner would be transgressing the Warning Notice of the General Medical Council, though it was difficult to visualize the General Medical Council taking action against a practitioner who was only fulfilling his contract.

Domiciliary Midwifery

The chairman made a brief report on the document on the domiciliary midwifery service approved by the Central Health Services Council which was sharply condemned by the committee at its last ordinary meeting. Unfortunately, the document was issued before the committee had any opportunity of formulating its objections. The Ministry had received a deputation from the committee, and it was thought that much good would come from the interview. The matter was the subject of an annotation in the *Journal* of August 6.

The committee received with much appreciation, and noted for future use, a report by the Middlesex Local Medical Committee on a questionary issued to general practitioners in Middlesex on the maternity medical list. It gave the replies of 293 practitioners, with figures, concerning confinements they had attended, the liaison with the midwife, the use of analgesia or anaesthesia, and certain questions connected with rate of payment.

Association Notices

TITLE OF BIRMINGHAM BRANCH

Notice is hereby given by the Council of the Association to all concerned that it is proposed to alter the title of the Birmingham Branch to the "Midland Branch."

Any member or body affected by this proposal and objecting thereto is requested to write to the Secretary of the Association by October 24, 1949, stating the objection and the ground therefor.

CHARLES HILL,
Secretary.

Diary of Central Meetings

SEPTEMBER

27	Tues.	Organization Committee, 11.30 a.m.
28	Wed.	Private Practices Committee, 2 p.m.
29	Thurs.	Non-professorial Group Committee, 2 p.m.
29	Thurs.	Ethical Rules Subcommittee, 2 p.m.
29	Thurs.	International Relations Committee, 2.30 p.m.
30	Fri.	Ophthalmic Group Committee, 2 p.m.

OCTOBER

4	Tues.	Committee on Relationship of Autonomous Bodies, 2 p.m.
5	Wed.	Joint Committee of British Medical Association and National Veterinary Medical Association, 2.30 p.m.
14	Fri.	Committee on Industrial Health Services in relation to the National Health Service, 2 p.m.
18	Tues.	Proprietary Medicines Committee, 11 a.m.

Branch and Division Meetings to be Held

MID-ESSEX DIVISION.—At Chelmsford and Essex Hospital, Sunday, October 2, 10 a.m. Dr. H. Bathurst Norman: "The Cardiac Bruit."

NORFOLK BRANCH.—At Nurses' Lecture Room, Norfolk and Norwich Hospital, Thursday, September 29, 3.30 p.m., annual meeting. Address by Dr. W. A. R. Thomson: "Compound E in the Treatment of Rheumatoid Arthritis and Rheumatic Fever."

SOUTH ESSEX DIVISION.—In Nurses' Lecture Theatre, Oldchurch Hospital, Romford, Tuesday, September 27, 9 p.m., lecture by Dr. W. Evans: "Pitfalls in Cardiological Diagnosis."

WEST MIDDLESEX DIVISION.—In Princes Room, Ealing Town Hall, 8.30 p.m., "The Modern Outlook on Food-poisoning," Professor Robert Cruickshank.

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FAT ABSORPTION AND SOME OF ITS PROBLEMS*

BY

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Some twenty years ago physiologists considered that the process of fat absorption was largely understood. Fats were supposed to be taken up by the intestinal cells only after hydrolysis to fatty acid and glycerol, and neutral fats were never absorbed as such. Furthermore, since free fatty acid, although well absorbed, is not found free in the chyle, it was assumed that reconversion of fatty acid and glycerol to neutral fat occurred in the cells of the villi, and that this neutral fat was then passed on into the lacteals. There was no suggestion then that any portion of the fatty acids which were produced by hydrolysis of the food fat escaped this process of resynthesis and gained access as such to the blood or the lymph. But there was not then, and there is not now, sufficient quantitative evidence to tell us exactly what happens to the whole of the fat absorbed after any one meal.

This picture of the mechanism of fat absorption, accepted as largely true, as I say, twenty years ago, has had considerable doubt thrown upon it in the last decade. But it was not as complete as I have suggested even before then, for the passage of fat from the cells of the villi to their central lacteals was not understood. Sharpey-Schafer had suggested from histological investigation that this transfer was carried out by amoeboid cells in the reticulum of the villus. But the difficulty of accounting for the speed at which fat absorption may take place by the unaided activity of these cells has not supported Sharpey-Schafer's view. What is more probable is the view of Verzar that the pumping action of the villi causes fat to enter the central lacteals, and that the absorption not only of fats but of other substances is promoted in this way.

Earlier Beliefs

Before dealing with recent work it will be profitable to consider on what kind of evidence these views of twenty years ago were based.

Evidence that fat is absorbed only after hydrolysis in the intestinal lumen was partly histological. Even at the height of fat absorption, fat particles could not be seen in the free border of the cells of the villi, though they were abundant in the body of these cells. It is, however, well known that fat may be present in cells and not be stainable as particles or globules, so that histological evidence by itself, which does not support the idea of fat being absorbed in a very highly emulsified state, is not conclusive. More convincing evidence was that, although fat-like substances such as esters of fatty acids are well absorbed, there is no evidence that this can be done without their previous hydrolysis by the lipase of pancreatic juice. For example, fatty acid esters such as cetyl palmitate, ethyl palmitate, and a lauric acid ester of mannitol are all well absorbed, but none of them appears unchanged in the fat of the chyle. What is found there is the glyceride of palmitic or lauric acid respectively.

Other information on this question had been got by feeding oily substances which were like fats physically but not chemically and were capable of being emulsified. It was found that they were completely unabsorbed. In this category come experiments with lanolin, mixtures of petroleum jelly and lard, or petroleum oil and olive oil. With the mixtures of natural fats and petroleum hydrocarbons the natural fat was absorbed but the petroleum product was not. The non-absorption of the petroleum was demonstrated either by its complete recovery from the faeces or by its non-appearance in the fat of the chyle.

Evidence, then, that fats could be absorbed only after hydrolysis to fatty acid and glycerol seemed fairly conclusive. But the problem of how fatty acids were absorbed even after hydrolysis still remained. The higher fatty acids are as insoluble as the fats and would still have to be absorbed from the fine suspensions or emulsions which were supposed to be present in the intestinal lumen, and histological appearances did not give any evidence that this actually happened. For this reason it had been suggested that the fatty acids formed soaps which, being soluble in water, could be absorbed in solution. There were two facts against this. First, it was believed that soaps are not formed at the faintly acid reaction of the upper regions of the small intestine. Secondly, even if soaps could be formed, there is not enough alkali secreted in the pancreatic juice to produce soap from the whole of the fatty acids which might be liberated from the fat taken at a normal meal.

The fact that bile salts will dissolve fatty acids, and, furthermore, the discovery that the lecithin normally present in bile assists this action very considerably, showed that a means existed whereby fatty acids could be brought into solution in bile and thus be absorbed in the dissolved state. There is ample proof, both from clinical findings and from animal experiment, that the presence of bile in the small intestine is essential to obtain the figure of about 90 to 95% absorption of fat which is normally found.

*Sharpey-Schafer Memorial Lecture given at the University of Edinburgh on May 19.

The effect of bile in promoting absorption might be due to its well-known adjuvant action on the hydrolysis of fat in the small intestine by pancreatic lipase. This would facilitate fat-splitting, and this was deemed a preliminary essential to absorption. But examination of the faeces in cases of biliary obstruction and consequent steatorrhoea showed that fat-splitting was not defective. Therefore, at the time I am considering, it was the solvent action of bile salts, potentiated by lecithin, which appeared to provide the explanation of the action of bile. Other possible ways in which the action of bile might be accounted for have been pointed out since; I shall deal with these later, for the mode of action of bile in promoting fat absorption is still a physiological problem. Nevertheless, at the time of which I am speaking, this solvent action of bile on fatty acids was accepted as solving the problem of how the insoluble higher fatty acids might be brought into solution and so absorbed.

Evidence that fatty acids when absorbed are resynthesized and appear as neutral fat in the lacteals was first provided by Immanuel Munk nearly 70 years ago. By collecting chyle from the thoracic duct of dogs to which fatty acids had been administered Munk found that the chyle contained not fatty acids but almost wholly neutral fat. He also showed some years later, in a human subject with a lymphatic fistula which discharged chyle, that after a meal including erucic acid the chyle contained only the glyceride erucin and not free erucic acid. Analyses of fat from the mucosa during fat absorption carried out by Moore about 50 years ago showed that this was a mixture of fat and fatty acids, and collection of chyle before it had traversed the lymphatic glands which lie along the course of the lacteals showed that the fat in these peripheral lacteals was almost wholly neutral. This indicates that resynthesis occurs in the cells of the villi.

It is interesting to recall that Munk, who had proved to his own satisfaction that free fatty acids were as well absorbed as neutral fat, believed firmly that the fatty acids were absorbed in a finely emulsified state. This was stoutly disputed by the indomitable Pflüger, but not, unfortunately, supported by any very satisfactory evidence, except the histological finding, already referred to, that fat is not detectable by staining methods in the free border of the cells of the villi. It was the discovery by Benjamin Moore of the solvent action of bile salts which to a large extent reconciled these opposite views and gave rise to what persisted as the classical view of fat absorption until a few years ago.

The Quantitative Aspect

There is one other aspect of these older experiments that I must deal with before proceeding to discuss later evidence on fat absorption, and that is the quantitative one.

The physiologist can be satisfied that what is termed the classical view of the process of fat absorption is true only if he can account satisfactorily for the whole of the fat absorbed. This has not yet been done. It would be thought to be a simple matter to collect the chyle from a thoracic-duct fistula in an animal during the whole period of the absorption of a meal containing a known amount of fat, but this has so far not been achieved. This is partly due to the inhibiting effect of general anaesthetics on fat absorption and to mechanical difficulties caused by frequent clotting of the chyle one is endeavouring to collect. Munk and Rosenstein, however, did succeed, using their patient with a lymphatic fistula in the leg, in collecting chyle for a period of 13 hours. After a meal containing 41 g. of fat, 1,134 g. of chyle were collected, and this contained 25 g. of fat—i.e., 60% of that administered. Although the chyle still contained fat, the experiment was stopped. Munk and his colleague assumed that, had the chyle been collected until fat was no longer present, an additional 6% of the fat administered might have been collected. This is the only quantitative experiment that has been recorded in which an attempt was made to give a balance-sheet accounting for the fat fed and that which passed into the thoracic duct. It has the obvious defect that the amount of fat actually absorbed was not measured. We know that olive oil is very well absorbed as a rule, and, assuming that all the chyle was being collected, for which Munk gave indirect evidence, we are left with the conclusion that about two-thirds of the fat absorbed reaches the thoracic duct via the lacteals, whereas the remaining third is unaccounted for. It has generally been assumed that it passes into the blood stream via the capillaries of the villi.

To sum up, the classical view was that fat was absorbed only after hydrolysis. The fatty acids so produced were absorbed dissolved in bile. They underwent resynthesis into neutral fat in the epithelial cells of the villi. This was then discharged into the reticular spaces of the villi and taken up by lacteals or blood capillaries. In the former case it entered the systemic blood vessels and in the latter it reached the portal blood and so passed direct to the liver.

Physiologists are perhaps more critical of classical views than are other scientists. It is not, therefore, a matter for surprise that the beliefs of twenty years ago have continually been questioned and subjected to further experimental inquiry. The result is that this classical view has been called in question and other possible mechanisms of fat absorption have been put forward.

Role of Phosphates

In 1934 Verzar and Laszt described experiments on rats which indicated that phosphates may play a part in fat absorption. Their method was to inject into the small intestine of the animals the mixtures they were testing and after six hours to withdraw them. The amount of fatty acid was estimated and compared with that introduced at the beginning, thus showing the magnitude of the absorption. There was practically no absorption when oleic acid alone was injected into the gut, but it was moderate when the fatty acid was mixed with bile acid or with bile acid and glycerol. It was nearly doubled when phosphate was added to the mixture. When glycerophosphate was used instead of phosphate then the absorption was increased still further. This suggested that esterification of glycerol by phosphoric acid may be an important factor in fat absorption.

It is known that the mucosa of the small intestine is one of the body's richest sources of the enzyme phosphatase, so that in the presence of phosphate the glycerol split off from fats in the process of digestion might undergo conversion to glycerophosphate in the cells of the villi.

Furthermore, it was shown that mono-iodoacetic acid, which inhibits the enzyme phosphatase, also inhibits the absorption of fatty acid. But this inhibition of fat absorption is still evident when the fatty acid is mixed with bile acids and glycerophosphate, so that Verzar concluded that the iodoacetic acid acts by preventing in some way the resynthesis of neutral fat in the mucosal cells rather than by preventing phosphorylation. It was shown in Verzar's laboratory that the action of lipase was not hindered by iodoacetic acid, so that a failure to hydrolyse fat did not

explain why the fat was not absorbed after administration of this substance. What seems most likely is that its action as a general cellular poison is a sufficient explanation of its prevention of fat absorption.

Verzar showed also that phlorizin prevented fat absorption in rats. This substance also inhibits the enzyme phosphatase. The doses that have to be used are very large and the complete inhibition lasts for only a few hours. Nevertheless, these experiments are more suggestive than those with iodoacetic acid that phosphorylation is an accelerating factor in fat absorption. Histological observations from Verzar's laboratory indicate that it is not the entry of fatty acids into the cells of the mucosa which is prevented, but rather the resynthesis into neutral fat and its transport away from these cells. Thus, staining methods which differentiate fat from fatty acid show that a few hours after administration of iodoacetic acid or phlorizin most of the globules or particles inside the cells of the villi consist of fatty acid, whereas normally they would be neutral fat.

If phosphorylation is an important aid to fat absorption by the villi, it probably indicates that the synthesis of lipins is an intermediate stage in the resynthesis of neutral fat.

There is, however, not much more experimental evidence on this point. Examination of the fat in the chyle has shown that it does contain a small amount of lipin, but the proportion does not exceed 10% of all the fat present.

Estimations of the lipin content of the cells of the villi during the absorption of cotton-seed oil in pigs have also been made by Reiser, but have shown no change within five hours. It has also been shown by Barnes, Miller, and Burr in rats fed with a methyl ester of the conjugated acids of corn oil, which can be estimated by spectrophotometric methods, that at a time when the absorption was maximal there was only a slight incorporation of the fatty acids administered into the lipins of the cells. This indicates that if lipin formation is essential in fat synthesis in the cell the rate of transformation of lipins into neutral fat must be very rapid.

Experiments in which phosphate containing radioactive phosphorus has been fed along with fat have shown that the isotopic phosphorus becomes incorporated in the lipins of the mucosa. But this does not provide evidence of new formation of lipins during fat absorption, because the isotope might have undergone exchange with the phosphorus of the pre-existing lipins.

We must therefore, I think, come to the conclusion that the facilitation of fat absorption by phosphate and glycerophosphate, which was demonstrated in rats by Verzar and his colleagues, has not yet led to an explanation of the mechanism by which it is brought about. The study of the lipins in the mucosa during fat absorption has certainly not given one.

The Partition Hypothesis

Other experiments which I wish to describe next have been concerned to a large extent with the fat in the blood and its relation to the processes of fat absorption. It is well known that during the absorption of fat the blood plasma has an opalescent appearance. This is due to the presence of fat in extremely fine suspension.

Under dark-ground illumination the microscopic particles of fat appear as points of light and can be counted. A method for estimating their number under standard conditions was described about ten years ago by Frazer and Stewart. The particles are called "chylomicrons," and the number present under these standard conditions we may refer to as the chylomicron count. The graph representing the change in this count with time is spoken of as a "chylomicrograph." It is obvious that unless the chylomicrons are always of the same average size a mere estimation of their number would not give an accurate indication of their weight. If, therefore, the chylomicrograph is to be used to indicate the relative amounts of fat in the blood at different times, then it must be known whether under all conditions the fat content of the blood runs parallel to the chylomicron count.

A study of the results published from Professor Frazer's laboratory shows that the count is very low during starvation, and that it rises considerably after a meal which contains fat. There is a peak about three hours after the meal. When the fatty components of the blood are estimated and the amount is compared with the count there is a rough parallelism between the two with glycerides, but not with lipins and cholesterol esters. It must therefore be borne in mind that the chylomicrograph gives no more than a qualitative indication that the amount of fat in the blood varies under different conditions. It does not allow us to estimate either the percentage variation or the absolute amount present under those different conditions.

Nevertheless, the study of chylomicrographs in relation to fat absorption has revealed several interesting facts which require explanation.

Rats were given some olive oil or the equivalent amount of oleic acid and glycerol. After olive oil the lacteals appeared milky, and the chylomicron count in the systemic blood was high, but in the portal blood it was low. With the oleic acid and glycerol the chylomicron count in the systemic blood was low, whereas that in the portal blood was high and the lacteals were relatively free from fat.

These findings suggest that in the rat, at all events, neutral fat and fatty acid are dealt with differently in the process of absorption. Additional evidence for this view was obtained by feeding stained fat or fatty acid to rats. After a week of such feeding the fat depots were deeply stained when stained fat was fed, but were not when equivalent amounts of stained fatty acid and glycerol were given. Furthermore, if rats were fed with small quantities of stained fat or fatty acid and killed five hours later the liver showed only a small amount of stained fat after feeding with fat, but a large amount after feeding with fatty acid.

From these and other observations Frazer concludes that neutral fat is absorbed direct into the intestinal cells and is passed on without change to the lacteals. On the other hand, fatty acid is absorbed into the cell by a different mechanism. It is passed into the blood capillaries of the villi and reaches the liver in the portal vein.

According to Frazer, therefore, lipolysis is *not* an essential preliminary to absorption, and neutral fat and free fatty acid can both be taken up by the intestinal cells. When they are taken up they are treated differently.

The view that some of the absorbed fat might be taken up by blood vessels in the villi and not by the lacteals does not conflict with previous evidence. It will be remembered that in Munk's quantitative experiments with the patient who had a lymphatic fistula about one-third of the fat administered was not accounted for by passage into the lacteals, and it has therefore been assumed that the pathway of this fat was the blood vessels of the villi.

What is new about the deductions drawn by Frazer and his colleagues from the comparisons they have made between the absorption of fat and fatty acids is that an unspecified amount of the fat which is absorbed in the

rat when neutral fat is administered is absorbed without previous hydrolysis in the intestinal lumen.

Histological Picture

In addition to the evidence obtained from chylomicrographs and the appearance of the lacteals, Frazer and his colleagues have drawn attention to the different histological pictures presented in the small intestine when olive oil and oleic acid are administered. With olive-oil feeding the cells are mostly occupied by large globules of fat, whereas when oleic acid is given the cells are full of much smaller particles, presumably of the fatty acid. Frazer makes the point that if fat-splitting must precede fat absorption then administration of fatty acid should produce the same histological picture as administration of neutral fat.

It is, however, a legitimate comment on this view that one might not necessarily expect to get the same histological appearances, because the conditions are not the same. In the case of olive-oil feeding, the fatty acid is liberated gradually and therefore in small concentration; when fatty acid is fed it is presented to the cells in maximum concentration ready formed. In the latter case the cells are, so to speak, swamped with fatty acid, but in the former case they may be able to deal with it in a more leisurely manner. This is the old problem of histology. To what extent are we justified in interpreting dynamic functions from static pictures? I feel that it is unsafe to draw fundamental conclusions on fat absorption from histological evidence of this kind alone.

Frazer, however, has obtained other evidence in support of his view that in absorption fat and fatty acid are treated differently by the intestinal cells.

The rate and amount of lipolysis in the intestine can be increased by adding an active preparation of lipase to the fat which is fed. When this is done in rats, the histological picture is like that obtained when a fatty acid such as oleic acid is fed—i.e., the cells are filled with fine granules. The path of absorption is also like that observed with fatty acid feeding—namely, absence of milkiness in the lacteals—and when stained fat is given along with the lipase the liver is deeply stained but not the fat depots. In addition to these observations it is found in man as well as in the rat that addition of lipase to the diet causes a considerable change in the chylomicrograph. At the peak period the chylomicron count obtained when fat is fed greatly exceeds that which results from feeding the same amount of fat with added lipase.

The reverse of this experiment has also been carried out by Frazer. This was the inhibition of the action of lipase of pancreatic juice by giving a small amount of sodium cetyl sulphate with the oil fed. This prevents the hydrolysis of fat by lipase and, in the rat, produces a histological picture like that obtained with neutral fat alone—namely, intestinal cells filled with large fat globules. Along with this the lacteals are found to be milky, and when stained fat is fed along with cetyl sulphate the fat depots are heavily stained, whereas the liver is not. This again points to lipolysis not being essential for fat absorption and different paths of absorption being followed by fats and fatty acids. In Frazer's experiments with cetyl sulphate it seems likely that inhibition of lipolysis was almost complete. That fat was absorbed in amounts which were quite normal was attributed by him to the emulsifying action of cetyl sulphate, which would be expected to produce fine particles of fat in the intestinal lumen. These could be taken up directly by the intestinal cells if his view is correct.

To my mind these experiments with cetyl sulphate provide the best evidence that has yet been put forward that, in the rat at all events, fat may be absorbed without hydrolysis if it is finely enough emulsified. Cetyl sulphate is a particularly valuable tool because, besides its surface active properties, it inhibits lipase. The fine emulsion it produces would normally lead to a more rapid action of lipase, and hence production of fatty acid. But this being prevented enables the effect of emulsification alone to be studied.

Emulsification

Emulsification, its degree of fineness, and the conditions which bring it about are very important in fat digestion and absorption. I should therefore like to say more about them at this stage.

Because fat is insoluble in water its digestion takes place at the interface between the fat globule and the surrounding medium which contains the fat-splitting enzyme. The more finely divided the fat—i.e., the more it is emulsified—the greater will be its surface area and, other things being equal, the more rapidly will it be split up into fatty acids and glycerol. According to Frazer, fine emulsification is also a prerequisite for absorption of fat in its unchanged state. It is clear, therefore, that in the small intestine there will be two competing processes for disposing of the fat which enters it from the stomach. The more finely the fat is emulsified the greater will be its chance of being split up into fatty acid and glycerol, both of which can be absorbed in solution. But, also, the greater will be its chance of being absorbed in particulate form.

We have as yet no answer to the question how much of the fat travels by what we may call the fatty acid route and how much is taken up as neutral fat. It is, however, obvious that whatever proportion, if any, is absorbed in particulate form depends almost entirely on the existence of conditions in the intestine which will facilitate the production of a very fine emulsion.

This leads us to consider what those conditions are. We are again indebted to Professor Frazer and his colleagues for some experiments that have thrown a great deal of light on them.

There is general agreement that the reaction of the contents of the small intestine varies between a *p*H of about 6.5 and 8.5. A prerequisite for particulate absorption of unchanged fat is therefore the existence of a stable, finely divided emulsion between that *p*H range. It has been shown by Frazer that, if olive oil is placed in a rat's stomach and the animal is killed three to four hours later, its small intestine contains a white emulsion of fat consisting of negatively charged particles less than 0.5 μ in diameter. The emulsion is stable for several hours.

This shows that administration of oil does provide the kind of emulsion that would be required for particulate absorption. By studying systematically the emulsifying effect on olive oil of single, paired, and triple combinations of bile salts, oleic acid, soap, glycerol monostearate, and soap formed at the oil–water interface by the reaction between oleic acid and sodium carbonate, Frazer and his collaborators found one triple combination that provided the requisite kind of stable emulsion. It consisted of bile salt, oleic acid, and glycerol monostearate. The oleic acid and monostearate were dissolved in the oil and a 1% solution of bile salt formed the aqueous phase. On mixing, emulsification was spontaneous over the *p*H range 6–8.5, the particle diameter averaged less than 0.5 μ, and the stability was all that could be desired.

It is not difficult to produce emulsions of fat in an alkaline medium, but it is when the reaction is even slightly acid, as in the duodenum; hence the special importance of this new discovery by Frazer. If this sort of combination is that used normally in the intestine, it implies that a stepwise hydrolysis of fat takes place with monoglyceride as at least one of the phases. I am not aware of any demonstration that when lipase acts on fats the three component fatty acid molecules are split off one at a time, although this might well be so. In fact, the only difficulty in accepting this three-component system as one which may be responsible for emulsification in the small intestine is the lack of experimental evidence that a monoglyceride stage exists as a phase in the action of lipase on fats. There seems to be no theoretical objection to this, so possibly in the future we may expect to see some proof of it by experimental means.

Importance of Bile

It will be observed that this work on emulsification provides a new function for bile salts and therefore emphasizes the importance of bile in the digestion and absorption of fat. All the following functions may be attributed to bile salts. In digestion they have two roles: besides increasing the surface area by aiding emulsification of fat they have an adjuvant effect on lipase itself, speeding up its action several times. In the process of absorption they are believed to play several parts. One of these is to dissolve fatty acids, probably by forming soluble complexes with them.

Wieland and Sorge have shown that one of the bile acids —deoxycholic acid—forms definite compounds with fatty acids, the so-called choleic acids. They have suggested that these acids, coupled with glycine or taurine, may therefore play a part in enabling fatty acids to enter the intestinal cells. Verzar and McDougall suggest that bile salts form a layer at the surface of the intestinal cells, where they produce water-soluble and diffusible complexes with fatty acids and so assist the entry of the latter into the cells. Finally, according to Frazer and his collaborators, they are necessary for producing the stable emulsions of fat with particles less than 0.5 μ in diameter and capable of existence in a *p*H range of 6–8.5 which are postulated as necessary for particulate absorption of fat.

In spite of this variety of ways in which bile salts assist fat absorption, they do not seem to be absolutely essential. It is one of the interesting problems of absorption why they are not.

The most trustworthy evidence for this comes from experiments on dogs in which a biliary fistula had been established. Munk has described how in animals treated in this way and fed on diets containing varying amounts of suet or lard, or, alternatively, with the fatty acids derived from them, a considerable amount of the fat or fatty acid was absorbed. The figures for the quantity of fatty acids taken up during the passage of the food through the intestine were always a little higher than those for the corresponding amount of neutral fat. Also, the lower-melting fat was absorbed better than the higher-melting one. Thus lard was absorbed to the extent of 67% and suet to 35% when the daily intake was 70 g., the corresponding figures for the fatty acids being 73% and 42%.

Other experiments on human subjects with biliary obstruction bear out these results. Schmidt, for instance, describes the findings on three cases in which the average fat utilization was 74%. In two of these the obstruction was complete.

These results leave no room for doubt that although the presence of bile in the intestine assists fat absorption it is by no means essential.

In the experiments of Frazer and his colleagues on emulsification the only stable emulsion obtained at the *p*H found in the upper part of the small intestine was obtained in the presence of bile acids and monoglyceride. These, however, could not have been present in the experiments of Munk on the absorption of fatty acids, which I have just described. It seems a reasonable conclusion, therefore, that large amounts of fat and fatty acid can be absorbed under conditions which do not fit in with those so far shown to be necessary to produce fine emulsions at the slightly acid reaction of the intestine.

I have pointed out earlier that the solvent action of bile for fatty acids was the one property which led to the abandonment of the particulate absorption theory about fifty years ago. Since so large an absorption of fat or fatty acid can take place in the absence of bile, we are led to the conclusion that some other solvent for fatty acids must be present or that some undescribed emulsifying system exists which can explain the remarkable degree of absorption obtained when bile is absent. It is important to bear in mind that the diet used by Munk in his experiments was a mixed one and contained a large proportion of meat. Possibly digestion products of protein and especially amino-acids in high concentration may assist in emulsification, or in stabilizing emulsions, or in actually combining loosely with fatty acids so as to assist their absorption. This must remain a speculation, however, until experimental evidence about it can be obtained.

Absorption of Paraffin

One other set of recent experiments on the absorption of oil emulsions is of importance. It is the work of Frazer, Schulman, and Stewart on the absorption in the rat intestine of emulsions of paraffin. These observers found that 50% emulsions of liquid paraffin stabilized with cholesterol and sodium oleate or sodium cetyl sulphate could be prepared with an average particle diameter of 0.5 μ or less. These when introduced direct into the rat's intestine were absorbed to the extent of 36 to 43% in a period of six hours. It will be observed that no bile salt was used in making these emulsions, so these experiments show again that bile is not essential for absorption of fine emulsions. With coarser emulsions, in which many particles had a diameter of 1 to 2 μ or more, the absorption was very much reduced.

These experiments show that, provided an oil emulsion is finely enough dispersed, it can be absorbed in the rat's small intestine. Some alarm has been expressed on this account at the use of medicinal paraffin as a medicament and in cooking. It has been suggested that if paraffin is absorbed it would tend to accumulate in the body in undesirable situations, since it is not oxidizable, or, if it is, then only with great difficulty. So far as I am aware, no evidence has been produced that the fine dispersion of paraffin which Frazer and his colleagues have shown to be necessary before absorption can take place is obtained when the oil is taken by mouth in the normal way. On the experimental side it may also be recorded that Channon and Collinson many years ago gave 100 ml. of emulsified paraffin daily to a pig for 54 days. On extraction of the fatty substances from its liver 2.2 g. of unsaponifiable material was obtained, which was possibly derived from the 5.4 litres of oil that had been administered. This does not suggest that absorption of paraffin takes place in an amount that would be of material importance.

Steatorrhoea

A final topic that must be considered briefly is whether diseases involving defects in fat absorption have taught us anything about the physiology of the process. In certain fields of physiology it is true that a study of disease has helped to throw light on physiological processes, but that can hardly be said of disorders in which fat absorption is at fault. It is true that biliary obstruction causes steatorrhoea, but that fact has not explained the reason why. Similarly, pancreatic disease, or in extreme cases complete pancreatic obstruction, interferes with fat absorption.

Those who uphold what I have termed the classical view of the mechanism of fat absorption would state that this was due to defective hydrolysis of fat caused by the partial or complete deficiency of pancreatic lipase. That would seem to be a satisfactory explanation. At first sight it also counters the modern view that fine emulsification is all that is necessary in order that fat absorption may take place. But we have to remember that the failure of both bile and pancreatic juice to enter the small intestine may result in the non-production of the necessary conditions for that fine dispersion of fat which is regarded as essential for its absorption. Hence the faulty absorption which is associated with diseases of the pancreas and bile ducts has not helped in explaining the mechanism which we wish to have made clear.

Another disease in which steatorrhoea occurs is tropical sprue. I am indebted to my colleague Dr. D. A. K. Black for his views on the defective fat absorption which is a well-known sign in this condition. First, there is no evidence of a selective failure of fat absorption. The steatorrhoea seems to be part of a general impairment of absorption. This in itself does not help us in our search for the true mechanism of the absorption process. Secondly, the percentage absorption of fat does not vary with the amount of fat in the diet. In five patients, for instance, whose daily fat intake was increased from 65 g. to 95 g. the percentage absorbed did not show any significant change. This does give a clue to the kind of mechanism which is involved. The defect cannot be a purely physical one, otherwise the absolute amount of fat absorbed would not depend on the quantity in the diet. Thus some biochemical defect, such as one in the enzyme systems concerned in fat absorption, is indicated. It is interesting that Munk, in his studies of fat absorption in dogs, in the absence of bile found a similar relationship to hold, provided that the normal capacity for dealing with fat was not exceeded.

A third discovery which Black and his colleagues made is in harmony with the view that the defect in tropical sprue is a biochemical one—that is, that administration of yeast extract in this condition has a favourable influence on fat absorption. This suggests that some accessory food factor is possibly lacking. Apparently it is not nicotinic acid, riboflavin, or folic acid. Its identity, therefore, if there is any truth in this suggestion, still remains to be discovered.

Conclusion

Perhaps I have said enough to show that I regard the processes of fat absorption as still not completely understood. The intelligent use of some of the new isotopes which the physicists are now putting into our hands could undoubtedly help in solving some of the outstanding problems, and I hope that in due course these new methods may be made use of. I can certainly commend to any young physiologist the study of fat absorption as well worthy of his attention.

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MODERN TRENDS IN RADIOLOGY*

BY

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In this paper it is my intention to stimulate thought by taking stock and critically examining the prevailing tendencies and so obtain a perspective which will enable us to see where we are going.

The radiological age may be divided into three periods —(1) that which heralded the advent of radiology; (2) the period of distrust; (3) the period of idolization—the modern trends.

When Roentgen's remarkable discovery was made known to the world, the Press (Brailsford, 1946a)—both medical and lay—heralded it as a means of sparing patients not only the pain associated with disease but also that which was, and still is, inflicted when other methods of examination are conducted. First impressions are often the most important and deserve the fullest consideration, and these first impressions were so strong that they stimulated radiological research throughout the world to such a degree that during the year 1896 most of the possibilities of radiology were envisaged, techniques developed, and explorations begun. Continuous progress since then has been essentially refinement of technique, concomitant with ever-improving equipment. Unfortunately many enthusiastic workers in the earlier years did not preserve the scientific accuracy in their observations that is so essential for progress. Because interpretations were read into radiographs which were far in excess of what was reasonably possible —a tendency which has not been entirely overcome—clinicians were taught to distrust radiology; but the more careful workers in radiology, by painstaking study of the normal and by correlation with pathology, convinced clinicians that they could render much help in the elucidation of clinical problems. Some radiological evidence is self-explanatory even to the layman, and this has resulted in the misconception amongst the inexperienced, both qualified and unqualified, that all radiographs are self-explanatory. In the light of the previous high standard of clinical medicine it is amazing that this serious misconception,

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associated as it is with the five following very remarkable omissions, should have been allowed to prevail.

Omissions in Medical Practice

(1) Failure to realize the importance of, and to carry out, a thorough clinical examination before any radiology—radiology being regarded as an easily obtained substitute requiring little personal effort. On the serious errors in diagnosis and treatment which this has occasioned a great deal could be written. Careful attention to the clinical condition of the patients in these cases would have spared them much mental and physical pain, and the clinicians the blame the fruits of which they escape perhaps too often. There would be fewer errors in the interpretation of radiographs if radiology was always preceded by a sound clinical examination: if one of these must be omitted the least harm will come from omission of the radiography and most from omission of the clinical examination.

(2) There has been a failure to learn the bounds and appearances of the normal, and even the character of the artifacts produced by faulty material and techniques. Radiographic methods have been applied to the examination of structures made visible by contrast media, and operations have been conducted to remedy "defects" long before the appearances of the normal have been learnt: when sound knowledge of the normal has with time and experience been acquired the operative measures for the correction of some of the "defects" have been abolished. This was very noticeable in gastro-intestinal radiology. I am confident that in the realms of other specialties, notably thoracic surgery and neurosurgery, the same sequence will occur, for in these our knowledge of radiology, with and without contrast media, is still inadequate and incomplete; yet surgical explorations based upon the radiology are many.

(3) It is often not realized that the initial changes in many conditions are indistinguishable from one another, and that serial radiographs with continuous clinical examinations over a short or long period may be necessary for elucidating a problem.

(4) Many have failed to appreciate that the onset of disease is not associated with immediate changes in the radiographic appearances, and that it requires time—what I have called "the latent negative radiographic period," sometimes only a few days, but sometimes a year or more (Brailsford, 1946b)—before the changes are sufficient to produce enough contrast density or irregularity of contour to alter the radiographic appearances from the normal: by the time these changes are recognizable they are extensive—in some conditions more extensive than the radiographs suggest—in some cases healing may have commenced. Even fractures and other more serious conditions of bones and joints may be masked, if displacement has not resulted, until secondary changes have developed.

(5) There has been a failure to realize that, though the disease has ceased its activity, the radiograph may show spectacular appearances even to the end of an apparently normal life—the positive radiographic symptomless period. It is questionable whether surgical measures with their attendant risks would be so often undertaken if the full importance of this were understood. In some cases failure to appreciate omissions 4 and 5 have, on the other hand, led to the disregard of active clinical signs or recent injury when radiographs have shown no sign of change or only the typical evidence of old healed lesions. You may ask what evidence I have of these omissions. I believe you could obtain such evidence from the activities in many hospitals, but the strongest evidence is in the boosting of mass radiography.

Mass Radiography

I have recorded elsewhere (Brailsford, 1945a, 1948a) the serious limitations, erroneous interpretations, and liabilities of mass radiography and the relative poverty of its contributions to preventive medicine. Undoubtedly it has an important propaganda value, but it is the propaganda of fear by which the public—yes, and the medical students—are being frightened into the erroneous belief that active progressive disease is symptomless and only the radiograph can reveal it. It can be proved to have been responsible for the infliction of much unnecessary mental and physical pain.

Mass surveys are essentially bureaucratic regimentation measures designed by officials and enthusiasts who appear not to have the knowledge of the five omissions or the experience to judge the efficiency of the measures adopted, and, while they themselves are spared the rigours and anxieties of the general practitioners attending to the sick, would decry the contributions of these latter doctors to the reduction of the incidence and mortality from tuberculosis. Mass radiography has not added anything new to our knowledge of radiography of the chest. The evidence obtained by it has been used to re-emphasize the fact that about 4 per 1,000 of the population have signs of active tuberculosis; but not enough importance has been placed on the other confirmatory evidence it has yielded —i.e., that at least ten times as many persons, or 40 per 1,000, have had fairly extensive disease and recovered from it without knowing of its existence and in most cases without having lost time from work. Had radiography been applied to all these at the stage when the appearances suggested activity it would have inflicted on them the dreaded stigma of tuberculosis and seriously interfered with their lives without contributing any good. A little reasonable education in hygiene would have accomplished much more, at less expense in money, equipment, buildings, personnel, and above all in feelings.

Because there would appear to be conditions of medical service which permit certain cases of pulmonary tuberculosis to be overlooked by medical officers is an indication not that the progressive disease is symptomless but that the clinical examinations are poor; for when such patients return home the diagnosis is made by the parents, confirmed as grave by the general practitioner, and registered as deadly by the consultant a few days before death. The greater the percentage of cases of unknown progressive tuberculosis discovered by mass radiography, the poorer the clinical medicine that has been applied.

Spectacular radiographic evidence of tuberculosis, as well as other conditions, may persist for many years, during which it is symptomless because it is quiescent or healed and of little importance from the point of view of infection. The most successful surgical results have been obtained in cases which have previously healed themselves and are symptomless. Reversal of the radiographs —i.e., showing the last in the series first and the first last —is worth doing, for it will often indicate what appears to be a miraculous cure, particularly when the series includes a number of radiographs taken at intervals in the early days, during which no change occurred prior to the surgery.

I find it difficult to reconcile the views of modern clinicians on tuberculosis. If one examines the serial post-operative radiographs, tries to evaluate the risks run by the patients, and compares the end-radiograph with the

one which incited the surgery, one finds it difficult to believe that the latest radiograph satisfies, or that it justifies the measures adopted. If the inciting radiographic features were unaccompanied by signs and symptoms these post-operative radiographic appearances of mutilations are certainly not without them. There would appear to be no more justification for removing a healed or quiescent lesion of the lung (which would not have been suspected if there had been no radiograph) than of any other structure, or in fact for removing any normal tissue; since valuable healthy lung is removed.

Though patients derive great benefit in those sanatoria where mental and physical rest, good fresh air, and food are the essential characteristics of treatment, they have to return to the debilitating influences of the poor home which broke down their resistance. The best place to treat tuberculosis is the home, and only those efforts which are designed to make the latter fit for living in are likely to cut out tuberculosis effectively and permanently. The best preventive medicine is that aimed at prevention, not that which is aimed at treatment of disease that could have been prevented. The lack of sincerity and fairness in this propaganda is shown in the recent report of the Brookings Research Institute, which states that tuberculosis is three times more prevalent in coloured than in white people and syphilis six times more common. The unfortunate individual labelled as tuberculous is subjected to all the disadvantages which the stigma of this disease brings—i.e., inability to insure, estranged social and business contacts, and other serious interferences with life and liberty; whereas the stigma of syphilis, the loathsome contagious disease to which innocent persons can be subjected, is treated with all privacy, though with effective measures it could be stamped out.

Radiography and Clinical Medicine

In spite of all these drawbacks to mass radiography of the chest I believe it could be used for the groups I have enumerated. But there are signs that the degeneration of clinical medicine is spreading with the aid and at the expense of radiology: it will ultimately bring radiology into disrepute. In a recent English newspaper it was stated that "one in every 20 people in Britain—or over 2,000,000—suffers from rheumatism. So it has been decided to mass-radiograph the joints of groups to ascertain the extent of the disease. When the unit is in operation it is proposed that every one of the 73,000 miners in the area will be *x*-rayed whether he has rheumatism or not." As pointed out by an orthopaedic surgeon in a letter of appreciation of my opposition to this type of activity, "The whole thing is really an attempt on the part of some people to increase the number of attendances of their patients to astronomical figures and to increase similarly the work of other departments, and on the strength of this to increase the number of staff. The result of this is, of course, that with a very large staff the man in charge must be a very great person."

Mass radiography of the stomach is being used in one famous American hospital (surprisingly enough, in one to which a former physician brought great fame by his contributions to clinical medicine) for the detection of early malignant disease, and claims have been made of tests which reveal its presence. This might well incite further extensive mass radiological investigations. I believe one's energies in this direction could favourably be reserved until a cure for malignant disease has been discovered; then it could be applied enthusiastically with all skill.

There are other spheres in which the use of radiology not only fails to spare the patient pain but actually incites the infliction of pain by the performance of investigation including surgery, which can be regarded as little else tha meddlesome. I heard a professor of medicine at one c the universities urge that ventriculography was a usefu harmless, and painless method of investigating the cau of headaches. I saw the exhibition of radiographs of patient with three aneurysms of the aorta, one of whic showed radiographic evidence of erosion of the sternu and ribs. This patient sought the doctor because he ha pain, and it should be our first duty to relieve that pain yet this evidence did not incite the observer to pity, bu to inject the aneurysm with opaque media to provide spe tacular evidence of the extent of the lesions—knowledg which could not be of the slightest use to the patient, bu which apparently satisfied the callous inquisitor.

Radiology in the Curriculum

Radiology is being brought increasingly into the medica curriculum. Unfortunately, I repeat, its chief use appear to be to obtain quick answers with the least effort on th part of those demanding it. It has been brought into th study of anatomy. Instead of realizing that it merely give additional information, and in no way diminishes the nee for training in the dissecting-room, we find the hou devoted to anatomy and the basic science being reduce to provide time for specialized subjects. Students are bein taught to be "scientists" and not doctors. The truth of thi is seen in the difficulty in getting young men to practis in the country, where they have not at their elbow *x*-ra equipment and laboratory services, on which they have bee taught to depend. To provide them with these facilities i not the answer for good clinical medicine, since their train ing in this has been ineffective and in these specialize fields but superficial. Recently I was amazed to hea that a medical student, induced by a spectacular film o rehabilitation to give up the doctor's course and take u physiotherapy, had been told by the Physiotherapy Societ that the university course in anatomy was not of a suffi ciently high standard to permit of exemption from thei preliminary examination in anatomy. Surely the medica course ought to be superior to that used by any auxiliary medical services, for the work of the latter must neces sarily be under the direction of the doctor, and any con tribution which radiology makes to this down-grading in training should be eliminated. I know that radiologists are called upon every day to demonstrate not less bu more anatomical structure, and we do it at the demand of the clinician. More attention to anatomy may deprive the student of hours of specialized scientific research. but it might spare him (and the patients) the pain expended in unnecessary investigations of little use in treatment.

At a recent discussion on the role of radiology in the teaching of anatomy it was stated that, while it was reasonable to give students barium meals and allow their colleagues to study the passage throughout the alimentary canal, it was not considered reasonable to allow their colleagues to inflict barium enemata upon them. I urged that as a teacher I felt it was a duty to teach the subject in a manner that the students would not forget, and therefore it might be a good thing if they performed upon one another every type of injection, including ventriculography, myelography, arteriography, etc. In this way they would be taught in an indelible manner by the unskilful hands of their colleagues just what such examinations mean to the patient. It might cause them to consider the patient and to insist on skill and the reservation of such investigations to the last resort, after all other investigations hac

been made and it could be reasonably thought that such investigations would be of value.

If after a thorough clinical examination by an experienced clinician, assisted by such plain radiography as that indicated, it is thought that injection of opaque media would help in the treatment of the patient's condition, I am of the opinion that that injection should be done by the clinician desiring the information—presuming, of course, that the latter has sufficiently studied the technique and acquired the necessary skill. It is probably on the evidence so obtained that operative or other treatment will be employed; therefore it must be done with every care and with skill, recognizing the great responsibility. Too frequently it is left to inexperienced house-men, as will be seen from radiographic studies of the results; these are often vitiated by faulty techniques unskilfully applied and therefore useless. Such injections should not be given merely to obtain "a pretty picture" or to satisfy curiosity, for they are done at the expense of mental and physical pain and unknown risk to the patient, who has come to us trusting in our faith and high calling to relieve pain. Scientific data are too frequently sought at the expense of human and animal pain and sacrifice. In the long run this action can result in atrocities, cruelties, or licensed murders, as we have learned from the report of Czechoslovak doctors on medical atrocities in prison camps. Little credit is due to those who would "wade through slaughter to a throne, and shut the gates of mercy on mankind."

By radiography we can now ascertain the nature of the majority of bone tumours (Brailsford, 1948c); we can say whether they are due to developmental irregularities, deficiencies, or endocrine disorders, to trauma, inflammation, or neoplasm. Regarding the last-named, we can recognize the usual simple tumours, and by serial radiography and continuous clinical observation determine in a large proportion of such cases whether malignancy exists. All this we can do without inflicting any pain, and the more attention we pay to such radiography the fewer will be the cases which we fail to diagnose. There is a modern tendency to cut down and explore every bone tumour. Spectacular radiographic appearances are allowed to incite this activity even when they are discovered accidentally during other investigations, and such radiography is doing more harm than good. There seems to be a widespread erroneous belief that the last word in the diagnosis of bone tumours can be obtained by histological examination. We can show (Brailsford, 1948b) that, given adequate study, radiology offers greater accuracy and that the infliction of biopsy with all its risks is unnecessary and of little value.

Radiology is a whole-time study, and the careful radiologist will discover something new each day, so infinite are the variations of and departures from the normal. To say that we have not seen a certain thing, and by so doing imply that it does not exist, is not a testimony to great experience but a confession of ignorance. The chances are, as my experience shows, that within a few days or weeks an example or examples of such a condition will occur in practice, and many more will probably be found in the literature. In a previous paper (Brailsford, 1945b) I have recorded the abuses to which radiology is put; they still continue.

A Modern Tendency

There is a modern trend for the members of various specialties to gather together and seclude the radiographs illustrating conditions with which they deal, and the *x*-ray departments and hospitals are so much the poorer because this valuable material is lost to the general use of the hospital and the special use of the radiologist. Radiology knows no bounds of specialization. The radiograph is a measure of the relative density and a record of the contrast outlines and structures of all tissues on and between the two skin surfaces which bound the area. We therefore need radiologists who understand all the evidence presented to inspect the whole, for there is a tendency on the part of specialists to be obsessed by evidence which appears to involve their specialty. Only good can come from whole-hearted co-operation, but harm will result to patients from seclusion and isolated activities, for which the responsible person may be called upon to bear the blame.

Requests for *x*-ray examinations are made on forms which have a space with some such heading as "Conditions revealed by the clinical examination on which radiological evidence is required." Those clinicians who co-operate and desire all the help which the radiologist can give, the men who really taught me my radiology, fill in this space with facts gleaned from the clinical examination that are invaluable to the radiologist. Those men who ape a knowledge of radiographic technique and want the radiographs, but no assistance otherwise, use this space for giving instructions with certain cryptic signs, designed to impress the radiologist with their great knowledge of radiographic technique, such as, "A.P. and L," and if they wish to display their profound knowledge they add also, "P.A. and oblique." Such requests fail to convey any suggestion of confidence in the radiologist, and certainly do not invite him to share the responsibility; consequently he loses the stimulus for good work and the patient suffers accordingly from the defective interpretation of the radiographs.

Radiography, together with other ancillary services to clinical medicine, is being used extravagantly and is one of the chief contributors to the increased cost of medical service.

An American Experience

During my tour of the United States I went into one large department and was shown the latest and most expensive equipment operated in conjunction with a photo-electric cell, the latter replacing the brain of the technician. The films were processed in an automatic developing unit, from which they issued as a finished product. I asked to be shown the next unit, and in reply to the question, "What is that?" gave the answer, "The machine for turning out the reports." "Take a seat and wait a few minutes," I was instructed; "I think we can show you that." A junior member of the staff appeared a few minutes later, took out a stamping-machine from a cupboard, and began to stamp a large pack of reports. One of these was handed to me with the remark, "Does that satisfy you?" The report sheet with the name of the patient had been stamped with the report "Normal" and the radiologist's signature. On inquiry I was told that about 80–90% of the reports were of this nature. I said, "Now, this is interesting, for I have just come from San Francisco, where the President of the North American Radiological Society gave an address in which he said that three of the leading radiologists of America had examined a large series of radiographs and their reports showed a difference of opinion amounting to something like 30%." I asked whether it would not be better simply to stamp all the reports "Normal," for then we should have a discrepancy of only between 10 and 20%; or would it not be advisable to avoid radiology

entirely owing to its expense: probably the best thing would be for clinicians to use radiology intelligently and thus cut down hospital expenses and treatment of the patient.

Radiology an Aid to Study

It is thought, by those least qualified to judge, that radiological knowledge is now so general that there is no need for anyone to specialize in radiology. But is not clinical medicine or surgery a full-time study, leaving little or no time to acquire adequate knowledge of radiology? I would remind you of the valuable contributions which were made to medicine and surgery before the advent of radiology, when clinical medicine was unhampered by multiple ancillary departments. There is a tendency to-day to desire quantity rather than quality; to report on 1,000 incompletely investigated cases in which calls have been made on all ancillary departments, rather than on one case after careful clinical examination over a period. Sir James Paget studied one case of osteitis deformans during the 20 years of its development and then described it. His description is as valuable to-day as when he contributed it. He had not the advantages, perhaps the disadvantages, of distraction of the ancillary services of radiology, biochemistry, etc., yet his description of his one case was so complete that little has since been added to our knowledge of that disease by many who have made great demands on these ancillary services in the investigation of many thousands of cases.

Radiology is now recognized as an essential aid to the study of anatomy, physiology, pathology, clinical medicine, surgery, and midwifery, and medical students must now be taught something of its possibilities throughout their university studies. This will result in a better and more complete knowledge of the possibilities of radiology, but this wider knowledge will mean that the radiologist, if he is to retain his high status and earn and keep the respect of his colleagues, must shoulder greater responsibilities and acquire an ever-increasing knowledge, for he can claim to be the general practitioner of the specialists. He should be in a position satisfactorily to render full co-operation to each.

Conclusion

It is fitting that in this City of Brotherly Love one should preach the gospel that radiology attains its highest perfection in the contribution to the relief of human suffering only when it is directed to spare the patient pain.

Wilhelm Konrad Roentgen (Brailsford, 1946b) was a man with sagacity and great ability. His observations were keen and extremely critical; he recorded them clearly, concisely, yet exhaustively, and with scrupulous care. His modesty, honesty, sincerity, and integrity to his science and his friends helped to secure his immortality. We follow in the footsteps of a great master, and it is fitting that I should end with the words of your great countryman:

> "Lives of great men all remind us
> We can make our lives sublime,
> And, departing, leave behind us
> Footprints in the sands of time."

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VALUE OF SPHINCTER-PRESERVING OPERATIONS IN CANCER OF RECTUM

WITH SPECIAL REFERENCE TO RECONSTRUCTIVE ABDOMINO-PERINEAL EXCISION

BY

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In 1908 Ernest Miles published the details of his operation for cancer of the rectum. Based as it was on close anatomical studies of the potential zones of spread of the disease, the abdomino-perineal excision came to be regarded as the standard operation for the treatment of cancer affecting any part of the bowel between the lower sigmoid and the anal canal. No limitation of the excision was regarded as permissible, no matter at what level the growth was sited, and it is only in recent years that doubt has been cast on the necessity for sacrificing the sphincter mechanism in those cases in which the neoplasm lies above this region.

Surgery in this country has remained very true to the teachings of the great master of proctology, and little has been published in the English journals in favour of sphincter-preserving operations. But in America much has been written and many divergent views have been expressed, and as great a surgeon as Rankin (1947) has said, in condemning all such operative procedures: "Sphincter-saving operations are little more than local excisions for cancer below the peritoneum. I had thought that the question of colostomy had been definitely settled 20 years ago, but apparently a new generation insists on a re-exploration of an already discredited field." On the other hand, Babcock (1932) and Bacon (1945) champion such operations in the majority of cases. Lynch (1945) goes so far as to say, in commenting upon recent pathological investigations: "It permits one to discard entirely such radical and unnecessary operations as that popularized by Miles."

Perhaps a far more acceptable opinion is that of Wangensteen (1947), who has recently said: "A tempered ambition to save the rectal sphincter, as well as to cure the cancer, is a praiseworthy objective in suitable cases of cancer of the upper rectal ampulla."

Support for this point of view is to be found in the follow-up figures of Babcock, in which, of over 80 patients considered suitable for a sphincter-preserving operation 50% survived disease-free for five or more years. Such figures can hold comparison with any series in which the wider abdomino-perineal operation has been performed for similarly sited growths.

Until the late 'thirties the idea of sphincter-preserving operations had lain largely dormant for three decades. Before Miles came to tower over his contemporaries, low excisions and anastomoses had been explored by the surgeons of the latter end of the last century and beginning of this. But enthusiasm for their employment was quieted by the logic of the great man. Maunsell (1939) had described a combined abdominal and perineal approach in which continuity was achieved after excision of the rectal growth. Balfour (1910) described a C. W. Mayo method of resection and anastomosis, again by a similar approach, but these very limited excisions were relegated to the past. Later, Lockhart-Mummery (

employed a method of restoration of continuity, but abandoned it as being too limited in its extent.

Lymphatic Spread in Rectal Cancer

What, then, has caused this controversy to break out once again? In 1935 Gabriel, Dukes, and Bussey published their paper on the lymphatic spread in cancer of the rectum. In 1938 Gilchrist and David published a similar work, and in 1940 Coller, Kay, and MacIntyre studied the regional metastasis in this disease.

From these and similar papers it appears that the downward and lateral spread of the disease had been overemphasized by Miles. In those cases in which the neoplasm is sited from 6 to 7 cm. or more above the anal orifice such spread occurs only in a late stage of the disease, when the haemorrhoidal lymphatics are already blocked by metastases and when the progress of the cancer has reached an advanced stage. It thus appears that, provided the upward zone of spread can be eradicated, and provided a suitable length of bowel is resected below the macroscopic margin of the tumour, a radical removal of the area of lymphatic spread can be performed with sphincter salvage and avoidance of a colostomy.

With regard to the submucous spread of the disease below the margin of the tumour, most pathological opinion is that it is very limited, and, indeed, such opinion was held by Miles (1936) as well. Black and Waugh (1948) suggest that it extends only to a maximum of 3 mm. from the tumour edge, but it is generally regarded as more extensive than this.

Nevertheless, the interpretation of these pathological findings must be correlated with the post-operative history of the patients. To his cost Wangensteen (1945) has found this out, and he has said: "Whereas Coller and his associates failed to find evidence of lateral lymphatic spread in lesions lying more than 3 cm. above the ano-rectal line, I am convinced from the experience with low-lying fixed lesions that an operation which does not excise the levatores ani in juxtaposition to the bowel invites recurrence."

Sphincter-preserving Operation

However, in selected cases a sphincter-preserving operation seems likely to carry as good a chance of recovery as the more extensive abdomino-perineal excision. Such an operation does not mean a local excision. The upward extent of removal must be as wide as in the operation of Miles. The clearance of pelvic peritoneum and underlying fascia, the removal of the tissues behind the rectum lying between it and the sacrum, and the excision of as much of the diaphragmatic portion of the levatores ani complex as is possible must all be included in the dissection.

It is for these reasons that I do not regard an anterior resection operation as radical enough in its extent. Babcock's operation fulfils all the anatomical requirements, but the interference with the sphincters at the time of operation is, I believe, something to be avoided if that can be achieved.

Removal by the combined abdominal and perineal routes, with primary suture of the bowel at the time of operation and leaving the sphincter mechanism untouched, is, I believe, the best approach. Reconstructive abdomino-perineal excision of the rectum undoubtedly leaves the patient with good faecal control.

In America this procedure was first suggested by Pratt (1938), and no doubt it has been tried by some proctologists in this country. It is not widely known, and is deserving of further record. In addition, certain modifications of the technique are worth emphasis.

Indications for the Operation: (1) The lower palpable margin of the neoplasm must be at least 7–8 cm. from the anal verge. (2) At operation there must be no evidence of extensive extramural spread. (3) If secondary deposits are present in the liver, or if there are advanced metastases in the aortic nodes, the sphincter-preserving operation is the one of choice. It offers the patient the greatest comfort in his remaining span of life.

Operative Technique

Ten days before the main operation transverse colostomy is desirable. In any case, if not performed before the main procedure it should be carried out at the end of the abdominal part of this operation. Faecal contamination of the perineal wound is thereby avoided should there be any breakdown in the perineal anastomosis. The remaining pre-operative preparation of the patient is the routine employed prior to Miles's operation.

Immediately before the operation an assistant passes a short sigmoidoscope and packs the rectum below the growth with cotton-wool soaked in 1 in 1,000 perchloride of mercury. This is an important detail. There is no doubt that during the manipulations of the rectum through the abdominal incision small portions of a friable growth may be broken off. When the rectum is subsequently excised through the perineum these small fragments may become implanted in the line of the anastomosis, giving rise to what is apparently a local recurrence. By packing the rectum with cotton-wool the small fragments of growth are held up and prevented from contaminating that area of the bowel through which the resection is going to be carried out.

The initial stages of the operation are those of the abdomino-perineal excision. A left paramedian incision is preferable in view of the fact that mobilization of the descending colon to a higher level is required. The pelvic peritoneum is incised in routine fashion and the rectum separated from the bladder, from the sacrum, and, by dividing the lateral ligaments, from the lateral pelvic walls.

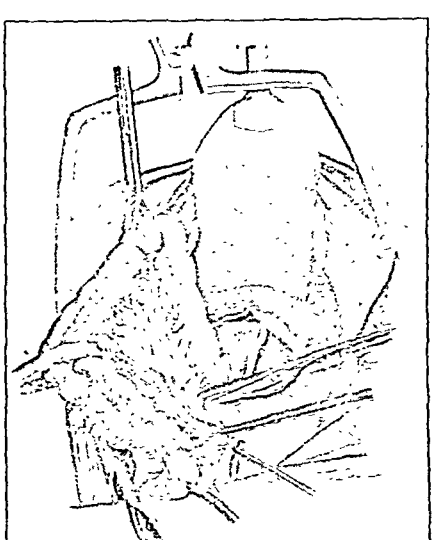


FIG. 1.—Composite plate showing the division of the mesocolon after mobilization of the bowel. The division is carried out as far as the mesocolic margin of the pelvic colon.

with ultra-violet light. Absence of effective sunlight may thus be more serious than dietary deficiency of the vitamin, and vitamin deprivation in such cases may be at least partly metabolic in origin.

Vitamin Deficiencies in the Sprue Syndrome

Vitamin deficiencies have been studied and a number of relevant investigations have been made in a series of cases of defective fat absorption in Birmingham (Cooke, Elkes, Frazer, Parkes, Peeney, Sammons, and Thomas, 1946). The results of these studies may be briefly reviewed.

Relatively Transient Nature of Deprivation.—In chronic cases of the sprue syndrome the fat-absorption defect persisted more or less unchanged over long periods. From time to time, however, the patient might complain of an exacerbation of certain symptoms—especially diarrhoea, with large, bulky, fermenting stools, sometimes associated with a sore ulcerated tongue and sore eyes. The haematological changes also showed exacerbations and remissions. This group of signs and symptoms seemed to come and go—as though superimposed on a more constant underlying defect.

Nature of Deficiencies.—The commonest deficiency signs and symptoms were those affecting the tongue and eyes. The majority of cases of sprue showed signs of glossitis. From time to time the tongue became enlarged, sore, and ulcerated, scarlet-red or magenta in colour, the conjunctival vessels might be injected, and the eyes sore, with excessive lacrimation and photophobia; cheilosis was also frequently seen. These changes were commonly associated with deprivation of riboflavin, nicotinic acid, and/or pyridoxin. Various haematological changes were also often observed. Macrocytosis was almost a constant feature of the sprue syndrome (Cooke, Frazer, Peeney, Sammons, and Thompson, 1948). These haematological changes were attributed to deficiency of folic acid and possibly other members of the vitamin-B complex. In occasional cases other vitamin deficiencies were observed.

Effects of Therapy.—In most cases of riboflavin, nicotinic acid, or pyridoxin deficiency in sprue parenteral administration of the appropriate vitamin fraction caused dramatic relief of the signs and symptoms of deprivation. Small doses were effective. In many cases very large doses of the vitamin were effective orally. It was not uncommon to find that the administration of one of the vitamin fractions by mouth might precipitate deficiency symptoms associated with some other fraction. Thus the administration of large doses of nicotinic acid might precipitate a classical ariboflavinosis. Increase of carbohydrate in the diet sometimes had a similar precipitating effect.

Relationship to Fat Absorption.—Relief of the signs and symptoms of vitamin-B deficiency was achieved in the sprue syndrome without alteration in the fat-absorption defect. Classical cases of ariboflavinosis have been observed in which fat absorption was normal. There seems no reason, therefore, to suppose that the vitamin-B deficiency is intimately related to the aetiology of the fat-absorption defect (Frazer, 1947).

Intestinal Flora.—A number of cases of the sprue syndrome have been intubated, using a technique devised by my colleagues Drs. J. M. French and M. D. Thompson, to minimize contamination. In hypochlorhydric cases thousands, and occasionally hundreds of thousands, of bacteria were observed per ml. of upper intestinal contents. In achlorhydric cases millions of viable organisms per ml. were demonstrated. The organisms were the usual inhabitants of the intestine, normally confined to the lower reaches. The type of predominating organism, the number of viable bacteria, and the level to which they reach will vary under differing environmental conditions.

Synthesis of Vitamins by Intestinal Bacteria.—Some attention has been paid to the question of bacterial synthesis of vitamins. In some cases of sprue the faeces contained more vitamins than the diet, in spite of a concomitant vitamin deficiency. Thus classical ariboflavinosis was observed in a patient passing three times more riboflavin in the faeces than was present in the diet—the amount in the diet being greater than normal requirements (Smart and Daley, 1946).

Effect of Antibacterial Agents.—Antibacterial agents may stop severe diarrhoea at least-temporarily (Keele, 1949). The effect of antibacterial agents on vitamin deficiencies is unknown. An interesting observation was made using sulphasuxidine. Usually less than 10% of this drug was absorbed and the sulphathiazole level in the blood was negligible, <1-2 mg. per 100 ml. of blood. In two cases of sprue the administration of sulphasuxidine by mouth resulted in blood levels of sulphathiazole of 10.6 and 13.8 mg. per 100 ml.

Discussion

Dietary inadequacy is certainly not a common cause of vitamin deficiency in the sprue syndrome. It may account for the occasional case of vitamin-E deficiency, especially since oxidative rancidity of fats may be one of the precipitating causes in tropical sprue. It does not account for any of the common vitamin-B deficiencies. There is no evidence of any metabolic fault of vitamin-B utilization in the sprue syndrome. Parenteral administration of the appropriate vitamin fraction secures immediate relief in the vast majority of cases.

An absorptive defect due to interference from unabsorbed materials may account for the occasional vitamin-A or vitamin-D deficiency; the latter is further complicated by changes in calcium absorption. Again, the common vitamin-B deficiencies are not due to a faulty absorptive mechanism, since large doses are often effective by mouth and the normal dietary intake is adequate in remission. There is no evidence of faulty digestion of vitamin precursors. It would seem, therefore, that the common vitamin-B deficiencies observed in the sprue syndrome do not fit into any of the known deprivation groups.

The selective nature of the vitamin-B deficiencies—nicotinic acid, riboflavin, pyridoxin, and folic acid—in sprue is very striking. The deficient vitamins are all essential growth factors for bacteria—particularly those bacteria which are known to be present in the upper part of the small intestine in sprue. Large numbers of these bacteria can be demonstrated in the upper small intestine by intubation, and their presence is also indicated by the results of sulphasuxidine administration: clearly, in the sprue syndrome the bacterial decomposition of sulphasuxidine is occurring within the absorbing area. It is well known that bacteria will first take up preformed growth factors and then synthesize more of these vitamins if necessary. In sprue the bacteria may synthesize further vitamins; it is likely that they will take up as much preformed vitamin as possible before doing so. It is therefore suggested that in the sprue syndrome intestinal bacteria invade the upper small intestine from time to time in large numbers. This bacterial invasion may give rise to large, bulky, fermenting stools. It also results in competition between the bacteria and the host for common essential nutrients. In many cases the bacteria are the most successful competitors and the host consequently shows signs of deprivation.

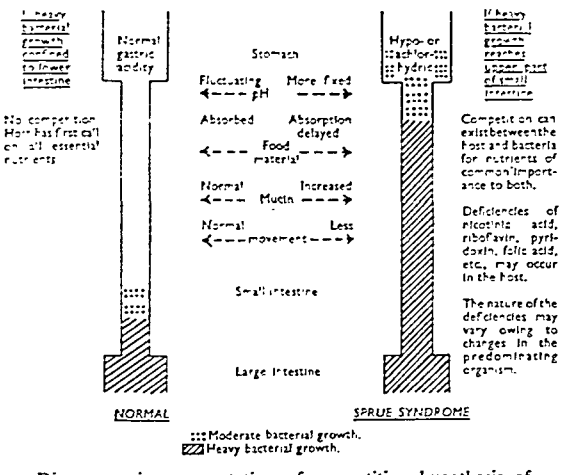
This competition hypothesis would account for the exacerbation of vitamin deficiencies and diarrhoea associated with heavy growth and high-level invasion of intestinal bacteria. This bacterial invasion may be related to fixation of *p*H as a result of achlorhydria, and possibly the presence of suitable food materials due to delayed absorption. The competition hypothesis would also account for the peculiar selective deficiencies observed in the sprue syndrome. It might also explain the administration of one vitamin precipitating the deficiency of another, since bacterial growth would be stimulated by the one and would increase the demand for the other. In oral administration of the vitamins, sufficient vitamin must be given to provide both

for the bacteria and for the host. Hence the large dosage required in oral therapy. It is also recognized that modifications of the dietary regime which are known to alter intestinal flora affect the sprue syndrome.

The part played by intestinal bacteria in vitamin synthesis in normal human subjects is obscure. It has been suggested that the modification of intestinal flora by sulphonamides or other antibacterial agents might result in faulty synthesis of vitamins and consequent vitamin deprivation. This conception of vitamin deprivation is mainly based upon experimental studies in animals and especially upon the phenomenon of refection (Kon, Kon, and Mattick, 1938). Rats and rabbits may not develop certain vitamin deficiencies when placed upon an appropriate vitamin-deficient diet. This can be shown to be at least partly due to the synthesis of B vitamins by intestinal bacteria.

The inclusion of certain types of starch in the diet and initial coprophagy are probably important factors in the establishment of refection. In some animals on a deficient diet prevention of coprophagy results in the development of vitamin deficiencies in spite of continued intestinal synthesis of the vitamins. The vitamins synthesized by intestinal bacteria can be utilized by the body only if they are released from the bacteria and absorbed from the intestinal tract. The formation of B vitamins in the large intestine in man and their continued inclusion in viable bacteria greatly limit their availablity. The conditions within the intestine in the refected rat may resemble to some extent those prevailing in the human intestine in the sprue syndrome; the possible importance of starch fermentation in both cases is of special interest. It seems clear, however, that the synthesized vitamins are much more readily available to the rat than to the human subject.

Vitamin synthesis by intestinal bacteria in the normal human subject is probably limited in extent and mainly confined to the large intestine—it is therefore unlikely to play a major part in the vitamin economy. In the sprue syndrome, synthesis may be greatly increased and the site of formation may now include normal absorbing areas. In spite of this, vitamin-B deficiencies now occur, which would suggest that the synthesized vitamins are not available for absorption, possibly owing to their retention within viable bacteria. The competition hypothesis is put forward here in its simplest possible form, but it is clear that many complexities may develop in individual cases. Some aspects of refection in rats might be usefully examined in relation to the changes in intestinal flora which can be observed in the sprue syndrome.



Diagrammatic representation of competition hypothesis of vitamin deficiencies in the sprue syndrome.

This paper is especially concerned with vitamin deficiencies in the sprue syndrome. Special consideration must be given, however, to the possible importance of intestinal bacterial competition in other conditions. A similar competition situation must arise in pernicious anaemia, in which vitamin-B deficiencies are well recognized—much of the haematological picture being ascribed to them. In this condition there is, however, apparently normal fat and glucose absorption, a normal radiographic pattern, and an absence of fermentative changes. These points serve to emphasize the lack of intimate relationship between the absorptive defects in the sprue syndrome and the changes in intestinal flora and consequent vitamin deficiencies. It is possible that the absence of absorptive defects in pernicious anaemia and consequent environmental differences may result in qualitative and quantitative modifications of the intestinal flora, with resultant differences in metabolic demands. The possibility of intestinal bacterial competition along the lines indicated in this paper should be investigated not only in the sprue syndrome but in various other conditions which are thought to be closely associated, such as pernicious anaemia, pellagra, and nutritional megalocytic anaemia (Manson-Bahr, 1940, 1941). The metabolic demands of a varying but essentially non-pathogenic flora may be the key to the problem of the multiple but selective vitamin deficiencies so commonly observed in these conditions.

Original observations reported in this paper have been made as part of a team-work study on fat absorption and the sprue syndrome which is being carried out with my colleagues, W. T. Cooke, J. M. French, T. L. Hardy, A. L. Peeney, H. G. Sammons, G. Thomas, and M. D. Thompson, at the Medical School and Hospitals Centre, Birmingham. We are indebted to the Medical Research Council and the Sir Halley Stewart Trust for financial assistance.

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The Ministry of Health states that more blood was given for hospitals in England and Wales in the second quarter of this year than in any comparable period since the war. New donors in the quarter numbered 36,847—the biggest response since the war—bringing the total strength of donor panels to 382,382. Hospitals are now using over 40 times as much blood as before the war, and the demand is still rising. To provide for these future needs it is estimated that over 190,000 more donors are wanted.

TUBERCULOSIS OF THE BREAST

BY

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It appears from a survey of the literature that little attention has been paid during recent years to this subject in English writings. The opportunity is taken, therefore, in presenting this case record, to review the general features of the disease and stress its importance in the differential diagnosis of lesions of the breast. It is important to appreciate the close similarity between certain forms of tuberculosis and carcinoma of the breast, and differentiation is often rendered difficult; many of the cases of primary tuberculosis reported in the literature were diagnosed incorrectly as carcinoma, and it was only after operation and pathological study of the tissues that the true situation was disclosed.

Case Report

A woman aged 43 developed a swelling in the left breast in May, 1947, following a blow through a fall one month previously. The swelling was regarded as mastitis of the upper and inner quadrant. In September the left breast became red and tense, and an abscess was incised and drained. Pathological investigation of the tissues showed chronic inflammation with no giant-cell systems or tubercle bacilli. After the operation a small sinus persisted, with slight discharge. On January 6, 1949, a small red swelling developed in the upper and outer quadrant of the left breast, and this became cystic and tender. Aspiration yielded 1.5 ml. of purulent fluid which showed tubercle bacilli on microscopy.

She had had amenorrhoea between May, 1947, and February, 1948—before this the cycle was 28 days and the duration five days—and again since April, 1948. She had never been pregnant. Her general health was good; no cough or pain in the chest. When 4 years old she had had tuberculous peritonitis, with operative treatment. In December, 1914, an operation had been performed on the left cervical lymph nodes. One brother had had tuberculous cervical lymphadenitis as a child.

On examination the patient looked healthy. Her neck showed scarring on the left side; no enlarged lymph nodes. The heart and lungs showed no gross abnormality. Scars of previous operations were seen in the right hypochondrium, but no other abdominal abnormality was found. The right breast was normal. In the lower half of the left breast there was a discharging sinus with an associated abscess; a red fluctuating tender swelling was seen in the upper and outer quadrant (see Fig.). No marked induration of the breast tissue was present. The lymph nodes in the axillae were not enlarged. *X*-ray examination of the chest revealed no abnormality.



Photograph of the affected breast, showing the tuberculous lesion in the upper and outer quadrant. There is an area of puckering in the lower and inner quadrant.

Operation. — Local mastectomy and excision of the fourth costo-chondral junction, left side. It was noted that the sinus in the lower part of the breast was connected with a caseous process in the fourth costo-chondral junction, left. The wound healed by first intention.

Study of Specimen.—In the left breast there was an abscess situated above and external to the nipple. The skin over the abscess was bluish in colour. On opening into the abscess cavity it was seen to contain yellow caseous material. In the lower and inner quadrant of the breast there was an area of puckered scar tissue. Sections through the breast beneath this scar tissue showed a sinus which could be traced through the substance of the breast to its deepest part. This sinus contained caseous material and was presumably connected with the rib which was resected. A piece of resected rib was partly replaced at the costo-chondral end by an irregular mass of granulation tissue. On histological examination both the wall of the abscess cavity and the sinus showed tubercles composed of endothelial cells surrounding areas of caseation. There was also a small round-cell infiltration. Breast tuberculosis was diagnosed.

General Features of the Disease

The condition was described in the first instance by Sir Astley Cooper, who wrote in 1829: "In young women, who have enlargement of the cervical absorbent glands, I have sometimes, though rarely, seen tumours of a scrofulous nature form in their bosoms, confined in most cases to a single tumour in one breast; but in one case, two existed in one breast, and one in the other. They are entirely unattended with pain, are distinctly circumscribed, are very smooth on their surfaces, and scarcely tender to pressure. They are very indolent, and vary with the state of the constitution, diminishing as it improves, and increasing as the general health is deteriorating." He pointed out that the condition does not degenerate into malignancy, and surgical treatment is contraindicated. His concluding remarks were: "It will be admitted by every one who deserves the title of a surgeon, that we possess no specific remedy for this disease, but that we are required to assist the digestive powers, make better blood, and convey it to the system by an increased vigour of the constitution." Since this publication over 500 cases have been reported in the literature.

The incidence has been computed at various figures: thus, Nicolson and Gillespie (1941) consider the incidence of tuberculosis compared with all breast lesions to be 0.54%; McGehee and Schmeisser (1935) give a figure of 1.87%. On this basis it is not a common condition, but it is possible that a number of cases are overlooked, the rarity being apparent rather than real.

There are two main varieties—namely, primary tuberculosis, in which there is no evidence of a tuberculous lesion elsewhere in the body, and secondary tuberculosis, in which there is evidence of a tuberculous lesion elsewhere, such as in the lungs, pleura, lymph nodes, or bone. The various lesions can be grouped under three headings as follows:

Nodular Lesion.—A circumscribed lump of variable size forms in the breast, slow caseation occurs with softening of the tissues, and eventually an abscess forms which may produce a sinus in the overlying skin.

Sclerosing Lesion.—A circumscribed lump develops which is hard in consistency owing to excessive fibrous-tissue formation. This variety is seen in older patients.

Atypical Lesions.—A tuberculous ulcer develops in the skin near the nipple and nodules are formed in the breast tissue later; a subcutaneous lesion develops which resembles a furuncle; or vesiculated pimples form with indurated bases.

Mode of Entry of Tubercle Bacillus

Considerable discussion has been aroused regarding the possible routes of entry. The organisms may gain an entrance through the ducts of the nipple or through an abrasion in the skin, but these must be remote possibilities, although several cases have been reported. Thus, Morgen (1931) quotes Ingier, who described a case in which the inflammatory process was confined to the walls of the excretory ducts and the periacinous tissue, the interacinous tissue

being only slightly involved. Morgen also quotes Ely, who mentions a woman who covered her breast with a piece of linen contaminated with tuberculous sputum and soon after developed tuberculosis in this breast.

Haematogenous infection may occur, although Nagashima (1925) investigated 34 patients who died of miliary tuberculosis, studying the breast tissue microscopically, by smears, and guinea-pig inoculations, but was unable to demonstrate any involvement. The case recorded above is instructive in that multiple tuberculous lesions developed at long intervals in widely separated parts of the body, and it is assumed the tubercle bacilli were transported by the blood stream.

Many authors have stressed the importance of infection by the lymphatic system; the primary lesion being cervical, axillary, or mediastinal tuberculous adenitis, and the breast being affected by retrograde infection. Morgen quotes Halsted and Le Court, who state that there is tuberculous axillary adenitis on the same side as the affected breast in 75% of cases, and Berchtold, who found the primary disease in the axillary lymph nodes and the secondary in the breast in 8 out of 37 cases reported. He also calls attention to a case described by Johannet in which at necropsy subpleural tuberculosis was demonstrated, extending to the axillary lymph nodes and eventually to the breast.

Finally, the breast may be involved from underlying tuberculosis of the sternum, costo-chondral junction, or rib. In this case the lower of the two lesions extended directly down to a diseased costo-chondral junction.

Symptomatology and Differential Diagnosis

The disease occurs between the ages of 20 and 50, when the breasts are most active. The majority of patients are apparently in good health; some may give a past history of tuberculosis, as did my patient, who had had tuberculous peritonitis and cervical adenitis. The most frequent presenting symptom is a lump in the breast, which is often painless and discrete.

When caseation is present the border of the lump is well defined. The overlying skin shows certain changes; thus there is often fixation and dimpling with retraction of the nipple, or it is stretched and red, sinus formation developing later. Retraction of the nipple may be the first sign of the disease. An abscess is present sometimes, and Morgen states that a fistula is seen in 50% of cases. Tubercle bacilli may be demonstrated in the discharge. Other lesions may be present in the breast, including fibro-adenoma or carcinoma.

Enlargement of the axillary lymph nodes is often present, and this may precede the development of the disease in the breast. A radiological examination of the chest should be made in every case; Grausman and Goldman (1945) state that pulmonary tuberculosis is present in 12 to 16% of cases. The disease is usually unilateral, but cases with both breasts involved have been reported.

The following diseases must be considered in the differential diagnosis.

Carcinoma.—Many of the reported cases of tuberculosis of the breast were misdiagnosed as carcinoma, and differentiation may be difficult, especially in the sclerosing types. The degree of hardness is greater in carcinoma and the axillary lymph nodes may also be hard. The deformity of the nipple may be greater in carcinoma. Tuberculosis tends to occur in younger age groups than carcinoma, and there may be a purulent discharge from the nipple. When a sinus is present it may be possible to isolate the tubercle bacillus; in all doubtful cases a biopsy and histological examination must be performed.

Benign Fibro-epithelial Tumours.—Differentiation is not difficult usually in these cases. The tumours are circumscribed and encapsulated and mobile in the breast tissue. There is no involvement of the overlying skin nor any change in the nipple. The axillary lymph nodes are not enlarged.

Cystic Hyperplasia.—In this condition both breasts are often involved and the swellings produced are larger. The cysts are palpable, causing an uneven surface in the swelling. There are no changes in the overlying skin. The axillary lymph nodes are not enlarged.

Acute Mastitis.—Differentiation is not difficult in this instance. There are fever and other general symptoms of an acute infection, and locally the cellulitis, with or without abscess formation, is typical of the condition.

Actinomycosis.—When a discharging sinus is present, together with an indurated swelling in the breast, actinomycosis must be considered, although this is an uncommon lesion. The typical sulphur granules may be present in the discharge and the fungus isolated.

Gumma.—This is an uncommon lesion in the breast; degeneration may occur with sinus formation in the skin. A Wassermann test and biopsy will help in the diagnosis.

Traumatic Fat Necrosis.—There may be a history of an injury to the breast, causing a localized hard swelling without any inflammatory signs. Biopsy and microscopical examination may be required to determine the diagnosis.

Association of Tuberculosis with Carcinoma of Breast

The presence of tuberculosis and carcinoma in the same breast has been noted on a number of occasions. Thus, Grausman and Goldman (1945) collected 26 cases from the literature and added two cases of their own. It is obviously important to remember this possibility, as an associated carcinoma may be overlooked, with serious consequences for the patient. Morgen discussed the interpretation of the relationship of these conditions. The two conditions may occur independently, either simultaneously or consecutively. The tuberculosis may be engrafted on the malignant condition as a result of the greater susceptibility of breaking-down tissue to infection. It is possible that the carcinoma is the result of the chronic irritation of the tuberculous inflammatory process.

In a number of these cases it was thought that the carcinoma was of longer duration in the breast and of a fibrous type; the tuberculous lesions showed no calcification, so it is possible that tuberculous infection occurred in tissues of decreased resistance or increased susceptibility. In some cases of carcinoma of the breast it was found at operation that there was tuberculous adenitis in the axillary lymph nodes. The breast is not the only site where these conditions coexist, for carcinoma has been found in chronic tuberculous cavities in the lungs.

Treatment

The maintenance of the patient's general health is important, as in all cases of tuberculosis. When the disease is localized to the breast and there is no evidence of involvement of the axillary lymph nodes, local mastectomy should be performed. If there is enlargement of the axillary lymph nodes mastectomy is combined with excision of these lymph nodes, and a careful dissection of the axilla is necessary. In order to carry this out the tendons of the pectoralis major and pectoralis minor muscles should be divided to open up the axilla; at the end of the dissection the tendon of the former muscle is sutured. If the underlying costo-chondral junction or rib is involved, this must be excised. When tuberculosis and carcinoma coexist a radical mastectomy is performed with or without high-voltage *x*-irradiation, according to the type of carcinoma which is present. Now that streptomycin is available in greater quantities its action in cases of tuberculous mastitis may be beneficial,

and before resorting to surgery in the future, the effects of this drug should be tried.

Summary

A case record is presented of tuberculosis of the breast and underlying costo-chondral junction. The patient gave a history of old tuberculous peritonitis and tuberculous cervical adenitis. Tubercle bacilli were isolated from the discharging sinus. The general features of the disease, the symptomatology, and the differential diagnosis are described, and special emphasis is laid on the importance of differentiating carcinoma. Attention is called to the association of tuberculosis and carcinoma in the same breast. The treatment is described for various types of case.

I wish to thank Dr. J. H. O. Earle for studying the pathology of the specimen, and Dr. Peter Hansell for the photograph.

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SOLITARY CEREBRAL METASTASES FROM BRONCHIAL CARCINOMATA

THEIR INCIDENCE AND A CASE OF SUCCESSFUL REMOVAL

BY

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The extirpation of metastases is not generally regarded as a rewarding surgical practice, and although many an abdominal surgeon must have been tempted to resect an apparently single deposit in the liver, and many a thoracic one must at some time or other have mistaken a secondary tumour in the lung for a primary lesion, few records of their experiences exist, and fewer still of the planned removal of both primary and secondary growths.

One is apt to assume that the appearance of a metastasis inevitably implies the existence of others and the certainty of death, and examples in the literature to support a contrary hope are rare. In 1946 Alexander and Haight were, however, able to collect the histories of 24 patients who had undergone pulmonary resections for solitary metastases in the lung after previous excisions of the primary growths, 15 of which were carcinomata and eight sarcomata. Of the 24, one died, 11 had recurrences, but 12 remained free; and among the latter eight survived their resections by more than a year. One patient (who lived 12 years) had originally been operated upon by Barney (1944a, 1944b) for a renal adenocarcinoma, the lung metastasis having been seen a year before his nephrectomy and removed a year later, so that its malignancy must have been low. Six other of the primary lesions were also renal-cell carcinomata, and it is of interest that both Bumpus (1928) and Beer (1937) have reported spontaneous regression of such metastases.

Albright in 1944, Friedman in 1943, and Turner and German in 1941 have described in all four instances of successful extirpation of characteristically slow-growing skull metastases from thyroid carcinomata; and Cattell (1940) reports a patient well one year after the removal of a solitary secondary in the liver at the abdominal stage of an abdomino-perineal resection of a rectal carcinoma. He argues, "The patient is better off with a large focus of malignancy removed, and there is at least some clinical evidence that there may be retardation of the malignant process."

The only successful removal on record (apart from the one reported below) of both primary and cerebral secondary growths was carried out by Thurel in 1942, when he excised a deposit from the right frontal lobe of a patient who had had a Halsted operation for carcinoma of the breast exactly a year previously. She remained symptomless two years later (Alajouanine, Thurel, and Longuet, 1944).

The incidence of cerebral metastasis in carcinoma of the lung was estimated by Ochsner and de Bakey, reviewing 3,047 patients, to be 16.5%. Other authorities put the figure even higher—Graham and Wagner at 24% and Olsen at 36%. In 448 proved pulmonary cancers Tinney and Moersch (1944) found that 19 (4%) presented with central nervous symptoms, and in these people the average duration of life from the onset of their symptoms was six months.

In the necropsy records of the London Hospital from 1909 to 1949 I have been able to find 85 examples of cerebral metastases accompanying a primary bronchial carcinoma. Of these, 26 were single in the brain or cerebellum—a percentage of 31 in a group of whom many died in the extremity of their disease, with numerous secondary deposits elsewhere in their bodies. Furthermore, eight (9.4%) were completely solitary in the body (if removable hilar glands alone be ignored); the cerebral lesion was a lonely satellite of the pulmonary primary growth—one, indeed, occurred two years after a successful pneumonectomy.

Case Report

In June, 1947, a man aged 34, in a responsible clerical position, was found on mass radiography to have a circumscribed shadow at the hilum of his left lung. He had had no symptoms of any sort, but one day in October he developed a headache, accompanied by noises and followed an hour later by an epileptiform fit in which he lost consciousness for 10 minutes and was incontinent of urine. This was not repeated, but frontal and vertical headaches persisted and were later associated with occasional diplopia, flashes of light, and other visual disturbances. He was admitted to the London Hospital on November 22, 1947, and except for early papilloedema, very slight left lower facial weakness, and equally slight bilateral hypotonia (a little more pronounced upon the left side), he had no abnormal physical signs either of his chest or of his nervous system. Lumbar puncture revealed a pressure of 210 mm., and the protein content of the cerebrospinal fluid was raised to 120 mg. per 100 ml. Although bronchoscopy was negative, there seemed to be little doubt that a primary carcinoma of the left lung was accompanied by a cerebral metastasis. Since the necropsy findings on similar patients, as already mentioned, gave some encouragement, a deliberate plan was then made to attack the secondary deposit, and, if it proved operable and was single, subsequently to remove the lung with its primary growth.

Because the symptoms and signs of raised intracranial pressure became severe, a palliative right subtemporal decompression was performed on December 18. This proved effective, and on January 8, 1948, ventriculography showed displacement of the system to the left, with no filling of the right ventricle, indicating a large right-sided lesion. Consequently a right fronto-lateral exploratory craniotomy was carried out by Mr. D. W. C. Northfield; this revealed a highly vascular lobulated mass about 7 by 4 cm., occupying a superficial position in the right temporal lobe, but not transgressing the Sylvian fissure. It was secondarily adherent to the dura mater over some 2 cm.^{2} The whole tumour, with a narrow margin of apparently healthy brain tissue, was removed with the overlying adherent dura. Histological section proved it to be a secondary carcinoma, but gave little indication of its origin.

The patient made a good recovery, and eight weeks later was readmitted, this time to the thoracic surgery department.

Radiographs showed that the chest opacity had very considerably increased in the past three months, but bronchoscopy remained negative. On March 11 a left pneumonectomy was carried out by Mr. Vernon Thompson. The growth, which was in the hilar region, was massive, but no enlarged mediastinal glands were found, and there was no growth in several hilar glands later sectioned. The tumour was a squamous-celled carcinoma. Convalescence was again uneventful, but in view of the dural adhesions the patient was referred to Dr. Frank Ellis for deep *x*-irradiation of the region of the cranial defect. No radiation was given to the chest.

At the time of writing, 18 months after the removal of his lung, the patient is well, works a full day in his exacting employment, and has no sign of recurrence or of any further metastasis.

I am indebted to Mr. D. W. C. Northfield and to Mr. Vernon Thompson for permission to publish this case history; and to Professor Dorothy Russell and Dr. W. W. Woods for their kind assistance.

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HUMAN INFESTATION WITH TRICHOSTRONGYLUS IN SOUTH PERSIA

BY

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An investigation of the worm infestation of the labourers employed by the Anglo-Iranian Oil Company at their refinery at Abadan was undertaken in January, 1947. These men numbered 30,000, and from the routine investigations made in the company's pathological laboratories it was believed that about one-quarter of them harboured hookworm and about one-sixth of them *Ascaris*. *Trichuris*, *Enterobius*, and *Hymenolepis* were known to be much less frequent.

Abadan Island is mainly arid desert, except for a belt of date palms at its margin and in the residential areas close to the refinery, where abundant irrigation by pumped river water is available. For most of the year the climate is extremely hot and dry, the rainfall occurring only in the cool winter months. The refinery area is furnished with metalled roads, and the labourers wear shoes except when in their own homes. The conditions therefore are the very reverse of those in which ankylostomiasis would be frequent.

"Ground itch" around the ankles is not seen, grave anaemia is infrequent, and attempts to dislodge the worms by means of such drugs as carbon tetrachloride and tetrachlorethylene had been consistently unsuccessful. One notable case was that of a British medical officer who had passed ova for five years in spite of the use of all known treatments and who had remained in excellent health except when enduring the discomforts of purgation.

Present Investigation

Technique of Laboratory Investigation.—(1) A fragment of freshly passed faeces was emulsified in saline on a slide, and a cover-slip applied. (2) A considerable quantity of faeces was intimately mixed with saturated sodium chloride solution in a test-tube, filled to the brim, and a slide placed in contact with the upper surface of the fluid. After 30 minutes the slide was removed and a cover-slip placed on the adherent fluid.

Altogether 1,000 specimens were examined. During the examination it became evident that two distinct eggs were being diagnosed as those of hookworm. In the accompanying Table these are quoted together as "hookworm."

Parasite	In Direct Film	In Flotation	In Direct Film Only	Total Reported
"Hookworm"	278	675	20	695
Ascaris lumbricoides ..	162	211	55	266
Trichuris trichiura ..	25	74	13	87
Hymenolepis nana	8	17	3	20
Double infestation ..	—	—	—	229
Treble infestation	—	—	—	21
No infestation	—	—	—	173

Enterobius vermicularis was not seen in this series, and is distinctly rare. The ova were reported only [illegible] times in 19,000 routine specimens in the year 1948, but no special methods such as anal scraping were employed. Similarly *Taenia saginata* was not encountered, but it is fairly frequent, ova or segments having been found 144 times in the same series of 19,000. *Taenia solium* is unknown, but is not to be expected among a people whose religion forbids the eating of pork.

The differences noted between these two "hookworm" ova before the identity of both was established were as follows: One was the characteristic *Ancylostoma* egg with rounded ends, one, two, or four blastomeres, and an opalescent appearance. The other was somewhat larger, always showed advanced segmentation, and had one end rounded and the other slightly pointed. It lacked the opalescent appearance of true hookworm and was much more clearly visible under the low-power objective of the microscope.

Once the distinction was established, the number of each appearing in the second 500 specimens was recorded and found to be 16 of the true hookworm and 324 of the false. This agrees fairly well with the figures recorded for the year 1948, when all the technicians were familiar with the two types: 67 cases of true hookworm were reported and 1,671 of its imitator.

Craig and Faust (1945) describe *Trichostrongylus* as a very frequent parasite of sheep and goats. Thirty samples of faeces were therefore collected from sheep intestines obtained from the local slaughterhouse and ova identical with those found in human faeces were observed in all of them. In addition adult worms were discovered in five of the sheep.

The adult worms have not been found in man. The population is overwhelmingly Moslem and the strongest objection is made to necropsies. Consequently only an occasional medico-legal necropsy is done, and, although a search is made for *Trichostrongylus* on each occasion, this has so far yielded no results and the species remains unidentified. Five patients were admitted to hospital and treated with a succession of anthelmintic drugs, but no worms were found in the stools and the men all continued to pass ova. This is in accordance with Maplestone's (1941) statement that no effective means of eradicating the worms is known.

Although final and complete proof that this second parasite was *Trichostrongylus* had not been obtained, as the adult worms had not been isolated, the parasite was assumed to be of this genus for the following reasons: (1) The climate is not one in which the life cycle of *Ancylostoma* could favourably be completed; (2) the wearing of shoes

and boots renders invasion of the skin by *Ancylostoma* larvae improbable; (3) "ground itch," associated with skin invasion by *Ancylostoma* larvae, is not seen; (4) mass infestation by *Ancylostoma* yields a considerable proportion of cases of grave anaemia; (5) anthelmintic drugs have been found to be almost useless in eradicating the worms; (6) the ova agree in every detail with the published description of *Trichostrongylus*; and (7) ova identical with those found in man were observed in a series of sheep examined.

Details of these findings and conclusions were therefore circulated among the company's medical officers, recommending that anthelmintic treatment should not be employed for the presumed *Trichostrongylus* infestations but only for the other helminths reported.

Symptomatology of Trichc trongylus Infestation

Maplestone (1941) considers that no significant symptoms occur in man. Faust (1939) considers that a heavy infestation may produce a severe secondary anaemia, but in the series encountered here the ova have always been scanty. In Abadan, in 1946, of 150 labourers who had been diagnosed as suffering from "hookworm disease" only six cases had a haemoglobin of less than 10 g. % and only one of these had a reading of less than 7 g. %. It seems probable that these six men were the genuine cases of ankylostomiasis in the series.

Forty healthy and symptomless school-children aged between 10 and 12 years were sent for investigation by the schools medical officer. Thirty-one were passing *Trichostrongylus* ova, and this provides additional evidence of the trivial nature of the infestation.

Mode of Transmission.—Man contracts the infestation by swallowing the larvae, and Watson (1946) quotes a number of isolated cases in Europe and the United States which were traced to sheep or goats. Although these animals are numerous on Abadan Island, few of the labourers are in close contact with them. Presumably the parasite is now being passed from man to man.

Diagnosis.—Watson in his paper deals at length with the points differentiating *Ancylostoma* ova from *Trichostrongylus.* He states that segmentation in tropical heat is so rapid that any delay in examination renders this distinction useless. The 1,000 cases examined in Abadan all passed stools on paper in the latrines adjoining the laboratory and handed the specimen to a technician immediately. Consequently the degree of segmentation has been of considerable diagnostic value.

Summary

An investigation of the relative frequency of human infestation with *trichostrongylus* in South Persia is described: 70% of the inhabitants carry the harmless sheep parasite *Trichostrongylus* and 25% the common *Ascaris.* Other helminthic parasites are rare.

A long-standing confusion of *Trichostrongylus* ova with *Ancylostoma* ova had occurred, with the provision of much ineffective treatment and waste of time. Part of a large labour force had been consuming unsuitable drugs intermittently, in some cases for a considerable period, and had thus been impeding the work of a very busy out-patient department.

I am indebted to Mr. A. C. Turner, Chief Medical Officer in Iran and Iraq, of the Anglo-Iranian Oil Company, for permission to publish this investigation, and to Professor J. J. C. Buckley, of the University of London, for criticism and advice.

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A CASE OF PULMONARY STRONGYLOIDIASIS

BY

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The following case presents two interesting features of *Strongyloides stercoralis* infestation with pulmonary manifestations. It is interesting as a case treated for 12 months for pulmonary tuberculosis.

Case Report

An Army sergeant aged 51, with 32 years' service in India, Gibraltar, Hong Kong, Singapore, Shanghai, Egypt, and Palestine, was admitted to the Military Unit, Harefield County Hospital, in March, 1947. He had had an acute illness in April, 1946, with pain in the right side of the chest, and was admitted to hospital, where he was found to have a right-sided pleural effusion. He was given 30 g. of sulphathiazole, an underlying lobar pneumonia being presumed, but the pyrexia continued. Aspiration of the chest produced 1 pint (570 ml.) of greenish fluid, which contained 8,730 white cells per c.mm. These were predominantly lymphocytes and the fluid was sterile. No tubercle bacilli grew on culture. He was treated by repeated aspirations and air replacement of the effusion, the fluid becoming haemorrhagic and later pocketing at various levels. In May, 1946, he was found to have an opacity in the left mid-zone and a slight tender enlargement of the liver. After that he had further aspiration of fluid and prolonged rest in bed. The condition gradually improved. Sputum tests were persistently negative for tubercle bacilli, as was repeated fluid culture. In July he was transferred to another hospital; so before admission to Harefield he had spent periods in three hospitals, amounting to nine months.

On admission his general condition was good. He was afebrile. He had a slight cough, with a small quantity of frothy sputum but no pain (previously he had stabbing pain in the right side of his chest). There were no night sweats and no haemoptysis. Occasional attacks of asthma were relieved by ephedrine. He was gaining weight (he had lost 3 st. (19 kg.) during his illness). There was no diarrhoea and no history of pruritus or anal bleeding.

On examination pronounced wasting of the right side of the chest was seen with diminished movement and dullness over the right base and impairment of breath sounds in this area. Harsh rhonchi were heard over both lungs. There was nothing else of note apart from bilateral Dupuytren's contractures. A blood count showed: haemoglobin, 110%; red cells, 5,950,000; white cells, 9,800 (polymorphs 43%, eosinophils 30%, lymphocytes 21%, monocytes 6%). The B.S.R. was 10 mm. in one hour (Westergren).

On culture the sputum was repeatedly negative for tubercle bacilli.

A radiograph showed the heart and trachea to be displaced to the right. The appearance of the right lung suggested pleural effusion or residual pleural thickening, together with infiltration of the apex. The left lung seemed to be clear, the previous lesion having apparently resolved.

In view of the eosinophilia (30%) a specimen of stools was sent to the laboratory, which reported numerous *Strongyloides stercoralis* larvae in the specimen.

The patient continued to have frequent attacks of asthma, often twice daily, which were relieved by ½ gr. (32 mg.) of ephedrine hydrochloride.

Attempts were made to clear the infestation by using gentian violet capsules (1½-hour coating) 1 g. three times daily half an hour before meals until 50 g. were given. In view of the pulmonary symptoms, intravenous gentian violet (15 ml. of a 0.5% solution) was injected on alternate days for a month. Both these courses were carried out simultaneously. They

were without effect on the clinical condition, and the larvae persisted in the stools. A second attempt was made with hexylresorcinol. The patient, who had been given a saline purgative the previous day, received 9 g. of the drug at 6 a.m. No food was given for five hours, and a saline purgative was administered 24 hours after the dose. Following this treatment the majority of larvae in the stools were dead and there was considerable difficulty in finding any living ones. During this period, which lasted ten days, the patient was free from attacks of asthma. A specimen of stools ten days after the dose had been given contained numerous living larvae and the asthmatic attacks returned at the same time.

On July 30 he was transferred to another hospital under the care of a specialist in tropical diseases, who again greatly reduced the number of larvae in the stools, this time with gentian violet treatment. There was a simultaneous improvement in his asthma during the period of reduction. It was considered that the asthma was definitely related to the *Strongyloides* infestation. During all this period the sputum was persistently negative for tubercle bacilli on concentration and culture, and *Strongyloides* larvae were not found in the sputum. The *x*-ray appearances had not changed since his admission to Harefield.

Discussion

Pulmonary changes associated with *Strongyloides stercoralis* infestation have been described by Lowe and Lancaster (1944) in their report on 16 cases of strongyloidiasis. Seven of their cases had pulmonary symptoms, four complained of unproductive cough for some weeks, one had been investigated for suspected pulmonary tuberculosis, and one had a small haemoptysis whilst under observation in hospital. Radiographic examination of four patients revealed increased bronchovascular markings. On no occasion had larvae been found in their sputum.

Gage (1911) reported a case in which there were signs of diffuse bronchitis and lobar pneumonia with *Strongyloides* larvae in the sputum. At post-mortem examination the diagnosis of *Strongyloides* pneumonitis was confirmed. Froes (1930) reported a case of pleural effusion in which rhabditiform larvae were discovered before death. Berk *et al.* (1943) describe two cases of strongyloidiasis with pulmonary symptoms. In both cases tuberculosis was suspected owing to cough and sputum, in one case blood-stained, and increased roentgenological markings. Both cases had pronounced eosinophilia. In neither case were larvae recovered from the sputum. In natives with *Strongyloides* infestation for long periods, De Langen and Lichenstein have reported severe asthmatic attacks.

In the case described above, pulmonary symptoms were produced by the infestation. The relationship of the asthma to those periods when living larvae were present in the stools in large numbers is worthy of note. In spite of improvement in the symptoms while under treatment with both hexylresorcinol and gentian violet there was failure to eradicate the infestation entirely.

The significance of the pleural effusion in April, 1946, is difficult to assess. There is no report of larvae in the fluid aspirated at that time, and in the cases of pleural effusion secondary to *Strongyloides* infestation previously reported larvae have been found in the effusion fluid.

I wish to express my thanks to Dr. K. R. Stokes, Medical Director, Harefield County Hospital, for permission to publish this paper; to Dr. John C. Roberts, physician to the Military Unit, Harefield, for advice and criticism and for his invaluable help at all times; and to Dr. F. E. T. Scott, who carried out the bacteriological investigations.

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A TIDAL-AIR WHISTLE

BY

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The main object of artificial respiration is to produce an adequate tidal air. This whistle, held in the subject's lips, makes his tidal air audible to the operator, the instructor, and the class.

Up till now the ritual of resuscitation has been performed with faith and hope but without evidence that its object was being achieved. Part of expiration might be heard; inspiration was never audible. An instructive instance occurred recently at a meeting held in Beverley before a doctor delegated by the Swiss Red Cross. When the operator, a man with ten years' experience, carried out Schäfer's method the whistle hardly sounded; but when he was replaced by a highly skilled operator it sounded for all to hear. Examiners armed with a whistle could find and remedy many defects.

The whistle is on the bird-call principle, because it must sound during inspiration as well as in expiration—an obvious need for the skylark. It can be boiled, and is easily washed (e.g., in "dettol") each time the subject is changed. It works when its interior is still wet. Counting in seconds—often incorrectly estimated—can now be discarded: timing is done by the whistle to suit the subject's physique. When the inspiratory sound ceases (not before) expiration is induced, and vice versa. If the whistle is obeyed, respirations will not be hurried or jerky. The classes become interesting, and are even amusing. Usually the timing coincides approximately with the orthodox 12 per minute of Schäfer and Silvester. In the rocking method, as it produces a greater tidal air, the longer, smoother whistles call out for a slower rate of about 9 per minute. This is also better for the circulation (4 seconds head-down; 3 seconds feet-down). Tests on larger numbers are needed.

The model has been found to work on all healthy adults and on children of 4–5 stone (25.5–32 kg.), rocked manually. The largest subject was a six-foot (1.8 m.) doctor with a 44-inch (1.12 m.) chest who was rocked for over five minutes, whistling loud and long. He said he was so comfortable that he nearly went to sleep. Yet, when doing his own breathing at rest, the 5-mm. aperture was only just adequate.

Dr. A. A. Harper, of the Physiology Laboratory of Manchester, kindly measured carefully the effect of the whistle in Schäfer's method in two subjects. He found it did not affect the volume of the air breathed, but of course it increased the resistance slightly. The figures were: inspiratory pressure increased from 3.6 to 7.2 cm. H_2O; expiratory increased from 2 to 4.1 cm. H_2O. He considers that these resistances would be of no importance in training conscious subjects. He also allows me to adopt the very convenient nose-clip he used.

Professor E. A. Pask, of the Newcastle Department of Anaesthesia, was good enough to measure the sensitivity of the whistle. With a respiration pump it was just audible at a tidal volume of 200 c.cm. at 8 respirations a minute with a rate of flow of 3.6 litres a minute; or, with a steady flow of oxygen, at 4 litres a minute. He considers it "an instrument of remarkable sensitivity which will be of considerable use in training." In Dr. Harper's subjects the volumes per minute ranged from 6.6 to 7.8 litres with the whistle in Schäfer's method. I am told that the inspiratory note is upper B flat, and expiration usually an octave lower.

The whistle is held in the teeth and closed lips, so that it cannot be applied in cases of unconscious asphyxia. No time-consuming gadgets can yet be authorized where every second is vital. The device is intended to train operators to do their life-saving task efficiently.

At a recent demonstration in London before 130 doctors of the St. John Ambulance Brigade nearly all signified, by a show of hands, their wish to try the method. The tidal-air whistle and nose-clip can now be obtained from Messrs. Siebe Gorman and Sons, Tolworth, Surrey, for a few shillings.

Medical Memoranda

A Case of Twins

The publicity which nowadays is focused on the higher categories of multiple births has caused mere twins almost to escape attention. The following case, however, is interesting enough to be placed on record.

Case Report

The patient was a multigravida aged 26, height 5 ft. 3 in. (1.6 metres), weight 8 st. 5 lb. (53 kg.). Her last menstrual period began on May 1, 1947, and her expected date of delivery was on February 8, 1948. She had one child, a normal full-time delivery on November 10, 1942, weighing 8 lb. 15 oz. (4.05 kg.). There was a history of twins in the family.

In the early months of pregnancy she had some nausea and sickness, which soon improved. At 19 weeks the fundus was two fingerbreadths above the umbilicus. At 23 weeks it reached to midway between the umbilicus and xiphisternum. At 30 weeks the uterus measured 37 in. (0.94 metre) in circumference and 14 in. (35 cm.) in convexity. One small head was felt in the pelvis. *X*-ray examination on November 21 showed twin pregnancy, the first a vertex and the second a breech.

The patient continued to feel well for the rest of the pregnancy, apart from increasing heaviness. Her weight rose from 8 st. 5 lb. to 11 st. 10 lb. (53 to 74.4 kg.). Her highest blood pressure was 136/80, and at no time was there any albuminuria or oedema. She was given iron and calcium during pregnancy, and was admitted for rest one week before term.

On admission both foetuses presented by the vertex. The foetal heart rates were 136 and 142. Measurements of the uterus were : circumference 46 in. (1.16 metres) and convexity 23 in. (58 cm.).

A medical induction was contemplated at term, but at 10.30 p.m. on February 8, 1948, she went into labour. At 5.30 a.m. the next day the os was fully dilated, and at 7.30 a.m. she was delivered spontaneously of a living male infant, weighing 10 lb. 0¼ oz. (4.54 kg.) in the R.O.A. position. After 20 minutes pains restarted, and 15 minutes later a second living male infant, weighing 8 lb. 3 oz. (3.71 kg.) was born in the L.O.A. position. Twenty-five minutes later the placenta and membranes were expelled intact, the total length of labour being 10 hours 25 minutes. There was a loss of 18 oz. (510 ml.). The placenta was binovular in type and weighed 3 lb. 15¼ oz. (1.8 kg.)—i.e., little less than one-quarter of the combined weights of the infants.

The puerperium was entirely uneventful. Both infants had regained their birth weight by the seventh day, and by the tenth day the larger one took 18 oz. of milk from the breast, and the smaller one 14¾ oz. (420 ml.). Neither took less than this in 24 hours during their subsequent days in hospital. Residual milk expressed was 3¾ oz. (106 ml.), making a total yield of 36 oz. (1.02 litres) of breast milk on the tenth day.

The babies were fed simultaneously at all feeds, and were discharged on the 19th day, fully breast-fed, and weighing 10 lb. 1½ oz. and 8 lb. 9 oz. (4.58 and 3.88 kg.) respectively. The mother had the antenatal preparation of the breasts which is practised at this hospital (Waller, 1946), and during her lying-in needed no more help than the usual care and patience of the nursing staff.

Throughout her pregnancy she was well, and she carried the babies to term, a comparatively uncommon event in twin pregnancies. The records of this hospital show only 14 instances out of 67 twin deliveries in the past four years.

Hospital	Year	No.	Average Weight		Heaviest Weight	
			Twin 1	Twin 2	Twin 1	Twin 2
			lb. oz. kg.	lb. oz. kg.	lb. oz. kg.	lb. oz. kg.
Queen Charlotte's ..	1945	19	5 6 2·44	5 9 2·52	7 9 3·43	8 8 3·85
Guy's ..	1946	17	5 1 2·29	6 1 2·75	8 2 3·68	6 12 3·06
Liverpool ..	1944	28	5 2 2·32	5 7 2·47	7 0 3·18	7 6 3·35
Camborne ..	1945	6	6 3 2·81	5 11 2·58	6 15 3·15	7 7 3·37
B.H.M.B., Woolwich	1944	17	5 0 2·27	5 3 2·35	6 6 2·89	7 3 3·26
" "	1945	20	4 10 2·10	5 3 2·35	6 4¼ 2·84	7 4 3·32
" "	1946	11	6 0 2·72	5 12 2·61	7 11 3·49	6 8 2·95
" "	1947	19	5 3 2·35	4 5 1·96	7 4 3·29	7 7 3·37

As will be seen from the accompanying table, the average weights of twins, taken from several different hospital reports, range between 5 lb. and 6 lb. 3 oz. (2.27 and 2.81 kg.). The heaviest weights recorded in the series were 7 lb. 9 oz. and 8 lb. 8 oz. (3.43 and 3.85 kg.) at Queen Charlotte's Hospital in 1945.

Progress has been consistently good. Breast-feeding was maintained, apparently without strain, for eight months. At 3 months the babies weighed 13 lb. 8 oz. and 11 lb. 9¼ oz. (6.12 and 5.26 kg.). They had had no illnesses and were free from any sign of rickets. The haemoglobin level was found to be 60% in both cases, and iron was prescribed. When last seen on October 7 (aged 8 months) they weighed 22 lb. and 20 lb. 8 oz. (9.98 and 9.3 kg.) respectively and were very healthy.

My thanks are due to Mr. Keith Vartan, medical director, and Dr. Harold Waller, honorary paediatrician, for permission to publish this case and for their help and advice.

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Congenital Pyloric Stenosis in Three Successive Male Babies of the Same Parents

The following cases are reported in the belief that it is rare, if not unique, for the same parents to have three consecutive male babies suffering from congenital pyloric stenosis. It would be interesting to know if any readers have had similar experiences.

Case Reports

Case 1.—This occurred in July, 1945. The precise clinical details are lacking except that the condition was diagnosed clinically and confirmed at operation. The child died shortly after the operation. It is believed that the general condition had greatly deteriorated before consent was given by the parents.

Case 2.—This occurred in July, 1947. The clinical features were classical in that projectile vomiting started at the end of the second week after birth. Visible peristalsis and a palpable mass were evident. Unfortunately, however, the family conditions left something to be desired, and the parents did not use the "eumydrin" with which the doctor was treating the case. Other therapeutic measures were carried out by the parents against the doctor's advice and operation was refused. Inevitably the general condition became worse, and when eventually the parents realized the folly of their ways the child died before operation could be performed. A post-mortem

examination was, however, carried out and a greatly hypertrophied pylorus was found with complete stenosis.

Case 3.—This occurred in July, 1948. The child was a male and the projectile vomiting started towards the end of the second week. Visible peristalsis and a palpable mass were again found after feeding. Treatment with 1/750 gr. (0.875 mg.) of eumydrin before feeds was begun, and from the outset the condition was good. On this occasion co-operation from the parents was forthcoming and it was possible to carry out a Rammstedt operation in the early stages. Recovery was rapid and uneventful.

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Congenital Pyloric Stenosis in Binovular Twins

The aetiology of congenital pyloric stenosis is quite obscure. The constant pathological findings and the onset a few weeks after birth point to some defect in the development of the pylorus, widely assumed to be dependent on a genetic factor.

Individual reports of the disease in two or more siblings have appeared from time to time (Parker, 1927; Bilderback, 1928; Cockayne, Moncrieff, and Sheldon, 1928; Thompson and Gaisford, 1935; Fabricius and Vogt-Müller, 1937; Donovan, 1938; O'Donnell and Klein, 1941; Cathala and Cler, 1944; Marquezy, 1944; Kaufman, 1947). On the other hand, Akin and Forbes (1947) found only three instances in 147 patients, Nafe (1947) six cases in 129 patients, and Gavois and Poyanne (1944) one case in 67 patients. It is clear that it is unusual for siblings to be affected, although Cockayne and Penrose (1943) concluded, after a most exhaustive investigation, that there was a definite though small familial incidence.

Occasionally pyloric stenosis has occurred in successive generations. The father of the female patient reported by Donovan (1938) had undergone operation for stenosis when a few weeks old; one of Nafe's (1947) patients had an uncle who had had the disease, as had the maternal aunt of the pair of twins reported by de Lange (1936). Schrieber (quoted by Laubscher and Smith, 1947) described a patient whose father and grandfather both suffered from pyloric stenosis in adult life, which was believed to be of congenital origin. Caulfield (1926) cited a further case that was even less convincing. Cockayne (1934) reported two pairs of twins who were first cousins, all of whom had the disease. The absence of any definite hereditary characteristics does not lend support to the genetic theory, but if a Mendelian recessive was concerned it would remain concealed for long periods, showing a tendency to exposure particularly on intermarriage; and in respect of this Cockayne and Penrose (1943) found the proportion of patients with consanguineous parents exceeded random expectation.

Laubscher and Smith (1947), in a recent review on congenital pyloric stenosis in twins, found it recorded in 13 monovular twins; in 11 of these both twins were affected, while Sheldon (1938) and Lasch (1925) each noted an exception. In 24 sets of binovular twins there were two instances in which both were affected. Laubscher and Smith (1947) reported binovular male twins, both of whom underwent operation five weeks after birth, and O'Donnell and Klein (1941) recorded a similar occurrence; Nafe (1947) mentioned that he had recently seen binovular twins operated on for pyloric stenosis on the same day.

Case Reports

The mother, a 2-para aged 33, gave birth to a male child on June 29, 1948; simultaneously the membranes of the twin were artificially ruptured, but the uterus became inert and the second child, a female, was not born until July 1. There was an elder child, a girl aged 6. No history was elicited of any similar trouble either in the mother's or in her husband's family, and the parents were not related.

First Twin.—Male, born June 29, 1948; birth weight, 6 lb. 2 oz. (2.78 kg.). He was breast-fed for the first fortnight, but then changed to a proprietary food. He thrived until July 21, when he vomited after one of his feeds. Three feeds later he vomited again, and thereafter following every bottle: the vomitus became large in quantity and projectile in nature. On July 23 he was admitted to Queen Mary's Hospital in a dehydrated condition, and weighing 5 lb. 3 oz. (2.35 kg.). A palpable tumour lay under the right costal margin, with visible peristalsis in the epigastrium. On July 24 the abdomen was explored under local analgesia. A firm pyloric muscle tumour was found, and a typical Rammstedt's operation was performed. The child made an uneventful and rapid recovery.

Second Twin.—Female, born July 1, 1948; birth weight, 4 lb. 2 oz. (1.87 kg.). She was maintained in an oxygen tent for five days, with three-hourly oesophageal feeds of a proprietary food. After a further three weeks in the premature baby nursery she was discharged home, on July 25, weighing 5 lb. 8 oz. (2.49 kg.). For a few days she continued to progress favourably, but on August 1 suddenly vomited after a feed, and thereafter shortly after every bottle; with each vomitus a large quantity was ejected in projectile fashion. On August 3 she was admitted to the Connaught Hospital because of an outbreak of whooping-cough at Queen Mary's Hospital. She weighed 4 lb. 1 oz. (1.84 kg.), but was less dehydrated than her brother had been. Peristaltic waves crossing the epigastrium were easily visible; and a mobile tumour was palpable under the right costal margin. She was given a feed and shortly after it was forcibly vomited. On August 3, under open ether anaesthesia, a Rammstedt's operation was performed for a typical congenital hypertrophied pylorus. Her post-operative progress was quite uneventful and she rapidly gained in weight.

Comment

A study of the published data, together with such cases as the one reported here, reveals the following: (1) the disease may occur in siblings, but with relative infrequency; (2) it is rare for two or more generations to be involved; (3) whilst each twin is usually affected when of monozygotic origin, authentic exceptions have been recorded; (4) there have been several instances in which each twin of dissimilar pairing has been affected, such as the example reported here.

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Reviews

A STUDY OF SICK SOCIETY

Psychosocial Medicine. By James L. Halliday, M.D., D.P.H. (Pp. 277. 17s. 6d.) London: William Heinemann Medical Books. 1948.

It has been clear for some time that this book was an unusual one. Since its appearance in the United States last year American colleagues have been asking, almost monotonously, how Halliday's book is being received. Last autumn, when Mr. Aldous Huxley interviewed the Press shortly after he arrived in this country, it was reported that the discussion turned to Halliday's book on psychosomatic illness, and more recently it appeared as the subject of a 20-minute talk in the third programme by Professor L. J. Witts. Its subtitle, *A Study of the Sick Society*, gives the clue to this wide interest, and here, indeed, is a disturbing picture of some of the sicknesses of the communities, and of the subgroups within them, of which we ourselves are so intimately a part.

The main theme may be put thus. Although the mechanismic outlook of nineteenth-century medicine led to brilliant advances against many physical illnesses, it diverted attention from other important aetiological factors, with the result that what are now called the psychosomatic illnesses have been getting progressively more common. It is not only that the total figures are rising. Halliday's essential point is that many of these illnesses have shown within the last few decades changes in their incidence in different age, sex, and occupational groups. For instance, peptic ulcer would appear to have changed from being an illness chiefly affecting young women and middle-aged men to one that is now more typical of young men and middle-aged women; or, again, the mining group in recent years has shown a higher rate of illness than other industrial groups. Furthermore, certain other features—e.g., infertility and suicide rates—have shown similar trends. According to Halliday, these findings can be accounted for only by social psychological factors, and he therefore suggests that such objective measures should be taken as indices of the sickness or health of any group or society. (It is because "social" medicine means in practice the measures designed to keep populations, or aggregates of people, from becoming sick through physical causes that he reluctantly adopts the term "psychosocial" to ensure that the psychological factors are included.) Halliday next takes the daring view that, when these indices are rising in a group, that group is in danger of a devitalizing biological change which can readily progress until the group is extinguished by failure to produce and to reproduce.

Having diagnosed the faults within the social sphere, the author goes on to suggest that medicine will have to be reintegrated with the social sciences and with politics, and that those doctors who effect this synthesis within themselves will become the pioneers of new ways in medicine which will lead us out of the present increasing specialism with its impotence in face of the most prevalent disorders in modern industrial society.

It is almost impossible to comment briefly on the condensed thought in this book. The first task, as the author himself suggests, will be to carry out further studies to confirm and to expand his findings, and to ascertain how fully all the relevant factors have been considered. To take one instance, in quoting the unduly high rates of hypertensive disorders in miners' wives the possible effects of this group having a relatively higher average age than other groups of wives does not appear to have been allowed for. More social anthropological data will be required, too, on the individual histories of the sick groups, for occupational groups are wont to have quite marked food habits. But even before this checking up has been done it is difficult not to be impressed by the apparent psychosocial aetiology of some of the disorders mentioned. The history of miners' nystagmus is an excellent example of how too rigid an adherence to physical aetiology can blind us to the most relevant facts. If only a few of the main findings about the changing distributions of the psychosomatic illnesses are eventually accepted, serious thought will have to be given to the whole status of psychosocial factors in medical thought and practice; it will be difficult to "explain" these by such concepts as "bad nutrition" or "hereditary factors."

It may well be that medical historians of the future will write of this book as one of the important contributions to medical thought in the twentieth century. Almost every page reveals the unusual insight of the author and his capacity to analyse and synthesize the implications of his theme, so that there is the stamp of genius about the work as a whole. It is significant that the insights of the poets have evidently made deep impressions upon the author, and some of his views may be rejected for a time as poetic rather than scientific. That, however, will illustrate the author's view that it is not easy for us to face up to some aspects of our present society. In fact, one of the best object lessons in understanding psychosocial forces will be to watch the reception and fate of this book within the next few years by different professional groups, and to understand why it has stimulated some groups and made others anxious, as it almost certainly will do.

The appearance of *Psychosocial Medicine* is peculiarly well timed. One of the features of psychosomatic illnesses upon which the author comments is their tendency to be exacerbated by actions taken by doctors which show that they do not really understand their origins. Unless effective ways of combating these disorders can be developed there is bound to be a rise in their incidence and chronicity, so that the burden on the new Health Service will increase steadily; no national health service can afford to ignore Halliday's considerations.

As a final point, the reader can speculate on whether it was a sickness of some of the groups in our British society which led to this fundamental book being produced in America and so to making a Glasgow physician write about "gasoline engines."

J. D. SUTHERLAND.

B.C.G.

B.C.G. Vaccination in Theory and Practice. By K. Neville Irvine, D.M. With foreword by Konrad Birkhaug, M.Sc., M.D. (Pp. 130. 9s. 6d.) Oxford: Blackwell Scientific Publications. 1949.

This is an excellent little book, written for the practical man who is going to use B.C.G. and wants to know the "why" and "how." It is well documented, and the references, which are given at the end of each chapter, number over 500. The author covers the history and present methods of producing the vaccine, discusses its safety, describes in detail alternative methods for the vaccination of human beings, reviews the experimental and field evidence on the protective value of B.C.G., and ends with a brief discussion on its best mode of use in Great Britain. He gives a good deal of space to the safety of the vaccine, pointing out that all the adverse reports, whether in animals or in man, date from before 1930. He believes that about that time potentially virulent variant organisms were eliminated from the vaccine and that now the danger is that the strain may become too avirulent to afford adequate protection. The safety of B.C.G. is attested by the fact that some ten million persons have been vaccinated with it and, apart from the Lübeck disaster, only 37 cases of tuberculosis have, rightly or wrongly, been attributed to its use.

The real question to-day is not whether B.C.G. is safe but what is its protective value in different age groups of the population and among people of varying levels of genetic immunity. Before recounting the investigations made to determine this the author lays down seven minimum postulates for a field trial if it is to be accepted by the statisticians. Whether it will be possible to carry out a properly controlled trial in this country is doubtful, but there seems no reason why one should not be attempted if the Ministry refrains from distributing the vaccine indiscriminately.

It would be interesting to know why the author has ignored the negative results of the large-scale use of B.C.G. by Blanch,

Blanch, and Lieutier in Uruguay. Little attention has been paid in the literature to these findings, and Dr. Irvine, who has gone to considerable trouble to make certain of many of his facts, might well pay a visit to South America to find out the real truth about them. Another point that needs investigation is the need for segregation of children in tuberculous families before and after vaccination. Dr. Irvine recommends the approved practice, but there seems to be an increasing tendency in some countries to dispense with it. What we really want to know is whether Rosenthal in Chicago and Levine and Sackett in New York are both right. Is it true that B.C.G. with segregation protects and without segregation it does not?

Throughout the book the author is simple, sane, direct, and objective. Only occasionally does he lapse. For example, in his final discussion he summarizes an earlier section in these words: "This chapter shows that vaccination does produce a definite resistance in man; the degree produced appears to be 70–100%." What does this mean? It cannot mean what it appears to mean—namely, that without vaccination 70–100% of the vaccinated persons would have developed tuberculosis. What the author probably means is that vaccination protected 70–100% of the small proportion of the population that would have developed tuberculosis had they not been vaccinated—which is a very different thing. It is to be hoped that in a future edition the original statement, which may be quoted away from its context, will be revised. Again, on page 93 the author quotes Hertzberg as saying, "For primary tuberculous lesions the ratio of the vaccinated morbidity rate to that of the controls is 1:137," and follows this up with the statement: "Neiman and Loewinsohn, in a radiological study of 1,417 vaccinated children and 1,414 controls, found the ratio per 1,000 person-years to be 1:2.83." Surely an explanation is required of these totally discrepant findings.

In recommending the wider use of B.C.G. vaccination Dr. Irvine makes it clear that it should be used as an addition to our antituberculosis measures, not as a replacement for any of them. Most workers will agree that so long as this is firmly borne in mind there is a place for B.C.G. vaccination in this country.

G. S. Wilson.

LEWIS'S CARDIOLOGY

Electrocardiography and Clinical Disorders of the Heart Beat. By the late Sir Thomas Lewis, C.B.E., F.R.S., F.R.C.P. (Pp. 285; illustrated. £1 5s.) London: Shaw and Sons. 1949.

It is almost superfluous to review a book by the late Sir Thomas Lewis, for there is no medical writer of the last generation who has transmitted to paper in such clear prose work of such a high standard. The present book is a combination of two previous volumes, *Clinical Disorders of the Heart Beat* and *Clinical Electrocardiography*. It was completed just before the author's death, and, as is said in the preface, he felt that the time had come for integrating the subjects into one volume. This book is one which must necessarily be included in the libraries of medical institutions and which should be at hand for reference by all cardiologists. This is not only for historical reasons but because the clear sentences of the book contain a fund of valuable and stimulating information, some of it with a very clear personal ring.

It is always possible for a reviewer to read his volume with jaundiced and hypercritical eyes, and, even in the case of writings by Sir Thomas Lewis, minor points of criticism can be found. For example, on page 6 it is advised that the subject whose electrocardiogram is being taken should be in a sitting position. It is my experience that the broader and more comfortable the couch the freer the tracing from muscular interference. On page 21 are given three normal curves taken from lead III in different subjects. One of these could easily be that of a patient who had previously suffered from a posterior coronary infarct. On page 58, where a curve characteristic of Fallot's tetralogy is shown with marked right axis deviation, the characteristically sharp P wave, which is also well defined, is not remarked upon. However, these are small samples of the hypercritical attitude already referred to.

There are certain broader criticisms which can be justifiably added. The book makes little mention of the direct chest leads, and where these are referred to the information is usually restricted to the curves shown by CR4. With the great advance in electrocardiography and the advent of the school which already prophesies the complete disappearance of the three standard leads, it is clear that this omission, so far as electrocardiography is concerned, is a serious one. But such omissions are inseparable from the passage of time, and they do not in themselves constitute criticism of the book. For students who desire a work on cardiology as a book of reference this monograph is not in itself sufficient, for there is no section on cardiac radiology.

When these remarks have been made, it still remains a fact that the description of cardiac irregularities, which are dealt with seriatim in separate chapters, remains classical both in presentation and subject-matter. It is sad, however, that there is no wide, comprehensive textbook on cardiology from the hand of the man who was in so many senses the father of his subject.

Geoffrey Bourne.

ESSAYS IN PSYCHO-ANALYSIS

Searchlights on Delinquency. Edited by K. R Eissler, M.D. (Pp. 456. 30s.) London: Imago Publishing Co. 1949.

These psycho-analytic studies on delinquency are dedicated to a remarkable man, August Aichhorn, a Viennese educationist who devoted himself to the study of delinquent youth and eventually found in psycho-analytical teaching the framework he required for understanding his patients and treating them. He was apparently a strong pacifist, and in 1907 successfully exerted his influence against intrusion of the military spirit into education. He later founded an institution for delinquent boys, with whom he had extraordinary success. This institution foundered during the last war but has since been re-established, and Professor Aichhorn's work has been honoured by his election to the presidency of the Viennese Psycho-analytic Society. The editor of this symposium writes of him as an artist in technique, a unique teacher, and as having uncanny intuition. He can "reconstruct the whole of a human personality from a few meagre details which seem only trifling superficialities to the unintuitive." He will spend time arguing with a schizophrenic adolescent about the interpretation of an obscure passage in the Bible, with the result that, week by week, the patient recovers. Even his psycho-analytical colleagues emphasize how much of his success is attributable to personal factors. They have contributed to this book many scholarly articles which will be of great interest to analysts practising in this field.

Eliot Slater.

THE RETICULOSES

La Réticulose Histiomonocytaire. By P. Cazal. (Pp. 196. 350 francs.) Paris: Masson et Cie.

Reticulosis and Reticulosarcomatosis. By P van der Meer and Dr. J. Zeldenrust. (Pp. 83; 21 figures. 40 florins.) Leiden: Universitaires Pers Leiden. 1948.

Dr. P. Cazal's monograph is worthy of study by all who are interested in the reticuloses. The author defines the condition he is describing as including those reticuloses which pursue a rapidly fatal course, and which may under certain circumstances produce a leukaemic blood picture. Letterer-Siwe disease and histiocytic medullary reticulosis are included in this definition. He describes in considerable detail the manifestations of the disease process throughout the body, and his references to abnormal blood pictures are of particular interest, for he develops the thesis that proliferation of histiocytic cells in the tissues may appear in the blood stream as cells of the monocytic series, either well or poorly differentiated. The suggestion is put forward in connexion with the pathogenesis of this condition that it represents a multifocal disease rather than a malignant tumour spreading by metastasis.

The author's opinions are best summarized by quoting his final sentence: "Reticulose histiomonocytaire: maladie caractérisée par la prolifération métaplasique (c'est-à-dire envahis-

sante, Irréversible et s'accompagnant d'atypie cellulaire) et systématisée des cellules réticulaires et histiocytaires qui peuvent soit rester sur place, soit passer dans le sang sous forme de monocytes plus on moins typiques." Despite the fact that some of the views put forward in this monograph may not be fully acceptable to all workers, a most stimulating contribution to a confused subject has been presented.

The work of Drs. van der Meer and Zeldenrust from the University of Leiden sets out to present a clinico-pathological account of diseases of unknown aetiology associated with the reticulo-endothelial system. Little new in this confused field of study is presented, and the review of literature is largely confined to that coming from the Continent, American contributions being largely ignored. The fundamental concept is retained which divides diseases of supposedly hyperplastic origin from those which are thought to be true malignant tumours and applies the separate titles reticulosis and reticulosarcoma to them. No new evidence, either clinical or pathological, is presented to substantiate this claim, however.

The reticuloses are described as acute or chronic, but little attempt is made to correlate this clinical subdivision with pathological entities. Reticulosarcomata are described as being localized or generalized, but no stress is laid upon the prognostic significance of these varieties. The authors' presentation suffers from an inadequate English translation which makes it difficult sometimes to follow their reasoning.

GEORGE LUMB.

MODERN PRACTICE IN PSYCHIATRY

Modern Practice in Psychological Medicine, 1949. Edited by J. R. Rees, M.D. (Pp. 470 and an Appendix. £2 10s.) London: Butterworth. 1949.

The editor explains that this well-produced volume is intended for medical students and general practitioners, not for specialists in psychiatry. He has invoked the aid of twenty-eight collaborators with widely different backgrounds and viewpoints, who have contributed essays on the topics assigned to them. The result is a most uneven production with much overlapping and repetition and some regrettable omissions. The treatment recommended varies, and sometimes flatly contradictory opinions are expressed. Difficulties of this kind are likely to arise in any symposium in default of the most rigorous editorial planning and pruning, but they are specially likely to arise in a relatively short volume on psychological medicine which covers an undefined field without proper delimitations between the different parts of it.

In view of the title the medical student and general practitioner may reasonably expect to find clear guidance on practical problems of diagnosis and treatment, but both may be excused if at times they feel baffled and bewildered by the work. In particular, the therapeutic implications of expositions in terms of "dynamic" psychopathology are puzzling to the reader, for they seem to lead to the deduction that patients should be analysed, which, it is then pointed out, is for the specialist. The chapter on physical methods of treatment is disappointing: and what is the beginner likely to make of such *obiter dicta* as that of Dr. Brock Chisholm, who identifies "amongst factors that commonly tend to slow, to distort, or to prevent satisfactory mental and social development . . . teaching of children to believe in the reality of phantasies such as fairies and Santa Claus. . . "?

In brief, the book does not fulfil its intended purpose, as a random collection of essays on psychiatric topics can scarcely be expected to do. Yet in spite of the lack of editorial planning both student and general practitioner could gain much from it, for in parts the symposium is not only good but excellent. The section on sexuality and the sexual disorders, by Professor D. Ewen Cameron, and that on psychosomatic medicine, by Dr. E. D. Wittkower, both contain much interesting matter; while among many valuable essays "Nature and Nurture—The Factor of Inheritance," by Dr. Eliot Slater (which is all too short), "Psychiatry and Neurology," by Dr. Russell Brain, "Mental Deficiency," by Dr. E. O. Lewis, and "The Schizophrenic Disorders," by Dr. Hunter Gillies, are outstanding.

DESMOND CURRAN.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

Acute Injuries of the Head. By G. F. Rowbotham, B.Sc., F.R.C.S. With a foreword by Professor Norman Dott, C.B.E., F.R.C.S.Ed. 3rd ed. (Pp. 480; 259 illustrations. 35s.) Edinburgh: Livingstone. 1949.

The Elements of Genetics. By C. D. Darlington and K. Mather. (Pp. 446. 25s.) London: George Allen and Unwin. 1949.

Sexual Behaviour, Normal and Abnormal. By E. Chesser. (Pp. 220. 21s.) London: Medical Publications. 1949.

English Social Services. By E. W. Cohen. (Pp. 169. 8s. 6d.) London: George Allen and Unwin. 1949.

Sanitary Science Notes. By H. Hill, F.R.San.I., F.S.I.A., A.M.I.S.E., and E. Dodsworth, M.R.San.I., M.S.I.A. 2nd ed. (Pp. 135. 7s. 6d.) London: H. K. Lewis. 1949.

The P.J. Poisons Guide. 5th ed. (Pp. 46. 3s. 6d.) London: The Pharmaceutical Press. 1949.

Ward Administration. By M. Randall, R.N., M.A. (Pp. 326. 20s.) Philadelphia and London: Saunders. 1949.

Psychology and the Nurse. By F. J. O'Hara, C.S.C., Ph.D. 3rd ed. (Pp. 253. 14s.) Philadelphia and London: Saunders. 1949.

Laboratory Manual of Chemistry. By J. I. Routh, Ph.D. 2nd ed. (Pp. 98. 6s. 6d.) Philadelphia and London: Saunders. 1949.

The Cerebral Palsies of Childhood. By H. K. Lucas, M.Ch.Orth., F.R.C.S.Ed. (Pp. 28. 1s. 9d.) Sanderstead, Surrey: British Council for the Welfare of Spastics. 1949.

Perspectives in Medicine The March of Medicine, 1948. (Pp. 163. 14s.) London: Geoffrey Cumberlege. 1949.

Blakiston's New Gould Medical Dictionary. Edited by H. Wellington Jones, M.D., N. L. Hoerr, M.D., and A. Osol, Ph.D. (Pp. 1,294. $8.50.) Philadelphia and Toronto: The Blakiston Company. 1949.

Marihuana in Latin America: the Threat it Constitutes. By P. O. Wolff, M.D., Ph.D., M.A. (Pp. 56. $1.50.) Washington, D.C.: The Linacre Press. 1948.

Nelson Loose-Leaf Medicine. Renewal pages.

Hygiène et Securite du Travail. By M. Marchand. (Pp. 332. No price). Lille: Martin-Mamy, Crouan, and Roques. 1949.

La Enfermedad de Addison. By G. Marañón and J. F. Noguera. (Pp. 212. No price.) Madrid: Espasa-Calpe, S.A. 1949.

Fünfzig Jahre Pathologie in Deutschland. By W. Fischer and G. B. Gruber. (Pp. 334. M. 33.) Stuttgart: Georg Thieme. 1949.

Die Wiederherstellungs-Chirurgie. By K.-E Herlyn (Pp. 200; 357 illustrations. M. 32.) Stuttgart: Georg Thieme. 1949.

Die Pathologie des Harnleiters im Rontgenbild. By A. Thelen. (Pp. 97. M. 10.50.) Stuttgart: Georg Thieme. 1949.

Das Lange Becken. By H. Kirchhoff. (Pp. 153. M. 19.50.) Stuttgart: Georg Thieme. 1949.

Prognose und Therapie der Geisteskrankheiten. By M. Müller. 2nd ed. (Pp. 217. M. 16.50.) Stuttgart: Georg Thieme. 1949.

Weitere Fortschritte in der Blutgerinnungslehre. By K. Lenggenhager. (Pp. 251. M. 22.) Stuttgart: Georg Thieme. 1949.

Über Zwischenhirnsyndrome. By F. Laubenthal. (Pp. 47. M. 3.60.) Stuttgart: Georg Thieme. 1949.

Das Adenocarcinom des Collum Uteri. By H. Limburg and K. Thomsen. (Pp. 87. M. 6.80.) Stuttgart: Georg Thieme. 1949.

Funktionelle Pathologie in der Chirurgie. By C. van Gelderen. 2nd ed. (Pp. 206. M. 18.60.) Berlin: Springer. 1949.

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DISTINCTION AWARDS FOR CONSULTANTS

When the report of the Spens Committee on the remuneration of consultants and specialists was published in June, 1948, we criticized the suggestion for special awards as "the one outstandingly unsatisfactory proposal in a report which is likely to commend itself to those who work as consultants and specialists in the new Service." We expressed the hope that consultants and specialists would give their opinion on this matter so that it should not become accepted policy merely by default. There was at the time little response to this suggestion, but now that groups of consultants all over the country are being invited by the Distinction Awards Committee to select suitable candidates from among their colleagues, consultants, as is clear from our correspondence columns, are beginning to voice some disquiet. In a letter to this *Journal*[1] Dr. F. M. R. Walshe pungently expressed what a number of consultants in this country probably think about the proposed method of distributing what have been misleadingly called prizes. They are pensionable increments to income. Dr. Walshe has found support for his views, not least in the letter which appeared in the *Journal* of August 27 signed by 19 members of the consulting staff of a teaching hospital, who expressed the hope that "it is not yet too late to abandon the idea of distinction awards in its present form." A cold note of caution was sounded by Dr. H. E. A. Boldero, who stated that there is no alternative to the present method of distributing these distinction awards to consultants. He writes: "I speak from the book when I say that there will be no substitute. Money for these awards will not be available for any other purpose, such as an all-round addition to basic salaries." Dr. Boldero no doubt weighed his words carefully, though one may presume that the final authority in these matters is the Minister of Health. It may well be true that no other alternative will be accepted by the Minister, and that on grounds of common prudence the profession would not wish to make any move which would diminish its total income. But it must nevertheless take into account the views of those young consultants who through these columns have expressed their distaste and apprehension of the present scheme of making the Spens awards. If no alternative can be found, then with good grace we must accept the second best.

We suggested over a year ago that the additional money available should be attached to posts in the new hospital service demanding men of the highest calibre. The new hospital and consultant service is still in a formative period. Those responsible for its working have been overwhelmed with problems of organization, and little constructive thought has yet been put into the development of hospital policy. Some constructive proposals were made in a special number of the *Practitioner* by the writer of the article "The Surgeon and the Service." He suggested, for example, that a small group of senior men should have the task of co-ordinating the surgery of a region or district "by advice, by telling one hospital of the work being done at another, by advising on particular cases, and by informing regional headquarters where, and by whom, good work is being done." As the hospital service evolves one would have thought that some such idea as this would gather force, and that in each region there would be room and need for outstanding consultants in medicine, surgery, obstetrics and gynaecology, to carry out the work suggested by the writer in the *Practitioner*. Similarly, there are other jobs requiring long training and highly developed skill such as neurosurgery and thoracic surgery which will spread over one or more regions. Such posts demanding special responsibility or special skill are bound, we suggest, to be created in the National Health Service, and it is an obvious corollary that to these posts, whether whole- or part-time, there should be attached salaries higher than what has been called the basic salary for the ordinary consultant and specialist. For such special posts there would be keen and open competition and open selection.

If the profession has to accept the present scheme then it must look very closely into the method now being adopted. It has been suggested to the chairmen of medical committees of teaching hospitals that three or four members of each committee should meet in secrecy to decide who among their colleagues should be graded first, second, or third class, and to forward their recommendations to the Distinction Awards Committee. We understand that outside teaching hospitals the suggestion has not been made to the Regional Hospital Boards but to the Assessment Committees, whose decisions on grading have already come in for a certain amount of criticism. Whether the criticism is justified is beside the point. These groups of consultants all over the country being asked to grade their fellow-consultants in secrecy are being placed in a highly invidious position. Clearly they cannot recommend themselves, and it may be presumed that the Central

[1] *British Medical Journal*, August 13, p. 383.

Distinction Awards Committee will find it difficult not to give them awards, because they have already been put into the position of judges and therefore acquiring merit. The Central Committee will have the difficult task of deciding who among the selectors in the regions are to receive the first, second, or third prize, the men themselves feeling no doubt that they are meeting together as equals. There is surely something distasteful in the issuing of confidential reports on colleagues who will remain in ignorance of what is said about them. Granted that it would be possible in such a varied profession as medicine to weigh the merit of one kind of worker as against another kind, to assess for example the merits of a professor of bacteriology as against those of an abdominal surgeon, what criteria are to be adopted to guide those faced with this almost impossible task? At its meeting last week the Central Consultants and Specialists Committee, uneasy about the situation, decided at once to look into this question. If there is to be an attempt to assess merit, then there is much to be said for what appears at first to be a fanciful suggestion put forward by Mr. Frederick Ridley in the *Journal* of September 3—namely, the award of marks for certain distinctions already held by those eligible for the Spens awards. The essential thing is to adopt some method that will eliminate as far as possible the bias of judgment which any medical man must inescapably have in relation to a colleague who practises the same profession. To pretend that bias will not operate is to ignore an obvious but unpleasant fact. To find a method of eliminating bias which is as objective as possible should be the first task of the Distinction Awards Committee, so that some uniform method of assessment can be adopted all over the country.

We have no doubt that the Committee will perform its arduous duty with all the efficiency and impartiality it can bring to bear on it. But to adopt a *laissez-faire* attitude to the Distinction Awards would, we are convinced, be a disservice to medicine, because what is decided now will have an important influence on the healthy evolution of the Hospital and Consultant Service of Britain. *Reculer pour mieux sauter* is a sound adage.

A YEAR OF N.H.S.

"How is the National Health Service working out?" is one of the first questions a foreigner will put to a British doctor. And the usual answer is, "It is far too early to say." In any case the British doctor is so deeply immersed in it, and incidentally so overworked, that he is little inclined to concern himself with the generality of things; the particular overwhelmingly engrosses him. The extra number of the *Practitioner*, just published, has therefore performed a timely service in attempting to review the "first year's working." This it does in a series of articles the value of which is somewhat diminished by the fact that they are anonymous. This in itself is a portent. Men working in a "service" hesitate to put their names to anything in the nature of a criticism of it. The same tendency may be seen in the correspondence columns of this *Journal*. The real danger of a service in which men and women are employed by the State—or, at least, paid by the State—is that they will tamely acquiesce in things they dislike, or hesitate to put their names to forthright criticism. This may lead, in Medicine, to a sapping of that essential of democracy—free discussion. The editor of the *Practitioner* considers that anonymity is essential "when the chief concern is that writers should speak their mind with complete freedom, uninfluenced by the desire to please their friends or placate their enemies, to escape the labels of 'traitor' or 'reactionary,' and when, as in several instances in this number, the article is a symposium embodying the views of several men." It is a sad and sorry comment on Medicine to-day to admit that only under the cloak of anonymity is it possible to speak the mind with complete freedom on what the same editorial describes as "one of the greatest ventures in the history of medicine."

One aspect of this great venture is looked at in the article reviewing the Service as a whole—the difficulties placed in the way of the private patient needing hospital treatment. The charge per hospital room for the private patient has greatly increased, and "when it was found that in many hospitals the private beds were by no means full the regulation was made that at least one-third of the private beds should be allotted as amenity beds for patients applying for treatment through the Service." This, according to the same article, "led several busy consultants to take more of their work to private nursing-homes." It is suggested that this tendency will increase unless the official attitude to the provision of private-patient beds in hospitals is changed. Yet the writer of the article on "The Physician and the Service" states that "the so-called 'amenity beds' allowed for in the new scheme of things are noticeable only by their absence." He, too (or they?), notes (or note?) that the nursing-homes are well filled. The author of the stimulating article "The Surgeon and the Service" considers that the "position of the teaching hospitals as consultative centres, in England at any rate, appears to have deteriorated within the past year." The beds, he states, are blocked by the chronic sick; the out-patient departments are no longer "courts of appeal" but tend to become "routine clinics"; "radiodiagnosis is worse in quality"; pathological reports are "less informative, accurate, and reliable." This, he

considers, is largely due to an increase in routine work, but is in part "due to the fact that the workers are now 'ten-to-five office doctors' who have little personal interest in their relations with the clinical staff or their patients." There is in the *Practitioner* symposium no article by a radiologist, or a pathologist, or a biochemist, or a bacteriologist against which one can offset this criticism, which reads as if it were the experience of one observer rather than a fair commentary on the experience of hospitals generally. The writer voices a complaint, surely widely held, about the amount of time spent on paper work and on committees, commissions, and advisory boards. He complains, too, of the drastic reduction of the senior surgeon's income. "He may still charge no more than a junior may charge for removing a ruptured appendix." And he finds—as so many others find—that "the prospect of being rewarded according to the assessment of a witenagemot of worthies, instead of, as heretofore, in proportion to the place they have made for themselves, is humiliating."

The physician seems to be less alarmed about his financial status than is the surgeon: "Incomes," he writes, "are about back to what they were." He notes that the departments of pathology, cardiology, and physiotherapy have been grossly overloaded with work —"one of the best examples of how the haste in which the Service was introduced has led to confusion." The obstetrician, in his contribution to the symposium, seems less concerned about remuneration than are the physician and the surgeon, though he, too, deplores the financial obstacles placed in the way of the use of the private bed in hospital. He devotes (or it may be "she") much of his article to advocacy of the proposals for a national maternity service published by the Royal College of Obstetricians and Gynaecologists in 1944. He repeats the familiar and accepted criticism that, with the general practitioner responsible to the executive council, the midwife to the local health authority, and the obstetrician to the regional board or board of governors, co-ordination of work is difficult. An attack is made on the "general-practitioner obstetrician wielding the forceps . . . because of sheer financial necessity imposed on him by the workings of the Health Act." This is a matter to which we shall return in a subsequent issue, content to observe here that if there is any justification in the attack it is the biggest condemnation there could be of the failure of obstetricians to instruct students properly in the teaching hospitals of this country.

The "country practitioner" and the "town practitioner" are at one in noting the great increase of work falling on them as a result of the National Health Service. In this they are supported by the author of the article "The Ministry and the Service"—presumably an officer of the Ministry of Health, for who else could write with knowledge? This work has increased both in densely populated areas and also in places where private practice used to predominate, "as the patients made greater demands in proportion to their numbers." In the same article it is stated that more than 95% of the population are using the Service and the same proportion of general practitioners have entered it. Similar evidence of increased work comes from the writer(s) of the article on the Service in Scotland, with the observation that "only the absence of a major epidemic last winter enabled busy practitioners to struggle through at all." Along with this overwork is a well-founded anxiety that general practice is losing much of its savour. The country G.P. refers to the "strong temptation to refer a patient early instead of sharpening one's wits upon the case." On his exclusion from the cottage hospital, he observes that "no doctor of any character will be content for the rest of his days just to dance attendance on specialists or consultants as a 'clinical assistant,' particularly when in many instances he has had more years of practice than the 'specialist' has had of life." The town G.P. echoes this thus: "The general practitioner wants to feel he is actively engaged in *medicine* rather than providing a sort of clearing station for the disposal of cases." Two newly qualified practitioners, giving the viewpoint of the "young doctor," note that "the ideal of general practice is now under a cloud; he cannot be physician, adviser, and friend of his patients." They observe that many who formerly would have made "good and happy general practitioners have entered a field where they will be only lukewarm specialists." And from Scotland comes the warning that the general-practitioner service "must not be allowed to deteriorate into the last resort for disappointed hospital trainees." The growing unattractiveness of general practice is the most serious repercussion of the National Health Service on the development of medicine in Britain.

It is not easy to sum up the impressions gathered from the *Practitioner's* symposium. Several writers deplore the haste with which the Service was introduced and regret that the advice to bring it in by stages was ignored by the Minister of Health. For this he gave his own reason in an interview with Mr. John W. McPherrin, editor of the *American Druggist*, a recent issue[1] of which was devoted to an examination of the National Health Service. As reported, Mr. Bevan said: "To do it gradually, piece by piece, step by step, would create many resistances and make the Minister subject to everyone else instead of having them subject to him. It is his responsibility to make the new system work, and he cannot do that if he is not master, if he does not have complete control." In the symposium surveyed briefly above there emerges the picture of a profession doing

[1] *American Druggist*, July, 1949, p. 92.

its harassed best to make the National Health Service a going concern. Mr. Bevan's haste and mistakes have to a large extent been masked by the self-discipline of the individual doctor, whose adherence to the traditions of a learned profession makes it possible for him to withstand the vagaries of the political climate. But the Minister—and the Ministry of Health—should take heed of this comment from the writer on the Service in Scotland: "The men who work it, however, are not, in general, working in a contented state." If medicine is to continue to attract into its ranks able men and women it is above all imperative that the terms and conditions of service should so evolve as to produce a profession which will do its work in a happy and contented frame of mind.

SERUM JAUNDICE

"Blood and plasma are potentially dangerous fluids unless prepared, stored, chosen, and used with extreme care." This statement was emphasized more than a year ago in these columns.[1] Blood and plasma are still being used in larger quantities than during the war and the need for "extreme care" has not grown less. Lehane and his colleagues[2] in a recent issue of the *Journal* discussed serum jaundice as one of the hazards of transfusion therapy. In the last few weeks three children have died after the administration of anti-measles serum, and the inquests on these cases, reported elsewhere in this issue, have been given prominence in the lay press.

It was in 1936 that a few cases of jaundice occurred among the recipients of two pools of serum from apparently normal adults given as a measles prophylactic[3] and in people inoculated with certain batches of yellow fever vaccine containing human serum.[4] The clinical picture in these patients was similar to that of "catarrhal jaundice," but because the period between the injection and the onset of symptoms was two to four times as long as the presumed incubation period of catarrhal jaundice the implications were not appreciated at first. Further investigation of the origin of the disease in both groups suggested that the supposedly normal serum used might contain an icterogenic agent. Although it was shown that the yellow fever virus itself was not responsible in the patients who had received the suspected vaccine, no proof of the source of the icterogenic factor was obtained at that time. Some changes were made in the process of preparation of yellow fever vaccine in 1937, but human serum was still used, because certain experiments indicated that it was necessary for growth of the virus and to maintain the stability of the virus in the vaccine. No more cases of jaundice of this kind were recognized until 1940 in Brazil, where many batches had been given previously over a number of years with no ill effects. Further large outbreaks of jaundice were reported in 1941–2 among the recipients of batches of yellow fever vaccine made in the U.S.A., and in 1942 in England. By this time improved technique made it possible to change over to a vaccine with an aqueous base, and no further cases are known to have occurred since 1943, when this type of vaccine was introduced.

Soon after the beginning of the recent war infective hepatitis (catarrhal jaundice) reached epidemic proportions in military and civilian groups as it had in previous wars. At the same time jaundice was affecting many of the men undergoing treatment at some of the military treatment centres for venereal disease. It was realized, too, that jaundice was also appearing in patients who had been transfused about 60 to 120 days previously. Usually the patients had received different batches of plasma or of whole blood and plasma, and there was no proof that the disease was artificially produced and not contracted by contact. About the same time two pools of plasma were collected from two small groups of apparently healthy young recruits recently recovered from mumps and were used to inoculate several hundred soldiers in the same camps to protect them from mumps. Some 60 days later cases of jaundice were noted among the inoculated personnel, and eventually at least 37% of them developed jaundice.[5] The investigations that followed incriminated only one of the two pools of plasma. There was no suggestive history of catarrhal jaundice among the donors, either before or after the time they had been bled. These results, together with the demonstration by Oliphant and others[6] in the U.S.A. that the disease produced by icterogenic yellow fever vaccine could be transmitted by injection of the patients' blood, and MacCallum and Bauer's experiment[7] showing that the pool of normal human serum incorporated in an icterogenic vaccine was itself icterogenic, made clear that the serum of certain normal individuals contained a transmissible agent which produced a clinical picture similar to that of catarrhal jaundice. Biopsy specimens of the liver from some of the patients showed that the pathological changes in the liver resembled those of infective hepatitis.

Then Spurling, Shone, and Vaughan[8] reviewed in this *Journal* their experience over the years 1940–5 at a large London blood transfusion centre. A disease considered

1 *British Medical Journal*, 1948, 1, 649.
2 Ibid., 1949, 2, 572.
3 Propert, S. A., ibid., 1938, 2, 677.
4 Findlay, G. M., and MacCallum, F. O., *Trans. R. Soc. trop. Med. Hyg.*, 1937, 31, 297.
5 McFarlan, A. M., and Chesney, G., *Lancet*, 1944, 1, 816.
6 *Publ. Hlth Rep. Wash.*, 1943, 58, 1233.
7 *Lancet*, 1944, 1, 622.
8 *British Medical Journal*, 1946, 2, 409.
9 Scott, K. B., and Tovey, G. H., ibid., 1948, 1, 196.
10 Apley, J., and Wallis, H. R. E., ibid., 1948, 1, 197.
11 Havens, W. P., *J. exp. Med.*, 1946, 83, 251.
12 Neefe, J. R., *et al.*, *J. clin. Invest.*, 1947, 26, 329.
13 *J. exp. Med.*, 1946, 83, 441.
14 *J. clin. Invest.*, 1944, 23, 417.
15 Blanchard, M. C., Stokes, J., Hampil, B., Wade, G. R., and Spizizen, J., *J. Amer. med. Ass.*, 1948, 138, 341.

to be serum jaundice was found to have affected 7.3% of 1,054 recipients of pooled plasma. These were the years when infective hepatitis was prevalent in this country. Now Lehane and his colleagues have carried out a similar survey from October, 1945, to March, 1948, in the Liverpool area. Although the incidence of jaundice in the population was probably at pre-war levels and much lower than in the war years, the jaundice attack rate in recipients of large-pool plasma was 11.9%, and even in those receiving whole blood or small-pool plasma (not more than 10 donors) the rate appeared to be considerably higher than that in the community at large.

Attempts to reproduce either serum jaundice or catarrhal jaundice in experimental animals have been unsuccessful, and no *in vitro* diagnostic test is available; elucidation of the problem has therefore been difficult. Much of our knowledge has been obtained by experimental inoculation of human volunteers, with all its accompanying pitfalls. We still do not know whether these are two forms of the same disease process or not, but it is possible that there are several viruses or strains of viruses which have slightly different modes of action in their human host. In addition to several apparent differences in routes of infection and excretion between the agents causing infective hepatitis (catarrhal jaundice) and some of those responsible for so-called serum jaundice, there has been one important epidemiological difference—that of age incidence. Naturally occurring infective hepatitis has a maximum incidence in those aged 5–15 years. Occasional frank cases occur under 5 years of age, but even in nurseries it is usually the young teen-age nurses who contract the disease, while the children remain free. Over 15 years of age the attack rate in the civilian population usually falls gradually until 35 years, after which age the disease is uncommon even in groups of military personnel. By contrast, serum hepatitis has been very uncommon under the age of 5 and uncommon from 5 to 10, but it affects adults of all ages with more or less equal frequency, the attack rate varying from 15 to 50% in different outbreaks. Several cases of jaundice occurring two to four months after the transfusion of infants in the first few months of life have recently been reported in the U.S.A. and in England.[9,10] The source of the infection could not be determined. The possibility of the transfused material being responsible was inferred from the "incubation" period. Lehane and his colleague found only one case (aged 9 years) of jaundice (0.8%) among 127 children under 10 who were transfused with pooled plasma or plasma and blood, and there were no cases among 87 children who received blood alone. The attack rates by 10-year age groups from 10 to 70 were 5.7, 6.8, 7.1, 9.1, 9.3, and 8.1%, respectively.

It is well known that when infective hepatitis is epidemic there are large numbers of patients who have symptoms of the disease but do not become jaundiced. It has been inferred that at the same time there may be a number of individuals who have a symptomless infection during which the virus would be circulating in their blood. Transmission experiments in volunteers have failed to reveal any evidence that the patient recovered from infective hepatitis, or the one who develops chronic hepatitis, continues to carry the virus in the blood or excrete it in the faeces.[11,12] Similarly, Oliphant and others, MacCallum and Bauer, and Havens[13] have all failed to find any evidence of an icterogenic agent in the serum of cases of serum jaundice two months or more after their attack. In a follow-up of donors in Lehane's investigations only one could be traced who had had jaundice, and his illness occurred three months after he had been bled. Lehane and his colleagues conclude that at least 0.35% of donors are probably carriers of an icterogenic virus. These results all suggest that persons with symptomless infections are the chief danger, and in order to meet demands for plasma a few donors who have had jaundice more than a year ago have been used. In America, the Red Cross Blood Products Subcommittee suggested six months as the safe interval.

It has been recognized for about thirty years that convalescent measles serum may be injected into exposed contacts during the incubation period to prevent or decrease the severity of the attack. Since about 90% of the adult population in most countries have had measles, the modern tendency has been to use the readily available pooled adult plasma. Measles and its complications are responsible for much morbidity and mortality, particularly in children under 3 and in rheumatic, tuberculous, and bronchitic children of all ages. The value of this prophylactic procedure in such children has been proved without question. More recently, Cohn and his colleagues[14] at Boston have produced a gamma globulin fraction which represents about a twenty-five times concentration of serum. This fraction has been used on a large scale in the U.S.A. and is said to be superior prophylactically to adult serum. In addition, serum jaundice is said not to have occurred in the recipients of gamma globulin. Thus, though the age group attacked by measles appears to be relatively insusceptible to serum jaundice, it will be desirable to use gamma globulin instead of adult serum as soon as supplies are generally available in this country. Gamma globulin is expensive to prepare and some of the special equipment necessary is not yet readily obtainable; the production of adequate quantities, even if sufficient serum was available, is therefore no small problem.

The same gamma globulin fraction prepared from pooled adult serum appeared to reduce the attack rate

in adult and child contacts of infective hepatitis in the U.S.A. but was ineffective in serum jaundice. In one experiment the convalescent serum of a patient infected with a known strain of serum jaundice virus failed to neutralize that same virus. Treatment of either infective hepatitis or so-called serum hepatitis has, for the most part, been ineffective. The only treatment that has given any promise whatever has been the intravenous injection of protein hydrolysate. Since we cannot detect these viruses, inactivation is the main safeguard in order to avoid them. The icterogenic agents concerned pass through Seitz filters and are not inactivated by heating at 56°–60° C. for half an hour or by the usual bacteriostatic or bactericidal chemicals used for preserving sera, such as phenol, tricresol, or merthiolate. Recent work has shown that irradiation of serum or plasma with a particular unit of ultra-violet light under satisfactory conditions may be capable of inactivating any icterogenic or other virus present.[15] This procedure is being adopted, as equipment becomes available in the U.S.A., Canada, and England, as a routine treatment for pooled human serum or plasma which is to be used for transfusion or other therapy or prophylactically against certain infectious diseases.

REMUNERATION OF GENERAL PRACTITIONERS

A deputation from the British Medical Association, led by Dr. S. Wand, Chairman of the General Medical Services Committee, discussed with the officers of the Ministry of Health for more than three hours last Friday the evidence presented by the Ministry of what general practitioners in the National Health Service are now supposed to be earning. A further meeting with the Ministry will take place before, it is hoped, the Conference of Local Medical Committees to be held on October 27.

STAPHYLOCOCCAL TOXAEMIA

At Bundaberg in Australia in 1928, 12 children died after an injection of diphtheria prophylactic—a toxin-antitoxin mixture not containing antiseptic. This prophylactic had already been used on three different occasions without abnormal reaction. Three days later 21 children were inoculated, and within five to seven hours 16 became ill with high fever, vomiting, and diarrhoea. In the fatal cases the children developed cyanosis, convulsions, and unconsciousness, and died in 15 to 36 hours. A Commission[1] which was set up to inquire into the circumstances of this disaster reported briefly as follows: that the deaths were due to the injection of the diphtheria prophylactic; that the material contained no free diphtheria toxin; and that it *did contain* a culture of *Staph. aureus*. A similar staphylococcus was isolated from all the surviving children who developed abscesses at the site of injection. The cause of death was attributed to the toxaemia induced by a copious formation of toxin resulting from the growth of the staphylococcus. The Commission showed that in the conditions prevailing at Bundaberg very little toxin was produced *in vitro*, and so the toxin must have been formed *in vivo*.

In 1930 Kellaway and his colleagues[2] described a pharmacological study of the exotoxin of *Staph. aureus*. They injected agar-extracted toxin intravenously into young cats. After doses of more than 0.1 ml. per kg. the cats died rapidly, while doses of 0.04 ml. per kg. produced diarrhoea and weakness lasting 2–3 hours, followed by recovery. In cats dying in 2½–4 hours the earliest symptoms were dyspnoea, vomiting, and diarrhoea; these developed within 30 minutes and were accompanied by general weakness and ataxia. Later the animals became increasingly weak and collapsed, with convulsive movements; death followed respiratory failure. At post-mortem examination distension of the right side of the heart was observed and an empty left auricle and ventricle. Heart–lung preparations showed that there was constriction of the pulmonary vessels. When the lungs were replaced by an artificial pulmonary circulation it was found that the toxin had a direct toxic action on the heart: this was shown to be due to constriction of the coronary arteries.

Recently Olin and Lithander[3] have reported from Stockholm four cases similar to those at Bundaberg. Three children fell ill after the injection of measles convalescent serum: vomiting, diarrhoea, fever, and cyanosis rapidly developed, and two of the children died. The bottle of serum, which contained quinosol and formalin as antiseptics, had been used eight months previously without ill effect. The fourth case was that of a child on whom a Mantoux test had been performed, 1 mg. of tuberculin having been injected intracutaneously. Within four hours the child became ill, with vomiting, diarrhoea, and fever, and he died in 17 hours. From all four cases coagulase-positive staphylococci were isolated. Tests on rabbits showed a definite correlation between haemolysin titre, necrotic effect on the skin, and killing power. Burnet[4] in 1929 noted the same correlation in the Bundaberg strain and suggested, in fact, that the three effects were due to one toxin.

In cases such as these, in which the mortality rate is high and the onset of death rapid, early treatment is essential and the ominous nature of the symptoms should be widely appreciated. Fatal cases have followed diphtheria immunization, injection of measles prophylactic, and Mantoux testing—procedures common in this country. In Sweden one case, that following the Mantoux test, was treated with penicillin, but treatment was begun only within 1½ hours of the child's death. Prompt recognition of these symptoms after an injection would enable penicillin and staphylococcus antitoxin to be given at once. With early treatment there would be some hope of reducing the very high case mortality rate of a condition which, admittedly rare, might occur in the practice of any doctor.

[1] Kellaway, C. H., MacCallum, P., and Tebbutt, A. H., Report of the Commission to the Governor of the Commonwealth of Australia, 1928. Melbourne.
[2] *J. Path. Bact.*, 1930, 33, 889.
[3] *Acta path. microbiol. scand.*, 1948, 25, 152.
[4] *J. Path. Bact.*, 1929, 32 717.

REORGANIZATION OF THE MEDICAL SERVICES OF THE ARMED FORCES

BY

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I apologize for suggesting improvements in medical services that have weathered two great wars with honour, but I do so in the belief that a system of the type I describe might be more suitable in a future war and would make medicine in the armed Forces in peacetime more attractive than at present. I suggest that the medical services of the Royal Navy, Army, and R.A.F. should be preserved, as each Force has its particular problems, but that these services should be relieved of their responsibility for providing permanent hospitals. They would continue to administer preventive medicine but would retain control only of medical inspection rooms, field ambulances, casualty clearing stations, and similar mobile or semi-mobile units.

All permanent hospitals at home and abroad would be taken over by a new service to be known as the "National Health Defence Service." The director-general of this service (a civilian or an ex-Service chief) would be appointed by, and be responsible to, the Minister of Health. Under him would be three deputy director-generals appointed by the director-general of each of the three medical services. These deputies would be either retired officers or those still on the Active List and seconded for this duty.

The hospitals would be situated (1) in "safe" areas near large cities and (2) where there are normally large concentrations of Service men and women. In peacetime they would admit civilian as well as Service patients, but priority similar to that afforded seamen by the Seamen's Hospital Society would be given to Service personnel. In wartime these hospitals would be taken over as required by the Services, and they would accept air-raid casualties from neighbouring towns. The buildings would be constructed cheaply, but with adequate equipment, and would be capable of rapid expansion in time of war for training the staffs of base hospitals at home or overseas. During hostilities the command of base or permanent hospitals within the area of active operations would be handed over to the Service most concerned.

Staffing

National health defence hospitals in the United Kingdom would be staffed as follows:

House Officers.—Regular officers under training and newly qualified civil doctors serving under the same conditions as in civil hospitals.

Registrars and First Assistants.—Regular officers under training as specialists, and civil doctors serving under the same conditions as in civil hospitals.

Specialists.—Regular specialists on the Active List who are not required for the mobile units of the three Services and regular specialists who had elected to transfer to the "Home Only" list (to be described later) after fifteen years' service. There would also be part-time civil specialists.

Consultant Specialists.—Civilian specialists from the nearest centre who would visit their respective departments once a week. On the outbreak of war they would be given full duties as consultants or advisers.

The staffing of these hospitals abroad in peacetime would have to be carried out largely by Regulars.

Conditions of Service

Approximately one or two years after qualification officers would be recruited into one of the three Services as at present. During the first four years each would act as a general duty officer in any part of the world. At the end of this period those who wished to leave the Service, or who were not selected, would receive a gratuity. The others would be granted regular commissions. These officers would enter, partly by selection and partly by choice, one of the following three classes: (1) general and administrative officers; (2) specialists in preventive medicine; and (3) specialists in curative medicine. All would receive four to five years' training as follows:

General and Administrative Section.—(1) Three and a half years as house-physicians and house-surgeons in a national health defence hospital, partly abroad and partly at home. The aim of this instruction would be to make the officer a well-trained general practitioner. (2) A twelve-months apprenticeship in preventive medicine abroad. (3) A three-months course in the Service aspect of medical subjects at the corresponding medical college. (4) A six-months course at a naval, military, or Royal Air Force staff college.

Preventive Medicine Section.—(1) A one-and-a-half-years apprenticeship in a national health defence hospital abroad in the specialties related to preventive medicine—i.e., pathology, medicine, dermatology, and venereal disease. (2) A one-year apprenticeship in hygiene abroad. (3) A two-years apprenticeship in civil and Service preventive medicine at home, with facilities for taking a diploma of public health. (4) A three-months general course at a Service medical college. (5) A six-months course at a naval, military, or Royal Air Force staff college.

Curative Medicine Section.—(1) A four-years apprenticeship as a registrar in the officer's chosen specialty at a national defence hospital at home, with facilities for taking a higher degree or diploma. (2) A three-months course at a Service medical college.

Officers from the general and administrative and from the preventive medicine sections would then return for duty with their respective Service. Men and women in the curative medicine section would continue to work in national health defence hospitals at home or abroad, but a few would be required for semi-mobile establishments. Officers in the general and administrative section would gain experience in administrative posts and do clinical work in areas where the employment of specialists would be wasteful. Those in the preventive medicine section would be employed in their specialty or in administrative work.

On completion of fifteen years' service all regular officers could elect to transfer to a list called "Home Only." Posts would be guaranteed. Those who transferred to this list would be employed in the following ways:

General and Administrative Section.—As administrators in the national health defence service or in specially reserved posts in civil practice.

Preventive Medicine Section.—In administrative posts in the national health defence service, and certain posts in the civil health service would be reserved for such officers.

Specialists in Curative Medicine.—In permanent posts in their specialty in a national health defence hospital.

Officers transferred to the "Home Only" list would be able to continue in the national health defence service or a civil health service until the age of 60 or 65. On retirement their years towards pension would be assessed from the date of enlistment with the Services. They would be available for active service on the outbreak of war, and in periods of necessity other than war they could also be called on. This period of recall would not include more than one and a half year's foreign service.

Officers selected for high administrative posts at the end of fifteen years could be offered inducement to continue in the Services as long as required. The nursing services of the armed Forces would be brought into line with the system I have suggested for the doctors.

Advantages

In addition to answering most of the criticisms of the present system these proposals have other advantages. The total cost to the State of all medical services (civil, the suggested new defence service, and the medical services of the Royal Navy, Army, and R.A.F.) should be less than at present. In the first instance Service doctors would be employed in peacetime to full advantage, and would continue to be gainfully employed until the age of 60 or 65. Secondly, the waste caused by separate permanent hospitals for the three Services would disappear. Finally, the employment at small stations of well-trained medical officers of the general and administrative section instead of specialists would be more economical than

the present system, which requires a full complement of specialists in areas where their work is light.

The national health defence hospitals would not be an additional burden of expense to the State, as the number of civilian hospitals needed would be reduced. If war broke out a chain of hospitals capable of rapid expansion would be available in safe areas outside large cities. These national health defence hospitals would be centres of co-operation between Service and civilian doctors and between medical officers of the three Services. This liaison would lead to uniformity of organization, methods of treatment, and types of equipment. Possibly the medical services of the Forces would become merged into one at some future date.

Many civilian and Service doctors believe there is no necessity for Service hospitals in any form in the United Kingdom in peacetime. They consider that all naval, military, and R.A.F. patients could be treated in civil hospitals or if necessary in separate Service wards. This outlook is dangerous. Under such a plan all Service organization would rapidly fall into disuse and on the outbreak of war there would be no effective hospital system capable of rapid expansion to meet the demands of the Services at home or abroad.

My grateful thanks are due to many civilian and Service doctors for their advice, and especially to my commanding officer, Colonel Wm. C. McKinnon, for his willing and helpful criticisms. I am grateful to the Director-General, Army Medical Services, for permission to publish.

STREPTOMYCIN

Available on Prescription

The following notice has been issued by the Ministry of Health.

Scarcity of streptomycin in this country has hitherto imposed a strict control over distribution and limitation of its use to certain conditions. Production has now increased to such an extent as to enable streptomycin to be made generally available on prescription through the usual channels as from November 1, 1949. After November 1 the only administrative controls over this antibiotic which will be operative will be those imposed by the Therapeutic Substances Act, which concern its manufacture, and those under the Penicillin Act, which make its procurement subject to medical prescription.

Hitherto the use of streptomycin in this country has been mostly limited to a controlled study, in an institution, of its effects in certain categories of cases. The extension of these categories has been notified to the profession in press notices issued at intervals during the past two years. Though supplies will be adequate in future for domiciliary use, it is still important that the drug should be employed only in conditions, or to combat infections, in which its efficacy is known. This implies a knowledge of the susceptibility of the infected organism to the antibiotic as well as of the actual condition which it is proposed to treat. Unless this knowledge is possessed before the institution of treatment the reason for any apparent inefficacy of the antibiotic may be difficult to ascertain. An example of the apparently anomalous action of streptomycin is that, whereas it provides the only effective treatment for tuberculous meningitis, it has not been shown to have any specific value in the treatment of chronic pulmonary tuberculosis, both of which conditions are caused by an organism known to be sensitive to the action of the antibiotic. If, therefore, treatment is based on analogy and not on ascertained facts disappointment may be caused both to the practitioner and to the patient. The proper place for the experimental trial of this antibiotic in unusual conditions is the hospital, not the home.

Streptomycin has two main disadvantages. These are: (*a*) certain toxic effects which may be permanent; and (*b*) the evolution during treatment of strains of the infecting organisms which have developed a resistance to streptomycin. It has been thought that the substitution of dihydrostreptomycin for streptomycin itself would reduce the danger of the occurrence of toxic sequelae. The evidence at present suggests that, though the appearance of toxic effects may be somewhat delayed, dihydrostreptomycin may manifest them on its own account. It is therefore most important to employ adequate doses from the beginning of treatment, and in certain conditions it may be preferable to give larger doses than usual for a period not exceeding one week, as serious toxic effects do not appear to develop within that period. In any case, if the expected therapeutic response is not obtained in that time, reconsideration of the treatment is indicated.

No benefit has hitherto been recorded in the prophylactic administration of streptomycin with the object of preventing spread of infection following surgical intervention.

MEDICAL DEFENCE UNION

The annual report of the Medical Defence Union, which was presented to the general meeting of the Union on September 20, gives a synopsis of the many questions having a legal aspect which may confront the practitioner, and mentions some interesting cases in which the perversity of patients, the accident of circumstance, and sometimes the failure of the practitioner to take precautions resulted in difficulties. Of the cases passed to the Union's solicitors during the year, 69 in one form or another involved the issue of professional negligence. Of these 69 cases, 13 were fought out in court, where two were lost and 11 were won. In a further 16 cases it was thought necessary to make *ex gratia* payments in settlement of claims on the clear understanding that no admission of negligence was made; in 39 cases allegations of negligence were expressly withdrawn or abandoned in face of the knowledge of the interest of the Union in the matter and on the issue being formally challenged. Not a few accusations of negligence arise when an account is disputed by the patient.

Requests for Sterilization

It is mentioned that members are from time to time approached by patients with a request for sterilization. Counsel's opinion on this matter was first sought some years ago, but owing to the time which has elapsed since then, and the changes in medical thought and social conscience, it was felt that a new opinion should be taken. The opinion is that sterilization on eugenic grounds alone is illegal, but that it is not so if there are valid therapeutic reasons—in other words, if there are conditions which may imperil health or life if sterilization is not performed. This places sterilization on the same basis as abortion and calls for similar safeguards (including a second opinion and the written consent of the patient) on the part of the practitioner.

The Practitioner and Ancillary Examinations

In his presidential address at the annual meeting Mr. St. J. D. Buxton touched on the question of the responsibility of the practitioner concerning ancillary examinations. He pointed out that the patient knew little or nothing about the work of specialists, and if a practitioner acted on an *x*-ray, pathological, or other report which happened to be erroneous, though given in good faith, he might be charged with negligence, with the other doctor as co-defendant. Hence it was of the utmost importance that consultation with those carrying out ancillary examinations should be made, at least whenever there was doubt, for the sake of both patient and doctor.

He also mentioned that members frequently ask advice regarding inquests, and during the year legal representation had been afforded in 20 instances. Practitioners were sometimes accused during inquest proceedings of negligence in the treatment of the deceased, but such allegations had been successfully refuted. Action had also been taken by the Union to ensure that practitioners received their statutory fees for evidence of medical fact or opinion given at inquests.

Mr. Buxton intimated his desire, having been re-elected president for several years, to give place to another member. After placing on record its sense of the value of Mr. Buxton's exceptional services, the meeting proceeded to elect as the new president of the Union Mr. Ivor Black, F.R.C.S.

In view of the upward trend of all costs, the meeting agreed to a recommendation of council to increase the subscription rate from January 1, 1950, to £2 per annum except for the first

three years of membership of those elected within three years of registration, for whom the subscription would remain at £1. It was explained that during the last two years the total expenditure had exceeded the income from all sources by £20,000. Last year the subscription income was over £30,000, and the law expenses and indemnity claims alone cost over £35,000. It appeared to the council improvident to continue to deplete the Union's invested funds.

TREATMENT OF CEREBRAL PALSY

DR. EARL CARLSON'S ADDRESS

A meeting of the British Council for the Welfare of Spastics was held at the Royal Society of Medicine on September 21 for an address by Dr. EARL R. CARLSON, of Philadelphia Hospital, New York, on the treatment of cerebral palsy. The chair was taken by Professor Alan Moncrieff.

Dr. Earl Carlson said that cerebral palsy was a disturbance of musculature almost as prevalent as poliomyelitis. In most cases the cause was injury to the brain during birth or the faulty development of brain cells; occasional causes were toxic factors, encephalitis or meningitis, and, in certain conditions, disturbances of the Rh blood factor. In cases with choreoathetosis and spasticity there had always been dispute about the location of the cerebral lesions, and especially whether the disturbances in muscular movements resulted from damage to the basal ganglia. There was a group of patients with choreoathetosis and various degrees of spasticity whose response in certain situations, and to treatment, was such as to make one hesitate to place the lesion chiefly in the basal ganglia; in these cases one might well speculate upon damage to the motor or sensory cortex.

The treatment of cerebral palsy was an educational as well as a medical problem. The tremors, writhing motions, and grimaces were so intimately tied up with the thought processes that it was difficult to regard these movements as something apart from feelings. Excitement and lack of concentration aggravated the condition; with tranquillity and peace of mind the motor activity became much more purposeful. Cases of cerebral palsy suffered not only from unruly muscles but also from disorganized thoughts and emotions. The extent of mental disability bore no relation to the amount of motor handicap. A child with serious motor involvement might have better intelligence than one with a slight physical impediment.

The majority of speech disturbances formed part of the general motor disturbance. Here again the extent of the speech defect bore no relationship to the degree of mental impairment. In one group a child with the lowest intelligence quotient was one of the best speakers and singers. The outstanding characteristics of the defective speech were lack of smooth rhythm, poor articulation, absence of subtle shadings and nuances, and an accompaniment of inappropriate contortions. Speech was an intricate muscular process, and its disturbance was so closely linked with the general spastic-athetoid condition that not much improvement could be hoped for until the child learned to inhibit the excessive sensory stimuli which were irrelevant to what he was doing. He resembled a public speaker trying to overcome stage fright. If he was too conscious of his audience he would have difficulty, but when he directed his thoughts to the topic of his address his delivery improved. Similarly the child who could forget himself and concentrate on what he was saying had less difficulty in speech.

Physiotherapy, Surgery, and Drugs

Physiotherapy must be adapted to the individual case and related to the clinical findings. In spastic conditions there was usually a powerful simultaneous contraction of both extensors and flexors, and the limb became rigid. Treatment was directed to overcoming this condition by teaching the spastic child to relax one set of muscles as the opposing muscle group was brought into action. The child with the scissors gait, for example, was taught to spread his legs apart after he had relaxed the muscles that kept them crossed. In treating athetoid conditions relaxation was of primary importance. Training should be directed towards keeping the patient occupied and at the same time to "keeping his mind off his muscles." This could be done by directing his attention to the purpose of the act rather than to the muscles which performed it. Occupational therapy was a valuable adjunct in treating all types of cerebral palsy. Water treatment was often conducive to relaxation, but was not as effective as in poliomyelitis.

Visual training was important. The child with cerebral palsy had difficulty in correlating muscular activity and perception. He tried to look in too many directions at once, and when there was difficulty in correlation muscular tension developed. The origin of many "fears" might be traced not to an unpleasant experience and its associations but to a muscular tension which developed because of lack of integration between perception and motor activity.

The physiotherapist who treated spastics should be a person with a temperament and personality conducive to relaxation. The exercises should be slow, co-ordinated, rhythmic movements, beginning with the major groups of muscles. In younger children it was often necessary to assist them passively until they were able to carry out the movements by themselves.

Surgery often helped a programme of muscle training; it was more effective in spastic than in athetoid conditions. Lengthening tendons, arthrodesis, tendon transplantation, obturator neurectomy, and neurectomy of the nerves to the gastrocnemius muscle were sometimes helpful, but must be followed by a course of exercises. On the whole, little was accomplished for the athetoid case by peripheral operations on nerves and muscles. Posterior root section and operations of the Stoeffel type were contraindicated, and stabilization of the ankle or tenotomy of the Achilles tendon when much athetosis was present was seldom helpful. In severe cases of athetosis involving one arm, resection of the anterior portion of the corresponding motor cortex had been successful in some cases. Section of the extrapyramidal pathways in the spine had yielded favourable results in some of the most distressing cases of athetosis. The use of braces and splints was more helpful in spastic conditions; in athetosis, except in mild cases, they usually aggravated the condition.

Drug therapy had not been as effective as popular literature led them to believe. Sedatives should not be used except in convulsive disorders, and then only to diminish the attacks without giving rise to drowsiness. Any drug which tended to depress mental activity made the patient less responsive to treatment. A cup of coffee would often do more than a sedative. Alcohol in many cases had some effect in controlling athetosis and spasticity. In a film which Dr. Carlson showed subsequently a patient who had been unable to bring a full glass of water to her lips without spilling the contents had no difficulty whatever after consuming 2 oz. (60 ml.) of whisky.

Education and Vocation

The mental growth brought about through education was the most important factor in amelioration. When a cerebral palsied child was placed in a school and became occupied, an improvement in muscular control was often seen without special emphasis being placed on muscle training itself. Parents who delayed academic training until the child acquired better control of his hands or speech were surprised at the rapid improvement in muscle control which followed when the child was finally allowed to go to school.

Every educable cerebral palsied person should have the right to an education irrespective of the extent of the affliction. Special schools should be provided for those too seriously handicapped to fit in a normal school environment. The schools should be equipped to give physical and occupational therapy, speech training, and other remedial activities.

All the cerebral palsied, of course, could not benefit to the same degree from an educational programme. The severely and hopelessly handicapped must no doubt be admitted to institutions, though they should not be treated as idiots. Others whose physical handicap was less severe, although their mentality prevented them from benefiting from education above the lower grades, must be guided into routine occupations. Those

who had good intelligence should not be barred from obtaining as much educational training as they could benefit from, even though their physical handicaps were of such a nature as to close many vocational avenues.

The solution of the vocational problem was dependent upon many factors. One of the most important was the patient's attitude to his own handicap. He must be prevented from developing a morbid attitude. There was almost always a way of circumventing the handicap. Dr. Carlson mentioned one or two cases of surprising achievement. One girl had won a college degree and made a career for herself as a teacher of the blind, thus freeing herself from the sense of being an object of curiosity to her pupils. One severely handicapped man, whose speech was then wholly unintelligible, had formerly earned his living in New York by selling newspapers, but he had educated himself, taken the degrees of M.A. and Ph.D., and was now teaching in a school for the cerebral palsied.

Mr. M. D. BOSWORTH SMITH said that Dr. Carlson himself was the most noteworthy living example of triumph over handicap as the result of will power and concentration, intellectual and moral. He added that it was believed there were 10,000 children under the age of 16 in this country suffering from cerebral palsy of various types. It was the aim of the British Council for the Welfare of Spastics to do what it could to encourage proper treatment by the establishment of special schools and clinics and the organization of research, but only the fringe of a vast subject had so far been touched in this country.

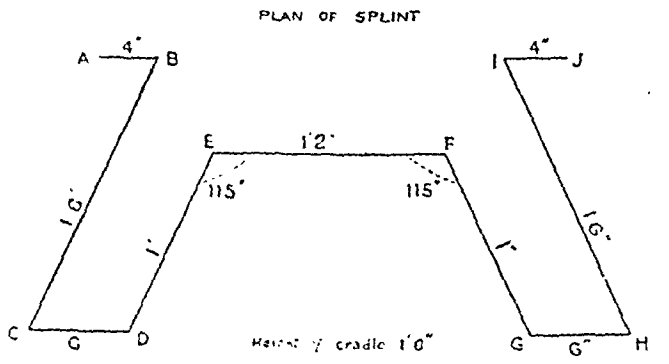
Professor ALAN MONCRIEFF said that on his computation, on the basis of American experience, the number of children afflicted in England and Wales should be 28,000, not 10,000 as Mr. Bosworth Smith had suggested. If the latter figure was right, we had for once the advantage of being on the right side of the account so far as America was concerned.

Preparations and Appliances

ANTI-EXTERNAL ROTATION ABDUCTION SPLINT AND BED CRADLE

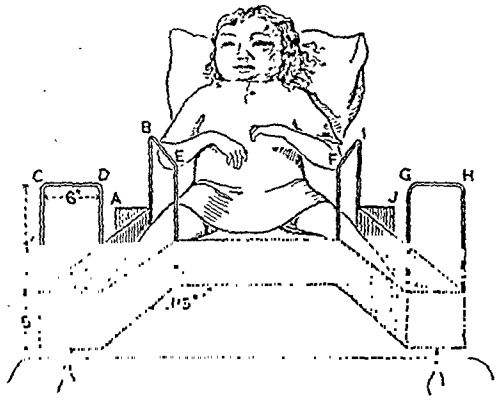
Mr. E. K. MCLEAN, Medical Superintendent, Southlands Hospital, Shoreham, writes: After the insertion of a 'Smith-Petersen pin for fractures of the femoral neck maintenance of the correct position in the patient is of great importance. External rotation of the thigh may lever the pin out of position, as may forcible adduction of the thighs. Flexion and extension movements of hip-, knee-, and ankle-joints are, however, to be encouraged. The problem is often met by making the patient wear slippers with wooden supports glued to the soles. These appliances, however, limit movements, are uncomfortable, and may produce pressure sores unless carefully supervised.

The splint described below has been used very successfully at Southlands Hospital as a combined abduction anti-external rotation splint and bed cradle. It can be made up easily and



cheaply by the hospital engineers, as it is of very simple construction.

The instrument works on the same principle as the old-fashioned "stocks," but instead of the feet being fixed in apertures each leg lies in a padded gutter (cf. B,C,D,E and F,G,H,I). The framework of the gutters is made of 5/16-in. (0.8-cm.) bright mild steel rod. The walls of the gutters are covered with pillow ticking and padding of tow and cotton-



wool covered with old linen. The height of the walls is 6 in. (15 cm.) and the width of the gutters 6 in. Loops of steel rod join B to E, C to D, F to I, and G to H. These loops project upwards from the gutters for one foot so that the instrument may be used as a bed cradle. The two gutters are joined by a flat padded continuation of the medial gutter walls (E,F). There are also laterally reflected 4-in. (10-cm.) phalanges at A,B and I,J. These transverse phalanges and connecting wall prevent the patient from pulling a leg out of the gutter and thrusting it back on one or other side. The instrument does not prevent flexion and extension of hips, knees, and ankles. It does, however, prevent adduction or external rotation of the thighs.

At first it was found difficult to keep the padding on the splint clean. This difficulty is obviated by covering the splint with domette bandages. These should be wound so that the overlapping edges are away from the patient, as this prevents fraying.

The patient's comfort is increased by placing in each gutter a soft pillow made from a length of 6-in.-wide plaster stockinet lined with a strip of cotton-wool ½ in. (1.25 cm.) thick. A pillow of body-width plaster stockinet and cotton-wool about 2 in. (5 cm.) thick placed across the bed under the patient's knees prevents their hyperextension. Tapes are attached to the splint base at A, C, H, and J, so that the instrument can be tethered to the end and sides of the patient's bed. The employment of this splint has improved the percentage of recoveries in good position.

I have to thank Miss K. C. Savin, the charge physiotherapist, Mr. T. E. G. Sayer, chief hospital engineer, and Mr. H. Gander, assistant engineer, for much valuable help.

A cine-micrographic film library has been established by the Royal Microscopical Society for scientific films within the range of the society's activities. Hitherto many excellent films made in academic research institutions have not been accessible for educational purposes. It is hoped that the existence of this new library will facilitate distribution to universities, technical schools, and other scientific bodies. The collection is at present not very large, but it may claim to be representative. It contains films from the Pasteur Institute, Paris, by J. Comandon and de Fonbrune, on mitosis in *Triton* erythroblasts and in *Acanthamoeba*; films on micromanipulation; on spermatogenesis in the grasshopper, by K. Michel, of Jena; on the shape and motility of bacteria, by A. Pijper; and also films on the cultivation of living tissues, by R. G. Canti and his collaborators, and on tissue-cultures under the phase-contrast microscope. These films are available for hire on application to the Assistant Secretary, Royal Microscopical Society, B.M.A. House, Tavistock Square, London, W.C.1. The fees charged are 7s. 6d. for each 400-ft. reel when it is returned on the day following use: 1s. in addition for each subsequent day that the films are retained. The basic charge is reduced to 6s. for Fellows of the Royal Microscopical Society.

WHERE OTHERS FAIL . . .

Aureomycin Hydrochloride



AUREOMYCIN HYDROCHLORIDE *Lederle* gives promise of being one of the most versatile antibiotics yet discovered. It is a potent antibiotic against many Gram-negative and Gram-positive organisms and against primary atypical pneumonia. AUREOMYCIN has been found useful in the control of infections caused by penicillin-resistant Gram-positive cocci (especially staphylococci), and infections caused by coli-aerogenes bacteria. It is also highly specific against rickettsial infections. AUREOMYCIN has been used successfully against infections that have become resistant to penicillin, streptomycin, or sulphonamides, and in patients who exhibit severe and uncontrollable sensitivity to these latter drugs.

ADVANTAGES

Aureomycin exhibits the following advantages:—Essentially non-toxic (excepting allergy) . . . Unlikely to produce fastness in pathogenic organisms . . . Effective against many organisms previously insusceptible to chemo-therapy . . . Available in oral . . . and topical ophthalmic dosage forms.

CAPSULES: Vials of 16 capsules each containing 250 mg.
OPHTHALMIC: Vials of 25 mg. with dropper assembly; solution prepared by adding 5 cc. of distilled water.

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IN ANALGESIA

1540: "*Take a fatte piece of veale or ellse a fatte capon and boyle it in water or ellse white wyne and strayne it from the fleshe, and sett the saide lycor over the fyre agayn, and putt therto these things folowing, of mallowes ii. unces, of violett leaves, of night shade ana ℥ i. lett them boyle untyll they be very softe and tendre, and powre awaye the licor from them, and putt therto barley water as shall suffise to make it a pulthes*".

(A pulthes to cease payne devised by DR. BUTTS)

Today the physician has, in 'Physeptone,' a specific agent for the relief of pain. 'Physeptone' is more powerful than morphine and does not cause hypnosis or constipation. It may with advantage replace morphine as an analgesic for patients confined to bed. 'Physeptone' is available as 5 mgm. compressed products for oral administration (bottles of 25, 100 and 500), and as injection, 10 mgm. per c.c. (ampoules of 1 c.c., in boxes of 12).

'PHYSEPTONE'

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THE ESTABLISHED ANALGESIC

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If Nature breaks her promise

inadequate preparation of the uterine bed may be the cause of nidatory failure.

IT is now believed that œstradiol and progesterone act synergistically during gestation, and these two hormones have been used with success in the treatment of spontaneous abortion*,

By giving injections of DISECRON 2 or 3 times a week as soon as abortion threatens, the pregnancy may often be saved.

In habitual abortion, injections should be started as soon as pregnancy is diagnosed or before, if intercourse is being timed to coincide with ovulation.

* *Hamblen, Cuyler and Baptist: Am. J. Obst. and Gyn.* **44**: *442, '42. Vaux and Rakoff: North Carolina M.J.* **7**: *202, '46.*



British Schering present three preparations for treating spontaneous abortion :

DISECRON	
2.5 mg. of œstradiol monobenzoate and 12.5 mg. of progesterone.	In 1 c.c. of ethyl oleate for intramuscular injection.
PROLUTON	
2 mg., 5 mg. and 10 mg. progesterone.	In 1 c.c. ampoules for intramuscular injection.
ORALUTON	
5 mg., 10 mg. and 25 mg. ethisterone.	As oral tablets.

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Correspondence

The M.R.C.P.

SIR,—The Royal College of Physicians has accepted the report of the committee on the examination for the M.R.C.P., and this has now been open to criticisms. May I make some observations on the report and the criticisms?

The committee upholds the view that the examination should be "a test in general medicine, on a level higher than that required for qualification." That is to say, the subject matter is not materially different, but the standard is definitely higher. The committee returns to this later with the statement, "The examination is in general medicine. . . . The examiners are not entitled to condemn a candidate for lacking recondite knowledge." This is and always has been the accepted tradition of the College. Examiners are not bound by any regulations and may pursue for a reasonable distance paths leading outside these boundaries and occasionally may wander too far. But substantially a candidate stands or falls on his knowledge of the foundations of medicine and on his skill and experience, indeed one may say his common sense in applying these to the clinical examination of a patient.

Teachers have been known to advise candidates for the M.R.C.P. to cram up rare diseases, to memorize ephemeral theories, and to mug up articles in current numbers of the medical journals. No worse or more incorrect advice could be given. If followed, as undoubtedly happens, it fully justifies Professor J. McMichael's statement that study for examinations cramps and harasses excellent young men. But this is not and never has been the intention of the College or the standpoint of the examiners. The unfortunate candidate who follows this advice is riding for a fall. Properly conducted, "working for the membership" is extremely good training and calls for no detailed knowledge of specialized subjects. Even those who fail should have benefited by the experience. As the committee says, "The educational value of the clinical examination is far from negligible."

I pass to another matter. The report refers to differences of opinion about the purpose of the M.R.C.P. "On the one hand, membership of the College is widely regarded as the hallmark of the specialist, and the examination is looked on as a final test. . . . On the other hand, teaching hospitals more and more demand membership as a qualification for the post of registrar . . . and candidates are thus encouraged to take it early. No examination can fulfil two such different functions."

Now the M.R.C.P. has fulfilled both these functions satisfactorily—viz., as a guide for the appointment of a registrar and as a guide for the appointment of a hospital physician, but there is a difference in the manner and degree in which it does so. The applicant for a registrarship will probably have been qualified about three years and will have taken the M.R.C.P. some three or six months previously. Nobody expects him to be a finished physician. The electing body will view the M.R.C.P. exactly in the words of the committee's report—viz., that it signifies a "knowledge of general medicine which justifies further training as a consultant." The successful candidate then settles down to learn his trade. Some years later he applies for an appointment as hospital physician, for which the M.R.C.P. is essential. Applicants will not be expected to have passed the examination three or six months previously. Indeed a candidate who had only done so recently would be questioned closely as to why he had not taken it before: on the contrary he will be expected to have taken it when our registrar did so. Having satisfied itself that the candidate passed the M.R.C.P. at the proper time, the electing body then scrutinizes his record during the intervening years to decide whether or not he has fulfilled his early promise and can be accepted as a trained physician, either in general medicine or in some specialty. It is therefore not correct to say that "the examination is looked on as a *final* test" of a specialist: "initial" would be more accurate.

Here then is the answer or one answer to the question, Who is to decide at the end of such training that the possessor of the M.R.C.P. is or is not a failed specialist? The method does not always work fairly, but how many prospective hospital physicians would prefer the risk and anxiety of an examination at this stage, even if it led to a somewhat cheapened F.R.C.P.? Nor would it eliminate the inquiries of an electing board.

One more point. It has been suggested that the M.R.C.P. should scrap its present traditions and become an examination in special subjects. There is no cause for making any complete reconstruction of the examination either in this or other directions. The last paragraph of the committee's report states that it recognizes that "its proposals are for functional rather than structural change." It is right that this should be so. For the difficulties of the M.R.C.P. are due not to its failure but to its widespread success and sustained reputation. Nor is there any reason to believe that the present internal changes in the examination will lead to any alteration in its status.—I am, etc.,

London, W.1. HENRY TIDY.

Trends in Medical Education

SIR,—If the object of medical education were to train medical scientists and technicians, the plans for the reform of medical education outlined in the papers printed in the *British Medical Journal* of September 10 might produce good results. They will not produce good medical practitioners.

I have selected three points for comment. First, Professor Arnott's definition of medicine; second, his implication that the non-physical aspects of medicine are superstition and empiricism; and lastly his supposition that the scientific method is incapable of being applied to the art of medicine, the effective existence of which he denies. I have read his paper carefully, and hope I have not misunderstood him.

Is medicine an art? No one denies that it is, in part, a science. Quoting the *Concise Oxford Dictionary*, Professor Arnott defines medicine as a science and "an art only in so far as the term means human skill." On this assumption he outlines proposals for training scientific craftsmen. But is the art of medicine only a "craft"? One of the alternative definitions of an art given in the *C.O.D.* states that a fine art is one "in which mind and imagination are chiefly concerned." Surely the correct description of medicine is first a fine art, secondly a science, and thirdly a craft.

Abolishing "mind and imagination" from medicine (thence from medical education) necessarily means that we abolish individual and social psychology, and much else besides these, from medical education. Or perhaps it means admitting them as a concession to "superstition and empiricism," those persistent vulgar fractions that mar the mathematic exactitude of the pure sciences. The writer of your leading article deals neatly and with subtle humour with this travesty of medicine when he writes, "Though psychology has made but a shy appearance in these articles, it lurks in every corner." "Shy" is certainly the operative word in that sentence. Meanwhile psychology does not lurk in the corner of doctors' surgeries, but occupies more than 50% of their working time. Doctors do not have to deal with the "prevailing emotional pattern of man," but with persons who (it seems to me) will be extremely likely to be overlooked in this reformed medical education.

Lastly, Dr. Arnott implies that scientific method cannot be applied to the study of that part of medicine that is not science but superstition or empiricism. Hence I presume scientific method is inapplicable to clinical medicine, which is necessarily largely empirical. I should have supposed that the scientific method could be applied as conscientiously—if not as rigorously—to the art of medicine as to its science. Surely the difference lies not in method but in the relative proportions of measurable fact on the one hand and of clinical acumen (or insight) on the other. I affirm that the art of medicine can be practised scientifically every bit as successfully as its science can be practised artistically.

I hope these new proposals for the reform of medical education will be closely scrutinized. Doctors are not yet medical technicians nor scientific craftsmen, but they soon will be.—I am, etc.,

Lark Hill, Worcs. HOWARD E. COLLIER.

Hypnosis in Treatment

SIR,—Your correspondent Dr. K. M. Hay (September 17, p. 653) has expressed some misgivings about the therapeutic dangers of hypnosis on the basis of the theory described in his letter. I hasten to reply that those of us who employ hypnotherapy are not fully agreed that the dissociation theory can explain adequately the true nature of hypnosis. Dissociation does occur during hypnosis and is often facilitated by it, but this does not logically imply that hypnosis is merely a form of dissociation. For example, the variability and autonomy of the so-called dissociated symptoms seen during hypnosis cannot be accounted for by this theory any more than can the active and purposive participation of such symptoms in the total behaviour of the subject.

Changes in personality, as demonstrated by the Rorschach test, have been reported by various investigators. T. R. Sarbin (*Amer. J. Orthopsychiat.*, 1939, 9, 315) stated that there was an increase of "organizing energy" and the externally imposed *Aufgaben* circumscribed the response pattern to a greater extent than the self-imposed *Aufgaben*. Other personality changes have been reported when different moods have been produced under hypnosis, when anxiety is made to develop, or the subject is regressed. Such phenomena are not, as is suggested by Dr. Hay, indicative of a weakened personality but are merely changes of personality whilst in the hypnotic state. No evidence exists to suggest that these changes tend to become permanent.

Dr. Hay's conception of hypnosis as a mental assault by the hypnotist upon the subject is a false one cultivated by stage performers and charlatans. The true role of the operator in hypnotherapy is rather to introduce and guide the subject through the hypnotic experience, when the method becomes a truly valuable aid to the diagnosis and cure of mental illness.—I am, etc.,

London, W 14 NEVILLE MURRAY.

SIR,—Dr. K. M. Hay (September 17, p. 653) in discussing hypnosis as a form of treatment states that a hypnotized person is "depersonalized," that his intellectual faculties are suppressed, and then his mind is influenced on the feeling level by the hypnotist. In other words, the hypnotic subject is a passive automaton blindly responsive to the suggestions of the hypnotist. The hypnotized subject, as any medical man who practises this science will tell you, is by no means an automaton; a suggestion takes effect only if it is consistent with the balance of forces of the individual's strivings, and his understanding and elaboration of a suggestion are likewise determined by his own personality structure. The suggestion is really autosuggestion, just as there is no education but autoeducation, since it does not matter how much an individual is taught if he does not learn anything.

About a year ago I saw a girl with a cardiospasm that she had had for four years. The history revealed that it dated from the day her mother died. Under hypnosis she was told that she could not swallow the fact . . . that her mother died—that the mere thought of it stuck in her throat. It was through her intellectual faculties that understanding came and through the hypnotic power of suggestion that she was able to swallow.—I am, etc.,

London, W 1 A. P. MAGONET.

Distinction Awards

SIR,—Would any advantage be gained if we were to take a hand and grade administrators, superintendents, and the like? The waste of medical man-power might be reduced in this way. Although an advantage, it is not always essential for a superintendent to be a medical man. From time to time I have worked under three unqualified men who managed to unify the various requirements of the different hospital committees economically and with satisfaction to all concerned. One sees medical men in their prime superintending and inspecting hospitals, planning, etc., when they could be better employed working at medicine or surgery, in which subjects they have long been trained. The extra cost to the country must be considerable. Administrative work could well be left to older members. From long experience of the manner of it they might be glad to have a less strenuous and more regular and complacent mode of life during their declining years than they had when practising their profession.—I am, etc.,

London, W.1. G. H. COLT.

A New Neonatal Syndrome

SIR,—It was with much interest that we read the article of Mr. W. G. Mills on a new neonatal syndrome (August 27, p. 464), and we would like to record the following case seen recently and which appears to be identical with the eight cases in his article:

Male child, born June 9, 1949, by caesarean section on account of placenta praevia. At birth there was some respiratory distress, and nikethamide was injected into the umbilical cord.

On June 10 "bruising" of the left buttock and perineum was noticed.

On June 13, on the left buttock there was a network of small superficial vessels and some large deep ones. The movements of the left leg were weak, and there was slight oedema of the left foot, which was not being moved spontaneously.

On June 17 the condition of the buttock was subsiding, and it appeared as if thrombosis was taking place. There was still considerable weakness of extension of the left knee and dorsiflexion of the ankle. The general condition was always excellent, and the buttock became normal. At the time of writing the left leg is much improved following orthopaedic treatment in a plaster.

The condition of the buttock was almost identical in size and shape with that shown in Mr. Mills's photograph.

There was in this case the common factor of an umbilical cord injection, and it appears to us that the postulation of intra-arterial injection of a drug leading to thrombosis is the probable aetiological factor. A puzzling feature of the condition is that it has only recently been described although many thousands of injections into the cord must have been given, with the risk of intra-arterial injection. It would be interesting to know if the condition has occurred with lobeline alone. If nikethamide is the only drug concerned, has its chemical formula been changed recently?—We are, etc.,

CRYSTAL BATES.
Nottingham. A. P. M. PAGE.

Transfusion in Domiciliary Midwifery

SIR,—I have read with interest the controversy arising out of the letter of Dr. C. T. H. Whiteside (June 4, p. 1005) on the use of dried plasma in retained placenta. The following questions arise: (1) What is the maximum time during which a placenta may be left in the womb? (2) In a case of retained placenta with profound shock, what would be the ideal procedure to adopt—remove the placenta and then treat the patient for shock, or the reverse? (3) Which is the ideal fluid for intravenous transfusion in such cases—whole blood, blood plasma, gelatin solution, or saline with glucose? (4) What is the best anaesthetic to use for removing an adherent placenta?

I am in agreement with the opening sentence of Dr. H. A. Logan's letter (July 23, p. 232) that "in these days of synthetic medicine, diplomas, etc., it is refreshing to read some of the facts of life as expressed by those capable of using their powers of observation and confirming them with experience." Having done 22 years of midwifery as domiciliary practice, and not possessing anything better to transfuse than normal saline with glucose for an emergency, my working procedure in cases of retained placenta has been as follows. If I am on the spot when the second stage of labour is over and the placenta does not deliver itself in one hour, I remove it under soluble thiopentone. If, however, the retention is attended with more bleeding than I feel happy about, the period of waiting is less, depending on the amount of blood lost and the contractility of the uterus.

The difficult problem is the woman about whom a call is sent after the placenta has failed to deliver, and who is therefore seen in varying degrees of shock or collapse. I can look back on eight such

cases, the last of which proved fatal. She was a third para in normal health, despite so much malaria in this Protectorate. As a primipara her confinement took place in a normal way in my surgery. The second labour was so uneventful that no help was taken. Her third delivery was at 1 p.m. on July 17, 1949. At 3.45 p.m. the placenta had not delivered, though the attending African qualified midwife had made some attempts to deliver it. I was therefore sent for, and, the place being 20 miles (32 km.) away, I reached there at 5 p.m. No pulse could be felt at the wrist. She was restless, fully conscious, and extremely anxious about herself. She had been in labour for the best part of three days; and "after much suffering" she had brought forth the baby. Much blood had been lost, but her condition was one of "obstetric shock" from retained placenta and attempts made for its removal. The uterus was alternately contracting and relaxing. The following injections were given: (1) intravenous ergometrine; (2) adrenal cortex; (3) later, coramine; (4) intravenous saline with glucose, 1 pint (570 ml.).

At 5.30 p.m. the pulse could be counted at the wrist, and the uterus was well contracted. At 5.50 the uterus began to relax and bleeding started once again. At 6 the pulse was flickering. A quick decision had to be made. With a minimum of ether given by the open method by the assistant I used a half-elbow-length rubber glove and delivered the placenta. The placenta had been firmly adherent in one part of it; and it was some satisfaction to know that it would never have delivered itself. When I withdrew the hand there was hardly a pulse at the wrist. At 6.30 the lady died.

In a paper read at a medical conference held in Nairobi in February, 1949, on domiciliary midwifery practice in Uganda I made the following three important points about a retained placenta: (1) Credé's method, as taught, learnt, and practised in many places is attended with much danger; (2) it is wise to restore the shocked condition of the patient before doing manual removal; and (3) wiser still to use an anaesthetic for manual removal.

I wish to make another point. Those urgent cases in which manual removal without an anaesthetic is done, and succeeds without killing the patient, are the ones in which atonic retention of the afterbirth with a smart haemorrhage is the predominant factor. There has been no time in such cases for shock to supervene, for the simple reason that before this event happened the woman died of haemorrhage, or some bold person timely extracted the placenta without anaesthetic and saved a life. In one of my cases a lay, elderly woman did this heroic act before my arrival; I am not sure if she had washed her hands for the operation. The patient lived.—I am, etc.,

Iganga, Uganda. P. S. SANADE.

Poliomyelitis

SIR,—Now that it is the poliomyelitis season in this country I thought it would be of interest to describe my experiences in Ceylon during June, July, and August last year.

I was the medical officer to R.A.F. station, Negombo, which contained a total European population of about 750, including families. The station was 20 miles (32 km.) from Colombo and situated in a coconut plantation.

During this period several cases of paralytic poliomyelitis were admitted to B.M.H. Colombo from Army units in and around Colombo. Colombo was put out of bounds to our personnel, except on important duty.

At Negombo I saw a high proportion of cases of pyrexia in the younger Service personnel and children at this time. The clinical picture was as follows. The patient complained of headache, backache, slight diarrhoea, and a general feeling of weakness. The headache was severe, but not unbearable as in typhoid, and the weakness more than would be expected for the temperature, which was not usually high in spite of the climate. On examination, the physical signs were not convincing. Nystagmus was not found, but a doubtful neck rigidity was common. Most cases showed photophobia.

All patients were kept under observation in bed and not allowed up until their pyrexia had settled for at least 48 hours, provided that they were also symptom-free.

As far as I can remember I sent at least three refractory patients to B.M.H. Colombo, all of whom had a raised protein in the C.S.F. and all of whom settled eventually without paralyses.

Unfortunately, I myself developed headache, backache, and slight diarrhoea, and it was natural to conclude that it was psychological in origin; however, I retired to bed and stayed there. The feeling of weakness was most marked, especially in the legs, and somehow my mind seemed dull; but interest in poliomyelitis was sufficient for me to go right through the numbers of the *British Medical Journal* covering the 1947 epidemic in England. About five nights after the onset I woke up with the most terrific pain I have ever experienced, in my left shoulder. It was impossible to localize it exactly, and I could not relieve it by movement or position. It was so bad that I resorted to walking about the room, although I knew it was wrong. Morphine ¼ gr. (16 mg.) had no effect, and I slept after a further half grain. The next morning the pain had gone, except when I moved the shoulder. It took about ten days to regain full painless movement, and about a month later my supraspinatus and infraspinatus had wasted completely on the left side. There has been no recovery in these muscles, and apart from slight weakness I do not notice any limitation of function.

This letter has been written from memory, and the lack of detail is regretted, but it is felt that the majority of my cases were non-paralytic poliomyelitis.

The measures taken to restrict the disease were simply to tighten up on camp hygiene and especially fly control. Where there was a case in a family the parents were asked to restrict mixing with other families, but few parents were told the possible nature of the disease. It was felt that the disease was obviously so widespread that rest and observation of all fevers were more important than rigorous restrictive measures which would only cause unnecessary panic.—I am, etc.,

Ashford, Middlesex. N. G. NICHOLSON.

Poliomyelitis Vaccination

SIR,—As a mere medical student I hesitate to write this letter, and hope that in doing so I am not simply revealing a lack of fundamental knowledge.

I am at a loss to understand why the lead given not so long ago by Jenner and Pasteur in the modification or attenuation of a virus, so that it may be used for vaccination purposes, has not been followed in the case of other virus diseases, notably poliomyelitis. Surely did not Pasteur attenuate the rabies virus by drying the cord of animals suffering from the disease, having first elevated the virulence to the maximum possible level, and by injecting such dried cords of gradually increasing virulence so produce immunity? Could not a similar process be utilized in producing poliomyelitis immunity, which if successful, and if employed on the scale now used against smallpox, would remove this scourge from our midst?—I am, etc.,

Hatch End, Middlesex. M. H. F. JOHNSON.

Gravitational Ulcers of the Leg

SIR,—The recent correspondence following Dr. S. T. Anning's valuable article (August 27, p. 458) prompts me to mention one point in connexion with chronic or recurrent gravitational ulcers which has received little attention. It is that these patients commonly have a partial ankylosis of the ankle-joint, particularly if the ulcers are in the region of the ankle. This occurs so frequently that it is uncommon to find a full range of movement of the joint in patients who have such an ulcer of any chronicity. The ankylosis probably results from a number of factors. The ankle may be held rigid to avoid pain in the acute stages, or sometimes a patient is kept in bed for long periods with the leg held relatively immobile. The chronic oedema may play a part, and finally the wearing of paste bandages immobilizes the ankle-joint, often for many months.

The main cause of gravitational ulcers is generally suggested to be the devitalization of the skin by the chronic venous insufficiency and subsequent oedema. Ankylosis of the ankle obviously impairs the circulation, and the aid to venous return from muscular contraction is diminished. It is therefore apparent that such an ankylosis will augment the essential conditions responsible for the ulceration.

In many cases this ankylosis can be avoided by suitable foot and ankle exercises, preferably taught, and in some cases supervised, by a physiotherapist. Obviously, common sense is required in avoiding friction of the ulcer against bandages, etc., and in the initial stages the exercises should not be vigorous. With patients lying in bed regular exercises may also play a part in improving the circulation, and so accelerate healing. Paste and supportive bandages have a very important place in the treatment of gravitational ulcers and are used extensively. However, it must be weighed against the undoubted value of these measures that a degree of ankylosis with its attendant disadvantages will be more likely to occur following their prolonged use.—I am, etc.,

Bristol, 8. ROBERT P. WARIN.

Essential Hypertension in Pregnancy

SIR,—Professor J. Trueta's misrepresentation of my view (September 17, p. 650) is due either to a misapprehension or to other causes. He attributes to me the opinion that anuria "is not the result of a decreased intrarenal blood flow, but on the contrary that it is due to an increased blood flow to the renal medulla, which maintains the 'obstruction' of the uriniferous tubules"—as though I supposed an increased blood flow to and through the medulla is primary. Had Professor Trueta read my paper on eclampsia and its lesion (*J. Obstet. Gynaec. Brit. Emp.*, 1929, **36**, 341)—not mentioned in the 16 pages of the bibliography of his book—he would have found that I hold a very different picture.—I am, etc.,

Rugby. R. H. PARAMORE.

Parturition after Pneumonectomy

SIR,—As we cannot find in the literature any other case of a woman going to full term and parturition after a total pneumonectomy, we thought that it may be worth while to have the following case on record.

The patient is a 23-year-old primipara in good general condition (weight 8 st. 2 lb.—51.3 kg.). In 1942 Mr. T. Holmes Sellors performed a left pneumonectomy for gross bronchiectasis. In August, 1948, the patient became pregnant, and apart from slight oedema of the feet at the end of the day the pregnancy was uneventful. She went into labour in the early hours of May 3, 1949; the cervix was fully dilated by the evening of the 5th, but, as the patient was unable to push, medical aid was sought. She was delivered under chloroform anaesthesia by a high forceps manœuvre, preceded by an episiotomy. The episiotomy was repaired immediately after delivery. The child, a male weighing 6 lb. 3 oz. (2.8 kg.), was very shocked at first but recovered quickly on clearing the air passages.

—We are, etc.,

Colchester. F. KELLERMAN.
R. SAUVAN SMITH.

Memorial to Charles John Bond

SIR,—In the letter from Dr. Joan B. Walker and Mr. N. I. Spriggs (September 17, p. 655) referring to the fund which is being raised in Leicester to provide a memorial to the late Mr. C. J. Bond no reference is made to what was undoubtedly one of his great interests in the later years of his life—the question of voluntary euthanasia. He took a leading part in the formation of the Voluntary Euthanasia Legalization Society, and was the first chairman of its executive committee, a position he held until his death. It was at his personal invitation that the late Lord Moynihan became the first president of the new society, and doubtless it was largely due to the great prestige attaching to Bond's and Moynihan's names that the society made the rapid progress it did in securing the adherence and support of so many other distinguished members of the medical profession.

No review of Bond's life and work would be complete which did not include a reference to this aspect, and it is possible that in the years to come the great part he played in the initiation of this reform will be what he will be chiefly remembered and honoured for.—I am, etc.,

Leicester. C. KILLICK MILLARD,
Honorary Secretary,
Voluntary Euthanasia Legalization Society.

Old Age

SIR,—With increase in the numbers of those who have grown old, there arises the question, Can anything be done about it? If the majority of these had grown wiser, and kinder, and less selfish, one would not mind so much. But so many apparently live only for themselves. Daughters, and even sons, are kept at home to minister to the old people's wants, and these offspring are often prevented from marrying. I wonder, do they ever ask themselves, "What use am I in the world?"

The resources of the public, or private persons, have often to be expended on them; they take up the time and labour of many; they consume food, and occupy space that is badly needed for the younger. Why encumber they the ground? Segregation may be one remedy, or, more brutally, they might be induced to agree to voluntary euthanasia. But I doubt—even if it were allowed—that many would agree to this. What, Sir, is your suggestion?—I am, etc.,

Portsmouth. J. RUSHWORTH LUND.

Syringes

SIR,—I regret that my letter on the advantages of the Luer syringe fitting (August 13, p. 387) has led to a little misunderstanding. The type of fitting which I have found so useful in ophthalmic surgery (as it enables the injection to be made with one hand whilst withdrawing the needle, and without any risk of leakage) is the Luer-Lok fitting. After correspondence, I find that this is not yet available in this country, though it may become available in the next year or so. I hope that the production of this type of bayonet-joint fitting for hypodermic syringes will be accelerated, as it has great advantages for ophthalmic surgery and is even less likely to be obtainable from America now than it was.—I am, etc.,

Leeds, 1. JOHN FOSTER.

Local Analgesia

SIR,—In the *Journal* of July 16 (p. 139) there appears a review of the book *A Surgeon's Guide to Local Anaesthesia*. But why, oh why, do you have it reviewed by a specialist anaesthetist? The result is just what one would expect—namely, a half-hearted, brief, non-committal statement which does scant justice to the book. It may interest your readers to learn that this book has now reached its third edition, though the two previous editions appeared in Australia only, where they were issued by the author in typescript form owing to wartime difficulty in publishing. The volume is intended to be a guide not only for the practising surgeon but for all who have perforce to do operative work where trained assistance is not available, perhaps in villages far in the country, and who want to learn safe methods that will work and will not fail.

I may say that I am writing this letter because to-day I was proposing to perform an operation for haemorrhoids using caudal analgesia, but having read Mr. C. E. Corlette's strictures upon this somewhat dangerous method of local analgesia I decided to employ the ordinary infiltration method around the anal canal, using 1% procaine with adrenaline solution, 2½ minims to the ounce (0.53 ml. per 100 ml.), and all went well. The point that Mr. Corlette brings out in his book is that the infiltration method is a safe method, whereas the caudal injection is unsafe; it has led to deaths, as can be found in the literature if one takes the trouble to look it up. It is highly probable that a professional anaesthetist does not look with any favour upon a book which shows surgeons how to perform operations safely and reliably, and without troubling the general anaesthetist at all.

The main theme of the book is the author's unique premedication system, which puts the patient in a state of quiet relaxation, physically and mentally, and this enables operations to be performed without producing any mental or nervous strain. The patient either dozes off to sleep, or remains quiet and calm but awake. I have used his method in hundreds of cases, and with great success. Altogether the book is the most complete practical guide that exists at the present time, and the

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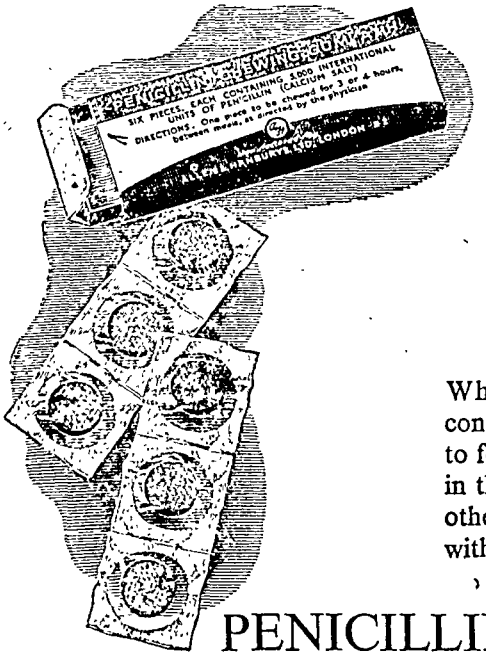
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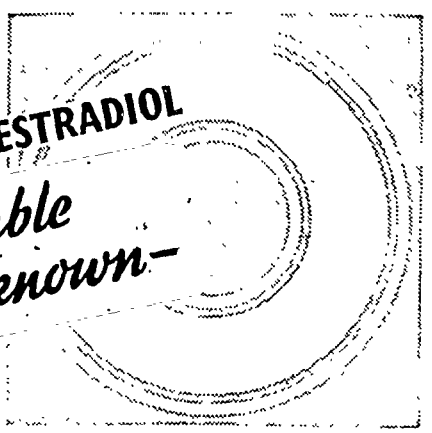
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200 illustrations make it a pleasure to read. What is most valuable is that the author assumes responsibility for every method that he recommends; he has tested all his methods thoroughly, and he speaks from the standpoint of an immense experience of surgery under local analgesia. Furthermore, general practitioners who look into this book will find in it much which they can put to use in their daily work.—I am, etc.,

Dunedin, N.Z. ROLAND A. H. FULTON.

Penicillin in Emergency

SIR,—The extreme value of penicillin in an acute medical emergency due to a penicillin-sensitive organism is illustrated by the following case.

At 2 p.m. I was summoned to a man aged 81 by his daughter, who stated that her father had developed a shivering attack during the morning and now she did not like the look of him. On arrival, the patient was delirious and restless, trying to sit up in bed. Temperature 104.5° F. (40.25° C.), pulse 100, respirations 40. Patient was oblivious of his surroundings and difficult to examine, and there were few physical signs. A provisional diagnosis of septicaemic pneumonia was made. 500,000 units of penicillin were injected intramuscularly. At 4.30 p.m. the patient was rational, knew his family and myself. Temperature 100.5° F. (38.5° C.). *Sulphathiazole*, 1 g. 4-hourly, by mouth. At 7.30 p.m. the patient was much improved. Temperature 99° F. (37.2° C.), pulse 80. 100,000 units penicillin. The next morning the patient was quite recovered, but somewhat weak. Temperature 97.5° F. (36.35° C.), pulse 70, respirations 16. No abnormal physical signs in lungs or elsewhere.

—I am, etc.,

Leigh-on-Sea. THOMAS REES.

Antiseptics for Minor Dressings

SIR,—With reference to the answer to the question on antiseptics for minor dressings ("Any Questions?" September 17, p. 661), I should like to take your anonymous authority to task for advising the use of proflavine sulphathiazole powder for application to the wounds from minor accidents. I have pointed out previously the dangers of this preparation.[1] Although the incidence of sulphonamide dermatitis due to its local application is not very high in this country, it is an avoidable risk, as sulphonamide is not an essential wound dressing. Sulphonamide dermatitis, particularly the light-sensitive variety, is such a distressing dermatosis that it should be avoided at all costs.

Acriflavine and proflavine have the property of increasing the severity of sulphonamide dermatitis, and Russell and Beck[2] showed that proflavine and sulphonamide mixtures were more lethal to tissues than either substance singly. There is, therefore, even more reason for avoiding proflavine and sulphathiazole mixtures.

As I am afraid that this is so far purely destructive criticism I would like to advise that antiseptics should be avoided as much as possible. The trauma unit at the Royal Infirmary, Sheffield, now uses only "cetavlon" and spirit as pre-operation preparations, and saline and tulle gras as local applications, and there has been a considerable drop in the incidence of contact dermatitis in wounds without noticeable increase in wound sepsis. One still sees, however, a regular supply of cases of sulphonamide dermatitis from those enthusiastic house-surgeons who forget that penicillin powder is 99% sulphathiazole.—I am, etc.,

Sheffield. I. B. SNEDDON.

References

1 Sneddon, I. B., *Proc. R. Soc. Med.*, 1947, **14**, 883.
2 Russell, D. S., and Beck, D. J. K., *British Medical Journal*, 1944, **1**, 112.

Myxoedematous Madness

SIR,—I feel I would like to state my opinion that Dr. R. Asher's paper on this subject (September 10, p. 555) is an exceedingly valuable clinical contribution, the importance of which is in no way minimized by the qualifications put forward (September 24) by Drs. E. B. Davies (p. 706) and J. Douglas Robertson (p. 707). Dr. Davies wishes to emphasize that where a psychosis is associated with myxoedema or another endocrinopathy it is not necessarily the result of the endocrine disturbance. This will be readily agreed to, and I do not think that Dr. Asher's article or your annotation intended to indicate otherwise.

However, changes in behaviour pattern, psychoneuroses, and psychoses are not infrequently associated with a major endocrine disturbance—e.g., thyrotoxicosis, myxoedema, adrenogenital syndrome, Cushing's syndrome, Addison's disease, Simmonds's disease, and hypoparathyroidism. When the cure of these disorders or correction of the resulting metabolic disorders is achieved by substitution therapy, operation, or radiation and, following this, the psychoses, etc., disappear, it would seem justifiable to conclude that the endocrinopathy was the immediate cause of the psychoses, the psychoneuroses, or the altered behaviour pattern. This view would not be vitiated by the fact that the psychosis, for example, associated with an endocrine disorder varied in its character and was not constant, because the pattern of the psychotic disorder might well be determined by genetic factors.

I have been particularly impressed by the change in behaviour pattern in patients with hypopituitarism following pregnancy (Simmonds's disease). Whereas hypoglycaemia is an important factor it does not appear to be the sole or constant factor in causing such changes. Of a series of such cases, I have in mind in particular one woman who was a loving wife and mother and who, after the onset of the disease, ceased to have the slightest interest in the well-being of the children or husband, in her own clothes, or in the cleanliness of the household, which deteriorated dramatically. I also recall a woman with Addison's disease whose relatives wrote me after she had been correctly diagnosed and treated that they were deeply grateful for the change in her behaviour and outlook in the home and the return of her normal, kindly, and interested nature. I can hardly consider these features, as well as the major psychoses, chance coincidences.

On the other side of the picture, and in support of Dr. Davies's views, the number of cases one is asked to see of mental disturbances, mental retardations, and delinquencies which have been thought without justification to be of endocrine origin is surprising, although an awareness of the possibility should not be discouraged. Considerable interest has recently been aroused in the general well-being and euphoria produced in patients with rheumatoid arthritis by the use of the pituitary adrenocorticotropic hormone and, on similar lines, by the finding of an increased secretion of adrenocorticotropic hormone after electroconvulsive therapy. It would be prudent, I think, to await further elucidation before becoming excessively enthusiastic about the application of these discoveries to the therapy of psychoses not associated with major endocrine disorders.

As regards the basal metabolism in myxoedema, my experience coincides with that of Dr. Douglas Robertson, and I intimated to Dr. Asher, when he kindly asked me to consider his findings, that uncomplicated myxoedema was usually, if not invariably, associated with a decreased B.M.R.—I am, etc.,

London, W.1. S. LEONARD SIMPSON.

SIR,—The article by Dr. R. Asher (September 10, p. 555) should lead to the more frequent recognition of "myxoedema madness," but in the patient whose condition deteriorates when thyroid extract is administered it should be recognized that it may be dangerous to persist in this form of treatment, as the following short case history displays.

A woman of 58 was admitted to hospital under my care in January, 1949, suffering from confusion and delusions; she appeared to be an obvious case of myxoedema. Treatment with thyroid was commenced (30 mg. thrice daily), but as her confusion increased the dose was doubled. She then became violent and maniacal, refusing to take anything by mouth. This violence alternated with almost complete collapse, when she seemed on the verge of death.

This combination of symptoms suggested that she might be a case of Simmonds's disease, and treatment with testosterone-propionate and desoxycorticosterone was commenced immediately. The improvement was dramatic, and within a few hours she was demanding food. Her condition steadily improved from that date, and her mentality is now almost normal. Her electrocardiograph taken before treatment commenced showed characteristic inversion of the T waves

in the limb leads, which after treatment (except in lead III) have returned to normal. She continues on treatment with testosterone-propionate, but the desoxycorticosterone has been discontinued. Subsequent administration of thyroid has had no beneficial or harmful effect. Her general appearance is still that of myxoedema.

My recognition of this condition was due to an article by A. C. Crooke, clinical endocrinologist, United Birmingham Hospitals (*Practitioner*, 1948, **161**, 298).—I am, etc.,

Maidstone. RONALD LASS.

POINTS FROM LETTERS

Antihistamine Drugs in General Practice

Dr. SIDNEY G. HAMILTON (Woolacombe, N. Devon) writes: There have been many opportunities this summer of trying the new antihistamine drugs in general practice. . . . To be effective, it seems that they should be used early in the treatment. The following two cases are illustrative. (1) After eating strawberries in June a woman of 49 developed an urticarial rash on the face, neck, and right forearm. She treated this with a proprietary cream. She first sought advice two months later. Pyranisamine maleate tablets and cream were prescribed. The irritation was relieved, but the rash showed little improvement. (2) A boy aged 9 was stung by a wasp on the ankle. He had already developed severe symptoms when he was seen 20 minutes later. There was a widespread urticarial rash of the face, body, arms, and thighs. The eyelids and face were swollen, the voice was hoarse, the vision blurred, and he was suffering from violent skin irritation. He was treated with pyranisamine maleate. One ml. of a 2.5% solution was given very slowly intravenously, and 1 ml. subcutaneously. He was also given 0.025 g. of a phenacetin and codeine compound by mouth in order to prolong the action of the drug. The itching of the skin stopped instantly the injection was started, and during the following half-hour the rash and swelling faded gradually. The only abnormal reaction was that of slight nausea. He was seen again four hours later, when he appeared almost normal, though some oedema and rash could still be detected.

Adrenaline in Dysmenorrhoea

Dr. HARRY R. LILLIE (Montreal, Canada) writes: My attention has recently been called by Dr. Cluny Macpherson, of St. John's, Newfoundland, to the use of adrenaline intramuscularly in cases of severe dysmenorrhoea. He has already published his findings under the heading "Pelvic Allergy" in the *Canadian Medical Association Journal* (1949, 60, 54). Following the case of one young girl to whom Dr. Macpherson had had to give morphine (gr. $\frac{1}{2}$ = 32 mg.) and atropine hypodermically before relief was obtained, he recalled having heard a speaker at the St. John's Clinical Society in 1937 refer to certain cases of dysmenorrhoea as due to pelvic allergy, and he reasoned that such should respond to adrenaline as in asthma. His use of 1 ml. of 1:1,000 adrenaline chloride with this girl was dramatic. She had complete relief in ten minutes, with no recurrence for six months, when again adrenaline was just as effective. He has had uniformly good results in all cases of severe dysmenorrhoea since then, and in severe cases has had some success with "benadryl." Shortly after hearing this I had opportunities of testing Dr. Macpherson's recommendations on three of my own patients with acute dysmenorrhoea. One was a young married girl of 26 with an acute retroversion and flexion, and the other two were slightly older women with no malformation. Only the last of the three suffered from constipation as a contributory factor in the trouble. The results have borne out to the full what Dr. Macpherson found.

Medicine in the Popular Press

Dr. J. H. LANKESTER (Oxted, Surrey) writes: It is irritating to find that patients who read magazines such as *Readers Digest*, *Time*, or *Life* have advance, if uncritical, knowledge of new remedies. I would suggest that a regular section of the *Journal*, under an appropriate title, should be devoted to a review of such press claims. This is sometimes done already (e.g., April 2, p. 599, para. 1 of Medical News), but with insufficient prominence or regularity. This section of the *Journal* could also be used for a preview of new drugs or promising lines of research. Critical appraisement can follow later, but the first knowledge of new things should reach us through the medical rather than the popular press.

Public House Hygiene

Dr. A. PHILIP DRAPER (Romford, Essex) writes: Can any action be taken to improve the hygiene, or rather lack of it, in licensed houses? The present system of dipping used glasses into a pail or other receptacle of already grossly contaminated water would appear to serve no useful purpose, in fact quite the reverse.

Obituary

J. TYLOR FOX, M.D., D.P.M.

Dr. J. Tylor Fox, who died on September 20 at the age of 64, was an authority on epilepsy. A son of the late Dr. Hingston Fox, he belonged to the sixth generation of a family of Quaker doctors.

Joseph Tylor Fox was educated at Bootham, the City of London School, Sidney Sussex College, Cambridge, and the London Hospital, where he won the James Anderson Prize for clinical medicine. He qualified in 1910 and graduated M.B., B.Ch. in the following year. In 1916, accompanied by his wife, he went to Russia as chief medical officer of the Friends' War Relief Expedition. He became medical superintendent of the Lingfield Epileptic Colony in 1918, and two years later he proceeded M.D., going on to take the D.P.M. in 1921. During his twenty-eight years as medical superintendent of the Lingfield Epileptic Colony many extensions were made and four new homes were built, the number of patients and staff there increasing to 600. He knew and took a personal interest in each individual under his care, and he early appreciated the crippling social handicaps borne by epileptics.

In 1930 Dr. Tylor Fox became chairman of the new Permanent Committee on Epilepsy, a body formed mainly to obtain statistical data about epileptics. He then went for a three-months tour of institutions in Europe, seeking information and preparing the ground for the resuscitation of the International League against Epilepsy which had lapsed during the 1914–18 war. The International Neurological Congress in London in July, 1935, commemorated the hundredth anniversary of the birth of Hughlings Jackson. It was particularly appropriate, therefore, that, mainly due to the energy of Dr. Tylor Fox, over thirty doctors attending the congress from fifteen different countries should visit Lingfield and bring the International League against Epilepsy into being again. Dr. William G. Lennox (U.S.A.) was made president; Dr. Schour (Denmark) and Dr. Muskens (Holland) secretaries; and Dr. Tylor Fox was treasurer. Later Dr. Fox persuaded the then Central Association for Mental Welfare, now the National Association for Mental Health, to form a special committee on epilepsy to help epileptics in the community. Dr. Tylor Fox became chairman of this committee and continued in that office until his death.

Dr. Fox retired from Lingfield in 1946, having seen the colony through the war years. Although in poor health, he then devoted much time to a campaign for greater understanding and sympathy towards epileptics. He wrote articles on this theme for both medical and lay publications. Among his articles on the clinical aspects of epilepsy was "Rhythm in Epilepsy," written in collaboration with Dr. Gwenvron Griffiths. This was a survey of the incidence of fits in a group of epileptics over a long period.

Dr. Fox married Elsie, daughter of the late Edwin Gilbert, and she survives him with two sons and a daughter; both sons are following in the family medical tradition.

Dr. Denis Williams writes: Although Tylor Fox will be remembered with deep affection by thousands of epileptic patients, he will have influenced the lives of many more to whom he was quite unknown. He was in the long line of English social reformers, and like so many of them he was quiet and retiring, only expressing himself under the stimulus of other people's needs. He was first of all a personal physician, who in the Lingfield colony had an experience of the medical and social treatment of epilepsy

which cannot have been surpassed. It happened that his work there covered the years of therapeutic advance, when the barbiturates and then the hydantoins became widely used. In that time, too, the electroencephalogram began to throw light on an obscure disease. As each new piece of knowledge appeared he sought it out and applied it. Although he was an expert in this field he did not write much, for he was too reticent, but his opinion, sought personally, was careful and experienced. Perhaps it was more than reticence that limited his writings; perhaps it was that Tylor Fox was more concerned for people with epilepsy than for epilepsy. In the social care of his patients he was both eloquent and active, and that activity went far beyond his own colony. Although he had retired from Lingfield, when he died he was president of the British branch of the International League against Epilepsy, and chairman of the epilepsy committee of the Association for Mental Health, as well as chairman of the Lebanon Hospital in Beirut, like his uncle before him. Through these bodies he continued his work, but he still did much by personal contact and persuasion. He was always concerned with problems of education, of employment, and of public enlightenment for the good of the epileptic. When he was absent from the recent meetings in Paris there were inquiries about his welfare and work from those interested in epilepsy in many of the countries of Europe and of the States of America. His work has made him very widely known.

Dr. Denis G. Kennedy writes: When Dr. Fox handed over Lingfield Epileptic Colony to me in the summer of 1946 he was a very tired man. The running of the colony during the war years, perhaps more than any other similar institution, had been a work of extraordinary difficulty. Dr. Fox had two great interests in life—namely, his clinical work and his social work on behalf of epileptics—and during his later years at Lingfield he had found the administrative duties of his post take a heavier and heavier toll of his time and energies. He was, I think, glad to hand over his administrative work, and looked forward keenly to devoting the whole of his time to what had become his main interest—the removal from the public mind of prejudices concerning the epileptic. His single-mindedness in the pursuit of this aim, born as it was of his keen sense of social service, had an intensity rather strange to see in a post-war world of disillusion and apathy. He was a man of great tolerance to the frailties of human nature, and in consequence made many lasting friends. Up to the very last he was working hard in the cause he had made his own, and his tragic death leaves a painful void in the circle of people whose lives are devoted to the care of epileptics. At Lingfield Colony he has left a name which will be remembered with affection and esteem for a very long time.

R. E. BICKERTON, D.S.O., M.B.

Mr. Reginald Ernest Bickerton, the well-known ophthalmic surgeon, died peacefully on September 13 at the age of 79, after two years of steadily failing health. His father was Thomas Bickerton, F.R.C.S.Ed., of Liverpool, and he was a student at Liverpool University, where he graduated M.B., Ch.B. in 1895. He was successively house-physician, house-surgeon, ophthalmic assistant, and senior resident medical officer at the Liverpool Royal Infirmary. Later he visited and held ophthalmic appointments in Berlin, Vienna, Munich, Utrecht, and Zurich. After his marriage in 1899 he settled in London and was appointed ophthalmic surgeon and lecturer to the "Dreadnought" Seamen's Hospital, Greenwich. Mr. Bickerton served this hospital for 42 years, a record hardly equalled throughout its long history. On the advent of the National Health Service he received the unusual honour of being unanimously elected a vice-president of the hospital.

Mr. Bickerton was consulting surgeon to the Hornsey Central Hospital, the Royal Waterloo Hospital, London, and the Evelina Hospital for Sick Children. The late Sir Arthur Pearson personally put him in charge of blinded soldiers and sailors at St. Dunstan's, which post he held from the end of the 1914–18 war until the outbreak of the second world war, when the blinded ex-Servicemen were removed from London. He was also ophthalmic surgeon to the Children's Clinic, Marylebone Road; chairman and honorary ophthalmic surgeon to the Royal School for the Blind at Leatherhead; and chairman of the Hawksley Pension Fund for the Blind of the professional classes. He acted as a medical referee for ophthalmic cases under the Workmen's Compensation Act, and was visiting ophthalmic surgeon to the Ministry of Pensions Hospital, Richmond.

He joined the Territorial R.A.M.C. in 1909 in response to Lord Roberts's urgent appeal at that time, and was promoted captain in 1912. He was mobilized in 1914, though over age, and later with the rank of lieutenant-colonel he commanded the 84th (London) Field Ambulance, which was attached to the 28th Division, serving in the British Expeditionary and Salonika Forces, in the Army of the Black Sea, and in Belgium, Turkey, and Asia Minor. He was appointed A.D.M.S. of the Army of the Black Sea in 1919 and was twice mentioned in dispatches. He had been awarded the D.S.O. in 1917, and he was appointed honorary surgeon to the King from 1927 to 1932. Since 1932 he had been honorary colonel of the 56th Division (1st London) T.A. Mr. Bickerton was responsible for a number of contributions to the literature of his specialty, and he was particularly interested in mustard gas burns affecting the eyes. He was honorary secretary of the Section of Ophthalmology at the Annual Meeting of the B.M.A. in 1927 and vice-president of the Section in 1938.

Mr. Bickerton was held in great esteem by his patients and his colleagues, and indeed by all who came in contact with him. His gentle but firm behaviour, his old-world courtesy, and his loyalty to his friends were as impressive as his undoubted skill as an ophthalmic surgeon. He endeared himself to everyone, and his name will always be held in affection by his many friends and particularly by those blinded officers and men for whom he cared. He took much more than a professional interest in them, and they greatly appreciated his wise and generous friendly advice. In the same way there must be thousands of merchant seamen who are grateful both for his skill and for his kindness.

A requiem mass was held on Monday, September 19, at All Saints, Margaret Street, W.1, of which for some years, till his health failed, Mr. Bickerton had been churchwarden. There many representatives of the medical profession, of St. Dunstan's, of the Seamen's Hospital, and of the blind and staff of the Royal School for the Blind, and many others paid tribute to his memory.

G. C. WILLIAMS, O.B.E., M.R.C.S., D.P.H.

Dr. Geoffrey Commeline Williams, who was senior administrative medical officer to the Oxford Regional Hospital Board, died on September 21 at the age of 57. He was born at Thornbury, Gloucestershire, where his father was in medical practice, and was educated at Clifton College, Caius College, Cambridge, and Bristol. In 1916 he qualified, and he went on to take the Bristol D.P.H. in 1921. He took the Cambridge M.A. degree before starting his clinical studies, and he was also, by incorporation in 1937, M.A.(Oxon), becoming a member of Brasenose College. In the 1914–18

war he served overseas as a captain in the R.A.M.C. For a short time after demobilization he filled the post of assistant medical officer to the Bristol City Fever Hospital and Sanatorium.

Dr. Williams came to Oxford as assistant medical officer of health in 1921, becoming deputy M.O.H. later. In 1930 he was appointed medical officer of health to Oxford County Borough Council. He was awarded the O.B.E. in 1942 for his services to public health generally and to civil defence in particular. It was in October, 1947, that he became senior administrative medical officer to the Oxford Regional Hospital Board. Dr. Williams was a Fellow of the Society of Medical Officers of Health, a Fellow of the Royal Sanitary Institute, an officer of the Order of St. John, and county surgeon to the St. John Ambulance Brigade. He was formerly an examiner in public health to the University of Oxford, a past chairman of the Oxford and District Public Medical Service, and a member of the committee of the Nuffield Institute of Social Medicine and of the Council of the medical staff of the United Oxford Hospitals. He was also a member of the joint county committee of the British Red Cross Society and the Order of St. John. In 1936 he was vice-president of the Section of Public Health at the Annual Meeting of the B.M.A. He married Irene Mary Durant in 1919, and she survives him with one daughter.

W.S. writes: Men like "Billy" Williams can ill be spared at any time, least of all in these days when so much hinges on a fair and equitable administration of the new health services. While medical officer of health for Oxford, and more recently as senior administrative medical officer to the regional board, his faith and trust in the members of his staff drew forth the most profound loyalty from each and everyone, and he inspired the confidence of the profession and public alike. He was a first-class administrator, and approached the innumerable problems much more from the human side than from the point of view of regulations and orders, if they happened to be incompatible. He was perhaps at his best in times of stress, when his calm and equable character shone forth conspicuously. His discreet and tactful intervention at committee meetings many times smoothed out what might have developed into an awkward situation. Only his intimate friends knew how much help he gave to others in trouble or difficulties. Like so many others in both wars, he lost the opportunity of proceeding to higher degrees by volunteering for service in the Forces immediately after qualifying. Williams was a man of the highest integrity, and everyone with whom he came into contact soon recognized his quality. While medical officer of health for Oxford his relations with the general practitioners were particularly happy. He had few hobbies, but until he became absorbed in civil defence duties he enjoyed a round of golf, at which he was quite a fair performer. There was a pathetic appropriateness in the fact that he spent the last days of his life in the Slade Hospital, a modern institution for infectious diseases for the construction and planning of which Williams was largely responsible. His death has left a feeling of intense sadness in many Oxford homes, and there will be deep heartache among those who were privileged to be associated with him in his many activities. To his courageous and devoted wife and daughter the deepest sympathy will be extended by all who knew him.

G. J. STEFANOPOULO, M.D.

When a French military aeroplane landing at Pointe Noire on September 19 burst into flames, French tropical medicine lost one of its most distinguished exponents. Dr. G. J. Stefanopoulo, who was one of the eighteen people killed in this accident, was a *chef de service* at the Pasteur Institute in Paris. He was born in Greece in 1893 and was educated at the Universities of Athens and Montpellier. After service in the first world war he became an assistant to Professor Auguste Pettit, and with him did much to elucidate the part played by pathogenic leptospira in the causation of leptospirosis icterohaemorrhagica. When Noguchi claimed that yellow fever was due to a spirochaete Stefanopoulo's interests became centred in yellow fever. As a result of his visits to tropical Africa he mapped out the distribution of yellow fever in the French African Colonies, and in collaboration with British workers he was the first to point out the significance of monkeys in the maintenance of yellow fever in Africa.

In accordance with the traditions of the Pasteur Institute he early focused his attention on the possibilities of immunization against yellow fever, and his laboratories in Paris have for many years been immunizing nearly 40,000 persons a year. On one of his many visits to Africa he became infected with *Loa loa*, for which at the time there was no satisfactory treatment. Stefanopoulo was one of the first to use hetrazan not only curatively but prophylactically against filarial infections. At the time of his death he was visiting French Equatorial Africa at the request of the Minister for the Colonies to advise on how living conditions could be improved for Europeans working in the Tropics.

During the recent war Stefanopoulo was a member of the resistance movement. He was a great admirer of this country, where he was well known and had many friends. He took part this year in the discussions of the Section of Tropical Medicine at the Annual Meeting of the British Medical Association at Harrogate and read a paper on his investigations on *Loa loa* infection. For many years before the second world war Stefanopoulo represented Greece at the meetings of the Office Internationale d'Hygiène Publique. He was a member of the Greek Academy of Medicine and an Officer of the Legion of Honour. The sympathy of many friends in this country will be extended to his wife and two young children in their tragic loss.—G. M. F.

Dr. Donald Ross, who was formerly medical superintendent of the Argyll and Bute mental hospital, died at Ardrannich, Inveraray, on August 25. Dr. Ross received his early education in Switzerland and at Dollar Academy, where he achieved distinction in his studies and in sport, winning the medal for modern languages in his final year. At Edinburgh University he graduated M.B., Ch.B. in 1908, and subsequently held appointments at Edinburgh Royal Infirmary, Melrose Institution, Edinburgh Royal Asylum, and Glasgow Royal Asylum. He was appointed medical superintendent of the Argyll and Bute Mental Hospital, Lochgilphead, in 1914, and this appointment he held until his retirement in August, 1946. Dr. Ross was admitted M.R.C.P.Ed. in 1928. He was a secretary of the Caledonian Medical Society and a committee member of the Royal Medical Psychological Association, which he represented on several occasions at international congresses. He was a founder of the Campbell Clark Medal for Mental Nursing, and made a number of contributions to the medical literature. He was chairman of the Argyll Division of the British Medical Association in 1934 and again in 1939. Following the promise of earlier years he became a fluent linguist in eight languages—French, German, Gaelic, Flemish, Italian, Arabic, Urdu, and Spanish. He learned Gaelic after his appointment at Lochgilphead so that he could converse freely with patients who knew no other language. For several years he was a member of the executive council of An Comunn Gaidhealachd and secretary of Mid-Argyll Branch. He was an authority on ancient monuments, particularly those in and around Argyll, and a Fellow of the Society of Antiquaries. Dr. Ross was associated with the Territorial Army from its inception in 1908, and served as

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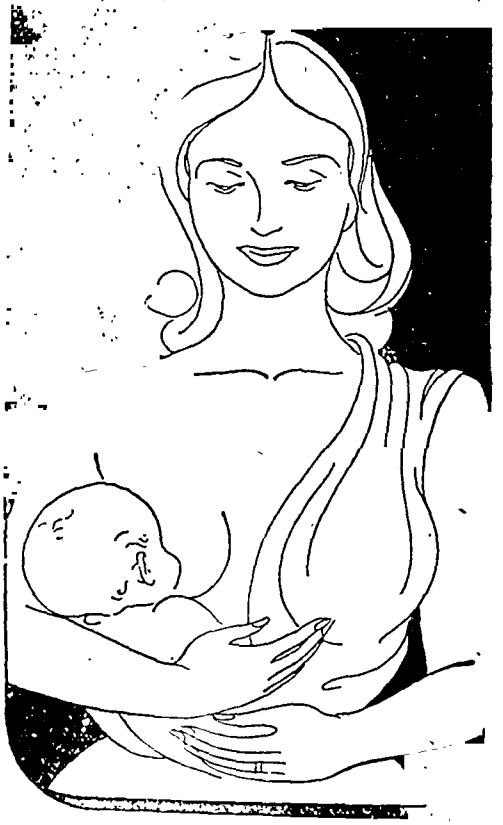
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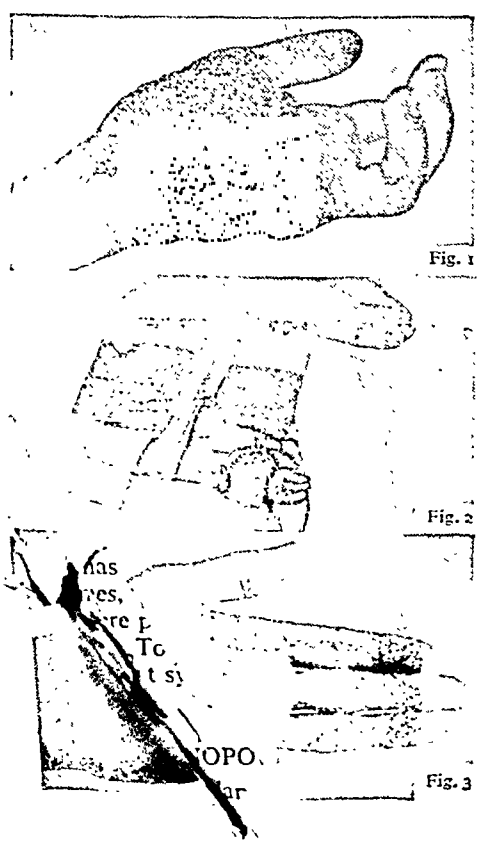


Fig. 1

Fig. 2

Fig. 3

REPAIR TO HAND

Fixation with Elastoplast

A Battle Casualty with considerable destruction of the palm of the hand, the little finger and the fifth metacarpal joint. Skin grafting was carried out as a preliminary measure to produce a healed surface. Later there was excision of graft and scar tissue with application of a direct flap from the back. Fixation was secured with Elastoplast prior to division of the base of the flap.

The details and illustrations above are of an actual case. T. J. Smith & Nephew Ltd., of Hull, manufacturers of Elastoplast, publish this instance — typical of many, in which their products have been used with success.

Fig. 1. *Condition on admission.*

Fig. 2 *After excision of graft and scar tissue. Application of direct flap from the back. Note fixation.*

Fig. 3. *Flap in position. Full extension of fingers.*

Fig. 4. *Formation of fist.*

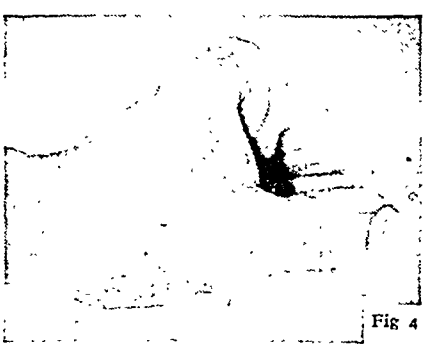


Fig 4

a captain in the 1914–18 war and as a colonel in the recent war. Between the two wars he was regimental medical officer of the 8th Argyll and Sutherland Highlanders, and for his services was awarded the M.B.E. and the T.D. Throughout his life he was keenly interested in sport and played rugby for Edinburgh University, the Melrose, Hawick, and Jedforest clubs, and for the Army against France as wing three-quarter. While a student he won medals for 220 yards flat races on two occasions, and in later years he was a judge of racing and heavy events at the Highland Gatherings at Oban and Mid-Argyll. It was his invariable custom before the war to walk over the hills alone from Lochgilphead to the Oban Games, and after the games he made the return journey by the same route. Dr. Ross was deeply interested in the welfare of the county, and was an elder of Lochgilphead Parish Church, a local justice of the peace, and a founder of Lochgilphead Ex-Servicemen's Institute. He is survived by his wife, four sons, and four daughters. Two of his sons are in the medical profession, and one of his daughters is the matron of Argyll and Bute Mental Hospital.—J. A. A.

Dr. Basil John Francis Jackson-Taylor, who died on August 18, had spent 38 years in general practice. He was a student at King's College Hospital, and qualified in 1904. After some years spent in resident hospital appointments at the London Temperance Hospital and at Bagthorpe Infirmary, Nottingham, he settled in practice at Hucknall, Notts, where he built up a large general practice from which he retired in 1926. He then took a small practice in Horley, Surrey, intending to lead a quieter life. However, his qualities soon led to such demands for his services that it was many years before he was able to secure the leisure which he desired and needed. Dr. Jackson-Taylor had for 20 years been divisional surgeon to the St. John Ambulance Brigade, a unit which he had largely helped to build up in Horley. He was for many years a member of the executive committee of the Reigate Division of the B.M.A., and was chairman of the Division during 1935 and 1936. He took a prominent part in the discussions preceding the present National Health Act and did not conceal his doubts about the wisdom of that measure, an opinion with which many of his past opponents now agree. He was a man of shrewd insight and clinical ability, with an equable mind and a kindly disposition. Never did these qualities show to better advantage than at the time during which he well knew what lay before him. A large circle of friends, colleagues, and patients have learned of his passing with deep regret.—K. W.

Dr. William Stewart, of Denton, died at his home there on September 3. He was one of the best-known practitioners in the district and had always taken an active part in local affairs. William Stewart was born in Ireland, and graduated at Queen's College, Belfast, in 1887. As a student he won the prize in surgery in 1886. He was at Longton, Staffs, as a locumtenent for a short time and later at Salford. Then in 1888 he settled in Denton and was in general practice there for 57 years. Dr. Stewart's association with the St. John Ambulance Brigade began as long ago as 1903. He lectured to both the ambulance and nursing divisions for many years, and he was promoted a Commander of the Order of St. John of Jerusalem in 1932. During the 1914–18 war he was in charge of the Denton Red Cross Hospital, and in September, 1939, he was appointed honorary medical officer for the Denton first-aid post. Dr. Stewart was honoured in 1944 with the insignia of Knight of Grace of the Venerable Order of St. John, and in 1945 he was presented with an illuminated address paying tribute to his services as a general practitioner and as medical officer of health to the district from 1910 to 1939. Dr. Stewart was one of the old type of family doctors who earned and held not only the esteem but the affection of all his patients.

Dr. James Kearney, of Wanstead, London, E.11, died suddenly on September 5 while on holiday. He qualified at Dublin in 1913, and in the first world war he served as a captain in the R.A.M.C. After demobilization he went into general practice in Leytonstone and became a partner in one of the oldest established practices there. Among the appointments that he held were those of district medical officer for Leyton, honorary medical officer of the Essex County Nursing Association, and during the recent war he served on the National Service medical boards and in the Home Guard. He took a keen interest in the work of the Leytonstone Branch of the British Legion and in many other local activities. Possessed of a strong personality, Dr. Kearney was well known for his forthright manner. He was an outstanding example of the old-type family doctor, and he was much loved by all his patients, knowing every detail of their personal and family history and always giving them unstinted service. His practice was his all-absorbing interest, and in spite of failing health he carried on to the last, dying, as he had wished, in harness. He is survived by his widow, one son who is studying medicine, and two daughters, to whom the sympathy of his colleagues and friends will be extended.

Dr. Harry Smith, who died on September 16 at the age of 48, was a popular and influential figure in the public health service of London. Dr. Smith was one of the nine divisional medical officers appointed to administer the local health authority services of the London County Council. He took up this post in April, 1948, and was in charge of the division which included Chelsea, Fulham, Hammersmith, and Kensington. His energy, his skill in health administration, and his ability to get on with all types of men, women, and, above all, children eased the process of establishing the new structure. Dr. Smith's easy charm, his wide knowledge of the law and practice of public health, and his ready adaptability to new circumstances quickly gave him a high reputation among his colleagues, the members of the divisional health committee, and the wide section of the population with whom he came into contact. Resolutions of appreciation of his service have already been sent from several of the voluntary organizations in his division. Dr. Smith was a student at St. Bartholomew's Hospital. After qualifying in 1924 he held resident appointments in hospitals in Rugby and London before going into general practice for five years. He used to look back at this part of his career, spent in rural practices in the West of England, with particular affection, and to say that the intimacy of the personal contacts one was able to make in general practice provided a quality which was never attainable in other branches of the profession. For two years Dr. Smith was an assistant school medical officer at Plymouth and then, from 1934 for four years, assistant medical officer of health at Portsmouth. His varied experiences in these appointments were part of the equipment which made him so valuable when he joined the London service in 1938. His first important work in London was in the slum-clearance programme which before the war constituted a large and important part of the department's functions. During the war he undertook duties connected with the school health service, the medical examination of staff, first-aid training, and other problems. He was promoted to divisional medical officer in 1941, and principal assistant medical officer in 1946. On his way to work in 1944 he was nearly killed by a bomb which fell in York Road just outside Waterloo Station. The memorial service at St. Mary Abbot's Church, Kensington, was attended by a large and representative gathering of friends and colleagues who mourned the departure of one whose personal qualities they loved and whose devotion to the public service was a source of inspiration to all who knew him.—A. D.

The Nurses and Midwives Whitley Council has agreed on higher salaries for ward sisters, charge nurses, deputy ward sisters, deputy charge nurses, and staff nurses employed in mental hospitals, and for midwives employed in maternity hospitals and homes and maternity units or wards of other hospitals. The increases are consequential to the agreement reached previously for nurses employed in general hospitals. The Whitley Council has also agreed on the salaries of part-time enrolled assistant nurses, staff nurses, and ward sisters who are employed in general hospitals. Nurses employed for not more than 40 hours a week will be paid on a sessional basis. For a session of four hours the rates are: enrolled assistant nurse, 10s.; staff nurse, 11s.; ward sister, 13s. 4d. In addition meals on duty will be given and uniform provided and laundered free.

Medico-Legal

DEATHS FOLLOWING INJECTIONS OF CONVALESCENT MEASLES SERUM

Mr. W. Bentley Purchase, coroner for St. Pancras, on September 26 concluded an inquiry into the deaths of three children—Pauline Hallett, Richard Taviner, and Brian Wood, all of Hornsey, and all aged 3 years.

Dr. John Harrington, of the Central Public Health Laboratory, Colindale, said that on July 1 he injected a number of children at a day nursery with anti-measles serum. Five children received injections from one particular batch of serum, and three of these were the children who had died. All were measles contacts, and none of them had a history of measles. These five children were not injected consecutively, but were spaced out among a number of others. The only point in common in the case of the five was that they received serum from the same batch. The syringes were changed after every fourth injection, and a fresh needle and a fresh charge of the syringe were used for each child.

Dr. W. C. Cockburn, also of the Central Public Health Laboratory, Colindale, said that the batch in question was known as "309." Asked how it came about that only five children were inoculated from this particular batch, he said that that was just as it happened; there was only a small amount of serum available at the time. There was no selection about it. There was no reason to suspect any difference between this batch and other batches. The experience of the other children inoculated on the same day from the other batches presented nothing of significance. There was no reason to doubt that the syringes were perfectly sterilized.

Dr. R. A. Zeitlin said that the Blood Transfusion Department of the Central Laboratory had collected this serum from 60 normal adults. So far as was known there was nothing to arouse suspicion serologically. Among the 60 it had been discovered that five had had jaundice, but in all cases the attack took place very many years ago, far earlier than the beginning of any danger period. He agreed with the coroner that, lamentable as these three deaths were, the public danger, having in mind the large numbers continually served from his laboratory, was infinitesimal.

Dr. F. E. Camps said that the boy Taviner and the girl Hallett both showed at post-mortem examination a necrosis of the liver, which was rather less marked in the girl. Dr. Alfred Piney said that he had made a post-mortem examination of the boy Wood, and here too there could be no doubt that death was due to necrosis of the liver.

The coroner said that he was entirely satisfied from the evidence of Dr. Harrington, who gave the injections, and of Dr. Zeitlin, who was in charge of the laboratory from which the serum was obtained, that there was no obvious source of infection or anything of that kind. There was no sort of neglect or lack of care. In each case he returned a verdict of "Death by misadventure."

Universities and Colleges

UNIVERSITY OF LEEDS

The inaugural lecture of the Faculty of Medicine will be given in the Riley-Smith Hall of the University Union on Friday, October 7, at 3 p.m., by Professor John Cruickshank, C.B.E., M.D. His subject will be "Medicine, To-day and To-morrow." Members of the medical profession are invited.

UNIVERSITY OF SHEFFIELD

Mr. E. F. Finch, M.D., M.S., F.R.C.S., vice-president of the Royal College of Surgeons of England, will deliver the opening sessional address of the Faculty of Medicine in the Firth Hall of the University on Friday, October 21, at 5 p.m. His subject will be "The Evolution of Medical Education."

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended September 10. [No. 36

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	38	2	12	4	1	26	2	13	2	2
Deaths		—	2				—	—		
Diphtheria	66	9	21	—	4	136	15	60	5	3
Deaths	—	—	—	—	—	1	—	—	—	—
Dysentery	59	5	92	—	3	84	12	53	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	2	—	2	—	—	2	—	—	—	—
Deaths							—			
Erysipelas			33	5	5			27	9	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				139					46	
Deaths	31	3	9	7	5	26	2	14	2	1
Measles*	875	66	43	22	43	2,608	88	35	28	34
Deaths†			—	—	—			—	—	—
Ophthalmia neonatorum	38	2	5	—	—	53	2	9	—	—
Deaths										
Paratyphoid fever	20	—	1 (B)	4 (B)	—	32	2	3 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	205	9	5	—	1	261	11	—	2	2
Deaths (from influenza)‡	—	—	—	—	—	3	—	1	—	—
Pneumonia, primary			109	5				121	14	
Deaths	99	12		6	4	130	21		8	4
Polio-encephalitis, acute	22	4				4	1			
Deaths										
Poliomyelitis, acute	284	27	7	—	4	72	7	3	2	—
Deaths§	16	1				3	—			
Puerperal fever		—	5				—	10		—
Deaths										
Puerperal pyrexia‖	103	8	1	—	3	79	10	12	—	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	729	66	137	88	69	833	61	197	55	29
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	3	—	4	5	—	28	1	13	2	1
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,228	60	62	87	71	2,877	229	110	58	11
Deaths	7	—	—	—	1	10	1	—	—	—
Deaths (0–1 year)	221	27	37	29	10	260	32	52	26	10
Deaths (excluding stillbirths)	3,862	597	496	149	103	3,840	578	527	177	103
Annual death rate (per 1,000 persons living)			9·9	9·2				10·6	11·1	
Live births	7,208	1223	832	409	190	7,565	1157	834	450	207
Annual rate per 1,000 persons living			16·7	25·3				16·8	28·1	
Stillbirths	173	19	29			185	25	33		
Rate per 1,000 total births (including stillborn)			34					38		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

The total number of notifications in the week ended September 17 was: poliomyelitis 311 (284), polio-encephalitis 31 (22). Figures for the previous week are shown in parentheses. These are the highest recorded this year.

Multiple cases (poliomyelitis and polio-encephalitis together) were reported from the following counties: London 41 (31), Berkshire 7 (4), Chester 4 (6), Cornwall 10 (3), Devon 5 (5), Dorset 3 (5), Durham 7 (7), Essex 18 (16), Gloucester 15 (10), Hertford 4 (5), Kent 16 (9), Lancaster 29 (38), Leicester 13 (7), Lincolnshire, Kesteven 5 (2), Lincolnshire, Lindsey 7 (1), Middlesex 25 (19), Norfolk 3 (1), Northampton 3 (1), Northumberland 10 (8), Nottingham 11 (16), Somerset 8 (3), Southampton 10 (15), Stafford 3 (4), Surrey 14 (9), East Sussex 2 (4), Warwick 10 (10), Wiltshire 6 (8), Yorks East Riding 5 (4), Yorks North Riding 2 (1), Yorks West Riding 33 (25), Glamorgan 3 (7).

In 1947 the total figures for the corresponding week were poliomyelitis 572, polio-encephalitis 42. In 1947 this was the week in which the fall in notifications began.

Discussion of Table

In *England and Wales* there was a decrease in the notifications of whooping-cough 387, measles 293, and dysentery 39, while the largest increase was in the incidence of scarlet fever 28.

The fall in the incidence of whooping-cough was contributed by a few areas, notably Lancashire 60, Middlesex 55, Yorkshire West Riding 39, Northamptonshire 39, and Lincolnshire 23. In most areas there was a fall in the incidence of measles, and for the first time since the beginning of 1946 notifications fell below 1,000 a week. No variations of any size occurred in the local trends of scarlet fever. About one-third of the total cases of scarlet fever were notified in three areas—London, Lancashire, and Yorkshire.

Notifications of diphtheria were 13 more than in the preceding week. The largest increases were Staffordshire 6 and Lancashire 5; London 9 and Liverpool 8 accounted for one-quarter of the total notifications of diphtheria.

Of the 20 cases of paratyphoid fever 10 were notified in the county boroughs of Lancashire. A further 11 cases of dysentery were notified in Northumberland, Gosforth U.D., where 21 cases were notified in the preceding week. In Liverpool C.B. 9 cases of cerebrospinal fever, one-quarter of the total cases, were notified.

Notifications of food-poisoning came from London 32 (Islington 12); Essex 63 (Southend-on-Sea C.B. 33, Ilford M.B. 14); and Gloucestershire 20 (North Cotswold R.D. 11).

In *Scotland* there was an increase in the notifications of dysentery 17 and scarlet fever 10, with a decrease in the incidence of whooping-cough 10. An outbreak of dysentery with 13 notifications occurred in Stirling county; other centres of infection were Glasgow 59 and Edinburgh 8. In Glasgow the notifications of scarlet fever rose from 28 to 43.

In *Eire* there was a rise in the notifications of whooping-cough 26 and scarlet fever 19, with a decrease of 20 in the notifications of diarrhoea and enteritis. The incidence of diarrhoea and enteritis remained high in Dublin C.B., with 115 notifications.

In *Northern Ireland* an increase was reported in the notifications of measles 23 and scarlet fever 18.

Quarterly Return for Scotland

The birth rate during the June quarter was 19.7 per 1,000, and was 0.7 below the average of the five preceding second quarters. The infant mortality rate was 36 per 1,000 registered live births, being 15 below the five years' average and the lowest rate ever recorded for any quarter in Scotland. The general death rate was 11.8 per 1,000 and was 0.1 below the five years' average. The death rate from all forms of tuberculosis was 69 per 100,000, and from respiratory tuberculosis 60; these rates were respectively 15 and 11 below the rate for the second quarter of 1948 and 13 and 3 below the five years' average. Deaths attributed to the principal epidemic diseases numbered 111, being 39 more than in the second quarter of 1948. These deaths include 62 from influenza, 25 from whooping-cough, 11 from cerebrospinal fever, and 9 from measles. Deaths from violence numbered 662, and were 74 more than in the second quarter of 1948, although deaths attributed to road accidents declined by 7.

Week Ending September 17

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 942, whooping-cough 1,180, diphtheria 78, measles 688, acute pneumonia 211, cerebrospinal fever 34, acute poliomyelitis 311, acute polio-encephalitis 31, dysentery 86, paratyphoid fever 18, typhoid fever 4, food-poisoning 267.

Medical News

Barrow-in-Furness Clinical Society

Meetings of this society, which lapsed during the war, are to be held again. The society intends to meet at 8 p.m. on the fourth Tuesday in each month from October to March inclusive, usually at the Orthopaedic Clinic, North Lonsdale Hospital. The subscription is 5s. a year. Particulars may be obtained from the secretary, Dr. John Fawcitt, Fountain Street House, Ulverston, Lancs.

Smoke Abatement

The Public Health (Smoke Abatement) Act, 1926, empowers the Minister of Health to make orders extending the provisions of the Alkali, etc., Works Regulation Act, 1906. Orders have been issued at various times extending the list of noxious or offensive gases mentioned in the Act of 1906, and extending the list of scheduled works requiring registration under the Act. A draft Order has now been prepared further extending the list of gases and works. A public inquiry will be held into the subject matter of the draft Order at the offices of the Ministry of Health, Caxton Hall East, Tothill Street, London, S.W.1, on October 18 at 2.30 p.m. It will be open to the Press, and any interested person may attend and give evidence. Copies of the draft order may be seen at the Ministry of Health, Whitehall, or purchased either directly or through any bookseller from H.M. Stationery Office.

Société d'Hématologie

At the recent meeting of the Société Internationale Européenne d'Hématologie, held at Montreux, Dr. A. Piney was elected vice-president of the society.

Lead Nipple Shields

The Ministry of Health has informed executive councils of evidence that lead encephalopathy in babies has been caused by mothers using lead nipple shields. A notice on the subject is being sent to medical practitioners and chemists, and the entry in the Third Schedule of the General Medical and Pharmaceutical Services Regulations, 1948, will be amended as soon as practicable to exclude lead nipple shields.

Contaminated Milk

The powers of local authorities and medical officers of health are extended under the Food and Drugs (Milk and Dairies) Act, 1944, which comes into operation on October 1 of this year, and its subordinate legislation. The supply of milk may now be stopped in respect of any disease communicable to man by consumption of milk; the powers formerly extended only to infection with notifiable disease, including dysentery.

Wills

Dr. William James Bennett-Jones, formerly consulting anaesthetist to the Royal Liverpool United Hospital, left £6,860. Dr. Graham Lionel John Wilson, of Teddington, Middlesex, left £20,347; Dr. Henry Winstanley, of Billinge Higher End, near Wigan, £18,695; Surgeon Commander Albert Brooke-Bateman, R.N., £1,854; and Dr. Haldinstein David Haldin-Davis £36,882.

COMING EVENTS

Hunterian Society

The Hunterian Society has arranged a party to be held at Gunter's, 6, Stanhope Gate, London, W., on Thursday, October 6, at which there will be an exhibition of the society's history and relics of John Hunter, together with an important series of legal documents relating to his life and of his little-known son, J. B. Hunter, which has recently come into the possession of the society.

Lectures: The Design of Experiment

The Oil and Colour Chemists' Association (Aldwych House, Aldwych, London, W.C.2) has arranged three postgraduate lectures on "The Design of Experiment—The Development of Experimental Methods and Theoretical Ideas in a Field of Research" to be given by Professor M. G. Evans, D.Sc., F.R.S., at the Royal Institution, 21, Albemarle Street, London, W., on Thursdays, October 6, 13, and 20, at 6.30 p.m. The inclusive charge for the course to members and visitors is 10s., and applications for tickets should be sent in advance to John Hannaford, secretary and treasurer, at the above address. Admission to junior members is free of charge, but those interested must apply for complimentary tickets.

Royal Dental Hospital of London

The prize distribution and conversazione of the Royal Dental Hospital of London School of Dental Surgery (University of London) will be held at the Royal Dental Hospital, 32, Leicester Square, London, W.C., on Friday, October 7, at 8 p.m.

Birmingham Regional Consultants Committee

The Birmingham Regional Consultants and Specialists Committee will hold a meeting at the Queen Elizabeth Hospital on October 11 at 5.15 p.m. Items on the agenda include reconstitution of the committee and grading. Members are asked to obtain from their groups information about these subjects.

National Society of Children's Nurseries

A conference on "The Training and Examination of the Nursery Nurse as seen in 1949" has been arranged by the National Society of Children's Nurseries (Norfolk House, Norfolk Street, Strand, London, W.C.2), to be held at County Hall, Westminster Bridge, London, S.E., on Friday, October 14, from 11 a.m. to 5 p.m. The speakers will be Sir Allen Daley, M.D., F.R.C.P., K.H.P., Dr. Ruby N. E. Pike, Miss Hilda Hincks, Mr. H. W. Brand, Miss D. E. Harvie, Miss H. Howse, Mrs. A. Creech Jones, and Mr. J. H. Lloyd. Tickets of admission may be obtained from the honorary secretary of the society at the above address.

Royal Institute of Public Health and Hygiene

A series of lectures will be given at the Royal Institute of Public Health and Hygiene, 28, Portland Place, London, W., on Wednesdays, at 3.30 p.m., from October 19 to November 30. Details will be published in the diary column week by week. Admission to the lectures is free, without ticket.

The Tutor in the N.H.S.

A conference on "The Tutor in the National Health Service" will be held at the Royal College of Nursing, Henrietta Place, Cavendish Square, London, W., on Monday, Tuesday, and Wednesday, November 14, 15, and 16. Tickets of admission may be obtained from the conference secretary of the College at the above address before October 15.

SOCIETIES AND LECTURES

Saturday

ST. STEPHEN'S HOSPITAL (RHEUMATISM UNIT), 369, Fulham Road, London, S.W.—October 1, 10 a.m., "*Some Social and Economic Aspects of the Chronic Rheumatic Diseases*," introductory address by Sir Ernest Rock Carling; 11 a.m., "*Some Modern Aetiological Concepts and Clinical Variants of Rheumatic Joint Diseases*," by Dr. Philip Ellman; 12 noon, "*The Management of the Rheumatoid and Osteoarthritis Types of Chronic Arthritis*," by Dr. Francis Bach; 2 p.m., "*Ward Round and Demonstration of Methods of Physical Treatment Injection and Plaster Technique*," by Dr. Francis Bach and medical registrars; 3 p.m., "*Social Welfare, Dietetics, Occupational Therapy, and Vocational Guidance*," by Dr. Francis Bach and members of the staff of Rheumatism Unit; 4.15 p.m., "*Clinical Pathology in Gout and the Rheumatic Diseases*," by Dr. A. G. Signy; 5.15 p.m., "*The Radiological Diagnosis of the Rheumatic Diseases*," lantern lecture by Dr. Grace Batten.

Sunday

ST. STEPHEN'S HOSPITAL (RHEUMATISM UNIT), 369, Fulham Road, London, S.W.—October 2, 10 a.m., Ward Round with Demonstration of cases by Dr. Philip Ellman and medical registrars; 11.15 p.m., (1) "*The Non-Rheumatic Arthritides and Allied Lesions in General Medicine*," (2) '*Use and Abuse of Drugs in the Rheumatic Diseases*," lectures by Dr. Philip Ellman; 2 p.m., "*Orthopaedic Aspects of Rheumatic Disease and the Prevention and Treatment of Deformities*," by Mr. Timbrell Fisher; Demonstration of cases and treatment by manipulation (if cases are available), by Mr. Timbrell Fisher and medical registrars; 3.30 p.m., "*Radiotherapy in the Treatment of the Rheumatic Diseases*," by Dr. Jackson Richmond; 4.30 p.m., "*Pain—'Neuritic and Referred,'*" by Dr. C. Worster-Drought; 5.15 p.m., "*Psychogenic Rheumatism*," by Dr. David Shaw.

Monday

INSTITUTE OF LARYNGOLOGY AND OTOLOGY, 330, Gray's Inn Road, London, W.C.—October 3, 2.30 p.m., "*The Treatment of Facial Paralysis*," by Miss D. J. Collier.

Tuesday

CHADWICK TRUST.—At the Art Gallery, New Walk, Leicester, October 4, 4.30 p.m., "*Public Opinion and Public Health in the Age of Chadwick*," Chadwick Public Lecture by Mr. Asa Briggs.

INSTITUTE OF OBSTETRICS AND GYNAECOLOGY.—At Postgraduate Medical School of London, Ducane Road, W., October 4, 3 p.m., "*Tuberculosis in Pregnancy*," by Dr. R. C. Cohen.

Wednesday

GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY.—October 5, 8 p.m., "*Biochemical Aspects of Methanol Poisoning*," by Dr. G. Leaf.

Thursday

FACULTY OF HOMOEOPATHY.—At Royal London Homoeopathic Hospital, Great Ormond Street, London, W.C., October 6, 5 p.m., "*The Place of Homoeopathy in Modern Medicine*," presidential address by Dr. Margery G. Blackie; "*Present State of Homoeopathy in America*," by Dr. Viola M. Frymann.

LONDON COUNTY MEDICAL SOCIETY.—At St. Andrew's Hospital, Bow, E., October 6, 3 p.m., clinical meeting.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—October 6, 4.30 p.m., lecture-demonstration: "*Neurology*," by Dr. A. Feiling.

Friday

KETTLE MEMORIAL TRUST.—At Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C., October 7, 5 p.m., "*The Significance of Functional Differentiation in Mammary Tumours*," Fifth Kettle Memorial Lecture by Dr. Beatrice Pullinger.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Benstead.—On September 16, 1949, at the Duke of York Home, Bradford, to Nancy Benstead, M.B., B.S., wife of J. G. Benstead, M.A., M.B., B.Chir., a daughter—Ursula Kathryn.

Holman.—On September 15, 1949, at Leeds, to Dorothy (née McNeill), wife of Dr. R. A. Holman, a son.

Lake.—On September 19, 1949, at "Fernwood," Newcastle-upon-Tyne, to Barbara (née Ivey), wife of Leonard H. Lake, M.B., B.S., D.O.M.S., 24, Eslington Terrace, Newcastle-upon-Tyne, a brother for Janet and John.

Leech.—On September 12, 1949, at Adrienne House, Axminster, Devon, to the wife of Dr. K. W. Leech, a son.

Waugh.—On September 16, 1949, in London, to Janet (née McDowall), wife of William Waugh, F.R.C.S., a daughter.

MARRIAGE

Backhouse—Izard.—On September 3, 1949, at the Christian Fellowship Centre, Honor Oak, London, S.E., Henry Lewis Backhouse, B.M.(Oxon), to Ruth Minifreda Izard.

DEATHS

Blair.—On September 20, 1949, at 5, St. John's Wood Road, London, N.W., George MacLellan Blair, M.B., Ch.B., aged 74.

Field.—On September 21, 1949, Arthur Holmes Field, L.R.C.P.&S.Ed., L.R.F.P.S., of Bridlington, Yorks, aged 82.

Fox.—On September 20, 1949, Joseph Tylor Fox, M.D., D.P.M., aged 64.

Fraser.—On September 22, 1949, at 29, Crownhill Park, Torquay, Frank Fraser, M.D., of Moorgate, North Bovey, and formerly of Leigh, near Tonbridge, aged 92.

Glanville.—On September 15, 1949, at Margate, Ruby Ellen Glanville, M.B., B.S., of "Everest," Longdon Wood, Keston, Kent.

Hewitt.—On September 21, 1949, at Muchlarnick, Pelynt, Looe, Edmund Philip Hewitt, L.R.C.P.&S.Ed., Lieutenant-Colonel R.A.M.C., Ret.

Sutcliffe.—On September 18, 1949, at Smitterfield, near Stratford-on-Avon, Percy Temple Sutcliffe, M.B., B.Ch.

Thomson.—On September 20, 1949, William George Simpson Thomson, M.B., Ch.B., D.P.H., D.P.M., of Cheadle Royal, Cheadle, Cheshire, aged 58.

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T.A.B., Cholera, and Smallpox Vaccination

Q.—*What is the youngest age at which T.A.B., cholera, and smallpox vaccines can be inoculated in a country like Pakistan or during an epidemic? What dosage should be employed? If it is considered that children under 1 year of age should not be inoculated, would you please give the reason?*

A.—Enteric fever and cholera are very rare infections in infancy, and young children who become infected usually have mild attacks. The inoculation of infants under 1 year of age with T.A.B. or cholera vaccines is therefore not recommended. For children of 1–5 years, one-quarter to one-third of the adult dose is given, and for older children half the adult dose. Smallpox can be a severe infection in infancy, and in a country where this disease is still prevalent the bulk of infection falls on children under 5 years of age. The newborn infant usually derives some passive immunity from the mother through the placenta, and the best time to vaccinate is between 2 and 6 months of age (optimum 3–4 months).

Sensitization to Actinic Light

Q.—*For the third summer in succession the skin of a woman aged 42 has reacted rapidly and severely on exposure to sunlight. The affected areas do not become tanned but remain pink, and subcutaneous nodules develop. The patient was in the Engadine in 1939 and was often exposed to strong sunlight, but there was then no reaction. Is there any reason for this late development of sensitivity? I would be grateful for advice on preventive measures and treatment.*

A.—The development of sensitization to actinic light may arise at any age and for no obvious reason; sometimes there is a familial tendency. At times, however, it is an accompaniment of metabolic changes associated with a focus of infection or gastro-intestinal dysfunction, or with endocrine imbalance as at the menopause. A careful overhaul and the correction of any fault would be wise. The taking of drugs, such as sulphonamides, may determine the onset. In idiopathic cases ephedrine or antihistamines by mouth, or injections of a gold salt in small dosage, may help. Protective applications are, however, generally necessary, and there are many effective ones, including *para*-aminobenzoic acid, yellow paraffin, titanium dioxide, tannic acid, quinine hydrochloride, and ichthyol powder. *Para*-aminobenzoic acid 15% in a cold cream or emulsifying base is suitable, or equal parts of "siccolam," yellow soft paraffin, and Halden's emulsifying base.

Infection of Seminal Vesicles

Q. *What is the best method of treating a gonorrhoeal infection of 20 years' standing in a man aged 60? The focus is believed to be in the seminal vesicles. Massage, sulphonamides, penicillin, vaccines, etc., have been ineffective. Would vasotomy and injection of seminal vesicles be likely to be successful?*

A.—It is probable that the infection is no longer gonococcal, but that the condition is now due to other organisms; it might be well to have any urethral discharge and prostato-vesicular secretion expressed by massage examined bacteriologically with special reference to *Trichomonas vaginalis* and pleuropneumonia-like organisms. It would be unwise to try vasotomy in a patient aged 60 unless his condition is serious, and it is by no means certain that any benefit would accrue. Unless a specific organism is incriminated it would be better to try short-wave diathermy applied to the prostate and vesicles every few days. Aureomycin is well worth a trial if available. It is possible, of course, that the focus is in the urethra; this can be confirmed or excluded by urethroscopic examination.

Effect of Alcohol and Tobacco on Fertility

Q.—*Would you please advise me of the investigations carried out on the effect of smoking and of alcohol on fertility?*

A.—Repeated intoxication with alcohol has been shown to have a deleterious effect on spermatogenesis in rats (C. Lane Roberts and others, *Sterility and Impaired Fertility*, Hamish Hamilton Medical Books, London, 1948, 2nd ed.), but the writer has not seen any account of experimental work dealing with nicotine. In view of the known damage caused, mainly to the testes, by certain bacterial toxins and chemical agents, it is not unreasonable to assume that chronic alcoholism and excessive smoking might lower fertility, and many writers mention it as a possibility without producing evidence to support it. If these conditions ever have such an effect, it is likely to be difficult to prove it, because in practice they can rarely be separated from associated factors which might also lower fertility. For instance, excessive smoking and drinking tend to occur in individuals who are overworked or exposed to severe mental stress or who are leading an unnatural and unhealthy life in other respects. Again, even if fertility is lowered the effect might not be directly due to the action of alcohol and nicotine on the gonads—it might be accounted for by poor appetite and malnutrition, which are prevalent among heavy smokers and alcoholics. It may be added that, although certain individuals may be susceptible, everyday observation makes it clear that fertility often continues unimpaired despite such excesses.

NOTES AND COMMENTS

Antiseptics for Minor Dressings.—Dr. Rupert Palmer (Lydd, Kent) writes: In an answer to a question on "Antiseptics for Minor Dressings" appearing in your "Any Questions?" column (September 17, p. 661) the statement is made that "mercury perchloride is not bland; it is exceedingly toxic and should never be applied to the body except, possibly, to the intact skin." This is complete and utter nonsense. The late Mr. Percy Legge, a senior honorary surgeon to King's College Hospital, under whom I was trained, used perchloride in varying strengths as a routine dressing for all his cases. I never saw one "go septic" or give any trouble whatsoever. I myself have used for the past twelve years a solution of 10% sodii sulphas in 1 in 2,000 perchloride as a routine wet dressing for all kinds of wounds large and small, skin abrasions, discharging boils, etc., with unvarying success. I have never seen any untoward sign at any time.

Corrections

Dr. Geoffrey Bourne (London, W.1) writes: Owing to a typing omission in my letter (September 24, p. 704) to you on distinction awards the point of my quotation from Pasteur has been missed. What Pasteur said was, "Tout le monde politique est contre moi." The occasion for this remark was his attempt to fight against the false dogma of spontaneous generation, and in this fight he was almost isolated in his opposition to the Académie Française and all it stood for in the way of subservience to tradition.

Mr. L. Fatti (Johannesburg) writes: May I draw attention to a small point arising in the article on "Direct Inspection of Coarctation of the Aorta with a Thoracoscope," by Mr. J. R. Belcher and Dr. F. E. de W. Caley (*Journal*, August 6, p. 137)? A personal communication is attributed to me dated 1949, stating that I had used this procedure before performing Blalock's operation. I think an error in the date has been made, since I left England in February, 1948, for South Africa. I performed the manœuvre first in 1947, and referred to it frequently before leaving England. Since then I have used it with increasing frequency for refining the diagnosis in various types of abnormality of the heart and great vessels, including coarctation of the aorta. The procedure is here becoming part of the diagnostic armamentarium of these diseases. Publication of the method has been delayed until a variety of cases has been accumulated to demonstrate its different aspects and uses.

Messrs. Butterworth and Co., Ltd., the publishers of *Modern Trends in Diagnostic Radiology*, which was reviewed in the *Journal* of September 24 (p. 688), write: Unfortunately the last paragraph in the excellent review is liable to give readers the impression that they will be unable to obtain a copy until the "second edition" is available. This is not the case. We are not doing a second edition yet, and the reviewer must be referring to the second printing.

In Dr. B. G. Gretton-Watson's communication (September 17, p. 651) the letters D.P.H. appeared instead of C.P.H.

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SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY OCTOBER 1 1949

THE SECRETARY REPORTS

SENIOR HOSPITAL MEDICAL OFFICERS

It was clear from the discussion at last week's meeting of the Central Consultants and Specialists Committee that, although the process of reassessment has resulted in a certain amount of upgrading, a substantial volume of dissatisfaction still remains. The problem falls into two main parts: the first, the satisfactory grading of existing hospital staffs, and the second, the question of new appointments to the senior hospital medical officer grade in the future. The committee was told of what the Joint Committee had done and was doing to press for a further professional central review of the cases of dissatisfied practitioners by a committee of practitioners not involved in the earlier assessment or reassessment.

On the second point the Ministry invited the Joint Committee to submit some words to define the circumstances in which new appointments should be made to the grade, and the Ministry is now considering the Joint Committee's proposed definition. On the point of central appeal—generally regarded as the most satisfactory way of dealing with the dissatisfaction which undoubtedly exists—an alternative might be to bring forward and now to conduct the review which the Ministry has promised for two years' time. Incidentally, the grievance is not limited to senior hospital medical officers, for there are some members of hospital staffs put into the grade "General Practitioner (b)" who are pressing for the reconsideration of their grading.

Medical Superintendents of Fever Hospitals

The council of the Society of Medical Officers of Health at its meeting on September 16 discussed one matter on which it is wished to promulgate its advice immediately. This was the grading of medical officers of health who are part-time medical superintendents of infectious-disease hospitals and of some whole-time medical superintendents. It was learnt that many such officers have been offered by regional hospital boards the grading of senior hospital medical officer, and that their appeals against this grading have been rejected. It is the view of the society that medical officers with specialized knowledge of infectious diseases should be graded as consultants.

It is understood that these medical officers are being asked to sign contracts as senior hospital medical officers by October 1. The advice of the council of the society is that they should refuse to sign such contract until the question of grading has been further negotiated, but at the same time intimate their willingness to continue duty until the matter is satisfactorily settled.

General-practitioner Remuneration

General practitioners may be wondering why no announcement was made following the visit of a deputation from the General Medical Services Committee to the Ministry on Friday, September 23. The reason is that the time was almost wholly occupied in a critical examination of the Ministry's statistical document on general-practitioner remuneration. As a result of the meeting the Ministry is reconsidering the document, which will in due course—and it is hoped in an amended form—be published.

It is clearly desirable that any document purporting to inform the public and the profession of the earnings of general practitioners should be above criticism and free from errors or wishful thinking. It is perhaps unfortunate, as the dentists have found, that there is a tendency to seize upon a high income received by a single practitioner and to give it such publicity as to suggest that this is the usual income. Perhaps general practitioners will be spared from such misleading influences if it is appreciated that as soon as lists are brought down to the legally permitted maxima it will not be possible for a practitioner to receive a gross remuneration in excess of a multiple of 4,000 and the capitation fee locally payable, plus relatively small sums in respect of midwifery, immunization, notification fees, and what private practice there is.

It is perhaps not generally appreciated that the moneys paid by local executive councils to practitioners may bear no relationship to the sums actually received by the practitioner after the partnership deed has been put into operation. Everything is being done to secure the Ministry's reply to the representations of the General Medical Services Committee before the Conference of Local Medical Committees on October 27.

Civil Service Medical Officers

A Joint Committee, representative of the British Medical Association, the Institution of Professional Civil Servants, and the Medical Staff Association of the Ministry of Health, has made a claim to the Treasury for improvements in Civil Service salaries. The Joint Committee claims that Civil Service medical officers' salaries should be aligned with the recommendations of the Spens Report. A meeting took place with the Treasury some days ago, when the Joint Committee elaborated its claim.

The claim is:

Medical Officer, General Service Class: £1,380 (at age 32) × £60—£1,560 × £120—£2,300.

Medical Officer, Linked Departmental Class. £1 660 (at age 35) × £120—£2,300.

Grades above the basic, General and Linked Departmental Classes: Grade I, £2,750; Grade II, £3,000; Grade III, £3.500.

Chief Medical Officer, Ministry of Health: £5.000

Deputy Chief Medical Officers for Department of Health for Scotland and Ministry of Pensions: £3,000.

Central Consultants and Specialists Committee

The question has been asked whether the Central Consultants and Specialists Committee is representative of those not graded as consultants and specialists as well as of consultants and specialists themselves. The position is that the committee is to represent the interests of senior hospital medical officers, registrars, and medical superintendents. A group of registrars is being formed which will give them representation on the Central Committee, and registrar members of the regional committees will be invited to appoint an additional representative.

In addition senior hospital medical officers will be included in the electorate for the election of regional consultants committees. There will be an election of these regional committees after the issue of permanent contracts. They will be advised to co-opt to their membership a medical superintendent where the ordinary processes of election have not resulted in one being elected; that teaching and non-teaching institutions should be adequately represented; and to co-opt at their discretion representatives of whole-time local authority medical officers and, through the local medical committee, representatives of the general practitioners in the area.

WELFARE OF AGED AND DISABLED

REGISTRATION AND INSPECTION OF HOMES

Further important measures under the National Assistance Act, 1948, designed to protect the welfare of aged and disabled persons are to come into force on November 1. An Order fixing this date for the coming into operation of the sections dealing with the registration and inspection of disabled and old persons' homes by county and county borough councils has been made by the Minister of Health, who has also made detailed regulations.[1]

The Minister has also named July 1, 1950, as the date on and after which persons carrying on a home that is unregistered render themselves liable to penalties. The purpose of this deferment is to give proprietors of existing homes ample time to apply for registration and to afford the registration authorities sufficient time for dealing with the applications. Homes to which the regulations apply are defined in the Act as establishments the sole or main object of which is, or is held to be, the provision of accommodation, whether for reward or not, for persons who are blind, deaf, or dumb, or are otherwise substantially and permanently handicapped by illness, injury, or congenital deformity, and for the aged, or both.

The Act specifically excludes hospitals maintained in pursuance of an Act of Parliament; institutions for persons of unsound mind or certified or approved under the Mental Deficiency Acts; nursing-homes as defined in the Public Health Act, 1936; any voluntary home as defined in the Children and Young Persons Act, 1933; and any premises managed by a Government Department or local authority or body constituted by special Act of Parliament or incorporated by Royal Charter. The Minister also has power to exempt premises from registration by regulation, and he has granted exemption to any establishment held upon a charitable trust which is an endowment within the jurisdiction of the Charity Commissioners, provided it was being carried on before November 1 and provided only accommodation and not board was supplied for the residents. The primary object of this exemption is to enable almshouses to be carried on for the time being without registration.

It is not known how many premises in England and Wales are liable for registration and inspection, but it is believed to be several thousand. Detailed instructions about the registers to be kept have been sent to county and county borough councils, who will prepare forms for completion by proprietors. Full information will be available shortly at county and county borough council offices, and all persons who feel that their premises may be liable for registration are advised to inquire at the appropriate council office.

The decision whether to register a home or not rests with the appropriate local authority, but the Minister is advised that the expression "any establishment the sole or main object of which is, or is held to be, the provision of accommodation" would not include a private residence where, in order to augment his income, a householder advertised his willingness to care for, say, an elderly or disabled person or married couple. He is further advised that the expression would not include premises which could clearly be shown to be houses or flats occupied or intended to be occupied as separate dwellings by aged or disabled persons.

Grounds on which the registration authorities can refuse or cancel a registration are set out in the Act. There is machinery for an appeal against a decision through a court of summary jurisdiction, and there are also provisions to allow for the inspection of the register by members of the public. The penalties laid down in the Act for carrying on an unregistered home are a fine not exceeding £50 in the case of a first offence and in the case of a second or subsequent offence imprisonment for a term not exceeding three months, or a fine not exceeding £50, or both.

[1] *National Assistance (Registration of Homes) Regulations*, 1949 (S.I. 1949, No. 1622), H.M. Stationery Office, price 1d. or post free 2d.

MEDICAL PRACTICES COMMITTEE REPORT

The Medical Practices Committee has issued the following list of amendments to its report (*Supplement*, August 6, p. 70):

Schedule 1

Glamorganshire.—Neath should read Neath Municipal Borough.

Schedule 2
Counties

ADDITIONS

Glamorganshire.—Bishopston and Reynoldston (Gower Rural District); Rhiwbina and Whitchurch (Cardiff Rural District).
Cumberland.—Longtown District.
Devon and Exeter.—Chudleigh; Bampton; Ivybridge; Silverton; Ide; Topsham; Elburton; Oreston; Plympton.
Cornwall.—Calstock; Gunnislake.

DELETIONS

Lincolnshire (Lindsey).—Scartho.
Suffolk (East).—Great Horkesley.
Sussex (West).—Petworth.
Yorkshire (North Riding).—Ripon.
Devon and Exeter.—South Molton; Calstock; Gunnislake; Crownhill.

CORRECTIONS

Worcestershire.—Stourbridge-on-Severn should read Stourport-on-Severn.
Glamorganshire.—Neath should read Neath Rural District.

Schedule 3
Counties

ADDITIONS

Sussex (West).—Petworth.
Devon and Exeter.—Cullompton; Kingsteignton; South Molton.

DELETION

Cumberland.—Silloth.

Schedule 4
Counties

ADDITIONS

Carmarthenshire.—Pontyates; Trimsaran.
Glamorganshire.—Dinas Powis; Radyr.
Cumberland.—Silloth.
Devon and Exeter.—Roborough; Sampford Peverell; Bere Alston; Chagford; Memyock; Ipplepen; Torrington (Great); Whimple; Lewdown.

DELETION

Devon and Exeter.—Chudleigh.

TRAVELLING EXPENSES OF PATIENTS' RELATIVES

The Minister of Health has had his attention drawn to instances in which near relatives of a patient in a hospital at a considerable distance from home have found it difficult to afford the cost of visiting the patient. In the Minister's view, according to a recent circular, it would be open to a local health authority, within the scope of its arrangements under Section 28 of the National Health Service Act, to provide travel warrants where it is satisfied (1) that because of the length of the journey the relatives concerned are unable to afford it from their own resources without substantial hardship, and (2) that there is urgent reason for the visit because of the patient's serious condition, or that the visit would in medical opinion do the patient good and aid response to treatment—for example, in the case of a long-stay tuberculosis patient too far from home to be readily visited.

The local health authority will normally need to rely on information from the hospital concerned that the visit is necessary or expedient on medical grounds. This circular has therefore been brought to the notice of boards of governors of teaching hospitals and hospital management committees with a request that they will ask their medical staff to assist local health authorities in this matter.

The Railway Executive has granted facilities for return journeys at single fare for persons visiting long-stay patients in certain institutions (such as sanatoria or mental hospitals but not general hospitals) who obtain in advance an authorized

voucher from the hospital concerned. This concession will not apply where a local health authority accepts liability for travelling expenses in pursuance of the present circular, but an authority will doubtless take into account the availability of the concession (in cases in which it may be obtained) in determining whether or not the cost of the journey is within the means of the person who seeks the authority's assistance.

REGISTRATION OF OPTICIANS

COMMITTEE TO INVESTIGATE

The Minister of Health and the Secretary of State for Scotland have appointed a committee to advise, on the assumption that it would be to the public interest that provision should be made by legislation for the registration of opticians, how registration could best be carried out and what qualifications should be required as a condition of registration.

The members are: Lord Crook (chairman); Mr. W. B. Barker, F.B.O.A.; Mr. G. W. Black, F.R.C.S.; Mr. R. Champness, LL.M.; Dr. J. Corlett, M.P.; Dr. Macdonald Critchley, F.R.C.P.; Dr. C. A. Lovatt Evans, F.R.S.; Mr. S. W. Gerrie, F.S.M.C.; Mr. G. H. Giles, F.B.O.A.; Mr. C. H. Keeler, F.A.D.O.; Dr. J. Marshall, F.R.F.P.S.; Mr. L. C. Martin, D.Sc.; Mr. O. Gayer Morgan, F.R.C.S.; and Mr. A. Shanks.

Lord Crook, who was honorary secretary of the Labour Parliamentary Association from 1945 to 1947, is a member of the National Whitley Council for the Civil Service and of the Ministry of Labour Departmental Whitley Council of London.

HEALTH SERVICE NOT TO BE TOUCHED

Mr. Bevan said he had made up his mind that the National Health Service was not going to be touched, "and there is no disposition by the Government to touch it," when he spoke on devaluation at a Labour rally at Hednesford, Staffordshire, on September 25 (*The Times*, September 26). The Government had made up its mind, he added, to solve its problems without raiding the social services, and the Health Service was sacrosanct.

SOME HEALTH SERVICE PAYMENTS

According to information given in a report of the Lothians and Peebles area (*Observer*, September 25), an optician was paid £14,077 in the first year of the National Health Service. The average payment to doctors in the council's area was £2,483; the average to dentists, apart from those with only branch surgeries, was £4,455. The 45 opticians received £56,147.

Questions Answered

Wife Acting as Nurse-receptionist

Q.—*I have been paying my wife £350 per annum salary for her duties as nurse-receptionist, etc., in my practice, and I have been deducting P.A.Y.E. contributions. In consequence I have been stamping her National Insurance card with 7s. Id. stamps each week, but have now been informed that a wife cannot be under contract as an employee of her husband, and that therefore neither Class I nor Class II contributions should be paid.*

A.—It is laid down in the National Insurance Act that in no circumstances can a wife be employed by her husband and thus become a Class I contributor. In the case of a wife acting as nurse-receptionist for her husband, she has the choice of contributing in Class II or Class III. (See S.I.1425. Pt. 3B section 21.)

Class II (Self-employed persons).—She must work for more than 24 hours a week. Her contribution is 5s. Id. per week and she qualifies for sickness benefit and for retirement pension at the full rate of 26 shillings per week at the age of 60.

Class III (Non-employed persons).—Her contribution is 3s. 8d. per week and she qualifies only for retirement pension at the full rate at the age of 60.

Partnership Agreement

Q.—*I would like to know the action to be taken for a partnership agreement to become officially valid and operative.*

A.—It should be presented to the Medical Practices Committee, Devonshire House, London, W.1, for perusal. The Committee will, if it is satisfied with the terms, issue a certificate of approval.

HEARD AT HEADQUARTERS

Quite a Phenomenon

Mr. John W. McPherrin, who is the editor of the *American Druggist*, recently toured this country in order to study the workings of the National Health Service. He was granted an interview by the Minister of Health and immediately afterwards he wrote an account of his talk with Mr. Bevan. His report appears in the July issue of the *American Druggist*, from which the following is quoted:

"'Most people trust their individual doctors,' began the Minister. 'At least they trust them more than they do organized medicine, the associations of doctors. When a doctor becomes a member of an organized group something seems to happen to his thinking. Did you ever notice that? It is quite a phenomenon.

"'The mental change that comes over a doctor when he functions as a member of organized medicine is unbelievable. It ought to be the subject of psychological research. You know that organized medicine has always been arrogant, always on the defensive. What are these doctors afraid of? Maybe they have an inferiority complex of some kind. It is all very surprising, because, as individuals, doctors—most of them—enjoy the faith and confidence of the public.' That was not all that the Minister had to say about doctors, but it's enough to give an impression of his attitude."

Length of Curriculum

The World Medical Association has been ascertaining the standards of medical education in various countries, and its latest *Bulletin* contains a mass of information on this subject. One point only may be mentioned here: the considerable variation in the length of the medical curriculum in different countries. It is five years in Austria and Hungary; five and a half years in Czechoslovakia; six years in Australia, Bulgaria, Eire, Greece, Italy, Luxemburg, and New Zealand; six and a half years in Switzerland; seven years in Belgium, Norway, and Spain; seven and a half years in Holland, and over eight years in Denmark. In Canada, Sweden, and the United States the medical course is four or five years in length, but must be preceded by pre-medical or pre-science education for three to four years.

WORLD MEDICAL ASSOCIATION

The General Assembly of the World Medical Association is meeting at B.M.A. House between October 10 and 16. During that week there will be some dislocation of the ordinary routine at B.M.A. House, particularly in the service of lunch in the Members' Common Room. Members wishing to take lunch during the W.M.A. Meeting are asked to do so as early as possible—i.e., between 12 and 1.

GENERAL MEDICAL SERVICES COMMITTEE

SUPPLEMENTARY REPORT, 1948–9

Remuneration

The committee regrets that it is not yet in a position to make a statement to local medical committees on remuneration. The Ministry's report on its survey of moneys received by general practitioners from National Health Service sources during the first nine months of the Service was received on August 18 and was considered by the committee on August 31. The Ministry's calculations are being challenged, but owing to the absence on leave of the Ministry's financial advisers concerned in the preparation of the tables it was not possible to arrange a meeting earlier than September 23. No time will be lost in issuing a statement to local medical committees as soon as the situation permits.

Mileage

The information collected as a result of the inquiry referred to in the committee's report has now been examined by the committee after a detailed analysis had been made by the Rural Practitioners' Subcommittee. The conclusion reached is that the global sum of £2 million is adequate for Great Britain as a whole, but that the figures reveal discrepancies in some areas which indicate that the distribution of the Fund is urgently in need of revision.

The Ministry of Health is at present engaged in collecting data to be used as the basis of future distribution of the Central Fund between executive councils. Every executive council concerned with the payment of mileage has been asked to classify the practices in its area and submit returns showing the number of mileage units claimed, calculated on a uniform basis of one unit for each mile or part of a mile beyond two miles from the doctor's residence to the patient's address. Classification of practices is effected by dividing the total number of persons on the doctor's list by the total number of mileage units credited to him. Should this calculation result in a figure of less than 0.75 the practice would be classified as (A) rural; if between 0.75 and 2.5 classification would be (B) semi-rural; and if over 2.5 it would be (C) urban. The number of ordinary units credited to Class B practices are to be increased in executive councils' returns by 50%, in Class A practices by 100%, while Class C practices will not be "loaded." The Central Fund will then be divided on the basis of these returns.

The General Medical Services Committee's view is that each area should be free to distribute its share of the Central Mileage Fund in accordance with the wishes of the local doctors, having in mind the committee's recommendation that the following method of "loading" units is considered to be equitable:

Urban practices: 1 unit for each mile or part of a mile beyond two miles from the doctor's residence.

Semi-rural practices: 1½ units for each mile or part of a mile beyond two miles from the doctor's residence.

Rural practices: 2 units for each mile or part of a mile beyond two miles from the doctor's residence.

It is being recommended, on the advice of the Rural Practitioners' Subcommittee, that in addition to ordinary mileage, when walking is necessary under winter conditions, additional units over and above the actual mileage should be claimed on the basis of one unit for each quarter of a mile walked. The "loading" resulting from the classification of practices into urban, semi-rural, and rural would not apply to the extra payments for "walking" units.

The problem of specially difficult areas, such as particularly mountainous districts and islands off the coast, has been given careful consideration, a certain amount of information having been obtained from the areas concerned. It is proposed to ask local medical committees to supply detailed information of practices containing peculiar difficulties or hazards, which it is considered should be divided into two categories: (1) individual cases of isolated patients where an *ad hoc* payment from the Mileage Fund should be suggested in each instance; (2) practices where a doctor generally is faced with unusual difficulties, and where it would be appropriate that help should be forthcoming from the Special Inducement Fund.

The committee's attention was drawn to certain criticisms made that there had been lack of consultation with local medical committees. The committee feels that it is necessary to point out that any apparent lack of consultation was conditioned by the need to take some positive and speedy action. The urgency of the mileage question was constantly being stressed by rural practitioners. It should be emphasized that the scheme which is ultimately adopted must be reviewed in the light of experience, when all local medical committees will be invited to comment upon it.

Inflation of Doctors' Lists

By way of an experiment the Ministry of Health has arranged for a few executive councils to send to a number of persons whose identity numbers are not known a communication asking for those numbers. The reply is being prepaid, and if the result of the experiment shows that a measure of inflation has been eliminated general action on the same lines will be considered.

List of Appliances

It has been decided to ask the Ministry to add the following to the list of appliances which general practitioners may order for their patients: ligature material; male and female urinals; "lastonet."

"Covering" an Unqualified Practitioner

A comparison of the certification requirements of the old and new regulations has been made and, generally speaking, the changes appear to be to the advantage of the doctor. On the point at issue—that of "covering" an unqualified person by issuing certificates when the patient is under treatment by such a person—the committee's legal advisers take the view that a doctor in the Service is required, under the regulations, to issue Ministry of National Insurance certificates even though he may know that the patient is receiving treatment from an unqualified person.

The certification rules under the N.H.I. Act specifically absolved a doctor from any obligation to give a certificate to a patient whilst he was obtaining treatment "from any other person or from any hospital or institution," unless the treatment was being obtained on the instructions or with the consent of the doctor or under Ministry of Pensions arrangements. The National Insurance Certification Regulations, which embody the rules governing certification under the new Service, do not contain a similar provision. Parallel with this, the old rules provided that certificates were to be given "by medical practitioners *who are attending* insured persons." The absence of these words from the present rules makes the doctor's position in the matter of "covering" more uncertain, and the committee is asking for similar words to be inserted in the present certification regulations.

Local Medical Committees—Travelling Expenses

The committee wishes it to be known that the decision to assist local medical committees in meeting claims for travelling expenses for members attending meetings of those committees is not limited to Scottish local medical committees. It is recognized that there may be committees in England and Wales which are experiencing difficulty in this matter, and the decision may be taken to apply to any committee in Great Britain.

Special Inducement Fund

In discussions with the Ministry of Health soon after the National Health Service was introduced it was understood that, whilst the main purpose of the Special Inducement Fund was to help doctors practising in sparsely populated or otherwise unattractive areas, sympathetic consideration would also be given to applications from doctors who had suffered considerable reductions in income as the result of the introduction of the Service. There is evidence that applications under this last

heading from practitioners in adequately doctored areas are being refused, despite the fact that they have the support of the local medical committee. The G.M.S. Committee is again pressing for a widening of the scope of the Special Inducement Fund so as to include definite cases of hardship irrespective of the type of area in which the doctor is practising. Representations are also being made against the Ministry's action in reducing a grant to a partnership, consisting of a husband and wife who are both engaged in and necessary to the Service, on the ground that they can normally manage on a smaller joint income than two doctors living independently. There is no indication that a similar reduction is being made in the case of father and son in partnership.

Medical Examination of Hospital Staff

The committee is informed that fees for the medical examination of candidates for appointments in the National Health Service are payable by the appointing authority, and an instruction to this effect has been issued to hospital management committees (Circular H.M.C. (42) 2). Although this instruction relates to administrative staff, some of the rulings given in it, including that relating to medical examinations on appointment, are of general application throughout the Service.

It is understood that the maximum fee which hospital authorities are permitted to pay is one guinea, but the committee is pressing for a fee of not less than 25s., as agreed in the case of other Government Departments.

Emergency Treatment—Police Authorities

The committee has approved the draft of a letter to be issued by the Home Office for the guidance of police authorities in connexion with emergencies involving the services of general practitioners. Briefly, the advice about to be given is as follows:

1. Apart from road accidents in which a motor vehicle is involved, for which a fee is payable under the Road Traffic Act, a doctor in the National Health Service who is called to an emergency would claim an emergency fee from the local executive council. If the doctor is not in the Service the police would pay the doctor's fee and recover it from the patient if possible.

2. Attendance on a person detained in custody or attendance for the examination of a person for police purposes (e.g., to see if he is fit to be detained in a police cell) would be paid for out of the police fund.

3. For examination of a victim of an offence in connexion with which a criminal charge may be made the fee would be paid from the police fund.

4. Attendance on a person taken ill near a police station and taken into the station while the doctor is summoned would constitute an emergency under the National Health Service, a claim being made to the local executive council for the payment of the appropriate emergency fee.

5. A doctor called in by the police to examine a man charged with drunkenness or any other offence would be paid out of the police fund. If the person wished to be examined by his own doctor he would be responsible for the doctor's fee.

6. A doctor called in to give treatment to a person and finding, on arrival, that the person is dead would be entitled to an emergency fee from the local executive council. If summoned, however, to confirm, for police purposes, that a body is dead, or to furnish a report as to the nature of the deceased's injuries, or to give an opinion as to the cause of death, the doctor's fee would be paid from the police fund.

Pension and Insurance Scheme

The Pension and Insurance Scheme which was available for insurance practitioners and other members of the B.M.A. until December last has been revised by agreement with the insurance companies concerned. Like its predecessor, the revised scheme provides for pension, for family provision, and for disability. Full details will shortly be obtainable from the Medical Insurance Agency at B.M.A. House, Tavistock Square, London, W.C.1.

A supplementary scheme has been evolved which is likely to be of particular interest to practitioners in the National Health Service who are anxious to make adequate provision for their dependants, as well as possibly to augment their pension at retirement. The details of this supplementary scheme are almost complete, and it is hoped that the terms can be announced at the conference.

There have been inquiries for a pension and disablement policy to cover staff employed by doctors (dispensers, secretaries, etc.), and consideration is being given to the possibility of devising such a policy.

CONSULTANTS AND SPECIALISTS COMMITTEE

A FIGHTING FUND FOR CONSULTANTS

On being unanimously re-elected to the chair of the Central Consultants and Specialists Committee at its meeting on September 22, Mr. R. L. Newell said that he hoped the new session would not be as strenuous as the last. Nevertheless, there was still much important business for negotiation with the Minister.

The first matter considered was the setting up of an independent defence fund for hospital consultants, similar to the defence trust of the General Medical Services Committee. It was agreed that the scope of the fund should be inclusive of hospital medical staffs—namely, consultants, senior hospital medical officers, registrars, and junior hospital medical officers. With regard to the last two classes it was felt to be appropriate that to a fund organized for hospital staffs future members of such staffs should contribute. The object of the fund was defined as to assist, either directly or through the British Medical Guild, in defraying the expenses incurred in organizing or taking any action to protect the interests of those within its scope.

Contributions should be deducted at source by boards of governors, regional hospital boards, and hospital management committees, in the same way as general practitioners' contributions to their fund are deducted by executive councils. The initial target was felt to be difficult to fix, but a contribution at the rate of £1 per £500 gross income derived from hospital appointments was suggested. It was pointed out that much of the defensive work which would fall to such a fund would be on behalf of such private practice as remained, and under this arrangement the consultant with most private practice and least hospital work would subscribe least. It was hoped that those who were doing well in private practice would make additional voluntary contributions.

The fund is to be administered by the members of the Central Consultants and Specialists Committee as trustees.

Regional Consultants and Specialists Committees

The composition of regional committees, which has hitherto varied considerably, came forward in connexion with the re-election of such committees on the issue of permanent contracts. It was emphasized that regional committees were autonomous and local conditions vary greatly, but it was decided to advise regional committees to observe the following principles: that membership should be based upon the representation of consultants and senior hospital medical officers in each hospital group or groups aggregated for the purpose, and that the teaching interest should be not less than one-fifth of the total membership. It was also proposed that representatives of whole-time local authority medical officers and of general practitioners be co-opted at the committee's discretion. It was felt that medical superintendents should be represented, and that if a medical superintendent did not find his way on to the committee by ordinary election a representative should be co-opted. The chairman said that these were only suggestions to the regions, and that regional freedom would make for a good committee.

Special Distinction Awards

The committee considered a letter which had been received by the British Medical Association from the Advisory Committee on Distinction Awards, which is now collecting evidence on which to base its recommendations, asking for any assistance which the Association was able to give. The Central Committee had formulated last December a number of conditions concerning these awards. It was urged that the Central Committee should seek to define "merit," and it was agreed to refer the matter back to the Executive Committee with a view to a

more comprehensive report embodying some ideas on the issue of "merit." One member observed that eventually "the only criterion of merit will be that a consultant has stuck to medicine or surgery for ten years!"

Senior Hospital Medical Officers

On the grading of hospital medical staffs, one member said that grave injustices were being done to men who had long been recognized as consultants but who were still, after appeal, graded as senior hospital medical officers. Dr. Rowland Hill, chairman of the Executive Committee, said that the Ministry had given an unqualified guarantee that it was not its intention that the grade of S.H.M.O. should become a cheap form of specialist service. It had gone further and stated that it would like the Joint Committee to advise on the future field for the S.H.M.O., and had, so to speak, left the ball in their hands. The Joint Committee had formulated certain principles governing appointments, one of which was that where the trainee system was in full operation—that is, in general hospitals where registrars were included in the establishment—there should not be any S.H.M.O. at all.

One Scottish member said that what was really wanted was the co-ordination of regions, which had been carried out in one part of the country with success. The central appeals machinery should be confined to the broader issues instead of dealing with a queue of aggrieved individuals.

Resolutions from the South-Western Regional Committee, including a recommendation that the S.H.M.O. grade should be provisional until the position had been clarified, were accepted by the committee.

Terms and Conditions of Service

Dr. Rowland Hill, for the Executive Committee, reported that that committee had considered a circular issued by the Ministry interpreting various points concerning the services of hospital medical and dental staffs. The provision that a consultant appointed before the age of 30 could proceed automatically from the initial salary of £1,400 was considered to be to the advantage of the officer. It was satisfactory to note that the duties expected under the liability to deputize for absent colleagues were to be taken into account in the pre-contract assessment. Certain anomalies concerning locumtenent arrangements were pointed out.

The Executive Committee brought forward for approval two model forms—for patients in "ceiling" and "non-ceiling" beds respectively—whereby the patient undertook to pay professional charges as a private hospital patient. Dr. Rowland Hill mentioned the unfairness of the position whereby a private patient who, because no private bed was immediately available, was admitted as an emergency for a few hours to a public bed and was thereby prevented from being treated as a private patient.

The committee endorsed a resolution from the South-Western Regional Consultants and Specialists Committee calling for pressure to be maintained to secure a grant-in-aid towards accommodation in pay-beds, the present costs being both prohibitive and likely to destroy private practice altogether.

GENERAL MEDICAL SERVICES SUB-COMMITTEE (SCOTLAND)

The advisability of recommending an extension of the use of the Inducement Fund in Scotland was debated by the General Medical Services Subcommittee (Scotland) at B.M.A. House, Edinburgh, on September 13. The chairman, Dr. Knox, said that of the £200,000 available, only £12,000 had been used up to March—£10,000 in Scotland and the remainder in England. The unexpended money returned to the pool, and the question arose therefore whether there should not be a wider use of the fund.

Dr. Jope pointed out that the small use so far made of the fund was, partly at any rate, explained by the fact that applications had been coming in late. Retrospective adjustment would be necessary. It was important that any widening of the scope of application should not adversely affect the use of the fund for its original purpose, which particularly applied to conditions in Scotland.

Dr. Wilkie Millar (Edinburgh) explained that the purpose of the Inducement Fund was to induce practitioners to go to those areas in which there was not a sufficient population and to provide them with a satisfactory income from capitation and mileage payment. It was also intended to induce practitioners to take up practice in less desirable city areas. There was no suggestion in the rules or regulations that it could be used to make up a financial loss resulting from the introduction of the National Health Service; fixed annual payments were intended for that purpose. They had heard from the Department officials that the Ministry were firmly of opinion that a practitioner could not draw on the fund for loss of income under the Act. This was probably a correct interpretation as things stood, but if any change of policy in the use of the fund was deemed desirable there was nothing to prevent representation being made to the Ministry and the Department that a change should be made.

Several members complained that there appeared to be no consistency in the method of allocating the fund. Dr. Wilkie Millar replied that the Department used a formula in assessing applications. In the case of rejected claims applicants had the right, provided they submitted figures in support of their appeal, to submit that the formula used by the Department was unsuitable to their case, and they should certainly do so.

Dr. Grant (Glasgow) reminded members that many practitioners in the cities had suffered greater hardship as a result of the National Health Service than those in the rural areas. In Glasgow the average net income of practitioners was about £800 per annum. He supported a suggestion that claims should be considered on the basis of the return made to the income-tax authorities in respect of income from practice.

In reply to a question as to what yardstick was applied to applications, Dr. Wilkie Millar said that, generally, income of less than £1,000 net per annum became entitled to a contribution from the fund.

Dr. Anderson observed that that might operate unfairly, no credit being given to the older man in respect of his years of experience and commitments.

Dr. Wilkie Millar said that a formula was necessary, but it might be that the Department formula was a wrong one.

On the suggestion of the Scottish Secretary it was agreed to ask the chairman's subcommittee to prepare a memorandum on the subject.

Filling Vacancies

The committee then considered means of speeding up the filling of medical practice vacancies. The matter arose in a communication to the Secretary of the Scottish Health Services Council from the clerk to Glasgow Executive Council, stating that his council was seriously perturbed at the length of time taken to fill a vacancy on the medical list. It was evident, he had said, that in a number of practices the numbers on the list of the deceased doctor had seriously diminished by the time a successor took over the practice. This was accentuated where there was an appeal, and the Glasgow Executive Council requested the Scottish Health Services Council to consider the possibility of abolishing the right of appeal by a practitioner against another succeeding to the practice in cases where the local medical committee, the executive council, and the Scottish Medical Practices Committee had agreed on the successor. The chairman observed that such a procedure, if adopted, would certainly speed up the position. It would, of course, need an amendment to the Act.

In reply to a statement that in Ayrshire a joint subcommittee had been formed of members of the local medical committee and the executive council in the hope of speeding matters up, Dr. Wilkie Millar pointed out that, while such a subcommittee might well be formed, it could act not in an executive but merely in an advisory capacity.

An opinion was expressed that in many cases delay occurred where a locum was an applicant, but it was pointed out that to stipulate that locums must not be applicants would be unfair and might lead to extreme difficulty in finding locums.

A motion to support the Glasgow Executive Council's proposal was defeated by 12 votes to 6 in favour of an amendment moved by Dr. Wilkie Millar that the selection of a candidate to fill a vacancy should lie with the executive council, advised by the local medical committee, with the right of appeal to the Medical Practices Committee.

The committee also agreed that canvassing by applicants should be a disqualification and that petitions organized by local residents should be firmly discouraged. It was further decided to recommend that there should be facilities for exchange of practices and that executive councils should be empowered to disperse or allocate practices of 500 or less.

Travelling Expenses

It was stated that the General Medical Services Committee had resolved that, subject to legal advice that it is within the objects of the National Insurance Defence Trust, the trustees be recommended to make a grant to a Scottish local medical committee applying for financial assistance towards the travelling expenses of its members in cases where such expenses, together with the other local medical committee expenses, are in excess of the income from an annual levy of 1d. per patient on doctors' lists in the area.

Other Business

The committee accepted the proposal of the Department of Health that in certain specified areas in the Highlands and Islands general medical practitioners should receive an appropriate fee from the Dental Fund in respect of emergency dental treatment carried out by them.

Other decisions made were to form a Colliery Practitioners' Subcommittee to consider and advise on matters affecting practitioners with relation to the coal and shale mining industries in Scotland in respect of problems peculiar to these industries; to take up with the Department the difficulty entailed in travelling in certain rural areas for the issue of weekly certificates, and means of reducing inflation of doctors' lists.

It was agreed to ask the Consultants and Specialists Committee (Scotland) to take up the case of Nairn Hospital, where certain staff changes introduced by the Northern Regional Hospital Board have resulted in the exclusion of a number of general practitioners from the hospital.

Addressing the Society of Chiropodists at Edinburgh on September 22, Sir George Henderson, Secretary of the Department of Health for Scotland, said that chiropody, as a profession, had first been organized in this country in 1912, and shortly after that the first school of chiropody had been opened in London. The second had been the Edinburgh one, opened in 1924. There were now twelve schools recognized by the society, and about 600 students were in training. The Secretary of State for Scotland and the Minister of Health had no option but to consider as soon as possible what standard, duration, and type of training should be laid down as a yardstick of proficiency and accepted as the hallmark of the right to practise in a national service. The Ministers had set up a series of committees to consider these matters in relation to all the various branches of auxiliary workers and to advise them. One of those committees concerned the profession of chiropody. It was intended that the committees should consider the questions before them objectively from the national point of view. The Chiropody Committee had already had several meetings and was considering written evidence. He hoped to have its report reasonably soon. The Department had given advice to regional hospital boards to make adequate arrangements for a chiropody service in association with the hospital and specialist services. They hoped to develop a chiropody service in connexion with health centres; in the Department's first experimental centre, about to be built at Sighthill, a room was being specially earmarked for chiropody. Chiropody was now, or was about to be, a recognized form of treatment at many hospitals where it was not previously provided. The provision made by a hospital board usually meant that treatment was given at the hospital itself. But it was contemplated that where necessary, if recommended by the specialist, it could be given in the patient's own home by the hospital staff, and in addition arrangements for the employment of private chiropodis's were not precluded. The Service had had a particularly good start in Scotland because of the willing co-operation of four of the voluntary foot hospitals. They had come into the Service on their own initiative, and that had enabled the regional boards to use their premises and staff instead of having to start from scratch.

Correspondence

Payments by Patients

SIR,—On August 27 *The Times* published a leading article on "The General Practitioner," and on August 30 the same newspaper printed a letter from a doctor suggesting that the cost of the National Health Service might be lessened if patients paid a small tax to the chemist for each prescription. These publications might usefully be considered in conjunction with the statements made by the Ministry of Health in reply to the General Medical Services Committee on the subject of remuneration to general practitioners.

This vexed problem seems no nearer a solution. At a recent meeting of a local medical committee which I attended the view was expressed that it would be difficult to secure unanimity of action in any attempt to bring pressure upon the Minister to agree to an increased capitation fee. There has perhaps been insufficient recognition of the fact that the effect of the Act upon practitioners' incomes has been very unequal. It seems likely that some doctors are better off than before; it is equally certain that many have suffered loss. It is contrary to human nature for the former to take action in support of the latter, and thereby risk economic distress because of a dispute.

Doctors in some industrial and urban districts have not suffered financially if they have large lists. The recent increase in mileage allowance has improved the finances of practitioners in certain rural districts which are scantily populated and where patients live at great distances from their doctors; some of these are no worse—or even better—off than formerly. It pays them to have patients scattered over very wide areas; but their lives are harassed and their leisure practically *nil*. In one such district I know of, two doctors are engaged in their communal surgery for 3 to 3½ hours every morning, and then spend the whole day until nightfall on visits, taking a sandwich lunch in their cars and having no tea. This sort of life throughout the year is a poor return for an undiminished income.

The semi-rural practice, or country districts in which the bulk of the population live not more than two miles from the surgery, is in a different position. Their lists are limited by a comparatively small population, and the proportion of patients for whom mileage can be claimed is relatively small. There is no scope for increasing lists and incomes. Thus for most of their work they receive the minimum capitation payment, as does the town practitioner, but there simply are not enough residents to provide a similar income, while they have time-consuming long-distance work for a relatively small number of patients. In these districts the State practice is still subsidized by what remains of private practice. In one such practice, for example, if the whole of the population attended were State patients the gross receipts would now be only 60% of pre-1948 figures. Doubtless many such examples could be given.

The effect on these practices is not so much the loss sustained in the first year of the Service, but what it will become in the future. A certain proportion of elderly patients have remained private, but they are a steadily diminishing factor. Each quarter shows an increase in State lists and a smaller private list, and the fall in income from private patients is greater than the increase in executive council payments. This constitutes the greatest danger for many practices, to which, if we are to be fair, the Ministry's attention should be drawn. In a comparatively short time private practice in the country will be dead, and the income of the country doctor permanently lowered as we approach the 100% State practice. The loaded capitation fee thus seems to be the only reasonable assistance for the country or semi-rural practitioners.

On the other hand the economic situation provides a strong argument against any increased payments to doctors. But it is generally accepted that the Service is being grossly abused by increasing demands for attendances and the various additional benefits. It is obvious that the majority of patients could afford some contribution towards the cost of spectacles, dentures, and, in some cases, surgical appliances, as they did under the old N.H.I. Acts. If such a charge (e.g., £1 for a pair of spectacles

Is there any other section of the community in our Welfare State which remains on duty without overtime in order that patients may consult the doctor after their normal working hours? Is it consistent with the dignity of our profession that a patient should inform us that he desires this or that medicament and that if we refuse him he is able immediately to transfer his card and that of his family to a more accommodating doctor next door? Is it likely that sound and honest certification will be maintained with the system of immediate transfer, when the maintenance of a doctor's income depends on the kindliness of his certification?

I do not consider that the terms offered to our consultant colleagues are yet satisfactory, but none the less the relative values placed by the Ministry of Health on the two sections of the profession give food for serious thought. The consultant now receives reasonable remuneration for his hospital work, and in addition a fee of four guineas is granted for a domiciliary visit. It is estimated that a panel patient receives an average of seven services per year, which rates the practitioner's worth at about 2s. 6d. per service.

In the future I very much fear that general practice will be the field of the mediocre and unambitious and that only those will enter it who have failed to secure a preferable post in other spheres of medicine. In the past the good general practitioner felt himself pre-eminent in his own sphere and would not change his chosen vocation for any other branch of medicine. Under present conditions I cannot see that pride of place remaining.—I am, etc.,

Glasgow. IAN D. GRANT.

Insurance Contributions

SIR,—I read with interest the question entitled "Hospital Residents' Insurance Contributions" ("Questions Answered," *Supplement*, September 10, p. 132). I presume the ruling with regard to hospital residents applies equally to locums and public health employees temporarily unemployed.

As I understand your answer, an employed person who fulfils the requirements mentioned is exempt from payment of contributions, and is credited with one if he is capable of and available for work. Refusal to take work offered does not affect this. Also, he may draw unemployment benefit if he attends as instructed at the labour exchange. This is affected by his refusal to accept suitable employment. Can you say what is accepted as "suitable employment"?

I remember asking these questions when I first got my insurance card at the local labour exchange, and receiving the impression that, should I have the temerity to claim unemployment benefit, I would be offered a domestic or similar job at once, and if I failed to accept it would lose benefit and contribution.—I am, etc.,

Redcar, Yorks. MARGARET O. WILL.

Hypertrophy of the Appendix

SIR,—Dr. K. V. Deakin's statement (*Supplement*, August 27, p. 117) is, though not new, courageous and therefore most remarkable; for the facts mentioned are supposed to be common knowledge within the profession. What, however, the bulk of our profession does not perhaps realize is that practically everything attributed in the letter to the dental profession may as well apply, in one way or another, to all auxiliaries attached actively or passively to the medical profession in this country—i.e., from the dentist via the electrotherapeutist, nurse, hair-restorer, Indian eyesight restorer, health practitioner, chemist, herbalist, bone-setter, optician, ophthalmic optician, masseur, etc., etc.

They are all doing financially very well indeed with or without nationalization! No medical community in the world, perhaps with one or two exceptions, is faced with such an enormous army of auxiliaries created by the medical profession—*cui bono?*—and meant originally as an appendix to the profession. But I am sorry to say that few members of the profession do realize that the auxiliaries are no longer the appendix, as the medical profession is in imminent danger of becoming the appendix to the auxiliaries.—I am, etc.,

Accrington, Lancs. J. KATZ.

Inflation and Deflation

SIR,—In your note on inflation of doctors' lists (*Supplement*, August 27, p. 102) you make no mention of deflation of doctors' lists. To one who tries to be conscientious in keeping clinical records it is annoying to have to wait many months before medical history envelopes are received from executive councils. I recently sent a request to the executive council for all outstanding records of patients registering with me since July 5, 1948. (I keep a record of all Forms E.C.1 and E.C.4 which I sign.) Some records were outstanding for over a year.

The reply was disappointing. In some cases there was "*no* trace of this patient on the council's register." In others the patient was said to be "on the list of another doctor"; one such case was that of an infant whom I had delivered and whose parents had registered him with me only. I had treated all these patients, some for many months. We seem to have here an example of deflation of a doctor's list.—I am, etc.,

Torrington, N. Devon. C. F. R. BRIGGS.

His Own Doctor

SIR,—I should like to support Dr. A. D. Belilios's letter (*Supplement*, July 30, p. 68) in which he claims that doctors should have the right to prescribe for themselves. When the scheme came into force the Ministry of Health made great play that at no time would patients be directed to doctors. Surely this new regulation contradicts Mr. Bevan's statement.

As far as I am aware there is no ethical ruling that a doctor may not prescribe for himself. Why, then, should the Ministry decide otherwise? Perhaps, if this regulation is not resisted, it may mean the thin end of the wedge and very shortly doctors will be instructed what patients they should or should not have on their lists.

I think the medical profession as a whole should take a strong stand, otherwise who knows what may happen?—I am, etc.,

London, S.E.6. R. WIGODER.

Doctors and Dentists

SIR,—May I hasten to express to our dental correspondents (*Supplement*, September 10, p. 132) my regrets if I have in any way offended their susceptibilities. I hold the sister profession in high regard and agree whole-heartedly that the spirit of concord between the two professions is very desirable. I am in no way critical of the State payments to the dental profession. As they are the main beneficiaries of the scheme, I merely used their figures as a yardstick when comparing the payments to the doctors, and I was only quoting average payments, not individual. I was writing quite impersonally.

And yet in the midst of all this adverse criticism, in this their era of affluence, I failed to note one word of sympathetic reference in the dental criticism to the unfortunate position in which the medical profession finds itself to-day. In the Bolton figures recently published payments were: 50 dentists received £137,898=£2,760 average per annum; 35 ophthalmic practitioners and opticians received £72,795=£2,085 per annum: 55 chemists received £94,602=£1,720 per annum; and 106 doctors received £137,518=£1,301 per annum. The dentists and chemists would, of course, in addition derive considerable financial gain from their private practice. Medical private practice is, of course, practically eliminated.

These figures are more favourable to the doctors than the Manchester figures, which were: dentists, £3,400 per annum: doctors, £1,280 per annum. And yet 50 dentists are sharing more among themselves than 106 doctors, and are receiving individually over twice as much. Do our dental colleagues really believe that the doctors are adequately paid?

When the B.M.A. approach the Government with a plea for an increase of remuneration they are informed that there is no justification for an increase. It is apparently the policy of the powers that be, having got us down, to keep us down. How would our dental friends like to be in our shoes? Would they like to change places? Evidently we chose the wrong profession.—I am, etc.,

Manchester. K. V. DEAKIN.

Experiences of General Practice

SIR,—The practice, a partnership in an industrial town of 10,000 population and extending into country, covers an area of some 10 miles by 6 miles with an additional 5,000-odd rural population. There are seven doctors (in the town), of whom one is an assistant.

The whole population are N.H.S. units. The practice has 3,300 N.H.S. units, the writer's share being 1,600-odd units (i.e., 50% partnership). His total remuneration promises to be about £1,700. The figure embraces payments under N.H.S., including mileage, midwifery, life assurance examinations, Civil Service examinations, and salaries from hospital and clinic appointments.

During the summer and autumn months he has been seeing 60 patients per day (visits and consultations, approximately equal numbers) except on Sundays, when six is an average. Without taking peak periods into account this means 18,000 contacts per year, or a frequency of between 11 and 12 per patient. A similar amount of work in private practice would earn the writer about £4,500.

His average working day is 9 a.m. to 9 p.m. He manages to attend his meals with reasonable regularity, but, as is inevitable, there are additional emergency calls during the night, but not an unreasonable number.

Before the advent of the N.H.S. his gross earnings were about twice the amount quoted, £3,400, but in those days he provided a wide range of medical services now largely delegated to specialists. Nevertheless he is busier than in the old days.

His general deductions are that in the area every type of free facility is too fully utilized and often exploited. Sick workers are in no hurry to return to work, especially single ones (of both sexes). The injured are too "compensation conscious" and therefore difficult to rehabilitate. There is an extravagant use of medicines, dressings, and appliances. Any attempt on the part of the writer to counter these tendencies provokes the rejoinder, "If you don't, there are plenty of other doctors who will gladly," etc.

The overall tendency is therefore to reduce the standard of general practice to that prevailing in the large industrial practices. He finds it difficult to believe that under present conditions any doctor responsible for the medical care of over 2,000 units can maintain a high standard of practice.

Lest anyone might imagine that the writer lacks wide and varied experience, he gives the following data: G.P. experience 27 years—10 in England (large cities and rural), 10 years' "high-class practice," seven years in the present area. He is forced to the conclusion that the present system of remuneration is not conducive to the happiest results—i.e., uniform capitation irrespective of numbers or experience. Rising costs are inevitable as long as the doctor who refuses to acquiesce in the all-round exploitation does so at the risk of losing his practice and his living.—I am, etc.,

M.D.

Refusal of Partnership

SIR,—I hope that the leaders of our profession do not dismiss lightly letters written to the *British Medical Journal* by aggrieved experienced assistants. My own experience tallies with what has been recently written. Many principals, I am sure, are considerate employers, but that does not dispose of the underlying injustice whereby they are allowed to get a large amount of their work done by assistants at a relatively low cost to themselves. The end of buying and selling of practices is not the fault of assistants, and compensation will eventually be paid to principals. How, then, can the practice of making considerable profit out of an experienced assistant's work be justified? It implies that a principal can be twice paid for the loss of his goodwill. While such a loophole is legally permitted, junior partnerships will be scarce indeed.

The experienced assistant has no redress whatever if a principal for any or no reason at all refuses to offer the partnership which originally he held out as a goal to attract the best type of assistant. Dissatisfaction with the assistant's work is not by any means the sole reason for such a refusal, and often it is not a factor at all.

To become a principal other than through an assistantship-with-view is very difficult for the man without capital, and the B.M.A. is well aware of that but seems quite uninterested. Surely the B.M.A. represents all sections of the medical community, and if one section has, or even feels it has, a deep grievance it is the duty of the B.M.A. fearlessly to investigate that grievance. Refusal to do so will only lead to a grave lack of confidence in our Association, disunity in the profession, and finally a direct appeal to the Minister as the last hope of an ignored and unprivileged minority.—I am, etc.,

EXPERIENCED ASSISTANT.

Glasses in Three Weeks

SIR,—May I explain to Dr. Hardie what was in my mind when I wrote the letter published in the *Supplement* of August 27 (p. 119)? Perhaps I did not make myself clear.

The National Health Service promised a complete service to the poor. In this case a woman of quite limited means, who could not wait the stated 6–9 months for spectacles, had to pay £5 to obtain them in three weeks. Is there not something iniquitous in this? Let those who have the means buy anything they can, but a Government should not hold out hopes to the people which cannot be fulfilled. Does this latter not savour of vote-catching?—I am, etc.,

London, N.W.11. L. S. WOOLF.

Enforce Obedience

SIR,—It has been noted by many that the comradeship among general practitioners which developed at the time of the formulation of the Health Act has been cooling off. We seem to be slipping into the old ways and the old antagonisms. The handicap of this is that combined action is impossible, and we are now at the mercy of the interpreters of the Health Act and the formulators of its regulations. We can justly envy the tradesmen and artisans who are directed by their unions as to what to do and when to do it, with penalties against defectors.

It is time that our Association took upon itself the *right to enforce obedience*, time that we put medical policy on a national basis and authoritatively directed it. Then this fear that every one of us has that the black sheep will break up an agreed policy and ruin our chances of bettering our position will be dispelled.

When I brought up this matter at our local Divisional meeting it was suggested that the authority would grow to a tyranny. But surely in a democratically elected body this would never happen. There seems to be little tyranny in the artisans' trade unions.

However much we may yearn (to take three small instances) for less than a 24-hour day, for the confidence to refuse some certificates, or for more than a 4s. fee for a vaccination and inspection, we can do nothing to help ourselves so long as 10 or 20% of our number is satisfied (often because they happen to be more favourably placed financially) and cannot be compelled to follow the wishes of the majority.—I am, etc.,

Dungannon. CONN MCCLUSKEY.

N.H.S. Pros and Cons

SIR,—No doubt a flood of correspondence will appear in answer to Dr. J. S. Zidel's letter (*Supplement*, September 17, p. 138), its volume only limited by the lack of leisure between morning and evening surgeries. He has been lucky in his experiences of the N.H.S. and is to be congratulated on the numerous advantages over free general practice which he has noted. These advantages, however, are not clearly seen by many practitioners with whom I have discussed the Service, and I may be allowed to tabulate the answers to Dr. Zidel's list.

(1) Income may be secure—it would not be wise to be too sanguine on that point—but the doctors are certainly in the minority in the community in accepting more work for less pay.

(2) Expenses are not reduced in proportion to the reduction of income, and it is certainly necessary to have some form of clerical assistance if one is to preserve order in one's cards.

(3) Visits are more in number, and 60 miles a day is not at all out of the way for a country G.P. A single night call may involve 15–20 miles.

(4) Hours are certainly regular—perhaps 16 daily. Objection is made on the score of quantity, not regularity.

(5) One *is* harassed. Patients who were among the first to complete form E.C.1 are often too busy, or too snobbish, to attend as ordinary "surgery" patients, and want to use up a few minutes of that leisure between morning and evening surgery which Dr. Zidel has been so lucky in finding and which most of us find hardly adequate even for meals.

With all due respect to a visiting colleague, one can only assume that he saw all the good and none of the difficulties of N.H.S. practice. There has hardly been any of the summer falling-off in the work this year, and one hesitates to think of the volume of work which will come our way in the winter. The solution is easily written—more pay, more doctors. The difficulties have arisen simply because the Service was forced into being without due preparation, and surely the Minister of Health should be the first to realize that it is essential to lay the foundations and build the walls before putting on the roof.

However, we have our glorious Service, but, please, Dr. Zidel, don't tell us how lucky we are to be in this plight.—I am, etc.,

Spilsby, Lincs. C. E. FRISKNEY.

POINTS FROM LETTERS

A Medical Trade Union

Dr. W. WATSON NEWTON (Birmingham) writes: I warn all doctors that a medical trade union will bring all doctors within the control of one central organization which in its turn might, like so many other unions at home and abroad, be brought under political control for purposes far beyond the alleged benefit of practising doctors. I would advise all doctors to support the B.M.A.

Heading the Poll

Dr. LESLIE HARTLEY (Camberley, Surrey) writes: Socialists and Tories alike have claimed the credit for the success of our magnificent Health Service, at once the envy and admiration of every foreigner, but is not the credit really due to the Whigs?

Permanent Assistant

Dr. M. writes: . . . Many practitioners are now faced with doing assistants' jobs for many years—a grim prospect. But, since the profession has given up its freedom, even if an assistant is lucky enough to get a practice through the local executive council the chances are that the doctor has to live in some district in which prior to the scheme he would never have thought of settling. Again, if for family or health reasons he wants to move, he can't do so. . . . The outlook is certainly alarming for the young man, and while we hear that there are more doctors needed to work the scheme I fail to see why so many practitioners are doomed to an assistant's life, but it is so. . . .

H.M. Forces Appointments

REGULAR ARMY: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

Captain (now Major) W. S. Angus (now Regular Short Service Type "B"), to be Major.

Captain I. A. Jackson, M.B.E., to be Major.

Captain R. E. N. Tattersall has relinquished his commission, and has been granted the honorary rank of Major.

War Substantive Captains J. G. Guest and S. Graham have relinquished their commissions, and have been granted the honorary rank of Major.

COLONIAL MEDICAL SERVICE

The following appointments have been announced: F. C. Harris, M.R.C.S., and D. A. W. Nugent, M.D., D.P.H., Medical Officers, Gold Coast; Mrs. V. F. Wilkins, M.B., Lady Medical Officer, Nigeria; M. B. Wingate, M.B., Medical Officer, Northern Rhodesia; E. Gemmell, M.B., D.T.M.&H., Lady Medical Officer, Sarawak; K. N. H. Low, M.B., Medical Officer, British Guiana; W. J. M. Evans, M.B., D.P.H., Senior Medical Officer, Tanganyika; A. J. Johnson, M.B., D.T.M.&H., Senior Medical Officer, Sierra Leone; E. H. Murcott, M.D., D.P.H., Senior Medical Officer, Kenya; J. H. Taylor, M.B., Medical Officer, Kenya; G. Haridas, M.R.C.P., Physician, Government Hospital, Federation of Malaya; C. Subiahmanyam, Senior Pathologist, Federation of Malaya.

Association Notices

SIR CHARLES HASTINGS CLINICAL PRIZE

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of 50 guineas, is again open for competition. The following are the regulations governing the award:

1. The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research, and record in general practice.

2. Any member of the Association who is engaged in general practice is eligible to compete for the prize.

3. The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not be omitted when it bears directly on their results, their interpretations, and their conclusions.

4. Essays, or whatever form the candidate desires his work to take, must be sent to the British Medical Association House, Tavistock Square, London, W.C.1, not later than December 31, 1949. The prize will be awarded at the Annual General Meeting of the Association to be held in 1950.

5. No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. A prizewinner in any year is not eligible for a second award of the prize.

6. If any question arises in reference to the eligibility of the candidate or the admissibility of his or her essay the decision of the Council on any such point shall be final.

7. Preliminary notice of entry for this competition is required, on a form to be obtained from the Secretary.

8. Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

9. The writer of the essay to whom the prize is awarded may, on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate Section of the Annual Meeting of the Association.

10. Inquiries relative to the prize should be addressed to the Secretary.

Diary of Central Meetings

OCTOBER

4	Tues.	Committee on Relationship of Autonomous Bodies, 2 p.m.
5	Wed.	Joint Committee of British Medical Association and National Veterinary Medical Association, 2.30 p.m.
14	Fri.	Committee on Industrial Health Services in relation to the National Health Service, 2 p.m.
18	Tues.	Proprietary Medicines Committee, 11 a.m.
19	Wed.	Film Committee, 2.30 p.m.

NOVEMBER

3	Thurs.	Committee on Industrial Health Services in relation to the National Health Service, 2 p.m.

Branch and Division Meetings to be Held

BOURNEMOUTH DIVISION.—At Royal Victoria Hospital, Boscombe, Friday, October 7, 8.15 p.m. Dr. Raymond Greene: "Vulgar Errors in Endocrinology."

EAST HERTS DIVISION.—At County Hospital, Hertford, Thursday, October 6, 8.45 p.m. Inaugural address by Dr. D. W. James: "The General Practitioner and the Maternity Service." The address will be followed by opportunity for questions and discussion.

GOOLE AND SELBY DIVISION.—At The Lodge, Snaith, Thursday, October 6, 8.15 p.m. Discussion on "Some Problems of Child Health," to be opened by Dr. Walter Henderson. Preceded by supper at 7.30 p.m.

RICHMOND DIVISION.—At Station Hotel, Richmond, Friday, October 7, 9 p.m. Dr. Gerald Slot: "On Angina Pectoris." Preceded by dinner at 7.45 for 8 p.m.

SWANSEA DIVISION.—At Morriston Hospital, Swansea, Thursday, October 6, 7.30 p.m., opening meeting. Address by Mr. C. J. Cellan-Jones: "The Atom Bomb and Us."

BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 8 1949

FAT METABOLISM AND THE SPRUE SYNDROME*

BY

A. C. FRAZER, M.D., D.Sc., M.R.C.P.

Professor of Pharmacology, University of Birmingham

The sprue syndrome is characterized by a defect of fat absorption, commonly associated with diarrhoea, wasting, abdominal distension, the radiographic segmentation pattern of the small intestine, absence of the normal post-absorptive systemic hyperlipaemia, a flattened oral glucose-tolerance curve, anaemia, and certain vitamin deficiencies. Defective fat absorption may be regarded as an essential part of the sprue system by definition. The sprue syndrome may be taken to include non-tropical sprue (idiopathic steatorrhoea) (Thaysen, 1932), tropical sprue (Fairley, 1936), and the coeliac syndrome in children (Parsons, 1932). To these may perhaps be added some cases of gastro-colic fistula. Other cases of defective fat absorption (such as the post-gastrectomy syndrome, regional ileitis, chronic pancreatitis, or obstructive jaundice) are not usually associated with a sufficient number of the characteristic features of the sprue syndrome to warrant their inclusion in this group (see Table I).

Tropical sprue can occur in epidemic outbreaks involving groups of people living under similar environmental conditions—this was often observed during the last war in South-east Asia—non-tropical sprue and the coeliac syndrome, however, occur more or less sporadically, although several cases may occur in one family. With tropical sprue recovery is the rule; with non-tropical sprue and the coeliac syndrome complete recovery is relatively rare. The syndrome in its more chronic form can be divided into two main parts—a more or less constant group of signs and symptoms, including the fat-absorption defect, and a more variable element, subject to exacerbations from time to time, including severe diarrhoea with bulky fermenting stools, vitamin-B deficiencies, and haematological changes

TABLE I.—*Features of the Sprue Syndrome*

	Coeliac Syndrome	Non-tropical Sprue	Tropical Sprue	Gastro-colic Fistula	Post-gastrectomy Syndrome	Regional Ileitis	Obstructive Jaundice	Chronic Pancreatitis
Fat-absorption defect	+++	+++	+++	++	++	++	+++	+++
Proportionate defect	+++	+++	+++	?	—	—	—	?
Flat chylomicrograph	+++	+++	+++	++	—	—	(++)	(++)
Fine intraluminar emulsification	+++	+++	+++	++	?	+++	—	—
Radiographic "deficiency pattern"	+++	+++	+++	++	—	—	—	?
Flat oral glucose curve	++	++	++	—	—	—	?	—
Macrocytic anaemia	—	+++	+++	++	+	+	—	+?
Microcytic anaemia	+++	+	—	—	—	—	—	—
Iron deficiency	+++	+++	+++	?	—	—	?	—
Tetany: Low serum calcium	++	++	—	—	—	—	—	—
Low serum phospholipid	+++	+++	+++	?	—	—	++	++
Low serum cholesterol	+++	+++	+++	?	—	—	++	++
Signs of vitamin-B deficiencies	++	++	++	++	++	+	—	+

+++ Usually present. ++ Commonly present. + May be present. — Usually not present.

Certain differences can be observed between non-tropical and tropical sprue and the coeliac syndrome. The anaemia in the coeliac syndrome is usually microcytic, probably due to iron deficiency; an iron-deficient component is also commonly observed in the adult macrocytic anaemia. There may be several primary aetiological factors which can give rise to the sprue syndrome, and it is probable that different factors are operative in the three varieties of the syndrome under consideration.

*Read in opening a discussion at a joint meeting of the Sections of Pathology and Bacteriology and of Tropical Medicine at the Annual Meeting of the British Medical Association, Harrogate, 1949.

The Fat-absorption Defect in the Sprue Syndrome

1. Normal Fat Absorption in Man

Absorption from the intestine is conveniently considered in three phases: an intraluminar, a cellular, and a distributive phase. The absorption of fat must be studied both from a general point of view and in detail (Frazer, 1947a).

General Aspects of Fat Absorption.—The quantity of fat absorbed must be determined by the use of a fat-balance technique (Cooke *et al.*, 1946). More recently the method of de Kamer, Huinick, and Weyers (1949) has been successfully used. The criticisms of Annegers, Boutwell, and Ivy (1948) are not valid with regard to the use of these balance techniques for studies of defective fat absorption. The amount of fat ingested may be increased from 50 to 100 g. and the effect of this fat-loading of the diet determined quantitatively. The effect of different types of dietary fat can also be studied. In

addition to quantitative measurements, the characteristics of the faecal fat and the quantity of volatile short-chain fatty acids can also be determined. The results of observations made by these various methods in normal subjects are shown in Table II.

TABLE II.—*General Study of Fat Absorption*

	Normal	Sprue Syndrome
Fat-balance technique 5–12 day balance .. .. Daily fatty acid (de Kamer, 1949).. ..	> 95%	50–80%
Fat-loading tests 50 to 100 g.	Proportionate, 48–95 g.	Proportionate, 35–70 g.
Fat-assimilation test ..	Natural fats absorbed	Intolerance of saturated fats
Faecal fats	< 3 g. in 24 hr.	Neutral fat and fatty acid +++; 10–50 g. in 24 hr. High M.Wt. and M.P., low I.V.
	< 2 g. per 100 g. dried faeces	Volatile fatty acid +++ up to 8 g. per 100 g. dried faeces

Detailed Study of Fat Absorption.—The intraluminar phase of fat absorption can be studied by an intestinal intubation technique (Thompson, 1949). A Miller–Abbott tube is passed into the small intestine and samples of intestinal contents taken before and after the administration of fat. The material recovered is examined for the presence or absence of enzymes and other substances and the changes which the fat has undergone. The action of enzymes, the effect of added bile, and the presence of bacteria can also be investigated. The cellular phase can be studied only indirectly in man, and at present interpretation is difficult. Investigation of the distributive phase is confined to blood-fat studies. The results in normal subjects are shown in Table III.

TABLE III.—*Detailed Study of Fat Absorption*

	Normal	Sprue Syndome
Intraluminar phase: intubation technique		
Hydrolysis	10% or more	10% or more
Emulsification	Particle diameter < 0·5 μ	Apparently normal
Bile addition . ..	Enhances lipolysis only in resting samples	Enhances lipolysis in all samples
Enzymes	Lipase, trypsin, amylase, and lysozyme present. Lecithinase absent	Lipase, trypsin, and amylase present. Lysozyme? and lecithinase absent
Bacteria . ..	Absent, or small numbers only	Present in upper intestine in large numbers
Cellular phase: Blood biochemistry Phospholipid ..	About 250 mg./100 ml.	Low. 40–200 mg. (average 142 mg. in 60 estimations)
Cholesterol	About 250 mg./100 ml.	Low < 150 mg./100 ml.
Particulate absorption ..	Present	*No* systemic hyperlipaemia
Other absorption tests ..	Normal tolerance curve	Oral glucose-tolerance curve flattened
Effect of therapy ..	Nothing conclusive	
Distributive phase: Chylomicrographs ..	Normal peak 150 particles per field	Flat
Blood-fat curves	Normal peak 200 mg./100 ml. blood	,,

2. Fat Absorption in the Sprue Syndrome

The changes observed when using these methods for the study of fat absorption in the sprue syndrome are shown in Tables II and III.

General Aspects.—In the general study of fat absorption the characteristic changes in the sprue syndrome consisted of a fat-absorption defect, only 50–70% being absorbed. The fat-loading tests show that the defect was proportionate to the amount ingested. Thus, if 50 g. were administered and 35 g. absorbed, the administration of 100 g. resulted in the absorption of 70 g. or more. With regard to fat assimilation, fats containing a large quantity of long-chain saturated fatty acids were less well tolerated by sprue patients than by normal individuals. Patients suffering from the sprue syndrome tolerated milk and milk products better than mutton fat or beef fat. The faeces contained abnormal amounts of long-chain fatty acids up to 30 g. or more in 24 hours. The neutral fat was usually about 80% hydrolysed, and the fatty acids were often present as crystals and can be shown to have a high melting point, high molecular weight, and low iodine value (Parsons, 1932; de Kamer, 1949). Volatile short-chain fatty acids were often present in large quantities.

Detailed Study.—The detailed study of fat absorption showed differences from normal. Hydrolysis and initial emulsification in the upper part of the small intestine seemed to be within normal limits. Small but significant changes in emulsification may not be detected by this method; clear differences were found in cases of obstructive jaundice or chronic pancreatitis, in which emulsification was grossly defective. The addition of bile caused enhancement of lipolysis in all samples. The reason for this difference from normal is obscure. All the usual enzymes were present in approximately normal concentration, with the possible exception of lysozyme. Bacteria were present in large numbers in the upper intestine, especially in achlorhydric patients. The bacteria found were intestinal flora, which are normally confined to the lower part of the intestine.

With regard to the cellular and distributive phases, low blood phospholipid and cholesterol were usual. The oral glucose-tolerance curve was commonly depressed. There was no post-absorptive systemic hyperlipaemia following fat absorption, as shown by chylomicrographs and blood-fat curves.

Discussion

It is difficult to study the cellular phase of fat absorption in the human subject except by indirect methods. It is agreed by all workers that long-chain triglycerides can be observed as particles in the intestinal cell during absorption, and that these particles pass from the cell through the corium of the villus to the lacteal, and thence by the lymphatic route into the blood stream, giving rise to the normal post-absorptive systemic hyperlipaemia. There is evidence to support the view that these particles pass unhydrolysed, or partly hydrolysed, into the cell from the intestinal lumen, and that adequate emulsification, normal electrolyte absorption, and possibly phospholipid synthesis may influence this stage of particulate absorption (Frazer, 1948).

Alternatively, the triglycerides are resynthesized from fatty acids and glycerol inside the intestinal cell. The post-absorptive systemic hyperlipaemia is dependent upon normal particulate absorption. Absence of the normal hyperlipaemia might be due to interference either in the intraluminar or in the cellular phase, according to the partition theory (Frazer, 1946), but according to the lipolytic hypothesis (Verzar and McDougall, 1936) it must be due to faulty resynthesis in the cell. The effect of added lipase on the post-absorptive hyperlipaemia and the normal intestinal radiographic pattern during fat absorption in human subjects support the experimental evidence in animals upon which the partition theory is based. From either point of view, however, the absence of the post-absorptive systemic hyperlipaemia must be interpreted as evidence of defective absorption of triglycerides in particulate form.

It is concluded from the evidence presented that there is interference with particulate absorption in the sprue syndrome, and that larger quantities than normal of fatty acid are both absorbed and excreted. It is not possible at present to determine with certainty whether the interference with particulate absorption occurs in the intraluminar or in the cellular phase. The more unsaturated long-chain fatty acids appear to be absorbed, while the more saturated are excreted. This would account for the proportionate nature of the defect and for a number of secondary changes which will now be considered in detail.

The Effects of the Fat-absorption Defect in the Sprue Syndrome

Intestinal Mucin.—As a result of faulty particulate absorption, greater quantities of long-chain fatty acids occur in the intestinal lumen. Administration of long-chain fatty acids resulted in an increase of mucus in the intestinal lumen in normal human subjects and experimental animals, unsaturated fatty acids being more effective than saturated fatty acids. Mucus is an activator of lipolysis in the presence of bile salts. The administration of long-chain or short-chain fatty acids or hypertonic solutions induced the so-called radiographic "deficiency pattern" in normal human subjects. The changes observed were radiographically indistinguishable from those found in the sprue syndrome. The segmentation of the barium sulphate suspension was shown to be due to flocculation in the presence of mucus. The relative proportions of mucus to barium sulphate suspension were important (Frazer, French, and Thompson, 1949). There is little doubt that more mucin is present in the small intestine in a case of sprue than in a normal individual. Whether this is due to oversecretion, or whether lack of destruction of mucin may also be concerned, has not yet been determined. An increased quantity of long-chain fatty acids is at least partly responsible for the presence of excessive quantities of mucus.

Faecal Fat.—The amount of faecal fat was increased and the output of long-chain saturated fatty acids seemed to be selective and sometimes closely associated with mucin. Long-chain saturated fatty acids are not well absorbed by normal animals. The failure to absorb these fatty acids in sprue would account for the fact that the defect is proportionate and for the observation that sprue patients do not tolerate triglycerides containing much saturated fatty acid. The more unsaturated fatty acids are presumably absorbed, and, in accordance with observations in animals, they must be transported by an alternative route to the thoracic duct and thus do not give rise to a systemic hyperlipaemia. Long-chain fatty acids may cause irritation and diarrhoea, which can be controlled by the administration of calcium salts, which precipitate the long-chain fatty acids as insoluble soap. Excessive fatty acid formation might under certain circumstances be responsible for inadequate absorption of calcium and iron. The absorption of both calcium and iron is a complex question, however, and it is unlikely that any single factor accounts for their poor assimilation in the sprue syndrome.

Hypochlorhydria.—Administration of long-chain fatty acids will cause a decrease in gastric motility and gastric secretion, particularly certain long-chain unsaturated fatty acids. In the sprue syndrome decrease of gastric motility and acidity is marked. Hypochlorhydria is usual; achlorhydria may occur. The hypochlorhydria observed in sprue may be due to the absorption of abnormal quantities of long-chain fatty acids. Hypochlorhydria and large quantities of mucin in the intestinal lumen cause a relative fixation of *p*H, which, with decreased gastric and intestinal motility and interference with absorption, help to provide suitable conditions for increased growth of bacteria. Many intestinal bacteria can split triglycerides and may help in the hydrolysis of neutral fat to fatty acid, and they may also ferment starch. Starch fermentation may be pronounced in the sprue syndrome, giving rise to volatile short-chain fatty acids (acetic, propionic, and butyric) in large quantities in the faeces. These acids may be irritant to the intestine, giving rise to diarrhoea, which is not readily stopped by the administration of calcium salts.

Blood Biochemistry.—Certain changes in blood biochemistry were usually seen, particularly a decrease of phospholipid and of cholesterol in the blood. These changes might be due either to faulty absorption or to faulty synthesis. Particulate absorption may be closely related to absorption of phospholipid and to its synthesis in the intestinal cell. Cholesterol was also found to be associated with particulate fat in the chyle. However, the quantities involved were small and no close relation between blood phospholipid, cholesterol, and triglyceride was demonstrable during fat absorption (Frazer and Stewart, 1937). It seems likely, therefore, that the changes in blood phospholipid and cholesterol in sprue may also be related to decreased synthesis of these substances in the liver or elsewhere. There is no clear evidence at present to determine whether interference with synthesis or faulty absorption is the more important factor. Large quantities of long-chain fatty acids passing direct to the liver might modify liver function.

Discussion

The probable interrelationship of these various effects of abnormal fat absorption in the sprue syndrome is indicated in Fig. 1. Faulty particulate absorption of unhydrolysed

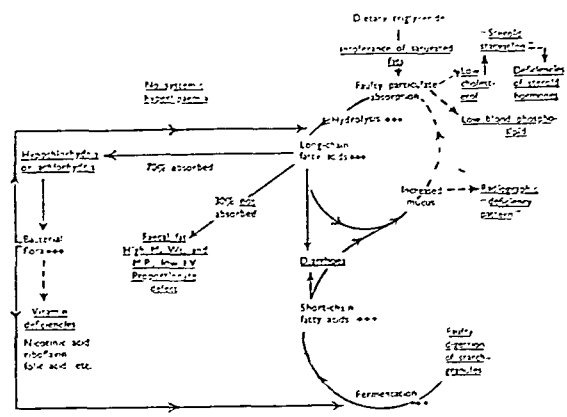


FIG. 1.—Fat-absorption defect in sprue syndrome. Continuous lines indicate points which have been demonstrated experimentally.

fat results in increased hydrolysis; the long-chain fatty acids formed are partly absorbed, causing increased mucus in the intestinal lumen; it is suggested that the excess mucus in the intestinal lumen may interfere with particulate absorption. The long-chain saturated fatty acids are not absorbed and passed out in the faeces. By taking this as the basic fault in the fat-absorption mechanism the main features of the sprue syndrome are readily explained. Thus the composition of dietary triglyceride, especially with regard to its saturated fatty acid content, will affect the sprue patient.

The absence of the systemic hyperlipaemia, although 70% of the fat is absorbed, the proportionate nature of the defect, and the occurrence of hypochlorhydria are explained on the basis of fatty acid absorption (Frazer, 1943). The failure to absorb the more saturated fatty acids is clearly shown by their appearance in the faeces. The existence of diarrhoea, which is only sometimes controlled by calcium, is due to the fact that it can be caused by long-chain fatty acids derived from fat breakdown or by short-chain fatty acids arising from starch fermentation.

The radiographic "deficiency pattern" has been shown to be due to flocculation of the barium sulphate suspension

with mucus. The changes in cholesterol and phospholipids may follow from failure of particulate absorption, or, alternatively, may be due to the effect of excessive amounts of long-chain fatty acids on liver function. Changes in steroid hormones and bile phospholipid may be secondary to the changes in blood cholesterol and phospholipid respectively. Symptoms can be aggravated in many cases of the coeliac syndrome by increasing the dietary starch (Parsons, 1932).

Relation of Fat-absorption Defect in the Sprue Syndrome to Multiple Actiological Factors

The relation of the fat-absorption defect in the sprue syndrome to possible aetiological factors is shown in Fig. 2.

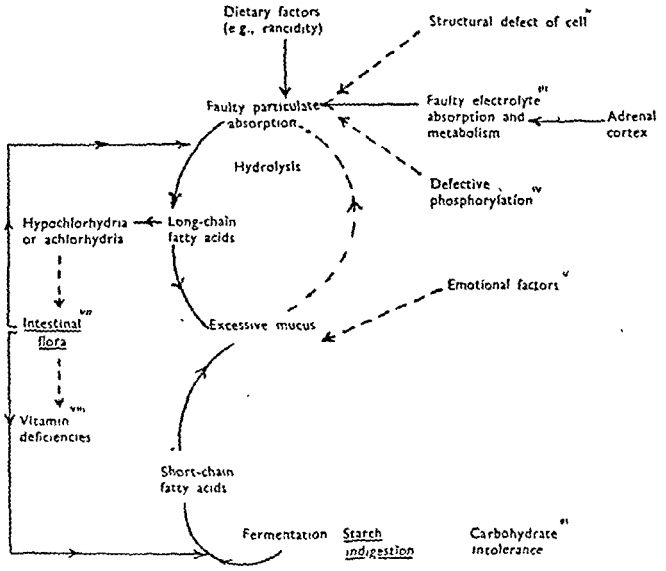


FIG. 2.—Fat-absorption defect in sprue syndrome in relation to aetiological factors.

Eight main causative factors of the sprue syndrome have been suggested, each of which will be considered briefly.

1. *Dietary Factors.*—The more saturated fats aggravate the fat-absorption defect. Special characteristics of the dietary fat, such as oxidative rancidity, may play some part in the aetiology of tropical sprue, especially when it occurs in groups of individuals under similar environmental conditions. Stannus (1942) suggested that dietary factors might have some causative role in tropical sprue. The inclusion of rancid fats in the diet causes diarrhoea, anaemia, and destruction of dietary vitamins (Whipple, 1932; Burr and Barnes, 1943; Györgi *et al.*, 1942). The possible significance of rancid dietary fats in the onset of tropical sprue in India was noted by J. M. French. It is unlikely that rancidity is a major aetiological factor in non-tropical sprue or in the coeliac syndrome in this country. Diarrhoea has been recently observed in infants in temperate climates receiving rancid cod-liver oil (Whipple, 1936). Rancid fats are readily hydrolysed, and the fatty acids liberated are irritant and are effective stimulants of mucus secretion. The effects of dietary fats and the products of rancidity on the fat-absorption mechanism are being investigated. Dietary factors may have some importance in the aetiology of tropical sprue.

2. *Structural Defect of the Intestinal Cell.*—It was suggested by Hurst (1941) that structural defects of the intestinal muscularis mucosa might be responsible for the fat-absorption defect in the sprue syndrome. Atrophic changes of the intestinal wall are not uncommon at necropsy. It is improbable that these changes are present in the many cases of tropical sprue which make a complete recovery. Secondary structural changes might perpetuate faulty particulate absorption and represent an irreversible stage of defective fat absorption in sprue cases of long standing.

3. *Disturbances of Electrolyte Metabolism (Adrenal Cortical Insufficiency).*—Adrenal cortical deficiency has been suggested as a primary aetiological factor in sprue (Verzar and Laszt, 1935), since it was thought to be necessary for phosphorylation and resynthesis of triglycerides. It has been established subsequently that the adrenal cortex does not affect phosphorylation in the intestine (Stillman, Entenman, Anderson, and Chaikoff, 1942). Low blood sodium and hypotension are not uncommon in sprue, although usually observed in severe rather than early cases (Black, 1946). Changes in electrolyte metabolism and absorption might interfere with the particulate absorption of triglycerides (Frazer, 1949). In the sprue syndrome, however, treatment with adrenal cortical hormone, corticotropin, and other measures which brought the blood sodium back to normal levels did not markedly affect the fat-absorption defect. Cases of Addison's disease may show a defect of fat absorption, but they do not develop the sprue syndrome. A low level of free cholesterol in the blood may possibly result in a generalized steroid starvation, resulting in secondary hormone deficiencies, such as adrenal cortical insufficiency and delayed sexual development. Water and electrolyte changes may contribute to the fatal termination in severe cases of sprue, but they probably are not materially concerned in the primary aetiology of the sprue syndrome.

4. *Defective Phosphorylation (Adrenal Cortical Insufficiency—Verzar).*—There is little evidence of any direct relation between phosphorylation in the intestinal cell and triglyceride absorption. Simultaneous absorption of lecithin facilitates the absorption of long-chain triglyceride (Sagrott, 1949). The amount of phospholipid formed during fat absorption may be small, and for this reason phospholipid cannot be regarded as an obligatory intermediate in fat absorption (Zilversmit, Entenman, and Chaikoff, 1948). Faulty phosphorylation of fat in the sprue syndrome has been largely assumed on the basis of flat oral glucose-tolerance curves which have been attributed to failure in the phosphorylation of carbohydrate (Verzar and McDougall, 1936; Maegraith *et al.*, 1945). Other experimental studies have not supported this interpretation of the sugar curves (Emery, 1947; Fourman, 1947). Apart from the low blood phospholipid commonly observed, there seems to be little evidence of faulty phosphorylation in the sprue syndrome. If it did occur, it might affect particulate absorption as indicated.

5. *Emotional Factors.*—These cannot be disregarded in a gastro-enterological syndrome. Movement and secretion may be affected: certain other psychosomatic disorders are associated with excessive mucous secretion. Such changes might precipitate the sprue syndrome; there is no direct evidence of the mechanism at the present time.

6. *Starch Fermentation.*—In cases of the coeliac syndrome the fat-absorption defect may be aggravated by the administration of starch. Carbohydrate intolerance in the coeliac syndrome is well known (Parsons, 1932). The primary defect seems to be faulty digestion of starch granules and consequent starch fermentation, giving rise to short-chain fatty acids. Intolerance of starch also occurs in many cases of adult sprue. An extensive investigation into the mechanism of starch granule digestion and its relation to mucinases and lysozyme is being undertaken. It is possible that starch fermentation may have an aetiological significance in some cases of the coeliac syndrome.

7. *Intestinal Flora.*—Changes in intestinal flora occur in the sprue syndrome, more affecting the site of growth than the type of organism present. The predominating bacteria may vary, however, owing to alteration in environmental conditions consequent upon faulty absorption or other changes. The higher level of intestinal flora, which may reach the upper small intestine in sprue, may give rise to successful competition of the bacteria with the host. This competition hypothesis of the common vitamin deficiencies in sprue will be more fully discussed in another communication. Changes in intestinal flora are probably secondary in tropical and non-tropical sprue and the coeliac syndrome. Intestinal bacteria can hydrolyse triglycerides and ferment starch. They could therefore initiate changes which might lead to the sprue syndrome. Such a mechanism might possibly be involved in some cases of gastro-colic fistula.

8. *Vitamin Deficiencies.*—Deficiencies of riboflavin, nicotinic acid, and folic acid are fairly common in sprue—other vitamin

deficiencies are rather rare. It has been suggested that these vitamin deficiencies constitute a primary aetiological factor in the sprue syndrome (Verzar and McDougall, 1936; Castle, Rhoads, Lawson, and Payne, 1935). There is no satisfactory evidence of a direct relation between these vitamins and the fat-absorption mechanism (Frazer, 1947b). The signs of these deficiencies can be dramatically relieved without any effect on the fat-absorption defect (Cooke *et al.*, 1946). Classical cases of deficiency of these vitamins may occur with normal fat absorption. These deficiencies, which come and go during the course of the sprue syndrome, are probably secondary changes attributable to successful competition with the host for common essential nutrients on the part of intestinal bacteria.

Conclusions

It is concluded that the underlying fat-absorption fault is a defect in particulate absorption. The consequent absorption and excretion of fatty acids account for most of the major features of the sprue syndrome. Certain intermittent characteristics may be attributed to high growth of intestinal bacteria. The primary cause of faulty particulate absorption probably varies in different cases—many cases of tropical sprue may be primarily due to dietary faults, whereas some underlying defect, possibly an enzyme deficiency, may be a major factor in most cases of non-tropical sprue and the coeliac syndrome. Intestinal flora changes occur secondarily in most cases of sprue, but they may have a more important aetiological role in some cases of gastro-colic fistula. The final picture of the aetiology of the sprue syndrome will be achieved only as a result of further detailed study of the fat-absorption defect and experimental investigations designed to differentiate primary and secondary changes.

Much of the original work referred to in this paper is still in progress as part of the programme being undertaken in the Department of Pharmacology, University of Birmingham, by a team which includes Dr. J. M. French, Dr. M. D. Thompson, Dr. H. G. Sammons, Dr. R. Schneider, Dr. P. E. Sagrott, Mr. W. R. Pover, Mr. W. D. Brown, Mr. G. A. Rowe, and Mr. B. G. Taylor. While acknowledgments are made in the text to individual members with regard to points with which they have been especially concerned, the progress of the work is essentially dependent upon the combined efforts of the whole team. I am most grateful to many colleagues on the staff of the Birmingham United Hospital, especially to Professor T. L. Hardy, Dr. W. T. Cooke, Dr. A. L. Peency, Dr. C. F. Hawkins, and Dr. Garfield Thomas, whose close collaboration and help have been invaluable. I am indebted to the Medical Research Council and the Sir Halley Stewart Trust for financial assistance in this work.

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THE TREATMENT OF MALIGNANT TERTIAN MALARIA*

BY

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The early diagnosis of malignant tertian malaria is a matter of the first importance, so that specific therapy may be started with the least possible delay. In recent years the development of modern methods of rapid transport has made it all the more imperative that medical men in all parts of the world should be familiar with the many diverse clinical manifestations of this disease.

My first experience of the difficulties which may be encountered in the diagnosis of *Plasmodium falciparum* infections occurred at an early stage of the 1914–18 war, when I was in charge of a wing of a military hospital in Nairobi. One morning about 80 British soldiers who had been evacuated from the vicinity of Lake Victoria Nyanza and sent down the line by hospital train were admitted under my care. A preliminary examination of these men disclosed a great variety of clinical symptoms, as the result of which I made a number of provisional diagnoses.

Many of the patients were obviously the victims of malaria, but there were others whose symptoms were unlike any which are usually associated with this disease. Several seemed to be suffering from some acute abdominal condition, such as appendicitis, pancreatitis, or biliary colic. Some were passing blood and mucus per rectum, and these I diagnosed as dysentery. Two or three had the clinical appearance of typhoid fever, and there were several with cerebral symptoms which I thought were probably due to heat-stroke. In one case I suspected amoebic hepatitis and in others bronchitis or broncnopneumonia. A blood smear was taken from each patient as a routine procedure and sent to the laboratory for examination; the presence of malignant tertian malaria parasites was reported in every single instance. The administration of quinine, at that time the only antimalarial drug available, was followed in all cases by prompt alleviation of symptoms and ultimate recovery.

My object in recounting this incident is to impress on those who are about to practise in malarious regions or to sail in ships which may touch at ports where the disease is endemic that malignant tertian infections often fail to conform to the popular conception of malarial fever. They may simulate a great variety of other diseases, and failure to recognize this fact has resulted in the loss of many lives which could have been saved by the prompt application of

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specific antimalaria treatment. In the past 12 months two striking examples illustrating this point have come to my notice.

Illustrative Cases

The first case was that of a young woman who visited the Victoria Falls in the course of a holiday tour in South Africa and fell ill with headache and a slight rise of temperature some 10 days later. She had no idea that she had been exposed to the risk of malarial infection, and treated herself for several days with aspirin and other non-specific drugs. Soon after reaching Johannesburg her condition suddenly became critical, and she was admitted to hospital suffering from cerebral malaria, as the result of which she died in spite of all efforts to save her life.

The other case was that of a stewardess employed in a ship on the outward run from London to Capetown. Her illness began in very much the same manner about 10 days after leaving the port of Beira, on the East African coast. Several of the crew were down with malaria, and owing to shortage of nursing staff she continued to attend to them for several days before reporting sick. When she did so, the ship's surgeon, who had had no previous experience of tropical diseases, made a provisional diagnosis of influenza and prescribed codeine. She was ultimately sent ashore at Capetown in a comatose condition and admitted to hospital. A blood smear revealed a very heavy infection with *P. falciparum*, and she was given immediate parenteral treatment with antimalarial drugs. This case fortunately ended in recovery, though during the first 24 hours after admission her condition was the cause of grave anxiety.

These two cases illustrate two characteristic features of malignant tertian malaria: (1) that the disease often has an insidious onset, and (2) that in the absence of specific treatment the patient may with little or no warning become critically ill with so-called "pernicious" symptoms, which have been variously classified as cerebral, algid, bilious, remittent, pneumonic, and cardiac. More often than not the paroxysm is ill defined and rigors are exceptional, the temperature rarely exceeding 104° F. (40° C.). A double peak in the temperature chart owing to the segmentation of two groups of parasites is common, and there may be three, four, or more groups, each segmenting independently and giving rise to continuous fever, with several peaks in the 24 hours.

It is important also to recognize that in a primary case parasites may be so scanty in the peripheral blood during the first few days of fever that they may not be detectable in a blood smear, even if no antimalarial drugs has been administered. A negative smear, particularly if this has been taken at the height of the fever, should not therefore be regarded as excluding the possibility of malarial infection. The wisest course in such cases is to administer an antimalarial drug and to take another blood smear immediately the temperature drops, when it is often possible to confirm the diagnosis.

Mode of Action of Antimalarial Drugs

It is necessary to consider this subject in relation to the various phases in the life-cycle of the malaria parasite in the human body. The recent demonstration by Shortt and his co-workers of an exo-erythrocytic phase of *Plasmodium cynomolgi* in the monkey and of *P. vivax* in man, and the subinoculation experiments of Fairley and his colleagues in Australia, have greatly clarified our knowledge of this problem, which had been for so many years a matter of speculation (Shortt and Garnham, 1948; Shortt, Garnham, Covell, and Shute, 1948; Fairley *et al.*, 1947).

Antimalarial drugs may act in four possible ways: (*a*) against the primary tissue, or pre-erythrocytic, phase of the parasite; (*b*) against the asexual parasites in their erythrocytic phase; (*c*) against the sexual parasites in their erythrocytic phase; and (*d*) against the hypothetical persistent tissue phase of the parasite, to which latency and late relapse in *vivax* malaria have been attributed (Shannon, 1948). There is convincing evidence against the existence of the last-named stage in *falciparum* infections, and only the first three categories are considered here (see Table).

Table Showing the Action of Various Drugs on P. falciparum

Class of Drug	Action on		
	Pre-erythrocytic Phase	Erythrocytic Phase (Asexual Forms)	Erythrocytic Phase (Sexual Forms)
[illegible]	−	+	−
[illegible]	−	+	−
quine, camoquin)	−	+	−
8-aminoquinolines (e.g., pamaquin, pentaquine, isopentaquine)	+	−	+
Biguanides (e.g., proguanil) ..	+	+	−*
Sulphonamides (e.g., sulphapyrazine, sulphamerazine)	−	+	−

* But prevents completion of development in the mosquito.

The cinchona alkaloids, the 9-aminoacridines, and the 4-aminoquinolines have a destructive action on the asexual parasites of all forms of human malaria in the erythrocytic phase. The sulphonamides also act on this phase in *falciparum* infections, but in view of the risk of toxic effects, particularly of agranulocytosis, this class of drugs is not generally recommended for the routine treatment of malaria. Findlay (1949), however, recorded a complete absence of toxic reactions in a group of 441 British troops in West Africa who were given a daily dose of 50 mg. of sulphapyrazine, sulphamerazine, or sulphamezathine over a period of 12 months or more, the first-named giving results superior to those with mepacrine in the prophylaxis of malaria. He suggested that the sulphonamides might be found useful for this purpose should the local strains of parasite prove refractory to other drugs, or in a case of idiosyncrasy to other drugs.

The 8-aminoquinolines do not affect the asexual parasites in the erythrocytic phase, but exert a powerful destructive action on the gametocytes. They also act on the pre-erythrocytic phase, but only when employed in dosage dangerously high for routine use. The biguanides are the only known class of drugs which can be used with safety against this phase of the parasitic cycle. They also act on the asexual forms in the erythrocytic phase. They have no demonstrable effect on the gametocytes in the peripheral blood, but render them incapable of completing their development in the mosquito.

Prophylactic Treatment

The drugs used in the prophylaxis of malaria fall into two categories: (*a*) true causal prophylactics, which act on the parasite in its pre-erythrocytic phase; and (*b*) schizonticidal drugs, which destroy the asexual forms of the parasite in the erythrocytic phase and thus suppress the overt attack.

As stated above, the only drugs at present available which exert a true causal prophylactic action against malignant tertian malaria in non-toxic dosage are the biguanides, of which the best-known example is proguanil ("paludrine"). The dosage of proguanil recommended for prophylaxis is 100 mg. daily for non-immune individuals, and 300 mg. in a single dose once weekly for indigenous inhabitants of malarious countries. A great advantage of this drug is that

it can be placed in the hands of laymen for distribution without risk of ill effect, even should the prescribed dose be grossly exceeded.

The second, or suppressant, group of drugs includes the cinchona alkaloids, the 9-aminoacridines, and the 4-aminoquinolines. For the effective suppression of *falciparum* malaria quinine has to be administered in doses of as much as 10 gr. (0.65 g.) daily, which is the maximum that can be tolerated over a prolonged period. Against New Guinea strains of *P. falciparum* even this dosage has been found insufficient, failing to prevent overt attacks during the period of its administration. Apart from the unpleasant side-effects caused by the prolonged administration of quinine, the association of this drug with the precipitation of blackwater fever renders it undesirable for use as a suppressant in *falciparum* infections.

Mepacrine, in a dosage of 100 mg. daily, is a very effective suppressant of malignant tertian malaria, provided that the drug is taken for 14 days before exposure to infection and continued for one month after leaving the endemic area. It produces radical cure by schizonticidal action, destroying the young asexual parasites after their entry into the blood stream. The dramatic fall in malaria casualties during the later stages of the 1939–45 war in the South-West Pacific and in South-East Asia was chiefly due to the general adoption of mepacrine prophylaxis by the Allied Forces, and the rigid enforcement of this measure was an important factor in bringing about the successful conclusion of both these campaigns. It should be noted that neither proguanil nor chloroquine became available for general use until after the termination of hostilities.

Despite its powerful suppressant action, mepacrine has certain disadvantages which militate against its routine use under peacetime conditions. During the first 10 to 14 days of suppressive treatment a variable degree of nausea and abdominal discomfort is not uncommon. These symptoms usually disappear completely, but persist to some extent in a small proportion of cases. Headache, insomnia, and temporary giddiness may also occur during this stage, but are less frequent. When taking the drug over prolonged periods a proportion of individuals develop skin lesions, the most common of which is a lichenoid dermatitis affecting chiefly the hands and wrists and feet and ankles. Yellow discoloration of the skin is comparatively common: this is of no great moment among troops in time of war, but is a distinct disadvantage under peacetime conditions, particularly where women are concerned.

Chloroquine is a powerful suppressant, and excellent results have been reported with a dosage of 300 mg. of the base* administered in a single dose once weekly. Its action is similar to that of mepacrine, but it is said to be considerably less toxic and does not discolour the skin. The same advantages are claimed for camoquin, with a dosage of 500 mg. weekly.

At present the choice of drug for prophylactic use would seem to lie between proguanil and either chloroquine or camoquin. The stage in the parasitic life-cycle on which the drug exerts its action is of little interest to the individual under treatment, provided that the overt attack is prevented without any injurious side-effects, and from this point of view there is little to choose between the two classes of drugs. Chloroquine and camoquin, however, do not possess the very low grade of toxicity which is so remarkable a property of proguanil, rendering the last-named drug particularly suitable for widespread administration among labour forces or other employees recruited from indigenous populations.

*= 500 mg. of the diphosphate salt.

Treatment of the Clinical Attack

Most of the literature relating to the chemotherapy of malaria published during the last few years has been based on work initiated during the war period, when the overriding objective was the maintenance of the largest possible proportion of troops in a fit condition for the conduct of military operations. We have become accustomed to relate all our activities to their effect on the war effort, and it is not always appreciated that the objects of therapy in peacetime differ in certain important respects from those obtaining in time of war. Thus, in wartime minor toxic manifestations of drugs, or even an occasional case of severe toxicity, are of no great significance, since they do not affect the fighting efficiency of the troops to any appreciable extent. But in peacetime such occurrences are of very considerable importance, both to the patient and to the physician in charge of the case.

Again, in wartime a system of treatment which will control the clinical attack and effect radical cure in the great majority of malignant tertian infections may be considered adequate. But under peacetime conditions no treatment for this disease can be considered satisfactory unless it will ensure rapid alleviation of symptoms and a high rate of radical cure, not only in the "average" case but also in abnormally susceptible individuals exposed to heavy and repeated infection in hyperendemic areas. Finally, the provision of adequate treatment for indigenous populations, which is seldom practicable whilst military operations are in progress, is usually a major feature of antimalarial campaigns undertaken in times of peace

Specific Treatment

The principal objects in the treatment of malignant tertian malaria are the termination of the clinical attack with the least possible delay, radical cure of the infection, minimum toxicity on the part of the drugs employed, and sterilization of gametocytes, so that mosquitoes which feed on patients during or after the attack cannot transmit the disease to other individuals.

Daily dosage of 20 to 30 gr. (1.3 to 2 g.) of quinine over a period of seven to ten days will usually bring about a rapid termination of the clinical attack and a high rate of radical cure. It is, however, comparatively ineffective against infections with certain European strains of *P. falciparum*. For example, James, Nicol, and Shute (1932) found that the amount of quinine necessary to control a primary attack of malignant tertian malaria caused by strains originating in the Roman Campagna and Sardinia was eight times as great as that required for infections with Indian strains of the same species of parasite. Quinine has no effect on the infectivity of gametocytes to mosquitoes, but a more serious disadvantage is that it may act as a contributory factor in the precipitation of blackwater fever. There was a striking reduction in the incidence of this disease among British troops stationed in West Africa after the substitution of mepacrine for quinine in the prophylaxis and treatment of *falciparum* infections (Findlay and Stevenson, 1944).

Mepacrine, when administered in the dosage now usually prescribed—i.e., beginning with a "loading" dose of 600 to 900 mg. on the first day or first two days of treatment, and continuing at 300 mg. daily for five to seven days—will effect a rapid termination of the clinical attack and a high radical cure rate in *falciparum* infections. The rapidity

new technique: continuous caudal analgesia. Thus, for the first time it was possible to control the pain of the major portion of active labour and that of delivery with the same technique. Happily, such a technique at the same time removed from the baby the burden of transplacental narcosis. It has been described in the following manner by Dr. J. P. Greenhill in his last edition of DeLee's *Obstetrics*: "There is no doubt that when this procedure is properly performed without any misstep there is no more satisfactory and pleasant type of analgesia in obstetrics."

It is obvious, therefore, that continuous caudal analgesia represents the combined efforts and brilliant researches of two distinguished French physicians, a Canadian obstetrician and anatomist, an English neurologist, German, Swiss, and American pharmacologists, a Mayo Clinic anaesthesiologist, a Philadelphia surgeon, and a Rumanian physician, who have placed in our hands the principles, the drugs, and the anatomical knowledge necessary to develop a single technique that is capable of relieving pain for surgery, obstetrics, and therapeutics from the xiphoid to the toes for an hour, a day, or a week.

Among the architects of this technique it would be impossible to overlook the substantial contributions of that venerable metallurgist and artisan, Oscar Schwidetzky, of the Becton Dickinson Company, who has fashioned with ingenuity the simple and compact instrumentarium.

Use in Obstetrics

The outstanding advantage of continuous caudal analgesia in this field is seen in a baby delivered without trauma, who cries and breathes and saturates his blood cells with oxygen without stimulation. This factor of baby protection is unequalled in any form of seminarcosis, narcosis, or general anaesthesia. It can be approximated only by saddle-block spinal anaesthesia and local analgesia. After a personal experience with this technique in 12,000 cases, and after training 2,000 physicians, who have reported its use in 260 scientific papers in eight languages for 600,000 deliveries, I am convinced that it offers effective and humane relief, without suggestion or hypnotism, to normal and handicapped mothers for the delivery of normal and premature babies. This opinion is shared by the 80 American obstetricians who have each managed more than a thousand deliveries under continuous caudal analgesia.

The leading United States hospitals which utilize this technique in substantial numbers are: the Beth-El Hospital in Brooklyn with 12,000 cases; the Stanford University Hospital in San Francisco with 8,000 cases; the Philadelphia Lying-in Hospital with 5,000 cases; the Syracuse University Hospital with 10,000 cases; the United States Marine Hospital in New York with 2,000 cases; the Johns Hopkins Hospital with 2,000 cases; the hospitals of Memphis, Tennessee, with 5,000 cases; the Barnes Hospital in St. Louis with 3,000 cases; and many others where nurses or doctors, trained on a 24-hour team basis, utilize this technique correctly, with the medical safeguards which protect the altered body processes in a psychological environment which maintains the patient's happiness and emotional tranquillity.

The new adjuncts of this order provided for our patients, who so often are mentally alert and who are enthralled in observing with a clear eye the actual birth of their babies, are: air-conditioning, bedside libraries, interior decorating in pastel colours, landscapes in oils and water colours, television, and well-controlled and well-selected melody and symphony of transcribed music. All or none of these pleasant interludes are provided at the direction and prescription of the attending obstetrician and of the patient herself.

Continuous caudal analgesia has returned to womankind the privilege of being present in comfort for the baby's birth. Its judicious use provides the safest labour and delivery available for patients with cardiac disease, nephritis, pulmonary disease, metabolic disease, and toxaemia. More than a score of outstanding obstetricians have declared continuous caudal analgesia to be the physician's best invitation to a premature baby for survival. In documenting this statement the Washington University Maternity Hospital from St. Louis, in a study of 591 premature deliveries (Table I), reported recently to the American

TABLE I.—*Results of 591 Premature Deliveries Among 7,650 Non-conductions, 2,500 Caudal, and 500 Saddle-block Deliveries (July 10, 1945, to December 27, 1948)*

Weight Group	Total No. in Group	Intranatal Deaths	Post-natal Deaths	Neonatal Deaths	Total Deaths	Infant Mortality
Non-conduction Group						
2,500–2,001 g.	218	5	3	9	17	7·8%
2,000–1,501 g.	75	5	1	11	17	22·7%
1,500–1,001 g.	34	6	1	11	18	52·9%
1,000–500 g.	20	10	5	5	20	100·0%
	347	26	10	36	72	20·8%
Conduction Group						
2,500–2,001 g.	138	1	0	4	5	3·6%
2,000–1,501 g.	65	0	1	3	4	6·2%
1,500–1,001 g.	28	0	0	7	7	25·0%
1,000–500 g.	13	1	0	9	10	76·9%
	244	2	1	23	26	10·7%

Incidence of premature deliveries in the non-conduction group is 4·9% (35 stillborn macerated infants included), and in the conduction group 8% (5 stillborn macerated infants included).

Medical Association that "the labours protected by conduction anaesthesia (three-quarters under caudal and one-quarter under saddle-block) show an infant mortality that was consistently at least 100% lower than that in the non-conduction group."

My experience during a three-year study, 1942–5, in the Philadelphia Lying-in Hospital coincided substantially with the Washington University report (Table II). It is my belief that if delicate premature infants, who comprise approximately 10% of obstetrical deliveries, are protected by this technique the mature babies might receive the same relative benefit.

TABLE II.—*Neonatal Mortality per 1,000 Live Births Among Full-term and Premature Infants in the Caudal and Control Groups*

	Premature Infants	Full-term Infants
Control group	227·3	6·4
Caudal group	131·7	3·0

The Philadelphia and Memphis studies show that mothers in all age groups, but particularly in the early and late extremes of the child-bearing period, benefit from this form of management (Tables III and IV).

Use in Breech Delivery.—One of my first students, Dr. Roy Nicodemus, director of obstetrics of a large Pennsylvania hospital, six years ago began the routine use of continuous caudal analgesia. In 4,000 consecutive deliveries with this technique he has managed 186 breech deliveries with an uncorrected infant mortality of stillbirths and neonatal deaths of 1.2%. He then analysed the previous 186 breech deliveries in which he had used general anaesthesia and sedation and found an uncorrected infant mortality of 6.9%. In a paper soon to be published in the American literature he concludes that this method thus lends itself favourably to the safe management of breech delivery.

TABLE III.—*Stillbirths and Neonatal Mortality per 1,000 Live Births Among Mothers of Different Ages in the Caudal and Control Groups. Philadelphia Study*

	Age of Mother		
	Under 25	25–29	30 and Over
Control group	47·8	30·6	59·0
Caudal group	14·2	13·6	35·4

TABLE IV.—*Stillbirths and Neonatal Mortality (Under 1 Week) per 1,000 Live Births Among Negro and White Mothers of Different Ages. Memphis Study, 1946*

	Age of Mother		
	Under 25	25–29	30 and Over
General	45·1	159·1	131·1
Spinal	70·8	46·5	60·0
Caudal	32·0	40·0	52·6

Use in Therapeutics

Continuous caudal analgesia through its control of nerve impulses to blood vessels and extremities and to viscera of pelvis and abdomen can be utilized as a major therapeutic measure. Its most promising field of usefulness lies in the following diseases: (1) the control and treatment of eclampsia, (2) oliguria and anuria on the basis of reflex renal ischaemia, (3) post-surgical abdominal distension and paralytic ileus, (4) arterial emboli of abdomen and lower extremities, (5) thrombophlebitis and phlebothrombosis, (6) prognosis of and indications for sympathectomy in essential hypertension, (7) the prolonged relief of post-operative or traumatic pain, and (8) sciatica and neuralgias of the lower extremities and pelvic girdle.

In 24 consecutive cases of eclampsia managed by me in the John Gaston Hospital in Memphis, Tennessee, there was a reduction in both the systolic and the diastolic blood pressures, and there was definite clinical improvement and elimination of convulsions in each case so treated. These 24 cases form part of a series of 76 that I have managed with these techniques in which there were only three maternal deaths. The infant mortality in this series was 12%. It is my contention that the substitution of continuous conduction anaesthesia for narcotic and magnesium sulphate therapy in eclampsia provides the most effective method of blood pressure and convulsion control, and permits the highest incidence of live births in this group.

A related type of vasomotor crisis is seen in the terminal coma with convulsion associated with uraemia and glomerulonephritis. An 11-year-old negro girl had a persistently mounting blood pressure, with ultimate heart failure and pulmonary oedema in spite of sedation with "aminophylline" and intravenous magnesium sulphate therapy, and even phlebotomy of 200 ml. At the point of *exodus letalis* continuous caudal analgesia in fifteen minutes, according to the indicated dosage schedule, reduced the blood pressure from 215/185 to 140/90, with the prompt restoration of consciousness, improvement of urinary outflow, and control of the pulmonary and cardiac emergencies.

Continuous caudal analgesia has presented us with an avenue of therapeutic inhibition of critical neurogenic and angiospastic mechanisms. Upon this concept lies a new horizon for the medical profession which may supersede the use of this technique in the control of pain. Its companion is the anatomically related continuous lumbar peridural analgesia as designed by us.

As continuous caudal analgesia exerts its most profound influence from below upward over the spinal nerves, so does lumbar peridural analgesia exert its influence from above downward. Either of the techniques presents the exact anatomical avenue for anaesthesia or for therapy of the organ or segment involved.

Use in Surgery

Continuous caudal analgesia is the safest and most effective technique at our disposal for operative and post-operative pain relief in haemorrhoidectomy, prostatectomy, and for operations on the perineum. By extending the levels of nerve block into the low thoracic plexus, adequate anaesthesia is produced for hernioplasty, appendicectomy, and caesarean section. We have utilized this technique in the latter three operations in more than 2,000 patients without any anaesthetic mortality. Now with continuous peridural lumbar analgesia at our disposal upper-abdominal and low-thoracic operations are more widely being managed by the extradural approach. In our hands this technique has been particularly useful for the control of pain in long orthopaedic operations which require serial *x*-ray confirmations of position and alignment of dismembered bony fragments. Even the aged and debilitated patients withstand hip-nailing operations and the like with the minimum of shock under this technique.

Drugs and Techniques.—Both techniques of the malleable needle and the indwelling catheter have been thoroughly described in the literature. The most practical recent improvement has been the substitution of the economical plastic catheter. We have extended dosage schedules and optimum concentrations of procaine, "metycaine," "pontocaine," "nupercaine," and, more recently, the safe and effective local analgesic from Sweden that is being introduced as "xylocaine."

Purely on an anatomical basis we can effectively block the afferent nerve pathways from the respective organs with the indicated dosage:

Haemorrhoids and rectum	10 ml.
Prostate and perineum	20 ml.
Bladder and uterus	30 ml.
Appendix and intestine	40 ml
Stomach, spleen, and gall-bladder	50 ml.

Continuous caudal analgesia can be intensified to a nerve block comparable with that obtained with spinal anaesthesia by a second dose, according to the scale indicated, about fifteen minutes after the first. The duration of the analgesia is entirely dependent upon the number of serial doses that are used.

Complications, Dangers, and Contraindications

Of utmost importance is a thorough knowledge of prevention of complications, amelioration of the hazards, and strict observance of the contraindications.

The most common complication is the slow or arrested labour that develops from two factors: (*a*) too early institution of the technique before progressive dilatation of the cervix to 5 cm.; and (*b*) overdosage extending the level of analgesia into mid-thoracic and upper-thoracic levels, thus interfering with the motor innervation of the uterus.

Fortunately, with the continuous method instituted through the indwelling small-gauge catheter the analgesia may be permitted to wear off and then be withheld until there is evidence of established and progressive labour. The analgesia should not be persistently maintained in the event of retarded labour unless a therapeutic advantage to either mother or baby is seen.

In my clinical experience, which is substantiated by both the Lorand and Reynolds tocodynamometer studies, approximately one-third of the labours are retarded to a

varying degree with standard dosage and segmental block; one-third are unaffected; and one-third actually suggest a clinical improvement in progress and dilatation. The second stage is definitely prolonged, since the compulsion desire to push and the abdominal somatic tone are both diminished. The usual primipara with the normal-size infant in the United States is delivered by election with episiotomy and outlet forceps. Most multiparae may be encouraged to deliver spontaneously.

The second highest complication incidence is the development of maternal hypotension, especially in the dorsal supine position. In large measure this is mechanical, through the production of a bloodless phlebotomy into the dilated vessels of the lower extremity. In some 5,000 carefully analysed cases this complication presented itself in 22% of the cases. The usual range of systolic reduction was from 120 to 90 mm. Hg.

The incidence may be greatly decreased by the prophylactic use of the vasopressor drug in all individuals with normal or low blood pressure, and in the maintenance of proper hydration, especially during hot weather. Hypotension may be combated by: (*a*) intravenous vasopressor drugs in minute 10-mg. doses of ephedrine or the equivalent *pro re nata*, (*b*) intravenous fluids containing glucose, (*c*) high atmospheres of inhaled oxygen, and (*d*) autotransfusions by raising the lower extremities to right-angles with the long body axis to produce a gravity return of the venous blood. In cases with severe varicose veins elastic stockings should be applied.

In our experience the mother tolerated extremes of hypotension, even a systolic pressure of 60 mm. Hg, better than the baby, who on occasion developed a bradycardia when a maternal systolic pressure below 80 mm. Hg was neglected for five minutes or longer. Even under these circumstances we have delivered babies with normal arterial and venous cord blood oxygen, provided the mother at the time was inhaling rich oxygen atmospheres. A few cases of loss of foetal life *in utero* or shortly thereafter have emphasized to several observers the importance of maintaining maternal blood pressure.

A third complication formerly greatly feared is the inadvertent spinal or subarachnoid anaesthesia of overwhelming proportions with the usual caudal dosages. The institution of the test dose and the ten-minute wait before proceeding and the institution of a low, safe, continuous spinal or saddle-block analgesia for these cases through intentional election have served to minimize this hazard. Inadvertent puncture of the spinal canal, with the usual insertion of a needle 6 cm. into the canal, has occurred under supervision only about once for each 500 cases. In some we elect to abandon the procedure, but in others we prefer to institute continuous spinal analgesia with usually one-thirtieth to one-fifteenth of the recommended dose. Careful aspiration of the indwelling caudal needle before insertion of the catheter reveals spinal fluid in almost all the small fraction of cases with low-lying durae.

Another complication that was formerly greatly feared is infection about the site of injection. With careful cleanliness and antisepsis and gloved technique, the incidence of infection is now about 1 in 1,000 caudal deliveries. The majority of these are simple pin-point pustules from the needle puncture. About one case of cellulitis or peridural infection occurs in each 5,000 deliveries under continuous caudal analgesia. With the prompt institution of the antibiotic drugs this type of infection can often be controlled. Nevertheless, with proper technique and proper care of equipment it can be prevented. In the control of eclampsia we have maintained continuous caudal analgesia for periods of one week without producing any demonstrable nerve irritation.

The fifth type of complication is that due to individual toxicity to the various local analgesics. It is characterized by immediate and persistent nausea and vomiting accentuated by each dose of the local analgesic, by tachycardia, by dizziness, and by hyperirritability. In nearly every instance we have achieved satisfactory results by the substitution of another local analgesic, such as procaine or pontocaine for metycaine, or vice versa.

The contraindications are as follows: (1) inadequate training or skill on the part of the operator; (2) substandard home or hospital conditions which do not provide the safeguards of available oxygen, vasopressor drugs, intravenous fluids, and proper asepsis; (3) local infection or skin irritation at the site of needle puncture; (4) gross abnormalities obliterating sacral hiatus or deformities of the vertebral column, which preclude the proper distribution of the anaesthetic agent; (5) central nervous system disease or disease of the vertebral column, such as tuberculosis, syphilis, etc.; and (6) previous laminectomy.

Summary

In America continuous caudal analgesia has been used for more than 600,000 deliveries. It has proved its capacity for relieving pain in surgery, obstetrics, and therapeutics from the xiphoid to the toes for an hour, a day, or a week. Its proper application eliminates transplacental narcosis and pharmacological retardation of vital baby reflexes.

Through such a mechanism of labour the premature baby is spared drug depression and the traumas attendant upon delivery through an unrelaxed birth canal.

More than 200 medical papers in eight languages have concluded that infant mortality and morbidity have been reduced with continuous caudal analgesia.

Under its management the third stage of labour is shortened and post-partum blood loss approaches the minimum. Post-partum complications are conspicuous by their absence.

Mothers with toxaemia, heart disease, and respiratory and metabolic infirmities are spared most of the stress and strain of labour.

It has been used in the control and treatment of eclampsia in more than 100 cases, with a maternal mortality below 5% and an infant mortality below 15%. Dieckmann, of Chicago, has described it as the outstanding advance in the treatment of this disease of our present decade. Greenhill, of Chicago, has declared: "There is no more satisfactory and pleasant type of analgesia in obstetrics."

The indwelling-catheter method of administration makes it simple and easy to apply for prolonged periods.

In proper dilutions all of the standard local analgesic agents in volume sufficient to block the 16 afferent nerve pain pathways from the uterus provide complete maternal comfort in 85 to 92% of cases.

The complications have been sharply delineated and methods of their prevention and treatment are presented.

The incidence of forceps deliveries is increased. In those clinics where this is considered to be undesirable this technique will still prove to be invaluable in permitting slow deliberate forceps delivery of the parturient woman arrested in the second stage of labour.

The technique has been used successfully for all types of rectal, perineal, and lower abdominal operations and for orthopaedic procedures on the lower extremities.

In the treatment of thrombophlebitis it provides easy access to the sympathetic nerves, which Leriche blocked through the paravertebral approaches. In America continuous caudal analgesia with a single-needle catheter technique is replacing the four needle insertions of lumbar paravertebral block.

Other therapeutic applications in treating arterial emboli, reflex anuria, abdominal distension, and vascular insufficiency have been described.

Continuous caudal analgesia has been determined of great value in the prognosis of sympathectomy for essential hypertension.

It opens a new avenue for the prolonged control of post-operative and intractable pain in terminal carcinomatosis.

Finally, the medical profession and I personally express our gratitude to our European colleagues who in 1901, after careful researches, made possible this medical technique which it has been my privilege to extend into these various applications.

SOME OBSERVATIONS ON PULMONARY TUBERCULOSIS IN THE NIGERIAN AFRICAN

BY

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Pulmonary tuberculosis is moderately common amongst the Nigerians, but, though cases now report more often to the hospitals for treatment, there is no conclusive evidence that its incidence is rising significantly. Anticipated measures for the control of the disease in Nigeria are likely to meet with little success unless close account is taken of its particular characteristics in the African, and it is hoped that the following observations may serve to stress some of its features. The series of cases, though consecutive, is admittedly very small, but supports the conclusions drawn from a large number of additional cases seen during the last eleven years, but in which observations and investigations were less complete.

The peculiarly virulent nature of pulmonary tuberculosis in the African is still sometimes attributed to a relatively recent introduction of the infection by the European to a country and people not hitherto exposed to it—a so-called virgin soil. It is probable, however, that the disease was introduced long before the advent of Europeans in significant numbers, possibly from the North and Near East by the old trans-Sahara trade routes. Conceptions of the importance of a virgin soil seem to imply that an inherited immunity can be established as a result of several generations of exposure to infection, but the example of the American negro furnishes no evidence in support of this supposition or in favour of a possible progressive genetic elimination of the highly susceptible. Though improvement in education, economic status, and standard of living may do much to mitigate the severity of the disease amongst the population as a whole, it seems that the violence of the disease in the African must be explained on a basis of his inborn constitutional peculiarities.

The common impression in Nigeria is that pulmonary tuberculosis in the African is not amenable to treatment and is invariably fatal. That the outlook is not so hopeless as this Davies (1946) has shown as a result of twenty years' work in Tanganyika. He points out that by the time a patient presents himself voluntarily for treatment his disease, so rapid is its advance in the African, is already hopeless of cure, and such indeed is the experience in Nigeria. Apart from the obvious necessity for education of the public and for improved living conditions, isolation of the open case is a prime essential. Davies stresses that for this purpose, and for the detection of cases early enough for effective treatment, sanatoria working as isolated units are no more effective than the existing general hospitals, for both are dependent on the voluntary attendance of patients. Only by the institution of travelling teams equipped for clinical examination, mass skin tests, and miniature radiography, designed to detect the early case and the susceptible individual, and of spaced bush dispensaries based on regional sanatoria, can satisfactory results be anticipated.

Incidence of Tuberculous Infection

Skin Tests.—Table I shows the results of Mantoux tests with 1 in 5,000 old tuberculin on 93 hospital in-patients, chiefly Northern Nigerians, not exhibiting any demonstrable tuberculous lesion. Table II gives the Mantoux results with 1 in 500 old tuberculin in 43 similar in-patients, while Table III shows the findings with 1 in 500 old tuberculin in 93 male scholars of a Government secondary school, all Southern Nigerians aged between 13 and 16 years. It is evident from these results that 65% of the more urban sections of the community in their mid-teens and 80% of those in the 20–29 age group and onwards have experienced a tuberculous infection.

TABLE I

Age Group	0–9	10–19	20–29	30–39	40–49	50 and Over
Positive	0	6	13	7	13	8
Negative	3	13	9	7	9	5
Proportion positive	0%	32%	59%	50%	59%	61%

TABLE II

Age Group	0–4	5–9	10–14	15–19	20–29	30–39	40–49	50 and over
Positive	1	2	2	3	8	3	4	4
Negative	4	5	1	1	2	1	1	1
Proportion positive	20%	29%	67%	75%	80%	75%	80%	80%

TABLE III

Negative	Weakly Positive	Strongly Positive	Total Positive
32	10	51	61 (65·6%)

Necropsy Evidence.—In a series of 90 consecutive routine necropsies carried out on the cadavers of patients who had died in one hospital of conditions other than tuberculous a search was made for latent or healed tuberculous foci. Almost all of the lesions so encountered were sent to the Lagos laboratory for microscopical confirmation. The results are given in Table IV.

TABLE IV

Age Group:	0–9	10–19	20–29	30–39	40–49	50 and over	Total
Pulmonary focus	0	0	0	1	1	1	19 (21·1%)
Hilar or broncho-mediastinal gland focus	0	0	3	1	2	1	
Pulmonary + hilar gland foci	0	0	0	1	1	1	
Abdominal gland focus	0	0	2	1	1	0	
Pulmonary, hilar gland, and abdominal gland foci	0	0	1	1	0	0	
No tuberculous focus	6	6	18	13	20	8	71 (78·9%)
Proportion with tuberculous foci	0%	0%	25%	28%	20%	27%	

It is observed that of these 90 cadavers 19 (21.1%) showed easily demonstrable healed or latent tuberculous foci. The employment of specialized methods would

undoubtedly have revealed a far higher percentage. The pulmonary lesions were usually subpleural and most commonly took the form of small gritty areas of fibrosis and anthracosis containing caseous foci from the size of a pinhead to ¼ in. (0.3 cm.) diameter. Larger encapsulated caseous foci were much less common. In the case of the hilar gland lesions the glands were usually a little enlarged, anthracotic, and contained similar pinhead, grey or yellow caseous foci. The abdominal glandular lesions are of some interest, as milk rarely enters into the dietary of these people, and in one or two cases the site of the lesions was not altogether suggestive of an intestinal portal of entry. Thus one cadaver with tiny caseous foci in the left upper lobe and associated broncho-mediastinal glands exhibited also gross enlargement and old caseation in glands at the root of the mesentery. A second showed tiny caseous foci in two of the right para-aortic abdominal glands as the only demonstrable tuberculous focus. Old pleural adhesions were encountered in 75% of the cadavers.

Clinical and Necropsy Observations in Cases of Pulmonary Tuberculosis

The clinical and post-mortem findings in 36 consecutive cases of tuberculosis with pulmonary lesions treated in one hospital have been analysed and summarized. Patients admitted during this period who absconded or on whom necropsy was refused have been excluded. The patients were Northern and Southern Nigerians, with a considerable preponderance of the former. Although the disease pursued an essentially similar course in the two races, it was the impression that the Northerners showed a rather lower resistance than the Southerners. Complicating factors are always common in these people, malaria being universal, intestinal helminths almost invariable, and filariasis, bilharziasis, dracontiasis, chronic amoebiasis, and malnutrition occasional. By clinical and necropsy criteria five types of case could be distinguished, the respective features of which are detailed below.

Type 1

This group comprised 23 cases, the extremes of age being 18 and 64, and the average age 36. Seven patients were over 45. All complained of productive cough, weakness, and weight loss, several of diarrhoea, six of hoarseness due to associated laryngitis, six of chest pain, and only three of haemoptysis. In all there were obvious physical signs in the chest, usually bilateral, and in all the sputum was profuse and acid-fast bacilli were easily found, often in large numbers. All cases showed a moderate to severe hypochromic anaemia, and in over half the cases there was a leucocytosis of 12,000 to 16,000, usually with a polymorphonuclear percentage of between 75 and 90, and no monocytosis. It should be mentioned that in 44 average healthy Africans the mean white cell count was found to be 6,807 (polymorphonuclear neutrophils 59%, lymphocytes 31%, monocytes 4.6%, eosinophils 4.4%).

In all cases in which it was determined the B.S.R. was between 50 and 70 mm. in one hour, except for one of 20 mm. and one of 2 mm. All showed some pyrexia, remittent or intermittent, with evening rises to 100–102° F. (37.8–38.9° C.). Weight loss varied between ½ and 3 lb. (0.22 and 1.36 kg.) per week, and the average interval between the alleged onset of symptoms and death was seven months, the extremes being two and 13 months. Admittedly this estimate of the average duration of life excludes a few of the less severe cases, in which the patients, either because of lack of progress in hospital or because treatment had resulted in sufficient amelioration to induce in them undue optimism, absconded and were excluded from the series.

I have, apart from the present series, kept more favourable cases under observation and treatment for as long as two years before they defaulted in their attendance. Yet I have never, under existing conditions, encountered a case that had been permanently cured or offered promise of being so. As regards treatment, I have during the last ten years employed collapse therapy, artificial pneumothorax, often bilateral and partial, alone or in combination with phrenic evulsion, in a considerable number of cases. The majority of the patients showed bilateral involvement, were too advanced to be truly suitable, and derived no significant benefit. However, the few less hopeless cases showed enough improvement to suggest the probable effectiveness of collapse therapy if cases could be detected and brought under treatment at an earlier stage. Suitable antibiotics have not been available.

At necropsy there was very extensive cavitation of one or both upper lobes. Often the whole of one upper lobe would be represented by a huge cavity bounded only by the greatly thickened and densely adherent pleura. Evidence of fibrosis limiting the cavities before the pleura was reached was very rare and never marked, except in one case which showed sufficient gross fibrosis to produce tracheal displacement. Exceptionally, cavitation was more extensive in a lower lobe. The condition of the remaining lobes was variable, but rarely were they normal and healthy. Very often there were more or less large areas of whitish caseous pneumonic infiltration, sometimes, when extensive, with central cavitation. Often there were isolated clean-cut spheroidal cavities about 1 in. (2.5 cm.) in diameter and containing fluid pus.

In most cases there were the scattered diffuse single and trefoil lesions of tuberculous bronchopneumonia. Occasionally a lobe might have an appearance of hepatization. The hilar glands were fibrotic and anthracotic, but rarely showed macroscopic tuberculous lesions. There were in the majority typical tuberculous ulcers of the ileum, with white thread-like infiltration of the associated lymphatics and caseous foci in the regional mesenteric glands. Apart from this latter, gross lympho-glandular lesions were absent, as also were miliary lesions. In only three instances were primary tuberculous foci detected. One showed a typical Ghon lesion at the left apex, and in the right upper lobe several old inspissated caseous foci, some partly calcified, varying in size from a pinhead to a peanut and surrounded by considerable fibrosis. Another showed old pinhead foci of caseation with surrounding fibrosis and anthracosis in an upper lobe, and the third two mesenteric glands converted to mere fibrous shells enclosing old inspissated caseous matter.

Type 2

Eight cases fell into this group; the ages ranged from 17 to 42, the average being 29. The invariable complaints were of productive cough, weakness, and weight loss. Obvious clinical chest signs were present in all, and acid-fast bacilli were always found in the sputum, usually in profusion. The blood count as a rule was characterized by a moderately severe hypochromic anaemia, and in five cases a leucocytosis of from 11,700 to 25,600 with polymorphonuclear percentages from 74 to 91 and no monocytosis. The B.S.R. lay between 60 and 70 mm. in one hour in all cases except one, in which it was only 3 mm. Pyrexia was remittent or intermittent, with rises to 101–103° F. (38.3–39.4° C.); the average weekly weight loss was 2½ lb. (1.13 kg.); and the average interval between the professed onset of symptoms and death 4½ months, the extremes being 1½ and eight months.

The common necropsy finding was very extensive areas of whitish tuberculous caseous pneumonia with small or moderate-sized central cavities where the caseous matter had broken down. The intervening lung might have an appearance of grey or gelatinous hepatization, while often the tiny diffuse lesions of tuberculous bronchopneumonia were found elsewhere. Tuberculous ileal ulcers with caseation of the associated mesenteric glands were usually present. There was always gross enlargement and caseation of broncho-mediastinal and/or cervical and abdominal lymphatic glands. Seven of the cases showed miliary lesions in one or more of the liver, spleen, and kidneys, and while the hepatic and renal lesions were typical milia the splenic foci were often larger, up to about ½ in. (0.6 cm.) in diameter. Three cases showed primary tuberculous foci—one a caseous pulmonary area ½ in. (1.25 cm.) in diameter with surrounding fibrosis and anthracosis, and the other two

small yellow caseous pulmonary foci from the size of a pinhead to ¼ in. diameter with surrounding fibrosis.

Type 3

There was only one case of this type, that of a man aged 34 who had complained of retrosternal pain and unproductive cough for two weeks. He was found to have a pericardial effusion and congestive cardiac failure, and died within a few days. At necropsy a grossly thickened parietal pericardium was found and an equally thickened and shaggy visceral pericardium, reported microscopically as tuberculous. The right lower lobe pleura was adherent and the upper lobe pleura opaque and markedly thickened. In the hilar zone of the right upper lobe were cavities the size of a peanut filled with old caseous matter; more peripherally were a few pinhead caseous foci and dense fibrosis of the whole area. This was reported by the pathologist as "a very chronic tuberculosis with great fibrosis and hyaline degeneration." In the right lower lobe and both left lobes were a few scattered pinhead caseous foci; in the left upper lobe there was an encapsulated caseous focus the size of a peanut. The hilar and broncho-mediastinal glands were a little enlarged and anthracotic, and contained small caseous foci. The mesenteric glands were enlarged and yellowish, and showed caseous areas.

Type 4

There were three patients in this group, aged 17, 19, and 27. The complaint in all cases was of weakness, weight loss, and cervical swellings. Clinically there were diffuse cervical and in one case also axillary lympho-glandular enlargements, retrosternal dullness, and intermittent pyrexia with evening rises to 100–102° F. (37.8–38.9° C.). There were a moderate or severe hypochromic anaemia, a slight leucocytosis of 10,000 to 12,000 with a relative polymorphonuclear preponderance, and a B.S.R. between 60 and 70 mm. in one hour. One case had thin purulent left pleural and peritoneal effusions, and necropsy showed many tiny subpleural tubercles. The salient post-mortem findings were diffuse enlargement with gross caseation, but no liquefaction, of broncho-mediastinal, cervical, abdominal, and possibly also axillary lymphatic glands, gross miliary tuberculosis of the lungs, and miliary tubercles in the spleen, and in one case also in the liver. Two cases showed coincident portal cirrhosis with splenic and hepatic enlargement.

Type 5

The one case of this type, that of a man aged 50, may represent a modification of type 4, but certain differences were apparent. The case had proved puzzling owing to an associated maculo-anaesthetic leprosy. At necropsy both lungs were riddled with tuberculous bronchopneumonia. Near the left apex was a caseous lesion 1 by ½ in. (2.5 by 1.25 cm.), subpleural, without macroscopic limiting fibrosis but with an old overlying pleural adhesion. This was reported by the pathologist as "not a chronic lesion, but presumably the primary lesion of the recent infection, the pre-existing pleural adhesion being the determining factor of its site." Within one or two inches of this lesion were several zones of anthracosis and two small pinhead caseous foci reported as showing central scarring. The hilar glands were a little enlarged and contained caseous foci, and one, on section, was reported as "an old caseous encapsulated focus with some more recent tubercles." The more proximal broncho-mediastinal glands and the para-aortic glands in the abdomen were enlarged in lumpy masses, caseous and with liquefaction; splenic, pyloric, hepatic, and cystic glands were all moderately enlarged and grossly caseous. Cervical and axillary glands were greatly enlarged and confluent, and showed caseation and liquefaction. There was one tuberculous ileal ulcer, and the spleen and kidneys contained miliary tubercles.

Discussion and Conclusions

It is apparent that infection with the tubercle bacillus is now widespread, at any rate in the more populous areas of Nigeria, the primary infection being incurred usually in childhood or adolescence.

Progressive pulmonary lesions are rarely encountered in subjects under 17 years of age. It is recognized that such lesions can develop only if and when the lungs have acquired a high degree of sensitization to the products of the tubercle bacillus. It is thus evident that such allergy is not as a rule fully developed till after the age of approximately 17 years. The allergy responsible for the exhibition of a positive skin test, which is acquired as early as three months after the primary infection, must thus represent but one aspect of the process of sensitization. It seems that the attainment of sensitization to certain other fractions of the tubercle bacillus must extend over a period of years, its rate and degree varying possibly with the age incidence or dose of the primary infection or, more probably, with the number and frequency of early reinfections.

Further, the prevalence of tuberculosis of particular systems at particular age periods suggests that the various systems and tissues may attain maximum allergy at differing intervals from the primary infection. As an instance tuberculous adenitis in the European is most commonly seen in childhood, and is usually explained as a separate entity by postulating a distinct tonsillar or pharyngeal portal of entry, the result of a tendency on the part of young children to carry everything to their mouths. In the Nigerian I have most frequently encountered the disease among adolescents and young adults, while milk and milk products form no part of the dietary of the Southern Nigerian.

Though the communal eating-pot may provide a possible means of infection by ingestion, it seems equally possible that tubercle bacilli, entering by the usual method of inhalation of dust or droplets, may reach the cervical glands by lymphatic channels from the previously infected broncho-mediastinal glands. They there remain latent till later attainment of full allergy by the lympho-glandular system, possibly with the added precipitating factor of an intercurrent non-tuberculous infection of teeth, tonsils, or pharynx causes the appearance of manifest cervical glandular lesions. It is thus suggested that glandular tuberculosis should be regarded, like pulmonary tuberculosis, as a possible milestone on the path of any tuberculous infection, and not necessarily as a separately determined entity, and that every subject of a primary infection subsequently, over a period of years, passes through a stage of lympho-glandular sensitization, a later stage of pulmonary sensitization, and a final stage of desensitization.

Despite the extreme virulence of pulmonary tuberculosis in the African, the vast majority, although exposed to tuberculous infection, do not develop cavitative lesions. Further, the disease is not exceptionally prevalent among the African nursing staffs of medical wards—an observation consistent with the relative infrequency of the disease among European sanatorium staffs and the marital partners of open cases. The possible inference that the majority of such adults have attained to a state of desensitization does not seem probable, for they fall within the age period at which clinical phthisis is most frequent and therefore pulmonary allergy presumably maximal. It seems more likely that they have been predestined by early reinfections, either very infrequent or of small dosage, to a low subthreshold peak allergy, the course of which later adult reinfections are powerless to influence.

The typical phthisis of the European, with its features of fibrosis and chronicity, is not encountered in the African. The counterpart in the Nigerian—the type 1 group described above—is a rapidly fatal cavitative disease in which rapid weight loss, high pyrexia, concurrent caseous pneumonic lesions, absence of fibrosis, and often a leucocytosis with

myoidema was recorded at the same examination, except for the troopship population, in whom myoidema only was looked for.

Analysis of the incidence of vitamin deficiency signs showed: (1) Indian troops on duty in Syria-Lebanon had a lower incidence of deficiency signs than those in hospital; this was not so in Iraq. (2) The meat-eating patients in hospital (Syria-Lebanon) showed a lower incidence of deficiency signs than vegetarian patients. (3) The British troops had a lower incidence of deficiency signs than the Indian troops. (4) Indian troops and hospital patients in Syria-Lebanon had a lower incidence of deficiency signs than those in Iraq: the hospital patients in Syria-Lebanon showed a lower incidence than men on duty in Iraq. These findings suggested that severe myoidema and vitamin deficiency were possibly related.

Myoidema and Chest Pain

The commonest complaints of medical out-patients in our general hospital in Iraq in 1944 were pain on each side of the chest and loss of appetite, general weakness, and general aches and pains. Men with these complaints often had painful severe myoidema and active tendon-jerks. Some patients complained of giddiness, and others of cramps in the calf muscles and sciatic pain. Scores of such men were seen at the end of the hot weather, and were sent to hospital with such diagnoses as myalgia of the chest, neuralgia, fibrositis, pleurodynia, pleurisy, and sciatica. Many were sent for investigation of supposed early tuberculosis or cardiac disease and were unnecessarily submitted to *x*-ray and other examinations. Some were given procaine injections for supposed fibrositis.

Chest pain was the commonest single symptom, and was complained of as a constant diffuse ache on both sides of the chest. This pain usually disappeared after thiamin injections had been given for 10 to 20 days, or after longer periods if yeast tablets were taken. The frequency with which pain in the chest responded to thiamin was striking, but under field conditions a controlled experiment was not possible. It was thought that this pain was associated with fatigue of the chest muscles, which were presumably in an early pathological condition, as shown by severe myoidema. Patients recovered when thiamin was given. Many of these patients were seen by a psychiatrist, because the symptoms were often excessive fatigue, exhaustion, and depression, but in most cases no psychiatric abnormality was found. The same symptoms, however, were often absent in men on duty who were found to have severe myoidema. We had the impression that the incidence of severe myoidema was greater at the end of the hot weather. Routine urine examinations showed no salt depletion.

Cause of Myoidema

Kollert and John (1925) reported that 40% intravenous glucose abolished or diminished myoidema; they suggested that the sign was related to failing carbohydrate metabolism. The addition of insulin increased the effect of intravenous glucose. John and Dattner (1926) considered that in a number of conditions producing vasomotor disturbance myoidema was always present, and the capillaries in these patients showed thickening, tortuosity, and absence of contractility. They thought that intravenous glucose improved the contraction of capillary walls, increased the blood flow, and brought about disappearance of myoidema. Grill (1927) found that a large number of patients showing myoidema had raised lactic acid levels in the blood.

Koumans (1928) reported myoidema to be a common finding in poor-class Javanese, Malays, and Chinese in the Tropics. Their well-to-do counterparts and the Europeans, even after a long stay in the Tropics, did not show myoidema. He found it had *no relationship* to any disease, to overexertion, to the blood-sugar level, or to deficient carbohydrate intake, but was related to unbalanced diet and undernutrition. He regarded myoidema as a sign of avitaminosis. John (1928), criticizing Koumans's paper, stated that myoidema did occur in cases showing no avitaminosis. Seto (1937), working in Japan, confirmed Koumans's findings.

Denny-Brown and Pennybacker (1938) made electromyographic studies of two cases showing myoidema and, citing the work of Gelfan and Bishop (1932, 1933) and Gelfan (1933–4), were of the opinion that the phenomenon was due to a disturbance of the excitability of muscle fibre, predominantly of its contractile contents. They postulated a disturbance of the potassium : sodium ratio and the raising of excitability of both sarcolemma and muscle fibre. These workers were of the opinion that in a normal muscle percussion induced a "small knot of contraction with tightening of the remainder of the fasciculus," and that both subsided in one to five seconds, according to the intensity of the stimulus. If the local contraction lasted more than 10 seconds they regarded it as abnormal. Smart and his collaborators (1948), studying Belgian workers who were receiving inadequate food, found the biceps "ridge" lasted longer in them than in healthy R.A.F. personnel (about 4.5 seconds and 2.1 seconds respectively), but the phenomenon decreased in duration after food supplements had been given. They could not indicate which biochemical lesion produced the hyperirritability.

Analysis of the association of severe myoidema with coincident illness, dietetic habit, and vitamin deficiency suggested that in our cases the sign denoted malnutrition. The evidence for associating myoidema with disordered thiamin metabolism was that in 51 cases of neuritis treated with thiamin myoidema decreased and in many cases disappeared. Thiamin also cured the associated chest pain and muscular tenderness. The part played by thiamin, however, may have been an indirect one, by restoring the appetite.

Under certain conditions severe myoidema may be a pre-neuritic phenomenon. Peripheral neuritis was common in our garrison, and all the cases had severe myoidema. The incidence of severe myoidema among troops on duty was also high: they often had tender muscles, pain in the chest and calf muscles, cramps, and exaggerated tendon-jerks, like those seen in early cases of neuritis in our series.

Since the men's rations were stated to contain normal quantities of thiamin (3 mg. daily) other causes for disordered thiamin metabolism were considered. Thiamin deficiency may have been due to loss of appetite, to diarrhoea, and to loss in sweat (especially during the hot weather, when sweat loss amounted to over 10 pints (5.7 litres) daily). An attack of fever, or extra marching, may have precipitated thiamin deficiency by increasing thiamin requirements.

Summary

Severe myoidema was found in South Iraq in a series of cases of peripheral neuritis in soldiers on duty and in patients suffering from other diseases.

The condition was related to the nutritional state and the dietetic habit of the groups of men examined. It accompanied signs of vitamin deficiency, and disappeared when the cases of peripheral neuritis were treated with thiamin. It is suggested

that in our cases severe myoidema was a sign of malnutrition and was probably related to thiamin metabolism.

An explanation is attempted of the growing disrepute of myoidema as a physical sign.

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LYMPHADENOPATHY IN BRUCELLOSIS

BY

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Lymphadenopathy is not a prominent feature of brucellosis. Most of the textbook articles on the subject make no mention of the lymph nodes. Bloomfield (1942) made an extensive survey of published case reports in an attempt to discover if specific lymphadenopathy ever occurs in Brucella infections. He found that most authors omitted all reference to the nodes, and detailed information was difficult to obtain. He concluded, however, that noteworthy enlargement of the superficial glands was not uncommon, although its significance was seldom clear because the available data on the clinical course of the adenitis in relation to the progress and outcome of the disease were usually inadequate.

In view of the confusion, it was decided to make a careful clinical examination of the lymph nodes in patients suffering from melitensis fever in a military hospital in Malta. The series consisted of 42 cases, all the patients being under observation in hospital throughout the course of their illness. In 30 the diagnosis was proved by blood culture; in 11 repeated blood cultures were negative, but melitensis agglutinins were present in the sera in titres varying from 1 in 1,280 to 1 in 20,480; in the remaining case blood cultures and agglutination tests were negative and the diagnosis was made on purely clinical grounds. Generalized superficial lymphadenopathy was an outstanding initial feature in two patients, and in both instances caused difficulty in diagnosis. The other 40 cases were entirely free from lymph-node involvement during their stay in hospital.

Case 1

A Maltese man aged 21 was admitted to hospital on December 3, 1945, with a provisional diagnosis of glandular fever. His complaint was of headache, anorexia, and shivering attacks for five days. He looked very ill and his temperature was 102.4° F. (39.1° C.). There was bilateral and symmetrical enlargement of the cervical (anterior and posterior), axillary, epitrochlear, and inguinal lymphatic glands. The glands were mobile, discrete, firm, and non-tender, and varied in size from 1 to 2 cm. in diameter. The throat was clean. There was no enlargement of the liver or spleen. The leucocyte count was 6,850 per c.mm. (polymorphs 20%, lymphocytes 51%, monocytes 29%—a fair proportion of the latter resembled "glandular-fever cells"). The Paul-Bunnell test was positive in a titre of 1 in 32.

In the first few days the temperature intermitted between 104° F. (40° C.) and normal; the patient had several rigors and severe epistaxis occurred on three occasions. He complained bitterly of neuralgic pains in his arms and legs. The cerebrospinal fluid was normal. An initial diagnosis of glandular fever was made, but six days after admission his serum agglutinated *Br. melitensis* in a titre of 1 in 10,240. Blood culture was performed on the same day, and after 14 days' incubation a profuse growth of *Br. melitensis* was obtained. A radiograph of the chest showed no enlargement of the mediastinal glands. The acute symptoms subsided slowly and the temperature fell by lysis after remaining high for 10 days.

The subsequent course was typical of that pursued by a severe case of undulant fever—recurring bouts of fever, progressive anaemia, and flitting arthritis. The glands decreased in size very slowly, and by the end of the sixth week none were palpable. The Paul-Bunnell test was repeated twice and remained positive in the same titre (1 in 32). In the sixth week the leucocyte count was 6,700 per c.mm. (polymorphs 45%, lymphocytes 43%, monocytes 12%). The patient was discharged at the end of the third month, when he had been afebrile for three weeks.

Comment.—The enlargement of the glands, the blood picture, and the epistaxis were considered sufficient evidence, in the beginning, to allow a diagnosis of glandular fever. The titre of the Paul-Bunnell test was, however, not of diagnostic value. The melitensis infection was discovered subsequently only because local experience had taught the value of performing the appropriate bacteriological tests in all febrile patients in whom there was the slightest doubt about the diagnosis.

Case 2

A Maltese man aged 25 was admitted to hospital on June 3, 1946, with a provisional diagnosis of leukaemia. He had been ill for several weeks, and complained of vague febrile symptoms, weakness, and swellings of the neck. He was not severely ill and his temperature was 100° F. (37.8° C.). He looked pale but well nourished. The cervical, supraclavicular, epitrochlear, axillary, and inguinal glands were enlarged on both sides. They were firm, discrete, mobile, and non-tender, and were largest in the neck and axillae, where they measured up to 2 cm. in diameter. The tip of the spleen was palpable on deep inspiration but the liver was not enlarged. The blood picture was as follows: Hb, 70%; red cells, 3,650,000 per c.mm.; white cells 5,200 per c.mm. (polymorphs 45%, lymphocytes 45%, monocytes 10%—no abnormal cells present). The Paul-Bunnell test was negative. Low-grade fever continued and a tentative diagnosis of Hodgkin's disease was made.

A gland biopsy was arranged, but on the fifth day, before it was carried out, he had a rigor with high fever. At this time blood was taken for culture and the melitensis agglutination test. The latter was positive in a titre of 1 in 20,480, and after 17 days' incubation a profuse growth of *Br. melitensis* was obtained in the culture medium. During the next six weeks

there were three waves of fever before the temperature settled. The glands did not alter for two weeks; they then slowly decreased in size, and on discharge at the end of the ninth week only a few small nodes were palpable in the left posterior cervical triangle. At this time the spleen was not enlarged. Mild arthritis of the left knee developed but was not troublesome. Treatment was symptomatic.

Comment.—The anaemia, fever, lymphadenopathy, and splenomegaly suggested Hodgkin's disease. At first a diagnosis of brucellosis was not considered, and the melitensis infection was discovered, as in the previous case, by the application of routine tests.

Discussion

Conflicting statements appear in the literature about lymph-node involvement in brucellosis. McArthur (1939), in an important survey of the subject, made no reference to lymph glands. Musser (1938, quoted by Bloomfield, 1942) stated that general lymph-node swelling did not occur. On the other hand, Menefee and Poston (1938) found that lymphadenitis was often present. Avery (1942) noted that the glands were occasionally enlarged—either the cervical group alone or generalized.

Bloomfield (1942) consulted 191 unselected case reports and found specific mention of the lymph nodes in only 50—29 with enlargement and 21 without. In the 29 positive cases the distribution was as follows: cervical only, 13; generalized (superficial), 9; axillary only, 3; cervical and inguinal, 3; axillary and inguinal, 1.

As Bloomfield pointed out, the enlargement in many cases may have been merely incidental and not a specific manifestation of brucellosis. He was particularly doubtful about the cases with only localized involvement. In seeking evidence for the existence of a specific lymphadenopathy the important patients for scrutiny would seem to be those with generalized adenitis. This group consisted of nine cases, and further information about the glands during the course of the disease was given in only three. In one the swellings subsided about the fifth week and in another they persisted until the tenth month, when observation ended. The symptoms regressed rapidly in the third case and the [illegible] decreased in size within three days of admission; biopsy showed chronic lymphadenitis with necrotic foci, and *Br. suis* was isolated from the excised node. This patient died after multiple relapses, and the necropsy revealed generalized lymphadenitis of no specific histological type. *Br. suis* was recovered from many sites, including the lymph nodes. Gland biopsies were performed in two other patients; the lesion in one was "inflammatory," and the other served to exclude Hodgkin's disease and leukaemia.

Bloomfield concluded from his analysis of the nine patients with generalized adenitis that the lesion was probably specific for brucellosis in five, possibly in two, and of doubtful significance in two. No special aetiological importance could be attached to any single variety of Brucella—all three (*melitensis, abortus, suis*) were incriminated. Bloomfield added a case of his own which had enlargement of axillary, inguinal, and epitrochlear glands. Biopsy resulted in a histological diagnosis of lymphatic leukaemia, but the patient improved rapidly without therapy and the glands disappeared in the course of a year.

The generalized lymphadenopathy in both cases described above was without doubt a specific manifestation of brucellosis, the proof being the disappearance of the swellings as the general condition of the patients improved. Its occurrence in only two out of 42 cases suggests that it is not common.

The importance of the occasional occurrence of lymphadenitis in brucellosis is the confusion that it may cause in diagnosis. This point is well demonstrated by both of my cases. In Case 1 the clinical diagnosis of glandular fever seemed to be confirmed by the haematological examination. Wise (1943) drew attention to the fact that the study of the leucocytes in brucellosis frequently reveals abnormal cells suggestive of the early stage of glandular fever. Leys (1943) had two cases of abortus fever in which the monocyte count was so high that mononucleosis was considered as a possible diagnosis.

Rubenstein and Shaw (1944) stressed the clinical similarity which often exists between brucellosis and glandular fever. They pointed out that glandular enlargement was strongly in favour of the latter. Case 2 shows a superficial resemblance to Hodgkin's disease. Anaemia, splenomegaly, and lymphadenopathy may be common to both brucellosis and lymphadenoma, and the resemblance may be even closer in those cases of the latter which are characterized by the Pel-Ebstein type of fever. Parsons and Poston (1939) were of the opinion that in some cases of brucellosis even the histology of the lymph nodes may suggest Hodgkin's disease.

It is apparent that great advances are being made towards the goal of specific therapy for brucellosis (Spink, Hall, Schaffer, and Braude, 1949; Herrell and Barber, 1949). With the discovery of effective chemotherapeutic and antibiotic agents early diagnosis, previously of little moment, takes on a new importance. In such a protean disease diagnosis is notoriously difficult and clinical suspicion requires bacteriological confirmation. Mistakes arise when the physician, faced with a case of obscure pyrexia, does not suspect brucellosis. In areas where the disease is not common the error may be one of simple omission; but occasionally, as in the cases described above, the presence of an unusual clinical feature may cause such close resemblance to other conditions that the true diagnosis is obscured unless the specific bacteriological tests are employed. An awareness of the specific lymphadenopathy of brucellosis may prevent cases being wrongly diagnosed as glandular fever, lymphadenoma, or even leukaemia. A serious prognostic error may therefore be avoided and adequate therapy will not be withheld.

Summary

Two cases of melitensis fever in which generalized lymphadenopathy was a prominent feature are described. One case closely resembled glandular fever and the other simulated Hodgkin's disease.

The occurrence of specific lymphadenopathy in brucellosis is discussed and the difficulty in diagnosis which it may cause is stressed.

Lack of knowledge of this cause of lymphadenopathy may result in a serious prognostic error, and by delaying diagnosis may prevent the use of therapeutic measures at their most effective stage.

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CLINICAL TRIALS OF SUCCINATES AND OF HEPARIN IN RHEUMATIC FEVER

BY

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The use of salicylates in the treatment of rheumatic fever is traditional. The therapeutic employment of this class of substances followed work originally described by Maclagan (1876). Many theories have been put forward to explain the action of salicylates, but no one has advanced a really tenable hypothesis. The subject has been reviewed and discussed from the biochemical, enzymatic, and clinical points of view by various authors (Glazebrook and Cookson, 1947; Wrigley, 1948).

Advances in the treatment of rheumatic fever have been concerned mainly with the dosage and route of administration of salicylates. It was with great interest, therefore, that we read of the work of Gubner and Szucs (1945), who drew attention to the therapeutic possibilities of succinates. Succinates act as catalysts in biological oxidation—for instance, in the metabolism of carbohydrates (Krebs, 1943) and of fatty acids (Breusch, 1943; Muñoz and Leloir, 1943). Gubner and Szucs suggest that during rheumatic fever there is an inactivation of various enzymes, and that the administration of succinates may prevent the inhibition of succinic dehydrogenase (cytochrome C reductase) and the inactivation of other respiratory enzymes. The administration of ascorbic acid and the use of the calcium salt of the succinate also seem to be indicated, because ascorbic acid and calcium enhance the activity of succinic dehydrogenase.

Gubner and Szucs's Results

Gubner and Szucs tested their theory by treating cases of rheumatic fever with sodium salicylate and sodium bicarbonate, sodium salicylate and ascorbic acid, sodium bicarbonate alone, sulphathiazole, penicillin, and calcium double salt of benzoic acid and succinic acid benzyl ester plus ascorbic acid. They found that penicillin, sulphathiazole, and sodium bicarbonate were useless, and that treatment with any one of them alone had to be discontinued after a few days because of the increased severity of the disease. A comparison of the cases treated by them with salicylates and with the succinate compound is given in Table I.

TABLE I.—*Comparison of the Therapeutic Effects of Salicylates and Succinate (Gubner and Szucs)*

	Type of Therapy	
	Salicylates (4·5 g. Daily)	Succinate (Average Dose 4·2 g. Daily). Ascorbic Acid (200 mg. Daily)
Total No. of cases	65	55
Period in hospital	52 days	34 days
Period on drug therapy	48 "	27 "
Incidence of drug toxicity	19%	2%
Duration of fever	13·5 days	5·7 days
Duration of leucocytosis	22 "	14 "
Duration of accelerated B.S.R.	43 "	24 "
Incidence of carditis	69%	19%
Incidence of relapse	7%	0%

No toxic symptoms were observed in the cases receiving succinate, except for flushing and slight mental confusion in one patient, and occasional nausea. Evidence accepted as indicating carditis included murmurs, gallop rhythm, pericarditis, and *x*-ray and electrocardiographic abnormalities. The figures indicate that the succinate compound is of considerable benefit and constitutes a great advance in the treatment of acute rheumatism.

Extension of this work was carried out by Szucs (1947), using a mixture of calcium salicylate and aspirin. The results claimed by him are shown in Table II.

TABLE II *(Szucs's Results)*

Type of Case	No. of Cases	Result
Osteoarthritis	208	Definite improvement in 95% within eight days
Acute infectious arthritis	17	All evidence of arthritic activity disappeared within ten days
Rheumatoid arthritis	27	22 cases showed definite improvement, with arrest of arthritic activity within an average of three months
Mixed arthritis	15	8 cases showed marked improvement, with complete or almost complete cessation of arthritic activity within an average of two months
Spondylitis	95	Improvement of variable degree in the majority
Rheumatic polyarthritis	34	All evidence of rheumatic activity disappeared within an average of 14 days

Most of the cases of rheumatoid arthritis were said to have previously received an adequate course of gold without definite improvement.

Present Investigation

In view of these published results we think it of interest to record our experiences in the treatment of acute rheumatic fever with: (*a*) calcium monobenzyl succinate, 10 gr. (0.65 g.) four-hourly, omitting night dose = 50 gr. (3.25 g.) daily; and (*b*) calcium double salt of benzoic acid and succinic acid benzyl ester, 10 gr. four-hourly, omitting night dose = 50 gr. daily; together with 200 mg. of ascorbic acid daily.

The calcium double salt of benzoic acid and succinic acid ester, together with ascorbic acid, was used to test the validity of the earlier claims of Gubner and Szucs, and their dosage recommendations were adopted. Calcium monobenzyl succinate was used because it presented a different form of the same essentials and might have been instructive from the point of view of treatment.

Anticoagulants

Glazebrook and Cookson (1947) have pointed out that substances benefiting acute rheumatic fever, rheumatoid arthritis, and anaphylactic states have a common action in that they are all anticoagulants—namely, salicylates in rheumatic fever, deep jaundice in rheumatoid arthritis, and heparin in anaphylactic states. On this basis they built up a theory that the curative effect of salicylate in rheumatic fever depended upon its power to prevent protoplasmic clotting and cell death precipitated by the irritation of intracellular antigen–antibody reactions.

This explanation of salicylate action rests on the unproved assumptions that rheumatic fever is a manifestation of allergy, and that protoplasmic clotting is the same process as blood-clotting and can be inhibited by the same anticoagulants. There is reason to suppose that Heilbrunn's (1943) work, showing a similarity between the mechanism of blood-clotting and of protoplasmic clotting, is not securely founded (Cookson, 1947—personal communication), while the hyaluronidase story of rheumatic fever (Guerra, 1946) is claiming increasing attention. However, these developments do not detract from the importance of

the work of Glazebrook and Cookson in drawing attention to the anticoagulant group of drugs.

Heparin is an inhibitor and salicylates may be inhibitors of hyaluronidase, and from its chemical constitution dicoumarol would seem very likely to be an inhibitor of hyaluronidase. It seemed to us, therefore, that there was a strong case for the use of heparin in acute rheumatic fever, and that good results might be expected because of either its anticoagulant properties or its inhibiting effect on the spreading factor, hyaluronidase. Wassen and Zander (1946) have reported good clinical results from the treatment of rheumatoid arthritis and of rheumatic fever with heparin and dicoumarol, and we have also recorded our experiences in the treatment of acute rheumatic fever with heparin (1,000 T.U. intravenously thrice daily) and salicylates (200 gr. (13 g.) daily in four-hourly doses). A control group was given salicylates, without heparin, and all three groups were also given 200 mg. of ascorbic acid daily. The results are set out in Table III.

TABLE III.—*Details of Cases Investigated*

Case No.	Sex	Age	Previous Attacks	Duration of Illness before Admission (Days)	Evidence of Carditis on Admission	No. of Joints Affected	Maximum Temperature °F.	Maximum Temperature °C.	Maximum B.S.R.	Duration of (Days) Joint Pains	Duration of (Days) Pyrexia	Duration of (Days) Increased B.S.R.	Carditis on Follow-up	Succinate Used	Remarks
Succinate Group															
1	F	18	1	7	No	10	101	38·3	42	6	6	54	No	B	
2	F	19	0	6	Yes	8	102	38·9	102	18	23	51	,,	A+B	Pyrexia terminated by salicylate
3	F	18	0	21	,,	6	104	40	75	12	9	68	Yes	A	One relapse: total pyrexia, 12 days
4	M	40	1	21	,,	9	101·8	38·8	100	10	9	65	,,	A	Three relapses: total pyrexia 14 days. Pyrexia terminated by salicylates
5	F	29	1	2	,,	6	100·8	38·2	62	3	3	54	,,	B	
6	F	57	0	10	No	8	102	38·9	68	18	18	76	No	B	Pyrexia cut short by salicylates
7	M	24	0	21	Yes	6	101	38·3	65	34	38	77	,,	A	
8	M	15	0	1	,,	6	101	38·3	69	9	6	87	,,	A	
9	M	15	0	14	,,	4	99·8	37·7	48	3	3	62	Yes	A	
10	M	15	0	5	,,	11	99·8	37·7	85	3	7	61	,,	B	
										11·6	12·2	65·5	50%		
Heparin Group															
1	F	16	0	2	Yes	4	101	38·3	65	4	2	35	Yes		
2	F	19	0	7	,,	4	104	40	102	3	8	45	,,		
3	F	18	2	4	No	6	102·5	39·15	72	3	2	22	No		Two relapses with slight pyrexia
4	F	13	1	7	Yes	4	98·1	36·75	78	4	0	51	,,		
5	F	18	0	2	,,	6	102·5	39·15	76	5	5	98	Yes		
6	M	17	0	7	,,	10	99·8	37·7	80	4	2	61	No		
7	M	13	0	3	,,	4	102	38·9	80	7	4	78	Yes		Severe epistaxis; relapsed twice: total pyrexia 12 days
8	F	17	2	7	,,	6	103	39·4	134	4	2	51	,,		Relapsed twice: total pyrexia, 22 days
										4·2	3·1	55·1	62%		
Salicylate Group															
1	M	15	0	4	Yes	4	103·5	39·75	110	7	2	58	Yes		Relapsed: developed chorea, collapse of middle lobe and hyperpyrexia. Died after 26 days' further pyrexia
2	M	18	2	4	,,	6	100·5	38·05	80	4	6	58	,,		
3	M	46	1	20	,,	8	103·5	39·75	129	13	5	116	No		Pericarditis, pleurisy, three relapses: total pyrexia, 21 days
4	F	21	0	21	No	7	100	37·8	118	5	7	46	,,		
5	M	16	1	6	Yes	7	102·5	39·15	88	2	3	43	Yes		
6	F	16	0	7	No	8	103·5	39·75	92	6	6	35	No		
7	M	11	0	6	Yes	8	101·5	38·6	25	4	4	41	,,		
8	F	18	1	4	No	3	102·5	39·15	92	3	3	81	,,		Two relapses: total pyrexia, 10 days
9	F	34	0	10	Yes	13	103	39·4	122	2	7	37	Yes		
10	F	38	1	21	No	3	102	38·9	115	3	2	39	No		One slight "spike": total pyrexia, 4 days
										4·9	4·5	55·4	40%		

A = Calcium monobenzyl succinate, 10 gr. 4-hourly.
B = Calcium double salt of benzoic acid and succinic acid benzyl ester, 10 gr. 4-hourly.

Most of the columns are self-explanatory. With regard to the presence of carditis, all cases having any suggestion whatever of cardiac involvement—e.g., a mitral systolic murmur without *x*-ray or electrocardiographic evidence of abnormality or other physical sign—have been so classified. It is possible that this definition of carditis has been too strict, and that some of the cases so designated would make good recoveries.

Discussion

It can be said at once that neither form of succinate compound used in this trial represented any advance on salicylate therapy. The duration of joint pains, of pyrexia, and of elevation of the blood sedimentation rate was much longer than in the salicylate-treated group. What is more to the point, Case 2 in the succinate group had succinate A without improvement, and then succinate B also without improvement. Finally, salicylates had to be given to terminate the pyrexia. Two other cases (Nos. 4 and 6) also did badly on succinates and showed great improvement immediately they were switched to salicylates. Evidence of carditis on follow-up was present in 50% of the cases, as compared with 40% in the salicylate-treated group, but not much importance can be attached to this, as the majority of cases had evidence of carditis on admission, before treatment had started.

We have not been able, therefore, to find any support for the contention of Gubner and Szucs that succinates given without salicylates improve cases of acute rheumatism. It will be noticed that in the second series of cases treated by Szucs calcium succinate was used together with aspirin. This we think strange in view of the apparently good results

in the first series of cases treated by a succinate compound without aspirin.

The calcium double salt of benzoic acid and succinic acid benzyl ester has also been used for the treatment of rheumatic fever by Wégria *et al.* (1948). They conclude that neither the natural course of the disease nor its signs and symptoms were modified by succinate therapy.

The group treated with heparin was very little different from the salicylate group when the duration of joint pains, of increased pyrexia, and of increased blood sedimentation rate is considered, although it does seem that the duration of pyrexia was less in the cases given heparin. The presence of carditis on follow-up was found in 62% of the cases given heparin, but in only 40% of the cases given salicylates. Practically all of the cases in the heparin-treated group had carditis on admission, before treatment with heparin had begun, but they had been given salicylates outside by their own doctors before coming under observation. As in the case of the succinates, therefore, not much importance can be attached to this finding.

It would seem from these studies that we have not yet found anything which represents an advance in therapy in the treatment of rheumatic fever. Nevertheless, although succinates are certainly not effective, as are salicylates, in cutting short the pyrexia of an acute rheumatic episode, there has been offered no proof in this paper that they are not an adjuvant to salicylate therapy. Until some method of administering heparin is found which will maintain a constant blood level without the necessity for repeated intravenous injections, a really satisfying trial of this product cannot be made.

Conclusions

Succinate compounds given with ascorbic acid in the dosage recommended by Gubner and Szucs are ineffective in the treatment of acute rheumatism. Heparin, in a dosage of 1,000 T.U. three times daily, does not significantly reduce the duration of episodes of acute rheumatic fever treated with salicylates.

One of us (A.J.G.) received a grant from the Royal College of Physicians of Edinburgh while this work was being carried out. We wish to thank Roche Products Limited for the ascorbic acid, and their Research Department for the calcium monobenzyl succinate, used in this study.

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Dr. G. R. Wendt, chairman of the Psychology Department of the University of Rochester, U.S.A., is recently reported to have said that because a serious amount of charlatanism has developed in the U.S.A. it is essential that all groups concerned with the mental health movement should collaborate to protect the public through legislation (*New York Times*, September 11, 1949). Dr. Wendt considers that it is the primary responsibility of the medical profession to take the initiative in working for the protection of the public. He decried the almost complete lack of mental health legislation in the U.S.A. despite the great need for it. Only in Kentucky is there a law making it mandatory for each psychologist to get a licence before he can conduct private practice.

SUBACUTE POISONING BY THALLIUM TREATED WITH BAL

BY

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In our paper on a fatal case of subacute thalliotoxicosis (Mazzei, Schaposnik, and Pedace, 1948a) we emphasized the basic clinical characters of acute, subacute, and chronic poisoning by thallium, together with the micropathology of each. The present paper deals with another case of poisoning by thallium—a suicidal attempt—which was successfully treated with BAL.

Though there does not seem to be any clinical experience with this drug in this type of poisoning, we decided to try it. Afterwards, Furmanski (1948) explained the beneficial action of BAL in poisoning by thallium. He used the drug with favourable results in severe peripheral neuropathies which had proved intractable to large doses of vitamins and crude liver extract. He based the treatment on the accepted view that such neuropathies are caused by the inactivation of the enzymatic systems of the nerve cells by toxins or toxic metabolites. He thought that BAL acted in these cases in a similar way to that in metal poisoning—i.e., by combining itself with the toxic metabolites after setting free those enzymes vitally related to cell respiration.

With these facts in mind, we thought that in human cases of poisoning by thallium BAL could be of use by displacing and then eliminating the metal already combined with protein enzymes of the nervous cells.

Dosage and Toxic Disorders

In the light of Eagle's wide experience, the Council of Pharmacy and Chemistry of the American Medical Association suggests the following outline of dosage in arsenical poisoning; this outline can be extended to poisoning by other metals.

In severe arsenical reactions.—First and second day, six daily injections of the drug, each of 3 mg. per kg. of body weight. Third day, four injections of the same dose. During the following 10 days or until full recovery is attained, two daily injections.

In reactions of medium severity.—Each injection should consist of 2.5 mg. per kg. of body weight. During the first two days four doses should be given, two on the third day, and one during the following 10 days or until full recovery.

In our case we used approximately the medium-severity doses, the total amount of drug injected being 3.1 g.

The administration of BAL may give rise to some unpleasant though transient effects. In view of its affinity for heavy metals, some of the toxic disorders following the use of high doses can be attributed to its combination with the metals which form part of the molecule of certain enzymes (copper, zinc, iron, and manganese). The removal of the heavy metals renders inactive the corresponding enzymes by depriving them of their protein groups (Furmanski, 1948). This theory seems to be supported by the drop in the magnesium content of the blood and disruption of the calcium/magnesium balance seen in patients receiving BAL, thus giving rise to the characteristic

symptoms of tetany. However, the enzymatic inhibition is rapidly reversible, so the accident does not seem to have undue importance.

The most common toxic symptoms are excessive salivation, vomiting, lacrimation, sweating, generalized myalgias, headaches, severe fleeting pains at the site of the injection, tachycardia, increased blood pressure, dyspnoea, and precordial constriction.

We must call attention to the high levels of the blood pressure in our patient. Though thalliotoxicosis is often accompanied by high blood pressure—especially the diastolic—the rise was evidently coincident with the course of BAL; it must therefore be attributed, partly at least, to the action of the drug.

Case Report

The patient, an Argentine girl aged 16, was a student at a secondary school, and lived in La Plata, province of Buenos Aires. During the three days September 16–18, 1948, she swallowed approximately 34 g. of the rat-poison paste "zelio," which contains 2% of thallium sulphate. On September 20 she began to feel skin hyperaesthesia and pains in the muscles of her lower limbs. On the following day her temperature rose to 38° C. (100.4° F.) and the myalgias had become very severe. The mere touch of the bedclothes caused violent pains, and she became progressively unable to use her legs.

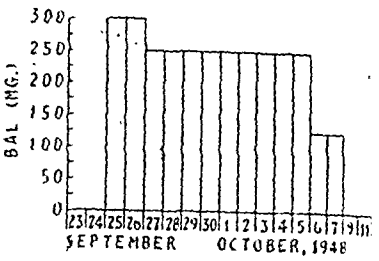
On September 20 one of us was called in to see her. The temperature was 40° C. (104° F.). She was restless, with facies dolorosa, of asthenic habitus, and was lying on her back because of severe pain in her feet and legs, which was greatly intensified by the slightest touch or movement. She was undernourished, with small amount of subcutaneous fat. Her skin was hot and dry. The shape and reflexes of the pupils were normal. Her pulse was rhythmic, 84 a minute; blood pressure 170/120 mm. Hg. On palpation the whole of the abdomen was tender. The liver and spleen were within normal limits; the renal areas were painful. She was completely unable to move her lower limbs, and passive mobilization caused intense pain, particularly in the feet. The severe hyperalgesia made it impossible to carry out a thorough examination. The Achilles-tendon, patellar, and abductor reflexes were increased.

A psychiatric examination was performed by Dr. Alejandro Resús, who reported: "Her mental picture is prior to her attempt at poisoning, and must be the determining factor of the same. The symptoms correspond to the development of a constitutional and atypical exacerbation, which is due to the overlapping of the emotional psychasthenic and schizoid components (hypermotivity, erythrophobia, exaggerated psychomotor reactions; varied neurotic tendencies, phobias, and certain obsessions; a tendency to introversion and isolation, ideo-affective disassociation of personality)."

Laboratory Tests.—Blood count: red cells, 4,789,000; Hb, 95%; platelets, 240,000; white cells, 6,400 (neutrophils 60%, eosinophils 0.66%, monocytes 13%). Coagulation time: five minutes; bleeding time: two minutes. Sedimentation rate: first hour, 15 mm.; second hour, 38 mm. Blood urea, 30 mg. per 100 ml.; blood sugar, 96 mg. per 100 ml; blood cholesterol, 180 mg. per 100 ml.; alkali reserve, 50 vols. %; chloride in cells, 1.56 mg. per 100 ml.; chloride in plasma, 264 mg. per 100 ml.; blood proteins, 8.28 g. per 100 ml. (serum albumin, 4.82 g.; serum globulin, 3.46 g.). Urine: turbid; acid reaction; slight sedimentation; specific gravity 1009; ammonia 0.47 g., urea 13.1 g., chlorides 2.2 g., phosphates 1.3 g., albumin 1.5 g. per litre; no sugar, acetone, or bile pigment. The sediment showed granular and hyaline casts, some red cells, and a large number of desquamation cells.

Treatment and Progress

On September 23 treatment was started with sedatives, analgesics, 25% glucose solution intravenously, vitamin B complex, and 15% magnesium sulphate with 0.05 g. of papaverine intramuscularly. Two days later the first phials of BAL from an English firm were obtained. During the first two days 300 mg. was injected daily. After this the treatment was continued with the same product, but of American origin (10% solution). A total of 3.1 g. was given (see Chart).



Throughout the administration of the drug the patient developed a morbilliform exanthema of varying degrees in the upper limbs, neck, and chest. Each injection of BAL gave rise to intense headaches and greatly increased the pains in the lower limbs; opiates were partially successful in alleviating these conditions. Weekly estimations of the urine showed considerable fluctuations in the albumin content (between 0.2 and 1.5 g.); albumin, together with renal elements, finally disappeared in February, 1949.

A few days after treatment was suspended the pains in the lower limbs began to decrease, and by December, 1948, the patient was free from them. The muscles of the thighs and legs gradually recovered their original tone and size with the help of massage. The hair on the head began to fall on October 5, and within a few days only a few patches of short hair remained.

For three months the patient was treated in a private mental institution. Insulin shock brought about a definite improvement in her psychic manifestations; moreover, her weight increased by 7 kg. (15 lb. 7 oz.). During this period massage was continued until total recovery. The last examination (April, 1949) showed that she had completely recovered.

Summary

A case of subacute thalliotoxicosis caused by swallowing 45 g. of a rat-killer paste containing 2% thallium sulphate is described. A total of 2.85 g. of BAL was given in the course of 13 days. The patient fully recovered.

The pharmacology of the drug is described, together with the reasons for using it in poisoning by thallium.

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The need for new legislation for the prevention of smoke was the principal theme discussed on September 29 at the conference of the National Smoke Abatement Society in Harrogate. Reports of the limited success and difficulties of several local authorities in administering new local Acts of Parliament emphasized the form that new laws must take if they are to be effective in preventing, rather than just abating, smoke. Strong criticism of the opposition of "big industry" to a new Parliamentary Act obtained by the city of Birmingham, which had led to a serious weakening of its smoke clauses, was made by Dr. W. R. Martine, Senior Assistant Medical Officer of Health. In contrast, an officer of the Smoke Control District of Los Angeles, who was present as a visitor to the conference, described the effective and far more stringent regulations imposed in California and many American cities. Dr. Metcalfe Brown, hon. secretary of the Manchester and District Regional Smoke Abatement Committee, reported on an investigation in the Carrington area, near Manchester, where one of the country's biggest power stations is being erected, and other industries are causing concern. Local authorities around the area are co-operating in running a network of instruments, extending over 36 square miles, to measure the pollution of the air for comparison with conditions when the power station is operating. In conjunction with this a survey on the effects of smoke and fumes on plant life—an important matter for farmers—is being conducted jointly by the Smoke Abatement Committee, the Department of Botany of Manchester University, and the Agricultural Research Council.

FATAL BRONCHOSPASMODIC CRISIS COMPLICATING MILIARY TUBERCULOSIS OF LUNGS

BY

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In a recent case of miliary tuberculosis attacks of severe dyspnoea associated with slowing of the pulse developed during streptomycin treatment. These attacks ultimately proved fatal, and as no similar occurrence appears to have been reported it seems worth while to record the symptoms and findings.

Case Report

The patient, a boy aged 11 years 9 months, had no record of serious illness and enjoyed normal health until March, 1948, when he was admitted into another hospital with a severe upper respiratory infection associated with general listlessness, anorexia, and cough. Clinical examination showed no abnormality in the chest, but radiographs revealed a shadow in the right mid-zone, which subsequently cleared. Mantoux reactions in dilutions of 1 in 10,000 and 1 in 1,000 were negative at this time. As his progress was slow he was sent to an open-air school, from which he returned at the end of July acutely ill, with a high fever and a left-sided pleural effusion. It was not until November that there was radiological evidence of miliary tuberculosis in the lungs. He was then transferred to the Victoria Hospital for Children for streptomycin therapy. No history of contact with a case of tuberculous infection was traceable in his family or companions. There was no personal or family history of asthma, hay-fever, or urticarial eruptions.

On admission (November 7, 1948) the clinical diagnosis of miliary tuberculosis with a large left-sided pleural effusion was confirmed radiologically. The Mantoux test was strongly positive with the 1 in 1,000 dilution. He had a low-grade pyrexia, and the pulse rate was 112–120 a minute. The spleen was not enlarged and no lymph glands could be felt in his neck or elsewhere. The urine showed a trace of albumin and a few casts, but no red cells. The cerebrospinal fluid remained normal throughout the illness. Despite frequent examinations tubercle bacilli were not isolated from sputum, laryngeal swab, or stomach washings.

The patient was given a three-months course of intramuscular streptomycin, with a total dosage of 77.9 g. At the end of the course, 13 days before his death, his lung condition showed both clinical and radiological improvement with resorption of the effusion. There was thickening of the left pleura and some coalescence of the miliary shadows in the right upper lobe, especially towards the hilum. No abnormality was found in the nervous system. He had a slight unproductive cough, and his weight was stationary at 57 lb. (25.65 kg.). His general condition was slightly better than on admission.

On February 12, 1949, he developed a mild coryza with some increase of the cough. Next day at noon he was seized with a bad attack of dyspnoea associated with severe apprehension and very laboured but ineffective expiration. He vomited a large quantity of mucus with some purulent-looking material, and in the course of an hour the attack gradually passed off. Scattered rhonchi and medium rales were audible over the chest, but there was no fever.

At 7 p.m. the same day a second attack occurred. On this occasion cyanosis was pronounced, and it was noticed that the pulse rate had dropped to 80 a minute. He had great difficulty in expelling air from his chest, so that expiration lasted three to four seconds—about twice as long as inspiration. This attack was relieved by a subcutaneous injection of 8 min. (0.5 ml.) of 1 in 1,000 adrenaline and by oxygen inhalation. After the attack had passed off the pulse rate was recorded at 120–142 a minute.

For 36 hours he remained free of dyspnoea and showed no abnormality except for persistent tachycardia 120–136 and a few scattered medium rhonchi on lung auscultation. On February 15 he had two more attacks, with intense expiratory dyspnoea and slowing of the pulse to 80 a minute. During both of these he lost consciousness for a few minutes.

On February 16, at 9 a.m., he had a very severe attack which lasted an hour. This time the expiratory difficulty was very great and the pulse fell to 68 a minute, though the volume was remarkably good. He became unconscious and was deeply cyanosed for 45 minutes, during which time he was given 1 min. (0.06 ml.) of 1 in 1,000 adrenaline subcutaneously at minute intervals and continuous oxygen inhalation through a glass funnel. Examination of the chest at this time, as during preceding attacks, showed no evidence of pneumothorax. The high-pitched rhonchi usually associated with bronchospasm were not heard during this attack—a remarkable finding in view of the intensity of the expiratory effort. After 45 minutes the pulse rate rose abruptly to 168 a minute and the spasm passed off, consciousness returning during the next 15 minutes. At this stage direct examination of the larynx showed no evidence of spasm of the cords. The patient was then nursed in an oxygen tent, where he regained and maintained a good colour, was quite cheerful, and ate a normal tea and supper. Examination of the chest now showed scattered rhonchi, with some medium rales in the right upper lobe. The temperature was normal and the pulse between 148 and 160, but of good volume. At 1 a.m. on February 17 he suddenly became restless, urgently dyspnoeic, and cyanosed, struggled into a sitting position, and in two to three minutes collapsed and died.

Post-mortem Findings:—Necropsy was carried out by Professor T. Crawford 13 hours after death; the following significant findings are extracted from his report.

"*Respiratory System*:—Dense pleural adhesions are present over the lateral aspect of the left lung, and the appearance suggests an organizing caseous exudate at this area. The trachea appears normal, but both bronchi are pressed upon by enlarged caseous glands surrounding them close to their origins. There is, however, no ulceration of the glands into the bronchi. An irregular caseous focus measuring 2 by 1 cm. is situated in the lower part of the upper lobe of the left lung, and around this there is an area of caseous bronchopneumonia. Three small caseous foci measuring 5 mm. in diameter are present in the right upper lobe. Small miliary lesions, just visible to the naked eye, are scattered widely through the lung tissue. The *spleen* is moderately enlarged and shows a few small tubercles in its capsule and scattered through the substance. *Lymphatic System*:—Enlarged and caseous glands are present at the hila of both lungs and beneath the bifurcation of the trachea. Further glands are present in chains extending up the sides of the trachea into the anterior triangle of the neck, and at this site both vagus nerves are firmly adherent to caseous glands. Caseous glands are also present in the portal fissure and beside the abdominal aorta. *Head*:—The brain and meninges appear normal and show no evidence of tuberculosis. *Summary*:—Primary tuberculosis of the lung; tuberculosis of mediastinal, cervical, and abdominal lymph glands with involvement of the vagus nerves; miliary tuberculosis."

Comment

Correlation of the clinical and post-mortem findings in this case suggests that the attacks of severe expiratory dyspnoea associated with slowing of the pulse and evidence of bronchospasm resulted from vagal stimulation. The vagus nerves were found adherent to caseous lymph glands, and it is suggested that the attacks were initiated by change of position affecting the adherent nerves.

Our thanks are due to Dr. Charles Pinckney for permission to publish the case and to Professor T. Crawford for his post-mortem report and for helpful advice and criticism.

Medical Memorandum

Spontaneous Disappearance of Apparently Secondary Growths in Liver

The following case contains several points of interest, particularly the finding of three apparently secondary nodules of some size in the liver during the removal of a huge adenocarcinoma of the left ovary, and the fact that they had disappeared when sought at operation two and a half years later.

Case Report

A farmer's wife aged 58 complained on September 8, 1938, of increasing size of the abdomen for six months, with some generalized pain, a dry cough, and, latterly, much dyspnoea. There had been occasional vomiting; the appetite was poor, the bowels regular. She did not think she had lost weight. For the past month she had had palpitations and swelling of the feet. There had been three normal pregnancies, and her periods had been regular until 52. Since then she had had small losses of blood at long intervals.

She was a pale, thin woman, markedly dyspnoeic; tongue clean, pulse 100/110, apex beat displaced to left, heart sounds clear, B.P. 140/90. Right chest stony dull to level of scapular spine; no adventitious sounds. Left side clear. Enormous tender regular swelling, filling abdomen, some free fluid. Small normal cervix; uterine body not felt apart from abdominal swelling. Diagnosis: a malignant cyst of ovary, unlikely to be operable.

Admitted to Royal Sussex County Hospital on September 21. Next day 31 oz. (880 ml.) of clear fluid aspirated. A radiograph showed no sign of secondary growth of lung or pleura. During the next 18 days four further aspirations averaged 38 oz. (1.08 litres). After each a radiograph was negative to growth or tuberculosis. The pleural fluid was sterile on culture. Film: polymorphs 68%, lymphocytes 30%. R.B.C., 4,100,000; Hb, 65%; C.I., 0.8; W.B.C., 11,000 (P. 77%, L. 14%, E. 2%, M. 7%). Wassermann test not done.

In view of the persistently negative *x*-ray reports for secondaries in the chest it was decided to give her an outside chance and to operate.

Operation, October 11, 1938.—Under bromethol, cyclopropane and oxygen a long paramedian incision exposed a huge left ovarian cyst, softened and necrotic in many places. A thinned-out ribbon of transverse colon was stretched across it. This and many adhesions of small intestine and omentum were separated by gauze dissection and the cyst removed: several leaks of dirty fluid and necrotic material occurred from the cyst. An apparently healthy right ovary was also removed. Three firm raised nodules, roughly 1–1½ in. (2.5–3.75 cm.) in diameter, present on the anterior surface of the right lobe of the liver, were regarded as certainly secondary growths from the malignant ovary, and for this reason, as well as the patient's poor condition, panhysterectomy of a small smooth uterus was not done.

Pathological Report.—Left ovary, a malignant papillary adenocarcinoma; right ovary, post-menopausal changes. No sign of malignancy.

The patient made a good recovery and was discharged on November 2, with a poor prognosis. During the ensuing months no further fluid collected in the right pleura and signs of pleural thickening gradually disappeared. A year later the liver was not enlarged and there was no evidence of secondaries or fluid in the abdomen. The patient felt well and had put on weight. This unexpected result was maintained throughout the second year after operation.

On March 21, 1941, however, she returned. For six months she had had small losses of blood per vaginam, with a watery discharge in the evenings, and felt tired. The abdomen and liver showed nothing abnormal: P.V., a small, firm mass, which bled on touch, protruded from the cervix and there was some thickening of the lower uterine segment. Biopsy showed the protruding mass to be adenocarcinomatous.

Second Operation.—After a few days' douching and a transfusion of 1 pint (568 ml.) of blood, operation was performed on March 25. The abdomen was opened through the old scar and the liver first examined. The only sign of the three previous nodules was a small puckered scar; the rest of the liver surface was smooth. The caecum and some coils of ileum were adherent to the uterus, and after separating these panhysterectomy was done. The lower uterine segment was much thickened and the parametrium very vascular. On detaching the former the uterine body tore away, leaving the lower uterine segment and cervix almost completely replaced by soft growth, which was already infiltrating the parametrium. There was little hope of their complete removal. It was decided to drain the canal into the vagina and to apply radium later. The abdomen was closed and 2 pints (1.4 litres) of blood given by drip. She made a satisfactory recovery and the vaginal tube was removed on the fourth day.

Two and a half weeks later radium was given—20 mg. in the cervix and a 25-mg. tube in each vaginal vault for 15 hours (1,050 mg.-hours). Another application followed three weeks later—10 mg. cervical and two 25 mg. vaginal for 15 hours (900 mg.-hours). Total for the two applications, 1,950 mg.-hours. On March 10 the patient was discharged.

In September there was a suspicion of thickening along the right utero-sacral ligament, but three months later this had disappeared and the tiny cervix was mobile. At this date the patient complained of pain in the spine at mid-dorsal level. Movements were good and a radiograph showed no sign of secondary growth. In January, 1942, this pain had gone, but another had taken its place in the lower lumbar spine. Radiographs revealed no secondary growth, but some osteo-arthritis.

In December, 1948, the patient was able to do her housework, and only the headaches and back pain bothered her. She then weighed 2 st. (12.7 kg.) more than just after her first operation.

Comment

The special point of interest is the proved disappearance, two and a half years after the removal of a malignant ovarian cyst, of three apparent secondaries in the liver. In the absence of a biopsy, however, no certain claim can be made that they were malignant. A second point is that no further growth in the peritoneal cavity ensued. Thirdly, the disappearance of all growth from the remains of the lower uterine segment and parametrium after a moderate dose of radium was hardly expected.

The three incidents together suggest not only a low grade of malignancy but an unusual degree of bodily resistance to cancer. A risk was admittedly taken in using radium with so slender a barrier between the remains of growth and the peritoneal contents.

The presence of a large pleural effusion accompanying malignant cysts does not necessarily imply metastases, as malignant growths of the ovary seldom metastasize outside the peritoneal cavity. The connexion between the occasional post-menopausal losses over six years and the malignant ovary is speculative. A certain number of such tumours do seem to provide an oestrogenic hormone which re-energizes the endometrium after the menopause. The adenocarcinoma of the uterus was almost certainly a spread from the ovary, and emphasizes the importance, whenever feasible, of doing a panhysterectomy as well as a double ovario-salpingectomy in such cases.

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Reviews

A TEXTBOOK ON TRANSFUSION

Blood Transfusion. Edited by Geoffrey Keynes, M.A., M.D., F.R.C.S. (Pp. 574; 110 illustrations. £2 12s. 6d.) Bristol: John Wright and Sons. 1949.

The great amount of work carried out upon all aspects of blood transfusion during the past decade has created many opportunities for new books. The perspective has altered completely since 1939, when Riddell wrote the last major British textbook on transfusion. For example, Riddell speculated on the possibility that incompatibility within the MN system might be the cause of minor haemolytic reactions, but there are now numerous investigators who know from their own experience that these groups are of negligible clinical importance.

This new textbook is a comprehensive guide to the whole subject. It begins with a delightful and authoritative account of the history of blood transfusion, by Mr. Geoffrey Keynes. The indications for, and complications of, transfusion are discussed at length by Dr. Bodley Scott. Mr. A. Till writes on technique, and Dr. H. F. Brewer on blood groups, the organization of a hospital transfusion service, and, with Mr. F. W. Mills, on the blood donor. There is a chapter about transfusion in infancy by Professor R. W. B. Ellis, an account of blood storage by Sir Lionel Whitby, and a particularly lucid and thorough chapter on blood derivatives and substitutes by Dr. R. I. N. Greaves.

It is natural that in a book of this size and scope, written by a number of different authors, there should be signs of unevenness. For example, almost a page is devoted to a description of the rare antigen C^w, which is of very small importance in blood transfusion. By contrast, a reader wanting to know how old a bottle of stored blood can profitably be given to an anaemic patient must be content with brief, conflicting dicta appearing in different sections of the book. On page 84 he is told that "for the relief of chronic anaemia . . . stored blood *should not be used*"; *but he must somehow try to reconcile* this with the statement on page 459 that "blood . . . stored for a period of 14 to 21 days is almost as good as fresh blood for the treatment of simple anaemia." If the reader were given some quantitative data on the survival of erythrocytes stored for different periods in acid citrate-glucose solutions he could judge for himself which of these two statements is the more reasonable. A certain number of fallacies, derived from other authors, have found their way into the book. For example, it is said in connexion with transfusions to infants with haemolytic disease that if the red cell count is raised above a certain level (*3.5 million/c.mm.), the excess red cells will be lysed.* This concept is unquestionably incorrect. A second example is a formula given for calculating the amount of blood to transfuse to an infant. This assumes a blood volume of 110 ml./kg., but, except in plethoric infants, who are unlikely candidates for transfusion, the blood volume is in fact approximately 75 ml./kg.

These and other occasional lapses make one hesitate to describe the whole book as authoritative, though there is no doubt that large sections of it deserve that title. In any case its wide scope and discriminating lists of references will ensure its value to all who practise blood transfusion.

P. L. MOLLISON.

INVESTIGATION OF THE RENAL TRACT

Cystoscopy and Urography. By Jas. B. Macalpine, F.R.C.S. Third edition. (Pp. 570; 338 illustrations and 15 coloured plates. £3 3s.) Bristol: John Wright and Sons. 1949.

The second edition of this well-known work was a war casualty. All the copies of that edition and the materials for a reprint were destroyed by bombs, so that the book was unobtainable for many years. The only benefit that accrued from the misfortune was the time afforded the author to bring it up to date.

The chapter on urinary tuberculosis has been largely rewritten and a new section on its pathology has been added. Cystoscopy is only one of the steps in the routine investigation of a urological case, and the findings must be correlated with other methods of obtaining information. The author has therefore done well in not confining his attention to cystoscopy and posterior urethroscopy. This allows consideration of other questions—whether, for instance, the rapid secretion of radio-opaque dye and a dense shadow of an apparently normal pelvis is sufficient guarantee that the kidney on that side is free from tuberculous infection. It is well known that there are two schools of thought on this subject, some urologists insisting on catheterization of the ureters and others relying on the cystoscopic and pyeloscopic findings. Mr. Macalpine favours an intermediate course. He "accepts the urographic evidence of disease in the principally affected kidney and gives due weight to the pyelogram of the other side." He recommends that cystoscopy be limited to a quick inspection of the bladder and an indigo carmine test, the danger of producing a secondary infection being thereby reduced. The least satisfactory paragraphs are those describing the endoscopic resection of the prostate. Here the author relies more on the writing of others than on his own experience and there is a loss of that personal touch which characterizes the rest of the book. A new section on the punch-operation for prostatic hypertrophy by means of the technique used at the Mayo Clinic has been contributed by Mr. R. H. O. B. Robinson.

This book established itself as the best English work on this subject long ago, and the new edition should more than maintain its previous reputation. It is clearly written, practical in its outlook, and the illustrations and coloured plates are excellent.

KENNETH WALKER.

CHEMISTRY OF ALKALOIDS

The Plant Alkaloids. By Thomas Anderson Henry, D.Sc.(Lond.). Fourth edition. (Pp. 804. £3 3s.) London: J. and A. Churchill. 1949.

Everyone interested in plant alkaloids, whether botanist, chemist, or pharmacologist, owes a great debt of gratitude to Dr. Henry for the way in which, at intervals of about ten years, he has brought his book up to date. At its first appearance in 1913 it was a substantial volume of some 480 pages. Each successive edition incorporated much new material, and the present contains something like three to four times the number of words as the original volume. Apart from a description of the purine alkaloids which was omitted from the second edition, the introduction of new material has not involved jettisoning the old, and the present book is probably the most authoritative and exhaustive work on the plant alkaloids that has ever been written.

Those who have used this book for many years—and there must be many who have the first, second, and third editions on their shelves—will be pleased to find in the new volume all the valued features of its predecessors. The botanical origin of groups of alkaloids is discussed as carefully as ever and has been brought up to date. The sections giving an account of the pharmacology of the alkaloids are admirable, some of them have been considerably enlarged, and the synthetic substitutes for natural alkaloids have been briefly but adequately described. Indeed, these sections provide as good an introduction to the relevant literature as can be found.

The main bulk of the book is concerned with the chemistry of the alkaloids, in particular with the difficult structural problems presented by these fascinating natural products. Dr. Henry is here a master of his subject. Full justice is done to all relevant research, but the reader is never weighed down by the immense mass of experimental evidence, because the author guides him skilfully through intricate argument and counter-argument and illuminates his path with innumerable structural formulae. The narrative is made vivid by the inclusion of small practical details, such as the experimental conditions of many reactions and the physical constants, crystalline appearance, and solubilities of innumerable substances. It is probably this feature which has made earlier editions so

popular among alkaloid chemists. Dr. Henry has always kept close to experimental details, so that in this comprehensive work he has found space to remark that strychninolone crystallizes in "glistening prisms" and berberal in "colourless glancing leaflets." He has the delight of the craftsman in his subject; just as the carpenter caresses a fine piece of wood with his hands, so Dr. Henry's pen cannot resist a tribute to a beautifully crystalline substance.

A final word must be given about the reference lists which are distributed throughout the work. In many years' use of earlier editions I have never found a reference inaccurately quoted, and study of one or two lists in the present edition has shown no important reference to be omitted.

H. R. Ing.

MONOGRAPH ON RHEUMATISM

Manuel Pratique de Rhumatologie. By Professor Gunnar Kahlmeter. (Pp. 134; illustrated. No price). Paris: Expansion Scientifique Française (23, Rue du Cherche-Midi).

Many English readers will welcome this French translation of Kahlmeter's manual of the rheumatic diseases. They will find a simple and unpretentious little book, written with a brilliant power of clinical exposition and lucid argument. There are no references, for this is Kahlmeter's thought and experience; there is no index, for this is a book to read, not a work of reference.

The important chapters are those on acute rheumatism and rheumatoid arthritis. The author regards them as closely related conditions, and argues the matter so well as to be almost convincing. Discussing the aetiology of rheumatoid arthritis, he inclines to the hypothesis of "allergy," but by this he means a specific mode of reaction to a number of causal agents. "Lorsque, dans la théorie allergique moderne," he writes, "on fait usage du mot *allergie*, ce mot doit être pris, non dans sons sens original, mais plutôt dans celui de 'mode spécifique de réaction.'" *This simply will not do. It is as if a chemist* should write, "Sodium chloride is to be taken as meaning anything with a salty taste." Allergy has a precise meaning, which is not "a specific mode of reaction," and it is not open to Professor Kahlmeter or anyone else to tamper with the meaning of scientific terminology.

There are concise descriptions of "infective pseudo-rheumatism" (the nomenclature throughout is that most familiar to French readers); of osteoarthritis; of spondylitis; of rheumatism of the menopause; of tendinitis and bursitis; and a less satisfactory chapter on myalgia.

The author's experience in therapeutics is of particular interest. It is refreshing to find due attention given to medicinal measures, for we in this country rely far too much on physiotherapy, but it is surprising to read that the author has found colchicine of value in rheumatoid arthritis and in rheumatism of the menopause. After reading his warm advocacy of *x*-ray therapy in rheumatoid arthritis, bursitis of the shoulder, and tendinitis, especially that associated with osteoarthritis of the hip and knee, English readers may feel that a more extended trial of the method should be made in this country.

Kenneth Stone.

Dr. Lowmain E. McCrea's *Clinical Urology* (second edition; pp. 503; 265 illustrations, 7 in colour; $6.50; Philadelphia: F. A. Davis Company, 1948) is an excellent book, and the first edition, which appeared in 1946, met with great success. It is written for practitioners, and its object is to tell them what the diagnosis is likely to be, how the patient should be treated, and the best means of carrying out this treatment. Not a word is wasted, and when words can be reduced in number by the use of an illustration the illustration is provided. The plates and diagrams are of high standard, and merely by looking at them a tired general practitioner at the end of a long day's work could obtain a good knowledge of urology. A book which lays down rather than discusses methods of treatment must necessarily be dogmatic, but dogmatism here is not obtrusive; the author only states that the methods he prescribes are those that have given the best results in his own experience. It is perhaps necessary to add that the paper, the printing, and the general production are such as one would expect from a country where publishers have not been handicapped by the austerities produced by the war.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

Varicose Veins. By R. Rowden Foote, M.R.C.S., L.R.C.P., D.Obst. R.C.O.G. (Pp. 226. 32s. 6d.) London: Butterworth. 1949.

Modern Practice in Anaesthesia. Edited by F. T. Evans, M.B., B.S., F.F.A. R.C.S., D.A. (Pp. 606. 50s.) London: Butterworth. 1949.

Collected Papers of the Mayo Clinic and the Mayo Foundation. Edited by R. M. Hewitt, B.A., M.A., M.D., and others. Vol. 40. (Pp. 918. 55s.) Philadelphia and London: Saunders 1949.

Masochism in Modern Man. By T Reik. (Pp. 439. 25s.) New York: Farrar, Strauss. London: George Allen and Unwin. 1949.

Understand Your Diabetes. By J. W. Caldwell, M.D. (Pp. 145. 7s. 6d.) Toronto: Oxford University Press. London: Geoffrey Cumberlege. 1949.

Les Lipides. (Pp. 399. 1,000 francs.) Paris: Éditions du Centre National de la Recherche Scientifique. 1949.

Les Methodes Statistiques dans l'Expérimentation Biologique. By P. L'Héritier. (Pp. 93. 400 francs.) Paris: Centre National de la Recherche Scientifique. 1949.

Unités Biologiques Douées de Continuité Génétique. (Pp. 205. 1,000 francs.) Paris: Centre National de la Recherche Scientifique. 1949.

Le Trincee Cliniche della Tonsillectomia By G. Calderoli. (Pp. 78. No price.) Bergamo: Carrara. 1948

Sexual Freedom. By R. Guyon. (Pp. 344. 16s.) London: John Lane, The Bodley Head. 1949.

Neurology. By R. R. Grinker, M.D., and P. C. Bucy, M.D 4th ed. (Pp. 1,138. 63s.) Oxford: Blackwell Scientific Publications 1949.

Aids to Forensic Medicine and Toxicology. By W. G. Aitchison Robertson, M.D., F.R.C.P.Ed. Edited by J. H. Ryffel, B.Sc., F.R.I.C. 12th ed. (Pp. 170 4s. 6d.) London: Baillière, Tindall and Cox. 1949.

Leptospirosis. By A. A. Ayala. (Pp. 201. No price.) Barcelona: Ediciones Byp. 1949.

Notes on the Theory of Dental Surgery. By N. Black, L.D.S. R.C.S. (Pp. 168. 12s. 6d.) London and New York: Staples Press. 1949.

Fractures and Dislocations in General Practice. By J. Hosford, M.S.Lond., F.R.C.S. 2nd ed. revised by W. D. Coltart, M.B., B.S.Lond., F.R.C.S. (Pp. 290. 21s.) London: H. K. Lewis 1949

Discoverers for Medicine. By W. H. Woglom, M.D (Pp. 229. 18s.) Yale: University Press. London: Cumberlege. 1949

Orthopädische Gymnastik. By G. Hohmann and L. Jegal-Stumpf. 2nd ed. (Pp. 124 M. 8.70.) Stuttgart: Georg Thieme. 1949.

Pharmaceutical Emulsions and Emulsifying Agents. By L. M. Spalton, B.Pharm.Lond., M.P.S. (Pp. 132. 5s.) London: The Chemist and Druggist. 1949.

Handbook for the Identification of British Insects Diptera. Vol. 9. Part I. By H. Oldroyd. (Pp. 49. 7s. 6d.) London: Royal Entomological Society of London. 1949.

Die Chirurgische Abteilung des Bürgerspitals Basel zur Zeit der Antiseptik. By G. Reichen. (Pp. 107. No price.) Aarau: Sauerländer. 1949.

The Trend of Scottish Intelligence. Sponsored by the Population Investigation Committee and the Scottish Council for Research in Education. (Pp. 151. 7s. 6d.) London: University of London Press. 1949.

A CHOLERA CENTENARY

BY

MAJOR GREENWOOD, D.Sc., F.R.C.P., F.R.S.

More than 270 years ago Sydenham predicted that the epidemic diseases which he saw would give place to others the nature of which it was impossible to foresee. He was writing some ten years after the last epidemic of plague on a grand scale in Great Britain. Just a hundred years ago our great-grandfathers, to whom plague was a distant memory, suffered the second epidemic of Asiatic cholera, which has not afflicted us since 1866. In London the worst week was that ending September 8, 1849, with 2,021 deaths; four weeks later the total had sunk to 288, and the epidemic rapidly declined. It killed more than 50,000 persons in England and Wales—about as many as the war in the air of our time. Now we study with a certain anxiety the much smaller figures of notified poliomyelitis; with a certain anxiety because, epidemiologically speaking, we do not know so *very* much more about it than our great-grandparents knew about cholera. Sydenham was a good prophet. The cholera of 1849 was the subject of three bulky reports, by the General Board of Health, by the College of Physicians, and by the General Register Office. Copies of them, even those in an epidemiological department, need to be handled cautiously in these days of soap-rationing; they are apt to be very dusty. That published by the College of Physicians is the most readable because it is not very statistical and is the work of a single author, William Baly (1814–61), a physician of sufficient importance to be remembered by D.N.B., but hardly even a name to most of us.

William Baly, a student at University College and Bart's, graduated M.D. at Berlin in 1836, became physician to the Millbank Penitentiary in 1841, and F.R.C.P. in 1846; he was thought to be a rising man, and was appointed physician to the Queen, as understudy to Sir James Clark, in 1859. He was killed in a railway accident when 47. His report is quite readable and strictly orthodox, as the official report of a professional body is sure to be. A reader in 1949 may say that, generally speaking, when Baly was quite sure, he was quite wrong, and when he doubted he inclined to the wrong side. That, however, is a grossly unjust way of judging an official report made by a young man a hundred years ago. We are children of our age, deserve blame if, intellectually and morally, we are behind it, but certainly none if we fail to anticipate future discoveries.

In 1849 Galenical epidemiology was well stricken in years but still vigorous: Southwood Smith (1788–1861) and John Sutherland (1808–91), two of our best practical epidemiologists, were Galenists in the sense that the epidemiological importance of tainted air, of miasma, was to them much greater than that of contagion. There was indeed then living one man, Jakob Henle (1809–85) who published in 1840 in his pathological researches a remarkable essay on miasmas and contagions (it was reprinted, in Sudhoff's series of Klassiker der Medizin, in 1910) which Baly might have read. Henle's argument was, briefly, this: that while in ancient medicine most epidemic diseases were reckoned to be miasmatic, now—viz., in 1840—only one, malaria, would be universally regarded as purely miasmatic; three—syphilis, scabies, and hydrophobia—would be classed as purely contagious. All the others—smallpox, measles, cholera, etc.—he classified as miasmatic-contagious, but very plainly indicated his opinion that the emphasis should be on the contagious side. He then—as had Fracastorius (1483–1553) nearly 300 years before—put forward the idea of a living contagion, perhaps a minute vegetable organism, as the specific biological cause of each disease and, more fortunate than Fracastorius, could point to a striking analogy, the epidemic disease of silkworms—muscardine—which had been proved by Bassi and Audouin, a few years before he wrote, to be due to a vegetable parasite. But Henle could not *demonstrate* any such *contagium vivum* in connexion with human epidemic diseases, excluding scabies.

Baly does not mention Henle, but he does speak of John Snow (1813–58), who had already urged that cholera was a water-borne disease, and, quite courteously but emphatically, rejected his conclusion. Probably if Baly had written four or five years later he would have taken Snow much more seriously, because Snow's conclusive statistical proof that, as we should now say, mortality from cholera and the drinking of polluted water were highly correlated was based upon the epidemic of 1854. Baly, although no statistician himself, had a considerable respect for statisticians and whole-heartedly accepted Farr's demonstration that low altitude and high mortality from cholera were highly correlated. Indeed, it was the basis of his general argument, which was this. The cholera poison is not a vapour or miasma but a solid "something" usually conveyed by air currents. If this "something" reaches a low-lying district, harbouring a poverty-stricken, overcrowded population where filth accumulates, then cholera will arise; low-lying, damp, foggy sites were sites of election. He contrasts the erratic lines of travel and the persistence of cholera with the universality of the great influenza of 1847–8, which no doubt he considered a typical purely miasmatic disease. He was fair-minded; he admitted the possibility—indeed, the probability—that the cholera poison might be introduced by other means, that the disease *might* be contagious. He is, however, almost as reluctant to accept contagion as a *vera causa* as was Henle to admit miasma as a reality.

What must strike a modern reader, and might have struck a contemporary, as Baly's weakest dialectic is in his discussion of how the Asiatic cholera reached Europe and America. He agrees that the cholera could spread against the wind, in the teeth of the Monsoon; he agrees that it followed the line of human intercourse, that it entered at the ports, moved up waterways, and so on. Surely it was easier to suppose that the continuance of cholera in a ship was due to the persistence and multiplication of a *contagium vivum* in the bodies of the patients than to try to exclude contagion from one's argument? That once admitted, conversion to Henle's standpoint would follow. But it is easy to be superior; we know much more about cholera than even Henle and Snow, but no epidemiologist would be bold enough to explain why the epidemic of 1866 was our last.

Baly's section on preventive measures is very short and is no more than a colourless abbreviation of what Southwood Smith and Edwin Chadwick had recommended much more forcibly for the mitigation of *all* epidemic diseases. The devil's advocate may ask whether if the College of Physicians in 1849 *had* officially endorsed what we now accept as the right theory, Snow's theory, many lives would have been saved. I think the answer must be "No."

There is a sentence in Baly's report which was only too true.

> "Quarantine can no longer be adopted as the means of preventing the entrance of Cholera into England; for it is incompatible with the present state of commercial intercourse, and with the well-being of a commercial country."

Perhaps quarantine would not have kept cholera out, but time was to show that something more than fear of epidemics was needed to persuade the electorate to clean up the country.

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FAT ABSORPTION

The absorption of the amino-acids and the monosaccharides which are released by the digestion of proteins and carbohydrates in the small intestine is a comparatively simple process, or at least it is generally described as though it were a simple process. But there can be no illusions about the extreme complexity of the processes which are involved in the absorption of fats. In last week's *Journal* (p. 719) we published an authoritative review by Professor H. S. Raper of the experimental evidence which has slowly accumulated during the last 50 years, and the changing interpretations that have been applied to the available information. The "classical theory" which was accepted a generation ago can be briefly summarized. It stated that the food fats undergo complete digestion in the small intestine to glycerol and fatty acids; the latter cannot be absorbed as such because, being insoluble in water, they cannot pass through animal membranes. The fatty acids are converted by the alkalis of the digestive juices in the intestine into water-soluble soaps and absorbed in this form. As neither fatty acids nor soaps are found in the thoracic duct, it was presumed that the absorbed soaps are reconverted in the epithelial cells of the intestine into neutral fat and as such are transported into the lacteals.

This familiar story needed serious amendment when it was demonstrated that the reaction of the intestinal contents was generally too acid to permit of soap formation and that, furthermore, there is not enough base available in the digestive juices to convert all the released fatty acid into soap. The question that needed an answer was how the insoluble and indiffusible fatty acids were converted into the soluble and diffusible form necessary for their passage through the intestinal membranes. Verzar and his colleagues have shown that the bile acids can either combine chemically with the fatty acids or else become associated with them in some looser form as a so-called "complex." The resulting product is soluble and diffusible. This solvent or "hydrotropic" action of the bile acids is enhanced by the lecithin of the bile. Verzar's theory had to meet the objection that there is insufficient bile acid available in the intestine to dissolve all the released fatty acid; but he went on to suggest that after the bile-acid–fatty-acid "complex" enters the intestinal epithelium the bile acid is split off, returns to the intestinal lumen there to pick up a fresh load of fatty acid, and continues to travel back and forth until all the fatty acid is absorbed. The freed fatty acid in the epithelial cells was thought by Verzar to pass through an intermediate phosphatide stage before being re-formed into neutral fat. Phosphatide formation involves the temporary uptake of inorganic phosphate and may be catalysed by the enzyme phosphatase which is present in high concentration in the intestinal mucosa. Some of the evidence supporting the phosphatide hypothesis may be noted: the addition of phosphate or of glycerophosphate to the intestinal contents increases the rate of absorption of fatty acids from a mixture of fatty acids, bile acids, and glycerol; iodoacetic acid and phloridzin, which inhibit phosphatase, depress fatty-acid absorption, and the use of staining methods of doubtful validity purports to show that when these poisons are used fatty acid absorption is blocked because phosphorylation does not occur. It is disappointing to learn that recent studies with radioactive phosphorus have not helped to clarify this problem.

During the last few years Professor A. C. Frazer and his colleagues, of the Birmingham school, have studied the whole question of fat absorption, and the paper on fat metabolism and the sprue syndrome which Professor Frazer read at the Annual Meeting of the B.M.A. in Harrogate last June is published in the opening pages of this issue. The novel features of the hypothesis of the Birmingham school are, first, that fat digestion in the intestine is normally very incomplete; secondly, that neutral fat is absorbed as such in the form of minute emulsified particles; and, thirdly, that the soluble fatty-acid–bile-acid complexes pass directly from the intestine into the portal blood and do not travel via the lacteals. Frazer refers to his theory as the "partition hypothesis," because it supposes that there are two routes for fat absorption—via the lacteals or directly into the blood. Fat particles, so-called chylomicrons, can be detected in the blood under dark-ground illumination as points of light and counted; during starvation they are scanty, but after a fat meal they increase in number. If rats are given well-emulsified olive oil the lacteals appear milky, and the chylomicron count in the systemic blood rises but that in the portal blood remains low. It is concluded that the absorption of neutral fat occurs via the lacteals into the systemic circulation. On the other hand, if a mixture of fatty acids and glycerol is administered the lacteals remain relatively free from fat, but the chylomicron count in the portal blood rises sharply; the fatty acid, on reaching the liver, is retained there and the systemic chylomicron count remains low. It is worth recalling in this connexion the work of Munk, who found, 60 years ago, that only about two-thirds of the absorbed fat can be recovered by "cannulating"

the lymphatics, and concluded that the missing third is absorbed by some other route, possibly directly into the blood stream. If cetyl sulphate is added to neutral fat introduced into the intestine it has two main effects: it produces a very fine emulsion and it inhibits the action of lipase. Though in these circumstances the neutral fat cannot be hydrolysed to fatty acid, it was found by the Birmingham school that fat is absorbed quite rapidly: the lacteals soon become milky, and fat quickly appears in the systemic blood, whence it is deposited in the fat depots but not in the liver.

As Professor Frazer sees it, the most important prerequisite for the direct absorption of neutral fat is its thorough emulsification into particles which are less than 0.5 μ in diameter. The suggested mechanism of emulsification is as follows. Lipase acts on the neutral fat—i.e., the triglyceride (glycerol + three molecules of fatty acid)—in stages, splitting off successively each of the three attached fatty-acid molecules. Removal of one fatty-acid molecule leaves a diglyceride (containing two molecules of fatty acid); removal of the second fatty-acid molecule leaves a monoglyceride (containing one molecule of fatty acid); removal of the third fatty-acid molecule leaves glycerol. Frazer claims that in normal conditions fat digestion is incomplete and that lipolysis comes to a standstill before 30% of the fatty acid contained in the triglyceride is released. The end-products of fat digestion would then be (to use an Irishism) mainly undigested neutral fat together with partially split products (diglyceride and monoglyceride), fatty acids (derived from incompletely and completely split triglyceride), and glycerol. An emulsion of neutral fat of the necessary fine particle size which is stable at the *p*H and in the other conditions found in the intestine can be prepared *in vitro* by mixing neutral fat together with its partially split products (diglyceride and monoglyceride) and the soluble bile-acid–fatty-acid "complexes." This mixture of ingredients is of course exactly the one which is supposed to be present in the small intestine as a result of the preliminary partial digestion undergone by neutral fat in the presence of bile. The newer views reinforce the classical opinion that in normal circumstances both lipase and bile are indispensable for efficient fat absorption, though the way in which these substances act is now described in different terms. Frazer seems willing to accept in a general way Verzar's view that the passage of the emulsified neutral fat particles through the intestinal epithelium may involve transient phosphatide formation. It is likely also that absorption is influenced by local concentrations of electrolytes, by hormones, and even by vitamins. There is a possibility that the adrenal cortex, by regulating electrolyte balance in the body fluids, may be a subsidiary regulating factor. It is now well established that very finely emulsified liquid paraffin in which the particle size is less than 0.5 μ can be absorbed to the extent of 40% by the rat intestine. Fortunately medicinal liquid paraffin, when used in cooking or as a laxative, is not sufficiently finely dispersed to be absorbed to a significant degree in man.

How does all this fresh work aid understanding of the various clinical conditions associated with steatorrhoea? The new theories agree with the old that in the absence of bile or lipase excessive amounts of fat will be lost in the faeces. But the more obscure kinds of steatorrhoea still remain unaccounted for in spite of much careful work, which is well reviewed by Professor Frazer in his paper. In normal individuals over 95% of the ingested fat is absorbed; in the sprue syndrome the percentage falls to 50–80. It is generally agreed that in sprue the percentage of the ingested fat which is absorbed is not dependent on the total amount of fat in the diet. Thus the percentage of fat ingested remains on an average about 60 whether the total fat eaten is 65 or 95 g. daily. The impaired absorption of fat is not due to deficiency of lipase or of bile, nor is it due to inadequately fine emulsification of fat in the intestine. There is then some undetermined fault in the mucosa which hinders the transfer of particulate neutral fat into the lacteals. In other words, it is among the incompletely revealed processes which are concerned with fat absorption that the cause of sprue and related conditions must be sought. The failure in sprue is not limited to absorption of fat; it affects glucose absorption also. Study of Frazer's paper will doubtless suggest many new lines of inquiry.

PROGRESS IN OBSTETRICS

In similar papers read on both sides of the Atlantic last year Haultain[1,2] outlined the progress made in obstetrics over the past twenty years and suggested further possible improvements. His review, which is based on hospital statistics, records a progressive fall in maternal mortality and morbidity which is gratifying to read. Equally noteworthy is the improvement in recent years in the hospital figures for stillbirths and neonatal deaths. Changes for the better in social, economic, and nutritional conditions, the employment of suitably qualified resident obstetricians, advances in medical knowledge and technique, the applications of chemotherapy, and the wide use of blood banks—all played a part in increasing the safety of mother and baby. Haultain rightly emphasizes that in so far as the baby is concerned some of the credit must also be given

1 *Edinb. med J.*, 1948, 55, 463.
2 *Amer. J. Obstet. Gynec.*, 1948, 55, 733.
3 Ibid., 1946, 51, 492.
4 *British Medical Journal*, 1949, 1, 260.
5 Ibid., 1945, 2, 294.
6 Ibid., 1935, 2, 1143.

to the advent of the paediatrician on to the staff of the maternity hospital. But progress has not been confined to institutional midwifery: the provisional figures for 1948 for the whole country are very impressive, with the maternal mortality rate 1.02 per thousand births, the stillbirth rate 23.1 per thousand births, and the neonatal death rate 19.7 per thousand live births.

At first sight these figures appear to eclipse those which are recorded in recent annual reports from the larger and teaching maternity hospitals, the efficiency of which is usually measured by their vital statistics. The discrepancy, however, is accounted for first by the fact that the Registrar-General's figures for maternal mortality, unlike those from the hospitals, exclude deaths from associated diseases—heart disease, for instance, is a common cause of death in pregnancy. Secondly, as Haultain points out, hospital statistics are greatly affected by the number of women admitted as emergencies, for, excluding those who die as a result of systemic disease, the deaths in hospital occur almost entirely among the cases in which pregnancy or labour has become complicated or has been mismanaged at home. If, however, only booked cases are considered then the hospitals can claim excellent results, even though such patients include many selected for hospital care in anticipation of an abnormal pregnancy or of a difficult confinement. It might be said here that the overall results obtained at different hospitals cannot be compared without making allowances for such factors as the percentage of cases admitted as emergencies and the social and economic complexion of the areas served by the hospitals. The general standard of domiciliary midwifery in any district can usually be appraised by analysing the numbers and types of cases admitted as emergencies to the local hospitals and the condition of those patients at the time of admission.

One method of making further progress would be to reduce the number of emergency admissions, for though in some cases they are unavoidable, in the majority they reflect either on the selection of cases for home confinement or on the conduct of the labour at home. A suggestion which was warmly received at the Twelfth British Congress of Obstetrics and Gynaecology in London last July was the establishment on the American model of a maternal mortality committee in every area to inquire into every maternal death whether at home or in hospital, and to apportion the blame constructively and instructively between patient, relatives, midwife, general practitioner, specialist, and ancillary services. In Chicago, where such a committee exists, Davis and Gready[3] concluded from the analysis of the cases at the Lying-in Hospital that two out of every three deaths could have been avoided. At the British Congress, however, some speakers were fearful that the National Health Service in its present form might hinder progress, especially so far as domiciliary obstetrics is concerned. These critics argued that the Service separates hospital from domiciliary practice, and this at a time when the great benefits resulting from the integration of antenatal, domiciliary, specialist, and hospital services, including the obstetric "flying squad," have been proved. Thus Emblin[4] was able to report that after the co-ordination of these services in his area into a municipal obstetric organization 5,000 consecutive deliveries were supervised with only one maternal death, and that due to leukaemia; at the same time the stillbirth and neonatal death rates were also reduced.

If there is still no integration of the services of those looking after the pregnant woman there is still less integration of opinions on the part obstetricians, general practitioners, and midwives should each play in making what is essentially a normal process still more safe than it is for the mother and the child. The Royal College of Obstetricians and Gynaecologists, in a report issued in 1944, considered that only general practitioners with special experience in midwifery should practise obstetrics, and it was roundly asserted in the *Practitioner* special number on the N.H.S. that "the average midwife is better trained to deal with normal midwifery than is the average general practitioner." If this is indeed the opinion of obstetricians in this country then we suggest that they should seriously look into the adequacy of the teaching they give students in hospital, and into the adequacy of the examinations conducted which enable those who pass them to have their names put on the *Medical Register*. The present attitude of obstetricians to general practitioners is but one aspect of the present tendency to see the general practitioner as someone who sorts out cases for reference to the specialist. We seem indeed to be drifting into the absurd position in which the midwife is looked upon as the specialist in normal and the obstetrician as the specialist in abnormal midwifery. A spirited defence of the general practitioner's place in domiciliary midwifery was published four years ago in this *Journal* by Dr. D. D. Logan and Dr. Eneas K. MacKenzie.[5] "Maternity practice," they wrote, "is the very root of general practice." When the writer in the *Practitioner* attacked what he called "the new type of general practitioner-obstetrician wielding the forceps" had he forgotten the pre-war type of obstetrician who wielded the knife in the practice of caesarean section? In 1935 Dr. J. Bright Banister[6] stated that the incidence of the operation was far too high, basing his observation on a series of 3,486 cases of caesarean section, 1,763 of which were taken from the reports of five large maternity hospitals in Britain during the years 1922–32. If the specialist obstetrician sees mistakes made by the general practitioner he should

recollect that the converse is also true, and the history of caesarean section between the two wars is sufficient illustration of the limitations of the expert. It is most unfortunate that these attacks have been made on the general practitioner, because they can increase neither his confidence in himself nor the confidence of his patients in him. They have created an atmosphere of competition between the general practitioner and the midwife which can lead to no good. No one appreciates the excellent work done by midwives more than does the general practitioner, but surely he can be of no use in an emergency unless he has continuous experience in the conduct of normal midwifery. It is to be regretted that the introduction of the National Health Service has given rise to these wrangles about the competence of general practitioners to do the work for which they were trained. The administrative division of responsibility has not made matters easier. What is essential is to see that the pregnant woman has the best care that can be made available, and in the provision of this the midwife, the general practitioner, and the obstetrician have their essential and complementary parts to play. The family doctor is the one person who fully understands the domestic background and psychological make-up of the woman who is to bear a child. That he should be fully competent in obstetrical technique is first and foremost the responsibility of those who teach him while he is still a student.

CAUDAL ANALGESIA

The visit of Professor R. A. Hingson to Britain this summer has stimulated interest in a new therapeutic concept, the treatment of the various conditions associated with angiospasm—such as eclampsia, reflex anuria, phlegmasia alba dolens, post-traumatic dystrophy, and gravitational ulcers—by continuous caudal analgesia. Elsewhere in this issue we publish the paper which Professor Hingson read on this subject at the Annual Meeting of the British Medical Association at Harrogate.

It had been suspected since 1934 that autonomic vasoconstrictor fibres may be inactivated by concentrations of anaesthetic which have little effect on sensory and none on motor fibres,[1] and this was confirmed in 1946 by Sarnoff and Arrowood.[2] It is thus possible, by choosing the right strength of solution, to single out for attack the vasoconstrictor impulses which are responsible for maintaining a pathologically increased tone in blood vessels. This would be of prognostic use in hypertension even if the effect lasted no longer than a single dose of procaine or amethocaine; but modern developments in the technique of epidural analgesia enable the effect to be maintained without much danger or discomfort for as long as a week or 10 days. The number of vasomotor fibres inactivated can be controlled, and it is possible by the catheter technique to abolish vasoconstrictor impulses arising from a selected band of segments. A temporary and reversible denervation of the kidney and suprarenals can thus be obtained: its completeness—and hence the degree to which the blood pressure is lowered—can be kept constant or varied from hour to hour. Hingson maintains that in certain cases of renal ischaemia the best results can be obtained by alternate dilatation and constriction of the renal vessels, on the analogy of the pavex treatment for ischaemia of a limb. This effect can be produced by alternately carrying the block above and dropping it below the level of the upper thoracic segments.

In a paper[3] published in 1947 Hingson has recorded a number of cases in which the results of treatment were impressive. As he says:

> No one can watch a hypertensive, eclamptic, comatose, convulsant patient in acute heart failure and pulmonary oedema, rescued within 30 minutes by a therapeutic continuous caudal or continuous spinal anaesthetic, which frequently lowers the blood pressure 100 mm. of mercury, and simultaneously relieves headache and blurred vision, raises the skin temperature of the feet 30° F. (16.5° C.), diminishes near fatal pulmonary oedema, slows and steadies the failing heart, increases renal output, and coincidentally abolishes pain, without appreciating that in this mechanism lies one of the most potent weapons the physician possesses to wage against disease and death.

This new therapeutic method has been described[4] as potentially the most important contribution to the treatment of eclampsia in the past decade, for it provides a means of bringing the condition under control without recourse to centrally acting depressant drugs which must increase the strain on an already strained metabolism. Control of eclampsia can usually be maintained for as long as is required, but constant vigilance is imperative.

Continuous autonomic block is not a simple method of treatment; it entails a knowledge of the physiology and the anatomy of the autonomic system and the vagaries of the caudal canal, of the pathology of the angiospastic states, of the pharmacology of local anaesthetic drugs, and a certain amount of manual dexterity. It would seem that the person best fitted to use the method is the well-trained anaesthetist, whose help in these matters is already being sought by his colleagues. However, the control of angiospastic states by this means requires individual attention for long periods, and few practising anaesthetists are able to spend enough time in the wards even to supervise to their satisfaction the post-operative care of their

[1] Heinbecker, P., *et al.*, *Arch. Neurol. Psychiat., Chicago*, 1934, 31, 34.
[2] *Surgery*, 1946, 20, 150.
[3] *Sth. Surg.*, 1947, 13, 580.
[4] Dieckman, W. J., *Amer. J. Obstet. Gynec.*, 1948, 55, 541.
[5] Apgar, V., *Curr. Res. Anesth.*, 1948, 27, 49.

surgical patients. It may be that a number of therapeutic anaesthetists will eventually be required, familiar with such techniques as continuous epidural, segmental spinal, and lumbar peridural analgesia and with the nerve blocks appropriate to the relief of the many varieties of post-traumatic pain, and experienced in the control of the bronchoconstrictive attacks of asthma and of the vasoconstrictive attacks of eclampsia and allied conditions. To carry out this work, which is time-consuming and cannot be hurried, its practitioners would have to be freed to some extent from the obligation to spend several hours each day in the operating theatre. In the United States and Canada some steps have already been taken to overcome this difficulty, and regular nerve-block clinics, staffed by anaesthetists trained in the hard school of surgical anaesthesia, have been established at many of the larger hospitals.[5]

As a means of relieving the pain of labour and delivery continuous caudal analgesia has been very widely used in North America since its introduction by Hingson, Southworth, and Edwards in 1942, and it has been shown to be a safe and efficient method. Traditional British conservatism probably accounts for the fact that the method has not been taken up to any great extent in this country; other reasons for this may be the comparative stoicism of British mothers, the lower proportion of hospital deliveries, unwillingness to adopt the fashion for forceps which prevails in America, scarcity of anaesthetists possessing both the knowledge and the necessary time, and lack of adequate equipment, which is not yet made in this country. It should be added that other methods of obstetric analgesia are better developed in Britain than anywhere else in the world, but they nearly all entail some degree of general intoxication and transplacental narcosis, and they are thus unsuitable for the handicapped mother or for the premature infant. There is no doubt that continuous caudal analgesia can confer benefits to mother and baby which they should not be denied, and it is to be hoped that obstetricians in this country will not be satisfied until they can obtain it at least for those mothers for whom it is specially indicated.

RADIATION INJURY

The development of atomic energy research has led to a great increase in the number of people exposed to ionizing radiation. Before this development took place the number exposed to risk was comparatively small; many had some knowledge of the biological effects of radiation and nearly all had an appreciation of the possible dangers and necessary precautions. Conditions of work and the measures to be taken for protection were laid down by the British *X*-ray and Radium Protection Committee, an unofficial body formed in 1921, whose recommendations were widely accepted. Methods of handling radioactive materials and of using *x*-ray apparatus became as much matters of care and routine in most radiological departments as are aseptic surgical techniques in operating theatres. Occasional cases of injury have occurred from time to time, however, usually as the result of lack of care or inadequate knowledge. Hultberg[1] has recently published an account of two such cases—one in a surgeon who suffered acute and serious injuries to his hands and in whose blood also some changes were noted after the use on seven occasions of fluoroscopy to control the reduction of fractures; the other in an industrial worker engaged for two years in the fluoroscopical examination of castings, who paid for his disregard of the regulations by the loss of both index fingers.

Work on atomic energy has progressed in secret, and the damage done to human lives in the U.S.A. and Russia during the preparation and testing of atomic bombs is not known. From the information available it appears that serious accidents have been few considering the urgency and vast extent of the efforts made and the large number of work-people who had no understanding of the danger that they could neither see nor feel. Reports of damage have appeared from time to time; the latest, published last month,[2] gives an account of four men injured during tests at Enewetok Atoll, the United States Atomic Energy Commission's proving grounds. Fortunately the men received only a small dose of total body irradiation with gamma rays, but the beta ray doses to their hands were high and the damage serious and permanent. Exposures varied from 40 to 60 minutes. The man least affected had a severe erythema and vesiculation, but the lesions healed with only a little residual reddening at the end of a year. The other three had skin, and in one case tendon, necrosis; prolonged treatment with grafting was required and at the end of a year much disability still remained with the prospect of possible late effects still to come. The details of the tests are secret, but the general account of how this accident occurred is most significant: "This work involved the handling of radioactive materials which emitted large amounts of beta and gamma radiation. A deviation in the prescribed procedure undertaken to expedite the operation resulted in the handling of these radioactive substances directly with rubber-gloved and sometimes with bare hands rather than with the remote handling devices that had been provided." "Deviations in prescribed procedures" are generally at the bottom of such accidents, which are commonly due to lack of knowledge. Those whose duty it is to lay down regulations have to remember that they are unlikely to be carried out unless the people concerned possess some understanding of the reasons which make them necessary, and those in charge of work-people who may be exposed to radiation have to develop a sense of personal responsibility for their safety and be prepared to lose their reputation for professional competence should accidents occur.

Arrangements for protection against the dangerous effects of radiation have been admirably conducted in this

[1] *Acta radiol. Stockh.*, 1949, 32, 17.
[2] Knowlton, N. P., *et al.*, *J. Amer. med. Ass.*, 1949, 141, 239.

country in the past. International recommendations, based largely on the British proposals, were adopted in Stockholm in 1928 by the Second International Congress of Radiology at the instance of the British committee. Much arduous and valuable work has recently been done by the protection subcommittee of the Medical Research Council's committee on the medical and biological applications of nuclear energy and by its tolerance doses panel. Under the Radioactive Substances Act the Government has taken wide powers of control over the manufacture, supply, and disposal of radioactive substances. It has the power to impose safety regulations for occupations in which radioactive substances and irradiating apparatus are used. It is to be hoped that as more people are employed in occupations in which irradiation is a hazard tragic "deviations from the prescribed procedure" will be avoided. People with no real knowledge of the dangers do not regard official regulations in the same way as those who, understanding the dangers, accept recommendations made for their protection by their own professional bodies.

MYOIDEMA

The phenomenon of myoidema has aroused interest from time to time since it was first described by Robert Graves and William Stokes[1] in 1830. Its distinction from myotatic irritability has not always been appreciated, though most of the earlier writers were emphatic on this point. For instance, Lawson Tait,[2] who suggested the term "myoidema," insisted that a "nodule or intumescence" of muscle at the point percussed was the essential feature of the sign; he frequently observed the sulcus or linear contraction of myotatic irritability in the healthy. Although once believed to indicate pulmonary tuberculosis, and even thought to have a value in determining which side was diseased, myoidema is now usually stated to occur in most diseases associated with wasting. Denny-Brown and Pennybacker,[3] in their detailed study of fibrillation and fasciculation in voluntary muscle, observed two patients with malignant disease who presented this sign. They concluded that myoidema was a response of the whole muscle fibre to intense mechanical stimulation. It appeared to them to be an exaggeration of a normal phenomenon and unrelated to the fine fibrillation of denervated voluntary muscle or to the fasciculation so characteristic of motor neurone disease.

The cause of this increase in muscular excitability has remained a matter for hypothesis, although Koumans[4] and Seto[5] believed that malnutrition and vitamin deficiency were important factors. In this number of the *Journal* Drs. G. F. Taylor and P. W. Chhuttani bring forward further evidence supporting this suggestion. They noted the frequency of myoidema in Indian troops in the Middle East and Iraq, and in a detailed survey found that it was higher in Indians in hospital than in those on duty; higher in vegetarians than in meat-eaters; and higher in Iraq than in Syria and Lebanon, where conditions were less arduous and, perhaps, the diet better. Myoidema was less frequent in British troops than in all other groups examined. The authors were able to relate these variations in incidence with the frequency of vitamin deficiency as indicated by angular stomatitis, glossitis, cheilosis, and Bitot's spots. Severe myoidema was noted in each of 82 patients with peripheral neuritis, and its intensity diminished *pari passu* with the improvement which followed treatment with thiamin. In addition, many men with vague myalgia and muscular cramps presented intense myoidema; in these also the symptoms disappeared after the administration of thiamin. Taylor and Chhuttani conclude that in the patients they observed myoidema was related to the nutritional state and was probably a sign of thiamin deficiency. This conclusion may help to rescue myoidema from the limbo reserved for physical signs of undetermined significance and doubtful importance.

[1] *Dublin Hospital Reports*, 1830, p. 70.
[2] *On the Myoidema of Phthisis*, 1872, Dublin.
[3] *Brain*, 1938, 61, 311.
[4] *Wien. klin. Wschr.*, 1928, 41, 524.
[5] *J. Okayama med. Soc.*, 1937, 49, 789.

TRICHOSTRONGYLUS AND STRONGYLOIDES

Infestation of herbivorous mammals with various species of the nematode *Trichostrongylus* is common throughout the world, far more so than human infestations, which formerly were regarded as accidental, the result of proximity to infected domestic animals. But records of *Trichostrongylus* as a human parasite have been appearing with increasing frequency, from India, Russia, Africa, N. America, and especially from the Far East, where *T. orientalis* is stated to be not uncommon as an infection in agricultural workers. The account in last week's *Journal* (p. 737), of a helminth survey in Abadan by Dr. I. S. Stewart serves to emphasize the probability that *Trichostrongylus* may have a much wider range in the human host and be more prevalent than was suspected, for in routine faecal examinations its eggs may easily be overlooked because of their close resemblance to those of hookworm. Although the degree of the infection in the Abadan survey was light, the number of positive results recorded (70%) is surprisingly high, and suggests not only that the circumstances are favourable for oral ingestion of the infective larvae but that the species appears readily adapted to the human host. The identity of this species is not yet known, but failing its determination by the recovery of adult worms at necropsy some information might be obtained by identifying the species harboured by the local sheep, which are evidently the original source of the human infection.

In quite a different category is *Strongyloides (S. stercoralis)*, a well-established human helminth which is harboured by some 35 million people in tropical and subtropical countries; its distribution is similar to that of hookworm. Unlike *Trichostrongylus*—the similar sounding name is of little significance—whose life-cycle is direct and simple, *Strongyloides* undergoes a very complex and varied development. This is exemplified particularly in its free-living or exogenous phase, which culminates in infective skin-penetrating larvae comparable with those of hookworm or in a free-living sexual generation which in turn produces infective larvae. Research in recent years has shown that the parasitic phase in the human body is also highly complex. Contrary to the belief that no

helminth can multiply inside the body of its host but must pass its offspring to the exterior, the larvae of *Strongyloides* are apparently capable of substituting an internal migration for the usual external migration. They pass from the small intestine, where the parasitic females reside, through the gut wall to the circulatory system, thence to the lungs and back to the intestine, where they reach maturity. Pulmonary changes, of which Dr. F. L. Corrigan has recently recorded an interesting example in this *Journal* (October 1, p. 738), are associated with this phase, in which, it is assumed, repeated invasion of the tissues by the migrating larvae reduces the local tissue resistance.

PROTECTING THE CONSUMER

The Government decided in November, 1943, to make the Minister of Food responsible for exercising the powers previously given by Parliament to the Minister of Health, under the Food and Drugs Act, to make regulations dealing with the composition and labelling of food. The opportunity was taken to modify statute law. The Defence (Sale of Food) Regulations altered the definition of food to include any substance used as a food for human consumption even though it is also capable of being used as a medicine, and, in addition, made it an offence to describe falsely or otherwise to mislead the public on the nutritional or dietetic value of a food. This and subsequent legislation was of such a detailed nature that the Ministry of Food undertook to advise the trade on labelling and advertising. In this way it was hoped to secure compliance with the law by the co-operation of traders. Accordingly the administration of these regulations has been based on the assumption that more can be done by persuasion to secure the elimination of misleading descriptions and claims than would be possible by the processes of the law. The achievements of the Ministry in this field of consumer protection are impressive and have brought about many changes in the descriptions of, and the claims made for, pre-packed foods and, indeed, in the outlook of manufacturers. An interesting account of four years' work in this field has recently been published.[1]

Some of the quite unjustifiable claims which came under scrutiny are quoted. A breakfast cereal food claimed "phosphates for the teeth and bones, and iron for the blood"; the label on a packet of dried herbs claimed that it provided "vitamins A, B, and C"; and there was a food consisting mainly of flour which quickly restored to health "infants in the last stages of emaciation." All of these claims and many more similar ones have been abandoned or greatly modified. There was obviously plenty of scope for reform, and the Ministry, in the exercise of a duty to the consumer about which too little is known, has based its actions and advice on certain general principles. It has been accepted that, when a name or description of a product incorporates the name of a food, that food must ordinarily be present in a significant quantity; that if the description of a food includes the names of two or more ingredients—for example, "malt extract and cod-liver oil"—the ingredient present in greatest quantity should be named first; and that qualifying adjectives which indicate the true nature of a food should be given the same emphasis as the rest of the description. On nutritional or dietetic claims difficulties have arisen not so much with the false claims for which there is no scientific foundation as with the claim which implies that a food has a dietetic or nutritional value when in fact that value is insignificant. The Ministry has taken the obviously sound view that if it is claimed that a food is nourishing it ought to contribute a significant amount of nourishment; if a food is said to be "body building" then it should provide a material amount of protein, and so on. In assessing the justification for such claims account is taken of the amount of the food ordinarily consumed in a day by the average individual. Difficulties of this kind led the Ministry to seek the advice of the Medical Research Council about vitamins and minerals in the diet, and resulted in the adoption of a code of practice which exemplifies the twin principles that nutritional claims must be justified by the presence of a significant quantity of the substance and with regard to the amount likely to be consumed by the average person.

The Food Standards Committee set up to advise the Minister has been responsible for the introduction of standards of composition for certain foods. The future programme of this committee is heavy, and many of the foods which in due course will come under review are meanwhile the subject of codes of practice. These codes, which are set out in detail in the report, represent agreement between the Ministry and informed trade opinion on the descriptions and standards appropriate for particular classes of food. They have not the force of law, but they are generally accepted by traders and have done much to protect the consumer from being misled.

[1] *The Advertising, Labelling and Composition of Food.* London, 1949. H.M.S.O. Price 1s. 6d. net.

DISTINCTION AWARDS

Consultants and specialists considered to be eligible for distinction awards are being asked by the Awards Committee to fill in a form and give details of their qualifications and experience. In this form the candidate is invited to give details of degrees and other qualifications under the heading of "university and/or medical school education," of academic distinctions such as prizes and scholarships, of clinical training and experience, of present and past appointments, and of teaching experience. He is also asked to give details of research and publications and of war service. Space is also left on the form for "any other information and remarks." In referring last week to the suggestion of a points system of assessing distinction we did not mean to imply that the Awards Committee was attempting to assess candidates without such detailed information as is now being sought.

Dr. Geoffrey Marshall, O.B.E., F.R.C.P., will deliver the Harveian Oration before the Royal College of Physicians of London (Pall Mall East, S.W.) on Tuesday, October 18, at 3 p.m. His subject is "Individuality in Medicine."

ON BECOMING A GOOD DOCTOR

BY

SIR HUGH CAIRNS, K.B.E., F.R.C.S.

We print below a slightly shortened version of the inaugural address at King's College Hospital on September 30.

Our medical world is in a state of rapid change. On the one hand we have the National Health Service, which is faced with the stupendous task of providing not only doctors and nurses but also sufficient hospital beds and good equipment to meet the needs of the nation's sick. On the other hand we have the changes wrought by medical research and discoveries in the basic sciences, and these changes have become more numerous and more important in the last 30 years than they used to be. Think only of the effect of the discovery of insulin and penicillin and of the modern treatment of anaemia. That is not all, for looming close ahead are substances which will be effective in treatment of the various types of rheumatism and cancer. You might suppose from this conjunction of changes, and from what has been said about social medicine and health centres, that the majority of the doctors of the future will spend their time in preventing disease, in keeping people well. I do not think that things will turn out that way. So far from reducing the hospital population these life-saving discoveries seem to increase the need for yet more hospital beds. Beds are required often for long periods to treat patients who would have died but for the new remedies. And more often than not these patients survive to get ill again on some future occasion. Undoubtedly there is a big field to be developed in prevention of disease and ill-health, but the fact remains that for most of us the main task of the future will be, as it has been in the past, the care of sick people. Our main objective is to become good doctors.

A Good Doctor

How does one become a good doctor? When one doctor says of another, "He is a good doctor," there is a particular meaning. You will hear the expression used not only about some general practitioners but also about some specialists. As I understand it a good doctor is one who is shrewd in diagnosis and wise in treatment; but more than that, he is a person who never spares himself in the interests of his patients; and in addition he is a man who studies the patient not only as a case but also as an individual.

Diagnosis and treatment are of course the basis of our work with patients. We learn these subjects day in and day out as we walk the hospitals, and we have to pass examinations in them. I do not propose to discuss them except to emphasize that after graduation none of us is infallible; if we accept this fact and are prepared to go on learning, our mistakes will tend to become less frequent and less serious.

How does one learn to devote oneself unsparingly to one's patients? You cannot get this from books or from formal clinical instruction. It is something which is passed on from one generation of doctors to the next, and the easiest way to acquire it is to work with a doctor who already has it in his blood. Lister, for example, was a good doctor: he used to visit his patients in King's every day, including Sundays, and his eminence and his preoccupation with research did not prevent him from showing great understanding and consideration of their feelings.

Your patients need from you more than diagnostic and therapeutic efficiency. They do not come to you to be cured; they come to be relieved of their pains and other symptoms and to be comforted. Given the choice, they would usually prefer a kind doctor to an efficient one. Never forget that the patient and his relations are usually frightened and anxious—upset in their normal life to such an extent that they are prepared to call you into their lives and to tell you the most intimate facts about themselves, though you may be unknown to them except as a member of an honourable profession. In their anxiety, especially when things are not going well for them, they may on rare occasions be rude to you and offend your dignity. This may be hard to bear, especially in the early days of one's medical life before one has lost one's self-consciousness at the bedside and has become wholly familiar with clinical technique. Under such trials you must humble yourself and continue to treat your patient with consideration and kindness, never forgetting for one moment that he is an anxious and overwrought individual, and that in seeking your advice he has paid you the compliment of admitting you to his life and confidence.

A Sense of Urgency

Emergencies teach you how to devote yourself unsparingly to your patients and give that sense of urgency which all good doctors have. To have a share in saving the life of a patient who is dying from haemorrhage, peritonitis, respiratory obstruction, or meningitis is an essential part of the doctor's education. You learn then to observe quickly, to pick out the essential points of the illness, to apply first principles of therapy promptly, and to think clearly even when you are wracked with anxiety about the patient's welfare and your own responsibility for it. This anxiety which an emergency arouses in you is an inevitable and normal reaction—enough to numb all thought but for your training. Don't run away from it, or seek to hide it beneath swagger and pomposity. Instead, familiarize yourself with it by staying with the patient at his bedside, by helping to nurse him, and by making accurate record of the events as they occur. Student nurses seem to assume their responsibilities in such cases more easily than do medical students; it is the difference between the practical and the theoretical approach to the problem of saving human life.

The good doctor, whether general practitioner or specialist, is also a man who studies the patient's personality as well as his disease. In the past this was done by the light of nature: the good doctor started by being interested in his patients as individuals, and eventually his experience taught him to size up quickly most types of mankind and to know the reaction of each type to disease. This was instinctive unformulated knowledge. But now the position has changed, thanks largely to the medical work during the recent war, when we were fighting for our lives and it was realized that the adjustment of each individual to the conditions of war, and his capacity to work and fight, depended as much upon his personality as on his physique.

The manifestations of an illness are much coloured by the personality of the patient. What you are studying at the bedside is not disease but disease in a patient. When you are asked to stitch up a cut finger it may not seem to matter very much what type of personality the patient has; though it is rather fun to try to find out without taking too much time about it. But if the patient has broken his leg, or has to undergo any prolonged illness, his subsequent successful return to his work, and his happiness at home, will largely depend on what type of man he is and the particular measures which are taken to deal with his reactions to illness. Of the people who are suddenly removed from their normal life by breaking a leg, some may be perfectly philosophical and sensible, with assured jobs to which they promptly return when the leg is mended; but others may be so constituted or circumstanced that they are consumed by genuine or imagined worries which will produce strange symptoms, symptoms which are not in the textbooks. And if not treated these symptoms will interfere with the patient's return to normal life.

The study of personality of patients is not a matter for the psychiatrists: it can be formulated on systematic common-sense lines, and it is something which all doctors can do themselves. And it can be learned by the medical student. What it amounts to in essence is that in addition to studying the patient's disease you find out about his life and work and family background. If you are prepared to give the time to listening to what he has to tell you of himself you will be richly rewarded not only by rapidly acquiring a knowledge of human nature but also by increasing your effectiveness in treatment. And the patient will have much more confidence in you than if you merely regard him as a case.

Science and Research

So far I have talked about the art of medicine, and now I must say something about the science and its relations with the other sciences. It must already be clear to you that progress in clinical medicine is largely dependent on advances in the basic and biological sciences. In my student days when we passed our examinations in physics and chemistry, and even in the pre-clinical subjects, we often said to ourselves: "Thank goodness that's over and done with." This was a short-sighted policy, and with each new application of science to medicine—such subjects as electronics, modern statistical methods, radio-active isotopes, and the application of plastics in surgery and dentistry—I find myself regretting my lack of basic scientific knowledge.

No one can hope to keep up with more than a fraction of the work which is going on, but, such is the pace and power of scientific progress, it is essential for your competence and your intellectual comfort as doctors that you should maintain a general interest in scientific matters. This sounds a tall order, but it is surprising how much you can glean from the popular scientific journals and from talking to your scientific friends. Never forget that there is so very much in medical science which is still unknown. Beyond the established knowledge that is set out in your textbooks there are many things which will be discovered in your lifetime, often with profound influence on your medical practice.

What part can the clinician himself play in research? There is scarcely a disease in which a thorough and sustained clinical investigation will not add new facts, and occasionally discoveries of outstanding importance can be made by clinicians who keep good records and are alert to observe the unusual. A recent example is the discovery by Gregg, an Australian ophthalmologist, that German measles in the early months of pregnancy may seriously damage the organs of sight or hearing of the foetus. The application of scientific discoveries in the clinical field—for example, the application of new remedies—also requires careful clinical research; and the whole clinical field is full of problems which can be worked out by a combined attack in the wards and laboratories.

Lister's Inaugural Address

One must be prepared to approach one's clinical problems on the broadest possible basis. In the last 50 years, with the growth of specialization there has been a dangerous narrowing of medical activities. I can best illustrate this trend by reminding you that when Lister was appointed as professor of surgery to this hospital his inaugural lecture was mainly on the fermentation of milk. What would people think to-day if a professor of surgery gave a lecture about milk? They would say that he was neglecting surgery and encroaching on the field of the bacteriologist or hygienist. But to Lister it was a perfectly natural thing to do. Bacteriology was a young subject to which surgeons as well as others were making important contributions. Lister owed his discovery of antiseptics to two things: first, to his thorough and persistent study, at the bedside and in the laboratory, of the healing of wounds; and, secondly, to his broad approach to the problem. When his colleague Thomas Anderson, the professor of chemistry at Glasgow, said to him one day: "By the way, have you read the papers of a French chemist Pasteur on fermentation?" Lister read these papers, and with his prepared mind at once realized that it might be the living germs described by Pasteur and not the oxygen of the air which caused wounds to putrefy. And so began his use of carbolic acid. In the lecture on milk Lister was proving again for the sceptics that there was no such thing as spontaneous generation and that the bacteria in the wound came in from the air. This principle was essential for his antiseptic system. Also in this work with the *Bacterium lactis* Lister developed a successful technique for obtaining a pure culture of a bacterium; this was the first time it had been done. Thus Lister approached his problem not only as a practising surgeon but also as a pathologist, as a bacteriologist, and as an experimenter; and, as I have advised you to do, he cultivated his scientific friends. The chemist Thomas Anderson, I have been told, not only drew Lister's attention to Pasteur's papers but also told him about carbolic acid as a possible disinfectant.

One Investigation

You may be thinking that I have been holding out to you ideals which are impossible of attainment. I have been urging you to become good doctors, to keep up with scientific progress, and to undertake research. How can one man do all these things? The answer is that no one can excel in all fields. You will evolve in different ways. Most of you should become good doctors, some will take readily to research, while others, and they will include many good doctors, will have no aptitude for it. But I do think that nearly every young doctor should try his hand at one investigation—should try to carry knowledge of some disease or symptom or function, or the effect of some form of treatment, a stage further than it has been carried before. Otherwise he will not find out what he is good for, nor will he appreciate the difficulties and labours involved in discovering new things.

I have not said anything about material objectives—careers, salaries, and so on. In medicine direct pursuit of these not unimportant aspects of life is apt to prove disappointing, and the greatest personal success is usually incidental to a life spent in service to patients or in research. That is one of the dignities of our profession. We are still, I am thankful to say, a guild, and in the course of your careers you will receive much help from your seniors which you cannot hope to repay, except by passing it on to the next generation. It remains for me only to wish you all a fruitful and happy life, and to express the hope that you will successfully maintain the fame and tradition of this great hospital.

CO-ORDINATION OF TUBERCULOSIS SCHEMES

ADDRESS BY SIR ANDREW DAVIDSON*

Sir Andrew Davidson began by saying that notwithstanding the limitations of health statistics, there was enough evidence to support the view that Scotland's health was being well maintained and, in many directions, further improved. Such a sensitive index of social health, for example, as infantile mortality was in 1948 the lowest ever recorded; and that record should be broken by the current year's figure. Yet while the prevailing trends gave reason for optimism there was no room for complacency, and there were many problems still to be solved. The most immediate one was the control of tuberculosis, which remained the black spot on Scotland's health record.

During the last war the death rate from tuberculosis rose quite steeply in Scotland; but, while in most countries the rate began to decline soon after the war was over, in Scotland it remained high, especially in the West Central area of the country and to a less extent in the Lothians and East Central area. The reason—or more likely the combination of reasons—had not been elucidated. In regard to respiratory tuberculosis, the overall Scottish position could be expressed in round numbers: there were about 30,000 names on the tuberculosis registers; 8,000 new notifications during the year 1948, when there were 3,400 deaths; some 2,500 patients awaiting admission to hospital; and nearly 5,500 beds available for treatment and isolation, of which nearly 600 were empty and unstaffed. This was the background against which schemes for controlling tuberculosis should be considered.

Development of Tuberculosis Services

Measures to control the disease did not really begin until Sir Robert Philip in 1887 established in Edinburgh the first tuberculosis dispensary in the world. Other dispensaries followed, and in 1912 pulmonary tuberculosis was made

*This address by the Chief Medical Officer of the Department of Health for Scotland was given at a refresher course on tuberculosis under the auspices of the National Association for the Prevention of Tuberculosis in Edinburgh on September 20.

notifiable in Scotland. In 1914 all forms of tuberculosis were made notifiable, and thereafter the full local authority anti-tuberculosis service gradually developed. The anti-tuberculosis service before 1948 was operated by each major local authority, the scheme being under the administrative charge of the medical officer of health. As time passed, the actual clinical work in the hospitals, and in many cases in the clinics, tended under the larger authorities to be carried out by men with special experience who might well be regarded as of consultant or specialist status. In less populous areas, however, the medical officer of health might have only a few beds at his disposal. The clinical work was carried out by himself or by an assistant, and the health visitors were too few for any of them to specialize in tuberculosis work. There was in fact every possible gradation between a highly specialized service in some of the large cities and counties and an extemporized patchwork service in some of the smaller authorities.

In the early days it was assumed, rightly or wrongly, that diagnosis and treatment, which constituted the clinical part of the work, were incidental and were possibly not quite as important as were the more preventive functions. Diagnosis, however, improved when the *x*-ray apparatus became more generally available, and special measures of treatment gradually developed also. Hence, as the years passed, the task of diagnosis tended to grow in importance; and treatment tended also to enlarge in scope.

The value of the services was best shown by the steady drop in the mortality of respiratory and non-respiratory tuberculosis. For instance, in the years 1931 to 1939 the death rate from respiratory tuberculosis fell by 12% and the death rate for non-respiratory tuberculosis by 35%. Not all of these decreases can, of course, be attributed to the anti-tuberculosis service. Improved housing, improvement of milk supplies, and the general process of social amelioration all played their part.

The purpose of the National Health Service Act in dealing with tuberculosis was not to condemn the former anti-tuberculosis service as inefficient, but rather to take the service which had showed all shades of efficiency and which had on the whole done good work and to try to improve it and strengthen it still further. The National Health Service Act unified the hospital service, and the special hospitals which dealt with tuberculosis and infectious diseases were swept into the general pool. In Scotland hospitals of all types—teaching and non-teaching alike—came within the administrative purview of the five regional hospital boards.

The environmental and preventive side of the subject was dealt with in Section 27 of the Scottish Act. The control of tuberculosis as opposed to the treatment of it remained primarily the work of the local authority. The local authority was enabled to make arrangements for the prevention of illness, for the care of persons suffering from illness, and for the aftercare of such persons, and these arrangements were subject to approval by the Secretary of State. The Secretary of State had directed that arrangements should be made by every local health authority (i.e., by the counties and by the large burghs) for the purpose of preventing tuberculosis and for the care and aftercare of persons suffering from that disease. The duties which were formerly discharged by the local authority and their medical officers of health were therefore squarely laid once more upon the same shoulders, with the exception that clinical care and hospital treatment had now been transferred to the regional hospital boards. Some of the methods by which the local authorities could discharge their obligations were as follows:

(*a*) The provision of adequate housing for tuberculous families, of garden shelters where appropriate, of night sanatoria as a means of preventing the dissemination of the disease, and the boarding out of children who were living in contact with cases.

(*b*) Provision of advice regarding segregation in the home. Provision of facilities to assist in such segregation, e.g., beds and bedding. Provision of nursing requisites, clothing, and extra nourishment.

(*c*) Provision either in co-operation with the Ministry of Labour or by the local authority themselves of suitable workshops for employment of the tuberculous.

(*d*) Provision of health visitors for services in the home and in the tuberculosis clinic.

The primary responsibility for the patient at home, and particularly for early diagnosis, must rest with the general practitioner. But the general practitioner was not working in isolation: he had all the resources of the local authority to support him, and to assist with diagnosis and treatment the regional hospital boards had been charged with the duty of providing domiciliary consultations. Regional hospital boards had the responsibility for providing dispensary and hospital services incorporating up-to-date methods of diagnosis and facilities for modern treatment. Obviously the treatment side under the regional hospital board required a double integration. It must be closely integrated with the general medical services of the area, and, perhaps even more important, with the epidemiological, social, and environmental aspects of the work. Therefore, regional hospital boards had been advised that dual appointments might be of permanent advantage in certain circumstances; that the tuberculosis officer, or chest consultant, as he was now termed, who took charge of treatment might also act under the medical officer of health in connexion with the preventive work. Whether such dual appointments were made or not, regional hospital boards must have regard to the continuing responsibility of the local authorities for epidemiological measures in their area.

Intention of the New Legislation

In the recent legislation, Sir Andrew Davidson continued, it was thought necessary to unify the hospital services under a single control in order that these services could operate generally with the maximum efficiency. The best possible use should be made of all hospital accommodation irrespective of the functions for which it was originally provided, and irrespective of the circumstances of a patient's residence. Also it was thought desirable to form a clinical tuberculosis service in which avenues of promotion would be open to those working in peripheral areas and to bring to an end many of the so-called blind-alley clinical occupations. Except in some of the larger authorities the tuberculosis officer of the past either tended to occupy one of these blind-alley positions or else accepted his post in tuberculosis merely as a step on the ladder towards an administrative post. Such a situation was not beneficial either to the tuberculosis service or for that matter to the public health service as a whole.

But no reform came without creating its own difficulties. The major difficulty which faced the tuberculosis service at the present time was ensuring full and adequate co-operation between the health officers and the hospital service. A balance still had to be kept between treatment in hospital and isolation of infection. The hospital service was to discharge both these functions. In the main the anti-tuberculosis service functioned at present much as it did in the past, although now the tuberculosis officer was the servant of the regional hospital board. In some cases he had charge of beds which he did not have before, but in all cases he must assist in carrying out the statutory preventive duties laid upon the local authorities. The net result should be that the tuberculosis officer had enhanced status. He had more fully at his disposal the resources of the hospital service for diagnosis and treatment, and he still remained the head of the tuberculosis service (under the administrative control of the M.O.H.) with the same resources as before of a clinic, clerical assistants, and health visitors.

The medical officer of health was in a position to frame new developments for his area and to ensure their application; his duties would include ascertainment. Notifications came to him, and with the tuberculosis officer he could study these notifications from the epidemiological point of view. He could ensure through his health visitor staff that the patient was suitably directed into the scheme for treatment. He could supply domiciliary aid in the way of nursing care and domestic assistance. He could give priority to the rehousing of suitable families. He could insist that his policy on examination of contacts and their further management was observed. He could enlist the service of mass radiography and ensure that it was directed advantageously towards the control of the disease. He could initiate surveys—for example, tuberculin surveys of groups of his population—adopt preventive measures, and in the near future might be able to start work with B.C.G.

It would be a mistake to attribute all the difficulties and frustration which existed at the present moment to the Health Service Act. Scarcity of hospital staff and beds, for example, were not unknown before 1948, and were probably the principal source of anxiety to all workers in the field of tuberculosis. If the old system had remained there was no reason to imagine that more hospital staff or more hospital beds would have been available. Indeed the situation in respect of hospital beds had been improved already by the new Act, and if there were no difficulty in staffing these beds a considerable addition could be made already to the number of beds available for tuberculosis. Many of the complaints about the working of the scheme would disappear if an adequate number of staffed hospital beds became available.

For achieving results in the field of tuberculosis co-operation was the definitive word and implied genuine co-operation between clinician and health officer, between hospital service and local authority, between hospital service and general practitioner, and between local authority and general practitioner. It meant an active partnership where each member of the team saw not only his own facet but something of the whole picture. Some might be tempted to have a certain cynical regard for the word "co-operation"; but the administrative structure had been laid down and must be assumed to have some permanence, and the various services, hospitals, local authorities, and general practitioners must work together. In all this, the health officer and the health visitor had a major part to play.

LOCAL HEALTH AUTHORITIES AND TUBERCULOSIS

PREVENTION AND CONTROL

A joint meeting of the Society of Medical Officers of Health and of the National Association for the Prevention of Tuberculosis held in the Great Hall of B.M.A. House on September 15 was attended by some 130 delegates.

Professor R. H. PARRY, president of the society, was in the chair and was supported by Sir ROBERT YOUNG. He said this joint meeting gave them an opportunity to exchange views on the arrangements made by local health authorities for prevention, care, and aftercare under Section 28 of the National Health Service Act, 1946. He said that they were now just beginning to find their feet, and it was an appropriate time for reviewing the position in regard to the biggest public health problem of the day.

Sir ALLEN DALEY said that real prevention of tuberculosis was founded on conditions of life—housing, general nutrition, and hygiene. Some years ago he had conducted an investigation to see whether there was an inverse relation between the decline in tuberculosis and the rate of expenditure on hospital and medical services. No such relation had been discovered. He thought it important therefore that the public health service should concentrate on the basic conditions which affected the disease and keep a close watch especially on the general nutritional state of the people. The second aim of prevention was the isolation and removal of the patient. He did not think that the legal power under the National Assistance Act, 1948, for compulsory removal to an institution was of much practical value in cases of tuberculosis. The chronic ambulant infectious case who was homeless presented a problem. Local health authorities should consider the provision of special hostels, although these would be difficult places to manage and control. Alternatively, people living in houses with surplus accommodation might be persuaded to give rooms to such ambulant cases. Children in contact with open tuberculosis should be boarded out on the Grancher system. Some 600 London children were being cared for on this ground, mainly in residential nurseries and schools.

Sir Allen considered that mass radiography was best placed under the control of regional hospital boards provided that the local health authority advised on its best use. He believed that there should be arrangements for the *x*-ray examination of all persons in regular contact with groups of children; there were 30,000 such people in London. Another essential in prevention was good health-visiting in association with the chest physician.

Dr. G. W. H. TOWNSEND (Buckinghamshire) discussed problems peculiar to counties and rural areas. In his experience the district councils had made little use of their powers under the Tuberculosis Regulations. Would the local health authorities do any better now that they had lost their functions in regard to treatment and retained only those of Section 28? He thought that welfare work confined to tuberculosis was time-consuming and should be combined with that for other conditions. Good co-operation between health visitors and welfare workers was essential. The tuberculosis service might also take a leaf from the maternity and child welfare book. Mothers at welfare centres waiting to see the doctor were learning all the time by lecture, film, or leaflet. At the tuberculosis dispensary waiting was just waiting, and here there was an opportunity for health education on welfare centre lines.

Dr. STUART LAIDLAW (Glasgow) said that more evidence was wanted on the relation of overcrowding and tuberculosis. In Glasgow they had found that the contact rate was twice as bad in 2–3-room houses as in 3–4-room houses. He disagreed with the attachment of the chest physician to the regional hospital board. The effect had been concentration on the curative and clinical aspects, and interest in the domiciliary side had waned. There was in Glasgow a waiting-list for sanatorium beds of 16,000, but no chance of admission unless the case was of special clinical interest. The M.O.H. had no power to enforce admission, so a day-to-day battle was in progress to get cases away from dangerous home conditions. Referring to Sir Allen Daley's point about hostel accommodation for ambulant cases, Dr. Laidlaw described how an empty ward in a tuberculosis hospital had been reopened as a hostel for 60 discharged patients who shared the catering and domestic work.

Dr. W. ALCOCK (Burton-on-Trent) speculated whether the decline in tuberculosis mortality was due to environmental improvements of the past 75 years or to a variation in virulence such as one saw in other infectious diseases. It was an inevitable conclusion that environmental and social betterment was fully responsible in this instance. He thought, however, that the factors of resistance, susceptibility, and acquirement of immunity still required much investigation, but suggested that when employment was high, housing good, and leisure time wisely spent tuberculosis would further decline.

Dr. K. NEVILLE IRVINE (Henley-on-Thames) said he would confine his remarks to three questions. (1) Should B.C.G. be given to selected cases or *en masse*? The Ministry of Health had decided on selection.

(2) Why was segregation required for six weeks before and after vaccination? It was wise to observe this rule in the interests of the prestige of this new procedure. If pre-segregation was impossible, they could vaccinate in the pre-allergic state. Likewise, if the Mantoux test six weeks after vaccination was not positive, there should be another test at 10 weeks before re-vaccination; some people were slower than others in conversion. When re-vaccinating after 10 weeks he advised a double dose. Failure to segregate after the first vaccination did no harm, but some cases might contract the disease before immunity was established, thus damaging the reputation of this form of protection.

(3) Was intracutaneous injection preferable to multiple puncture? This had been settled by the Ministry's decision to use the Copenhagen serum, which was specially prepared for intracutaneous injection. The dose should be doubled for newborn infants. Patients should be warned about the papule which might appear after two or three weeks and sometimes broke down to an oozing ulcer. Ultra-violet light cleared up such persistent ulcers with dramatic speed. Speaking of the groups to be selected, Dr. Irvine suggested that Mantoux-negative diabetics should be included as should Mantoux-negative cases in tuberculous families, especially those in contact with streptomycin-resistant cases.

There followed a general discussion in which a number of speakers took part.



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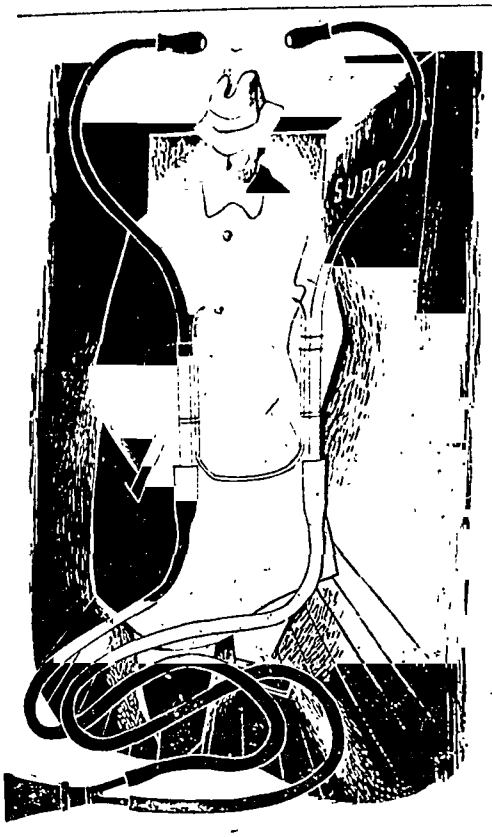
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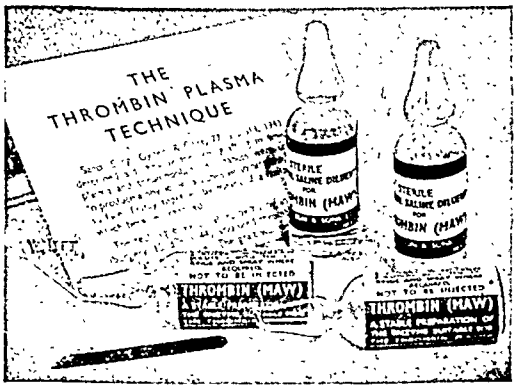
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CONFERENCE ON INFERTILITY

FAMILY PLANNING ASSOCIATION

The Sixth Annual Conference on Infertility was held in the Usher Institute, Edinburgh, on September 17 and 18, under the auspices of the Family Planning Association.

Mr. W. SELBY TULLOCH (Edinburgh) opened the first session with a paper on testicular biopsy in the infertile male. He described the technique that he found successful as an out-patient procedure; it was performed under local analgesia, 10% procaine being injected into the spermatic cord and into the scrotum at the site of incision. Suture of the tunica albuginea prevented haematoma formation. In none of his cases did the operation involve absence from work, nor did the patient complain of pain. He showed a series of photomicrographs illustrating the various biopsy findings in subfertile males. In the discussion that followed attention was drawn to the real danger of testicular damage resulting from the *x*-ray treatment of spondylitis ankylopoietica and to the characteristic absence of evidence of inflammation in biopsies from testes which had been the site of mumps orchitis.

Dr. ARTHUR WALTON (Cambridge) spoke next on patterns of male sex behaviour. Characteristic behaviour was not sex-specific, since it was exhibited by the prepuberal male, might persist after castration, and in some species at least was normally exhibited by sexually excited females at all stages of the sexual cycle. The pattern was innate and showed the phenomenon of "drive," which increased in the absence of a normal outlet so that a substitute outlet might be found. Experimental work on rabbits had shown that the threshold of response and degree of completion of the pattern could be expressed as the product of two factors—the sex drive of the male and the excitatory value of the sexual object. That the motor pattern and accompanying reflexes could become highly conditioned to external stimuli was illustrated by a study of the behaviour of bulls during semen collection for artificial insemination; facilitation and inhibition were often observed. The applicability of these studies to human infertility problems was developed in the discussion. The importance of lack of sex drive as an infertility factor was demonstrated, among other things, by the finding of an intact hymen in 5% of "infertile" wives.

Dr. A. G. OETTLÉ (South Africa) read a paper, in conjunction with Dr. G. VAN DRIMMELEN, in which he developed a theory of sperm quality based upon the known facts concerning the development and subsequent loss of the characteristics of motility, ability to fertilize, and ability to ensure completion of embryonic development. There were many gaps in our knowledge, and it was hoped that a consideration of the subject in this way might help to show where further work was needed to fill in some of these gaps. A lively discussion ensued, ranging over many aspects of reproductive physiology.

Ovulation

Dr. G. I. M. SWYER (London) described a method of treatment of anovulatory failure by the cyclic oral administration of stilboestrol and ethisterone. He reviewed the results of this treatment in 40 women in the reproductive years, consisting of 14 case in which the presenting symptoms were prolonged and excessive irregular uterine bleeding, 13 in which the periods were scanty and infrequent, or, if regular, found to be anovular, and 13 cases of secondary amenorrhoea of one year's duration or more. In the first group evidence for the re-establishment of ovulation was available in eight cases, and there were three pregnancies. In the second group the same number of successes occurred, but in the third group no successful results at all could be claimed. The discussion of this report centred around the problems involved in the establishment of the condition of anovulatory failure before treatment and the elimination of spontaneous cure—in other words, the difficulty of ascribing the results after treatment as being indubitably due to treatment.

Mr. ALBERT SHARMAN (Glasgow) read a paper on the re-establishment of ovulation post partum and after abortion. This was a preliminary communication of a wider investigation as yet incomplete. There had been five previous investigations on the re-establishment of ovulation, but all of small series of cases, and there were considerable discrepancies in the results. His own series consisted so far of 628 endometrial biopsies in 283 women post partum and 125 biopsies in 36 women following abortion. Seventeen patients had had more than 10 endometrial biopsies performed during the nine months following delivery. One patient had had 24 weekly biopsies. Mr. Sharman based on this material a full account of the re-establishment of ovulatory cycles and their relation to lactation.

Pelvic Endometriosis

Mr. G. DOUGLAS MATTHEW (Edinburgh) discussed pelvic endometriosis in relation to sterility and showed that fibroids, metropathia haemorrhagica, fixed retroversion, and other conditions frequently coexisted. He considered the possible aetiological significance of social and economic conditions, and of prolonged oestrogenic stimulation without the respite of pregnancy. Diagnosis could be most difficult, especially since the severity of symptoms need bear no relationship to the extent of the disease; laparotomy, therefore, was the only certain diagnostic procedure and was recommended in all doubtful cases. Conservative surgery was the treatment of choice; if this was rewarded by pregnancy and recurrence followed, more radical measures could be adopted subsequently. In the discussion mention was made of the value of hysterosalpingography in the differential diagnosis of endometriosis from the late results of pelvic sepsis, and of the possible value of testosterone as a therapeutic test as well as in preoperative treatment.

Mr. S. BENDER (Liverpool) drew attention to the existence of peritoneal pockets as a cause of sterility. Usually they resulted from pelvic peritonitis, which might or might not have caused tubal damage. Although tubal patency was almost always carefully investigated in cases of sterility, attention was seldom paid to the existence of a clear pathway between the ovary and the abdominal ostium. Obstruction of this pathway, or pelvic block, could be due to the presence of a pelvic pocket in relation to the abdominal ostium—easily demonstrated by salpingography—but it could also be due to the ovary being pocketed away from the general peritoneal cavity.

Disappointed by the results of other forms of treatment, Mr. LINTON SNAITH (Newcastle-upon-Tyne) said that he had been using oestrogens in the treatment of threatened and habitual abortion for the last two years. In threatened abortion, provided it was not inevitable, an initial intramuscular injection of oestradiol benzoate, 10 mg., was followed by oral oestrogen therapy. In habitual abortion oestrogens were given orally, starting a few days after the first missed period. There were 31 patients in this group, and in half of them stilboestrol alone had been used. So far the results were regarded as successful in 25 of these patients, other methods of treatment having previously failed in many of them. There was a surprisingly high incidence of toxaemia of pregnancy in these cases. Mr. Snaith reviewed the possible mechanisms whereby oestrogens could be of benefit, and concluded that there was no evidence that they did harm in pregnancy, while they might be beneficial, especially where "blighted embryo" in the early months of pregnancy was the cause of repeated abortion.

A full discussion followed, and the difficulties of assessing the results of treatment in habitual abortion, as well as its definition, were stressed. Despite their variations in treatment, nearly all who contributed to the discussion secured approximately 80% success. The random distribution of abortion sequences, as in the classical description of Malpas, had to be considered, and it seemed that only extensive controlled series could be expected to show the undisputed value of any therapeutic regime.

Fructose and Fibrinolysin

Miss URSULA PARSONS (Cambridge) described the work she and Dr. T. Mann had done on the effects of testicular hormones on the formation of seminal fructose. Considerable variations in the seminal fructose concentration, both in the same and in different individuals, were found in man and in rabbits. In the latter, however, it was shown that castration was followed by a fall almost to zero in the seminal fructose, while the adminis-

tration of testosterone, both by implantation and by injection, was followed by the rapid return of the fructose to normal levels, from which it fell again on removal of the implant. Stilboestrol implants in intact rabbits also depressed the seminal fructose. Dr. MANN described how the fructose content of the castrated rat's prostate and seminal vesicles could be used as a sensitive indicator of androgenic activity—far more sensitive than the weight change—and it was suggested that this would provide a simple and satisfactory method for androgen assay. As little as 0.05 mg. testosterone could be detected by this means.

Mrs. CLARE HARVEY (Exeter) described a relatively simple method for estimating the rate of liquefaction of blood fibrin by seminal fluid. It was found that the time of liquefaction of a constant quality of fibrin was related to the fibrinolysin activity in a manner expressed by $\log C = a \log T + K$ where a and K are constants, C is the fibrinolysin activity measured in arbitrary units, and T time. A regression equation calculated for 99 points from 30 specimens of semen gave a very good fit for a further 110 points from 45 other specimens. The distribution of enzyme activity was found to be asymmetrical, most specimens having a total activity below 50 units. No correlation was found between enzyme activity, sperm motility, seminal volume, time of continence, and fructose content. The residual viscosity of semen was not closely related to enzyme activity, but it seemed probable that the citric acid, thrombin, and fibrinogen content might be at least as important as fibrinolysin activity in determining the final consistency of the seminal plasma.

At the close of the meeting the future of these conferences was discussed, and their continuation was thought to be desirable. It was also suggested that the time might be ripe for the formation of a society for the study of problems in comparative fertility, both from the animal and the clinical side. It was therefore decided to form a committee, of which Dr. A. Walton and Dr. G. I. M. Swyer were elected joint secretaries, the functions of which should be, in the first place, to arrange for a conference next year and, in the second, to consider and present before the conference plans for the formation of such a society.

THE PROBLEM OF RHEUMATISM

TWO-DAY CONFERENCE IN LONDON

The British Rheumatic Association, which was formed in 1947 to direct public attention to the needs of the rheumatic patient, to promote medical and social interest, and to stimulate research, arranged a two-day conference at Chelsea Town Hall on September 28 and 29. In connexion with the conference an exhibition was held at the adjoining Chenil Galleries, where some 15 firms had stands displaying preparations for the relief of rheumatic disorders, electro-medical apparatus, invalid furniture and transport, and devices for occupational therapy. There were also displays illustrating spa treatment, home and aftercare visiting, and industrial rehabilitation.

Lord HORDER, one of the vice-presidents of the association, who was in the chair at the opening of the conference, said that the B.R.A. was helping to make known the magnitude and economic importance of the problem of chronic rheumatism. Its liaison with the Empire Rheumatism Council, founded 15 years ago, was close and cordial.

Cortisone

Dr. W. S. C. COPEMAN said that from the epoch-making announcement by Hench, Kendall, and others of the Mayo Clinic early this year it seemed evident that an abnormality of one of the constituents of the cortex of the adrenal gland was chiefly concerned in rheumatoid arthritis. Hench, working on the old observation that cases of rheumatoid arthritis got well during pregnancy, and on his own observation that this beneficial change occurred also in the course of certain types of jaundice, arrived at the conclusion that the common factor was the adrenal cortex. In 1947, trying out one of the cortical steroids which Kendall had isolated—compound E—Hench found that with large doses the whole disease process and activity, even in the most severe cases, could be reversed within a few days, though the condition relapsed as soon as the administration ceased.

Compound E was an extremely difficult substance to prepare, even in small quantities, and it had so far been impossible to synthesize it chemically. It was prepared at present by partial synthesis from ox bile, but sufficient quantities for adequate clinical trials would never be made available by that means. It had also been found that if adrenocorticotropic hormone, whose chief function was to stimulate the adrenal cortex, was injected a similar beneficial effect was produced, showing that patients could produce an adequate supply for themselves if forced to do so, but the nature of the lesion which prevented this in ordinary circumstances still remained unknown. This extract was almost as rare as compound E itself; there was a little of it in Europe, he believed, but much of it, so far as he could make out, was inactive.

The problem now to be solved was to produce compound E or any similar substance on a sufficiently large scale to make adequate clinical trials possible. At present only enough was available in the world to treat about 50 persons for a period of a few weeks. The discovery was likely to rank with insulin, and possibly with penicillin, but clinical use was still in the early experimental stage, and it should not be thought of as a practical treatment. The clinical results were manifest: stiffness, anaemia, and joint lesions cleared up; nodules disappeared; weight increased, in some cases so grossly that the patient had to be put on a reducing diet, and the blood picture returned to normal, though not immediately—"travelling," as Hench said, "on the same line, but not in the same train." A warning was necessary against false descriptions of compound E. Vitamin E with something else added had been presented by some vendors in America as "compound E," and therefore it was desired that the substance should not be given that description but should be referred to as "cortisone."

Dr. OSWALD SAVAGE, who, like Dr. Copeman, had recently seen this work in America, said that here again the research chemists had come splendidly to the aid of medicine, as they had done in the work on the sulphonamides and penicillin, and in work also on preparations such as stilboestrol. Those interested in the problem in this country would be greatly encouraged if they could see the excitement which this discovery had aroused in America. This was no mere flash in the pan. It was the result of years of patient research on the physiological side by Hench and his colleagues and on the chemical side by Kendall and his colleagues, both at the Mayo Clinic.

Rheumatic Patients in Rural Areas

Dr. W. S. TEGNER, secretary of the International League Against Rheumatism, said that patients in rural areas presented a twofold responsibility. The doctor must make an accurate diagnosis, and he must also plan his care in circumstances very different from those of a hospital clinic. Each type of rheumatism called for its own treatment, and, moreover, each patient was an individual and must be treated as such. The patient wanted to be told about his own disease and its management, and this was particularly important in the case of the rural patient. At the Mayo Clinic no patient went home without having listened to a series of lectures on his disease. The care of the rural patient was primarily, of course, the responsibility of the local doctor, who might call in a specialist if needed, but specialists in rheumatism were still rare and seldom accessible to the rural patient. Drug treatment of rheumatic conditions was ameliorative rather than curative. A form of treatment acknowledged to be of great value in the management of rheumatic disease and the prevention of deformity was physiotherapy, ranging from massage and exercises to complicated electrical treatment. Domestic physiotherapy was necessary for the rural patient. There was a danger that in modern physiotherapeutic advances it might be forgotten that for many years domestic methods, such as rubbing the part with liniment and applying heat by what would now be considered crude methods, had been highly successful. In the instructions given at the Mayo Clinic the patient, on being

discharged, was told of at least six different methods of applying heat apart from electricity. These included the hot water-bottle, the hot brick wrapped in flannel, the use of the flat-iron, and the like, some of which sounded antediluvian but worked well.

There was a good deal of mystery and misunderstanding about electrical treatment. Very often when a reference was made to electrical treatment no more was meant than the generation of heat. It might be that the rural patient was unable to obtain the ordinary forms of infra-red radiation or short- or long-wave diathermy as used in hospital clinics, but there were domestic substitutes for them which could be most valuable. Altogether, the rural patient presented a problem, an interesting one, which could be largely solved by personal interest and sound advice.

Dr. A. B. Williamson, administrative medical officer of the Leeds Regional Hospital Board, said that a scheme had been worked out for his region whereby nine peripheral clinics were or would be established at various industrial centres, and, as soon as possible, three others so placed as to serve rural areas. To these peripheral clinics, situated in hospitals, the patient could be sent for diagnosis, and if specialist advice was necessary he could be accommodated for a short time in one of a dozen beds. After diagnosis, treatment would be given in the department of physical medicine at the hospital or elsewhere. If treatment was not possible at the peripheral clinic the patient would be referred to the centres—Leeds General Infirmary and the Royal Bath Hospital, Harrogate, and there he might be treated as an in-patient for months. Out-patient clinics had been established in Harrogate, and for the ambulant type of case permission had been obtained from the Ministry of Health to take over a large hotel near the baths, where it was hoped to accommodate up to 160 patients.

Industrial Rehabilitation of the Disabled

The second half of the conference was devoted to the problems of rehabilitation. Air Commodore G. O. Venn gave an account of the progress of "Remploy Limited," of which he is executive director. Remploy Limited, until recently known as the Disabled Persons Employment Corporation, is an industrial undertaking operating factories as much on industrial lines as possible, and aiming to employ in productive work all men and women who are registered at an employment exchange as disabled and who cannot expect to obtain and hold work in open industry. The programme calls for 137 factories, 20 of which are to be specially for the tuberculous. At present the disabled are being employed in 62 factories, and nine more are in process of being staffed and equipped. Over 3,000 disabled are at work in the factories now established. A fair number of epileptics are being employed, also sufferers from diabetes, paraplegia, and cardiac conditions. In South Wales a large proportion of ex-miners suffering from silicosis have gone into these factories. The number of sufferers from rheumatism, including spondylitis, employed is 240. Air Commodore Venn said that they had had a fair amount of success, but they were a long way from covering their first costs. A "homework" scheme was being operated in ten districts, but the difficulty was to find a suitable product which could be made in the home and command a ready market.

Another contribution was by Mr. John Arthur, founder of Michael Works Limited, a woodworking factory, run as an ordinary economic unit, and employing 75% disabled labour. He said that a small proportion of disabled men could be reabsorbed in open industry, but many could not maintain the pace, and it became increasingly evident that small unit factories producing specially selected work were the best answer to the problem of the re-employment of the disabled. The first interview with the employee was the most important part of the rehabilitation process. At that first contact there must be established a positive assessment of the disabled man's remaining powers of working again and earning a living. He should be encouraged to think of what he could do as opposed to what disablement prevented him, in his own view, from doing. Once confidence was established the management must then see that the right job was found for the man.

REHABILITATION

A special clinic with demonstrations was given by Dr. Howard Rusk, of the Bellevue Hospital and the Institute of Rehabilitation, New York University, at the Royal Free Hospital on September 14, with Lord Horder presiding.

Dr. Rusk spoke of the enormous cost, in both wealth and happiness, which was incurred by a failure to secure proper rehabilitation after industrial and other injuries and illnesses. He gave a large number of figures illustrating this point, and then proceeded to demonstrate the various methods which he used. The cases in which he was principally interested were those of hemiplegia, spastic paraplegia, and various types of quadriplegia. If rehabilitation was to take its proper place, a correct diagnosis should be established in the first instance.

He went on to detail the various tasks which make up the routine of life. These tasks were set out on a form and each patient was provided with this form on entering the clinic. As the patient found himself able to complete his own toilet, move from a wheel-chair to bed, and from bed to a wheel-chair, and so on, the blanks on the form were filled in so that the patient could see his progress in pictorial form. So successful had this method of fostering a competitive spirit been, that by means of various mechanical methods even patients who were quadriplegic had been able to return to some method of earning a living and, even more important, had been rendered independent and able to look after themselves.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL

The annual dinner of King's College Hospital Medical School was held at Claridges Hotel on October 1 under the chairmanship of Dr. J. H. Sheldon. The toast of the medical school was proposed in a witty speech by Dr. Wilfrid Oakley. In response the dean, Mr. Harold C. Edwards, referred to the difficulties of admitting students to King's. For some reason or other, he said, medical education was becoming very popular, and there had recently been 900 applications for 50 vacancies. In deciding who should fill the vacancies it was impossible to avoid disappointing some of the sons of King's men. But every attempt was made to assess objectively the qualities of the applicants. In spite of the legal separation between the hospital and the medical school they continued to work in close harmony. The toast of the guests was proposed in a felicitous speech by Dr. Sydney Thomson and responded to by Sir Hugh Cairns, who the day before had given the inaugural address printed elsewhere in this *Journal*. Sir Hugh said that his first acquaintance with King's was through the well-known textbook by Rose and Carless, which he read when a student in Adelaide. He compared this with Osler's great textbook—a source of questions in general knowledge. Sir Hugh said it was a pity that the National Health Service had to be so centralized, and referred sympathetically to the present difficulties of the general practitioner. Dr. Terence East, in proposing the health of the chairman, referred to his contributions on diseases of bone, anorexia nervosa, on the distribution of iron in the body, and now on geriatrics—not so boring as Cicero's *De Senectute*. In reply, Dr. Sheldon said that physicians often died of the diseases they treated, which was why he had become interested in geriatrics.

MIDDLESEX HOSPITAL MEDICAL SCHOOL

The annual dinner of students, past and present, of Middlesex Hospital Medical School was held at the Savoy Hotel on September 30 under the chairmanship of Professor E. C. Dodds. The chairman paid a tribute to the late Mr. Turner Warwick, with whom his own association dated back to the early 'twenties when Warwick was pathological registrar at the Bland-Sutton Institute. They welcomed that evening his son as senior Broderip scholar. Professor Dodds claimed for the Middlesex that it was "undoubtedly the most remarkable of medical schools." It aimed at keeping the basis of education as broad

as possible. There had been many criticisms of the medical schools of London that they were too narrow, but the benefactors of the Middlesex had indicated that it should be a school of research in addition to a school purely for the training of doctors. He believed that this broad administration, started by Sir Charles Bell Bland-Sutton and encouraged by Lord Webb-Johnson and others, had been well justified.

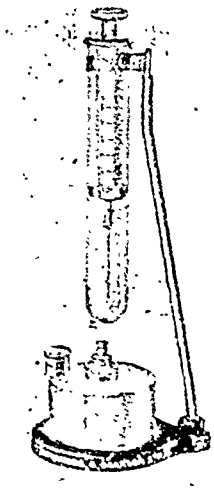
Dr. H. E. A. Boldero, dean of the school, said that looking back on the year, although it was the first year of the National Health Service and of the school's charter, he felt that extraordinarily little had happened. That was as it should be; changes should be slow and deliberate. He went on to refer to the retirement, due to take place on the morrow, of Professor John Kirk from the Courtauld chair of anatomy. Another figure they were losing, and one who had contributed greatly to the school in a different capacity, was Mr. R. A. Foley, the school secretary, who was retiring owing to ill-health. The school had appointed a woman as his successor—Miss Eileen Walton. Another Middlesex man of whom they were very proud was William Sladden. He qualified two or three years ago and was medical officer on an expedition to the South Pole. The expedition met with disaster, and Sladden's heroism and endurance under trying circumstances had earned high praise.

Mr. R. Turner Warwick, senior Broderip scholar, in responding to the toast of "The School," gave an account of athletic activities during the year. The evening ended with the drinking of the health of the chairman, proposed by Dr. G. E. Beaumont, who spoke of Professor Dodds out of a friendship which dated back to the time when Dodds came to the Middlesex as a student with "the valuable technique of passing every examination with distinction."

Preparations and Appliances

TEST-TUBE STERILIZER FOR SYRINGES

Dr. H. F. Barnard, Pathologist, Westwood Hospital, Beverley, E. Yorks, writes: Sepsis from an unsterile syringe procedure is not uncommon. The method here described offers a simple way to boil a syringe and handle it dry. It is speedy and can be used readily anywhere—for example, in the home—though it is appreciated in the surgery or ward.



A syringe of the glass plunger type rests in a glass boiling-tube, this being supported in a spring-clip stand over a spirit lamp. On lighting the lamp the water boils in 60 seconds and the syringe is surrounded by steam, whilst boiling water passes up the needle and barrel. Trials show that five minutes' boiling is sufficient. Normally a syringe is washed clean, but as a more searching test serum heavily infected with *Staphylococcus aureus* was allowed to dry on the plunger and in the barrel. After boiling for five minutes in the tube no growth was obtained from washings. Nevertheless it is important that the syringe should be used only for aseptic purposes.

When sterilized the syringe is lifted out by the handle, and the outside dries in a few moments. This avoids the risk of contamination spreading to the needle from the hand on a wet barrel. It is convenient to carry the syringe about in the tube after tipping out the water. If left in the tube the syringe remains sterile many hours. A useful protection of the needle-point is achieved in this method.

I would like to thank Mr. A. A. Ralph, of Reynolds and Branson, Ltd., of Leeds (the makers), for help in producing the apparatus.

Correspondence

The Innocence of Deans

Sir,—How stirring are the times in which we live. Never have learned doctors so bedevilled each other since the robustious days of the seventeenth and eighteenth centuries. The medical press is a free-for-all, with no holds barred and no non-combatants. The most innocent and peaceful observer who cautiously raises his head above the sandbags is liable to receive a shattering volley from all sides. So when Dr. Geoffrey Bourne (September 24, p. 704), a redoubtable slinger of verbal brickbats, is pelting Dr. H. E. A. Boldero with great gusto (in the hopes perhaps of winging another distinguished shadow he glimpses behind) a sudden association comes into his head and with one tremendous backhander he demolishes the whole damnable denomination of deans, men whose "whole outlook and training is one of honest and faithful subservience to an institution," incapable of defiance of authority.

Let authority take note of this testimonial to decanal innocence. So will we the better preserve in these difficult times the integrity of the institutions we subserve.—I am, etc.,

London, S.E.1. E. R. Boland.

Distinction Awards

Sir,—In your issue of September 24 (p. 704) Dr. J. W. Linnell's comments upon my letter (September 3, p. 545) suggest that he is under some misapprehension, arising in part from the condensation of my original letter to you in which I defined "postgraduate teaching hospital" so as to include "all those medical schools recognized as preparing candidates for the higher qualifications," while undergraduate teaching hospitals were defined as "those not preparing candidates beyond the qualifying examinations." The marks printed are the average of a few colleagues' markings and are included only as an indication of how the idea may be worked out.

I am careful to leave it to the Awards Committee to amplify and modify the scheme, and I suggest that every consultant should mark the Awards Committee's scheme in detail, that these marks should be averaged by a firm of accountants, and that the average markings should be binding on the Awards Committee. Thus Dr. Linnell—in common with every other consultant—would have the chance to record as many "0s" as he pleases, "to put down the mighty from their seat and to exalt the humble and meek." Others will join him in recording a "0" for "officers of academic medical societies," but some wished it to be included.

Another point obscured by the condensation is that while the averaged detail marking of Sections 1 and 2 would be final—each candidate scoring in each subsection the highest mark to which he is entitled—the marking in Section 3, "Publications," would not be greater than the averaged figure, but might be as little as 1%. I believe that a representative committee of each consultant group could mark each candidate on his application under this heading in a matter of minutes. Personally I shall be content if a man whose original work is outstanding scores as many marks for it as for "15 years of service on an undergraduate teaching hospital"—we are required to assess Distinction—but once again Dr. Linnell may put down what figure he likes. His statement that the scheme "attaches no value to such vexatious and intangible considerations as clinical acumen and judgment, or operative skill," is surely frivolous. If a consultant's senior hospital appointment and the years of service he has given to that post and to others leading up to it are not a criterion of his "clinical acumen, judgment, and operative skill" then we must indeed abandon hope of solving this problem, for every appointments board before whom he has appeared has sought to assess, after full consultation and deliberation, just those things.

The Awards Committee is required to carry out certain duties which were defined by the Spens Committee, approved by the profession, and then—and only then—passed into law. Apart

from abstention, the time has gone by when we can do other than assist the committee in their thankless task. I have sought to put into words an idea which may prove helpful. The Awards Committee decides what factors contribute to the idea of distinction, and the consultants as a whole decide, democratically, what marks are to be attached to those factors.—I am, etc.,

London, W.1. FREDERICK RIDLEY.

SIR,—Those of us who have read and admired the writings of Dr. F. M. R. Walshe appreciate the courage, wisdom, originality, and sincerity of his contributions to medicine. He is an acknowledged leader in thought, fittingly recognized. Yet in spite of this, or perhaps because of it, we see him running counter to the controlling political and academical authorities of the day. Surely he must be given the distinction of being called a "reactionary," a "difficult fellow," or, by those who fear him, "naughty," for these are the terms in which we honour the leaders of our time. Mr. Winston Churchill has been so distinguished in the House.

Let Dr. Walshe not fear that he is without support from graded specialists, for many of them now realize that their previous failure to interest themselves in the nomination of, and voting for, political and academical leaders has cost them very dearly. The members of the profession voted with a solidarity previously unknown against this set-up, but that was when few realized the enormities now beginning to be revealed to them. I venture to suggest that if the planners had clearly shown their designs, and the humbug attaching to them, a far greater solidarity against them would have resulted which would have been maintained in spite of the leaders; and the public would have benefited.

Dr. Walshe (September 17, p. 649) states, "The power of money is great." He realizes that local influence is to be used and is feared, that the awards are in the power of the planners with sycophants as satellites. These hate criticism and have designed their set-up to keep out the "difficult fellows." They are steadily acquiring a dictatorship which threatens not only the "distinction awards" but the very liberty of the doctor. The writings of the workers will have to be submitted to powerful dictatorial overseers who will so secure their "notice": failure to do so may mean rejection or even a blasted career. At the moment one of our leading surgeons can state, "I personally suspect the man with huge figures and a negligible mortality of being a surgical spiv," but how long will the critic of statistics be so tolerated? Canvassing for votes with intimidation, or even instruction, for high distinction or office in the profession already exists, and woe betide the "difficult fellow." As I overheard the conversation, "He's probably the best man we have on the staff; but why, why, why does he keep that imp on his shoulder?" Criticism, however justifiable, of the scientific or political activities of the powerful—the life essence of a progressive profession—will become difficult—yes, and hazardous—to the career of the critic.

Speaking as a radiologist, prior to this service radiologists kept their liberty by earning their living with their own units to the benefit of their patients and the Exchequer and with credit to the profession. Their private apparatus, at a time when the country is financially embarrassed, has to all intents and purposes been scrapped, while the hospitals are clamouring for more and more equipment (though probably adequate to do reasonable requirements) and the manufacturers with stores filled with units await "instructions." By the time the units are supplied they will be out of date. But even to mention such matters may jeopardize a "distinction award."—I am, etc.,

Birmingham. JAMES F. BRAILSFORD.

Medical Education

SIR,—There were several most interesting articles in the educational number of the *Journal* (September 3) on aspects of medical education, and although some time has elapsed since they appeared I hope I may be allowed to comment on them. I feel that this is the more needful in that they imply that there is only one kind of approach to medical education, an approach which might be summed up as more courses, better courses, or linked courses. I shall confine myself to two lines of criticism.

The first criticism is of all this talk about scientific method. It seems to be hoped that, by reading scientific textbooks and attending systematic courses of lectures in different branches of science, scientific method will somehow be inculcated. Such courses are doubtless important for the student of science, but surely he does not acquire scientific method from them. They are aids in dealing with actual problems of science and sometimes may suggest them. But scientific method surely starts with the recognition of a problem and consists in the isolating of it from irrelevances. It is in fact a kind of interrogation in which the framing of a question is of great, possibly of paramount, importance. Its affinity with clinical examination is obvious, but there is no closer relationship between scientific method and clinical examination. The objects of each are too diverse.

While it is an attractive ideal that every doctor should be trained in scientific method, I venture to suggest that it is neither an essential nor even a possible one. The problem for medical educationists therefore resolves itself into that of how much of the enormous corpus of knowledge in biology and its derivative sciences should be insinuated into medical students.

The second criticism refers to the question of skill in medicine. Professor W. Melville Arnott (p. 497) asserted in his address that medicine is essentially a science—"is an art only in so far as the term means human skill." An art in this sense, and in most senses, is capable of being taught to a very considerable extent. In music and the pictorial arts this is recognized by the establishment of schools for the purpose. It was therefore disappointing to find in an address on reform in medical education no reference to attempts to improve "human skill" in the practice of medicine. Surely it is not considered that the human skill of the newly qualified graduate is as high as it should be. There are certain aspects, notably in the practice of asepsis, where nursing education is superior to medical.

One is tempted to develop this theme further, but I shall content myself with the suggestion that in a revival of apprenticeship lies the most hopeful path for progress in medicine. Such an apprenticeship, served mainly in hospital and begun early in the medical curriculum, not left to an intern year at the end, will itself enable the student to learn from his lecture courses. Such close acquaintance with the material of the subject studied has been the condition determining the progress of the whole scientific movement; it seems the most likely method of developing a genuinely scientific outlook in those medical men temperamentally capable of it. But it will require all the hospitals in this country to provide such an apprenticeship. The persistent separation of teaching hospitals from all others would have to be abandoned and some type of union of boards of governors with regional hospital boards set up. On other grounds, mainly administrative, this has already been mooted. One may hope that it will be speedily achieved.—I am, etc.,

Heswall, Cheshire. DAVID WILKIE.

Teaching of Physiology

SIR,—In discussing the imperfections of the practical training in physiology (September 3, p. 502) Professor G. W. Pickering makes the following statement, "Classes in mammalian physiology in Great Britain will be difficult to organize so long as they are based on the cat or dog, uncommon and expensive animals the use of which is much hedged round by restrictions," and he goes on to cite the example of Adelaide, where wild rabbits are used which are tough and cheaply trapped. One is left with the feeling that the problem of animal supplies in this country exists only because of the lack of resource on the part of British physiologists in failing to discover and trap some suitable British mammal. Might I correct this impression by some brief comments on the statement which I have quoted above?

1. Expense is not the deciding factor in making a choice between cats and rabbits. Current prices are: rabbits, 10s.; cats, 10s. to 15s. Even Australian rabbits imported would not be likely to be much cheaper.

2. Uncommon is not the best word to describe animals whose occurrence is indicated by figures taken from the report of the Sheffield branch of the R.S.P.C.A. as reported in the *Sheffield Star* (June 15, 1948). According to this, during the previous year 10,531 cats and 5,777 dogs were destroyed in Sheffield (pop. 476,360). If these figures are typical for the whole country about 1,000,000 cats and 500,000 dogs are destroyed annually in Great Britain.

3. The restrictions mentioned by Professor Pickering are hardly relevant, since the use of any vertebrate (except the human being) is subject in this country to restrictions very similar to those on the use of dogs and cats, and these restrictions would certainly prohibit such interesting experiments as Professor Pickering describes in Australia. On the other hand the use of decerebrate cats is not hedged around by these restrictions, and Professor Pickering must know of the standard textbook (*Mammalian Physiology*) of Liddell and Sherrington, using decerebrate cats.

4. No other animal, human or otherwise, known to me and available in this country at any price can entirely replace the dog and cat for teaching and illustrating many of the fundamental principles of physiology, and if Professor Pickering knows of any such animal I and doubtless other physiologists would be grateful to learn about it.

The real obstacle to improving our mammalian physiology courses has been missed by Professor Pickering. It is simply to make available a tiny fraction of these odd million cats and dogs, unwanted and of no commercial value. The problem is ultimately to convince the ordinary kind-hearted and animal-loving citizen that these animals could be of enormous value to medical training and medical progress and, further, that killed individually by trained physiologists under conditions carefully supervised by the Home Office these unwanted creatures are likely to meet a more merciful end than by mass extermination in lethal chambers.

The physiologists, who might be thought to have a not completely unselfish interest in the matter, have hitherto failed to get their point of view accepted by those in authority, and what is needed is a wider recognition of the problem by those interested in medical education but not directly concerned with the teaching of physiology. It is, therefore, a great disappointment to me to find such a lack of appreciation of the problems of British physiologists by one so closely in touch with physiology and so deeply concerned with the whole problem of medical education as is Professor Pickering.—I am, etc.,

Sheffield. D. H. Smyth.

Thymectomy in Myasthenia Gravis

Sir,—Mr. Geoffrey Keynes's account of his 155 thymectomies (September 17, p. 611) will have been widely read with deep interest. The successful accomplishment of this major operation on so many patients implies surgical skill of the first order. When we turn to the results we are naturally disappointed, as Mr. Keynes must be, that it is not yet possible to select those most likely to benefit from surgery. It seems that a thymoma is unfavourable, but we are otherwise in the dark.

The significance of this big experiment is so important that we must be wary of any possible flaw in its interpretation. A comparison of neostigmine dosage before and after the operation is a useful criterion when the difference is great—Mr. Keynes's groups A and B—but in those with only slight improvement it may well be falsified by the patient's attitude to the drug. For instance, a patient advised to reduce the dosage, and sometimes to stop taking the drug because it is thought by her advisers to be dangerous, will obey and lead a less active life or, more often, make a false return to follow-up inquiries. This is no idle speculation; I know it to be true of some patients.

A second difficulty in assessment concerns the time lapse allowable between the operation and the beginning of improvement. Surgery must surely set itself reasonable limits in this respect. It is difficult to give credit to the operation for a result that is not seen for, shall we say, three months. This time lag is not made clear by Mr. Keynes.

Although I have been unfortunate enough to see six failures in consecutive thymectomies in my patients I am certain that remarkable and unusual remissions have taken place in many cases. Dr. Viets, whose 250 patients at his Boston clinic make him the most experienced student of this disease, tells me that he is satisfied that surgery has been followed by rapid improvement in some patients he had known for years and who had shown no previous good remission.

We are still entitled to speculate on the cause of the more numerous failures. Can it be that myasthenia gravis is a label covering a number of disorders of the myoneural junction? Every functional unit of the neuromuscular system has its own varied pathology—cortex, pyramidal tracts, anterior horn cells, and peripheral nerves are vulnerable in their several ways. Is it not, *a priori*, likely that the myoneural junction, susceptible to curare and in "myasthenia," can be impeded in more ways than we know? Sheldon and Walker (*Lancet*, 1946, 1, 342) have shown that the condition I have called acute thyrotoxic bulbar palsy, in which neostigmine response is striking, can be cured by thyroidectomy.

In future assessments we would do well to remember that recovery from a severe myasthenic state, however striking to behold, is not in itself a reliable criterion. Experienced workers in this field will agree that remissions are more common in the acutely afflicted than in those with a mild chronic course. We need an analysis of results in patients known for their previous even behaviour. Such figures, which I hope Mr. Keynes can abstract from his records, would give a better idea of the effect of thymectomy than we could ever obtain from a large unselected series.

Mr. Keynes's stimulating lecture raises another subject. Clinical and biochemical studies of this large group of thymectomized persons must surely yield some clue to the function of the thymus. We may hope that this new operation will advance our knowledge of this organ, just as the work of Reverdin and Kocher helped to open up thyroid physiology.—I am, etc.,

London, W.1. L. P. E. Laurent.

Gravitational Ulcers of the Leg

Sir,—My paper on the aetiology of gravitational ulcers (August 27, p. 458) was based on 270 patients seen personally in the skin department of the Leeds General Infirmary. The series included every patient that I saw with this condition during two and a half years, and for this reason the term unselected was applied. These patients had ulcers present for a period varying from a few weeks to many years. A number of them had been referred before treatment by surgeons on the staff of the infirmary and from the varicose-vein clinic. The series seems to me to be representative, and my findings are not markedly different from those of Bauer working in a surgical clinic.

Dr. H. S. Russell's description (September 10, p. 598) of my series bears no relation to the facts as given in my paper, and his feeling that I have "seen the failures and should study the successes" before coming to a conclusion is as unjustified as it is unreasonable. My paper was concerned with the cause and not with the treatment of these ulcers. Hence, of those patients whose varicose veins had been injected, only those in whom this treatment seemed to be the direct cause of their chronic venous stasis were mentioned.

Mr. H. J. Croot (September 17, p. 654) does not quote me quite completely. I wrote, "The concentration on treatment of superficial varicose veins in patients with venous stasis is neither rational nor useful. . . ." The point I wished to make was that if varicose veins are present in a patient with venous stasis with or without ulceration, all too often treatment is concentrated upon them and not upon the fundamental cause of the condition—namely, a deficient venous return from the whole limb. While I am perfectly aware that treatment of such varicose veins may in a few carefully selected cases benefit the ulcers, yet in others injection of such veins may intensify the chronic venous insufficiency already present, possibly by causing thrombosis, not only in the superficial varicose veins but also in the third system to which Mr. Croot refers.

The problem of aetiology must be solved before treatment can be rational, and more about both, I feel sure, will only be learnt by co-operation between surgeons, anatomists, pathologists, radiologists, and physicians, and only if the broad view of the circulation of the lower limb taken by your annotator (August 27, p. 480) is adopted.—I am, etc.,

Zurich. S. T. ANNING.

Transmission of Syphilis

SIR,—Dr. A. O. F. Ross (April 10, 1948, p. 691), writing on the transmission of syphilis, reached the conclusion that "the advice that should be given to an adequately treated male is that he should not attempt to procreate children until five years after the date of infection." A case of a man and his wife seen recently by me seems to confirm this.

A woman, aged 27 years, was referred here late in pregnancy with two positive blood Wassermann reactions, which had been taken as routine—the second, of course, to confirm the first. She had no signs or symptoms. About a year previously, while living elsewhere, she gave birth to a baby, of whom her husband was the father, who developed a rash on its palms and soles soon after birth and who died of "pneumonia" when two months old. There can be little doubt that the child had congenital syphilis. The mother had not had a blood Wassermann reaction done during this pregnancy, which was her first.

All the facts of the husband's history have been confirmed. The diagnosis in his case was primary syphilis, sero-negative; on March 20, 1944, and on the following day dark-ground examinations of serum expressed from the sore in the penile sulcus were positive for *T. pallidum*. His blood Kahn test on March 20, 1944, was negative, and the Wassermann reaction on the cerebrospinal fluid was also negative three months later. He had adequate treatment for a year, and subsequent blood Wassermann reactions and Kahn tests were all negative.

He returned to England after military service on December 1, 1945—i.e., about one and three-quarter years after infection. He became engaged to the girl who is now his wife in 1946, when he had intercourse with her for the first time; they were married later in that year. (This story is confirmed independently by the husband and wife.) Her baby was born in 1947, and, as I have said, this baby died aged 2 months of probable congenital syphilis.

The wife told me that she had never had intercourse with anyone except her husband and that there was no previous family history of syphilis. She is one of six children, all living, as are her father and mother. She was an in-patient in a sanatorium for eight months in 1942; the medical superintendent writes me that she had "a tuberculous pleural effusion. There was no suggestion at that time of her having syphilis, so no blood Wassermann reactions or Kahn tests were done." The husband's blood Wassermann reaction and Kahn test were both negative on two occasions a few months ago.

Of course, we can never disprove that the wife had not had syphilis before she was married, but this is very unlikely, and the probability is that she was infected by her husband.—I am, etc.,

Barry, Glam. PHILIP SIMON.

"Acute Abdomen" in Diabetes Mellitus

SIR,—Though one reads of the "acute abdomen" of ketosis[1] and sees it referred to as a differential diagnosis by Zachary Cope,[2] it is not often that one is confronted with this problem.

On September 12 a man of 24 years was brought to hospital as an acute abdominal emergency. He was writhing in agony with abdominal pain and continuously crying out to be given something to relieve his pain. The history was that 18 hours previously, following a bout of vomiting during which, in the course of an hour, he vomited about five times, he was seized with abdominal pain. The pain persisted and had increased in intensity since the onset. The description given by the patient of the pain was that it felt as though he was "breaking in two." He was sure it was not a colicky pain. The pain was confined to the abdomen. He was quite definite that the vomiting had preceded the pain. Lawrence[3] mentions this latter point as an aid to diagnosis. It transpired that the man had been a known diabetic for three years and was on 54 units of insulin daily, with a calorie intake of 2,500 a day on a line diet regime. He had run out of insulin three days prior to admission, but continued to eat and had not made any great effort to obtain a further supply of insulin.

On examination, he presented the picture of an acute abdominal catastrophe, with a drawn, anxious, pale look, a dry, coated tongue, subnormal temperature, and a pulse rate of 120 a minute. There was a strong smell of acetone from his breath. The abdomen was held rigidly but with persistence, and between paroxysms of writhing it was apparent that there was no true rigidity. No definite tenderness could be elicited, peristalsis was heard evenly in all areas, liver dullness was present, and rectally no abnormality was discovered. The urine contained a large amount of sugar, acetone, and acetoacetic acid. The urinary chlorides were 1 g. per litre and the urinary diastase was 2 units. While being examined the patient complained of severe thirst, and when permitted to do so drank 1½ pints (850 ml.) of water without pause.

Despite the picture of acute catastrophe, it was not felt that an acute abdomen of so many hours' duration could be possible with so little in the way of definite physical signs, and it was considered safe to give morphine ¼ gr. (16 mg.). Immediate treatment of the hyperglycaemia was instituted, and an intravenous saline drip commenced. Quite soon afterwards the patient quietened down, showed the typical air-hunger respiration of ketosis, the pain disappeared, and the abdomen became flaccid and free of tenderness in all areas. He made an uninterrupted recovery once his diabetic condition was stabilized.

It is regretted that in the urgency of getting the patient controlled no blood estimations were done. It is felt that the nature of the abdominal condition was comparable with that seen in uraemia. I know of no explanation of the "acute abdomen" in ketosis, and I would be very interested to hear of one.

—I am, etc.,

London, S.E.5. M. GLICK.

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Pavlov and Conditioned Reflexes

SIR,—Pavlov studied conditioned reflex salivation. If one generalizes by using the word "behaviour" one may bracket in two different ways and say either that he studied conditioned behaviour or that he studied conditioned reflex behaviour. These generalizations are not identical, but many writers in referring to Pavlov's work appear to believe that they are.

Most of Pavlov's concepts appear to me to be labels lacking all reference to process. It enlightens no one to be told that when King Alfred let the cakes burn his sense of smell was inhibited at the time by virtue of inhibition.—I am, etc.,

London, E.13. W. THOMSON BROWN.

Treatment of Ringworm of the Scalp

SIR,—The search for an alternative to *x*-ray epilation of the scalp for the treatment of tinea capitis continues, and the recent article on this subject by Drs. H. Haber, R. T. Brain, and Mr. J. W. Hadgraft (September 17, p. 626) shows no doubt a step in the right direction. Yet it seems that due warning about the relative ineffectiveness of their salicylanilide in carbowax preparation when compared with *x*-ray epilation was not given. The practitioner may therefore be inclined to the belief that an alternative is almost at hand.

In the first place it would seem very wrong to utilize cases of *Microsporon felineum* infection of the scalp to prove the efficiency of any local application. Such infections usually undergo spontaneous cure within months even in the absence of any severe inflammatory reaction, and in their group of 20 cases (including seven showing an inflammatory reaction) a 75% cure rate after anything up to 14 weeks' treatment is very little better than one would expect with no treatment at all.

The single case of *Trichophyton sulphureum* infection did not, of course, respond to treatment. We are therefore left with an uncontrolled series of 6 cases of *Microsporon audouini* infections of the scalp. Unfortunately the duration of infection in each case before treatment was started is not stated. From a study of scalp ringworm in Northern Ireland it has become apparent that about a quarter of all cases of *M. audouini* infections of the scalp undergo cure in less than 6 months if left entirely without treatment (91 out of 374 cases in one localized epidemic. Facilities for *x*-ray epilation of this number in addition to cases from a large epidemic in a second centre were not immediately available, and these cases had

to be kept under surveillance until facilities became available.) In addition, a number of our cases have been successfully treated by manual epilation under Wood's light at weekly or twice-weekly intervals. Manual epilation with forceps can be little better than scrubbing with a nail brush every morning for weeks on end. When viewed in the light of these facts four successful results from six cases is not very encouraging.

A trial of a number of local applications has been made by us in some cases of tinea capitis. Fourteen cases have had a salicylanilide in carbowax preparation with instructions to "rub in thoroughly night and morning to the entire scalp after cutting the hair short." The results are still only provisional, but they are sufficiently discouraging for us to have abandoned use of this particular preparation except for purposes of completing the clinical trial. Of the 14 cases no less than 4 have so far developed a severe contact dermatitis (after 2, 2, 8, and 8 weeks' treatment). Actually this brought about cure in all four cases—but the method is not to be recommended! Dr. Haber and his colleagues do not mention the possibility of local reactions.

Articles such as the one under discussion are of certain theoretical value so long as the impression is not left that local applications alone have already an important place in the treatment of scalp infections due to *M. audouini*. It is often only with difficulty that one succeeds in obtaining permission from the patient's parents (and the family doctor) for *x*-ray epilation. The only effective way to prevent epidemics is to epilate cases immediately they are seen. Failure to do this resulted in our 374 cases in one small centre. A satisfactory *x*-ray epilation carried out by an experienced *x*-ray therapist results in freedom from infection within 4–6 weeks and allows the child to return to school, etc., without being a potential danger to the community. No effort should be spared to make these points with practitioners, who, after all, see the patients first.—We are, etc.,

J. Martin Beare.
Ivan H. McCaw.

Belfast.

Massage with Adrenaline

Sir,—My attention has recently been called to a circular which is being sent "to the Medical Profession only," claiming that a proprietary preparation alleged to contain adrenaline, and exhibited by inunction, has beneficial results "in all forms of rheumatism." The circular is plausible enough at first sight, for it suggests that adrenaline stimulates the production of Kendall's Compound E; and at a time when the dramatic outcome of Hench's work with Compound E is familiar to your readers some of them may be led to prescribe the preparation advertised in the circular.

Nobody would wish to decry the value of physiotherapy in rheumatic disease. But I feel that a few words of caution may not come amiss to those who are not actively engaged in clinical endocrinology. (1) The quantity of adrenaline in the preparation is not stated. (2) It is doubtful how much adrenaline is absorbed by inunction, and whether the effect of adrenaline so absorbed is more than transitory. (3) There is no evidence that adrenaline absorbed through the skin stimulates the production of Kendall's Compound E.

In brief, this preparation only advertises itself by a series of conjectures and hypotheses, and I should advise medical men to steer clear of it.—I am, etc.,

G. L. Foss.

Bristol

Hypnosis in Treatment

Sir,—Dr. K. M. Hay (September 17, p. 653) writes, "The mind is then influenced on the feeling level and to a lesser degree on the intellectual level by the hypnotist: in effect we may say that the hypnotized subject is to a great extent depersonalized." For psychologists and psychiatrists depersonalization means a condition in which the subject is continuously compelled to doubt the reality of his own experiences. Lest we should be accused of restricting to our own use a word which has previously been used in a wider sense, may I quote the passage in which this term was first used? "Cet état dans lequel le moi sent ses actes lui échapper, et lui devenir étrangers, j'appelerai une alienation de la personnalité, ou dépersonnalisation" (Dugas, L., *Rev. Philosoph.*, 1898, 45, 501).

This word, referring as it did to a syndrome with which psychologists and psychiatrists had long been familiar, has since been freely used by French, German, British, American, Spanish, and Italian writers. It has done good service for half a century in this sense. To use it in another would be to debase its value and lead to confusion.—I am, etc.,

London, S.W.3. D. S. Macphail.

Essential Hypertension in Pregnancy

Sir,—Professor J. Trueta (September 17, p. 650) has forestalled me in replying to some of the points mentioned by Mr. R. H. Paramore in his letter (August 27, p. 486), but I should like to add something by way of comment on the latter's second two paragraphs.

Mr. Paramore explains the re-establishment of urinary flow under spinal anaesthesia as consequent upon the fall of blood pressure. Hingson, however, whose experience in this particular field is probably unique in its extent,[1] finds that it is often necessary to withdraw the spinal anaesthetic for a while and to give the patient ephedrine in order that the anuria may be relieved—i.e., that urine begins to be passed as the blood pressure rises and not as it falls. He is not averse to this phenomenon being explained as due to a differential action of the sympatheticomimetic drug, the renal vessels being less responsive than certain others to it, so that the general rise of pressure sends more blood through the former.[2] Such differential action is also the basis of the "order of sacrifice" which was advanced in 1947 by Professor Franklin[3] and has since been supported by further, as yet unpublished, experimental evidence obtained by him and by others, myself among them.—I am, etc.,

London, W.1. John Sophian.

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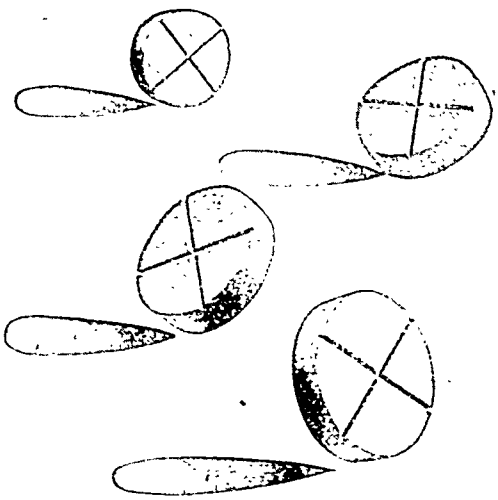
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3 *St. Bart's Hosp. J.*, 1948, 52, 30.

The Backward Child

Sir,—The school holidays just passed have brought the usual mass of school-children for advice because of school failure who are found on investigation to be backward because of a specific difficulty in reading and spelling depending on cross laterality of hand and eye dominance. The most serious cases seem to be the left-eyed and right-handed, but left laterals, with left dominant hand and eye, are only a little less serious.

This form of word-blindness is responsible for so much apparently unexplained school failure—the children "who could do better if they tried"—that it merits much greater attention. The condition is well recognized. It has been described by Sir Henry Head in his book on aphasia, Sir Cyril Burt in *The Backward Child*, Professor Schonell in *Backwardness in the Basic Subjects*, and in many papers in the journals. In America a great deal of research has been done on it. It is essentially a physical problem, but, as failure and frustration are gradually felt by the child, secondary psychological effects appear. Then loss of confidence, feelings of incapacity and social inferiority, and sometimes wild behaviour and even delinquency follow. Games needing co-ordination of hand and eye also suffer, and bring an added feeling of futility. These secondary symptoms usually develop when the child passes 10 years and begins to be self-conscious and to compare his attainments with his own ambitions and the achievements of others. Until then he has usually just been called lazy, or stupid, or inattentive, or "not trying," and he accepts the criticism.

The remedy is to ease educational pressure on reading and writing, to avoid criticism, to make the education as far as possible verbal instead of graphic, and to increase self-confidence through activities which give success. The difficulty usually fades at adolescence, and if the education has been kept at a reasonable level and discouragement avoided there should be little trouble after that.



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B.M.J. (3A)

The essence of prevention is to recognize the condition when the child is learning to read and give skilled tuition then, remembering that the child, however intelligent he may be, will be slower in learning the use of the written symbol than his fellows but that he will, with care, ultimately master it.—I am, etc.,

London, W.1. WILLIAM MOODIE.

Old Age

SIR,—Your correspondent Dr. J. Rushworth Lund (October 1, p. 758) complains of the number of old people who have grown selfish and useless, and suggests that as they eat food and require attention they should be quietly put to perpetual sleep.

This is a brutal proposition. There are, of course, selfish old people, but they are the exception rather than the rule. I could show Dr. Lund large numbers of the aged who are unselfish, kind, and thoughtful, who still do good work, and who are loved by those with whom they come in contact. I would remind him there are plenty of examples of selfish, useless, middle-aged people, and the same applies to the young. Are they all to be exterminated?

I do not know to what age group Dr. Lund belongs. Obviously not the aged. I hope he has many years of useful work before him. Later in life he will probably look a little more kindly at the old people. So many of them have worked hard and done so much good that they deserve some consideration at the end of life. I trust he will get no support for, or sympathy with, his perfectly horrible suggestion.—I am, etc.,

Hove, Sussex. L. A. PARRY.

SIR,—Dr. J. Rushworth Lund's letter (October 1, p. 758) on the above topic carries with it many dangerous implications which if not refuted may still further damage our society already burdened with the false concept of atheistic materialism. Surely the experience of the last ten years should now indicate to any sensible person how shallow such a concept of life really is.

Has not this materialist concept of life crumbled into dust and ashes in the very sight of those most anxious to build it up?

Old people should never ask themselves, "What use am I in the world?" Nor indeed should anyone. As for sons and daughters unable to marry, has Dr. Lund never heard of charity, the greatest of all the virtues? When a person's natural rights are voluntarily surrendered in the interests of charity that person is living on a very much higher sphere than the person who in similar circumstances insists on the exercise of his natural rights. As to segregation and euthanasia, are these remedies really compatible with the dignity of the individual? Has the individual no supernatural destiny? And who without just cause can take the life of another individual, which, I suggest, Sir, belongs to God and to God alone?—I am, etc.,

Barnsley, Yorks. EDWARD D. JONES.

Paddington Green Children's Hospital

SIR,—I would like to add a word to Dr. D. W. Winnicott's letter (September 24, p. 711). The first post I held in London was as houseman in Paddington Green Children's Hospital fifteen years ago. Since then I have never worked in a more happy hospital nor one in which the individual counted for so much. Everybody knew everybody, from telephone girl to senior physician, and the hospital was a happy, highly efficient unit with a high sense of duty and individual responsibility. It has always seemed to me that this small children's hospital was in its way among the very best of its kind.

In the new order of things it is I suppose inevitable that these things will occur, but is it sufficiently appreciated by the public that they have now one less hospital in their area to serve the local needs, and by the medical profession that it leads to termination of appointments of members of the staff, who have usually given many years' honorary service to such hospitals, without redress and with very little thanks? This mantis-like union of small hospital with large is apparently unhealthy for the patients and medical staff of the smaller partner—the larger, in a few recent instances, digesting bricks and mortar satisfactorily while unable to assimilate the human portion of the diet. In the closing down of Paddington Green Children's Hospital the population of the area has suffered a personal loss, as have also those of us who remember this hospital in the past.—I am, etc.,

London, S.W.1. F. DUDLEY HART.

SIR,—Dr. D. W. Winnicott (September 24, p. 711) has done a great public service in bringing to light the facts concerning the closing of Paddington Green Children's Hospital. It is indeed a tragedy that such an institution, second only to Great Ormond Street in efficiency, can be so quietly planned out of existence. By some mischance St. Mary's was allotted two children's hospitals, whereas there are two other teaching hospitals in the North-West Metropolitan area who have none. It would seem a simple matter to arrange a transfer, and it would save the Ministry of Health £10,000, which is the estimated cost of transforming a 50-bed children's hospital into an adult hospital with half the number of beds. A petition signed by 8,000 mothers, protesting against the closure, has this week been presented to the Minister. Perhaps this plea may prevail where logical argument has failed.—I am, etc.,

London, W.1. MASSEY DAWKINS.

SIR,—Dr. D. W. Winnicott (September 24, p. 711) is to be congratulated on making known the regrettable intention of St. Mary's Hospital Board to close the Paddington Green Children's Hospital and also for stating his views so fairly and so pointedly. Furthermore, I feel absolutely certain his opinions are those of everyone who has had the privilege and joy of serving such a splendid institution and would be strongly supported by countless mothers in the district, and further afield, who have themselves been kindly treated there or regularly take their own children for treatment there in preference to the less personal out-patient department of the general hospitals in the area.

Having been fortunate enough in the course of my paediatric training to have held an appointment at this worthy and happy hospital, I would like to state that Dr. Winnicott's remarks are in no way exaggerated. In fact the personal and happy atmosphere that prevails is one of the outstanding characteristics of the hospital and is quite unique. The decision to close the hospital could only be made by persons ignorant of this fact and of the tremendous amount of work done by the hospital which would have to be diverted to the already crowded, less specialized, and less personal casualty departments of other hospitals.

There can be little doubt that whatever the need for skin or throat beds or whatever the need to adjust St. Mary's undertakings the needs of the mothers and children in the area should be the first consideration. Were this, in fact, the case this decision would never have been contemplated, nor would such an injustice take place. It is only to be hoped that the authorities interested in child health and the treatment of sick children are aware of what is happening and are quick enough and interested and influential enough to prevent this tragic blunder occurring. Renowned as it is, St. Mary's Hospital stands only to lose by this proposal, not only in reputation but by additional strain on its resources. It is to be hoped that those responsible will think again and be prepared to do the just thing.—I am, etc.,

London, W.C.1. RODERICK MAGGS.

What is Social Medicine?

SIR,—I am much obliged to Professor W. Hobson for his very lucid and interesting letter (September 3, p. 546) in reply to my previous letter, and also to Dr. Alice M. Stewart for her courteous letter supporting the views of Professor Hobson. Both writers make it quite clear what they understand by the term social medicine, and no one could gainsay the importance of the work which they envisage, and in which they are engaged. But why call it social medicine? Is not all medicine social, at least in its practical application? And is not social medicine, as explained in these two letters, just preventive medicine writ large? There can only be one purpose animating both—

namely, the promotion of health and the prevention of disease. Social medicine may seek to study and evaluate the conditions, social or otherwise, affecting the incidence of diseases which have not hitherto been investigated on comprehensive lines, and may be able to do so with more efficient means of research than the old public health could afford; but surely this is only a natural extension of the principles of the old preventive medicine, which never set any bounds to its sphere of work.

Public health work in the past sought primarily to provide healthy conditions of life, and by means of health education to secure the intelligent co-operation of the public. Then it made direct attacks on those diseases which appeared most amenable to prevention, e.g., tuberculosis, enteric fever, diphtheria, and venereal diseases, and has done so with a large measure of success. But it did not consider its sphere limited to infectious disease, and by embarking on its schemes for maternity and child welfare, and the school medical service, it entered the realm of general medicine, though mainly from the preventive point of view. Even juvenile delinquency, mentioned by Professor Hobson, has not been overlooked at our child-guidance clinics.

I must confess on re-reading this letter that I may have been engaged on a petty hair-splitting crusade, but I did want to show that the old public health, as it is now called, was not such a hidebound affair as some people seem to think, and that the new public health is not so new as some people try to make out.—I am, etc.,

Torquay. THOMAS GIBSON.

Conceptions of Right and Wrong

SIR,—I can hardly congratulate Dr. J. E. Wilson (September 24, p. 711) on making an allegedly confused opinion of mine on the M'Naghten rules any clearer. With due respect, he seems to have bemused himself with legal terminology and, so far as I can understand his words, manages by a solemn blending of verbal incompatibles to indicate that the answer is in the affirmative and also in the negative.

A simple question was asked in my previous letter about the meaning of the word "wrong" in the M'Naghten rules (used for brevity and convenience—I know about the answers of the judges, etc., which Dr. Wilson brings up). I repeat the question in the plainest way I can think of: (*a*) Does the word "wrong" (as used in the M'Naghten rules) mean wrong according to English law? (*b*) Does it mean morally wrong? (*c*) Is it capable of meaning both according as it suits the purpose of counsel? If Dr. Wilson can cease being awed by the fact that he is dealing with the law and, in equally plain and simple language (preferably in terms of "yes" and "no"), will give me the authoritative answer I am seeking, I shall be in his debt. I might add that I am not in any way abashed by Latin tags.—I am, etc.,

London, W.1. FREDERICK DILLON.

The M.R.C.P.

SIR,—May I draw your attention to the manner in which the Royal College of Physicians introduced the recent changes in the Membership examination? The new regulations were first published at the end of July. The changes which they involved, particularly the new rule forbidding entry to those who have been qualified less than 18 months, were to take effect in the next examination, held at the end of September. However necessary the changes may have been it was surely discourteous of the Royal College to make these sweeping reforms without notice. No university authority would consider a similar change, even in its qualifying examinations, without at least six months' warning being given. The conflicting claims of national service and Membership make it even more difficult for the postgraduate to adjust his plans to such abrupt pronouncements.

To make matters worse, the secretarial staff of the College had no information concerning the details of the 18 months' restriction (i.e., that the period was to be measured from the date of registration to a date one month before the start of the examination) until the week ending September 3. It was possible, therefore, for a candidate who had thought himself just eligible for the September examination to be refused admission less than one month before the date of the first papers. Six months spent in polishing up is largely wasted when a sudden decision of the Royal College puts the examination into the dim period which lies beyond 18 months of military service.—I am, etc.,

HOUSE-PHYSICIAN.

Myxoedematous Madness

SIR,—Dr. E. B. Davies (September 24, p. 706) writes that I inferred that the pattern of psychotic disorder was determined by myxoedema and thinks the title of my paper, "Myxoedematous Madness" (September 10, p. 555), suggests that a specific type of psychosis exists. That is the opposite of what I said—e.g., "Certainly in the series I have observed there has been no constant type of psychosis. . . . It is the disease which is the characteristic feature, not its mental manifestations. . . . There is no specific psychosis." By the title "Myxoedematous Madness" I meant that the myxoedema caused the madness. For instance, the expression "hypoglycaemic reaction" implies that hypoglycaemia causes the reaction, but does not imply that all hypoglycaemic patients behave in a similar way (which they certainly do not).

Dr. Davies suggests that in my cases the myxoedema and the mental symptoms were a coincidence, and considers it misleading to call the association an organic psychosis. It seems fairly obvious the psychoses were organic for several reasons: (1) Because the onset of the psychosis was in every case after the onset of myxoedema. If the association were fortuitous it would be likely for some of the cases to have had psychotic symptoms first. (2) Because the majority recovered dramatically with thyroid. (3) Because in the case that stopped thyroid the mental symptoms returned. (4) Because 50% of cases of myxoedema seen have had psychotic symptoms, whereas 50% of women between 30 and 50 are not psychotic as far as I have noticed. (I have charge of an endocrine clinic and two general medical wards as well as a mental observation ward.)

Dr. Davies's attitude that the search for organic causes for psychoses is as fruitless as the search for the philosopher's stone is not a helpful one. Surely the "gold of psychopathology" is less helpful than malaria in a case of G.P.I. Many organic conditions—cerebral tumour, neurosyphilis, pneumonia, hypoglycaemia, and so forth—undeniably cause psychoses which appropriate treatment usually cures. I never wrote (as Dr. Davies seems to think) that "all the common psychoses . . . are determined by organic causes." I suggested that *some* might be found to be so caused. The majority of psychoses remain of unknown or psychopathological origin, but where physical causes exist their detection is a rewarding task for either physician or psychiatrist.—I am, etc.,

London, N.W.10. RICHARD ASHER.

POINTS FROM LETTERS

Distinction Awards

Dr. A. B. STEWART (Bury, Lancs) writes: Patients have already decided which family doctor will help them most and have awarded him their capitation fees. There is no chance of distinction awards for G.P.s. In my opinion the primary duty of the consultant is to help, in every sense of the word, the family doctor and through him the patient. If this opinion is accepted it follows that the G.P. should decide which consultants have given most assistance and thus qualify for distinction awards. Logically this process for deciding distinction awards can be carried a further stage. Consultants whose distinction awards are decided by G P.s should in turn decide which of their colleagues outside the orbit of G.P.s are rendering most help in the assistance given to family doctors and their patients, thus qualifying for distinction awards. Thus the sequence of reward and responsibility, from patient to remotest research worker, could be made complete.

Medical Notes in Parliament

Imported Books

During the special sittings of Parliament Mr. HAROLD WILSON made a statement on September 29 in the House of Commons about the relaxation of import restrictions. He announced the issue, as from October 5, of open general licences which would permit anyone to import the goods concerned without an import licence from any country other than those specifically excluded. He circulated a list of goods to be included on open general licences, which specified chemicals, drugs, and medicines, with various medical, surgical, and dental appliances and instruments. Books were also on the list; and from October 5 an open general licence would be issued for all imports of books from "soft currency" countries. Countries excepted from the scope of open general licences include the United States, Canada, countries in Central and South America, Belgium, Switzerland, Western Germany, the U.S.S.R., and European countries associated with it. On September 27 Mr. M. C. HOLLIS had raised the question of the licensing of the import of books. He said that as a result of this licensing the country's educational life had suffered. Frequently pupils had been told to read for examinations books which were not obtainable in this country. Scientific work had been hampered. Since by the loan agreement Britain must not discriminate against the Americans, it must exclude all works from every country so that the Americans did not have a grievance. If they could not have unlicensed import of books from the United States of America, at least they should have a free import of books from Europe, Eire, and the Dominions.

Mr. KENNETH LINDSAY said almost every country represented at the Strasbourg Assembly had similar quotas and restrictions to Great Britain. European unity should be made a reality at least in the world of books.

Mr. A. G. BOTTOMLEY, replying for the Government, said that as a result of the Anglo-American Loan Agreement they could not allow books to come into this country which they prohibited from the United States. Learned scientific and technical books were allowed in at the rate of 200% by value of pre-war imports. Import licences were issued quarterly, and the Government was arranging that for the next quarter the same ratio as before would come in. In addition, by the open general licence scheme any student who required a certain book could get it, although in some cases delay was unavoidable. The import of books from the United States must be limited. The Government could not consider taking anything further from the United States.

Medico-Legal

DRUGS LEFT IN CAR

A doctor was recently fined £10 for keeping dangerous drugs other than in a locked receptacle.[1] He had pleaded guilty. The prosecution contended[2] that the doctor's case had been found with some of its contents strewn on the ground. The case was taken to the police and was found to be unlocked. There was no sign of the lock having been tampered with. Among the contents missing were some tablets of pethidine and some morphine preparations.

The defence said that all the drugs were recovered immediately and no harm had been caused to anybody. The only person who could report the loss of dangerous drugs from a doctor's car was the doctor himself. If doctors were to be rewarded for reporting their loss to the police by being prosecuted, they would be discouraged from reporting it. The magistrate said that a serious case had been aggravated by the doctor leaving the unsecured drug case in his unlocked car.

1 *Bristol Evening World*, July 12.
2 *Bristol Evening Post*, July 12.

Universities and Colleges

UNIVERSITY OF ABERDEEN

At a medical graduation ceremony on September 28 the following degrees were conferred:

M.D.—*G. S. Riddell, W. F. Russell.

M.B., Ch.B.—*W. I. Cranston, †J. G. Henderson, †G. G. Mathieson, †W. W. Wilson, B. C. Abernethy, Isobel B. Alexander, J. Barron, A. A. W. Boyd, Katharine McE. Brodie (née Le Roux), Margaret McG. Chrystall, F. Clark, I. McI. Cochran, W. Cochran, I. A. Cook, F. T. Crossling, H. J. Crow, G. MacG. Davidson, Jean L. Davidson, Kathleen M. Dawson, B. W. Duthie, E. A. Fox, A. B. Fraser, D. E. Fraser, D. MacL. Fraser, Doreen M. M. Gove, R. B. Gove, A. Hird, J. D. Hunter, J. C. S. Jeffrey, Jean D. Jockel (née Troup), F. F. Kinnaird, J. Knowles, I. H. Lewis, A. Lorimer, A. McK. McGregor, J. A. McGregor, Yvonne M. H. McGregor, Mairi E. Macleod, D. K. McTaggart, W. G. C. Manson, A. T. Mennie, R. S. W. Middleton, C. Miller, Frances F. Milne, G. A. W. Milner, R. W. Milner, N. Murray, W. D. Nicholson, Helen R. Phemister, J. W. Price, P. E. Rixon, J. Rose, Catherine I. M. Ross, R. G. Ross, W. A. Ross, G. S. Selbie, R. McK. Sinclair, R. A. Smith, Eileen M. Spence, Doris L. Stephen, G. S. Stirling, Isobel R. S. Troup, R. G. Troup, Margaret F. Tweddle, D. C. Watler, G. L. Watt, Kathleen M. Watt, A. A. Will, G. A. Wood, Constance M. Yule (née Pole), R. M. Yule.

*With honours. †With commendation

UNIVERSITY OF LONDON

A course of three lectures on "The Chemistry of the Transuranics and Other Newly Discovered Elements" will be given by Professor H. J. Emeléus, F.R.S., at the University College (Chemistry Theatre), Gower Street, London, W.C., on Mondays, October 31, November 7 and 14, at 5.15 p.m.

Mr. A. J. Wright, Director of Medical Postgraduate Studies in the University of Bristol, will deliver the Semon Lecture on "Tonsillar Function: A Review of the Evidence" at the Royal Society of Medicine, 1, Wimpole Street, London, W., on Thursday, November 3, at 5 p.m.

Professor J. Z. Young will deliver two lectures on "The Structure of Peripheral Nerve" at University College, Gower Street, London, W.C., on Mondays, October 10 and 17, at 5.15 p.m.

A course of three lectures on "Growth and Reproduction of Bacteria" will be delivered by Sir Paul Fildes, F.R.S., in the Anatomy Theatre of University College, Gower Street, W.C., on October 19, 20, and 21, at 5.30 p.m.

Sir James Learmonth, Professor of Surgery and Clinical Surgery in the University of Edinburgh, will deliver a course of four Heath Clark Lectures at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., on November 21, 22, 23, and 24, at 6 p.m. His subject is "The Contribution of Surgery to Preventive Medicine."

All the above lectures are addressed to students of the University and to others interested in the subjects. Admission is free, without ticket.

UNIVERSITY OF WALES

The Council of the Welsh National School of Medicine has appointed Frederick Roland George Heaf to the David Davies Professorship of Tuberculosis at the school.

Dr. Heaf qualified at St. Thomas's Hospital in 1918, taking the Cambridge degree two years later. He proceeded M.D. in 1923 and was elected F.R.C.P. in 1946, having taken the Membership in 1941. Dr. Heaf is Senior Medical Officer, London County Council, Adviser in Tuberculosis to the Ministry of Health, and president of the British Tuberculosis Association.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examination indicated:

FINAL M.B., Ch.B.—*Part I:* Hilary A. Hagan, J. A. Howe, W. R. Howell, H. G. McDonald, Angela M. M. Manning, T. W. Merrick, J. B. Newton, E. Patrick, J. W. Prout, Megan Roberts, D. Winter.

UNIVERSITY OF SHEFFIELD

The following candidates have been approved at the examinations indicated:

M.D.—Helen N. Mellanby, E. L. M. Millar.

FINAL M.B., Ch.B.—Daphne Burkinshaw, Nancy Cole, J. D. Crabtree, P. Kelly, Barbara Kilpatrick, P. O. M. McGirr, S. Mohamedi, F. L. Myers, G. H. Pagdin, Kathleen Sampson.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended September 17. [No. 37

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	34	2	25	4	—	26	2	11	—	—
Deaths		—	—				—	—		
Diphtheria	78	10	30	6	5	126	12	34	6	2
Deaths	1	—	—	—	—	3	2	1	—	—
Dysentery	86	7	54	1	2	50	5	39	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—	—	—	1	—	—	—	—
Deaths		—					—			
Erysipelas			27	2	1			35	6	3
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				142					58	
Deaths	27	—	11	16	4	36	3	6	2	1
Measles*	688	42	40	48	40	2,614	83	45	11	39
Deaths†			1	1	—			—	—	—
Ophthalmia neonatorum	54	12	6	—	—	47	9	14	—	—
Deaths										
Paratyphoid fever	18	1	5 (B)	2 (B)	—	17	2	—	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	211	10	2	1	2	283	9	3	2	4
Deaths (from influenza)‡	6	—	—	—	—	4	1	—	—	—
Pneumonia, primary			85	10				136	16	
Deaths	116	18		9	3	108	10		5	3
Polio-encephalitis, acute	31	3				2	—			
Deaths										
Poliomyelitis, acute	311	38	8	3	3	72	6	2	2	—
Deaths§	20	2				4	—			
Puerperal fever		—	10				—	17		—
Deaths										
Puerperal pyrexia‖	118	9	4	—	2	101	9	4	—	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	942	75	132	62	96	925	62	220	91	49
Deaths†			—	—	—			1	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	4	1	1	2	—	28	—	5	2	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	4	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,180	48	75	33	45	2,635	166	68	49	10
Deaths	1	—	—	—	—	12	2	—	1	—
Deaths (0–1 year)	225	26	49	36	15	268	33	37	14	8
Deaths (excluding stillbirths)	3,702	567	482	162	88	3,860	601	506	159	95
Annual death rate (per 1,000 persons living)			9·7	10·0				10·2	9·9	
Live births	7,099	1098	891	373	225	7,332	1194	882	427	212
Annual rate per 1,000 persons living			17·9	23·1				17·8	26·7	
Stillbirths	188	17	27			203	24	29		
Rate per 1,000 total births (including stillborn)			29					32		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

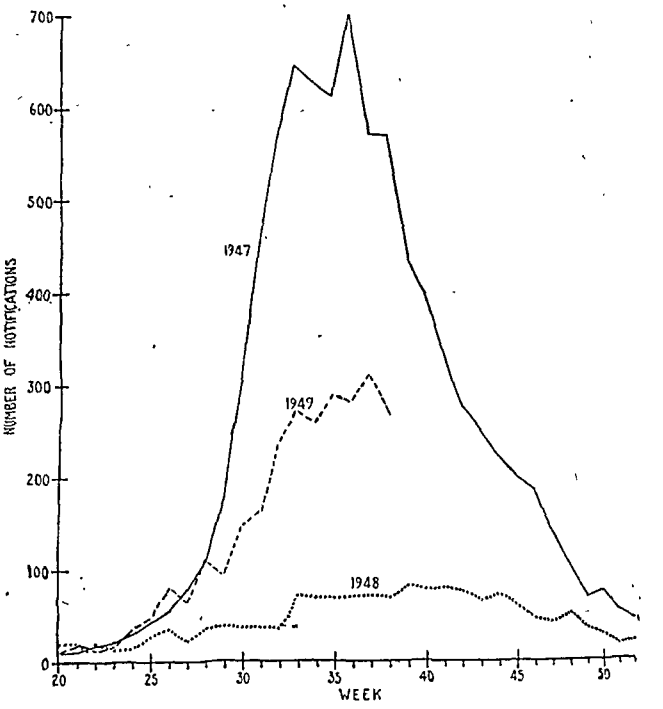
§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

Notifications in England and Wales for the week ended September 24 were: poliomyelitis 268 (311), polio-encephalitis 27 (31). The figures for the previous week are shown in parentheses. This is the first substantial fall since the rise in notifications began in the twenty-fourth week of this year. The curve generally has followed that of 1947 fairly closely, and it is to



be hoped that the decline which began in the thirty-seventh week of that year has now set in. For comparison the curves for the present year and for 1948 and 1947 are set out in the accompanying graph.

Multiple cases (poliomyelitis and polio-encephalitis together) were reported from the following counties: London 48 (41), Berkshire 3 (7), Cheshire 7 (4), Cornwall 8 (10), Devon 5 (5), Dorset 4 (3), Essex 17 (18), Hertford 7 (4), Kent 18 (16), Lancaster 24 (29), Leicester 5 (13), Lincolnshire, Holland 4 (1), Lincolnshire, Lindsey 4 (6), Middlesex 20 (25), Norfolk 2 (3), Northampton 4 (3), Northumberland 13 (10), Nottingham 9 (11), Oxford 3 (0), Soke of Peterborough 2 (1), Somerset 7 (8), Southampton 8 (10), Suffolk East 5 (1), Surrey 11 (14), Sussex West 2 (1), Warwick 8 (10), Westmorland 2 (0), Wiltshire 9 (6), Yorks West Riding 19 (33), Glamorgan 3 (3).

In the United States a peak of incidence was reached with 3,419 cases of poliomyelitis in the week ended August 20, and since then the notifications have been fewer. Already 29,051 cases have been reported this year.

Sex and Age Composition of Population

Estimates compiled by the Registrar-General of the civilian populations of each local government area in England and Wales, showing the numbers of each sex at various age groups, have recently been published.[1] Figures such as these are usually only available when a census is taken. Owing to the war, there has been no census since 1931, and the latest figures previously available were those based on the enumeration carried out for national registration purposes on September 29, 1939. Those figures were affected by mobilization and evacuation and could not be regarded as reflecting normal conditions.

The present figures relate to December 31, 1947, and have been largely based on a special examination of the individual

[1] *Estimates of the Sex and Age Distribution of the Civilian Population in Regions and Administrative Areas of England and Wales at December 31, 1947.* H.M.S.O., price 2s. 6d.

population records maintained in the local National Registration Offices through the country. In most areas there are wide differences between the numbers of men and numbers of women at certain age groups, which are mainly due to the exclusion of members of the armed Forces and merchant seamen from the figures. For the country as a whole the approximate ratios of males to every 1,000 females (*including* members of the armed Forces and merchant seamen) at the age groups mainly affected are as follows:

All ages	940	25–34	986
18–19	1,017	35–44	992
20–24	1,021	45–54	988

Comparing the 1947 figures with those obtained from the 1931 census, the general ageing of the population is readily apparent. For instance, during this 16-year period (*a*) the proportion of the total population of England and Wales under 15 years of age has fallen from 23.8% to 21.9%, and the proportion over 65 has risen from 7.4% to 10.9%; (*b*) corresponding figures for Wales alone are: under 15, a fall from 26.6% to 22.4%; over 65, a rise from 6.7% to 10.8%; (*c*) for the administrative county of London the figures are: under 15, a fall from 21.5% to 18.9%; over 65, a rise from 7.3% to 10.8%.

Discussion of Table

In *England and Wales* there were increases in the notifications of scarlet fever 213, acute poliomyelitis 27, dysentery 27, and diphtheria 12, with decreases in the incidence of measles 187 and whooping-cough 48

An increased incidence of scarlet fever was reported throughout the country. The rise in the incidence of diphtheria was due to scattered isolated cases; the largest returns during the week were London 10, Durham 10, and Lancashire 9. The largest returns for measles came from Lancashire 106, Durham 72, London 42, and Yorkshire West Riding 38. The largest fluctuation in the incidence of whooping-cough was an increase of 31 in Middlesex.

Outbreaks of dysentery were notified in Durham, Hetton U.D. 15; Glamorganshire, Neath M.B. 11; Yorkshire West Riding, Dewsbury C.B. 8; and Essex, Thurrock U.D. 6. The incidence of food-poisoning was high in Essex 86, London 40, and Norfolk 28.

In *Scotland* there were decreases in the notifications of dysentery 38 and acute primary pneumonia 24, while increases were reported for cerebrospinal fever 13, whooping-cough 13, and diphtheria 9. The rise in the incidence of cerebrospinal fever and diphtheria was mainly contributed by Glasgow. Of the 54 cases of dysentery 45 were notified in Glasgow. Cases of paratyphoid fever were notified from Lanark County 3 and Glasgow 2.

In *Eire* there were falls in the notifications of whooping-cough 54 and scarlet fever 26, with a rise in the incidence of measles 26. Notifications of diarrhoea and enteritis were 3 more than in the preceding week, but in Dublin C.B. the notifications fell from 115 to 105. The decrease in the incidence of whooping-cough and scarlet fever was due to the experience of Dublin C.B. A small rise in the incidence of measles was recorded throughout the country.

In *Northern Ireland* the chief fluctuations were a rise of 27 in the notifications of scarlet fever and a decrease of 26 in the notifications of whooping-cough.

Week Ending September 24

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,097, whooping-cough 1,061, diphtheria 92, measles 659, acute pneumonia 226, cerebrospinal fever 35, acute poliomyelitis 268, acute polio-encephalitis 27, dysentery 78, paratyphoid fever 23, typhoid fever 8, food-poisoning 245.

The Ministry of Food states that minute traces of lead in curry powder and copper in tomato products are not uncommonly found. Maximum limits for these elements have therefore been prescribed, and the composition of these and other commodities defined, by the Food Standards (Curry Powder) Order, 1949, and the Food Standards (Tomato Ketchup) Order, 1949, under the Defence (Sale of Food) Regulations.

Medical News

Hospital to Reopen

The South-Eastern Hospital for infectious diseases at New Cross, London, S.E., is to be reopened as the New Cross General Hospital, with accommodation for about 200 patients.

"Academician Pavlov"

As part of the Pavlov centenary celebrations the film "Academician Pavlov" was shown to an invited audience on September 26. The film, which runs for over an hour, was well received.

Jodrell Chair of Physiology

Professor C. Lovatt Evans, F.R.S., has retired from the Jodrell Chair of Physiology of London University, and was succeeded from October 1 by Professor George Lindor Brown, F.R.S., whose appointment has been announced previously

Streptomycin Manufacture Controlled

From October 1 streptomycin can be manufactured for sale only under licence, and it must conform with prescribed conditions as to strength, quality, and purity. These requirements are laid down in the Therapeutic Substances Amendment Regulations, 1949.

Import Restrictions Relaxed

The Board of Trade has announced that restrictions have been relaxed on the import of drugs and other chemicals, medical and surgical instruments, and books obtained from countries where they can be bought without risk of losing gold or dollars.

Prize for Work on Thyroid

The American Goiter Association offers the Van Meter prize of 300 dollars and two honourable mentions for the best essays submitted on original work related to the thyroid gland. The essays may be on either clinical investigation or research, and should not be longer than 3,000 words. Two copies should be sent to the corresponding secretary, Dr. George C. Shivers, 100, East St. Vrain Street, Colorado Springs, Colorado, U.S.A., before January 15, 1950.

Colour Television

A demonstration of colour television, with equipment suitable for viewing surgical operations, was given by Messrs. Pye, Ltd., at Olympia on October 3. A number of articles were shown being televised—some, brightly coloured, such as a bowl of flowers, and others, such as human bones, less colourful. The equipment operates at 405 lines a frame, and gives the same definition as the B.B.C. transmissions. The colours are effectively natural, though comparison with the objects being televised showed that they departed considerably from their actual colours. There was no flare from the highly polished surgical instruments, and the depth of focus allowed the furthest parts of a mandible to be seen as clearly as the nearest when it filled the screen. The apparatus seems to be entirely suitable for televising operations, and probably an audience of 20 or 30 would have a good view of the surgical field. At present the approximate cost of the equipment is £25,000.

Wills

Dr. John Wardle Bone, formerly Treasurer of the B.M.A., left £73,952; Dr. Joseph Henry Churchill, of Bath, left £12,369; Dr. Charles Cromhall Easterbrook, of Edinburgh, £48,949; Dr. Wilfred Nightingale, of Lytham St. Annes, £13,131; Dr. John Finlayson Lang, of Rathgate, West Lothian, £12,560.

COMING EVENTS

Royal Eye Hospital Lectures

A series of lectures at the Royal Eye Hospital, St. George's Circus, London, S.E., opened on October 3 and will be continued during this month and in November and December, and January, 1950. The lectures are open to both postgraduate and undergraduate students. Details of fees and subjects may be obtained from the secretary of the hospital.

Nurses' Conference

The eighth conference on the nation's nurses, arranged by the Royal College of Nursing (Henrietta Place, Cavendish Square, London, W.), will be held at the College to-day and to-morrow (Friday and Saturday, October 7 and 8) at 10 a.m. The subject for discussion on October 7 is "The Industrial Nursing Service and the Worker," and that on October 8 "Economy in Nurse Power." The conference fee is £1 1s.

Royal College of Obstetricians and Gynaecologists

The annual dinner of the Royal College of Obstetricians and Gynaecologists will be held at Dorchester Hotel, Park Lane, London, W., on Wednesday, October 12, at 7 for 7.30 p.m.

Adlerian Society of G.B.

The first meeting of the medical section of the Adlerian Society of Great Britain will be held at 11, Chandos Street, Cavendish Square, London, W., on Thursday, October 13, at 8 p.m. Papers will be read by Drs. Neville Murray and Joshua Bierer on "Prolonged Sneezing as a Psychosomatic Symptom." The discussion will be opened by Mr. E. O. Harris and Drs. C. J. C. Britton and H. Fleetwood Walker. All medical practitioners interested are invited, and further information may be obtained from Dr. Christine E. Cooper, honorary secretary of the medical section, 115 Langford Court, London, N.W.8.

Nurses and Midwives Conference

The 34th annual Professional Nurses and Midwives Conference will be held, under the auspices of the *Nursing Mirror*, at Seymour Hall, Seymour Place, London, W., from October 17 to 21, under the presidency of Viscount Addison. The programme is as follows: October 17, 11 a.m., opening address; 11.45 a.m., Dr. C. T. Porter, "Neonatal Period and Its Disorders"; 2.45 p.m., Sir William Gilliatt, "Changes in the Practice of Obstetrics"; 4.45 p.m., Mr. H. G. E. Arthure, "The Management of the Puerperium." October 18, 10.15 a.m., Professor A. M. Boyd, "Some Recent Advances in Surgery of the Blood Vessels"; 11.30 a.m., Mr. T. Holmes Sellors, "The Blue Baby—Operation for Congenital Heart Disease"; 2.15 p.m., Mr. D. W. C. Northfield, "Sympathectomy"; 3.30 p.m., Mr. G. A. Mason, "Surgical Treatment of Coronary Thrombosis"; 4.45 p.m., Mr. Wylie McKissock, "Operations for Changing the Mental State." October 19, 10.15 a.m., Dr. Terence E. Cawthorne, "Ménière's Disease"; 11.30 a.m., Dr. C. F. Terence East, "Hypertension"; 2.15 p.m., Dr. H. S. Le Marquand, "Endocrine Disorders of Childhood"; 3.30 p.m., Dr. J. B. Murray, "Psychosomatic Medicine"; 4.45 p.m., Mr. R. W. Knowlton, "Diagnosis and Treatment of Non-venereal Vaginal Discharges." October 20, 10.15 a.m., Mr. George Wynn-Williams, "Hyperemesis Gravidarum"; 11.30 a.m., Mr. Arthur C. H. Bell, "Albuminuria of Pregnancy"; 2.15 p.m., Mrs. Fox, "Relaxation in Childbirth"; 3.30 p.m., Mr. F. W. Roques, "Displacement of the Uterus"; 4.45 p.m., Professor R. J. Kellar, "Rupture of the Uterus." October 21, 10.15 a.m., Dr. Alfred Piney, "Bone Marrow Biopsy"; 11.15 a.m., Professor J. S. Mitchell, "Radioactive Isotopes"; 12.15 p.m., Dr. F. C. C. Valentine, "Streptomycin and the Newer Antibiotics"; 2.30 p.m., Mr. Leon Gillis, "Recent Progress in the Treatment of Arm Amputations and Arm Prostheses." Throughout the week there will be twice-daily sessions of the latest medical films, and in the exhibition hall there will be a display of drugs, foods, pharmaceuticals, and equipment. Admission to the conference and exhibition is limited to professional visitors. Applications for tickets should be made to matrons of hospitals and similar institutions, to nursing associations, to the Royal College of Midwives, or to the organizer of the conference, Dorset House, Stamford Street, London, S.E.1.

Osler Club

The next meeting of the Osler Club will take place on Friday, October 21, at 8 p.m., in the Wellcome Historical Medical Library, 183, Euston Road, London, N.W.1. The speakers will be Mr. W. R. LeFanu, librarian of the Royal College of Surgeons, on "Edward Jenner, Author and Letter Writer," and Professor G. S. Wilson, of the Ministry of Health Public Health Laboratories, whose subject will be "Smallpox and After." There will also be an exhibition of books and papers related to Edward Jenner and his work.

American Public Health Association

The 77th annual meeting of the American Public Health Association will be held in New York on October 24–28.

27 General Hospital

A reunion dinner of No. 27 General Hospital will be held at the Eccleston Hotel, Eccleston Square, London, S.W.1, on Saturday, October 29, at 6.30 for 7.15 p.m. (dress informal). Remittances of 15s. 6d. (inclusive) should be sent to Mr. G. L. Pudney, 161, Silverleigh Road, Thornton Heath, Surrey.

Brigade Surgeons' Conference and Dinner

The surgeons of the St. John Ambulance Brigade will hold their annual conference and dinner at the Waldorf Hotel, Aldwych, London, W.C., on Saturday and Sunday, October 29 and 30, when Lord Horder will be the principal guest at the dinner. At the conference there will be talks on the effects of atomic warfare and the treatment of casualties; on shock, its effects and treatment; and on the use of films in teaching. Further details can be obtained from the Surgeon-in-Chief, St. John Ambulance Brigade, 8, Grosvenor Crescent, London, S.W.1.

Royal Institute of Philosophy

The programme for the 1949–50 session of the Royal Institute of Philosophy includes lectures to be given at University Hall, 14, Gordon Square, London, W.C., and evening meetings to be held at University College (Anatomy Theatre), Gower Street, London, W.C., during this month and in November and January, February, and March, all of which are open to the public. Cards of admission may be obtained free of charge from the director of studies of the Institute at 14, Gordon Square, W.C.1. Details will be published under "Societies and Lectures" in the *Journal* week by week.

Canadian Course in Cytology

A course in clinical cytology for the diagnosis of uterine and other types of cancer will be held at McGill University, Montreal, under Dr. J. Ernest Ayre, on November 7–21, at the Cytological Laboratories, Royal Victoria Hospital, Montreal. The fee for tuition is $100.

Courses in Psychiatry

The University of London Institute of Psychiatry will hold courses for first-year and second-year students on psychology and psychiatry this autumn. The fee for one term's lectures is 12 guineas, and for separate series of lectures proportionate fees will be charged. Particulars may be obtained from the dean, Institute of Psychiatry, Maudsley Hospital, Denmark Hill, London, S.E.5 (Telephone: Rodney 2634).

SOCIETIES AND LECTURES

Friday

NATIONAL HOSPITAL, Queen Square, London, W.C.—October 7, 5 p.m., "*Observations on the Anatomy of Memory*," by Dr. Wilder Penfield (Montreal).

Monday

LONDON UNIVERSITY.—At University College, Gower Street, London, W.C., October 10, 5.15 p.m., "*The Structure of Peripheral Nerve*," by Professor J. Z. Young.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, London, W.—October 10, 8.30 p.m., General meeting; 8.45 p.m., "*The Sigmoidoscope*," Presidential Address by Mr. Lionel E. C. Norbury.

NATIONAL HOSPITAL, Queen Square, London, W.C.—October 10, 5 p.m., "*Allergic Manifestations in the Nervous System*," by Dr. Foster Kennedy (New York).

Tuesday

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—October 11, 5 p.m., "*Histology of the Skin*," by Dr. I. Muende.

INSTITUTE OF OBSTETRICS AND GYNAECOLOGY.—At Postgraduate Medical School of London, Ducane Road, W., October 11, 3 p.m., "*Problems of Infertility in a County Centre*," by Dr. Margaret Jackson.

SOCIETY OF CHEMICAL INDUSTRY: FINE CHEMICALS GROUP.—At Royal Institution, Albemarle Street, London, W., October 11, 7 p.m., "*Biological Polymerization with Special Reference to Polysaccharide Synthesis*," by Professor M. Stacey, Ph.D., D.Sc.

Wednesday

GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY.—October 12, 8 p.m., "*Control of Clotting in Ophthalmology*," by Dr. W. O. G. Taylor.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS, 58, Queen Anne Street, London, W.—October 12, 2.30 p.m., "*Scotland's Contribution to the Progress of Midwifery in the Eighteenth and Early Nineteenth Centuries*," William Meredith Fletcher Shaw Memorial Lecture by Professor R. W. Johnstone.

SOCIETY OF CHEMICAL INDUSTRY: FOOD GROUP.—At Medical Society of London, 11, Chandos Street, Cavendish Square, London, W, October 12, 6.15 p.m., meeting of Microbiological Panel. "*Aspects of the Mineral Metabolism of Micro-organisms*" (1) *Use of Aspergillus niger for the Determination of Mineral Nutrients in Soil*, by Dr. D. J. D. Nicholas; (2) *Effect of Ion Exchange Treatment on (a) Composition, (b) Microbiological Stability of Apple Juice*, by Drs. D. W. Challinor and A. Pollard.

YORK MEDICAL SOCIETY.—At Tempest Anderson Hall, York, October 12, 3 p.m., "*New Pathways in Medicine*," by Sir Henry Cohen.

Thursday

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—October 13, 5 p.m., "*Skin Affections of the Hands and Feet*," by Dr. G. B. Mitchell-Heggs.

NATIONAL HOSPITAL, Queen Square, London, W.C.—October 13, 5 p.m., "*Diagnostic Errors in Neurological Practice*," by Professor G. H. Monrad-Krohn (Oslo).

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—October 13, 4.30 p.m., lecture-demonstration: "*Psychiatry*," by Dr. D. Curran.

WESTMINSTER HOSPITAL SCHOOL OF MEDICINE, Meyerstein Lecture Theatre, Horseferry Road, London, S.W.—October 13, 5.30 p.m., Clinico-pathological demonstration. Discussion: "*Leukaemia and its Treatment*."

Friday

ROYAL INSTITUTE OF PHILOSOPHY, 14, Gordon Square, London, W.C.—October 14, 5.15 p.m., "*Scope and Aims of 'Synoptic' Philosophy*," by Professor H. H. Price.

ROYAL SANITARY INSTITUTE.—At Tunbridge Wells Town Hall, October 14, 10 a.m., "*Newer Methods in the Tracing of Typhoid Outbreaks Including the Value of Phage Typing*," discussion to be opened by Professor J. C. Cruickshank.

Saturday

NORTH OF ENGLAND OTOLARYNGOLOGICAL SOCIETY.—At Harrogate and District General Hospital, Knaresborough Road, Harrogate, October 15, 2 p.m., Annual Meeting.

NUTRITION SOCIETY.—At Department of Pharmacology, Birmingham University, October 15, 1.15 p.m., "*Triglyceride Fats in Human Nutrition*," by Professor A. C. Frazer, Drs. J. Elkes and J. M. French (Department of Pharmacology, Birmingham University), Professor T. P. Hilditch (Department of Industrial Chemistry, Liverpool University), and Professor P. Kraut (Berlin).

YORK MEDICAL SOCIETY.—At 17, Stonegate, York, October 15, 8.30 p.m., "*Diagnosis and Prevention of Whooping-cough*," by Professor Robert Cruickshank.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Cole.—On September 17, 1949, at City and County Hospital, Londonderry, to Nancy (née Jones), S.R.N., wife of J. O. Y. Cole, M.D., D.M.R.E., a son—David Owen James.

Hargrove.—On September 23, 1949, at the Hill Nursing Home, Reading, to Elizabeth (née Corbett-Lowe), wife of Dr. Peter Hargrove, a daughter—Gillian Dingwall.

Hopwood.—On September 20, 1949, at Kampala, Uganda, to Shirley (née Newman), wife of Dr. B. E. C. Hopwood, a brother for Penelope Ann—John Burton.

Lewes.—On September 24, 1949, at The Haven, Great Chesterford, to Daphne (née Wailes) and David Lewes, M.R.C.P., a daughter—Jane Christina.

Ronchetti.—On September 18, 1949, at Winchmore Hill, to Sylvia (née Helme), wife of Dr. John Ronchetti, a sister for John Kirkland.

MARRIAGES

Brearley—Hewitt.—On September 8, 1949, at Sandiway, Cheshire, Roger Brearley, M.B., F.R.C.S., to Joyce Mary Hewitt.

Webber—Hay.—On September 28, 1949, at St. Peter's Church, March, Cambs, George Edward Francis Webber (formerly of Buenos Aires and India) to Hilda Russell Hay, M.B., Ch.B., D.P.H., County Medical Officer, Isle of Ely.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Streptomycin during Pregnancy

Q.—*Is there any evidence that administration of streptomycin during pregnancy is likely to result in labyrinthine damage to the foetus?*

A.—The answer to this question is probably not yet known, because comparatively few women have received streptomycin during pregnancy. Moreover, streptomycin has been available for only a short time, and it will presumably be necessary to wait until children exposed to its influence *in utero* are 1½ to 2 years old before their auditory function can be assessed with any degree of certainty. Streptomycin can cross the placenta, and has been demonstrated in the foetal blood in amounts comparable to those in the maternal circulation, and also in liquor amnii in heavy concentration; toxic effects might therefore be expected. On the other hand, there is some evidence that damage to the auditory apparatus is a less common side-effect in children than in adults.

This problem would appear to be of considerable importance, and it is to be hoped that those who have experience of administering streptomycin to pregnant women will comment on the results to the foetus, if possible relating them to the period of pregnancy at which treatment was given.

Temperature and Pulse Rate in Phthisis

Q.—*Above what levels of oral temperature and resting pulse rate is activity indicated in a patient with pulmonary tuberculosis (a) when resting in bed and (b) when getting up?*

A.—The variations which can occur in the so-called normal temperature in health are greater than is generally realized. A diurnal variation of 3° F. (1.6° C.) is common, and the temperature range is at different levels in different individuals. Thus, one healthy subject may have a daily variation between 97.2° and 99.2° F. (36.2° and 37.3° C.), while another's may be between 95° and 98° F. (35° and 36.7° C.). These facts, which have been fully described recently by Samson Wright (*Journal*, April 9, 1949, p. 610), are of great importance when evaluating the temperature of a tuberculous patient. It is necessary first to estimate the normal range for the particular individual, since a rise to 99° F. (37.2° C.) in a patient with a high normal range may be of no significance, whereas it may indicate fever in a patient with a low normal range. In general, it may be said that a reading above 99.5° F. (37.5° C.) in a patient who is resting in bed probably indicates disease activity. The temperature must be taken at the same times each day, and these should not be after meals: the thermometer must always remain in the mouth for a full five minutes to obtain an accurate reading. Allowance must be made for the considerable variations in temperature which accompany the menstrual cycle in most women. Occasionally a patient who has been in bed for some time will have an evening temperature of about 100° F. (37.8° C.), and this will come down to a lower level when the patient starts to get up. Such a "bed temperature" is by no means uncommon. When the patient is up and about, other factors, such as variations in external temperature and muscular exercise, will alter the temperature range. A rise in temperature of 1° F. (0.55° C.) after exercise is not uncommon, but this should settle down after half an hour's rest.

The pulse rate is a less reliable guide. Usually it follows the temperature, but it is much more easily affected by nervousness. A persistent tachycardia should lead one to suspect activity of the disease; wide variations in the pulse rate are probably due to psychological causes. It must be stressed that both temperature and pulse rate are far inferior to serial radiography in assessing the progress of a case of pulmonary tuberculosis. *X* rays not infrequently reveal active disease in a patient who is afebrile.

Urethritis

Q.—(*a*) *What are the signs and symptoms of urethritis in the male due to Trichomonas vaginalis, and what treatment is indicated?* (*b*) *Are there any cases on record of urethritis caused by spermicidal contraceptives?*

A.—(*a*) The signs and symptoms of urethritis in the male due to *Trichomonas vaginalis* do not differ in any important respect from those due to various other forms of non-gonococcal urethritis, but it is probable that *T. vaginalis* more often causes a balanoposthitis or prostatitis than a simple urethritis. Rendering the urine alkaline is said to be effective in most cases, but a more reliable form of treatment consists in filling the urethra with powdered acetarsol in water or saline, holding it there for a few minutes, and milking it back as far as possible towards the posterior urethra.

(*b*) Most venereologists consider that various contraceptive chemicals are liable to cause urethritis, but it is obviously difficult to prove that they do so.

Intravenous or Intramuscular Heparin

Q.—*Disregarding speed of action, is heparin less efficacious when given intramuscularly than when given intravenously?*

A.—Heparin, being expensive, is usually given intravenously, but it is just as efficient when given intramuscularly, provided the dose is at least doubled—some say trebled or quadrupled. The precise comparable dose is still uncertain.

Rheumatoid Arthritis and Epilepsy

Q.—*Are any statistics available showing the coincidence of rheumatoid arthritis and epilepsy? In a small experience I have not encountered such a combination. If the coincidence of the two diseases is rare, might the recent discovery of "cortisone" be a pointer to the aetiology of epilepsy?*

A.—There appear to be no statistics showing the coincidence of rheumatoid arthritis and epilepsy, nor is the occurrence of rheumatoid arthritis recorded as being more or less frequent in epileptics than in the normal population. It would seem a somewhat far-fetched assumption, on the basis of these negative observations, that there may be a common aetiological factor. It is known, however, that "cortisone" (17-hydroxy-11-dehydrocorticosterone; compound E) will produce a well-marked euphoria in arthritics and others, and this fact has led certain psychiatrists to assume that it may perhaps prove of some value in nervous and psychiatric illness.

Effect of Pregnancy on Libido

Q.—*Is there any explanation for the fact that after their first pregnancy many young women experience a loss of sexual appetite and satisfaction? There has been no active distaste in two cases seen recently—merely an indifference where before there had been desire. Both are healthy young women with second children, and no physical cause can be found. Is the condition likely to ameliorate—one case is of three years' duration, the other of 18 months? Is there any treatment?*

A.—Reduced sex desire after pregnancy, especially the first pregnancy, is the experience of most women. The fact that a fundamental objective of coitus has been achieved, the awakening of mother love with some readjustment of the woman's affections, the extra work and anxiety associated with looking after the child, etc., all play their part. A local organic basis is most unlikely so far as sex desire is concerned, although an overstretched vagina might diminish satisfaction. These troubles, however, are usually only temporary and clear up as the period of nervous strain passes, as physical well-being returns, and as the baby grows independent. If loss of libido should persist, another factor—fear of pregnancy—should be kept in mind, and in such a case the appropriate treatment is advice on contraception. Explanation and reassurance may be all that is necessary in other cases. The wife should avoid getting overtired, and the husband should have patience and understanding.

NOTES AND COMMENTS

Toxic Effects of "Diparcol."—Dr. R. C. MEEK (Birmingham) writes: In "Any Questions?" in a recent issue of the *Journal* (August 13, p. 398) an inquiry was made by a reader regarding the dangers of the drug "diparcol." In the reply it is stated that French workers reported a fatal case of agranulocytosis but considered this to be due to other drugs used at the same time. In view of the present extensive use of diparcol I think the following experience may be of interest. The patient, a married woman aged 58, had suffered from post-encephalitic parkinsonism since about 1935. On admission to hospital on May 18, 1949, she showed extreme rigidity of the face, neck, trunk, and all four limbs, and a rhythmic tremor of the hands. Diparcol was started on May 29, 1949, in a dosage of 50 mg. b.d. The dosage was steadily increased till July 15, 1949, by which date she was receiving 1 g. daily. On this dosage there was considerable relief of the rigidity and tremor. She was kept on 1 g. daily till July 28, 1949, when slight mental confusion developed; the dosage was reduced to 400 mg. daily. On August 4, while still on 400 mg. daily, she complained of a sore throat and general malaise. Examination showed a temperature of 99.5° F. (37.5° C.), a patch of exudate on one tonsil, and a few small boils on the trunk. Diparcol, which was the only drug she was receiving, was stopped and she was put on penicillin 50,000 units 3-hourly. A white cell count showed a total of 3,900 per c.mm. with only 4% granular cells; a throat swab showed a heavy mixed growth with a coagulase-positive staphylococcus predominating. On August 5, 1949, in spite of treatment (which by this time included pentose nucleotide) the temperature had risen to 103° F. (39.4° C.), and she now showed large patches of exudate covering both tonsils. She died on August 6, 1949. At necropsy it was seen that there were ulcers on the posterior part of the tongue in addition to those on the tonsils. The lungs were oedematous, and there was congestion of the bronchial mucosa but no evidence of bronchopneumonia. The liver showed cloudy swelling and the spleen was large and soft. The bone marrow was not grossly abnormal macroscopically. The microscopic appearance of the bone marrow was summed up by the pathologist: "The appearance is that of diminished formation or destruction of early forms of the granulocyte series."

Medical Treatment of Myopia.—Mr. A. SEYMOUR PHILPS (London, W.) writes: I was surprised to read under "Any Questions?" (August 13, p. 398) the statement that medical treatment of myopia, such as the administration of calcium, is not now much used, and that in these days chief reliance is placed on ordering a full correction at as early an age as possible, and that the glasses should be worn all day long. I should have thought that this was the exact opposite of the facts. Glasses are pieces of glass which help the eyes to focus, and they are given to the child in order that he or she may see what is going on and derive some benefit from education. I thought it was commonly agreed that they had no influence whatever on checking myopia, and certainly it is true that myopes do not become worse by leaving them off. While proof is difficult, it does seem that attention to general health, feeding, conditions of work, and the possible administration of calcium and vitamin D do have some good effect in checking myopia, and I think it is a pity that a statement to the contrary should go unchallenged in the *Journal*.

Family Planning.—The General Secretary of the Family Planning Association writes: The quotations chosen by Dr. Clark (September 17, p. 656) from literature distributed by the Family Planning Association might lead readers to suppose that this association restricts its services to the classes of patients to whom he refers. I should like to point out that at all F.P.A. clinics (a list of which can be obtained from this office at 69, Eccleston Square, S.W.1, price 6d., post free) medical advice on contraception is available to all married women who attend. The F.P.A. would entirely agree with Dr. Clark's views that the size and spacing of the family is a matter to be decided by the parents who will have to take the responsibility of the welfare and upbringing of any children born to them.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 8 1949

THE SECRETARY REPORTS

HIGHER CIVIL SERVICE REMUNERATION

On February 26 this year attention was drawn in this column to the recommendations of Lord Chorley's Committee on the remuneration of higher Civil Servants. The following table summarizes some of the main recommendations of the committee, and compares them with the position at January 1, 1946, and with remuneration rates obtaining in 1939:

Administrative Class Salaries

Grade	1939	January 1, 1946	Chorley Committee Recommendation
Permanent Secretary to the Treasury ..	£ 3,500	£ 3,750	£ 5,000
Other permanent secretaries ..	3,000	3,500	4,500
Deputy secretary ..	2,200	2,500	3,250
Under secretary (a grade which existed in some departments only)	1,900	2,000	2,500
*Principal assistant secretary ..	1,700	—	—
Assistant secretary ..	1,150–1,500	1,320–1,700	2,000

* The grade of principal assistant secretary was abolished (although a few members of the obsolescent grade still remain) and the new grade of under secretary introduced into all departments.

The Chorley Committee made no recommendations for medical officers as such, but expressed the view that they should maintain their present relativities with the Administrative Class. The effect would be to bring the remuneration of the Chief Medical Officer of the Ministry to approximately £4,000 a year, as compared with £3,000 at present and £2,200 in 1939.

The Government accepted the recommendations made by Lord Chorley's Committee, but decided that they should be given effect by stages. The Chancellor of the Exchequer stated in the House of Commons in February this year that it was hoped to make a start in carrying out the recommendations before the end of the calendar year. Subsequently, it was stated that the commencing date for the first stage would be October 1, 1949. The second stage would have been given effect in October, 1950, and the third in 1951. The increases ranged from £300 to £1,250 a year for nearly 2,000 senior Civil Servants, and in the aggregate amounted to some £400,000 a year.

Last week the Government made the following announcement:

"On February 17 last the Chancellor of the Exchequer announced in the House of Commons the Government's acceptance of the recommendations made by the committee under the chairmanship of Lord Chorley for certain increases in the salaries of the higher grades of the Civil Service. He stated that the Government hoped to make a start in carrying out these recommendations before the end of the calendar year, and that they would be given effect by stages. It was subsequently decided that the commencing date for these changes was to be October 1 next, and the representatives of the grades concerned were so informed.

"The change in the exchange value of the pound and the consequent imperative need to avoid increases in personal incomes, if the country is not to lose the advantages which will otherwise accrue from that decision, have compelled his Majesty's Government to reconsider the position. They reaffirm their previous recognition that the increases of salary recommended are justified on their merits and that to give effect to them would not be in conflict with the policy of the White Paper on personal incomes.

"They also recognize that to postpone the beginning of the payment of these increases beyond the date which the staff concerned, with great public spirit, accepted will involve considerable sacrifice. None the less, his Majesty's Government feel that at this moment they could not reconcile the payment of these salary increases with the general policy of avoiding increases of remuneration which they are asking other sections of the community to accept.

"In these circumstances the Government have reluctantly decided that the introduction of the increases must be further deferred. It is hoped that the period involved will not be long. It is the Government's intention that, in any case, the arrangement made with the representative associations under which the full salaries recommended by the Chorley Committee are to become operative by October, 1951, will not be affected.

"Furthermore, the Government feel that this temporary further deferment of the increases already due should not be allowed to prejudice the pensions which will be payable to those officers who will retire during or soon after the period of this special abatement of salary. The Government are considering whether a direction which would achieve this object can be given under existing legislation, and if this is not possible they will introduce the necessary legislation"

Repercussions

In some minds the question may arise as to the repercussions of this decision. The discussions now proceeding with the Ministry on general practitioner remuneration are in effect based on the argument of the profession that the medical pool from which general practitioners are remunerated was only and could only be provisionally calculated before the Service came into operation, and should now be re-calculated in the light of certain known facts. For example, the pre-Act calculation of the central pool was based on the assumption that only 17,900 principals would share the pool. It is now known that the number of principals sharing the pool is substantially in excess of this number. Further, the so-called betterment factor of 20% was imposed by the Government, being mentioned as far back as 1946. To argue that this figure was set unduly low is perhaps an over-statement of the obvious.

On the other hand, in the case of the remuneration of higher Civil Servants the Government has agreed to certain increases. It commits itself to the policy of making those increases, agreeing what they should be. Where it has shifted its ground is the date on which a beginning should be made in effecting the increases. Further, it proposes to make some provision to secure that the delay in bringing the increases into operation should not affect adversely the pensions of those who would otherwise have benefited.

PURCHASE TAX ON CORSETS

EXEMPTION BY CERTIFICATES

In order that patients may be exempted from paying purchase tax on surgical corsets, medical practitioners give certificates describing the patient's infirmity and the type of corset required. The articles that may be obtained free of purchase tax are listed in Notice No. 78 (September, 1948) by the Commissioners of Customs and Excise. They are as follows:

Belts designed solely for use in cases of movable or floating kidney or colostomy.

Belts designed solely for use in cases of the following conditions:

Abdominal Diseases.—Severe enteroptosis, severe gastroptosis, severe visceroptosis, severe diverticulosis, hernia.

Diseases and Injuries of the Spine.—Actinomycosis, arthritis deformans, dislocation of the spine, carcinoma of the spine, fibrocystic disease of the spine, fracture of spine, fracture-dislocation of spine, osteochondritis juvenilis dorsi, osteomalacia, osteomyelitis of spine, sacro-iliac disease, spondylitis, tuberculosis of spine, poliomyelitis.

Deformities of the Spine.—Kyphosis, lordosis, scoliosis, spondylolisthesis.

Diseases of the Nervous System.—Cerebral diplegia, muscular atrophy, muscular dystrophy, paralysis of abdominal muscles, paralysis of spinal muscles, spinal neurosis.

Belts fitted with surgical pads or fitted with, or with provision for, surgical cups, chutes, disks or plates for post-operative wear, and belts (whether or not so fitted) specially designed to protect a recent abdominal incision.

ALLOWANCES TO PROFESSIONAL WITNESSES

A Home Office circular, dated September 8, 1949, states that the Minister of Health is now prepared to allow salaried hospital medical and dental staff in the National Health Service to retain fees paid to them for professional services not within the scope of the hospital and specialist services. Attendance at court as a medical witness, even though it does not involve loss of income, is regarded as being outside the scope of the Service.

The Home Secretary considers it reasonable that professional witness allowances should in future be payable to all salaried hospital doctors and dentists in the National Health Service, and Clerks of Courts have been instructed to amend, in this respect, the circular issued in August, 1948, which dealt with the payment of allowances to witnesses.

TEACHING HOSPITAL APPOINTMENTS

The Minister of Health, Mr. Aneurin Bevan, has made the following appointments to the boards of governors of teaching hospitals:

St. Thomas's Hospital.—Mr. C. R. N. Winn, in succession to Sir John Gilbert Laithwaite.

Hospital for Diseases of the Chest.—Lieut.-Com. H. Denton, R.N. (ret.), in succession to Sir Harold Scott.

Hammersmith, West London, and St. Mark's.—Professor Ian Aird, in succession to Professor J. H. Dible.

Royal National Orthopaedic Hospital.—Miss Grace Rattenburg, in succession to Mr. F. Bremner Coates.

St. Mary's Hospital.—Lady Plummer, in succession to Mrs. B. T. Compton.

United Oxford Hospitals.—Sir David Lindsay Keir, in succession to Sir Henry Clay.

United Manchester Hospitals.—Mr. A. Fielding, in succession to the Rev. G. H. Williams.

United Birmingham Hospitals.—Mr. C. A. F. Hastilow, in succession to Mr. E. W. Vincent.

Queen Charlotte's Hospital.—Mr. R. S. H. Thomas, to be secretary.

RETURNING MEDICINE BOTTLES

ALLOWANCE REDUCED IN SCOTLAND

The allowance which chemists receive for medicine bottles, boxes, etc., has been reduced in Scotland from 2½d. to 1½d. per prescription from October 1. Scotland now conforms in this matter with England and Wales, where the allowance was reduced on September 1 (*Supplement*, August 20, p. 94). It is estimated that this decision will save the taxpayer £70,000 a year.

Chemists will lose by it unless members of the public co-operate by returning empty medicine bottles. Labels will therefore be fixed to bottles asking patients to return them clean and promptly.

GENERAL PRACTICE IN LONDON

SHOULD BE OPEN AREA

The London Local Medical Committee met on September 27 and decided to inform the London Executive Council that in its opinion the whole of London should be regarded as an open area.

The Medical Practices Committee has classified (*Supplement*, August 6, p. 70) the following London boroughs in Schedule 3—i.e., "doubtful" places: Chelsea, Hampstead, Holborn, Kensington, Paddington, St. Marylebone, Wandsworth, and Westminster.

SICKNESS BENEFIT DRAFT REGULATIONS

The National Insurance Advisory Committee has been asked to consider and report upon preliminary draft regulations concerning sickness benefit. They enable claims for sickness benefit to be made in advance in long-term cases, and enable the Ministry of National Insurance to pay sickness benefit in appropriate cases before the formal award of the claim has been made by the independent statutory authority. The committee will consider written objections to them by or on behalf of persons affected if sent before October 28 to the secretary, National Insurance Advisory Committee, 6, Curzon Street, London, W.1.

Copies of the preliminary drafts of these regulations—the National Insurance (Claims and Payments) Amendment (No. 2) Regulations, 1949, and the National Insurance (General Benefit) Amendment (No. 2) Regulations, 1949—can be purchased price 1d. each from H.M. Stationery Office or any bookseller.

EMERGENCY BED SERVICE

NEW OFFICES OPENED

The Emergency Bed Service now has offices at the following addresses:

Central Office.—10, Old Jewry, London, E.C.2 (Monarch 3000). Area covered: By day, Central London only—i.e., the area not covered by the four branch offices. By night (9 p.m.–8.30 a.m.), the whole of Greater London.

Western Branch.—81, Mattock Lane, Ealing, W.13 (Ealing 6671). Area covered: Acton, Ealing, Hounslow, Staines, Uxbridge, Harefield, Northwood, Pinner, Harrow, Stanmore, Edgware, Mill Hill, Hendon, Willesden, Wembley, Brentford, and Twickenham.

Eastern Branch.—Langthorne Road, Leytonstone, E.11 (Leytonstone 6461). Area covered: Enfield, Edmonton, Chingford, Walthamstow, Leyton, Leytonstone, Stratford, Forest Gate, Plaistow, East and West Ham, Ilford, Barking, Romford, and Epping.

South-Eastern Branch.—Shooters Hill Road, S.E.18 (Woolwich 3471). Area covered: Woolwich, Greenwich, Blackheath, Lewisham, Catford, Eltham, Bexleyheath, Dartford, Sidcup, Orpington, and Sevenoaks. (Doctors wishing to place patients

in hospitals in the Bromley Group should normally ring the Bromley Group Admissions Office—Hurstway 2195.)

Another office will be opened at Wimbledon at the following address as soon as possible:

South-Western Branch.—Wimbledon I.D. Hospital, Gap Road, Wimbledon, S.W.19. Area covered: Wandsworth, Balham, Tooting, Streatham, Norwood, Croydon, Mitcham, Wimbledon, Richmond, Kingston, Surbiton, Epsom, Sutton, Morden, and Carshalton. (This area will be served by Monarch 3000 until the opening of the South-Western branch office, the date of which will be notified later.)

Last winter applications for the admission of patients were received at a greater rate than could be immediately dealt with, and it is hoped that these extended services will reduce delays to a minimum.

Questions Answered

R.A.F. Pay

Q.—*There appeared under "Questions Answered" (July 23, p. 57) a note about pay in the R.A.M.C. Arising from this I should be grateful if you would clarify the following points. You state that the pay of a captain after two years as such is £1 11s. per day. Does this apply equally to the R.A.F.? Also, and in reference to the R.A.F., does this rise to £1 11s. apply to the medical officers who were detained in the Service an extra three months owing to the emergency which was proclaimed last autumn? In other words, are such officers (flight-lieutenants) entitled to £1 11s. and not £1 8s. for that three-month period?*

A.—Yes, the pay of a flight-lieutenant in the medical branch of the R.A.F., after two years' service in the rank, is £1 11s. per day. The period of three months to which the questioner refers, and during which releases were suspended, counted for purposes of pay increments in the same way as other full-time paid service. Flight-lieutenants who had completed two years in the rank were therefore entitled to £1 11s. during that three-months period.

Payment for Dental Anaesthetics

Q.—*It has been my custom to administer a general anaesthetic for a dental colleague, usually for a complete clearance, and we have found it most convenient to use thiopentone soluble (pentothal). Since the introduction of the N.H.S. I have continued to supply the thiopentone soluble at my own expense. Is there any means of claiming for the cost of this anaesthetic agent? I asked the East Sussex Executive Council if I might prescribe it on Form E.C.10, but they replied that dental anaesthetics were not included in my terms of service, and that I could not do so. I would not raise the problem but for the fact that my colleagues inform me that it is their practice to so prescribe, and also where a single difficult extraction is involved my fee is 10s., of which 3s. is expended on the thiopentone.*

A.—The administration of a dental anaesthetic is not regarded as part of medical treatment and the regulations do not permit the re-stocking of materials used, whether it be nitrous oxide or thiopentone, on E.C.10. A dentist who calls in a doctor to give a general anaesthetic is paid a fee which is designed to cover the cost of both the anaesthetist's professional services and the materials which are supplied. The fee is actually paid to the dentist, who arranges for the appropriate payment to be passed over to the anaesthetist.

Locumtenency in a Partnership Practice

Q.—*(1) The locumtenent "holds the place of" the absent partner, and assumes the professional responsibilities of the absent partner in relationship to (a) the patients in the practice, (b) the remaining partner or partners, and (c) the law. Is the answer "Yes" or "No"?*

(2) The locumtenent, assuming the professional responsibilities of an absent partner, is therefore entitled to some of the privileges of partnership. "Yes" or "No"? For example, (a) an equitable distribution of work, both day and night, as between the locumtenent and the remaining partner or partners; (b) an equitable "off duty" rota as between the locumtenent and the remaining partner or partners.

A.—A locumtenent assumes the professional responsibilities of the absent partner in relationship to the patients and the remaining partner. As locumtenent he is responsible in law for his actions.

The question of whether the locumtenent is entitled to equitable distribution of work and off-duty time is entirely a matter for arrangement between the parties to any particular engagement. There are no general rules. The usual practice in this regard is for the locumtenent to undertake the work that would be done by the absent principal and, in reason, such duties as are allotted to him by the senior remaining partner. It is usual for a locumtenent to be allowed some off-duty time, depending to some extent on the type of engagement.

HEARD AT HEADQUARTERS

Anything Else, Madam?

The idea of the National Health Service as a big bowl into which anyone may dip and take what he wants spreads like ill news. One doctor has written to this office about a woman who, against the advice of the medical staff and of her own doctor, had her incontinent husband taken home from hospital. That may seem to tell the other way, but she has made matters even by, up to date, demanding from the Service an air-bed, a rubber bed-pan, a porcelain ditto, a urinal, cotton-wool, gauze, ready-made swabs, talcum powder, and surgical spirit, not to speak of supplies of medicines, tablets, and ointments. When it was pointed out to her that certain articles were not on the drug tariff, and that she would have to apply to the county council, her riposte was, "Well, could I have a tooth-brush for him?"

The Wrong Way to Look at it

As exasperating as the people who get more than their share out of the Service are the people who complain because they get nothing. The newspapers at the moment are full of them. One man writes that, although he has paid so much for the Service up to now—and it's fifteen months—all he has received in return is one free ride in an ambulance. He might have congratulated himself that he has had no occasion to want the Service. Such people ought to be told that they are getting a great deal out of it. Is it not worth while to pay something to have a healthier community at one's doors, just as it is worth while to pay an education rate to have a more literate one, even though one does not send one's children to a State school? To put it on the individual ground, is it not worth while for such correspondents to have their daily help absent less frequently with housemaid's knee, or their secretary with tennis elbow? Whether the Service is worth the cost is another matter, but to measure it by its personal return to oneself is the antithesis of good citizenship.

Believe It or Not

The Central Health Services Council has advised the Minister "that arrangements should be made to allow, under adequate safeguards, children in hospital to be visited by parents or guardians with reasonable frequency and, if necessary, by appointment." The Minister would be glad if hospital management committees and boards of governors would review the arrangements in force in their hospitals in the light of this advice.

Dangerous Drugs Act: Withdrawal of Authority

The Home Office announces that Dr. Geoffrey Roderick Richards (Port Talbot) is no longer authorized to be in possession of or to prescribe those drugs to which the Dangerous Drugs Regulations apply.

GENERAL MEDICAL SERVICES COMMITTEE

The following practitioners have been nominated by local medical committees, in the groups mentioned, for election as direct representatives on the General Medical Services Committee for the session 1949–50. The figures in parentheses indicate the number to be elected in each group.

GROUP "A" (4)	
GROUP "A1" S.E. Scotland	Dr. J. T. Baldwin, Penicuik, Midlothian Dr. N. B. Stewart, Edinburgh
GROUP "A2" N. of the Tay	Dr. J. R. Anderson, Fortrose Dr. A. C. Hendry, Bucksburn
GROUP "A3" City of Glasgow	Dr. J. T. McCutcheon, Glasgow
GROUP "A4" S.W. Scotland	Dr. R. C. Hamilton, Kilmarnock Dr. B. Hutchinson, Cambuslang
GROUP "B" (1)	
Northumberland, Durham, and County Boroughs therein	Dr. P. V. Anderson, Shildon, Co. Durham
GROUP "C" (2)	
Yorkshire (North, East, and West Ridings) and County Boroughs therein	Dr. H. F. Hollis, Leeds Dr. H. W. W. Price, Brighouse Dr. R. H. Sunderland, Bradford
GROUP "D" (3)	
Lancashire, Cumberland, Westmorland, and County Boroughs therein	Dr. C. Baxter, Liverpool Dr. P. S. Byrne, Westmorland Dr. A. Campbell, Accrington Dr. J. Stuart, Blackpool Dr. S. A. Winstanley, Manchester
GROUP "E" (2)	
Wales	Dr. D. B. Evans, Coedpoeth, Wrexham Dr. A. E. Jenkins, Pontypridd
GROUP "F" (1)	
Cheshire, Derbyshire, and County Boroughs therein	Dr J. B. Bennett, Hyde, Cheshire
GROUP "G" (1)	
Staffordshire, Shropshire, and County Boroughs therein	Dr. A. B. Davies, Walsall
GROUP "H" (1)	
Leicestershire, Lincolnshire (Holland, Kesteven, and Lindsey), Nottinghamshire, Rutland, and County Boroughs therein	Dr. G. Waring Taylor, Leicester
GROUP "I" (1)	
Herefordshire, Warwickshire, Worcestershire, and County Boroughs therein	Dr. W. D. Steel, Worcester
GROUP "J" (1)	
Berkshire, Buckinghamshire, Gloucestershire, Oxfordshire, and County Boroughs therein	Dr. H. G. Dowler, Gloucester Dr. W. Woolley, Bristol
GROUP "K" (1)	
Bedfordshire, Cambridgeshire, Huntingdonshire, Isle of Ely, Norfolk, Northamptonshire, Soke of Peterborough, Suffolk (East and West), and County Boroughs therein	Dr. A. Brown, Linton, Cambs Dr. J. C. Pearce, Diss, Norfolk
GROUP "L" (1)	
Cornwall, Devonshire, Isles of Scilly, Somerset, and County Boroughs therein	Dr. C. F. R. Killick, Williton, Somerset
GROUP "M" (1)	
Dorset, Hampshire, Isle of Wight, Wiltshire, and County Boroughs therein	Dr. H. S. Howie Wood, Shanklin, Isle of Wight
GROUP "N" (2)	
Kent, Surrey Sussex (East and West), and County Boroughs therein	Dr. A. W. Gardner, Lewes Dr. A. T. Rogers, Bromley Dr. D. F. Whitaker, Guildford
GROUP "O" (2)	
Essex, Hertfordshire, Middlesex, and County Boroughs therein	Dr. D. F. Hutchinson, Acton Dr. J. L. McKenzie Brown, Walthamstow
GROUP "P" (2)	
London	Dr. J. F. Murphy, London, S.W.8 Dr. H. H. D. Sutherland, London, W.10
GROUP "Q" (1)	
Northern Ireland	*No nomination*

The voting papers in those areas in which there is a contest (i.e., groups A1, A2, A4, C, D, J, K, and N) were posted on October 3.

WORLD MEDICAL ASSOCIATION

The General Assembly of the World Medical Association is meeting at B.M.A. House between October 10 and 16. During that week there will be some dislocation of the ordinary routine at B.M.A. House, particularly in the service of lunch in the Members' Common Room. Members wishing to take lunch during the W.M.A. Meeting are asked to do so as early as possible—i.e., between 12 and 1.

Correspondence

Fees for Professional Witnesses

SIR,—For some years past the Medical Defence Union has been actively engaged in seeking to secure adequate payment for practitioners appearing as medical witnesses to fact, or as expert witnesses in civil and criminal cases.

In September of last year the Witnesses Allowances Regulations, 1948, were published. These defined the fees payable to professional and other witnesses attending to give evidence in criminal courts. After all the work put into this matter it had been hoped that the new regulations would show a marked improvement in the payment of professional witnesses and an honest recognition of the value of the service involved. The allowances specified, it should be noted, are maximal allowances, higher it is true than those payable under the previous regulations, but lower than those considered by the profession to be equitable.

Correspondence reaching the offices of the Medical Defence Union shows that many practitioners are regarded as ordinary witnesses. They frequently receive not more than 5s. per day for attending at court to give professional evidence on matters of supreme importance. One member attended three full days and received 15s. in all. On investigation it was ascertained that this state of affairs derived from a directive from the Home Office instructing Clerks of the Assize, of the Peace, and to the Justices that allowances were not to be paid to salaried officers who did not lose remuneration by their attendance at court. Protests were lodged with the Home Office that all medical witnesses were entitled to proper fees for the time and trouble involved in the preparation and in the giving of their evidence, irrespective of any overriding requirement that might be included in the terms of the officers' employment to refund such fees to the employing authority, or any immunity from a proportionate loss of salary for absence from duty to attend a court.

After several exchanges on this matter, the Home Office in a letter issued in July of this year indicated that the Secretary of State understood that the Ministry of Health had communicated proposals to the medical profession whereby attendance at court hearings as medical witnesses would be regarded as work falling outside the scope of hospital and specialists services, and that the fees for such work could be retained by the practitioners concerned.

Waiting for a decision on this matter did not meet with acceptance by the council of the Medical Defence Union. It consequently instructed its solicitors to take action in certain specially selected cases in order to test the situation exhaustively. In one letter just received by our solicitors the matter appears to have resolved itself satisfactorily. This letter emanates from a Clerk of Assize and the material sentence is as follows: "I beg to inform you that an order has been given by the Secretary of State requesting that professional witness allowances should in future be paid to all salaried hospital doctors and dentists." The writer concluded his communication by intimating that the doctor would receive payment of his fees in due course.

This cancellation of the offending directive marks the successful conclusion of an offensive which should never have been necessary. It is not admitted, of course, that the fees payable now are anything like adequate or that they should be of a maximal character, leaving a discretion to clerks to determine within the range specified the actual sum to be paid for any professional service. That aspect of the struggle must be continued with the assistance of all who are interested in this matter.—I am, etc.,

London, W.C.1. ROBERT FORBES,
Secretary, Medical Defence Union.

*** A note on fees for professional witnesses appears at page 160.—ED., *B.M.J.*

Doctors and Dentists

SIR,—The correspondence in the *Supplement* on the subject of the N.H.S. and airing the unhappy lot of medical practitioners in contrast with that of dental surgeons and dentists, who might be thought to be in clover, has not so far acknowledged the fact that studentship towards registration bears more heavily on the dental student. Costs, in time and money, are subjoined herewith. These are official figures, which may be an eye-opener to some who are in ignorance.

UNIVERSITY OF GLASGOW

Medical fees for 6-year course	£300
Dental fees for 5-year course	
Fees	£280
Equipment	£75
Total	£355
Duration of Medical course in months	
Four years of 7½ months	30 months
Two years of 10 to 11 months	22 months
Total	52 months
Duration of Dental course in months	
One year of 8 months	8 months
Four years of 11 months	44 months
Total	52 months

Speaking as one who has a foot in both fields, it has appeared to me that there is an unnecessary tendency to disparage the dental surgeon. His training is that of a specialist, and that fraction of the dental profession which was registered in 1901 without having the qualification L.D.S. may be fairly stated to be trying quite seriously in most cases to raise their professional standards. It is to be noted also that the dental profession did make a more earnest fight against the iniquities and degradation of the N.H.S. than the medicals appear to have done.—I am, etc.,

Glasgow. W. FERGUSON MACKENZIE.

Principals and Assistants

SIR,—I have read the correspondence in the *Supplement* about assistants with a considerable amount of partisan feeling—being myself yet "another assistant." "P.Q.R." (*Supplement*, August 27, p. 118) asks, "How much better off is the principal?" My reply is this. First, that he has got a permanent position and his own future to make or mar, depending solely on his ability and willingness to succeed. Secondly, though he was probably not thinking of this when he wrote, he will be well off insomuch as he continues to attract patients and work for them after he has taken in an assistant. If he cannot do this he is manifestly unfit to employ an assistant.

No assistant can feel *en rapport* with a principal who buys his ease by taking an assistant to whom he will give no definite assurances of partnership; and worse still is the principal who endeavours to keep his practice going with an assistant to whom he makes promises of partnership in the ever-receding future, or, worse again, attempts to further his own interests by employing a succession of assistants who serve under what is virtually a protracted locum's agreement, "on probation," until in the natural course of events they cannot stick the uncertainty any longer and resign, leaving the way open for another young hopeful. Or of course they may get the sack for demanding that their labours be rewarded. All such employers I have known in my four-years career of general practice since being released from the Forces; and like "X.Y.Z." (*Supplement*, September 17, p. 140) I have lasted from between six months to one year in each job.

I will not speak of my finances, because I do not suppose they are much worse than those of any other young married man (I have two children) of my age, war service, and class (I mean the so-called professional class). Also, anyone can live through lean years, carefully watching an overdraft, if he has some assurance of a future. It is the lack of assured prospects for the assistant in general practice that appals me. All my engagements were concluded with the strict understanding that I was an "assistant with a view": all I had to do was to work, and after a trial period (generally short) I would be a junior partner; with certainly no princely salary at first, but, and this is the important point, I would be settled, with no fear of the sack, and a chance to build up a future.

Young married assistants want too much in the eyes of the principals. They not only want to gain experience from their work, they want definite assurances and the means to educate a family. And this is where we go begging from job to job. We cannot tolerate permanent, or view-in-the-remote-future, assistantships while our families are growing up round us. Nor are we rolling stones who can roam from job to job seeking experience of medical life. In point of fact I could not afford time from my present job to go and seek a new Mecca: every week without work is a week without pay, to say nothing of the overburdening cost of a fourth move of house and home.

I say, then, that it is time that the position of experienced married assistants was urgently reviewed in all responsible quarters; and, furthermore, if nothing is done to right this unjust anomaly of an employer–employee relationship, *within the structure of State contract service*, more and more young men will be disheartened and driven out of general practice and even out of the country.

The only solution is for the Ministry to consider supporting experienced assistants, in their own right, as men entitled by the nature of their work (and common need) to run or share in the running of a practice, particularly when the Government is subsidizing the salaries of trainee-assistants so that principals can easily afford to pay them—and do pay them—more than the salaries of many already engaged senior assistants. The only other solution is for a change of heart among principals, who should set a lower target for their personal incomes, both for the good of general practice in England and for the good of the patient, who gets disheartened by being visited by a succession of young men sent by Dr. So-and-So. I fear that such a change of heart, though desirable, is psychologically unlikely.—I am, etc.,

ASSISTANT-WITH-VIEW.

Payment of Locums

SIR,—"An Occasional Locum" (*Supplement*, September 17, p. 140) might be interested in my recent experience. I paid a locum £3 3s. a day and £2 2s. a week car allowance. The week before I went away I did 46 visits; the week after I returned I did 64 visits. In the whole 15 days I was away he did 31 visits. My locum during the same period last year did 87 visits.

For days after I returned I had numerous complaints from patients who had not been visited, from others of visits sent in

before 10 a.m. which were not done until late evening, and from my colleagues who had had to do day and night visits for me because my locum could not be found. There were no maternity cases at all during this period. He seemed to be rarely available day or night. To crown it all my garage account shows that for the 31 visits in the 15 days he had apparently used, at my expense, as much petrol as I use in two months. Which of us was exploited?

Of course there are good and bad principals. There are also good and bad locums and assistants. As for "X.Y.Z." in the same issue, if he is getting a salary of £200 a year less than that advertised for trainee assistants, he is either a fool and deserves to be exploited, or perhaps that is all his services are worth. I would not employ my recent locum if he offered to pay me a salary for doing so.

As for all this talk of exploitation, now that partnerships have to be given away assistants consider themselves badly treated if they are not given a substantial partnership after a few months. Let "X.Y.Z." and others remember that nowadays the one giving away the partnership takes all the risks. When they had to be bought the buyer usually took the main risk. Just as the buyer was very particular in those days, so are those who have to give them away nowadays.

Assistants' salaries are, on the whole, at least twice what they were pre-war. This compares most favourably with salary increases in other professions. To talk about slave labour and exploitation is sheer nonsense. The principals of to-day were the assistants of yesterday. If "X.Y.Z." gets rid of his persecution complex he will find his Shangri-La. When he does I have no doubt he will pay his assistant a truly princely salary, do all the night-work himself, and give away a substantial partnership just as soon as he is asked for it.—I am, etc.,

PRINCIPAL.

Association Notices

OPHTHALMIC GROUP COMMITTEE

The following were the successful candidates in the election held recently to fill vacancies in the Ophthalmic Group Committee caused by retirement of members at the end of the 1948–9 session:

H. R. Bickerton (representing Region 1).
Nigel Cridland (representing Region 3).
P. Jameson Evans (representing Region 2).
C. M. Stevenson (representing non-members of the Group on the Central Ophthalmic List).
F. Oliver Walker (representing Region 5).

DISSOLUTION OF LANCASHIRE AND CHESHIRE BRANCH, AND FORMATION IN PLACE THEREOF OF MANCHESTER AND EAST CHESHIRE, MERSEYSIDE, AND NORTH LANCASHIRE BRANCHES

Notice is hereby given by the Council that the Lancashire and Cheshire Branch has been dissolved, and that the following Branches have been formed in place thereof:

(1) A Manchester and East Cheshire Branch, coterminous with the areas of the following Divisions of the Lancashire and Cheshire Branch: Ashton-under-Lyne, Bolton, Bury, Crewe, Hyde, Leigh, Macclesfield and East Cheshire, Manchester, Mid-Cheshire, Oldham, Rochdale, Salford, Stockport, Wigan;

(2) A North Lancashire Branch, coterminous with the areas of the following Divisions of the Lancashire and Cheshire Branch: Blackburn, Blackpool and Fylde, Burnley, Furness, Lancaster, Preston;

(3) A Merseyside Branch (*Supplement*, July 16, 1949).

The Manchester and East Cheshire and North Lancashire Branches come into existence as from the date of publication of this notice.

CHARLES HILL,
Secretary.

ADJUSTMENT OF AREAS OF CORNWALL AND PLYMOUTH DIVISIONS

With reference to the notice published in the *Supplement* of September 3, 1949 (p. 126), the area of the Municipal Borough of Launceston has also been transferred from the Cornwall Division to the Plymouth Division.

CHARLES HILL,
Secretary.

NOTICE TO SHIP SURGEONS

BRITISH MEDICAL ASSOCIATION—MARITIME SUBCOMMITTEE

The Private Practice Committee of the British Medical Association has reappointed for the current session a subcommittee to consider all questions affecting medical practitioners concerned with merchant shipping.

The subcommittee will hold its first meeting of the session at B.M.A. House, Tavistock Square, W.C.1, on Thursday, October 20, at 11 a.m., and any doctors in active practice as ship surgeons who find it convenient to attend are invited to do so, if possible giving notice by letter or telephone of their intention to come.

CHARLES HILL,
Secretary.

Diary of Central Meetings

OCTOBER

14	Fri.	Committee on Industrial Health Services in relation to the National Health Service, 2 p.m.
17	Mon.	Psychological Medicine Group Committee, 2 p.m.
18	Tues.	Proprietary Medicines Committee, 11 a.m.
18	Tues.	Committee on the Association of the General Practitioner with Hospitals, 2 p.m.
18	Tues.	Building Committee, 2 p.m.
19	Wed.	Film Committee, 2.30 p.m.
20	Thurs.	Committee *re* Salaries of Medically Qualified Teachers, etc., 2 p.m.
20	Thurs.	Occupational Health Committee, 2 p.m.
21	Fri.	Public Health Committee, 1.30 p.m.
21	Fri.	Venereologists Group Committee, 2.30 p.m.
28	Fri.	Science Committee, 2 p.m.

NOVEMBER

2	Wed.	(At Lion Hotel, Shrewsbury) Welsh Committee, 2.15 p.m.
3	Thurs.	Committee on Industrial Health Services in relation to the National Health Service, 2 p.m.
9	Wed.	Committee on the Postgraduate Education of General Practitioners, 11 a.m.

Branch and Division Meetings to be Held

CITY DIVISION.—At St. Leonard's Hospital, Nuttall Street, Kingsland Road, London, N., Tuesday, October 11, 8.30 p.m., Dr. E. W. Taylor: "London's Water Supply."

CLEVELAND DIVISION.—At Sparks Café Royal, Middlesbrough, Thursday, October 13, 7 for 7.15 p.m., Supper, followed by address by Dr. I. G. W. Hill: "Treatment of Hypertension."

HALIFAX DIVISION.—At Royal Halifax Infirmary, Wednesday, October 12, 8.30 p.m. Annual general meeting. Election of officers, etc.

HENDON DIVISION.—At Hendon Hall Hotel, Tuesday, October 11, 8.15 p.m., Dr. Paul Pincus: "New Research on Dental Caries." Film and slides.

SOUTH ESSEX DIVISION.—At Oldchurch Hospital, Romford, Friday, October 14, 9 p.m., Dr. H. K. Cowan: "The Domiciliary Maternity Service, Health Centres, and other County Medical Services."

SOUTH-WEST ESSEX DIVISION.—At Thorpe Coombe Maternity Hospital, Forest Road, Walthamstow, E., Wednesday, October 12, 8.30 p.m., clinical meeting. Two lectures on the Rhesus Factor. (1) Dr. Gertrude Plaut: "Some Recent Advances in Rhesus Factor Work"; (2) Dr. E. Hinden: "Erythroblastosis of the Infant."

SOUTH-WEST WALES DIVISION.—At St. David's Hospital, Carmarthen, Sunday, October 9, 2.30 p.m., lecture by Dr David G. Morgan (Cardiff): "The Hospital Service under the N.H.S. Act and in the Future."

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MALARIA

WITH SPECIAL REFERENCE TO CERTAIN EXPERIMENTAL, CLINICAL, AND CHEMOTHERAPEUTIC INVESTIGATIONS*

BY

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LECTURE I: THE LIFE CYCLE

Under the stimulus of war in the Tropics, more scientific effort and medical man-power were directed to intensive study and research on malaria than to any other disease in history. In such circumstances it is hardly surprising that great advances in our knowledge of this disease and of its control have resulted during the past decade.

The discovery of insecticides like D.D.T. and "gammexane" is now leading to the control of mosquito-breeding and the destruction of adult mosquitoes on a scale which is revolutionary. Similarly, the synthesis of new antimalarial drugs in the U.K. and the U.S.A. proceeded on a scale that far surpassed all previous achievements and brought the control of malaria by chemotherapeutic means within the range of practical possibility. In connexion with the discovery of proguanil (paludrine) by Curd, Davey, and Rose (1945) over 1,000 new compounds were produced and tested against bird malaria. In the United States over 14,000 new compounds were screened for their therapeutic action in bird malaria, and over 100 of these were subsequently tested on man. The most promising of the antimalarial drugs synthesized in U.S.A. and U.K., such as certain sulphonamides, mepacrine, "sontochin," "chloroquine," and proguanil, were tested for suppressive and prophylactic action on experimentally infected volunteers living under tropical conditions by Australian medical research units established near Cairns, in Northern Queensland.

The discovery made by Shortt and his colleagues last year of the pre-erythrocytic and exo-erythrocytic cycle in monkey malaria (*Plasmodium cynomolgi*) and of pre-erythrocytic schizonts in benign tertian malaria in man was long overdue, establishing as it did the tissue phase in mammalian malaria some fifteen years after its demonstration in avian malaria. It was a discovery of outstanding importance not only from the parasitological point of view but also because of its clinical and chemotherapeutic implications. This first lecture will be devoted to this subject.

*First of the Croonian Lectures delivered at the Royal College of Physicians of London on May 3 and 5, 1949.

Erythrocytic and Sporogonous Cycle

At the beginning of the present century the life cycle of the malaria parasite appeared to be completely known. A schizogonous cycle in the red cells which accounted for clinical attacks and a sporogonous cycle in the mosquito had been firmly established. It is true Grassi (1900) had considered there might be another developmental cycle in man during the incubation period, but after Schaudinn (1902) vividly described just how the sporozoites actively penetrated the red cells the chain of events in the life cycle appeared complete. The whole question was reopened some thirty years later mainly because it was not possible to explain the behaviour of antimalarial drugs like quinine and "plasmoquine" (pamaquin) on this basis.

Sergent and Sergent (1922) had noted that though quinine destroyed malaria parasites once they appeared in the blood it exerted no therapeutic action when given during the incubation period. Yorke and Macfie (1924) next reported that quinine given during the incubation period resulted in radical cure of benign tertian malaria which had been transmitted by blood inoculation (trophozoite-transmission), whereas it merely prolonged the incubation period slightly when the disease was transmitted by infective mosquitoes (sporozoite-transmission).

In a paper read before the Royal Society of Tropical Medicine and Hygiene in January, 1931, James (1931a) confirmed these observations and discussed several views which had been put forward to explain the different therapeutic response induced by quinine in patients infected by blood inoculation and those infected by mosquitoes. One theory was that some of the sporozoites, instead of entering the red blood corpuscles, entered connective-tissue cells or the cells lining the capillary blood vessels; another theory was that the sporozoites actually penetrated into the interior of the red cell, whereas merozoites merely attached themselves to the outside of the corpuscle. James favoured the latter view and considered that Schaudinn's account of the penetration of the corpuscle by the sporozoite was "so clear-cut and detailed as to admit

of no question." In the discussion which followed, Warrington Yorke (1931) was frankly sceptical, stating that he had spent some weeks trying to repeat Schaudinn's observations without success.

In August of the same year, James, Nicol, and Shute (1931) reported the prevention of mosquito-transmitted benign tertian malaria in volunteers by the use of pamaquin: 20 mg. was given on the day before infection, and 60 mg. for the next six days. James (1931b) considered that these findings regarding pamaquin favoured the conception that the malaria parasites passed through a tissue stage and, in a communication read by Schüffner at Amsterdam in December, suggested that the time had come "to consider whether knowledge concerning the life cycle of the malaria parasite was complete or not." He pointed out that Schaudinn's observations had never been confirmed, that sporozoites were essentially parasites of tissue cells, and suggested that possibly, on entering the blood, they were carried to reticulo-endothelial cells of the lungs and other organs, where they underwent "a cycle of growth or sporulation similar to the cycle of the allied bird parasite, *Halteridium*."

Tissue-phase Parasites in Avian Malaria

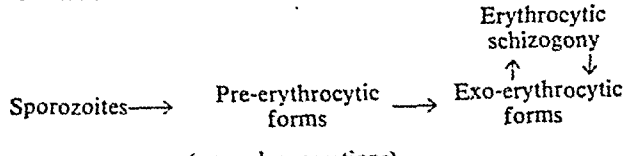
The hypothesis that there was a tissue phase of the parasite soon received support from the discoveries made in bird malaria, but it took another ten years' intensive experimental work to complete the story.

Garnham (1948), in his excellent review on this subject, regards Raffaele (1934, 1936) as probably being the first investigator to recognize the significance of exo-erythrocytic parasites in bird malaria, though undoubtedly many observers had seen them much earlier. The important publications of Huff and Bloom (1935), Brumpt (1937), and James and Tate (1937, 1938) followed shortly after those of Raffaele.

Two distinct schizogonous cycles have been recognized in the tissues: (1) the pre-erythrocytic, which occurs during the incubation period before asexual parasites appear in red blood corpuscles; and (2) the exo-erythrocytic schizogony, which is found after parasites have gained access to the corpuscles and persists in the late stages of the infection.

In seven species of plasmodia producing malaria in birds, Porter (1942) differentiated between two types of exo-erythrocytic schizogony—one occurring in *P. gallinaceum* and the other in *P. elongatum* infections. Schizogony of gallinaceum type occurred mainly in the reticulo-endothelial system, that of elongatum type was confined to the wandering cells of the blood and haemopoietic organs.

The salient features in the tissue cycle in avian malaria, modified from Davey (1944), are diagrammatically represented thus:



1. *Pre-erythrocytic Schizogony.*—The pre-erythrocytic forms in *P. gallinaceum* were first discovered by Mudrow (1940) and Shortt, Menyon, and Iyer (1940). A few years later Huff and Coulston (1944) injected enormous numbers of sporozoites into localized skin areas in chicks, demonstrating that sporozoites penetrated the reticulo-endothelial cells of the skin in from half an hour to six hours and underwent a schizogonous cycle lasting 42 hours. Primary forms also developed in the spleen and other organs intercurrently. When the schizont ruptured, the first-generation merozoites (cryptozoites) penetrated adjacent reticulo-endothelial cells, where they underwent one or more schizogonous cycles before liberating second- or third-generation merozoites (metacryptozoites) into the blood. By the fifth day Reichenow and Mudrow (1943) distinguished two types of schizonts—the macroschizonts containing 100–200 macromerozoites which are destined to invade fresh reticulo-endothelial cells, and the microschizonts containing up to 1,000 micromerozoites which invade the red blood corpuscles. Sub-inoculations with saline suspension of organs containing pre-erythrocytic parasites consistently yield positive results in avian malaria.

2. *Exo-erythrocytic Schizogony.*—Little difference has been observed between the pre-erythrocytic and the later exo-erythrocytic schizonts; pigment is absent from both, since they develop in cells containing no haemoglobin. The distribution of exo-erythrocytic schizonts in the organs has been described by several different workers. James and Tate (1937, 1938), who independently described the schizogonous cycle in the reticulo-endothelial cells and monocytes of fowls infected with *P. gallinaceum*, first suggested that the non-committal title "exo-erythrocytic" be used to differentiate it from erythrocytic schizogony. They found that the brain, liver, lungs, and spleen were important sites for the tissue stages, and that, even after the erythrocytic parasites had disappeared from the blood with quinine treatment, birds died from blockage of the vessels of the brain resulting from schizonts developing in the reticulo-endothelial lining.

Coulston and Manwell (1941) actually produced experimental infections with *P. circumflexum* by the injection of a single parasitized corpuscle, and after several passages exo-erythrocytic forms appeared. After intravenous inoculation of blood containing *P. gallinaceum*, Tullis (1947) found that small numbers of exo-erythrocytic schizonts appeared on the fourth day in reticulo-endothelial cells of the spleen and on the sixth day in the liver, heart, lungs, and intestine. Thus in bird malaria tissue schizonts may originate directly from pre-erythrocytic parasites or indirectly from the blood parasites.

Tissue-phase Parasites in Monkey Malaria

In monkeys, malaria which is caused by *P. cynomolgi* is readily transmitted experimentally by *Anopheles maculipennis atroparvus*. Other well-known simian parasites, like *P. knowlesi* and *P. brazilianum*, are unfortunately unsuitable for studying tissue forms, since the mosquito vector is unknown.

In *P. cynomolgi* infections the erythrocytic parasites closely resemble vivax parasites morphologically and appear in the blood about the ninth day. Relapses are common up to six to eight months, when spontaneous cure generally occurs. Coatney and Cooper (1948) report that pentaquine and pamaquin with or without quinine bring about radical cure. The disease closely resembles benign tertian malaria in man, especially the New Guinea and Chisson strains characterized by short-term relapses. Much intensive research work has been undertaken in America, India, England, and other parts of the world during the past decade in an effort to demonstrate tissue forms in monkeys infected with this species of plasmodium. It was not until last year, however, that Shortt, Garnham, and Malamos (1948), at the London School of Hygiene and Tropical Medicine, discovered pre-erythrocytic forms in the liver of a monkey (*Macaca mulatta*) intensely infected with sporozoites seven days previously.

1. *Pre-erythrocytic Parasites.*—In this experiment over 500 hyperinfected mosquitoes (*A. maculipennis atroparvus*) were

first fed on this monkey; then the entire batch was ground up with heparinized plasma and injected parenterally. The pre-erythrocytic forms were confined to the parenchyma cells of the liver, sections of which showed ovoid blue areas, averaging about 26 μ in diameter, composed of plasmodial masses containing chromatin particles. Later work showed that mature schizonts on the eighth or ninth day contained nearly 1,000 merozoites; each merozoite measured a little over 1 μ in diameter and was composed of a mass of cytoplasm with a small fragment of chromatin on one side. When the schizont ruptured, the merozoites escaped into the circulation via the hepatic sinusoids, and invasion of the residual mass by lympho-macrophage cells, plasma cells, and polymorphonuclear cells occurred. Pre-erythrocytic schizogony in *P. cynomolgi* was later confirmed by Hawking, Perry, and Thurston (1948).

2. *Exo-erythrocytic Forms.*—Some months later Shortt and Garnham (1948) demonstrated the late tissue stages (exo-erythrocytic schizonts) in the parenchyma cells of the liver of a monkey which had been hyperinfected 103 days previously; by this time the disease was latent and parasites had temporarily disappeared from the peripheral blood. The late exo-erythrocytic forms resembled the pre-erythrocytic forms in most respects, a possible difference being the presence of a limiting membrane surrounding the younger schizonts. These exo-erythrocytic forms undoubtedly represent the relapse forms. Shortt and Garnham (1948) consider that exo-erythrocytic schizogony is maintained throughout the whole course of the disease, and that the cellulo-humoral antiparasitic defence mechanism of the host is operative only against the erythrocytic parasites, resulting in the destruction of merozoites entering the circulating blood. This immunity mechanism, which comes into play exclusively against the erythrocytic parasite, is not active against the exo-erythrocytic forms themselves, possibly because of their intracellular habitat. Those merozoites destined to invade other liver cells are similarly protected, so that the exo-erythrocytic cycle can go on indefinitely quite independently of blood infection.

Comment.—The success attained by Shortt and his colleagues, where so many others had failed, was no doubt due to the intense hyperinfection adopted and the improved technique devised for staining tissue parasites. In the monkey it involved the introduction of hundreds of thousands of sporozoites by mosquito-bite and by inoculation either of a whole mosquito intraperitoneally or of the salivary glands intravenously (Garnham, 1948). Investigators had also been misled to some extent because the tissue phase in mammalian malaria differed in certain unexpected ways from avian malaria. Thus in monkey malaria schizogonous development takes place in the parenchymatous cells of the liver, not in reticulo-endothelium, while subinoculation with saline suspensions of the liver into clean monkeys invariably yields negative results, probably because there is only one generation of pre-erythrocytic schizonts whereas in avian malaria there are several.

TISSUE-PHASE PARASITES IN HUMAN MALARIA

A. Benign Tertian Malaria

Pre-erythrocytic Phase.—Shortt, Garnham, Covell, and Shute (1948) also reported the pre-erythrocytic stage of *P. vivax* in a volunteer patient who had been exposed to heavy biting by infected mosquitoes (*A. maculipennis atroparvus*) and had in addition received an intravenous injection of sporozoites derived from their salivary glands. Laparatomy and liver biopsy were performed seven days later under local analgesia. Sections revealed plasmodial masses in the parenchyma cells, measuring up to 42 μ in diameter, which were studded with chromatin particles and some of which contained vacuoles. In appearance they closely resembled the pre-erythrocytic schizonts found in *P. cynomolgi* in monkeys.

From subinoculation experiments undertaken by Fairley (1945) and Fairley *et al.* (1947) it is evident that vivax sporozoites after being inoculated by mosquitoes rapidly gain access to the blood but soon again leave the circulation, invading the parenchyma cells of the liver, as shown by Shortt and his colleagues. Here they pass through a prolonged developmental cycle lasting at least eight days. The mature schizonts rupture and merozoites enter the circulation with great regularity on the ninth day of infection, producing a subpatent parasitaemia which may last another one to seven days. In thick films scanty parasites—i.e., to the order of 1 per c.mm.—appear on an average 12 days after exposure (range 10–15 days). This at least is the chain of events so far as the New Guinea strain of *P. vivax* is concerned.

Exo-erythrocytic Forms.—There is so much indirect clinical evidence supporting the presence of persistent exo-erythrocytic forms in benign tertian malaria, and vivax infection with short-term relapses is so similar to cynomolgi malaria, that for all practical purposes their existence can be accepted. Latency and the tendency to multiple relapses can best be explained on the basis of persisting exo-erythrocytic forms, while the different therapeutic response to various schizonticidal drugs like mepacrine, chloroquine, and quinine observed in blood-inoculated and mosquito-transmitted malaria is otherwise inexplicable. The schizonticidal drugs rapidly produce radical cure in trophozoite-transmitted vivax malaria. In sporozoite-transmitted malaria, though they rapidly produce clinical cure and clear the blood completely of parasites as revealed by negative subinoculations and negative blood smears, parasites later reappear and overt relapses follow. To establish radical cure during the overt attack one of the 8-amino-quinoline compounds like pamaquin or pentaquine is given in full dosage in combination with quinine. During the long latency characteristic of the St. Elizabeth strain of *P. vivax* radical cure has been reported by White *et al.* (1948) at a time when erythrocytic parasites are entirely absent from the blood: such a result can be due only to exclusive action on exo-erythrocytic forms.

Exo-erythrocytic Forms and Immunity Response.—According to Shortt and Garnham (1948) exo-erythrocytic schizogony is maintained throughout the whole course of the disease, and the antiparasitic defence mechanism of the host is directed essentially against the erythrocytic parasites, not against pre-erythrocytic or exo-erythrocytic forms. They suggest that latency and relapse in vivax malaria are governed by this immunity defence mechanism. Acquired antiparasitic immunity and tolerance result from a specific cellulo-humoral response to the invasion of the blood by erythrocytic parasites—provided that the parasitaemia is of sufficient duration and intensity to elicit an adequate response. The experimental studies of Taliaferro and Mulligan (1937) indicate that the spleen, liver, and bone marrow undergo considerable lymphoid hyperplasia with cytogenesis of macrophages, parasites being mainly destroyed locally in these organs. Immunity is paid for in terms of blood destruction, overworked sweat glands, and fever, but it is more easily acquired with some vivax strains than with others. Whether it is complete or partial will be determined by the trophozoite experience of the individual (total antigenic stimulus) and the strain of *P. vivax* implicated. With New Guinea strains solid immunity results in untreated patients only after prolonged primary fever, or if this be cut short by antimalarial

therapy it may arise later during febrile relapses in which treatment is withheld or markedly delayed.

Latency and Relapse

1. *Latency with Immunity.*—Blackburn (1948) was able to show that volunteers infected with the New Guinea strain of *P. vivax* who developed solid tolerance and antiparasitic immunity to their infections constantly had vivax trophozoites in the peripheral circulation, though their density rarely exceeded 1 per c.mm. over several months of observation. Gametocytes were never seen during the period of immunity, and mosquitoes fed on these subjects failed to become infected. The low densities of trophozoites caused no constitutional disturbances whatsoever. These volunteers had normal haemoglobin concentrations and red blood cell counts, their spleens were not palpable, and they were perfectly fit. Attempts to induce relapses by reinfection with the same strain of *P. vivax* (superinfection) were unsuccessful.

2. *Latency and Suppression with Mepacrine.*—In experimentally infected volunteers taking 0.1 g. of mepacrine daily for many months, Fairley and his colleagues (1945, 1947) found that vivax parasites were not demonstrable in thick smears, that subinoculations invariably became positive on the 9th day and were generally negative after the 14th day of infection. In one patient receiving 50 infective vivax bites on zero day, subinoculations with 20 ml. of blood were made at four-day intervals between the 9th and 142nd days while receiving suppressive mepacrine. Positive results were recorded on the 9th, 13th, and 42nd days after infection; the remaining 32 subinoculations were negative. Parasites were absent in blood films on the 42nd day, when the positive subinoculation occurred. Overt vivax malaria occurred on the 177th day, 35 days after mepacrine ceased. It is noteworthy that in heavy experimental infections the 42nd day is about the time the first relapse appears in patients whose primary fever has been treated with schizonticidal drugs. After stopping suppressive mepacrine overt vivax malaria occurred within three to ten weeks in 97% of cases. No evidence of immunity was observed in these patients: this is hardly surprising, as merozoites are destroyed shortly after reaching the blood with the New Guinea strain of *P. vivax*, provided the plasma mepacrine concentration is satisfactory.

When suppressive drug medication is stopped overt attacks occur in a few weeks with the ordinary New Guinea and the Chisson strain of *P. vivax*, which have a close relapse pattern, but with the St. Elizabeth, Madagascar, and local Dutch strains, which have had suppressive treatment during the first four weeks after infection, overt malaria does not appear until approximately nine months after the original infection.

3. *Latency and Long-term Relapse without Immunity.*—True latency with long-term relapse is encountered with certain strains of *P. vivax* both in natural infections and where the primary fever has been suppressed by antimalarial drugs or treated early in the febrile attack.

(*a*) *Latency Following Suppression of Primary Fever.*—Important experimental investigations in volunteer prisoners in the U.S.A. have recently been carried out with the St. Elizabeth strain of *P. vivax*. This strain produces an infection with a long latent period of eight to nine months between the early treated primary attack and the first relapse; thereafter a series of short-term attacks begin. White *et al.* (1948) report the complete absence of circulating parasites during this long latent phase; thick blood smears were always negative, and massive subinoculations with 250–300 ml. of blood to non-immune recipients failed to produce malaria. In addition Cooper *et al.* (1947) report that during this period the individual harbouring a latent infection is susceptible to superinfection with parasites of the same strain, indicating that no immunity has developed. Coatney and Cooper (1948) conclude that it is impossible to account for this long latent interval on the basis of immunity to erythrocytic parasites, and suggest that it may represent a period when the fixed-tissue reservoir is not casting erythrocytic invading forms into the circulation.

(*b*) *Natural Latency with Prolonged Incubation Period.*—This condition is well recognized in natural infections in Europe where in the early spring primary attacks may be caused by infections contracted in the previous summer and autumn. James (1931a) reported that 12 patients at Horton did not develop overt vivax malaria until six to ten months after they were bitten by infective mosquitoes (Madagascar strain). Swellengrebel and de Buck (1938) found that many of their patients infected with the local Dutch strain fell into this category, not developing overt malaria for some nine months after exposure to infective mosquitoes biting at any time of the year. There is a normal average incubation period of 21 days with the Dutch strain, and eight to nine months elapse between primary fever and the first relapse.

Shute (1946) produced good evidence that natural latency in vivax malaria—i.e., an overt attack in patients infected eight or nine months previously—was attributable to low sporozoite dosage; he suggested that relapses might be due to sporozoites which had been lying dormant in tissue cells, pointing out that they were able to survive for many months in the insect vector. According to Shute, natural latency occurs only when the sporozoites injected are too few to set up an immediate attack: about 2,000 sporozoites were regarded as the minimum necessary to establish infection by intravenous injection.

Serial subinoculations have not been performed on and after the ninth day following infection in these latent cases, but it seems likely that owing to a paucity of inoculated sporozoites only scanty pre-erythrocytic schizonts are produced; the resulting erythrocytic merozoites are evidently so few that non-specific phagocytosis in the liver, spleen, bone marrow, and blood—i.e., natural immunity—suffices to prevent the establishment of an effective parasitaemia. In consequence primary fever fails to develop, and with the Madagascar and Dutch strains an overt attack is not encountered for eight to nine months.

Comment.—Results based on infections with the New Guinea strain of *P. vivax*, which has a short-relapse pattern, support the view that latency is related to, and controlled by, the immunity response of the host as in cynomolgi malaria in monkeys.

In vivax infections with the St. Elizabeth, the Madagascar and the local Dutch strains, which are characterized by long-term latency before relapse, it is difficult to visualize how any immunity could have been acquired. In these circumstances the most likely explanation is a failure of erythrocytic merozoites to reach the blood stream and establish a parasitaemia, as Coatney and Cooper (1948) have pointed out. The failure to establish even a subpatent parasitaemia during this long-term latency is revealed by the negative results obtained with massive subinoculations in non-immunes. This might result from (1) cessation of exo-erythrocytic schizogony with the production of resting-stage parasites; (2) a slowing down of exo-erythrocytic schizogony and/or a decrease in the ratio of erythrocytic to liver-invading merozoites, so few of the former reaching the circulating blood that natural immunity suffices to prevent an effective parasitaemia developing; and (3) a switch-over to the exclusive production of liver-invading merozoites during exo-erythrocytic schizogony, the rate of which may or may not be retarded. It is suggested that No. 3 constitutes the most feasible working hypothesis, and that the atypical exo-erythrocytic schizogony which characterizes long-term latency is determined by the im-

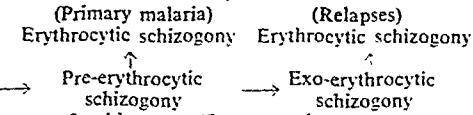
biological qualities of the vivax strains under consideration. Latency ends when there is a reversion to normal exo-erythrocytic schizogony, with the production of the usual ratio of erythrocytic to liver-invading merozoites.

Once overt malaria supervenes after this long latent period it is interesting to note that several relapses not infrequently follow at monthly periods (close relapse pattern), indicating that normal exo-erythrocytic schizogony has been established and is being maintained.

B. Quartan Malaria (P. malariae)

In quartan malaria both sporogonous and erythrocytic schizogonous cycles proceed very slowly. Nothing is known of the tissue cycle. Unfortunately, subinoculations have not been performed during the incubation period, so no assessment can be made of the probable duration of the pre-erythrocytic cycle. The long latent periods, the presence of late relapses, and the difficulty of attaining radical cure suggest that exo-erythrocytic schizogony persists for many years. Blood-transfusion accidents, in which quartan malaria is transmitted by a donor who has been away from malarious areas for many years and been completely free from clinical attacks during this period, also support this view.

The following diagram depicts the tissue phases of the malaria parasite in monkeys infected with *P. cynomolgi*. It is suggested that the term "cynomolgi type" could usefully be employed in mammalian malaria for this type of schizogony. There is abundant indirect evidence that *P. vivax* follows the cynomolgi type of schizogony, and it seems highly probable that *P. malariae* does likewise.



Cynomolgi type of schizonogy (*P. cynomolgi, P. vivax*, and probably *P. malariae*)

C. Malignant Tertian Malaria (P. falciparum)

The present position in regard to the tissue phase of *P. falciparum* is much the same as that of *P. vivax* last year, before pre-erythrocytic forms had been discovered.

Pre-erythrocytic Cycle.—Subinoculation experiments reported by Fairley (1945) and Fairley *et al.* (1947) have shown that when donors are bitten by from 7 to 24 infective mosquitoes at a single session lasting 5 to 15 minutes sporozoites may gain access to the circulation during the time of biting or be detected at intervals up to 60 minutes after cessation of biting. Thereafter subinoculation results were uniformly negative until the seventh day, when they again became consistently positive. All of 41 subinoculations with 500 ml. of blood made from volunteers infected 6½ to 8½ days previously were positive.

The only reasonable interpretation of these findings is that, in falciparum as in vivax malaria, sporozoites inoculated into the tissues by infective anophelines rapidly gain access to the circulating blood and subsequently disappear rapidly from the circulation. Presumably they enter the parenchyma cells of the liver, where they develop into pre-erythrocytic schizonts, which liberate mature merozoites into the blood with extraordinary regularity on the seventh day of infection.

The causal prophylactic action of proguanil in malignant tertian malaria also suggests the existence of early tissue forms which are many times more sensitive to the drug than either sporozoites or merozoites. Fairley *et al.* (1946) found that a single dose of 50 mg. given between the 39th and the 131st hour following exposure to biting afforded complete protection; parasites never appeared in the blood and overt malaria failed to develop. Eight out of 10 volunteers receiving as little as one single dose of 10 mg. between 48 and 120 hours after infection were completely protected. It was found that proguanil (0.3 g.) given about the time of exposure to infection generally failed to protect; malaria could be prevented with certainty only if 1 g. of the drug was given. The conclusion reached was that proguanil had no action on the sporozoites as such, its lethal effect being due to small quantities persisting in the circulation and acting on tissue forms early in the pre-erythrocytic cycle. Later on the seventh day, by which time merozoites were entering the circulation, a single dose of 0.3 g. failed to give protection, though it was effective up to 144 hours. The most reasonable explanation of these experimental findings is that proguanil has a highly selective action on the pre-erythrocytic forms in falciparum malaria.

Exo-erythrocytic Cycle.—Though indirect evidence favouring a pre-erythrocytic stage is entirely convincing in malignant tertian malaria, the same cannot be said in regard to the existence of later exo-erythrocytic forms. None of the evidence advanced as indicating a persistent phase in vivax malaria is forthcoming for falciparum malaria. Thus in falciparum malaria (1) long latent periods are absent and recrudescences occur separated by only two to three weeks of apyrexia; (2) once the blood has been completely cleared of falciparum parasites by schizonticidal drugs like quinine, mepacrine, or chloroquine radical cure has been achieved: (3) it is useless to resort to the 8-amino-quinolines for radical cure as in benign tertian malaria: drugs of this group, though they are effective in preventing malignant tertian malaria when they are given in full dosage during the first six days of infection, are quite ineffective in the treatment of the acute attack and the eradication of the infection; this is because they are very poor schizonticides for *P. falciparum*; and (4) sporozoite-transmitted malaria is just as rapidly and radically cured by schizonticidal drugs as is trophozoite-transmitted malaria; this is contrary to the findings in benign tertian malaria.

To explain these therapeutic results it would be necessary to assume that, while the hypothetical exo-erythrocytic forms in falciparum malaria are just as susceptible to schizonticidal drugs as are asexual erythrocytic parasites, they are insusceptible to the 8-amino-quinolines. This would be exactly the reverse of the action of these drugs in benign tertian malaria. In toxic dosage the 8-amino-quinolines are known to have a true causal prophylactic effect in malignant tertian malaria, where their action on pre-erythrocytic forms is much more potent than in vivax malaria. Why, then, should they have no effect on exo-erythrocytic forms in malignant tertian malaria while destroying the exo-erythrocytic forms in benign tertian malaria?

All available data indicate that in malignant tertian malaria, after the pre-erythrocytic schizonts have ruptured and discharged their merozoites into the circulation on the seventh, and possibly the eighth and ninth days as well, the pre-erythrocytic schizonts disappear entirely without giving rise to later exo-erythrocytic forms. The subsequent course of the disease will thus be determined solely by erythrocytic schizogony, and if the parasitaemia be eradicated radical cure results.

It is suggested that the following diagram adequately depicts the tissue phase of schizogony as it occurs in malignant tertian malaria in man:

(Primary fever and recrudescences)
↑
Erythrocytic schizogony
↑
Sporozoite——→Pre-erythrocytic schizogony

Comment and Conclusions

At the beginning of the present century the life cycle of the malaria parasite in man appeared to be completely known. It is a matter of considerable interest that, nearly half a century later, hiatuses in precise knowledge of the subject still exist. Despite the brilliant work of Shortt and his colleagues, only the pre-erythrocytic stage in *P. vivax* has so far been demonstrated in man. The technical difficulties associated with the production of hyperinfection in man and the demonstration of tissue schizonts in the liver have been overcome. No suitable laboratory animal is known which can be experimentally infected with any of the human species of malaria parasite, and in these circumstances the various problems concerning tissue forms are unlikely to be solved finally without the use of experimentally infected volunteers.

In the meantime the following tentative conclusions based mainly on indirect evidence are put forward regarding the tissue phase of the three species of malaria plasmodia commonly affecting man.

1. In benign tertian and quartan malaria there are both pre-erythrocytic and exo-erythrocytic stages of schizogony similar to those now known to occur in cynomolgi malaria in monkeys.

2. In vivax malaria characterized by short-term relapses such as are produced by the New Guinea or Chisson strains, normal exo-erythrocytic schizogony is maintained throughout the whole course of the disease and erythrocytic merozoites reach the circulating blood with regularity. Relapses cease when solid immunity and tolerance have developed or radical cure has been established.

3. In vivax infections characterized by long-term latency before relapse, such as is seen in infections with the St. Elizabeth, Madagascar, and Dutch strains, parasitaemia and immunity fail to become established during this initial latent period. As a working hypothesis it is suggested that during latency the exo-erythrocytic cycle is atypical, inasmuch as schizogony is switched over to the exclusive production of liver-invading merozoites, so that no erythrocytic merozoites reach the circulation. Latency ends when there is a reversion to normal exo-erythrocytic schizogony; this is indicated by the close relapse pattern which supervenes after the long period of latency has terminated in an overt malaria attack.

4. In malignant tertian malaria, after the pre-erythrocytic schizonts have ruptured and discharged their erythrocytic merozoites into the circulation on the seventh and possibly the eighth and ninth days as well, they disappear without giving rise to late exo-erythrocytic forms. The subsequent course of the disease will be determined solely by erythrocytic schizogony, and if parasitaemia is eradicated radical cure will result.

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CLINICAL VALUE OF PREGNANEDIOL ASSAYS*

BY

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A laboratory technique such as pregnanediol assay may lay claim to clinical value if it can be shown that its results yield information about diagnosis, prognosis, or treatment which will supplement that gained by unaided clinical examination. In assessing the clinical value of a given technique various factors must be considered and given due weight. The accuracy of the method, for example, is not of primary importance, though its ability to give unequivocal answers to the clinical questions posed is clearly a first requirement. Ease and speed of performance are significant considerations, and the nature and quantity of the clinical specimens required deserve attention. If to these we add the uniqueness of the information yielded by the technique, it should be possible to form an opinion of its value to the clinician in comparison with other laboratory procedures. In this paper the attempt is made to evaluate the position of pregnanediol assay, as judged by the above criteria and using the data that I have myself obtained.

A large number of different procedures for the assay of urinary pregnanediol have been described, some undoubtedly being far more accurate than others. I shall not attempt a comparative discussion of these rival methods, but certain general remarks are warranted. In the first place, methods requiring three or four days and many man-hours to complete are of little potential clinical value, no matter what their excellence as purely research techniques may be. Secondly, since by the nature of the clinical problems concerned repeated assays may be necessary, it becomes a matter of urgency to avoid, if at all possible, urine-collection requirements which would limit the application to in-patients only.

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Clearly, few out-patients would co-operate to the extent of producing a weekly or fortnightly 24-hour urine collection, while the completeness of such collections as might be forthcoming would always be open to grave doubt. Great practical advantage would therefore be derived from the possibility of using first morning urine specimens rather than 24-hour collections, and it seemed reasonable to investigate such a possibility even though the variations in the results so obtained would be expected to be larger than those from 24-hour collections. With few exceptions, therefore, first morning specimens have been the rule throughout this investigation.

A final remark under this general heading may be made concerning the disadvantage, for clinical use, of methods which determine sodium pregnanediol glucuronidate, as compared with those which determine free pregnanediol. Any bacterial contamination may lead to hydrolysis of the glucuronidate and so give a spurious low value for the assay, and since in the hurly-burly of clinical medicine such contamination would be difficult to control, it seems wiser to avoid this potential cause of inaccuracy and to employ methods the results of which would not be vitiated in this way.

Considerations such as those outlined above led to the adoption, first of a modification of the Guterman (1944) technique (method I), and later of that described by Sommerville, Marrian, and Kellar (1948) (method II) after it had been shown (Swyer, 1949, wherein the details of the modification of the Guterman technique are described) that the method of Sommerville *et al.* was by almost all criteria the more preferable. Using these methods, an attempt has been made to study the clinical value of pregnanediol assay from the following points of view: (1) as a diagnostic test for pregnancy; (2) as a prognostic test in threatened abortion; (3) as a prognostic test for the likelihood of the initiation of labour by induction procedures; and (4) as a diagnostic aid in complications of pregnancy.

1. General Consideration of Results

For the purposes of this communication the results of a total of 858 pregnanediol assays are available for consideration. The details of these are set out in Table I, and the distribution of the values obtained is shown in the form of histograms in Fig. 1. The most striking feature of the latter is the considerable degree of overlap of values for pregnant and non-pregnant urines as obtained by both methods. The mode is shifted to the right in the case of method II, but apparently more so for pregnant than for non-pregnant urines. This is what would have been expected from the observations previously reported (Swyer, 1949), and is borne out by comparison of the two methods as pregnancy diagnosis tests (recorded below). The point which may be stressed is that, judging from the results as a whole, it cannot be expected that differentiation between pregnant and non-pregnant urines on the basis of their pregnanediol content will always be possible, so that the results in section 2 may be regarded as a fair sample of the overall results.

TABLE I.—*Broad Details of 858 Pregnanediol Assays*

Method	No. of Assays Performed		Totals
	Non-pregnant	Pregnant	
Modified Guterman	146	456	602
Sommerville, Marrian, and Kellar	49	207	256
Totals	195	663	858

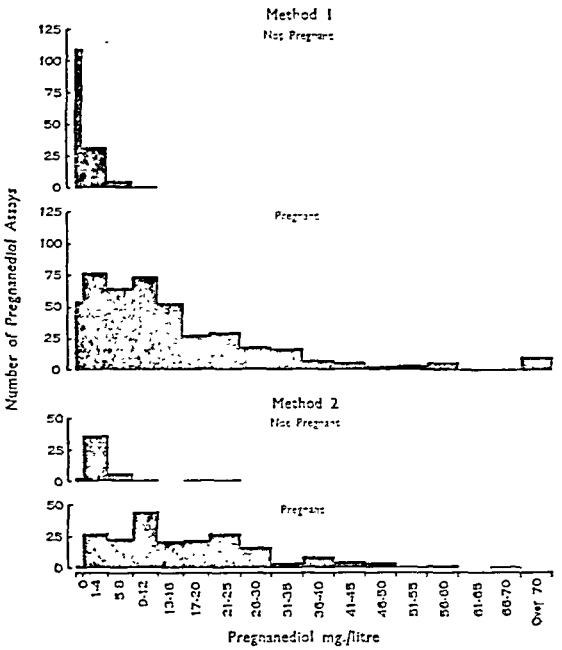


FIG. 1.—The distribution of 858 urinary pregnanediol assays.

2. Pregnanediol Assay as a Diagnostic Test for Pregnancy

The utilization of urinary pregnanediol assay as a basis for the diagnosis of pregnancy was first proposed by Guterman (1944, 1945), for which purpose he devised his rapid technique, which he did not, however, claim to be more than semi-quantitative. The high degree of accuracy for pregnancy diagnosis which Guterman found has not been uniformly achieved by other investigators (see discussion), and it was because of this that it was felt that yet another series might be desirable, especially one in which some other pregnancy diagnosis test of generally accepted validity was performed concomitantly with the pregnanediol assay on the same specimen of urine. For this purpose the Friedman test was selected, a standard quantity of 10 ml. of filtered urine being injected intravenously followed 48 hours later by sacrifice of the rabbit and examination of the ovaries for corpora lutea. All the specimens used in this series were actually sent for pregnancy diagnosis, so that in all cases there was some degree of clinical uncertainty. The subsequent fate of each was checked, and only those cases in which it was ascertainable have been included in the series.

For the first group of patients the modified Guterman procedure was used in 110 cases, and the results compared with the Friedman test are shown in Table II. In deciding whether the pregnanediol value was indicative of pregnancy or not, some level had to be chosen rather arbitrarily as the dividing-line. As a guide, assays were performed on the urines from 30 patients known to be non-pregnant, and

TABLE II.—*Concomitant Friedman Tests and Pregnanediol Assays (Method I) on 110 Urines Sent for Pregnancy Diagnosis (6 mg./litre Regarded as Minimal Value for Pregnancy)*

	Total	Friedman Test		Pregnanediol (Method I)	
		Correct	Incorrect	Correct	Incorrect
Pregnant ..	63	57 (90·5%)	6	26 (41%)	37
Non-pregnant ..	47	43 (91·5%)	4	44 (94%)	3
Totals ..	110	100 (91%)	10	70 (63·5%)	40

since the highest value found was 5 mg./litre, it was decided to regard 6 mg./litre as the minimal level for the diagnosis of pregnancy. Objections to this procedure could be cited, and because Guterman regards the "positive" colour in his test to be given by about 4 mg./litre of pregnanediol, the results have been recalculated on the basis of 4 mg./litre being the minimal level for pregnancy diagnosis (Table III). There is a slight improvement, but it is not sufficient for escape from the conclusion that, while false positives in non-pregnancy are rare, false negative pregnanediol values in pregnancy are so frequent as to condemn the test as an aid to pregnancy diagnosis.

TABLE III.—*The Results of Pregnanediol Assays (Method I), Previously shown in Table II, Recomputed on the Basis of 4 mg./litre as Minimal Value for Pregnancy*

	Total	Pregnanediol (Method I)	
		Correct	Incorrect
Pregnant	63	31 (49%)	32
Non-pregnant	47	43 (91·5%)	4
Totals	110	74 (67·3%)	36

Attention may be drawn to some of the cases in which discrepant results were obtained. There were two cases of proved hydatidiform mole, in both of which the Friedman test was positive (even when diluted 1/100, only 0.1 ml. of urine being injected); for the purposes of this comparison, these were interpreted as "false positive" Friedman tests, without any aspersions being cast upon the technical reliability of the test. In these cases the pregnanediol excretion was *nil* and 1 mg./litre respectively. Two other cases were clinically suspected as being those of hydatidiform mole; in one, in which the Friedman test was positive (though not on dilution) and the pregnanediol excretion was *nil*, subsequent events showed the case to be that of normal pregnancy; in the other, in which the Friedman test was negative and the pregnanediol excretion also was *nil*, no evidence either of pregnancy or of hydatidiform mole was obtained when the uterine contents were examined.

A specimen from a pregnant woman, when the period was only three days overdue, gave a negative Friedman test and contained 3 mg. of pregnanediol per litre; eight days later the Friedman test was still negative but the pregnanediol content had risen to 6 mg./litre. In a case which was subsequently proved to be that of ectopic pregnancy the Friedman test was negative and the pregnanediol excretion 4 mg./litre. In two cases of missed abortion the Friedman test was positive and the pregnanediol excretion 9.5 and 5 mg./litre. In neither case was a foetus found on evacuating the uterus. In three other cases "false negative" Friedman tests were obtained in cases of pregnancy; these must be regarded as technical faults. The corresponding pregnanediol levels were *nil* in two cases and 15 mg./litre in the third.

For the second group of patients, the procedure of Sommerville *et al.* (method II) was used in 101 cases, and the results, compared with the corresponding Friedman tests, are shown in Table IV. Once again 6 mg./litre is taken as the lowest permissible value for a "positive" pregnancy diagnosis, and it can be seen that the overall pregnanediol test results are considerably improved (82% correct) as compared with those in the previous series (63.5 or 67.3% according to the criterion of a "positive" value); that the reliability in pregnant cases is much greater (82.5 compared with 41 or 49%); but that a considerably larger number of "false positives" has now been produced (18.25% compared with 6%).

TABLE IV.—*Concomitant Friedman Tests and Pregnanediol Assays (Method II) on 101 Urines Sent for Pregnancy Diagnosis*

	Total	Friedman Test		Pregnanediol Assay	
		Correct	Incorrect	Correct	Incorrect
Pregnant ..	63	62 (98·5%)	1	52 (82·5%)	11
Non-pregnant ..	38	37 (97·5%)	1	31 (81·75%)	7
Totals ..	101	99 (98%)	2	83 (82%)	18

In this series there were three cases of missed or incomplete abortion; the Friedman test was positive in one, the pregnanediol value being 1 mg./litre, and negative in the other two, in which the pregnanediol values were 6 and 18 mg./litre respectively. There were, in addition, two cases of threatened abortion in which the diagnosis of pregnancy was uncertain at the time of testing; in one the Friedman test was negative, the pregnanediol value being 8 mg./litre and the patient aborted; in the other the Friedman test was positive, the pregnanediol value being 19 mg./litre and the pregnancy continued. A case of salpingitis which was considered clinically to have been possibly that of ectopic pregnancy had a pregnanediol excretion of 24 mg./litre; the Friedman test was negative.

3. Pregnanediol Assay as a Prognostic Test in Threatened Abortion

There have been several reports of the relation between pregnanediol excretion in cases of threatened abortion and the fate of the pregnancy (e.g., Hamblen, Cuyler, and Baptist, 1942; Guterman, 1946; Bender, 1947, 1948). The present series of cases is small compared with those of some previous authors, but the numbers are nevertheless sufficient for conclusions to be drawn which are not altogether in agreement with earlier reports.

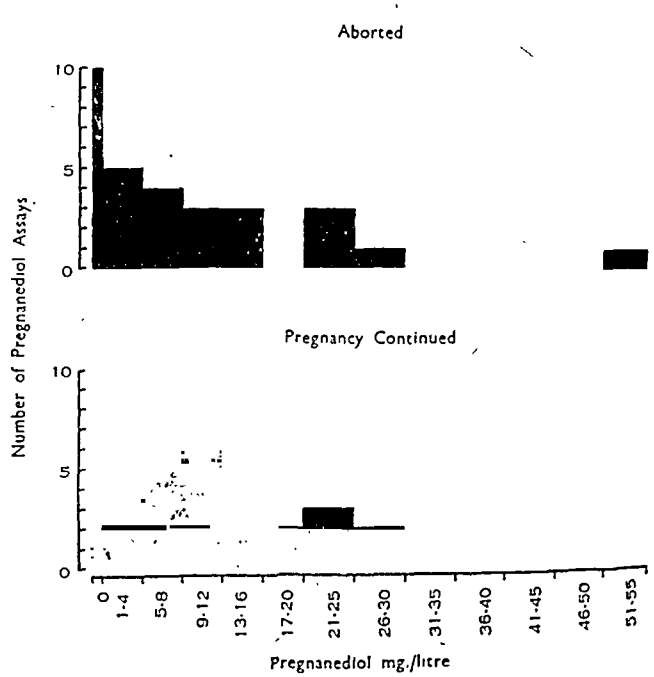


FIG. 2.—The distribution of 56 urinary pregnanediol assays from cases of threatened abortion.

Forty cases of threatened abortion have provided a total of 56 urine specimens for pregnanediol assay; the distribution of the values is shown in Fig. 2, where the cases are grouped into those that aborted and those that did not. The distributions are clearly different, but the overlap is

quite obvious. When the mean values for the two groups are compared by the t test, the following result is obtained:

Mean value for abortion group .. .. 8.733 mg./litre
" " " non-abortion group .. 12.4 "
n=54; t=2.579 (P<0.02>0.01)

It may therefore be concluded that the pregnanediol values in cases of threatened abortion are, in general, higher when the pregnancy is going to continue than when it is going to terminate, and that the chances of a difference between the means such as that observed occurring on a purely random sampling basis from a homogeneous population are more than 1 in 50 though less than 1 in 100 against.

The clinician, however, is more interested in individual cases than in the behaviour of patients with threatened abortion in general, and it is therefore of importance to consider the ability of the test to predict the outcome in individual cases. A pregnanediol value of 6 mg./litre has again been taken as the minimum for predicting continuation of the pregnancy, and the findings are set out in Table V, both on the basis of the first reading and, where more than one assay was performed, on the basis of the final assessment, a rising pregnanediol titre being taken as indicative of continuation of pregnancy. The correct prediction was given in 29 out of 40 cases in the final assessment (72.5%). Of the 40 cases, 57.5% aborted; of those that did not, 14 out of 17 had satisfactory or rising pregnanediol titres, but of the 23 patients who aborted, eight also had satisfactory pregnanediol titres.

TABLE V.—*Prediction of the Fate of Cases of Threatened Abortion on the Basis of Pregnanediol Excretion*

	First Reading			Final Assessment		
	Pregnancy Continued	Aborted	Total	Pregnancy Continued	Aborted	Total
Correct ..	12	14	26	14	15	29
Incorrect ..	5	9	14	3	8	11
Totals ..	17	23	40	17	23	40

4. Pregnanediol Assay as a Prognostic Test for the Likelihood of the Initiation of Labour by Induction Procedures

Since most observers agree that the spontaneous onset of labour is ordinarily preceded by a pronounced fall in the pregnanediol excretion, it seemed worth while to investigate the excretion in patients in whom, for various clinical reasons, it was desired to induce labour and to see what correlation, if any, existed between the amount of pregnanediol excreted and the effect of the induction procedure. This has been done in 10 patients, the results being shown in Table VI, in which the cases are recorded in ascending order of pregnanediol excretion.

TABLE VI.—*Pregnanediol Assays in Patients on whom Induction Procedures were Performed or Contemplated and the Results of Those Procedures*

Case No	Pregnanediol	Mode of Induction	Result
1	10·5 mg./24 hrs.	O.B.E.	Delivery
2	19·4 "	Spontaneous delivery	
3	23 mg./litre	High puncture	Delivery
4	25·2 mg./24 hrs.	O.B.E.	"
5	41 "	Spontaneous delivery	
6	49 "	O.B.E.	Delivery
7	49·7 "	O.B.E.	Nil
8	55·5 "	O.B.E.	Delivery
9	56 "	O.B.E.	Nil
		Repeated 2 days later	Delivery
10	57 "	Spontaneous delivery	

O.B.E. = Induction by castor oil, bath, and enema.

It is interesting to note that in three cases spontaneous labour began *before* the induction procedure was started, with pregnanediol excretions ranging from 19.4 to 57 mg. in the preceding 24 hours. On the other hand, the excretions in the two failures were both high—49.7 and 56 mg./24 hours respectively. It would seem, therefore, that, although induction is less likely to succeed at high levels of pregnanediol excretion, the prediction of the fate of a given case cannot be accurately made on the basis of pregnanediol assay.

5. Pregnanediol Assay as a Diagnostic Aid in Complications of Pregnancy

With a view to investigating the possible value of pregnanediol assay as a diagnostic aid in various complications of pregnancy 41 such assays were carried out on specimens obtained from 17 patients with various complications. The details are set out in Table VII, and the following comments seem justifiable: in cases of missed abortion variable values may be found, some "positive" and others "negative":

TABLE VII.—*Pregnanediol Assays in Various Complications of Pregnancy*

Case No.	Diagnosis	Pregnanediol mg./litre	Remarks
1	Missed abortion ..	9, 4, 3, 0	Friedman test positive. Curettage showed surviving placental tissue but no embryo
2	" " .	0, 5	Friedman test positive; no embryo found on curettage
3	" " ..	8	
4	" "	8	
5	? Incomplete abortion	10	Friedman positive, pregnancy continued
6	Hydatidiform mole ..	0	Confirmed by curettage
7	" "	0, 1	" "
8	? Hydatidiform mole	11	Friedman test positive undiluted only; normal pregnancy
9	" " "	0	" " "
10	" " "	0	Friedman test negative, non-pregnant
11	Ante-partum haemorrhage at 35 weeks	43, 38, 60, 23, 45	Daily pregnanediol assays, pregnancy went to term
12	Ante-partum haemorrhage at 37 weeks	60, 69, 51, 54, 16	" " "
13	Pyelitis at 29 weeks .	34	Pregnancy continued
14	Ectopic pregnancy ..	4	Friedman test negative, confirmed at laparotomy
15	Double uterus ..	33	
16	Polycystic ovary; punctured at 8 weeks	0, 5, 10, 31, 10, 9, 7, 9, 10	Daily pregnanediol assays; pregnancy continued
17	Dystocia dystrophia	92, 128, 78, 154	Daily pregnanediol assays at full term

the Friedman test may also be positive or negative, and it cannot be claimed that either test, or the two in combination, enables a definite diagnosis to be reached.

In both cases of proved hydatidiform mole the pregnanediol excretion was trivial, while chorionic gonadotropin was present in the usual large amounts. On the other hand, Case 8, clinically considered to be one of hydatidiform mole, was found to have both Friedman test and pregnanediol assay within the limits of normal pregnancy, and such it eventually proved to be. In Cases 9 and 10 hydatidiform mole was again suspected clinically; pregnanediol excretion was *nil* in both cases, but in one the Friedman test was positive undiluted only and normal pregnancy was the eventual conclusion, while in the other the Friedman test was negative and no further evidence of pregnancy was forthcoming.

The two cases of ante-partum haemorrhage showed pregnanediol excretions within normal limits for the periods of gestation, and the same applies to the case of pyelitis at the 29th week of gestation. In the case of ectopic pregnancy, both the Friedman test and the pregnanediol assay was misleading. The pregnanediol excretion in Case 16—that of polycystic ovary punctured at 8th week

of gestation—showed that the operation had not interfered with progesterone production and, accordingly, the pregnancy proceeded normally. In the last case—that of dystocia dystrophia—the pregnanediol excretion seemed to be excessive in view of the fact that labour, albeit of an ineffective type, had already begun.

Discussion

Before discussing the results reported above, it would seem desirable to point out why no mention has so far been made of the use of pregnanediol assay as a means of detecting ovulation in non-pregnant women. Sufficient studies have been made by various workers (e.g., Venning and Browne, 1937a, 1937b; Stover and Pratt, 1939; Hamblen, Cuyler, and Baptist, 1942, etc.) of the pregnanediol excretion during the luteal phase of the menstrual cycle to make it abundantly clear that the total excretion is so variable, and may be so small in apparently normal cycles, that only accurate techniques employed on complete collections of urine extending over several days (even the complete luteal phase) could hope to give indubitable evidence of corpus luteum activity. These requirements place the method entirely outside the realms of clinical practicability, and when it is granted that the basal body temperature record and the endometrial biopsy can give highly reliable results with very little effort, it must be conceded that pregnanediol assay can have no clinical value for this purpose.

The advantages claimed for pregnanediol assay as a diagnostic test for pregnancy were its rapidity (some three hours only are required for the Guterman method) and that it eliminates the inconvenience and expense of animal tests. The accuracy claimed by Guterman (1945) was 92.7% for 248 cases, the Friedman test in 201 of these being only 87.1% correct. Apart from McCormack (1946), who found complete agreement between pregnanediol assays and Friedman tests in 266 cases, no other observers seem to have achieved results at all comparable with these.

It is instructive to compare the published figures of the above authors with those of Reinhart and Barnes (1946) and Merivale (1948); this is done in Table VIII, which

TABLE VIII.—*Comparison of the Published Results of Various Authors with Pregnanediol Assay as a Pregnancy Diagnosis Test*

Author	No. of Patients	Percentage Accuracy	
		Pregnanediol Test	Friedman Test
Guterman	248	92·7	87·1
McCormack*	266	99·0	99·0
Reinhart and Barnes ..	130	69·2	—
Merivale	105	63·8	—
Swyer, Series I	110	67·5	91·0
" " II	101	82·0	98·0

* Omitting 30 cases of threatened abortion, all with negative pregnanediol and positive Friedman tests.

gives the overall accuracy figures. It is evident at once that there is close agreement between the results of Reinhart and Barnes, Merivale, and the first series reported in this communication, and gross disagreement of these findings with those of Guterman and of McCormack. Guterman (1945) has pointed out that his test should be restricted to patients with amenorrhoea who have not received progesterone therapy, but, as Reinhart and Barnes observe, the elimination of patients with vaginal bleeding or those who have received progesterone therapy materially limits the value of the test for routine clinical use.

Although in most of the published series the proportion of false positives is relatively low (that of Reinhart and Barnes is an exception), such results can be obtained in a variety of conditions—for example, the luteal phase of the menstrual cycle, which, if prolonged by a lengthened proliferative phase, might well lead to the clinical suspicion of pregnancy; corpus luteum cysts (Guterman, 1945; McCormack, 1946; Bender, 1948); arrhenoblastoma; a case of amenorrhoea with uterine enlargement due to metastatic carcinoma; and a case of salpingitis diagnosed clinically as ectopic pregnancy (Morrow and Benua, 1946). This last case is interesting in so far as it compares with a somewhat similar case reported in this paper, also with a "positive" pregnanediol excretion (24 mg./litre).

When all the available evidence is considered it seems impossible to escape the conclusion that the reliability of pregnanediol excretion is insufficient to warrant its use as a clinical method for pregnancy diagnosis. In its main claim, that of rapidity and convenience, it bears no comparison with the male-toad test, and, provided a supply of suitable animals can be assured, this test, or one of its modifications, would seem to fulfil all the requirements for clinical use.

Regarding the prediction of the fate of threatened abortion, once again the accuracy reported in the present series is far less than that claimed by Guterman (1946) (72.5% correct for 40 cases as compared with 93% for 73 cases). Bender (1948), however, has produced evidence that, using the Guterman test to differentiate cases of threatened abortion with high pregnanediol excretion from those with low outputs, and reserving treatment with progesterone for the latter only, a statistically significant increase in the salvage rate can be obtained; on the other hand, progesterone given to patients with threatened abortion with positive Guterman tests increased the likelihood of abortion. If this work can be substantiated, it would seem to be a really valid clinical application of pregnanediol assay. It is right, however, to point out that the administrative difficulty of obtaining the result of the test promptly, together with the necessity to wait for the first morning urine sample, may lead to delay in the exhibition of progesterone in those cases that warran it, the abortion perhaps becoming inevitable as a result.

In the diagnosis of complications of pregnancy, the result presented do not suggest that pregnanediol assays are likely to prove of much value except in the case of hyd[illegible] mole, in which pregna[illegible]iol seems to be [illegible] urine. It is true that [illegible]d be imp[illegible] generalize from the fi[illegible] two c[illegible] *point confirmatory sup[illegible]* sources: Guterman (19[illegible] cases of hydatidiform [illegible] reported the same results i[illegible] of seven cases, therefore, [illegible] suggest that absence of urin[illegible] clinically suspected as being h[illegible] a positive test for chorionic go[illegible] very substantially supports the dia[illegible] tion may be of great value at a[illegible] gestation, or in the case of multi[illegible] which conditions the gonadotrop[illegible] be so high as to give a positi[illegible] dilution.



If now the clinical value [illegible] pregnanediol assays from [illegible] abortion. from the evidence presen[illegible] laid down in the introdu[illegible]bortion have provided a tot[illegible]

*Since reading the proof[illegible]gnanediol assay; the distrib[illegible] case of hydatidiform mol[illegible] in Fig. 2, where the cases [illegible] dilution and absence of u[illegible] ever, has encountered tw[illegible]orted and those that did n[illegible] with "positive" pregnan[illegible]y different, but the overlap[illegible]

cluded that, in general, it has little to offer the practising clinician. It seems doubtful whether the relative inaccuracy of the methods suitable for clinical application can be held completely responsible for this state of affairs; rather should one ascribe it to the inherent variability of pregnanediol excretion both in the same and in different patients. Consideration of the factors responsible for this variability is beyond the scope of the present discussion, but it does seem permissible to observe that there are no solid grounds for believing that pregnanediol excretion reflects at all closely the progesterone levels of the blood, and undoubtedly the latter are of far the greater physiological significance. Simple direct means of assessing the blood progesterone would surely supply evidence of much more clinical value than could ever be expected from the pregnanediol excretion in the urine.

My sincere thanks are due to the members of the staff of the Obstetric Unit for their generous co-operation in these studies, and to Mr. A. A. Cernik for carrying out a large number of the assays, the results of which are recorded above.

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VESICO-BULLOUS DISEASES AFFECTING THE EYE*

BY

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There are few skin diseases which may not at some time involve the eye and its appendages. It is impossible to consider all of them here, even in the most summary way. I propose instead to survey a single group—the vesico-bullous diseases of internal origin—affecting the skin and mucous membranes. Even with this restriction the survey must necessarily be a brief one.

The more one considers the vesico-bullous diseases the more one is struck not by their clinical differences but rather by their essential similarities. A common factor seems to operate in all of them, producing a particular type of cell reaction. It is this which makes a study of the group of special interest. In some diseases a virus, in others an unknown toxin, exercises a destructive action on the mucosae or on the deeper cells of the epidermis, with resultant cellular liquefaction. This seems to release a physico-chemical force, which in turn increases capillary permeability and attracts the filtrate as well as the local tissue fluid to the injured area. In this way a vesicle is formed. When the hydrostatic pressure within the vesicle has reached a certain point the movement of the fluid is checked. Whether the vesicle breaks down to form an oozing erosion or not depends largely on the thickness of its roof. Naturally, in the conjunctivae and other mucous membranes the covering is thin and the vesicles are correspondingly transient, so that the clinical picture is a raw oozing surface, whereas the skin may still show intact vesicles. But though the distribution and clinical appearance in the different diseases of this group are varied and characteristic, histologically we can distinguish only grades of severity in an essentially similar reaction.

Percival and Hannay (1949) have published an excellent study of the pathology of bullous formation, from which the following interesting sentence is taken: "To state the problem differently, it can be asked why the exudate remains in the dermis in urticaria, becomes localized at the dermo-epidermic junction in dermatitis herpetiformis, in the rete mucosum in eczema, and under the stratum corneum in pemphigus foliaceus, when the mechanism which made the exudate available is common to all four conditions, and is in all probability initiated by a common factor."

The diseases of this group which affect the eye are: herpes simplex; herpes zoster; erythema multiforme, including the severe form known as the Stevens–Johnson syndrome; foot-and-mouth disease; Touraine's aphthosis; dermatitis herpetiformis; and pemphigus. (Conjunctival scarring is associated with other skin diseases, such as bullous eruptions following vaccination, erythroderma ichthyosiforme of Brocq in its bullous form, epidermolysis bullosa dystrophica acquisita, and congenital syphilis, but these conditions do not belong to the group under consideration.)

Herpes Simplex

This well-known disease is characterized by the often-repeated occurrence of little groups of blisters on a base of oedema and redness. Its virus origin is amply proved, and corneal inoculation of a rabbit gives positive results. In contrast with what occurs in many virus diseases the host develops no immunity. On the contrary, a local hypersensitivity often causes the same small patch to respond on each occasion. The lips and face are most frequently affected, but lids, conjunctiva, or cornea may suffer instead.

The evidence suggests that the virus is a saprophyte living in happy matrimony with the tissues until a *tertium quid* disturbs the harmony. This may be any one of a variety of agents which include cold, heat, sunlight, food, drugs, and bodily upsets. The injured cell then goes through the processes of liquefaction and vesicle formation already described. Individual eruptions heal easily and need only to be kept clean. But to prevent recurrence is a difficult matter. Irradiation of the affected area of skin with *x* rays may produce an alteration which increases local immunity, or repeated inoculations with smallpox vaccine may raise the general resistance, but disappointing results are common.

Herpes Zoster

This complaint is not transmissible by inoculation. But as specific antibodies have been found in the blood, and inclusion bodies have been demonstrated in the vesicles, the evidence is in favour of a virus disease. The cutaneous reaction is greater and deeper than in herpes simplex. Haemorrhagic, purulent, or necrotic vesicles may occur and leave severe scarring. Many cases have been described as

*Read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association, Harrogate, 1949.

sequelae of nerve infection or injury. So that here, again, it seems that a cell injury may open the door to a virus attack.

Herpes zoster is of special importance when it affects the eye, because of the risk of permanent injury. Becker (1948) has published a paper claiming good results in this condition by the injection of blood or serum from people who have recovered from the disease. This was for some time thought to be useless, because of statements such as that of Rivers (1939) that "convalescent blood or serum is of no value in the therapy of virus diseases, because by the time the disease is evident the organism has already penetrated the cell, a barrier which no antibody can transgress." Despite this view the method seems to give hopeful results. Becker used blood transfusions, blood plasma, and whole blood injections, with material taken from a donor any time from three weeks to two years after his having the disease.

Erythema Exudativum Multiforme

In 1866 Ferdinand Hebra described a disease affecting the face, the limbs, and sometimes the mucosae. The rash, as the name suggests, takes on many forms, such as macules, weals, bullae, or large annular or serpiginous plaques, of an angry blue-red colour. The eruption is short-lived but often recurrent. A somewhat similar rash, more rosy in colour and more varied in its distribution, can be elicited by a wide range of toxins. It is not clear whether Hebra's erythema multiforme is a specific entity or not. Ocular involvement generally takes the form of a pseudo-membranous conjunctivitis which may lead to shrinkage or uveitis. Lacrimation and photophobia are also seen, and corneal ulceration and perforation have been described. No causative agent has been found.

In 1922 Stevens and Johnson described a severe form of erythema multiforme which, in English-speaking countries, is now generally known under their name. An earlier account had, in fact, already been published by Rendu in 1916 under the name of "ectodermose érosive superficielle," and the condition is also referred to as "dermatostomatitis" or "eruptive fever with ophthalmia." This begins acutely with a rash like erythema multiforme, but the general symptoms are much more severe and the patient is feverish and looks gravely ill. The eyes, mouth, and genital mucosae are so inflamed and eroded as to be extremely tender, so that micturition becomes an ordeal and feeding may have to be done through a tube. Despite this disturbing start, improvement takes place in a week or ten days, and recovery is usual in about three weeks. Unfortunately, the eyes may be irreparably damaged. The conjunctivitis may leave adhesions or scars, or the corneal damage may end in opacities or in perforation. An effort should be made to keep the lids open with tiny strips of adhesive tape, but on account of the photophopia the patient is apt to struggle against this.

Patz (1947) made a study of six cases. He tried various methods of discovering a virus by making smears from the conjunctiva and vagina, by complement-fixation tests with psittacosis antigen, by cultures in chick embryos, and by the intracerebral and intraperitoneal injection of vesicular fluid into rabbits, guinea-pigs, and mice. All results were negative.

Vincent's stomatitis has been found associated with erythema multiforme in three cases, and it was suggested that the fuso-spirochaete, by altering tissue sensitivity, might lead to the Stevens–Johnson syndrome. But proof of this is not forthcoming, and the association of the two complaints has scarcely ever been found.

Anderson and his colleagues (1949) claim to have found a virus with cytoplasmic inclusion bodies following rabbit cornea inoculation. Their study was limited to one case.

Treatment is symptomatic. Nicotinic acid is said to be of use, but as most cases clear up spontaneously it is difficult to be sure of its value.

Foot-and-Mouth Disease ("Fièvre Aphtheuse")

This may be acquired by direct contact with infected animals or, less often, by drinking their milk. The distribution is not unlike the preceding condition, but the skin around the nails is chiefly affected and the lips and mouth are dry and burning, whereas in the Stevens-Johnson syndrome lesions are more often seen on the wrists and ankles, and there is profuse salivation. Ocular involvement is not common. If there is any difficulty in diagnosis, guinea-pig inoculation in foot-and-mouth disease gives a positive result.

Touraine's Aphthosis

There is a fearsome dermatological jungle in which various diseases with resounding eponymous titles struggle for life. They are the chronic erosive conditions affecting the eyes, mouth, and genitalia. Each specialist is naturally absorbed in his own field, which for him takes precedence of all others, and so a number of syndromes have arisen, such as Sutton's (1911) "periadenitis mucosae necrotica recurrens," Loblowitz's (1910) "ulcus neuroticum oris et vulvae," Lipschütz's (1923) "acute vulval ulcer," "pustulo-ulcerous balanitis," and others. Behcet (1937, 1940), a Turkish dermatologist, described a triple symptom-complex in which all three areas—eyes, mouth, and genitalia—are affected simultaneously or in sequence. Little round or oval ulcers with yellow sloughs succeed one another in the mouth, vulva, or glans penis, associated with inflammation of the cornea, conjunctivitis, or sclera. The skin has a tendency to develop acneiform pustules or deep-seated lesions of the erythema nodosum type.

In 1941 Touraine made an extensive study of this whole group. He suggests that the various conditions belong to one single systemic disease, which he ascribes to an ultra virus, and to which he gives the name "aphthosis." He thinks that this agent, like the virus of herpes simplex, becomes established in the body and manifests itself clinically when for divers reasons the individual becomes anergic. Touraine divides his aphthosis into three groups according to severity and extent.

1. A generalized form, affecting the skin, mucosae, and joints. This is severe and starts with fever and general systemic disturbance.

2. A milder form, involving the mouth and genitalia, with few scattered vesico-pustules on the skin.

3. Aphthosis of the mucosae alone, in the form of small recurrent ulcers, or, less often, a single large ulcerative area which may be mistaken for a venereal infection. There is much variety in the severity and duration of the ulcers, and also in the length of the free periods. Recurrences may be precipitated by any bodily upset, such as infectious fevers or pregnancy, or by local trauma or operative procedure.

Touraine's view is substantially in accord with Whitwell's (1934) conception of "embolic showers" causing necrotic apthae in mucosae and skin. It may be that future research will show the conception of "aphthosis" to have over-simplified the problem. But until further knowledge is obtained the harassed dermatologist can only feel relief at having so many odd sheep neatly penned into one fold.

Dermatitis Herpetiformis

It is unnecessary to dwell on the clinical appearance of this well-known disease, particularly as the eyes are rarely affected. Only a few points of special interest will be mentioned. There is a special sensitivity to iodine, and in one case involving the eyes and nasopharynx painting with iodotannic spirit produced a disastrous exacerbation. There is some evidence that hypersensitivity to a bacterial toxin may be an important aetiological factor. It is often possible to control the disease, and sometimes even to cure it, by long-continued small doses of sulphapyridine. The aim is to raise the resistance of the body rather than to eliminate the supposed toxin.

Pemphigus

The cause of pemphigus is unknown, and it follows that the validity of the different divisions or varieties is still uncertain. Dermatologists, however, clearly distinguish between four clinical types—acute pemphigus, chronic pemphigus or pemphigus vulgaris, pemphigus foliaceus, and pemphigus vegetans. Acute pemphigus is a fulminating disease generally occurring in people who handle animal carcasses. It begins on the hand and spreads over the whole body, leading rapidly to death in 80 to 90% of cases. In pemphigus vulgaris the development is more insidious, but, according to Lever and Talbott (1942), death occurs in 83% within one year of onset and in 97% within two years. It follows from these figures that treatment does no more than alleviate the symptoms. Grace and Hellman (1946), however, claim to have cured two cases of pemphigus vulgaris with blood transfusions from two patients who had recovered. One cannot generalize on the strength of two cases, but as spontaneous cure is rare this claim is of great interest.

A brief survey of the literature on ocular pemphigus reveals an almost inextricable confusion, and the term is manifestly used in the loosest way. One author talks of "ocular pemphigus" under one heading and "pemphigus vulgaris with ocular involvement" under another. A different prognosis and a different racial distribution are given, but no criteria for distinguishing one from the other. Klauder and Cowan (1942) have stated the issue clearly. They use the original term "essential shrinkage of the conjunctiva," and believe that this occurs in a number of dermatoses, of which some are very rare. The list includes: severe erythema multiforme or the Stevens–Johnson syndrome; bullous eruptions following vaccination; erythroderma ichthyosiforme of Brocq in its bullous form; dermatitis herpetiformis; epidermolysis bullosa dystrophica acquisita; and congenital syphilis.

Klauder and Cowan would confine the term "ocular pemphigus" to a benign affection of old age often associated with pemphigus of the nasopharynx and with a trivial bullous eruption of the skin, especially of the lids and face. The genitalia may also be involved. It is not found more often in Jew than in Gentile, though, as is well known, the Jewish race is particularly sensitive to pemphigus vulgaris. The question therefore remains to be answered, Is ocular pemphigus a special entity with a benign course, occurring late in life and with no particular racial distribution, or is it a mild form of pemphigus vulgaris, to which disease Jews are so sensitive that if affected at all they develop the severe form?

Discussion

A group of diseases exist which produce vesicles or bullae, breaking down into erosions of the skin or mucous membranes. Despite clinical differences the histopathology is essentially similar throughout the group. Some are caused by viruses; in some no virus origin can be discovered. A connecting thread seems to run through the group, as shown by a symmetry of distribution and a susceptibility to precipitating factors of many different kinds which alter the reactivity of the cell and lead to its liquefaction. Somewhere in this complexity we should be able to find the master key which would fit all the doors. It may be that this will be given to us by research in pure science, and, indeed, this seems already possible. Before the war Peters (1936), considering the biochemistry of the cell and the perpetual shuttle of its metabolic life, made an incidental note of the fact that very small quantities of arsenic could, as it were, stop a cell "breathing" by interfering with one of its enzyme systems—the pyruvate oxidase system, which is instrumental in breaking down glycogen or glucose into carbon dioxide and water. At the onset of war, when scientists were directed to problems of immediate practical importance, the Department of Biochemistry at Oxford, under the charge of Professor Peters, began to consider possible antidotes to arsenical poisoning in the form of lewisite. This earlier observation provided a starting-point for research, and in a short time Thompson (quoted by Carleton *et al.*, 1946) discovered that a dithiol—dimercaptopropanol—could combine with arsenic and even remove it from the cell, to be harmlessly excreted in the urine.

Now, acute arsenical dermatitis has features not unlike the diseases we have been considering. A drop of lewisite on the skin brings out a large bulla. In the conjunctiva it produces a penetrating destruction of the eye. In arsenical poisoning, such as may arise in the treatment of syphilis, bright-red blotches appear on the limbs and spread to a generalized exfoliative dermatitis. Interference with a single enzyme system can therefore cause cellular liquefaction and breakdown. A known poison acting in an understood manner produces results which are partly reversible by an antidote of known chemical composition. In the vesico-bullous diseases, we know neither the poison nor its precise manner of acting, still less the antidote. But we have here an excellent example of the fruitfulness of correlating clinical with purely scientific research in the solution of our joint problems.

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RETINAL ARTERIAL OCCLUSION IN MIGRAINE

BY

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The occurrence of retinal arterial spasm in the early phases of attacks of migraine has occasionally been described. Unfortunately, an opportunity of examining the optic fundi at such times seldom presents itself, and therefore the frequency and distribution of arterial changes are unknown.

When retinal spasm is severe an occlusion of the affected vessel may occur, leading to a permanent defect in the field of vision. This is a rare complication, but one of much greater theoretical importance than its infrequency would suggest. Such cases supply direct evidence that the pre-headache phenomena of migraine are due to vasospasm. For this reason the following cases are worth recording.

Case 1

A girl aged 17 first attended hospital in April, 1948. From the age of 7 she has had periodic "bilious attacks" without headache. Her attacks of migraine began early in 1947 and have occurred at approximately monthly intervals. Until March, 1948, they were all similar in type, beginning with a whirling sensation surrounded by coloured lights and zigzag formations which started in both eyes simultaneously in the temporal half of the fields and spread to involve central vision. This teichopsia usually lasted about 10 minutes and disappeared suddenly, to be succeeded sometimes by a throbbing headache situated in the fronto-temporal region on both sides. The headache was equally short-lived, never lasting longer than about a quarter of an hour.

In March, 1948, she suddenly developed a blurring of vision in the right eye and thought that one of her usual attacks was starting. Instead the blur persisted and no headache followed. She noticed that the visual defect was present only in the right eye, and that it was situated below and to the left of whatever she looked at. It had remained unchanged for three weeks before her first visit to hospital.

Examination.—The only abnormalities to be found were in the right eye. Ophthalmoscopy revealed an occlusion of the superior temporal retinal artery at a point about half a disk diameter from where it crossed the disk margin. From this point the vessel continued as a fine thread from which no light reflex was seen. In the macular area just above the fovea there was a small area of retinal oedema. The disk itself was normal. The field of vision showed a hemianopic defect in the lower half-field, especially on the nasal side (Fig. 1). This did not involve the fixation point, so that her visual acuity remained normal: 6/5 J1. Her cardiovascular system was normal; the blood pressure was 130/85. Blood Wassermann reaction was negative. There was no family history of migraine.

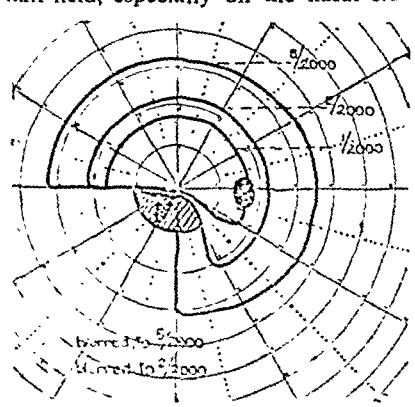


FIG. 1—Case 1. Field of vision of right eye, April, 1948: showing a defect in the lower half-field, particularly on the nasal side, together with a paracentral relative scotoma in this sector.

She was seen again in December, 1948. In the intervening nine months she had had eight further attacks of migraine—all consisting of headache preceded by scintillating scotoma formation in both visual fields. The defect in the right visual field had improved a little and was now confined to the inferior nasal quadrant (Fig. 2). Fundal examination still showed an occlusion of the superior temporal retinal artery, and the superior temporal portion of the optic nerve-head was now pathologically pale. The macular oedema had disappeared. Her visual acuity remained 6/5 J1 in the right eye.

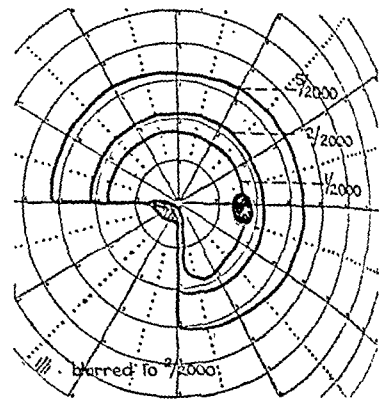


FIG. 2.—Case 1. Field of vision right eye, December, 1948: showing improvement in both the sector defect and the relative scotoma.

Case 2

A woman aged 35 was first seen in October, 1948, complaining of impaired vision in the right eye. For the previous two years she had suffered from attacks of migraine at approximately monthly intervals. These attacks would start with a scintillating scotoma in the right homonymous fields of vision, which lasted for about 10 minutes and was then followed by a bifrontal headache. This was never very severe and lasted no longer than half an hour. Only once or twice had vomiting occurred in the attacks.

In June, 1948, she had two attacks of teichopsia—flashes, spots, zigzag formations—in the right eye only. The first lasted 10 minutes, the second half an hour, but neither attack was followed by headache.

On September 21 at 11 a.m. she suddenly developed a dazzling sensation with spots and flashes of light all over the right visual field. Within a minute a patch of blackness appeared in the upper nasal quadrant of the right field. The dazzling sensation lasted until 4 p.m. and then disappeared, but the blackness remained and obscured vision in this quadrant. No headache followed the attack. She was first seen a month after this episode. In the interval there had been no subjective change in the visual defect in the right eye.

Examination.—Abnormalities were confined to the right eye. In the fundus the retinal arteries were all quite distinctly thinner than in the left eye. The inferior temporal vessel was particularly narrowed, being threadlike in appearance and showing no light reflex. The retinal veins were normal. The disk itself was normal, except for the inferior temporal sector, which was paler than the rest. The retina adjacent to the disk at this point was slightly swollen and blood-streaked. Visual acuity: 6/6 J1 right and left. The right field of vision (Fig. 3) showed a defect in the upper nasal quadrant extending a little into the upper temporal quadrant and corresponding to the occlusion of the inferior temporal artery. The cardiovascular system was normal, and the blood pressure 135/80. The blood Wassermann reaction was negative.

She was seen again two months later, in December. She had had no further attacks of migraine. The right field of vision had improved a little, though she was still blind in the upper nasal quadrant. The fundal appearances were unchanged, except that the retinal oedema had now disappeared.

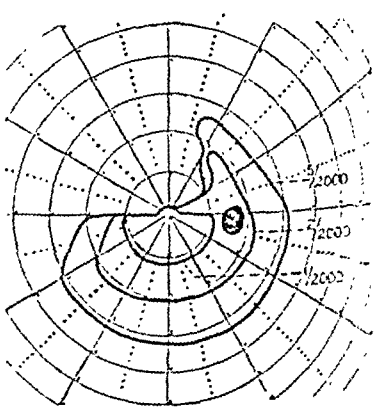


FIG. 3.—Case 2. Field of vision right eye, October, 1948: showing a defect in the upper nasal quadrant and the adjoining part of the upper temporal quadrant.

Case 3

A woman aged 31 was first seen in 1942, when she was 24 years of age. Three years previously, while washing her face one morning, she suddenly lost the sight of her right eye. There was no accompanying headache or ocular pain. For three or four hours the blindness was complete, and then vision returned in the upper half of the field, so that she was left with an inferior altitudinal hemianopia. She was then otherwise symptom-free for about six months. Thereafter, however, she began to suffer from attacks of blurring of vision in the remaining superior half-field associated with ocular pain. These attacks have occurred at intervals of about three months ever since. They begin with a sudden stab of pain over the right eye, which is followed by a sharp pain in the eyeball lasting several minutes. At the same time vision in the lower half-field becomes blurred and remains so for about three hours. There is no family history of migraine.

Examination.—In 1942 the only abnormalities were in the right eye. The field of vision showed an incomplete inferior altitudinal hemianopia with macular sparing (Fig. 4). The superior temporal and nasal retinal arteries were much smaller than the inferior vessels in this eye. In 1948 there was no change in the field defect in the right eye or in the calibre of the affected vessels. Her right disk showed an optic atrophy limited to the superior half of the nerve-head. Visual acuity was 6/5 J1 in the right eye. Neurological examination was otherwise normal. Her blood pressure was 110/75, and the heart and peripheral arteries were normal. The blood Wassermann reaction was negative.

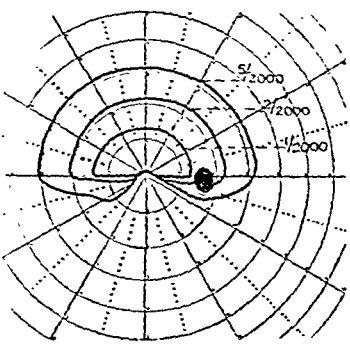


FIG. 4.—Case 3. Field of vision right eye, March, 1942: showing an inferior altitudinal hemianopia.

Case 4

A girl aged 16 was first seen in May, 1948. Between two and three years previously she had had two or three attacks of sudden transient blurring of vision in the left eye, each lasting no longer than a minute and not followed by headache. Then in June, 1946, she developed an influenza-like illness with coryza, generalized aches and pains, malaise, and fever. She went to bed, and after two days felt normal again. On the third day, while lying in bed on her right side, she suddenly saw "black clots" in the left field of vision. Within seconds she became blind in the eye except for a little blurred vision in a small central area (imperfect macular vision). No headache followed this attack of blindness, which has since persisted unchanged.

A year later she began to experience right-sided headaches. She would get pain of a throbbing type over the right brow which came on quite abruptly and lasted up to 20 minutes. At first the headaches were frequent—several times a week—and came on whenever she did a good deal of close work—e.g., reading or sewing. Latterly she had avoided these activities, with a corresponding reduction in the number of her attacks.

On two occasions, in August and September, 1947, she had attacks of scintillating scotoma in the right eye. In the first she suddenly developed a bright dazzling light covering the centre of the right field of vision. After a few minutes this broke up and expanded peripherally, leaving the centre clear, and finally disappeared from the periphery after about 10 minutes. No headache followed. The second attack was very similar but of shorter duration, and again was not followed by headache. There is no family history of migraine.

Examination.—Vision in the left eye was reduced to 6/36 J18. The optic disk was small and atrophic. The retinal arteries were all thin and did not reflect light. The macular area was normal in appearance. The changes were those of an occlusion of the central artery of the retina. The left field of vision was restricted to a small area around the fixation point (tubular vision). The left pupil did not react to direct light, whilst the right pupil failed to react consensually. The right eye was otherwise normal—visual acuity 6/5 J1. There were no other neurological abnormalities, and the cardiovascular system was normal. Her blood pressure was 135/85. The blood Wassermann reaction was negative.

Discussion

The evidence available from both clinical and experimental observation suggests that the symptoms of migraine result from alterations in the calibre of blood vessels in the head, and that both intracranial and extracranial vessels take part in this process. In a fully developed attack two stages are recognized: (1) the stage of pre-headache symptoms—e.g., visual disturbances, paraesthesiae, asphasia—which are thought to be due to functional disturbances of cortical cells secondary to the anoxaemia produced by intracranial angiospasm; and (2) the stage of headache produced by an excessive dilatation, particularly of extracranial arteries, which stimulates the pain nerve endings accompanying these vessels.

Although a vascular theory of migraine was first propounded as long ago as 1870 by du Bois Raymond, it is only in the last decade or so that adequate proof of its occurrence has been obtained. This has been largely due to the work of Wolff and his collaborators, excellently summarized in a recent publication (Wolff, 1948). Their experiments have shown quite clearly that the intensity of the migraine headache is proportional to the degree of dilatation of extracranial arteries, and that the relief from headache achieved by drugs such as ergotamine tartrate is directly related to the degree of vasoconstriction produced.

Whilst the mechanism of headache production is now no longer in doubt, evidence that the prodromal symptoms are the result of intracranial vasospasm has largely been indirect. There are numerous records of patients who have been left with a permanent homonymous visual-field defect after a migrainous attack. A recent case has been described by Rich (1948), and references to previous cases are given in his article. It has been assumed that in such patients arterial spasm has been so intense as to lead to thrombosis and subsequent cerebral softening. Where pathological proof is lacking, however, criticism may be made that such defects may be caused by an underlying vascular abnormality—e.g., an aneurysm or angioma—and that the migraine is of a "symptomatic" rather than a "primary" type. An instructive example of this is mentioned by Kinnier Wilson (1940)—that of a man of 45, a "life-long martyr to migraine," who for 20 years had had a fixed homonymous quadrantanopia, ultimately proved to be caused by a blood-vessel tumour. Adie (1930) described eight cases of permanent hemianopia following migraine attacks. Seven occurred in men—an unusually high proportion for primary migraine. One had had an attack of subarachnoid haemorrhage, which strongly suggests the existence of a structural vascular abnormality.

Evidence of the existence of vasospasm has been accumulated in other ways. James (1945) has shown that a vasodilator drug (carbachol), given regularly, is effective in reducing the frequency of attacks. Wolff in one case was able to show that the inhalation of amyl nitrite, in sufficiently low concentration to produce vasodilatation without a fall in blood pressure, would cause the disappearance of a scintillating scotoma, whereas the latter increased in size when the concentration was great enough to produce hypotension.

That these vascular changes probably produce their effects on the cerebral cortex is shown by the electroencephalographic findings of Engel, Ferris, and Romano (1945). They found that the development of hemianopic teichopsia was accompanied by alterations in the wave pattern from the posterior part of the contralateral hemisphere. In five cases examined during the initial phase of an attack slow irregular 5–7 c/s waves were recorded whilst the visual phenomena lasted and for a brief period afterwards.

Proof of the occurrence of vasospasm in the early stages of a migraine attack is therefore largely circumstantial. The occasional development of retinal arterial occlusion, however, offers more direct and visible evidence, for it seems altogether probable that such thrombosis is secondary to spasm of the affected vessel. Very few such cases have been published.

Galezowski (1882) was probably the first to record such an occurrence. He described four patients afflicted with migraine in each of whom uniocular loss of vision had occurred in relation to attacks of headache. In two, thrombosis of the central artery of the retina was found, one developed an occlusion of the superior branch, whilst the fourth showed peripheral retinal arterial thrombosis with fundal haemorrhages. Their ages ranged from 15 to 67.

Löhlein (1922) described the case of a man who had suffered from attacks of migraine since the age of 20. At the age of 37 he had a nocturnal attack of headache and vomiting; the following morning there was blindness in the left eye. Vision was reduced to the recognition of hand movements in a small peripheral portion of the field and showed no subsequent improvement. Optic atrophy developed, and the condition was considered to be due to a haemorrhage into the optic nerve. Five years later, at the age of 42, a similar attack was followed by blindness in the right eye due to extensive retinal and vitreous haemorrhage, vision later improving. At the age of 46 another attack occurred, reported by Wegner (1926), which resulted in complete blindness and total optic atrophy in the right eye. It seems probable that an occlusion of the central artery of the retina, secondary to vasospasm, was the underlying mechanism of these attacks. Retinal haemorrhage in migraine has also been recorded by Brasch and Levinsohn (1898) and by Vallery-Radot *et al.* (1937), and was seen to a slight extent in Case 2.

Hunt (1915) reported the case of a woman of 31 who had suffered from attacks of migraine since childhood. After a nocturnal attack she noticed a blurring of vision in the right eye and on examination was found to have a central scotoma and some oedema of the nerve-head. These changes regressed and after a period of two months central vision had returned to normal, although a slight pallor of the disk was present. Hunt described the condition as a retrobulbar neuritis and visualized the cause as a vascular lesion in the optic nerve.

The best-documented case is that of Grönvall (1938). His patient was a girl who had begun to suffer from attacks of scotomata and, occasionally, giddiness followed by headache, at the age of 12. At the age of 18 she developed a sudden giddiness associated with a sensation of spots before the eyes. Within a few minutes she became totally blind in the right eye. After a further ten minutes vision returned to the lower half-field of vision, but the upper half remained greyish-black. When examined the following day there was an area of retinal oedema between the disk and the macula; the inferior temporal retinal artery was occluded, and perimetry revealed a defect in the upper nasal quadrant and an adjoining portion of the upper temporal quadrant of the field of vision. The oedema subsided after a month and the field defect showed a slight improvement, but the arterial occlusion remained permanent.

Walsh (1947) records brief details of several patients who suffered from transient attacks of unilateral and bilateral blindness which were sometimes followed by migrainous headaches. One patient developed permanent occlusion of the central artery of the retina in an attack occurring four days after parturition.

Finally, Grimsdale (1940) has written an interesting description of his own personal experience of an attack of retinal arterial spasm, which resulted in an occlusion of a branch of the superior temporal vessel.

Of these nine recorded cases of retinal arterial obstruction in migraine four have occurred in the central artery of the retina, giving rise to severe uniocular blindness; four occurred in peripheral branches, producing sector field defects; and one (Hunt's case) developed a central scotoma, possibly the result of an occlusion of an intraneural branch of the central retinal artery. In the four cases recorded here, one has involved the central retinal artery and three its peripheral branches.

No age group seems particularly predisposed to these complications; there is certainly no evidence that increasing age and coincident arteriosclerotic changes render the migrainous subject liable to such sequelae, for they have affected young and old alike. In the cases described here there were no signs of local retinal or generalized arterial disease, nor was there evidence of any possible source of emboli. Cases 1 and 2 suffered from attacks of migraine before the onset of the retinal occlusion, whilst in Cases 3 and 4 the occlusion was apparently the first symptom of the disease.

Migraine should therefore be considered as a possible cause of those cases of retinal occlusion, occasionally experienced in practice, in which no cardiovascular disease can be found. The condition is probably less uncommon than its recorded occurrence might suggest. Three of the four cases here described have been seen within a period of 12 months. Their interest lies chiefly in the fact that they provide further evidence that the symptoms of migraine are the result of vasomotor disturbances in the territory of cranial blood vessels.

Summary

Four cases of retinal arterial occlusion occurring in migraine are reported. In one case the central artery of the retina was affected; in three cases occlusion occurred in a single peripheral branch.

Such cases provide evidence for the theory that the pre-headache phenomena of migraine are due to vasospasm.

I wish to thank Dr. F. R. Ferguson for his permission to publish the records of cases under his care.

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STUDIES IN PRIMARY PLEURISY WITH EFFUSION*

BY

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This paper is on the subject of primary pleurisy with effusion and is not concerned with effusions arising in patients with established pulmonary tuberculosis. The pathogenesis of such cases is not difficult to imagine, though it is a curious fact that so many occur in patients with old-standing, often calcified, and apparently inactive pulmonary lesions, and that the prognosis is remarkably good (Thompson, 1947a). These can properly be called "secondary" tuberculous pleural effusions. The fluid which may form in the course of artificial-pneumothorax treatment is perhaps a special case in this group.

The "primary" effusion of my definition formed the subject of a previous investigation in which 190 cases were studied over a period of years, with follow-up results which were virtually complete, including regular routine radiography of the chest (Thompson, 1946, 1947b). Although by definition coexisting or preceding pulmonary tuberculosis was not present in this earlier series of cases, radiographs sometimes revealed lesions within the thorax that were typical of the tuberculous primary complex of Ghon. These lesions were characterized by enlargement of the hilar lymph glands, or by parenchymal infiltration, or by both together, sometimes including evidence of bronchial stenosis or atelectasis of a broncho-pulmonary segment. Where a parenchymal lesion was apparently alone, this was of the primary-infection type in which the glandular component could reasonably be regarded as radiologically invisible. These intrathoracic lesions were known sometimes to have preceded the pleural effusion; in no case did the effusion come first. In some cases the effusion occurred on the same side as the pulmo-glandular complex; in others it occurred on the opposite side.

Follow-up showed that 25% of all cases developed tuberculosis within five years. The earliest evidence of this subsequent disease often occurred within a few months, soon enough to indicate that it was directly associated with the preceding pleural effusion, and that it was not, for example, a further tuberculous infection from an outside source. In nearly one-half of the cases of subsequent tuberculosis, this became evident within the first year of observation. Two-thirds of the remainder occurred within the second year. None occurred later than the fifth year. The incidence, course, and prognosis of the subsequent tuberculosis was not apparently related to the age of the patient or his social state, or to such clinical conditions as the magnitude of the effusion, the degree of toxaemia, or the presence of demonstrable intrathoracic primary lesions. Nor, contrary to the opinion of Trudeau (1939), was there evidence that any treatment, or absence of treatment, of the original condition influenced the ultimate course of the disease.

Since the publication of the above studies, opportunity has arisen for observing the development of pleurisy with effusion from its earliest beginnings in persons already under observation, especially among nurses and medical students at Dunedin Hospital, who undergo regular tuberculin testing and *x*-ray examination as part of their routine medical care. The following selected case histories are presented as clinical illustrations of some of the factors involved.

*Paper read at a meeting of the Royal Australasian College of Physicians in Dunedin on September 8, 1948.

Case Reports

Case 1.—A student nurse aged 28 was negative to intradermal injection of tuberculin P.P.D. first and second strength on entry in March, 1946, and again in June. At her next routine examination in January, 1947, she gave a 4-plus reaction to P.P.D. first strength, and a radiograph showed involvement of the left lung and tracheo-bronchial glands typical of primary tuberculosis. Though well and without symptoms, she had evidently incurred a recent primary infection, probably a few weeks previously, when she had complained of a transient malaise and sore throat, but without reporting sick. After a month's leave at home she returned to duty. In July an acute left pleurisy with effusion supervened.

Comment.—This is a case of typical primary tuberculous infection in a previously uninfected adult with an intrathoracic primary complex, followed by pleural effusion on the same side six months later. Such an interval is regarded as about the average duration between the entry of tubercle bacilli and the development of pleurisy, but there are wide variations. Delay for a longer period is easily explained by the traditional latency of tuberculosis. The shortest period I have seen was in Case 2.

Case 2.—A student nurse aged 19 was negative to both strengths of P.P.D. on entry in September, 1945, and again in June, 1946. Sixteen weeks later she developed an acute left-sided pleurisy with lymphocytic effusion. Three weeks after that an effusion also occurred on the right side.

Comment.—A pleural effusion occurred four months after a negative tuberculin test and therefore not more than 10 weeks from the latest possible date of conversion to tuberculin-positivity, according to the accepted incubation period of about six weeks following primary infection (Wallgren, 1945). The subsequent contralateral pleurisy also occurred with unusual rapidity, and with no indication of its causation. The patient made an uneventful recovery and eventually returned to duty.

Case 3.—A nurse aged 18 on entry in 1942 was Mantoux-negative at that time and was repeatedly negative up to January, 1946, when she was found to be negative to the first strength of P.P.D. but positive to the second strength. The chest radiograph was clear. In September, 1946, she developed cough and pain in the left side. A pleural friction-rub was heard in the left axilla, corresponding to *x*-ray evidence of a pulmonary lesion of primary type, and the E.S.R. was 18 mm. Four months later a pleural effusion occurred on the opposite side.

Comment.—Pleural effusion developed contralateral to a primary tuberculous pulmonary lesion, over which dry pleurisy had been noted but which had not led to the formation of fluid. As in Case 3 there was nothing to suggest a haematogenous spread of disease. The passage of infection from the left to the right hemithorax could, however, have been by way of the mediastinal lymph glands.

Case 4.—A student nurse aged 23 was Mantoux-negative on entry in 1944. In January, 1946, she was still negative to both strengths of P.P.D., but 12 weeks later the sites of both these intradermal injections became acutely inflamed. A radiograph showed enlargement of glands in the left hilum (Fig. 1). She developed an irritative cough towards the end of the year, and in March, 1947, was found to have an accumulation of fluid between the upper and lower lobes of the left lung (Fig. 2), which was aspirated and replaced by air. Though no pulmonary lesion could be seen, she had a productive cough with tubercle bacilli in the sputum, and in view of a localized wheezing

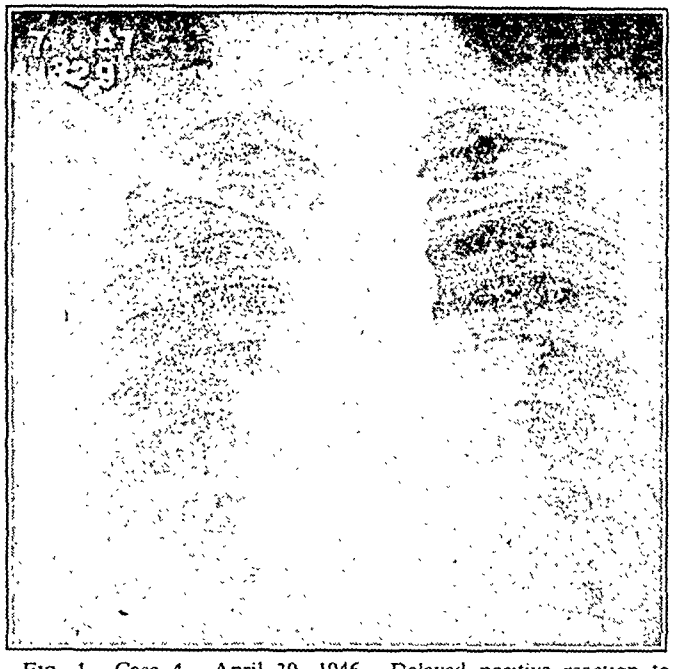


Fig. 1.—Case 4. April 30, 1946. Delayed positive reaction to Mantoux tests done 12 weeks previously. Left pleural effusion occurred 10 months later.

respiration it was suspected that the caseous gland mass had broken through into the bronchial tract. This was confirmed by bronchoscopy, which revealed an ulcerated area on the anterior aspect of the left main bronchus, just proximal to its upper division. After prolonged sanatorium treatment, during which she became entirely free from symptoms and from recoverable tubercle bacilli, she developed an acute pleural effusion on the right side, just 24 months from first becoming tuberculin-sensitive.

Comment.—The phenomenon of delayed reaction to tuberculin retained in the skin through the period of primary infection (Daniels, 1943) enables the date of that infection to be fixed very exactly. This nurse must have received her first dose of tubercle bacilli in the second



Fig. 2.—Case 4. March 8, 1947. Lateral view showing fluid lying in the interlobar fissure.

fortnight of February, 1946, her left-sided effusion appearing 12 months later, with persistence of the glandular component of the primary complex throughout that period. It may be significant that the fluid spread from the hilum in the interlobar fissure without extending widely over the costal surface, which it was quite free to do, as the subsequent artificial pneumothorax showed (Fig. 3). The mass of caseous glands radiologically seen at the hilum were found to press on and to erode the adjacent bronchus. It is reasonable to suppose that these same glands could similarly involve the pleural sac, lying as they do against its hilar reflection, and that extension to other lymph glands in the mediastinum could reach the opposite pleura, producing there the later effusion.

Case 5.—A medical student aged 22 was Mantoux-negative up to his final year, when he incurred a brief febrile illness with cough and chest pain. A radiograph showed a left-sided primary tuberculous complex. Ten months later an effu-

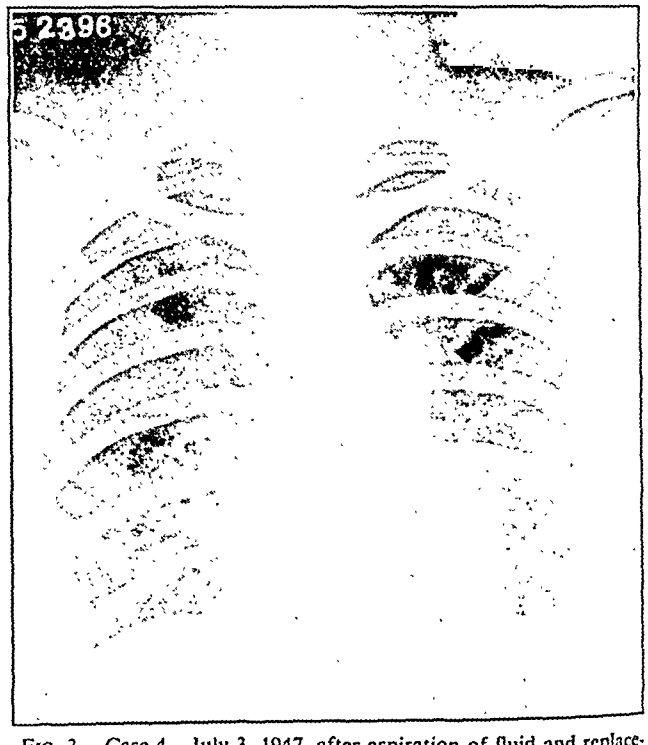


Fig. 3.—Case 4. July 3, 1947, after aspiration of fluid and replacement by air. A free pneumothorax is present, with some displacement of the heart to the right.

sion developed on the same side, associated with very severe toxic disturbance. Despite repeated aspiration the fluid always re-formed rapidly. His temperature remained high and he gradually declined into an almost typhoid state. Impaired percussion and bronchial breathing were found to the right of the sternum, and a small effusion eventually formed in the right pleural cavity. The clinical picture and *x*-ray appearances suggested the presence of so large a caseous gland mass as to constitute a tuberculous mediastinitis, with pressure atelectasis of the right lung base. After air-replacement of the left-sided effusion, a thoracoscope was introduced. There were no tubercles to be seen, but the pleura was intensely pink, and fine filamentous adhesions, easily separable, were forming between the upper lobe of the lung and the parietal pleura. Parenteral streptomycin was begun, 0.5 g. twice daily, with immediate and dramatic results. Within two days his temperature fell to normal, his appetite returned, apathy abated, and recovery steadily advanced to convalescence.

Comment.—The pleural effusion followed a primary tuberculous complex on the same side, and spread to the other side apparently by way of the mediastinum. Miliary

disease was excluded by thoracoscopy. Striking features were the unusual degree of toxaemia, so great that a fatal issue looked likely, and the prompt response to streptomycin.

Case 6.—A woman doctor aged 24 was Mantoux-negative throughout her training, and up to December, 1947, when for some weeks she experienced vague malaise, culminating in an outbreak of erythema nodosum. A radiograph showed a lesion in the right upper lung field typical of primary tuberculosis. On strict rest in bed her temperature fell from 100° F. (37.8° C.) to normal and her E.S.R. from 25 to 6 mm., and her general condition rapidly improved. Her only symptom occurred 16 weeks from the onset of the skin eruption—a transient pain beneath the right scapula aggravated by deep inspiration. There were no physical signs, but a radiograph showed a slight peripheral spread of the earlier lung lesion, with definite pleural reaction.

Comment.—The primary infection was marked by the occurrence of erythema nodosum. Pleurisy ensued on the same side as the primary lesion, clearly as a result of local spread from its pulmonary component. There was no constitutional upset and no rise of temperature, while the E.S.R. remained well within normal limits during this latter episode.

Case 7.—A schoolgirl aged 15 was examined as a contact of her father, who had recently died from acute pulmonary tuberculosis. She was found to have an active primary complex on the right, with contiguous bronchopneumonic spread from the focus in the lower lobe. This localized extension increased under conditions of strict rest in bed, and eight weeks later a right pleural effusion supervened. Thereafter she showed steady clinical improvement and was discharged from sanatorium 12 months later, in excellent condition, to live quietly on the family farm. Within a month there appeared below the left clavicle a new infiltration which spread slowly, to become arrested and show signs of regression only after 18 months of observation. Throughout this period, from the initial resolution of her effusion, she was entirely without symptoms, gained weight, and had a normal unchanging sedimentation rate. There was, however, radiological evidence of the glandular component of the primary complex persisting right up to the development of the subclavicular infiltration and resolving only when the latter reached apparent stability.

Comment.—This case is a further example of pleural effusion following a recent primary complex, which remained incompletely resolved during medical treatment and gave only radiological evidence of its existence, and subsequently led to pulmonary tuberculosis on the opposite side.

Discussion

These cases have been chosen for the light they throw on the pathogenesis of pleural effusion. All had undergone a recent primary tuberculous infection and were under close observation before and after that event. In six of the seven cases a primary complex within the thorax was seen to develop which was radiologically visible throughout the pleurisy in five. Case 7 is an example of the development of subsequent pulmonary tuberculosis, and the primary complex continued to be visible by radiograph.

One way in which the pleura may be invaded from the primary complex is illustrated by Cases 6 and 7, in which direct spread from the pulmonary focus was observed. Another way is shown in Cases 3, 4, and 5, in which there was strong evidence that the lymphatic gland component eroded the pleura near its mediastinal reflection. The opposite pleura was subsequently affected in three cases (Nos. 2, 4, and 5), indicating that so-called bilateral effusions are due probably to spread from adjacent lymph glands.

The latent period between primary infection and exudative pleurisy may be as short as 16 weeks (Case 2) but is usually between 6 and 12 months. Persistence of evidence of an active primary complex should lead one to expect pleurisy in any case of recent tuberculous infection. The term "primary" pleurisy with effusion is therefore used definitively, to make clear this association, though in a strict pathological sense it doubtless belongs to the indeterminate post-primary phase. More distinctly post-primary is the relatively uncommon pleural effusion, usually bilateral, which may accompany generalized haematogenous dissemination from the primary complex, with miliary tuberculosis throughout the lungs, extrapulmonary lesions, and even polyserositis.

It seems that caseous lymph glands behave in the mediastinum in a manner similar to that often observed in the neck, as Erwin (1944) has suggested, by breaking through the boundary of least resistance. This may be the wall of a bronchus, clinically not uncommon, as in Case 4. It is reasonable to suppose that the contiguous pleura may be invaded in the same way, though Burke (1940) has advanced the possibility of retrograde spread by way of the subpleural lymphatics. Tubercle bacilli can nearly always be grown from the exudate by careful technique (Close, 1946), and one cannot doubt that they are directly concerned.

All these cases were in young adults. Pleurisy with effusion does of course occur in children, but very infrequently compared with the large number of primary tuberculous infections that occur during childhood (Hardy and Kendig, 1945). As children also do not tend to develop progressive pulmonary tuberculosis, it may be supposed that they are better able to resist such infections before puberty than after puberty, and to arrest the primary lesion usually at a stage short of pleural involvement.

This study offers no further evidence on the pathogenesis of subsequent tuberculosis. Case 7 illustrates the close succession of events—from primary lesion, through exudative pleurisy, to pulmonary infiltration—and the likelihood that the whole process is largely beyond the influence of our present therapeutic means.

Conclusions

Primary pleurisy with effusion is an incident in the natural history of tuberculosis. It arises by direct pleural involvement from either the pulmonary or the glandular component of an active intrathoracic primary complex, incurred as a rule a few months previously. Specially susceptible to this condition are adolescents and young adults who, having escaped the tubercle bacillus earlier in life, meet it for the first time by casual contact, usually outside the home.

The subsequent course is probably not different from that seen in other forms of late primary infection, with a marked tendency to pass into a stage of chronic pulmonary or extrapulmonary tuberculosis. Such progression may be entirely subclinical and may take place irrespective of or even during medical treatment.

The pleural effusion is to be regarded less as a disease in itself than as significant of persistent and dangerous primary tuberculosis.

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AETIOLOGY OF ERYTHEMA NODOSUM IN CHILDREN

BY

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Erythema nodosum is considered by most authors to be a non-specific manifestation of hypersensitivity to various allergens, mainly bacterial (Collis, 1933; Rötnes, 1936; Spink, 1937; Wallgren, 1938a; Ernberg and Gabinus, 1939; Perry, 1944; Skiöld, 1945; Löfgren, 1946), although some still consider it to be a specific infectious disease (Miescher, 1948).

Of the infective agents responsible for the hypersensitivity, *Mycobacterium tuberculosis* is the commonest in childhood. Second in frequency is the streptococcus, the aetiological significance of which has been demonstrated by Collis (1932). Very few cases in childhood are due to hypersensitivity to other organisms. An exception to this is found in the parts of the U.S.A. where coccidioidomycosis is common, for about 11% of the children with this infection have an eruption similar to erythema nodosum (Smith *et al.*, 1946).

The relation of erythema nodosum to tuberculosis in children was noticed as long ago as 1872 (Uffelmann, 1872) but little attention was given to it until Ernberg (1921) published his theory and observations on the nature of this relation. The opinion that erythema nodosum is commonly a manifestation of primary tuberculous infection became accepted more generally as a result of the work of Wallgren (1927, 1928, 1930, 1931). Of 800 children with erythema nodosum whom he had seen by 1938 (Wallgren, 1938a) 95% had a positive tuberculin reaction. Reports on the tuberculin reaction of children with erythema nodosum have been published by many authors on the Continent (Göbel, 1933; Moro, 1934; Landorf, 1935; Debré *et al.*, 1938; Mallet, 1938; Nobécourt and Briskas, 1941; and many others).

Although it is known (Wallgren, 1938a) that the incidence of tuberculous infection in children with erythema nodosum varies from country to country, studies in the British Isles (Boganovitch, 1930; Begg, 1932; Collis, 1933; Forman and Whitwell, 1934; Thompson, 1939; Gray, 1945) and North America (Dickey, 1932; Brandon *et al.*, 1938; Lincoln *et al.*, 1944; Roddy, 1949) have been based on small series of cases only. The single exception is the study by Perry (1944), who determined the incidence of tuberculosis in 112 patients with erythema nodosum. Sixty-seven were children—in 29 (43.3%) the eruption was definitely related to tuberculosis, in 21 (31.3%) the relation was probable, and in 17 (25.4%) tuberculous infection was excluded.

The present paper concerns 100 children with erythema nodosum. It is presented because of the small number of similar observations in this country and in order to draw the attention of family doctors once more to the importance of recognizing erythema nodosum in children as a valuable sign of tuberculous infection.

Material

All the 100 children were seen and investigated in the Children's Department of the Royal Victoria Infirmary, Newcastle-upon-Tyne, or at the Children's Hospital, Sheffield. Seventy were seen by the author and the information for the remaining 30 was obtained from their case notes. In 20 children a course of sulphonamides preceded the eruption by a period varying from 12 hours to 12 days. These children are included in the present series, as it is considered (Löfgren, 1945; Doxiadis and McLean, 1948) that erythema nodosum occurring after the administration of sulphonamides is fundamentally the same as that in which the eruption is spontaneous.

The age and sex incidence is shown in Table I. The low incidence after the age of 13 is without significance because older children receive treatment in other departments.

TABLE I.—*Age and Sex Incidence of Erythema Nodosum*

Age, Years Completed	No. of Children	Age, Years Completed	No. of Children
1	6	8	7
2	5	9	11
3	6	10	13
4	5	11	7
5	4	12	10
6	6	13	11
7	7	14	2

Boys 38. Girls 62.

The seasonal incidence is presented in Table II, and it can be seen that there is a smaller number of cases in summer and autumn.

TABLE II.—*Seasonal Incidence of Erythema Nodosum*

Month	No. of Children	Month	No. of Children
January	12	July	3
February	10	August	6
March	10	September	5
April	9	October	6
May	11	November	10
June	5	December	13

Results

All children were tested with tuberculin. The first test was either the application of tuberculin jelly on the skin or the intradermal injection of 0.01 mg. or less (0.005–0.01 mg.) of old tuberculin. If the test was positive no further tests were performed. If the reaction was negative then larger amounts of old tuberculin (0.1–1 mg.) were injected intradermally.

A positive reaction to tuberculin was found in 88 children (88%). In three of these the first test was negative or doubtful and all three showed a strongly positive reaction to 0.1 mg. of tuberculin. Of the 12 tuberculin-negative children, four were tested with 0.1 mg. and eight with 1 mg or more of old tuberculin.

Of the 88 tuberculin-positive children, 59 (67%) had other evidence of active tuberculous infection. In 54 the radiograph showed marked undoubted unilateral enlargement of the hilar shadows, and in some of these there were opacities in the lung, on the same side as the hilar enlargement, consistent with the diagnosis of primary tuberculosis. Five children had cervical adenitis and in three the pus obtained by incision or aspiration contained *Myco. tuberculosis*.

Within three months after the appearance of erythema nodosum a pleural effusion developed in four of those children, there was an extension of the radiological signs in the lungs in two, miliary tuberculosis developed in one, and one child died from tuberculous meningitis.

Of the remaining 29 tuberculin-positive children, there were no radiological changes in 22, and doubtful changes in seven.

The relation of tuberculous infection to erythema nodosum is summarized in Table III. No further investi-

TABLE III.—*Relation of Erythema Nodosum to Tuberculous Infection*

Tuberculin-positive children	88
With other evidence of active primary tuberculous infection	59
Without or with doubtful other evidence of active primary tuberculous infection	29
Tuberculin-negative children	12
Total:	100

gations were made in the 12 tuberculin-negative children. The eruption followed a sore throat in five of them and scarlet fever in one.

In none of the 100 children was there any evidence of rheumatic infection, and in the 80 who were observed for at least six months after the eruption there has been no sign of involvement of the heart.

Discussion

The high incidence (88%) of positive tuberculin reactions in the 100 children with erythema nodosum is comparable to the incidence found by many Continental workers and is even higher than that in the only other recent series from this country (Perry, 1944).

It cannot be stated with certainty that the erythema nodosum was due to tuberculosis in all the 88 tuberculin-positive children. It may be said, however, that at least in the 59 (67%) who at the time of the eruption had other evidence of active tuberculous infection there was a close relation between the eruption and the infection. In the remaining 29 children (33%) the same relation probably existed.

These results show that in this country, too, most of the children with erythema nodosum are passing through their primary tuberculous infection. Any child therefore with erythema nodosum should be considered to have been recently infected with tuberculosis unless carefully performed tuberculin tests are negative. Because of the high degree of sensitivity to tuberculin of the tuberculin-positive children with erythema nodosum a jelly test is usually sufficient to elicit a positive reaction. If intradermal tests are used, the amount of old tuberculin in the first injection should never exceed 0.01 mg.

Special investigations were not made in the 12 tuberculin-negative children, and there is therefore no direct evidence that a streptococcal infection was the main aetiological factor, though a sore throat or scarlet fever preceded the eruption in six.

The absence of any demonstrable relation between erythema nodosum and rheumatic fever in the present series is worthy of emphasis. Some doctors still consider that erythema nodosum is "rheumatic" in origin and fail therefore to carry out any further investigations. Out of 800 children with erythema nodosum Wallgren (1938b) saw only one in whom the eruption was related to rheumatic fever. Löfgren (1946), in his study of 184 cases of erythema nodosum in adults, found that there was no evidence that erythema nodosum is connected with rheumatic fever; and Skiöld found a probable connexion in only five (1.4%) out of 354 adults with erythema nodosum. It is clear, therefore, that erythema nodosum is very rarely due to rheumatic fever.

Summary

Out of 100 children with erythema nodosum 88 had positive tuberculin reactions. In 59 of these there was an active primary tuberculous lesion. In the remaining 29 tuberculosis was probably the aetiological factor. In none of the children was there any connexion between erythema nodosum and rheumatic fever.

I wish to thank Professor J. C. Spence, Professor E. J. Wayne, and Dr. T. Colver for their permission to make use of their cases, Professor R. S. Illingworth for his valuable advice, and Dr. D. Stone for his assistance. Part of the material was collected during the tenure of a Luccock Research Fellowship at the Medical School, King's College, University of Durham.

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POST-OPERATIVE THROMBOSIS*

INVESTIGATION OF A PROPOSED TEST FOR ITS PREDICTION

BY

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In a paper on intravascular thrombosis Cummine and Lyons (1948) claimed that by the examination of the post-operative coagulation time and estimation of the plasma fibrinogen-B they could foretell the onset of impending thrombosis. They further suggested that if the coagulation time as measured by the capillary tube method drops to four minutes, and if fibrinogen-B (an intermediate product in the change of fibrinogen into fibrin) can be demonstrated in the blood, then prophylactic anticoagulant therapy should be instituted.

In spite of the introduction of heparin and dicoumarol, thrombosis and embolism still contribute to the incidence of post-operative morbidity and mortality, and a simple test to determine which patients should be given anti-coagulant drugs to prevent these complications is being widely sought. Investigation of a series of cases, using the proposed tests of Cummine and Lyons, was therefore undertaken.

*Being the subject of a short paper delivered before the Surgical Travellers Club at Leeds on January 21, 1949.

Method

It was decided to measure the coagulation time before operation and then daily after operation, but the fibrinogen-B test, which entails a venepuncture, was done pre-operatively, the day after operation, and then subsequently only when there was a fall in the coagulation time.

This regime was followed in 43 cases, and in a further eight acute cases the estimations were started the day after operation. All the patients investigated had undergone a major operation varying from a partial gastrectomy to a prostatectomy. Of the 51 patients 29 were over 55 years of age; only six were under 40, and of these one was a case of cholelithiasis for which a cholecystectomy had been performed, three had had partial gastrectomies for chronic duodenal ulceration, and one (the youngest of the series, aged 32) had had an abdomino-perineal resection for carcinoma of the rectum. Thus all were in the groups in which post-operative thrombosis is most common.

The estimations were discontinued when the patient was ambulant, as it was considered that by that time the danger of spontaneous intravascular clotting has generally passed. That this belief is erroneous was proved by the one case in the series which developed a thrombosis.

Results

The results may be divided into four groups.

Group 1.—In 12 cases the coagulation time throughout was above four minutes and no fibrinogen-B was found in their blood post-operatively (Fig. 1).

Group 2.—Ten patients had fibrinogen-B in their blood post-operatively, but their coagulation time remained higher than four minutes (Fig. 2).

Group 3.—Eleven cases showed a lowering of the coagulation time to four minutes or less but had no fibrinogen-B in their blood at the time of this fall (Fig. 3).

Group 4.—In 18 cases there was a fall of the coagulation time to four minutes or less associated with the finding of fibrinogen-B in the blood.

According to Cummine and Lyons there is no danger of thrombosis in the first three groups, and none of the cases in these groups showed clinical signs suggesting it.

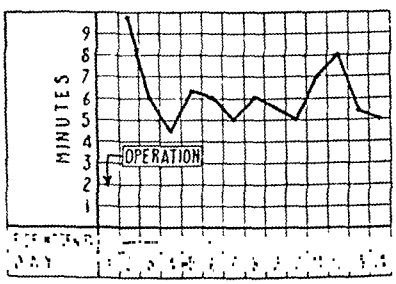


Fig. 1.—Graph of case typical of Group 1 (woman aged 76; gallstone ileus). Coagulation time remaining above four minutes. No fibrinogen-B.

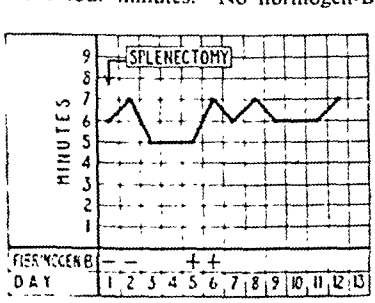


Fig. 2.—Graph of case typical of Group 2 (woman aged 51; portal hypertension). Fibrogen-B present, but no lowering of coagulation time.

The cases in Group 4, comprising more than one-third of the whole series, satisfied the criteria laid down by Cummine and Lyons for the prophylactic administration of heparin and dicoumarol. The first two cases showing this fall in coagulation time coincident with a positive fibrinogen-B test were given heparin and dicoumarol, and in both, as was to be expected, the result was a marked prolongation of the clotting time, but in one the plasma fibrinogen-B persisted (Fig. 4). However, as these two cases occurred among the first five investigated, and as they displayed no evidence of thrombosis, it was decided to withhold anticoagulant drugs until the tests had been more certainly evaluated.

Out of the subsequent 16 cases in Group 4 only one developed a thrombosis, and this took place after the patient was ambulant and the daily coagulation time determination had been discontinued (Fig. 5): the day after the thrombosis her coagulation time was within normal limits and her blood free from fibrinogen-B. This woman, who had a deep femoral thrombosis, was not treated with heparin or dicoumarol, but was kept ambulant, with a firm crêpe bandage from toes to groin. She suffered no embolic phenomena or further spread of the thrombosis, and when seen three months later had only a slight residual swelling of the leg in the ankle region, with no incapacity.

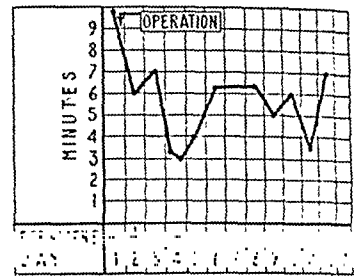


Fig. 3.—Graph of case typical of Group 3 (man aged 58; carcinoma of rectum). Lowering of coagulation time to below four minutes, but not associated with fibrinogen-B in the blood.

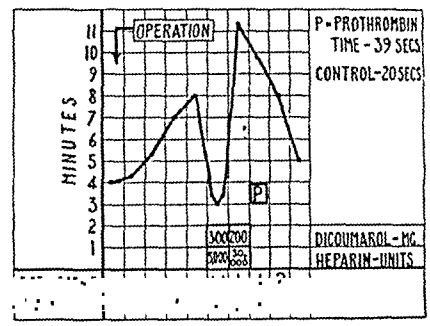


Fig. 4.—Graph of case typical of Group 4 (man aged 57; for duodenal ulcer). ow four minutes togeth in the blood.

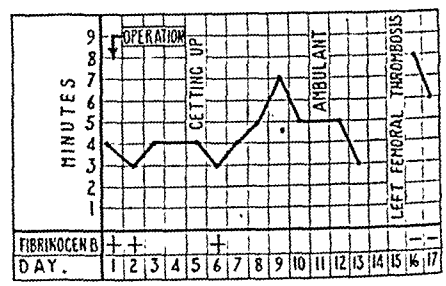


Fig. 5.—Carcinoma of caecum in a woman aged 64. The only case in Group 4 showing clinical signs of thrombosis—occurring after patient was fully ambulant.

Discussion

As this investigation progressed disappointment was felt because these proposed tests did not enable us to predict accurately the cases which would develop post-operative thrombosis: it is obviously not practicable to treat 35% of patients with heparin and dicoumarol. However, one point of interest did arise. This was that of the 43 cases examined both before and after operation 34 showed a fall in the coagulation time in the first twenty-four hours after operation and 21 of these had a fall to four minutes or less. Ten patients whose clotting times were measured at the end of operation before they left the operating theatre all showed a marked increase in rate of coagulation. These results suggest that what Bergquist (1940) called "the pre-thrombotic state" is not infrequently present within the first few hours after operation or even earlier, during operation, and this is the danger time when thrombosis in the leg veins is most likely to begin.

Summary

Investigations were carried out in 51 cases on a proposed method for the prediction of post-operative thrombosis. It was

decided that the results were not accurate enough to warrant the use of heparin and dicoumarol in those cases in which the tests were positive.

It was found that there is commonly a fall in coagulation time during or immediately after operation, and it is suggested that thrombosis, if it does occur, probably starts during this period.

I am indebted to Professor Digby Chamberlain, who proposed and guided these investigations, and on whose cases they were carried out.

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INCIDENCE OF SIGNS USUALLY CONNECTED WITH THYROTOXICOSIS

WITH SPECIAL REFERENCE TO LID LAG*

BY

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During recent observations on the coincidence of hyperthyroidism and peptic ulcer (Jackson and Pinkerton, 1949) it was noticed that a large proportion of patients with the latter complaint showed von Graefe's sign (lid lag), one of the characteristic ocular phenomena of thyrotoxicosis. This sign was first described in 1864 by von Graefe, who said: "... namentlich folgt bei Senkung der Cornea das obere Augenlid nicht." He remarked that it was not the result of exophthalmos, as it was present in early cases of thyroid disease which showed no proptosis. He considered it to be a sign pathognomonic of hyperthyroidism in the early stage: "... geringen Grade der Krankheit einen pathognomonischen Werth hat." It is now recognized that the sign is not peculiar to thyrotoxicosis (Eason, 1927) and that it may occur in normal people (Joll, 1932). Joll remarks that it also occurs in all forms of goitre, in myotonia congenita, and in all cases of proptosis.

Present Investigation

In order to determine the approximate incidence of lid lag in people without thyroid disease, and to see whether it was particularly common in cases of peptic ulcer, 600 people of all ages and approximately equal sex numbers who attended a general hospital were examined. All patients with dysthyroidism, severe illness, and prolonged pyrexia were excluded. Otherwise there was no selection, except that 38 extra cases of peptic ulcer were specially included. Other manifestations which occur in thyrotoxicosis were also looked for in this series. Preference for hot or cold weather was noted, and the subjects were questioned about excessive sweating. Lid lag, lid retraction, exophthalmos, enlargement of the thyroid gland, and tremor of the outstretched fingers were looked for. The heights and weights of all those over 18 were noted where practicable.

For present purposes lid lag is defined as occurring when a white band of sclera appears between the upper lid and the cornea on following a moving object downwards with the eyes. If lid retraction is present lid lag can be considered to exist only if there is a definite widening of the band of sclera already visible. This is the most objective way of defining lid lag, although in those whose lid is usually held at a low level there may be a degree of lagging of the upper lid without any sclera coming into view. The results are shown in Table I.

TABLE I.—*Results of Investigation*

	Total No.	No with Lid Lag
Whole series	600	85† (14%—or 10% of whole series excluding ulcer cases)
Patients with peptic ulcer ..	76	23 (33%)
,, ,, lid retraction .	14	8 (57%)
,, ,, exophthalmos	3	3 (100%)
,, ,, non-toxic goitre	35	5 (14%)
,, ,, fine tremor ..	11	

† 58 males, 27 females.

Types of Eyelid Movement.—All cases of lagging of the upper eyelid were not alike. The band of sclera might appear during the whole movement of the eyeball or during any part of it. In other words, the lag might begin as soon as the eyeball started to descend, or the lid might move normally at first and lag later. The movement might be smooth or jerky. The lag in some cases was variable, at times being pronounced and at other times not being elicited at all. In five cases it was unilateral, and in two there was actually a reverse or upward movement of the eyelids as the eyeballs started downward. In one person the lid retraction was unilateral.

Lid Lag in Relation to Other Observations

The male sex predominated in the ratio of 2 to 1. All age groups produced subjects with lid lag, but it was more common in those over 40 (see Table II).

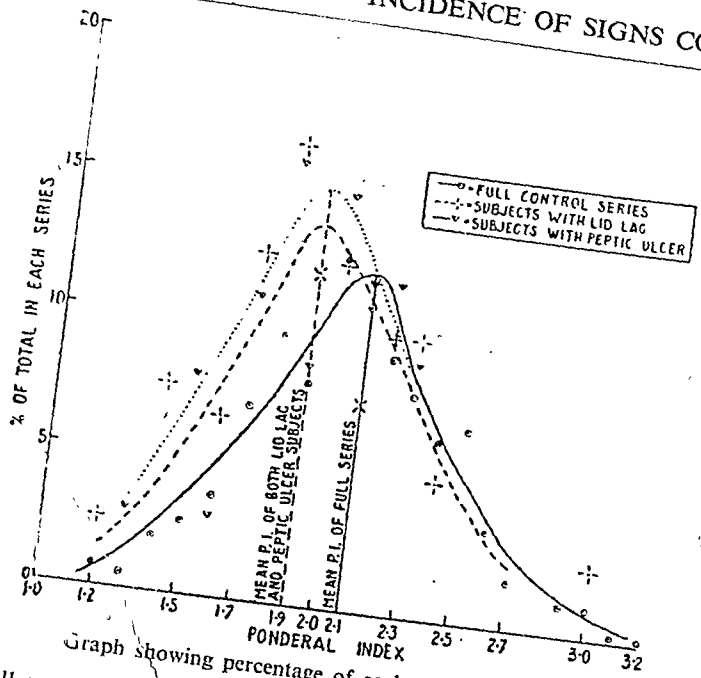
TABLE II.—*Age Incidence of Lid Lag*

Age	Total No. of Subjects	No with Lid Lag
0–9 years	31	3 (9.7%)
10–19 ,, .. .	50	2 (4%)
20–29 ,, .. .	50	2 (4%)
30–39 ,, . ..	72	8 (11%)
40–49 ,, .. .	115	20 (17.4%)
50–59 ,, .	132	22 (16.6%)
60–69 ,, . .	107	21 (19.6%)
70–79 ,, ...	43	7 (16%)

Eight of the 14 subjects with lid retraction also showed lid lag, as did all three with exophthalmos and five out of the 35 with simple goitres. Of the 76 cases of peptic ulcer 23 (33%) showed lid lag. This incidence is significantly higher than that of lid lag in the control series (10%). The impression was formed that lid lag was more common in thin people, and since peptic ulcer characteristically occurs in people with a low ponderal index (P.I.) (Draper, 1930; Robinson, 1938) this was suspected of being the explanation of the frequent occurrence of lid lag in peptic ulcer subjects. To test this hypothesis the P.I.‡ of all those over 18 was worked out, and all fell between 1.2 and 3.2. The number of subjects pertaining to each index was noted and expressed as a percentage of the whole. Thus three subjects (0.5% of the total) had a P.I. of 1.3. These percentages for each P.I. referring to (1) all the subjects, (2) the peptic ulcer subjects, and (3) those showing lid lag were plotted separately (see Chart). The mean P.I. in the full control series was 2.1 (slightly in excess of the mode), while in subjects with peptic ulcer and in those showing lid lag it was 1.9. The chart thus confirms the tendency for lid lag to occur in people of slim build, but it seems unlikely that this factor alone can explain its excessive appearance in peptic ulcer subjects. However, the male preponderance in both peptic ulcer—about 4 : 1 (Stewart, 1923; Ryle, 1932; Tidy, 1944;

*Based on a paper read at the South African Medical Congress, Capetown, September, 1949.

‡The ponderal index in this investigation was calculated by dividing the weight in pounds by the height in inches.



Graph showing percentage of each ponderal index.

Sallström, 1945)—and lid lag—2 : 1 in this series—may also offer a partial explanation.

Other Findings.—The occurrence of 28 cases of greatly enlarged non-toxic thyroid glands in subjects resident in Birmingham puts the approximate rate of simple goitre in this city at 5.6%. It was noted that 125 people preferred cold weather, 273 hot weather, and the remainder were indifferent. All subjects under 20 preferred the heat. Therefore only in young people can preference for cold weather be considered an important diagnostic feature in borderline hyperthyroidism unless there has been a recent change in preference.

Assertions of excessive sweating were not uncommon, but revealed nothing of particular interest. The very fine rapid tremor generally considered characteristic of hyperthyroidism was found 11 times.

Mechanism of Lid Lag

Von Graefe (1864) believed that the cause of his sign was a disturbance of lid musculature, probably affecting Müller's muscle through the sympathetic system. He observed that morphine abolished the sign. Pochin (1939) believed that the lid retraction (usually combined with lid lag) in Graves's disease was associated with spasm of the levator palpebrae superioris and not with affection of the involuntary muscle. Joll (1932) considered that lid lag was often a "mechanical consequence of forward displacement," but this cannot explain its occurrence in normal people. The observations reported above do little to elucidate the mechanism of the lagging, but suggest that it is more common in thin people.

Summary

The examination of 600 subjects demonstrated the frequency of lid lag, apart from its hyperthyroid connexions. The incidence of certain other signs characteristically occurring in thyrotoxicosis was also estimated in this series. It seems that lid lag is particularly common in people suffering from peptic ulcer, and so cannot be of help in the diagnosis of mild degrees of hyperthyroidism in patients with ulcer.

STATISTICAL NOTE

(1) The male sex preponderance is very highly significant, the difference between proportions being ten times the standard error.
(2) The high incidence of lid lag in peptic ulcer subjects is also significant. The differences between percentages is three times the standard error.
(3) The difference between the mean P.I. of ulcer cases and of the control series and between lid lag cases and controls is over three times the standard error in each instance. The apparent high frequency of lid lag in thin people and in ulcer subjects is thus highly significant.

I should like to thank Mr. Kelman, the medical superintendent, for permission to investigate patients at Selly Oak Hospital.

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ACTINOMYCOTIC EMPYEMA

BY

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Massive empyema due to actinomycosis is uncommon enough to warrant description of a case. Price (1941) states that the empyema is rarely large and the primary lesion seldom pleural. Until recently the prognosis was regarded as unfavourable, death resulting from exhaustion and toxaemia. Penicillin therapy, however, has given promising results in cases cited by Hamilton and Kirkpatrick (1945) and others in this country, and by American authors.

The following case is of interest because a total dosage of over 25,000,000 units of penicillin extending over a period of 56 days was necessary to overcome the infection. Repeated aspirations were necessary owing to the encysted nature of the empyema.

Case History

A carter aged 49 was seen by me in consultation with his own doctor on February 12, 1949. He gave a history of sudden onset of right-sided chest pain and rigors on December 22, 1948. After a few days in bed he resumed his normal activities but did not feel well. On January 29, 1949, the pain returned accompanied by cough and feverishness. His doctor suspected a pleural effusion, but was unable to obtain fluid from the pleural cavity. The temperature was remittent and the dullness increased in spite of treatment with sulphamezathine. The patient had frequent profuse sweats, looked toxic, and had lost weight.

I found him to be moderately dyspnoeic. His pulse rate was 84, regular, and of good volume; respirations, 28; temperature, 101.3° F. (38.5° C.). The apex beat was in the fifth interspace outside the nipple line. His blood pressure was 140/75 mm. Some clubbing of the fingers was present. Examination of the chest showed well-marked signs of a pleural effusion, with stony dullness extending from the base of the right lung to the third interspace posteriorly and forward to the anterior axillary line. B.S., V.F., and V.R. were greatly diminished. There was no bulging of the intercostal spaces. An area of paravertebral dullness was found on the opposite lung. The urine showed no abnormality.

On February 13 he was admitted to the Bolton Royal Infirmary. A radiograph revealed a massive pleural effusion of the right side of the chest, and 10 ml. of thin greenish foul-smelling pus was aspirated and sent to the pathology department. The patient was then put on penicillin, 250,000 units daily in three-hourly injections. On February 24, on receipt

of the pathological report, the dosage was increased to 500,000 units daily.

Pathological Report.—Greenish foul-smelling pus containing a moderate number of small yellow granules. Stained film: numerous pus cells, numerous fusiform bacilli, small Gram-negative coli and bacilli, a moderate number of clumps of filamentous organisms of fungal morphology. This specimen was referred to the Fungus Reference Laboratory, which reported that *Actinomyces israeli* was present.

On February 22, 2 pints (1.14 litres) of pus was aspirated and 100,000 units of penicillin injected. On February 24, 1 pint 570 ml.) was aspirated. A radiograph on February 28 still showed an encysted collection in the right mid-zone posteriorly. This was much thicker and more difficult to aspirate. Rib-resection was considered, but as the fluid was centred under the inferior angle of the scapula it was decided to continue to aspirate.

By March 12 the temperature finally settled. On the 14th a radiograph still showed some encysted fluid. Aspiration failed. On March 18, 6 oz. (170 ml.) of pus was aspirated after screening, and penicillin was injected. On April 8, 6 oz. of pus was aspirated and 100,000 units of penicillin injected.

Pathological Report of Pus.—On March 9:—Direct smear: numerous pus cells, very scanty Gram-negative bacilli, no actinomyces seen. Cultures: no growth on blood agar. On March 18:—Direct smear: numerous pus cells, no organisms. Culture (aerobic and anaerobic): no growth.

An *x*-ray report on April 12 stated that the fluid seemed to have cleared from the right side and had left some residual pleural thickening.

Other Investigations.—A blood count on February 14 showed: Hb, 68%; red cells, 4,435,000; colour index, 0.77; white cells, 14,000 (eosinophils 81.5%, basophils 0.5%, lymphocytes 11.5%, monocytes 6.5%). Sputum examination on February 17: *M. tuberculosis* not found; moderate number of pus cells, fairly numerous epithelial cells, a few "dust" cells; no malignant cells seen. Blood sedimentation rate on February 21: first hour, 118 mm.; second hour, 125 mm. (Westergren). Sputum on February 25: moderate number of pus cells, fairly numerous squamous cells, fairly numerous dust cells, no malignant cells; *M. tuberculosis* not found. Culture:—Mixed: haemolytic streptococci and *Neisseria catarrhalis*.

In addition to intramuscular penicillin (total dosage 25,000,000 units) and intrapleural penicillin (400,000 units) the patient received potassium iodide, 30 gr. (2 g.) thrice daily.

He was discharged home on April 18, having been ambulant for ten days. He had gained weight and looked and felt very well.

I am greatly indebted to Dr. G. Manning, pathologist; Dr. Brash, radiologist; and Dr. Dawson, resident medical officer, for their assistance in the investigation and treatment of this case.

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Price, F. W. (1941). *Textbook of Practice of Medicine*, 6th ed., p. 1,269. Oxford Medical Publications.

The American Heart Association is publishing a quarterly journal entitled *The American Heart*, the object being to obtain broader public understanding and support of the association's programme in the field of cardiovascular disease. Approximately $700,000 has been allocated for heart research this year by the association and affiliated organizations. According to a report in the *New York Times* (September 13, 1949) the United States Public Health Service is also launching a nation-wide attack on heart disease. A programme involving expenditure amounting to over $8,000,000 has been planned by the National Heart Institute. Among the subjects which are to be specially studied are: environmental and hereditary factors; dietary factors; new surgical methods; the usefulness of new drugs and new substances such as ACTH and cortisone; new diagnostic instruments such as the electrokymograph and the ballisto-cardiograph.

Medical Memoranda

Unusual Case of Nutritional Anaemia

The following case of nutritional anaemia is worthy of record because of the history.

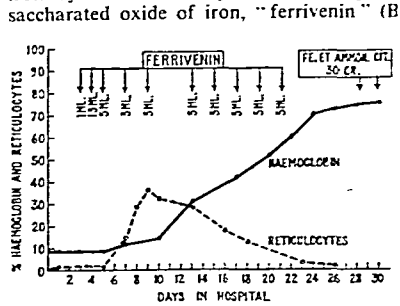
CASE REPORT

A boy aged 9 was admitted to hospital on May 25, 1948, with a history of recurrent vomiting for six weeks. His previous medical history showed that he had been a full-time baby, born spontaneously after a normal pregnancy. He was the sixth of a family of seven, and all his siblings were healthy. From birth there had been a spastic paralysis of all his limbs; he had never been able to sit up and was completely helpless. Since birth his diet had consisted of milk. He refused to eat any other foods and would take his milk only from a feeding-bottle. His average daily consumption was about 5 pints (2.84 litres).

He had always tended to be constipated, but otherwise remained well until ten weeks before admission to hospital, when he had become unusually constipated and had had no bowel action for 25 days, at the end of which time he passed a very large constipated stool. Since then he had been less keen on sucking; he had often vomited after feeds, and his condition had steadily deteriorated.

On examination he was seen to be grossly mentally deficient, and was unable to speak. The skull was flattened posteriorly and there was a scoliosis of the dorsal spine. His temperature varied from 100 to 101° F. (37.8 to 38.3° C.); he was extremely pale and his face was puffy. His teeth were larger than normal, well spaced, and not carious. There was a spastic paralysis of all limbs, with permanent flexion of the elbow- and knee-joints due to contractures. Cardiac enlargement was not pronounced, but a loud blowing systolic murmur was heard all over the praecordium. A blood count showed: Hb, 8.5%; red cells, 1,020,000; C.I., 0.42; white cells, 11,400 (polymorphs 54%, basophils 1%, lymphocytes 38%, monocytes 7%). The red cells were severely microcytic and hypochromic. These figures were confirmed by the Department of Medicine, Aberdeen University. Plasma proteins were 7.7 g. %, with an albumin/globulin ratio of 1.24 to 1. A radiograph showed abnormally slender bones with delayed ossification and severe general decalcification.

The patient refused to take iron by mouth, and in view of this and the extreme degree of anaemia it was decided to give iron by intravenous injection. The preparation used was a saccharated oxide of iron, "ferrivenin" (Bengers), which contained 20 mg. of iron per ml. Small doses of 1 ml. and then 1.5 ml. were given on consecutive days at the beginning of treatment, and thereafter 5 ml. on alternate days to a total of 42.5 ml. On the day after the third injection the temperature rose to 104° F. (40° C.), but, despite this, the patient looked much better. One injection was omitted, and his temperature settled. He remained afebrile during the remainder of the treatment.



The haemoglobin and reticulocyte response to therapy are shown on the accompanying Chart. Within three weeks the haemoglobin was 70%, and he had been persuaded to increase the range of fluid feeds, but he still refused all solids. Iron and ammonium citrate in 10-gr. (0.65-g.) doses was thereafter given three times daily in bottle feeds.

COMMENT

The only demonstrable dietary deficiencies in a boy of 9 fed since birth solely on milk were a severe iron-deficiency anaemia and poor calcification of bones. Milk as a food is an incomplete source of nourishment, but in such large quantities as this patient consumed there is an adequate supply of all the essential food elements except iron. The vitamin D supply is variable, but is probably insufficient in the absence of sunlight. The response to intravenous iron was rapid, and the injections were well tolerated.

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Medical Registrar,
Royal Aberdeen Hospital for Sick Children.

An Extrarenal Hypernephroma

The following case was shown at a pathological meeting of the Section of Surgery of the Royal Society of Medicine on January 7, 1948.

CASE REPORT

The patient, a man aged 58, was first seen at Edgware General Hospital in October, 1944. He had had sacro-iliac backache for two years, but nothing significant was found on examination. He also complained of dysuria and nocturnal frequency in December, 1945, when the backache and urinary symptoms had increased, and of lassitude and loss of weight.

On examination his general appearance was cachectic. A large solid tumour was found emerging below the left costal margin and filling the upper left quadrant of the abdomen and the epigastrium. It moved on respiration, was dull to percussion, and was not tender. The liver was not enlarged and there was no ascites. The blood pressure was 120/70. A blood count showed: red cells, 4,000,000; haemoglobin, 78%; white cells, 10,800. The urine was normal. Radiographs of the spine revealed osteoarthritis but no metastatic deposits. Barium studies showed the stomach displaced to the right and hypertrophy of rugae at the greater curvature; the splenic flexure was displaced downwards. An intravenous pyelogram showed the left kidney rotated and displaced downwards to the level of L4. Anatomy and function were normal.

Operation (January, 1947).—A left paramedian incision was made. A normal spleen presented in the epigastrium on the surface of a large retroperitoneal tumour. The spleen and tumour were excised after freeing the latter from the upper pole of the kidney. A tough layer of connective tissue containing the suprarenal gland intervened. Recovery was uneventful.

The specimen is a solid ovoid tumour weighing 7½ lb. (3.4 kg.) (Fig 1). Microscopically, the appearances are characteristic of a hypernephroma. The cells are polygonal, with a foamy cytoplasm. The connective-tissue septa are thinner and less abundant than usual (Fig. 2).

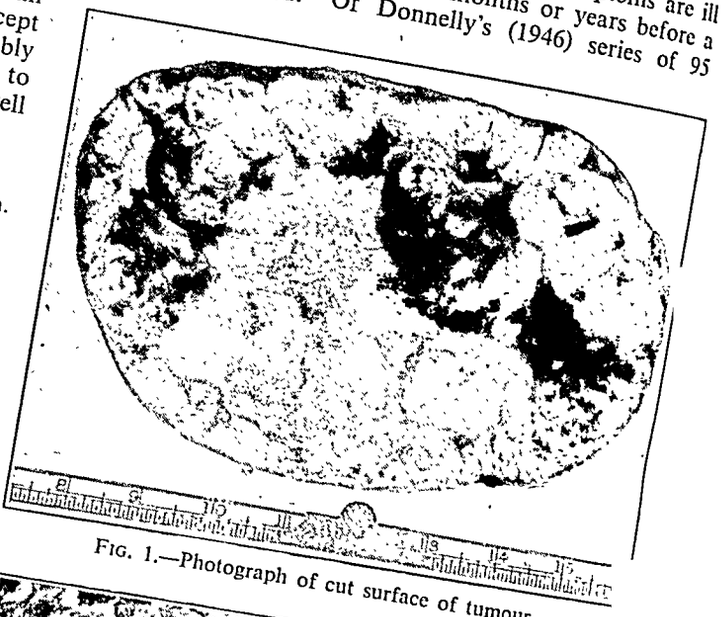


FIG. 1.—Photograph of cut surface of tumour.

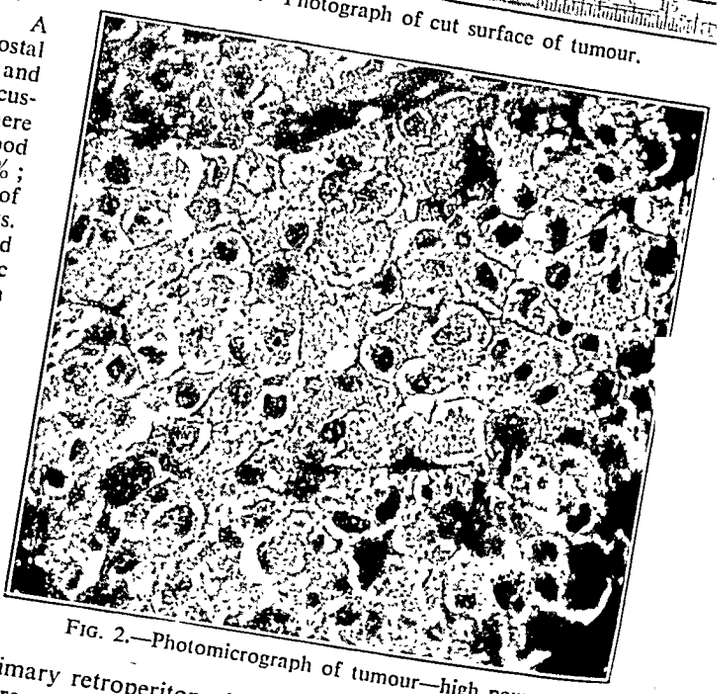


FIG. 2.—Photomicrograph of tumour—high power.

COMMENT

Tumours with the histological appearance of adrenal carcinomata—the so-called hypernephromata—occur much less commonly as independent retroperitoneal growths than within the substance of the kidney.

Surveys of large numbers of primary retroperitoneal tumours (Goebell, 1901; Donnelly, 1946) indicate that adrenal-cell tumours account for only 3 or 4%; the remainder consist of a wide range of tumours corresponding to all the varieties which may occur in the adult urogenital organs. They are thought to arise from remnants of the embryonal urogenital apparatus (Hansmann and Budd, 1931). Death results from dissemination by lymphatics and veins as well as from direct extension to vital organs. Bone metastases are relatively infrequent (Ewing, 1940).

Complete extirpation of the tumour while still self-contained obviously offers the best prospects of cure. The operability rate is generally low because symptoms are ill-defined and may remain so for months or years before a mass is discovered. Of Donnelly's (1946) series of 95 primary retroperitoneal tumours, 82 were explored and 34 were considered operable. The operative mortality was 19.7%.

The most valuable diagnostic aids to earlier diagnosis are barium *x*-ray films and pyelography, which reveal displacements of the viscera and exclude growths of the gastro-intestinal and urinary tracts. Loss of weight and strength are the most constant symptoms. Exploratory laparotomy, however, often offers the only means of discovering the exact nature of the tumour.

I am indebted to Miss M. H. Shaw for the photographs.

FRANK FORTY, F.R.C.S.

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Ewing, J. (1940). *Neoplastic Diseases*, 4th ed., p. 824. Philadelphia.
Goebell, R. (1901). *Dtsch. Z. Chir.*, **61**, 1.
Hansmann, G. H., and Budd, J. W. (1931). *Amer. J. Path.*, **7**, 631

Reviews

NEUROHISTOLOGY

Atlas of Peripheral Nerve Injuries. By William R. Lyons, Ph.D., and Barnes Woodhall, M.D. (Pp. 339. £4.) Philadelphia and London: W. B. Saunders Company. 1949.

This superbly produced monograph is concerned chiefly with the histological appearances of damaged nerves removed at operation. It is not a complete atlas of peripheral nerve injuries as there are few clinical photographs, and none illustrating motor or sensory disturbances. But provided that these limitations are recognized the reader will not be disappointed.

The American organizations for treating war injuries of the peripheral nerves were a good deal less compact than our own. There was no one comparable with George Riddoch to guide policy, and in consequence some of the work was done by men of relatively limited experience and without any predetermined plan. Although this diversity had obvious drawbacks there were some compensations, one of which was the immense variety in the material sent for histological examination. Variations in time between injury and operation were most significant, some nerves being repaired earlier, and others much later, than was the practice in the British nerve injury centres. Some surgeons amused themselves by wrapping the suture line with various materials and later gave the pathologist the chance of observing the effect of these wrappings on the underlying nerve. The result is an atlas of the morbid anatomy of nerve injuries in man which is as complete as surgical considerations will permit. Indeed, the profusion of beautiful photomicrographs is such that the reader begins to feel the aching behind the eyes and the painful swelling of the ankles that afflict the earnest picture-gazer who has spent a whole day at the Louvre. Some of the photographs are frankly repetitious, and their omission would have been beneficial.

Modern neurohistology is so enchanting that the morbid anatomist will enjoy this collection simply as an exhibition of the astonishing diversity of morphological changes that result from nerve injury and regeneration. This work is not only a great credit to its authors: it is a tribute to all who have contributed to the perfection of staining methods for nervous tissue and to modern photomicrography. The surgeon's interest will be different. He will realize the extent to which his practice must be guided by the findings of the morbid anatomist. The tissue disturbance caused by a fast-moving particle is far more widespread than usually supposed, and in no tissue are its effects more clearly revealed than in the peripheral nerve. In consequence, the stumps of a nerve severed in a war wound must be resected more generously than those of a nerve damaged in an industrial or domestic accident. He will find that the theoretically ideal primary suture is unsatisfactory in practice. He will learn something about the curious pathology of traction injuries which (it is hoped) will convince him that operative intervention is not likely to be of much use. He will learn, too, about the fate of autogenous and homogenous grafts.

This is not a book for bedtime reading; it is not one that should be in every surgeon's and morbid anatomist's library; but it is a work that should be in the possession of everyone who has any interest at all in the peripheral nervous system. The authors hope that, "if the professional, administrative, and financial hazards of surveying large groups of rehabilitated war veterans can be surmounted through governmental or private channels, the influence upon peripheral nerve regeneration of the neuropathological changes that have been described in this atlas will be the subject of a separate monograph within the next few years." Perhaps it may encourage them to know in advance how much further we shall be in their debt if they succeed, as we trust they will, in this second and more formidable undertaking.

H. J. SEDDON.

PULMONARY NEOPLASMS

Bronchiogenic Carcinoma and Adenoma. By B. M. Fried, M.D. (Pp. 306; 118 illustrations. £1 13s.) London: Baillière, Tindall and Cox. 1948.

This book, which discusses a subject that has achieved in recent years a practical importance that it will maintain, is a useful study but not an authoritative account. The illustrative radiographs are below the standard one expects to-day, and not one lateral picture is used. Some of the radiographs are produced as negatives and some as positives—uniformity is preferable. The photographs of specimens are very poor.

It is disturbing to see the term "superior pulmonary sulcus tumour" perpetuated, for the name means little or nothing and should be abandoned. In the description of metastases it is stated that the liver is involved in about 40% of cases, and the contralateral lung in about 30%. Although not specifically stated, one presumes that these are necropsy figures, for they are certainly not true of present clinical practice in England. The policy of using observations made in the necropsy room projected backwards to embellish a clinical picture is liable to be most unsatisfactory and, although having its uses, is somewhat out of date. Far too much teaching in the past has been of advanced disease, which renders it more difficult for the student and practitioner to recognize the earlier phases when they meet them before the stage of impending death.

A great deal of the space devoted to case histories might have been better used in a fuller discussion of such a dangerous topic as aspiration biopsy, or a more detailed consideration of the significance of pleural fluid, or of bronchoscopy, or of a number of other fundamental matters. The remarks on radiotherapy and surgery are purely "scissors and paste" products and carry no direct authority. Bronchial carcinoma is to-day a surgical disease, and the surgery section should either be written by a surgeon or omitted. The chapters on bronchial adenoma are indifferent, and it is difficult to see why the one on mediastinal tumours was included at all.

The book contains a full bibliography and is of value as a work of reference for this, and for the reviews of the incidence and aetiology of the condition.

R. C. BROCK.

OPERATIVE SURGERY

Operative Technic in General Surgery. Edited by Warren H. Cole, M.D., F.A.C.S. With introduction by Frank H. Lahey, M.D., F.A.C.S. (Pp. 951; 521 figures. No price.) New York: Appleton-Century-Crofts, Inc.

The latter part of the nineteenth century might be described as the Elizabethan period of operative surgery, when enterprise was so widespread and the field so fruitful that achievement was great. This rich era of technical advance was consequent upon the discovery of the causes of infection and their mastery. Since then some surgeons have thought the harvest had been fully reaped, and from time to time even great leaders like Erichsen and Moynihan made the mistake of expressing such an opinion. Great

advances have nevertheless been made in recent years, and no doubt there are others to come.

An account of some of the recent advances will be found in this book, which is edited by Professor Warren H. Cole, of Chicago, who was recently in this country and visited all the university clinics. The work is compiled by 34 well-known American surgeons. There are sections on abdominal incisions, by Frederick A. Coller and K. F. Maclean: on the surgery of the stomach and duodenum, by Waltman Walters and L. R. Dragstedt; on the thyroid, by J. de J. Pemberton and B. M. Black; on vascular lesions, by Daniel Elkin and M. E. DeBakey; on the hand by H. S. Allen and Sumner L. Koch; and on the pancreas and adrenal, by Alexander Brunschwig, to mention only a few of the distinguished contributors.

References (almost exclusively from American sources) follow certain sections, but in others they are scanty or absent. The printing is clear and the text easily readable; illustrations are plentiful, and the line drawings are good, though less is to be said for the few coloured plates. As a textbook of operative surgery it is open to the criticism of unevenness, since some of its aspects are discussed thoroughly and others scantily or not at all. Overlooking this, however, there will be found a series of articles by well-known masters for whom no commendation is necessary, and these alone will make the book attractive to many surgeons. Dr. Frank Lahey writes an introduction in which he points out that the book has the great advantage of being written by men experienced in the particular subjects about which they write. This is its great merit and compensates for any incompleteness of the subject-matter.

LAMBERT ROGERS.

THE THYROID

The Thyroid and its Diseases. By J. H. Means. Second edition. From the Thyroid Clinic of Massachusetts General Hospital. (Pp. 571. £3 12s.) Philadelphia and London: J. B. Lippincott Company. 1949.

Since the first edition of this book appeared in 1937 so many advances have been made that nearly all the sections have now been rewritten. Professor Means has been in close contact with most of these advances, so that he can present full, clear, and authoritative discussions of such subjects as the metabolism of iodine, the pharmacology and physiology of the thyroid and thyrotropic hormones, the pharmacology of the antithyroid drugs, the new light thrown on thyroid physiology by the use of radioactive iodine as tracer, and the use of this substance in therapy. All these and many more advances are lucidly explained and fairly discussed. Full and up-to-date accounts of the diseases of the thyroid are an important feature of the book. A valuable chapter is contributed by Oliver Cope on the surgery of the gland, with particular reference to the special knowledge required by the thyroid surgeon and the factors influencing his plan of operation. Professor Means's view on the place of antithyroid drugs is summarized by his conclusion that "drug therapy is certainly preferable to mediocre surgery," a statement which would be accepted in this country.

The diagnosis of hyper- or hypothyroidism is not always easy on clinical grounds alone. The author assesses the value and the shortcomings of the basal metabolic rate as a diagnostic aid, and discusses other tests of thyroid function. He points out, however, that laboratory tests do not in any way replace the clinical examination. The cold hand, dry or moist, almost excludes hyperfunction of the thyroid: an increasing need for bed covering is suggestive of myxoedema. The characteristic entrance of a thyrotoxic patient into the consulting-room is vividly described, equally the good nature of the myxoedematous person who often becomes still more pleasant when "thawed out by thyroid."

There is in this book much valuable information and instruction for all interested in the thyroid, and full lists of references at the end of each chapter provide the link with the original literature.

C. L. COPE.

COMMON-SENSE PSYCHIATRY

The Commonsense Psychiatry of Dr. Adolf Meyer. Edited by Alfred Lief. (Pp. 677. $6.50 or £1 19s.) New York and London: McGraw-Hill Book Company, Inc.

Most of the papers in this volume date from 30 or 40 years ago, and it is remarkable how fresh and topical they are to-day. This book contains not only a representative collection of Meyer's papers but a biography of their author and a history of psychiatry during the last 50 years. It shows how the author has led psychiatry away from an exclusive interest in cerebral lesions and toxins towards the actions, reactions, and attitudes of the individual towards the whole of his environment. Some such reactions are physical, some psychical, and some psychosomatic.

Meyer therefore takes a holistic attitude towards his subject and persistently refuses to be bound by dogmata of any sort. He accepts the modern dynamic psychology, and he studies the past as well as the present and does not insist on the universal influences of complexes, especially those founded on infantile sexuality. The mentally sick person is not the sum of elements of disease but a functioning unit in society who is doing something. Hence his insistence on the paramount importance of psychiatric social work and occupational therapy. Moreover, each patient is a problem in himself, and though classification may be useful for didactic purposes patients cannot be forced into nosological pigeon-holes. Meyer insisted that sanity depends on the endurance against strains—physical, psychological, and social—and such conditions as schizophrenia are disorganizations of both organic and functional habits. He stresses the importance of the school period in preventing such disorganization of habits by giving opportunity and encouragement to constructive and active behaviour. He has been a supporter of mental hygiene, child guidance, and all methods of preventive mental medicine.

Meyer's appointment to the directorship of the Phipps Institution at Baltimore gave him the opportunity to put all these constructive ideas into practice, his patients being principally early, recoverable cases. Towards the end of his long life he devoted thought to the more general aspects of psychiatry—those relating to such problems as freedom, marriage, education, and religion. Readers of this book will find not only a fascinating historical document but stimulating and informative material which will be most useful to them in their own work.

R. G. GORDON.

SPANISH HAEMATOLOGY

Symposium de Hematologia y Hemoterapia—1948. By J. Guasch, A. Raichs, C. Trincao, and R. Surinyach. (Pp. 522. No price.) Barcelona: Miguel Servet., 1949.

Mononucleosis Infecciosa. By J. J. Permanyer Macia and P. Vintró Marcé. Preface by Professor M. Soriano. (Pp. 96. No price.) Barcelona: Ediciones Byp. 1948.

Of the seven articles in the symposium of haematology and blood transfusion four are moderately interesting. Well documented essays based on two cases each of elliptocytosis and pregnancy occurring in the course of chronic myeloid leukaemia present a clear account of the state of our knowledge of these rarities. A single case gives opportunity for

a discussion on the curative effect of splenectomy in antimony-resistant kala-azar—a subject which, though of little interest to us, is of considerable importance in paediatric practice around the Mediterranean Sea. Of the residents in the Barcelona area only 10% appear to be Rhesus-negative, in contrast to the 35% reported in Basques by Etcheverry and by Mourant. Short essays on allergy and intramedullary transfusion and an article of 228 pages on the treatment of severe neutropenia complete the volume. There seems to be little difference between standard practice in this country and that advised by the authors. This is the second volume of this type received from the Iberian peninsula within the last few months; both show great industry but little profit.

Macia and Marcé's short monograph gives a clear account of infectious mononucleosis and of the laboratory aids to its diagnosis. The clinical section follows Tidy in recognizing three main types of the disease—glandular, anginose, and febrile—but attention is drawn also to the bizarre symptom-complexes which sometimes occur. In the section on laboratory diagnosis the various modifications of the Paul-Bunnell reaction are lucidly described and evaluated. The clarity of the presentation throws the few omissions into relief. Three types of glandular fever cell described by Downey and McKinlay should have been mentioned, and the occurrence of 1–7% of the Type I cells of these workers in infective hepatitis and other virus diseases is sometimes significant. The great increase in staff-form neutrophils over segmented types in the early stages of the disease is of considerable diagnostic value, and the recognition of epidemic outbreaks in which the Paul-Bunnell reaction is consistently negative (recorded in this country by Macfarlane) is very important. The bibliography, though it includes most of the important papers, could well be enlarged. The volume is completed by some long abstracts from the foreign press. It is an unpretentious, useful monograph for isolated workers who read Spanish.

GEORGE DISCOMBE.

Dentistry in Public Health, edited by Walter J. Pelton and Jacob M. Wisan (pp. 363; £1 7s. 6d.; Philadelphia and London: W. B. Saunders Company; 1949), is an interesting book by many contributors which illustrates the interest now taken in dentistry from the public health viewpoint in the United States. A considerable amount of research in the last few years has produced valuable results, including the discovery of the role of fluorine in the prevention of caries. It is unfortunate that publicity has been given at times to work and theories that have not been fully evaluated, but in this book evidence is sifted and conclusions are not accepted without adequate supporting facts. Thus, in spite of much that has been written on the subject, it is stated that the topical application of fluorides to the teeth as a preventive measure has not yet been substantiated. It is of interest to see the extensive programme for research into public health dentistry that is proposed. It would be as well if we gave more thought to the subject in this country.

The monograph by the late Dr. Libman and Dr. Friedberg, *Subacute Bacterial Endocarditis* (edited by Henry A. Christian and reprinted from Oxford Loose-Leaf Medicine; pp. 113; illustrated; £1 1s.; New York and London: Geoffrey Cumberlege, 1949), is a comprehensive and valuable work based upon large numbers of cases. The pathology, diagnosis, and treatment are presented in detail, but the authors have focused little attention on this infection in congenital heart disease. It is in such patients, in whom the myocardium remains unscathed, that the best results of therapy with antibiotics are to be expected. There is no reference to an important diagnostic method in non-cyanotic congenital heart disease—the use of an arterial as opposed to a venous blood culture when there is a left-to-right shunt. Any means of determining the diagnosis more quickly is of added value now that specific remedies are available. Of interest to readers in this country will be the good colour plate showing Janeway lesions, but the other illustrations are indifferent. A comprehensive bibliography completes and enhances the value of this authoritative monograph.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

The Healing Touch. By H. Williams (Pp. 406. 15s.) London: Jonathan Cape. 1949.

Freedom from Want. Edited by E. E DeTurk. Foreword by N. E. Dodd. (Pp. 207-84. $2.00.) Waltham, Mass.: The Chronica Botanica Co. London: Dawson. 1949.

Psycho-Analysis—a Modern Delusion. By F. Kenyon. (Pp. 141. 5s.) London: The Pioneer Press. 1949.

Population Trends and the World's Biological Resources. By G. C. L. Bertram, M.A., Ph.D. No. 5. (Pp. 38. 2s.) London: The Eugenics Society, and Cassell. 1949.

The Medical Clinics of North America. Mayo Clinic Number. Gastro-Intestinal Conditions. (Pp. 923—1,210 No price.) London and Philadelphia: W. B. Saunders. 1949.

Pedigrees of Negro Families By R. Ruggles Gates, F.R.S. (Pp. 267. $5.50.) Philadelphia and Toronto: The Blakiston Company. 1949.

Lehrbuch der Inneren Medizin. By H Assmann, G. v. Bergmann, and others. Foreword by H. Schwiegk and A. Jores Vols 1 and 2. Berlin: Springer. 1949.

Children of Today and Tomorrow. By E. Dukes and M. Hay. Preface by D. Mace, Ph.D. (Pp. 249. 12s. 6d.) London: George Allen and Unwin. 1949.

Office Management for Health Workers. By F. King and L. L. Feldman. (Pp. 164. 12s. 6d.) New York. The Commonwealth Fund. London: Geoffrey Cumberlege. 1949.

Kinderärztliche Notfallfibel ein Exkurs fur die Praxis. By B. de Rudder. (Pp. 134. M. 7.80.) Stuttgart: Georg Thieme. 1949.

Aus dem Leben Fritz Richard Schaudinns. By C. Kuhn. (Pp. 73. M. 3.80.) Stuttgart: Georg Thieme. 1949.

Transactions of the Ophthalmological Society of the United Kingdom. Vol. 67. (Pp. 530. 40s.) London: Churchill. 1948.

Medullary Nailing of Küntscher. By L. Böhler, M.D Translated by H. Tretter, M.D. (Pp. 386. 38s. 6d.) London: Baillière, Tindall and Cox. 1948.

Communicable Diseases and their Nursing Care. By E. Pearce, S.R.N. Foreword by W. Gunn, F.R.C.P. (Pp 392. 14s. 6d.) London: Faber. 1949.

The Human Body and its Functions. By C. H. Best, C.B.E., M.D., F.R.S., and N. B. Taylor, V.D., M.D., F.R.S Canad. 2nd ed. (Pp. 500. 18s.) London: Chapman and Hall. 1949.

A New Dictionary of Chemistry. Edited by S Miall, LL.D., B.Sc., and L. M. Miall, B.A., F.R.I.C. 2nd ed. (Pp. 589. 60s.) London: Longmans, Green. 1949.

Modern Practice in Ophthalmology, 1949. Edited by H. B. Stallard, M.B.E., F.R.C.S. (Pp. 525. 65s., plus 1s. 6d. postage.) London: Butterworth. 1949.

Lippincott's Quick Reference Book for Medicine and Surgery. By G. E. Rehberger, A.B., M.D. 14th ed. (Pp. 1,723. £6.) Philadelphia, London, and Montreal: Lippincott. 1949.

A Study of Certain British Seaweeds and their Utilisation in the Preparation of Agar. By S. M. Marshall, L. Newton, and others. Edited by L. Newton. (Pp. 184. 27s. 6d.) London: H.M.S.O. 1949.

The New York Academy of Medicine. Its First Hundred Years. By P. Van Ingen. (Pp. 573. 55s.) New York: Columbia University Press. London: Geoffrey Cumberlege. 1949.

Principles of Human Physiology (Starling). By C. Lovatt Evans, F.R.C.P., F.R.S. Chapters on Special Senses by H. Hartridge, M.D., F.R.S. 10th ed. (Pp. 1,193. 42s.) London: Churchill. 1949.

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WORLD MEDICAL ASSOCIATION

Medical men and women from 27 countries met this week at B.M.A. House to take part in the deliberations of the General Assembly of the World Medical Association. The groundwork of the meeting had been prepared the week before by the ten members of the WMA Council under the chairmanship of Dr. T. C. Routley, Secretary of the Canadian Medical Association. Dr. Charles Hill, Secretary of the B.M.A., is the new President of the WMA for 1949–50 in succession to Professor Eugene Marquis. The machine of the WMA is kept moving on its appointed course by the Secretary-General, Dr. Louis H. Bauer, of New York, who is also Chairman of the Board of Trustees of the American Medical Association. He is helped by Assistant Secretaries for Asia, Australasia, Europe, and Latin America in the persons of Dr. S. C. Sen, Dr. J. G. Hunter, Dr. Paul Cibrie, and Dr. J. A. Bustamante. The financial affairs of WMA are kept in order by the treasurer, Dr. O. Leuch, of Zurich.

The WMA has progressed far and fast since the first meeting of the General Assembly in Paris in 1947. It is now a well-organized and hard-working affair; its objects, constitution, and rules are laid down in black and white; and through the work of its committees and Council it is now well on the way to achieving the objects it has set itself. It has established relations with the World Health Organization and with Unesco, and no doubt in time it will define in co-operation with these governmental organizations those fields of activity which lie within the province of the WMA. Three issues of the WMA *Bulletin* have now appeared under the editorship of Dr. Morris Fishbein, who is also editor of the *Journal of the American Medical Association*. The *Bulletin* places on permanent record in English, French, and Spanish the results of the WMA's work, and contains matter that should be of great interest to all practising doctors who now all over the world are witnessing increasing governmental control of their professional lives. The WMA, it is important to note, is a voluntary association of the various national organizations, such as the A.M.A. and the B.M.A., which represent and protect the interests of medical men and women in various countries of the world. WHO and Unesco, being specialized agencies of the United Nations, are officered by men and women chosen by the governments represented in the United Nations. Between these official governmental agencies and the unofficial voluntary WMA there should be ample room for co-operation.

This week the Assembly once more had before it the text of the International Code of Ethics—what might be called a revised version of the Hippocratic Oath. The need for this was felt because of the crimes committed by German medical men during the recent war, a report on which was one of the early activities of the WMA. It is of course not easy to draft a code that will conform with the ethical standards of various countries, these being so intimately linked with the various world religions. So it has been proposed that each nation must be able to vary the code, so long as its main principles are not infringed. Ten national associations have already adopted it as it stands.

Last week the Council gave much time to a study of a long report on postgraduate education, and finally agreed that "after the training ordinarily prescribed in a medical school course there should be an additional period of training in an approved post before engaging in independent practice." It was felt strongly that an effort should be made to increase the facilities for postgraduate study in countries foreign to the postgraduate, although it was realized that certain legal difficulties might be an obstacle, which the national medical associations are being asked to try to overcome. Another important proposal which came before the Assembly was for an investigation into the social security schemes existing in different countries and their effect upon the quality and efficiency of medical services and also upon the relationship between doctor and patient. Such a study would seem to be of the highest value in these days of rapid change. In relation to this an inquiry is to be made into the medical man-power in different countries, a subject in which there seems to be much interest. Among some of the other matters considered was the question of distributing medical journals and textbooks, in connexion with which Unesco has done useful work in promoting international co-operation between national libraries. Unesco, it may be recalled, is trying to co-ordinate the meetings of international medical congresses so that there will be no overlapping in the timetable of these, but from the words used in a Unesco document on this subject the WMA is asking Unesco whether it is to be understood that it is seeking to determine the agenda of these congresses. This would seem highly unlikely, but clarification is clearly needed.

The general work of this week's Assembly will be summarized in next week's *Journal* so that the reader may have an idea of how WMA is setting about achieving the first of its objects, which is "to promote

closer ties among the national medical organizations and among the doctors of the world by personal contact and all other means available." The second object is "to maintain the honour and protect the interests of the medical profession"; and the last, more difficult or even impossible to realize, is "to promote world peace." At least one step towards world peace is the voluntary meeting together of medical men and women from different parts of the world to discuss all those ways and means of furthering the aim of every doctor—the care of the sick, the prevention of disease, and the maintenance of health. In this work it is to be deplored that the medical profession of the U.S.S.R. and its satellite countries does not see fit to take part—eloquent testimony to the perils of the political control of medicine.

MR. BEVAN'S REVIEW OF N.H.S.

A large crowd of journalists gathered in the Ministry of Health last week to hear Mr. Aneurin Bevan give a review of the first year of the National Health Service. This he did in a skilful and disarming manner, and as advocate in his own cause obviously could not be expected to expose those deficiencies in the Service which the medical profession now sees. One year, he said, was a very short time on which to base a judgment, but he claimed that "the first year has been remarkably good," and for this paid his tribute to all those who were concerned in the transition. The Health Service must be seen as a gigantic change-over from the private pocket to the public purse, and when he was asked later how far actual expenditure had exceeded that originally estimated in the White Paper he replied, "I should think about twice." A Select Committee of the House of Commons has already investigated the expenditure in the N.H.S. and there are obviously many factors that must have made a more exact estimate difficult. But if the Minister can make one mistake of such magnitude it is not out of the question that he may make another. For example, to a question about the remuneration of general practitioners he answered: "So far there is conclusive evidence that we have more than honoured the Spens recommendation." One point that emerged clearly from the recent discussions between the B.M.A. and the Ministry of Health was that the evidence was by no means conclusive. Then again, when he was asked whether he did not think that the remuneration of general practitioners was disproportionately low when compared with the pay of dentists and opticians he refused to accept that this was the case, stressing the fact that 52% of the gross earnings of dentists must be regarded as expenses. Yet there is evidence that in Scotland the average net remuneration of the general practitioner there is much less than the average net remuneration of dentists; and when Mr. Bevan went on to observe that dentists worked all kinds of hours he presumably did not wish to leave his audience with the idea that the general practitioner was able to fit his work into a neat timetable beginning at ten in the morning and ending at six in the evening.

In answer to a question about Sir Stafford Cripps's remark in his budget speech this year that a health tax might be necessary, Mr. Bevan said, "If by tax is meant payment by the patient at the moment when the patient needs treatment, we set our faces against it." One of the principal worries in the Service was, he said, over-prescribing. The 14,000 chemists in the scheme had had to deal with 187,000,000 prescriptions, and he appealed to patients not to be importunate, especially in asking for "ordinary" things like aspirins and cotton-wool. Yet when he was asked later whether it might not be a good thing if the patient were to make a nominal payment he replied that a nominal payment would not be a deterrent, and if it were large enough to be a deterrent it might prevent people from seeking medical help when needed. This, we suggest, does not allow for the fact that if the patient were to make a small payment, whether on the occasion of the first consultation with the doctor or for a prescription, he would be encouraged to use the Service with a greater sense of responsibility. It seems likely that sooner or later Mr. Bevan or one of his successors will have to overcome the Minister's desire to be a public benefactor, and will have to introduce some scheme of payment which will be a greater deterrent than mere exhortation to the public to be careful about spending money provided almost entirely out of the taxpayer's pocket.

There seemed to be some contradiction in two statements Mr. Bevan made. He said: "We must rest upon the principle that the doctor must be free to prescribe what he considers to be necessary for the care and welfare of his patient." Later on he remarked that "he had asked a small specialist committee to draw up a list of drugs which the general practitioner can prescribe which are adequate for the purpose and outside which the general practitioner need not go except in special cases." It is not clear whether he was contemplating an alternative to the present formulary, but in any case the implication is that the special cases referred to will have to be defined. In that event the freedom to prescribe will be limited.

When someone asked Mr. Bevan why private patients should not be provided with free drugs he made the usual reply that prescription is part of the service of the general practitioner and the two cannot be separated. When he went on to say that the individual citizen in Britain does not pay a weekly contribution to the

National Health Service, and if he did not enter it was not prevented from receiving something for which he was paying, he was wrong in his facts. Something like nine-tenths of the cost of the Service is borne by the taxpayer, and if he is prevented from accepting part of the benefit of the Service then he is prevented from receiving something for which he has paid. Mr. Bevan, incidentally, asked those journalists present to correct the prevalent misconception that the whole of the weekly contribution to National Insurance was a contribution to the Health Service. There had, he said, been in fact no increase in insurance contributions in respect of the National Health Service, and complained of the confusion that had arisen. This confusion was widely spread by those national newspapers which supported Mr. Bevan during the controversy over the National Health Service, and he himself now seems to wish to create a further misconception by saying that the private patient not allowed to receive drugs free of charge "is not desisting from receiving something for which he is paying."

All the financial implications of the National Health Service must be of much concern to the medical profession. In the national interest some limit must be set to the drain on the exchequer from the mounting cost of the N.H.S. If the finances of the scheme continue to get out of hand the possibilities of properly remunerating general practitioners must diminish. Some idea of the great increase there will be in hospital expenditure may be gained from Mr. Bevan's statement that there was need for 40,000 to 50,000 more nurses. He admitted that in some parts of the country the general practitioners are overworked, and at the same time praised "the thousands of devoted professional men and women who go about their work in a proper fashion." Yet he omitted to say—and unfortunately no question elicited a reply from him on this point—that general practitioners as a whole are working with a strong sense of justifiable grievance about their terms and conditions of work. Until these grievances are removed no Minister of Health will be able to say that the National Health Service is or has been a success. Referring to abuses in the Service, Mr. Bevan said that it was "a prerequisite of human behaviour that a human being should be allowed to behave, and what we must do is to give people the opportunity of behaving, study their behaviour, and make whatever corrections are necessary afterwards." This will certainly be the considered attitude of the medical profession in relation to the Minister of Health.

The Minister's speech is reported in this week's *Supplement*, and there is space here to comment on only some of his observations, many of which displayed his interest in and awareness of some of the problems that concern medicine. He showed, for example, a sympathetic grasp of the difficult question of providing for the chronic sick and the old people who require careful nursing. The problem of the chronic sick could not be tackled by providing expensive beds in hospital needed for the acute sick. Once provision had been made for this growing section of the community it should be necessary only in the last resort to use beds in "acute" hospitals for those nearing the end of their days. Mr. Bevan, too, saw the opportunities for research when on an agreed terminology medical men would be able to supply material for statistical analysis and so open up further possibilities for research, and he gave as an instance rheumatism, pointing out how valuable it would be to know in what age groups, occupations, and parts of the country the various forms of rheumatism occurred.

In his Press conference there were at least two Mr. Bevans speaking—first, the politician skilful in evading an awkward question or giving an answer which really demanded a further question to nail him down; second, the man who has a remarkable grasp of the complexities of the National Health Service and combines with this a desire to provide the people of Britain with every facility for improving and maintaining health. When the organized medical profession negotiates with the Minister of Health it prefers to meet him in the latter role.

PREGNANEDIOL ASSAYS

Many recent advances in the practice of obstetrics and gynaecology are the result of endocrine research. The need for the clinician to keep abreast of the main advances in this field and to understand the principles underlying hormone assays and biological tests was pointed out recently in this *Journal* by de Watteville and his colleagues.[1] They drew attention to the limitations as well as to the advantages of such procedures and emphasized the need for caution in the interpretation of the results. The value of estimating the output of pregnanediol, the chief but not the only urinary metabolite of progesterone, was discussed at the recent Twelfth British Congress of Obstetrics and Gynaecology, the final conclusion being that it is probably too early to assess its usefulness. Dr. G. I. M. Swyer's

[1] *British Medical Journal*, 1949, 2, 352.
[2] Ibid., 1948, 1, 683.
[3] White, P., and Hunt, H., *J. Amer. med. Ass.*, 1940, 115, 2039.
[4] *J. clin. Endocrinol.*, 1941, 1, 461.
[5] *Amer. J. Obstet. Gynec.*, 1946, 51, 403.
[6] Christie Brown, R., *British Medical Journal*, 1948, 2, 851.
[7] *Amer. J. Obstet Gynec.*, 1947, 1, 627.
[8] *Introductory Papers*, Twelfth British Congress of Obstetrics and Gynaecology, 1949, p. 51.

contribution to the discussion appears in this issue of the *Journal*.

As a diagnostic test for pregnancy pregnanediol assay has been tried and generally found wanting. False positive readings can occur in the presence of delayed ovulation, corpus luteum cysts, and overactivity of the adrenal cortex; and false negative readings are so frequent as to make the test much less reliable than many of the gonadotropin tests, at least one of which can be as rapidly performed. It is often because of vaginal bleeding after one or two missed periods that the practitioner asks for a pregnancy diagnosis test, and Bender[2] claims that in 36% of cases of true threatened abortion the pregnanediol test is negative when the gonadotropin test is positive. If abortion does threaten, a low pregnanediol excretion is held to give warning of an unfavourable outcome, but Bender points out that it is also an indication to administer progesterone with a reasonable prospect of averting miscarriage unless the condition is already irreversible. If, on the other hand, the pregnanediol excretion is normal in such cases the administration of progesterone may accelerate abortion. Pregnanediol determinations indicate that repeated progesterone failure is not a major cause of habitual abortion, and progesterone should be withheld unless the assay gives a low reading. The rate of foetal loss and of maternal toxaemia is abnormally high in pregnant diabetic women in whom there is evidence of maternal hormonal imbalance, including a low pregnanediol excretion,[3] and the results of treatment with oestrogen and progesterone, though not conclusive, are encouraging. Smith[4] claims that a fall in pregnanediol output precedes the development of clinical signs of toxaemia of pregnancy, but this has not been finally confirmed. Moreover, initial hopes, mentioned by Dr. Swyer, that the combination of a gonadotropin test positive in dilution with a negative pregnanediol test would be diagnostic of hydatidiform mole have also failed to be realized. Finally, the work of Lyon[5] has suggested that once the decline in the output of pregnanediol which sets in about ten days before labour has begun the threshold of labour has been reached, and the induction of labour may then be attempted with confidence. Dr. Swyer's findings in this respect are equivocal, and at present few obstetricians will place reliance on hormone assay when deciding whether conditions are suitable for induction.

In the non-pregnant woman pregnanediol determinations are more laborious and time-consuming because of the small amounts excreted. For the diagnosis of the occurrence and time of ovulation they have been superseded by basal body-temperature charts. But where it is suspected that childlessness may be due not to failure of conception but to failure of nidation because of poor progestational response in the uterus[6] there may be a place for pregnanediol assays, for if the total amount excreted is small or limited to a few days the infertility may be due to a defective luteal phase and substitutional therapy with progesterone might be helpful. Functional uterine haemorrhage is another disorder in which pregnanediol estimations might provide useful information. McKelvey and Samuels[7] have shown that when the bleeding is characterized by asynchronous shedding of the endometrium there is an abnormal persistence of pregnanediol in the urine during the bleeding phase. Anovular haemorrhage, on the other hand, as in metropathia haemorrhagica, might be recognized by the pregnanediol content of the urine being very low or *nil* over a period of weeks. Most cases are diagnosed by curettage, but in young girls there is a proper reluctance to perform an operation, and these assays may then have some value. The time for this, however, except as an experimental study, has not yet arrived, and indeed the practical value of pregnanediol tests is clearly strictly limited. Dr. Swyer goes so far as to conclude that they are of such little help to the clinician that every effort should be made to find a method of estimating the level of progesterone in the blood, despite the fact that as a rule the concentration of hormones and their products is lower in the blood than in the urine.

The theoretical basis of pregnanediol assays lies in clinical observations that the amount in the urine, broadly speaking, reflects progesterone activity in the body. But Marrian,[8] a leading authority in this field, now casts doubts on the validity of this basic assumption. Despite this, however, he acknowledges that there is a considerable weight of evidence that pregnanediol determinations may be useful clinically, and therefore he urges clinicians to continue to test the results without prejudice and biochemists to improve still further the methods of assay. The time has certainly not yet come when pregnanediol estimations can be regarded as a useful routine laboratory procedure for general application, but it is to be hoped that a few centres, well equipped for accurate and controlled studies, will continue to work on this problem.

CHANGES IN USE OF HOSPITALS

An important statement from the Ministry of Health published this week in the *Supplement* comments on the procedure to be adopted when a hospital board wants to change the use to which a hospital has been put. Powers are delegated to the board subject to the Minister's direction, and "he cannot ignore representations made to him by members of the public and of the profession." If a

board wishes to change the use of a hospital, "he may feel bound at any time to call upon a board to report to him their reasons for adopting their new policy." The circular emphasizes that boards should consider the possible loss of service to patients and disturbance of medical staff. Where a hospital of long-standing repute is concerned, the board is required to give the medical staff an opportunity of having its views considered, orally if possible, by the board or its planning committee. In some cases an open meeting may be desirable where members of the public can express their views.

The circular points out that local loyalty is of great importance, and the Minister asks boards to make sure that they do not deprive patients of hospitals where general practitioners of the neighbourhood may treat them. The Minister considers that it is "very valuable for the general practitioner service of the district when the family doctor has access to beds where patients . . . can be in his charge and he knows he can readily call upon the services of a consultant for a second opinion." The Minister emphasizes that cottage hospitals must not be regarded merely as buildings providing additional accommodation for relieving pressure on beds at the district general hospital. This circular should have a salutary effect in some regions where boards are proposing to change the use of hospitals. In particular, we may hope that the decisions on the future of the Lock and Paddington Green Hospitals will be reversed.

PARENTERAL FEEDING

In recent years much interest has been shown in the use of amino-acids and protein hydrolysates for feeding in certain categories of illness in which the patient cannot be fed adequately by mouth. The indications for parenteral feeding are inability to ingest, digest, or absorb sufficient quantities of food over such a period of time that convalescence is jeopardized and, perhaps, the chance of survival prejudiced. The most recent information on the subject of amino-acids and protein hydrolysates was discussed at the end of last month in London at a symposium held by the Food Group of the Society of Chemical Industry, and a report of some of the papers which were read appears elsewhere in this issue. The available evidence indicates that nitrogen equilibrium can be attained and the protein needed by normal adult animals, including man, can apparently be supplied, provided energy requirements are met, by injecting into a vein properly prepared hydrolysates of biologically efficient proteins or by the provision of the essential amino-acids and an additional nitrogen source such as glycine. In general, the experiments have not been continued long enough to show that all the physiological requirements of the adult organism for nitrogen can thereby be met. There is no evidence that intravenous administration is nutritionally superior to the oral route if the latter is practicable, but protein hydrolysates are disagreeable to take by mouth. It is seldom possible to give regular intravenous injections of more than the equivalent of 75 g. of protein and 300 to 400 g. of glucose daily. If hydrolysates are injected too quickly nausea and sometimes vomiting may lead to less efficient use of the constituent amino-acids and peptides. There is no definite evidence that the administration of hydrolysates or amino-acid mixtures orally or by tube into the alimentary canal has any special value. Intact food protein by mouth is much more satisfactory.

The reason for employing amino-acid mixtures parenterally in place of, or along with, intact blood proteins in certain conditions is said to be based more on the necessity to sustain liver function and encourage a more vigorous nitrogen turnover than to build up a store of protein. To save body protein it may be wise to include all the amino-acids rather than to rely on the essential amino-acids plus glycine. Because of the difficulty of infusing sufficient protein and energy in the infusion fluid it is generally agreed that it is not possible to make good the requirements of the protein-depleted organism entirely by intravenous injection. It is not wise to inject fluid containing more than 5% of hydrolysate and 5% of glucose, but mixtures containing 8% of pure amino-acids can be given. Even with these concentrations it may take some four hours to inject 2,000 ml., and the patient may be very uncomfortable and demand rest. Some patients suffer actual distress.

Calorie requirements are inadequately met by these intravenous methods of feeding, and the recent work of Rose[1] indicates that with amino-acid mixtures or protein hydrolysates the deficiency is greater than would be expected with the equivalent of intact protein. It is held by some that for short periods of time the glucose intake can be safely limited to 100 g., the rest of the energy needs being met from the adipose tissue. The use of a stable finely divided emulsion of fat with a particle size of not more than two microns, such as that used by Geyer and his colleagues,[2] may prove to be a helpful method of meeting calorie requirements, but more corroborative evidence is required.

[1] *Fed. Proc.*, 1949, **8**, 546.
[2] *J. Lab. clin. Med.*, 1948, **33**, 153.

ERYTHEMA NODOSUM AND NODAL ERYTHEMA

The importance of tuberculosis in the aetiology of erythema nodosum is referred to in a paper by Dr. S. A. Doxiadis which appears elsewhere in this issue. Some aspects of the problem, however, remain obscure. It is possible that confusion results from casual clinical observation. The true eruption has a characteristic colour both in active and fading stages. The size and conformation of the lesions, the location, and the presence of tenderness and pain with pyrexia are distinctive, and if these features are absent it is doubtful if the diagnosis of erythema nodosum should be made. It was these characteristics which lent some support to the conception of a specific infective fever—nodal fever—now abandoned by most experienced physicians. A nodal erythema may accompany the eruption of a toxic erythema multiforme or may follow the administration of sulphonamides: it is sometimes seen in sarcoidosis and in other conditions, but it may be confusing the issue to regard such eruptions as erythema nodosum when they lack many of the distinctive features of that entity.

Erythema nodosum, in its classical form, commonly accompanies a recent infection, such as tuberculosis in the young—in which a primary lesion in the lung with unilateral hilar-node enlargement may recall the early phases of a syphilitic infection. The typical eruption following a streptococcal infection of the throat possesses the same features. While these are the commonest provocative causes in this country the condition is occasionally seen in association with deep-seated ringworm or with gonococcal, meningococcal, syphilitic, or other infections. The causative infections vary in different countries, but it seems that the typical attack of erythema nodosum indicates a peculiar and personal response to the presence in the skin of organisms derived through the blood stream from a recent primary focus of infection elsewhere. It is not merely a reaction to toxic products. To justify the analogy with syphilis erythema nodosum ordinarily should not recur. When it does recur it is generally in association with streptococcal infections of the throat, in which the immunity may be assumed to be only transient. Even so, much remains to be clarified. In chronic meningococcal septicaemia the eruption, characteristic in other respects, consists of small lesions scattered profusely over the limbs instead of a few large nummular lesions; it may continue to wax and wane over a period of months, suggesting the presence of an unusual static phase of sensitivity in the tissues. Whatever the explanation may be of the puzzling features of erythema nodosum, it is certainly desirable when the typical signs are present to seek for a causal organism, if necessary in the blood stream or in the skin lesions themselves. In this country care must be taken to exclude tuberculosis, especially in the young, by immediate overhaul and follow-up of the patient and by investigation of all contacts.

BEGINNING MEDICINE

About 2,500 students in Britain have now set off on the long road to a career that probably offers more diversity of interest than any other, a career, too, that is unlikely ever to be overcast by the shadow of unemployment, though in its initial stages the National Health Service has created difficulties rather than solved them for the man wanting to settle in clinical practice. All acknowledge that a wide general education is desirable for a medical student, and the foundations for this must be laid during the school years. But once embarked on the study of medicine few students find the time or energy to see far beyond the heavy textbooks that burden their knees for many years; and it must be confessed that of those who do some turn out to be interesting companions rather than pioneers in research. As Professor E. C. Dodds said[1] at the annual dinner of the Middlesex Hospital Medical School, the London schools are too narrow in their education, and we welcome his claim that the Middlesex School aims at keeping the basis of education as broad as possible.

The complement of a broad education is to be found in research, and Sir H. Cairns, in his inaugural address[2] at King's College, suggested that "nearly every young doctor should try his hand at one investigation . . . otherwise he will not find out what he is good for, nor will he appreciate the difficulties and labours involved in discovering new things." Every case contains some new thing that must be discovered, and if a knowledge of the textbooks helps the young doctor to clarify the patient's disorder quickly a training in research, even though slight, will make him more sensitive to the details peculiar to the patient that defy classification. Moreover, it encourages an inquiring habit of mind, and he learns that, in the words of Clement of Alexandria,[3] "the beginning of truth is to wonder at things."

Certainly the antithesis of this attitude is thinking "in moaning terms of what terrible conditions you are living under," against which Lord Bruce[4] warned the students when he opened the new term at University College Hospital. He emphasized the need for hard work, and medical students will not fail to appreciate the point when they examine the curriculum. He also adumbrated—as did Sir Hugh Cairns—a life of service rather than of place-seeking—an ideal readily accepted by young people, but which becomes more difficult to live up to as the passing years bring increasing opportunity to depart from it. The great fear is that the National Health Service, in spite of its name and aim, may not encourage the doctor to give of his best in service to the sick: in the words of Principal T. M. Taylor[5] when he addressed graduates at Aberdeen recently, "It will be an ill day for the community when the general practitioner degenerates into a filler of forms or an automatic machine dispensing chemical panaceas." Five or six years will pass before students now starting work seek in the practice of medicine that full and happy life that Sir Hugh Cairns wished them. Within that time the National Health Service will be over the experimental stage and, it is hoped, be better adapted to satisfying their aspirations.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

In this issue of the *Journal* we publish the first of a series of articles which will appear week by week under the heading of "Refresher Course for General Practitioners." Before the war we used to publish each week a special article of this nature for the general practitioner, but because of shortage of paper we had to discontinue this feature in 1939 until now. More paper has been available since the beginning of July, and it is hoped that no further restrictions will increase our difficulties in keeping a wide variety of readers informed on matters of special interest to them. "Any Questions?" was started in 1943 as an attempt to meet the need of the general practitioner for information on problems which concerned him in his daily work. It is hoped that this section of the *Journal*, together with the new Refresher Course, will continually revise for the general practitioner what is old and keep him fully acquainted with what is new in a manner that will be of practical use. We would welcome suggestions from readers for subjects that might be considered in the Refresher Course articles.

[1] *British Medical Journal*, October 8, p. 811.
[2] Ibid., October 8, p. 805.
[3] *Stromateis*, quoted in *The Apocryphal New Testament*, O.U.P., 1924.
[4] *Daily Telegraph*, October 5.
[5] *Scotsman*, September 9.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

THE ACUTE THROAT

BY

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The complaint of "a sore throat" must be one of the commonest made to the doctor, and as the condition sometimes calls for urgent treatment the correct diagnosis is of some importance. Although the initial complaint focuses attention upon the throat it is necessary to remember two fundamental points: first, a throat infection may exist without sufficient pain to draw notice to its presence, which bears out the old clinical rule that examination of a patient—particularly a child—is not complete until the throat has been inspected; secondly, it should never be forgotten that the throat inflammation may be the local manifestation of some general disease.

Examination of the Throat

The examination of the throat is such a simple procedure that a description of the necessary manipulations is often taken for granted. Yet to obtain a proper inspection in a writhing youngster calls for tolerance and persistence on the part of the doctor. With patience and persuasion the co-operation of the child will often be fully attained, and where this course is possible it is much to be preferred. No attempt should be made to use force. The following points may be of assistance in difficult circumstances.

(1) *Holding the Child.*—When there is complete refusal to co-operate it will be necessary to pinion the child. The best method is to bring both arms across the chest and for an assistant to hold them there by catching both wrists in one hand. The assistant's other hand should hold the head firmly on the bed by placing the open palm across the forehead, the thumb to one side and the fingers to the other. In such a way the child may be held firmly and painlessly.

(2) *Opening the Mouth.*—Sometimes an unwilling child will hold the jaw tightly clenched. The spatula should then be inserted along the left-hand side of the mouth between the teeth and the buccal mucosa. Firm pressure inwards as far back as possible on the lateral aspect of the alveolar margin will usually result in the mouth being opened. The spatula can then be rapidly turned flat and passed on to the tongue.

(3) *Position of the Spatula.*—The spatula should be passed far enough into the mouth for the distal end to cover the posterior third of the tongue. Pressure should be downwards and forwards to enable a full view to be obtained of the fauces without forcing the tongue back into the throat, which not only blocks the airway but causes the child to "gag."

Diagnostic Points

When examining the throat the doctor must ask himself the following questions:

(1) *Is the Throat Acutely Inflamed?*—The soft palate, faucial pillars, tonsils, and pharyngeal walls should be carefully inspected for redness and oedema. The lesion may vary from a slight reddening of the palatal fringe, uvula, and anterior pillars to oedema so gross that the swollen uvula, palate, and tonsils almost close the faucial airway.

(2) *Is there an Inflammatory Exudate?*—This may be unilateral or bilateral, and three stages in its formation may be recognized. First comes the appearance of numerous discrete follicular flecks; secondly, there is a confluent, soft, loosely attached and rather pultaceous exudate; and, thirdly, one sees a confluent, firm, leathery membrane which is more or less firmly attached to the subjacent mucosa. Note that exudate is usually confined to the tonsillar surfaces, but membrane may extend on to the fauces, soft palate, or pharyngeal wall.

(3) *Is the Lesion Raised?*—When exudate or membrane is present its level relevant to the adjacent mucosa must be noted. The doctor must satisfy himself whether it is superimposed upon the mucosa or level with the adjacent surface, as if forming the base of a shallow ulcer.

(4) *Is the Membrane Discrete?*—It may be one continuous piece, or made up of numerous solitary areas with intervening normal mucosa.

The causes of a sore throat may be grouped under three broad headings—local virus infections, local bacterial infections, and general diseases.

Virus and Bacterial Infections

Influenza may start with a complaint of sore throat. In such cases the throat often shows little abnormality apart from some enlargement of the solitary follicles on the pharyngeal wall. There seems little doubt, however, that an upper respiratory virus infection can produce a generally inflamed throat with or without tonsillar exudate exactly similar in appearance to that of an acute bacterial infection.

Coccal Infections.—It is impossible to differentiate clinically between the various acute coccal infections. In general *Str. pyogenes* produces a severely inflamed and oedematous throat usually of sudden onset and associated with such great pain that swallowing is exquisitely sore. A tonsillar exudate is common with streptococcus, pneumococcus, or staphylococcus infections. This exudate may become confluent and closely simulate a false membrane, but it is more friable and white or yellow in colour. The associated lymph glands are enlarged and tender but remain discrete. In such cases the ear drums should always be examined. The drum-head may show a diffuse pinkness and slight lack of lustre that suggests a coccal tonsillo-pharyngitis.

Scarlet Fever.—A sore throat precedes the onset of scarlet fever, and the initial rash is often seen on the soft-palate, giving it a speckled appearance. The skin rash will usually confirm the diagnosis within 18–24 hours.

Pharyngeal Abscesses.—A peritonsillar abscess may develop on top of a pre-existing acute tonsillitis. The unilateral, tense swelling of the fauces and soft palate, pushing tonsil and uvula to the opposite side, is easily recognized, and the intense pain is a characteristic feature. Retropharyngeal abscess can be difficult to diagnose,

particularly in young children, because of the filling of the pharynx with mucus as a result of the difficulty in swallowing. The swelling produces a curious choking stridor which may be mistaken for laryngeal obstruction, but the latter produces a much "drier" stridulus with harsh cough. The fauces may show little inflammation in such cases, and should the character of the respiration have aroused suspicion there is only one course of action—persistence in obtaining a good view of the pharyngeal wall.

Diphtheria

A few years ago diphtheria would have taken first place in any consideration of the differential diagnosis of a sore throat. As a result of a reduction in incidence, largely due to active immunization, the clinician need not to-day regard it as occupying so high a place on the list. But it is well to keep two considerations in mind. First, in face of an appearance which suggests diphtheria a history of immunization should never encourage the practitioner to consider the diagnosis impossible. Secondly, it must be remembered that in the "immunized" subject a diphtheritic infection may produce an appearance indistinguishable from that of follicular tonsillitis. Typically, infection of a susceptible person with *C. diphtheriae* has an insidious onset and produces a mildly inflamed throat; the greyish membrane is "all of a piece" and often shows a slightly curled edge which may spread on to soft palate, faucial pillars, or pharyngeal wall when diagnosis is delayed. In general, the inflammatory reaction is limited to a zone surrounding the membrane and the diffuse bright redness characteristic of a streptococcal infection is seen less commonly. Pain is not a feature—indeed, it is often surprising to find how little pain may be associated with an easily recognized, severe diphtheria. Adenitis of the tonsillar glands, so often referred to in textbooks, is the mark of the severe or late case and is of little assistance in making an early diagnosis.

The most confusing appearance is produced by a severe *gravis* diphtheritic infection. The inflammation is intense and the soft palate and anterior aspect of the faucial pillars may be very oedematous and covered with a thin glairy mucus which is not unlike white of egg. This is, in fact, early membrane. The typical membrane may be slight or absent and the condition carelessly regarded as a quinsy. When diphtheria is epidemic the clinician should never hastily use a knife on what seems an acute peritonsillar abscess, for if the lesion is in reality diphtheritic incision greatly worsens the prognosis.

The diagnosis of diphtheria is never easy and even the expert can define no absolute diagnostic criteria. It should be more widely appreciated that modern diphtheria antitoxin is a highly refined and concentrated product, 8,000 units of which can be obtained in a 2 ml. syringe. When the clinician is in any doubt a dose of this magnitude is a safe procedure and will be adequate for most early cases. Serum reactions are now so rare as to be negligible.

Vincent's Angina.—This condition, like diphtheria, has an insidious onset, and as a rule produces little rise in temperature. The throat may simulate diphtheria in that the slough covering the ulcers suggests membrane formation. It will be observed, however, that the membrane is on a level with the normal mucosa and that it makes up several discrete, linear lesions separated by more or less normal mucosa. Although ulceration is seen in rare cases of diphtheria the lesion is continuous and does not consist of individual ulcers. In Vincent's angina the whole mouth is often unhealthy and the gums are inflamed and swollen —a further aid to diagnosis.

Sore Throats in Schools

In closed communities such as boarding schools, outbreaks of acute tonsillitis are most frequently streptococcal in origin. The cultures from the initial cases will usually decide which organism is responsible, and as a rule the swabs of throat and nose produce a heavy, almost pure, culture. Early diagnosis and isolation of those infected are the measures most likely to limit spread, but the high carrier rate which often accompanies such an outbreak may entail the isolation of a large proportion of the individuals. To begin with, all the residents must be subjected to a clinical examination at which particular attention is paid to ears, throat, and nose for the presence of otorrhoea, enlargement or irregularity of tonsils, or rhinitis. Those who show such abnormalities should have cultures taken from nose and throat and should be separated from the others; for it is this group which usually contains the carriers. The remainder should be inspected daily for a period of seven days and any individual showing signs of upper respiratory tract infection isolated at once. When cases continue to crop up among those who showed no abnormality of throat, nose, or ear two possibilities should be considered: first, that the epidemic is food- or milk-borne, and, secondly, that there is an unsuspected carrier remaining among the apparently healthy residents. In connexion with the latter possibility it is important to remember that the nasal carrier is the more dangerous.

When tracing the source of an epidemic which may involve a considerable number of persons the doctor should make early contact with the local medical officer of health and the nearest unit of the Public Health Laboratory Service. Precise knowledge of the organism involved is essential for any useful epidemiological work. For example, by determination of the serological type in streptococcal outbreaks it is possible to make more accurate decisions regarding the importance of a carrier or to assess the significance of milk or food in the spread of infections. Early consultation with the bacteriologist will ensure not only that he receives the right kind of specimens but also that he is able to proceed with the further definition of the pathogen involved.

Specific prophylaxis is only practicable in outbreaks of diphtheria, when combined active and passive immunization should be started. This consists of the injection of 500–1,000 units of diphtheria antitoxin into one arm and 0.5 ml. of A.P.T. (alum precipitated toxoid) into the other. Six to eight weeks later a second injection of 0.5 ml. of A.P.T. is given. Prophylaxis of streptococcal infections by the administration of sulphonamides is not advisable as a routine measure.

General Infections

Glandular Fever.—The anginose form of infectious mononucleosis produces a throat which may be indistinguishable from an acute coccal infection—indeed, the secondary invader is often a *Str. pyogenes*. Glandular fever is a systemic virus infection. Generalized lymphoplasia and splenomegaly will probably be present, but the diagnosis may be suggested by the sore throat suggestive of streptococcal tonsillitis appearing as a secondary manifestation after a few days of general malaise. In the usual streptococcal infection the sore throat is the first manifestation of an acute illness. There is little doubt that infectious mononucleosis now occurs more frequently than it did in the past. Accurate diagnosis depends upon the differential white cell count, which shows a mononuclear

leucocytosis and the characteristic atypical cells, and the demonstration of heterophile antibody in the patient's serum by the Paul–Bunnell reaction. This reaction is variable in the time of its occurrence and often becomes positive for the first time late in the illness. A titre of 1/64 is significant. Should the patient have received horse serum in the form of an antitoxin the bacteriologist must be informed, so that he may take steps to eliminate the resulting false-positive reaction.

Agranulocytic Angina.—The throat may show ulceration and membrane formation. There is, however, a characteristic lack of inflammatory reaction in contrast to the apparent acuteness of the lesion, and the soft palate, uvula, and fauces look pallid, soft, and jelly-like. The lesion is more frequently seen in adults; and a history will often be obtained of the habitual use of a drug containing the benzene ring. The amidopyrine group and, rather infrequently, the sulphonamides constitute the commonest aetiological agents. Diagnosis depends on lack of polymorphs seen on a carefully taken blood film. The film should preferably be made on cover slips to secure an even distribution of the white cells. If it is taken on a slide the most careful scrutiny should be made along the edges and at the end of the smear, for it is here that the polymorphs will usually be found.

Toxic Drugs.—Whether agranulocytosis is in fact a form of acute sensitization or not is still uncertain, but there is no doubt that an ulcerative stomatitis and pharyngitis without agranulocytosis can occur as part of a drug sensitization. The whole mouth is inflamed in this condition and as a rule there is some confirmatory evidence such as a rash. It is important to appreciate that the individual who has been sensitized to one drug is the more easily sensitized to others, and care should be exercised in the use of forms of therapy involving sensitizing drugs, such as aspirin and the sulphonamides.

Other Conditions.—Acute leukaemia sometimes presents for the first time as an acute ulcerative tonsillitis. The child —for it is more frequently seen in childhood—usually appears ill and anaemic. There may be petechial skin haemorrhages, the spleen is often enlarged, and sternal tenderness is usual. Diagnosis can only be made after a careful examination of the blood.

Finally, in the adult, secondary syphilis should always be borne in mind as a cause of ulcerative tonsillo-pharyngitis. The presence of a typical rash may give a pointer to the correct diagnosis, but failure to respond to any form of treatment is often the first feature to make the clinician think twice about the diagnosis. Toxaemia usually appears mild in contrast to the severity of the local lesion. The Wassermann reaction will confirm the diagnosis.

Bacteriological Procedures

In the past, the focus of attention upon diphtheria resulted in the clinician tending to seek bacteriological assistance only when this diagnosis was under consideration. A carefully taken swab from the tonsillar surfaces, however, is of value in all throat infections and is particularly desirable in severe cases because of the guidance it may give in planning treatment. The swab must be taken before any form of chemotherapy is used. Most bacteriologists include a direct film in their examination of the throat swab, as well as culture on blood agar, Loeffler's slope, and a special medium to differentiate the organisms of diphtheria. The report may therefore supply valuable information in regard not only to diagnosis but also to prognosis.

Treatment

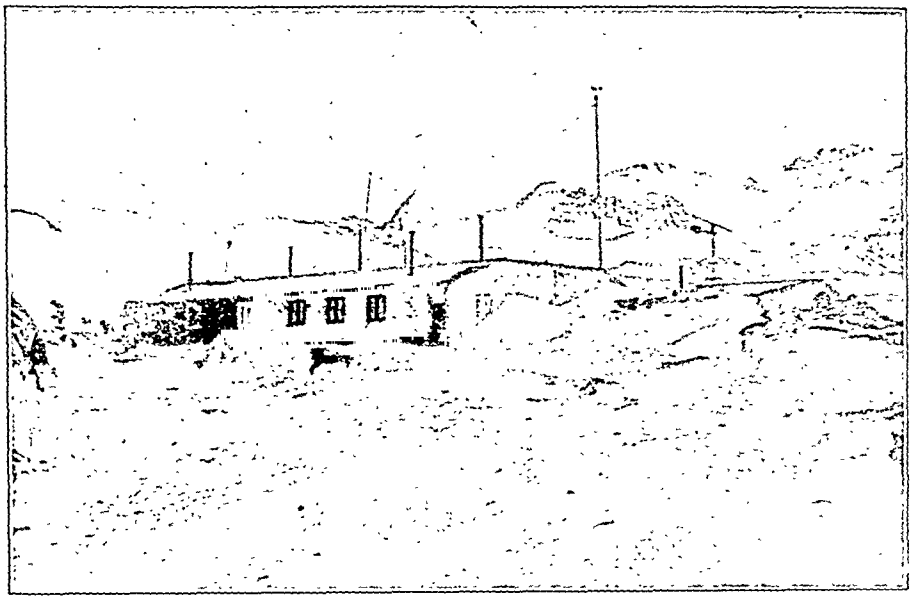
Antitoxin.—Although in many cases treatment will be guided by the results of the bacteriological examination, it is often necessary (and in a suspected case of diphtheria essential) to start treatment before the results of such examination are known. The dose of diphtheria antitoxin ranges from 5,000 to 100,000 units. Where the disease is suspected an intramuscular dose of 8,000 units will suffice. For the late, severe case when hospital admission cannot be immediately secured a dose of the order of 50,000 units will be required, and in such an event intravenous administration is particularly desirable. Such cases are best treated in hospital, however, and the practitioner will find that most fever hospitals are anxious to admit them even when the diagnosis is unconfirmed or in doubt.

Penicillin.—For the coccal infections and for Vincent's angina penicillin is the treatment of choice. It should be realized that the need is to secure an adequate local concentration of the antibiotic. The condition must not be thought of as a mere surface infection. Local therapy by lozenges and so forth is therefore completely inadequate and systemic administration in high dosage is indicated. If the aqueous solution is used a four-hourly dose of 100,000 units should be injected intramuscularly: procaine penicillin may be employed to advantage here, and two or three injections of 500,000 units during the first 24 hours may be followed by a lower dosage for the remainder of the time. For all throat infections due to susceptible organisms treatment must be continued for seven days to secure the best results.

Although there is no specific treatment for infectious mononucleosis the throat infection is usually due to either *Str. pyogenes* or Vincent's infection, and penicillin will prove effective. In agranulocytic angina, also, the administration of penicillin has greatly improved the outlook. Pentnucleotide should be injected intramuscularly. During the first 24 hours three or four injections of 5–10 ml. may be given, and thereafter the dosage will depend on clinical response. The administration of the antihistamine drugs might be considered, but the results have not been encouraging. In severe cases repeated small blood transfusions are valuable. The diet should be plain and contain no flavourings or adulterants, and care should be taken to avoid the use of any chemical which might have a sensitizing action.

Sulphonamides.—The administration of sulphonamides has been intentionally omitted from the treatment of the acute throat. The efficacy of these drugs has never been convincingly demonstrated in such conditions. Since they are undoubtedly toxic materials, carrying appreciable risks of sensitization, their administration is inadvisable, and in certain conditions may even be dangerous.

Finally, it must be pointed out that many mild throat infections clear rapidly and effectively without specific treatment. Gargling is so frequently indulged in by the patient before seeking advice that its continuation may be advised for its effect in cleansing the mouth. For those adults who can gargle, warm water with glycerin of thymol may also prove soothing to the throat. When pain is more severe the application of poultices to the neck, inhalations of friar's balsam, and, of particular value, the administration of aspirin powder, which is allowed to melt slowly in the mouth before swallowing—such measures are often adequate to secure rapid relief. The hasty rush for penicillin as a panacea for all cases is to be deprecated. It may do the patient little harm, but it can induce in the physician an easy optimism which may eventually cloud his whole judgment.



The base hut.
(Photograph reproduced by permission of the Colonial Office.)

THE FALKLAND ISLANDS DEPENDENCIES SURVEY

BY

J. M. ROBERTS, M.B., B.Chir.

In 1943 the British Government decided to dispatch an expedition to the Falkland Islands Dependencies in order to maintain British sovereignty, which was challenged by Argentina and later by Chile. Since that time the continuous occupation of various Antarctic bases has been maintained by a succession of personnel. It was as one of the M.O.s in an annual relief party that I had the good fortune to stay on the Antarctic continent for 14 months. There were 30 in the party, including two M.O.s, one for each of the two large bases. These bases were far apart, the nearest to us being 120 miles away over open sea. Communication between them was maintained by radio, as it was impossible to reach another base except by the relief ship or by a sledge journey of 800 miles (1,300 km.) over unknown country. This journey was in fact done during the year as part of the survey programme, and it took four men 80 days to complete it.

At the beginning of November, 1946, we left London in a small Newfoundland sealing vessel built entirely of wood and powered by a Diesel motor and auxiliary sails. Our journey out was via Recife, in Brazil, Montevideo, and the Falklands, and it took us six weeks to reach Port Stanley, the capital and only large port. The Falklands are bleak, barren islands without trees, not unlike the Western Isles of Scotland. We arrived on Christmas Eve. Although it was midsummer it was very cold, and it snowed appropriately the following day.

After a fortnight's stay to check stores the parties sailed in two ships, one for the South Shetlands and the other for the South Orkneys. Sailing south-east, we took five days to reach the South Orkneys, where we relieved a party of four who had run a meteorological station for the past year. It was on this part of the trip that we encountered our first icebergs and pack-ice. For the most part the weather was extremely fine, and gave us that remarkably clear visibility characteristic of the polar regions. We could see the mountain peaks of the South Orkneys, over 100 miles (160 km.) away, standing so clearly on the horizon that it was not possible to estimate their distance. After two days in this neighbourhood, where we had our introduction to penguins, seals, whales, and other Antarctic fauna, we sailed south-west for Graham Land.

Our destination was Hope Bay, which lies at the north-east tip of Graham Land, at the foot of a glacier which descends from the inland plateau and down which there blows an almost continuous wind. The hut in which we were to live had been erected two years previously, and was partly buried in the ice. It was large and spacious, with double wooden walls and an aluminium-foil diaphragm between them. This bright surface helped to reflect the heat back into the hut, as well as providing two air pockets in the walls; its insulating value was equivalent to an inch (2.5 cm.) thickness of cork. The average temperature inside the hut for the year was 52° F. (11.1° C.), with a minimum of 32° F. and a maximum of 74° F. (0–23.3° C.), compared with the outside temperatures ranging from −14° F. to 49° F. (−25.5–9.4° C.), with an average of 22° F. (−5.5° C.). Inside the hut there was a large central living-room with small cabins leading off, an arrangement which had the disadvantage of cutting off what light there was in the summer. For nine months the hut was completely buried, however, so we had to use artificial light almost all the time. It has been said that cabins are undesirable for long periods of living in close proximity because men may go into hiding away from their companions. This never happened with us, and it was pleasant to have the little privacy cabins provided. Besides these cabins we had a laboratory and dark-room, a survey office, a kitchen, and a carpenter's shop. Outside there were two additional storage huts for reserve stocks. Lighting was by paraffin lamps and heating by an anthracite stove.

Nine men lived at the base. We had a duty rota, so that we each cooked for one week at a time and did the household chores one day in nine. Few of us had cooked before, but we soon learnt. Our diet was good, though mainly of tinned food. Fresh food consisted of penguins, which when stewed with onions can be very palatable, especially the chicks. Penguin eggs, which were very popular, were collected by the thousand and stored in flour. Shags and other birds were occasionally tried. Seals did not prove a great favourite, probably because they were so greasy. We did a certain amount of fishing through holes in the ice; the fish (*Notothenia*) were small, but very good when fried in butter. For fresh water we used blocks of snow, collected sufficiently far away from the base to be free from contamination due to dog excreta.

We supplemented our diet with 50 mg. of ascorbic acid daily, the tablets being on the table with the cruet. My predecessor had gone for two months without ascorbic acid and had developed early scorbutic signs. During the winter we noticed we were becoming easily fatigued with light work, and so we added vitamin A, 9,000 I.U., and vitamin D, 1,800 I.U., daily for a month; the supplements certainly seemed to have some benefit, although the reason is not entirely clear.

We were issued with ample supplies of tobacco and cigarettes, and all of us became heavy smokers by the end of the year. As with the food, we divided all our stocks in two, so that if we failed to be relieved we should be able to last another 12 months.

There was an issue of rum, whisky, and gin which was adequate for our needs, but beer entailed the risk of being frozen and breaking the containers. We had a local rule that we drank only on Saturday nights, birthdays, half-birthdays, and special feast days, such as midwinter's day.

I have been often asked, Did we get bored? We did at times, but there was plenty of work to do. Three-hourly "met" observations had to be made, recorded, and transmitted by radio. We had the dogs to feed, which meant days of seal-hunting, and our sledges had to be kept in repair. Our stock of books was widely selected, and games such as darts, draughts, and "nine men's morris" were also popular. Against boredom of our companions I think each of us built up his own defence mechanism: there was a strict regulation that stories were not allowed to be repeated more than once a month.

During the year survey parties left the base for long sledge journeys. Usually there were two men to one sledge, which carried their food and tent and was pulled by a team of 13 dogs. The distance covered in a day varied greatly with the type of country and weather encountered, but the average speed was 4 m.p.h. (6.5 km.p.h.). One party travelled nearly 60 miles (95 km.) in 24 hours, while another did 200 yards (180 m.) in the same time, as a blizzard sprang up just as they had struck camp.

Sledge runs were usually made for an hour at a time, as we found the dogs would go better if they had regular stops. These dogs, 40 of which were brought from Greenland, were the best companions one could wish to have. Their social habits made a fascinating study, and, though fierce among themselves at times, they never bit any of our party. From the original 40 they increased their numbers up to 120 by the end of the year.

Throughout the year the general health of the party was excellent, and we were completely free from colds, unlike other expeditions who reported that they caught colds every time they opened fresh bales of clothes which had been left undisturbed from the time they were packed in England. We did get colds when the relief ship arrived, however. We had one or two infected cuts from handling seal blubber, but I do not think these were comparable in severity with the spek finger of the northern sealers. One case did lead to chronic ulceration of the arm and axilla, the pathology of which was uncertain. Frostbite and snowblindness, the two enemies of the polar regions, were never severe, mainly because we took care to avoid them. Carious teeth required frequent attention, which was usually given in the form of a temporary stopping, though occasional extractions were called for. The only major casualty was a man with two slipped intervertebral disks, which kept him in bed for over eight weeks and which it was found necessary to remove on his return home.

THE PRISON POPULATION

ANNUAL REPORT OF THE COMMISSIONERS

The average daily prison population in this country is around 20,000, a considerable increase on the 13,000 of five years ago. Populations of the present order have not been known since 1911. The number of receptions on conviction—which is always greater than the number of different persons received in prisons, since some men after finishing one sentence are sent to prison again in the same year—was 33,566 in 1947. Women account for about one in ten in these totals. Well over half the offences for which persons are received in prison are larceny and burglary and housebreaking. Sexual offences by men accounted for 1,053 receptions in the year under review, and offences of violence, including murder and manslaughter, for 728 receptions of men and 81 of women. About half the male prisoners and 70% of the female prisoners were sentenced for not more than three months.

In the Report of the Prison Commissioners just published[1] the narrative as a whole relates to 1948, but the statistics mainly to 1947. It sets out the principal changes which the Criminal Justice Act will bring about in the prison and Borstal systems, but it reserves until the next report any account of the measures taken to meet the new and complex responsibilities arising under the Act. The restrictions on the imprisonment of young persons may be expected to lead to a decrease of young prisoners and an increase in the Borstal population. In 1947 the number of persons between the ages of 16 and 21 found guilty of indictable offences was 19,331, the lowest since 1940, and of the 2,912 persons in this age group sentenced to imprisonment 790 had not, so far as was known, been guilty of any offence previously.

It is not easy to draw any firm conclusions on the problem of recidivism from the statistics given in this report. They include the numbers of convicted prisoners against whom previous offences were known, but the factors affecting such figures over a long period of years are so many and variable that the Commissioners themselves withhold any comment. Of the convicted prisoners in 1947, 71.5% of the males and 67.5% of the females had previous proved offences. Indeed, 392 men and 43 women had over twenty previous convictions. It should be added that from these figures imprisonment for drunkenness is excluded, the reason being that if it was included it would overweight the figures on the female side. Thus in the year under review 1,115 men and 349 women were imprisoned for drunkenness, but while the first figure represents only 3.7% of the total number of male convicted prisoners the figure for females represents 10%. The numbers imprisoned for drunkenness in 1947 were only about one-fifth of the total for 1938. Comparisons with a much earlier period are vitiated by the fact that not until the Criminal Justice Administration Act, 1914, was time required to be given for the payment of fines, and therefore in earlier years there was a very large transitory prison population.

The Borstal System

The change of name from "Borstal detention" to "Borstal training" is welcomed. The Commissioners point out that Borstal is in the "news" when things go wrong, but good behaviour has no news value. The conduct of the Borstal boy is on the whole satisfactory, and often very good, although it has to be admitted that nearly a thousand boys absconded or attempted to abscond during the year. It is not a simple statistical matter to find out whether Borstal boys make good. From the figures given it appears that more than half those discharged are not re-convicted, but only intensive social research based on personal histories over a long period can show how many of these young men have become useful members of society. The Borstal population consists of about 3,000 boys and rather more than 200 girls.

The most immediate effect of the introduction of the National Health Service was a large increase in the number of prisoners receiving dental and ophthalmic treatment. It has also been possible to arrange in the case of Borstal inmates for operations to be performed at local public hospitals. Arrangements have now been made, and are being extended to all prisons, for cases of venereal disease to be treated by venereologists serving in local clinics. In the case of small prison establishments prisoners are sent to the public clinic as often as may be necessary, and in larger ones venereologists hold their clinics in the prisons. Other National Health Service facilities of which full use has been made are those in connexion with tuberculosis, though in this case the change has been no more than administrative.

This greater use of public services, while it has not lessened the prison medical officer's responsibility for the health of all prisoners in his charge, has to some extent freed him for the undertaking of certain special investigations. The report gives a list of researches which have either been completed or are in progress.

Psychiatric Studies

An investigation is being carried out at Wormwood Scrubs and Wandsworth, in collaboration with members of the Maudsley Hospital staff, on prisoners who are psychopathic personalities and who consent to undergo the tests. The group

[1] *Report of the Commissioners of Prisons and Directors of Convict Prisons for the Year 1948.* Cmd. 7777. London: H.M. Stationery Office. 2s. 6d. net.

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is limited to male offenders between 18 and 40 in whom there is no family history of epilepsy. A similar number of offenders whose personalities are regarded as normal are to be used as controls. Research into the endocrinological aspect of cases of psychopathic personality is in progress at Bristol and Leyhill (known in the Press as the "prison without bars"). At Holloway an investigation into the causes of child neglect by women has recently been completed. Studies at Wakefield under the principal medical officer include the whole population of the prison. From the history and the physical and psychiatric examinations and tests a profile is constructed which gives at a glance the principal features in the early home circumstances, the civil state, the criminal career, and the mental condition of each prisoner received. To provide for the psychological treatment of prisoners serving short sentences arrangements are being made for psychiatrists employed by the regional hospital boards to attend wherever possible at the larger local prisons. In selected cases treatment begun while in prison will continue under the same therapist after release. So far it has been possible to give effect to this only in one of the regions. Prisoners treated at local psychiatric centres during their sentences, largely owing to the sharp contrast between the clinic and the prison, rarely avail themselves of whatever arrangements are made for treatment after release. On the other hand, if a prisoner is visited by a therapist in prison the likelihood of his continuing treatment after release is increased.

Prison Medical Officers

The recruitment of medical officers to prisons does not keep pace with the demands of the service. Notwithstanding the increased opportunities for research, the requirements of the Criminal Justice Act, involving a sharp increase in the number of medical reports asked for by the courts, and prolonged investigations in preparing such reports, together with the necessary attendance at court, will add considerably to the prison medical officer's duties. The report states that "there can be little doubt that it will be difficult to maintain the standard of work or embark on further research unless a substantial increase in the rate of recruitment takes place." Prisons, too, are affected by the nursing shortage. The recruitment of female nursing staff to prisons continues to decline, and a return to prison-trained hospital staffs may have to be considered.

AMINO-ACIDS AND PROTEIN HYDROLYSATES

A RECENT SYMPOSIUM

A symposium on "Amino-acids and Protein Hydrolysates" was held in London on September 28–30 by the Food Group of the Society of Chemical Industry. While some of the papers were on the purely chemical and physico-chemical aspects of amino-acid preparation and isolation, several speakers discussed the nutritional and clinical aspects of protein and amino-acid nutrition and metabolism.

In the course of a comprehensive opening address to the conference Professor E. C. DODDS drew attention to the work of Dent and Schilling,[1] who had examined by means of paper chromatography the portal blood and sometimes also the jugular blood and the urine of dogs after the feeding of various proteins such as casein, casein hydrolysate, ground beef, and human serum (the plasma proteins being removed first by ultrafiltration). No peptides had been found in the blood after any of these proteins were fed. After feeding human albumin certain ninhydrin-reacting substances decomposable by hydrolysis were found in the urine. When dog plasma protein was fed to dogs there was no appreciable change in blood amino-acid levels, though the protein disappeared from the gut. It was presumed from this that under the condition of experiment the dog plasma had been absorbed intact. This finding opens up wide and interesting fields of exploration. Dent[2] has also shown in recent studies that in at least five human diseases—namely, acute yellow atrophy of the liver, the Franconi syndrome, cystinuria, phenyl ketonuria, and multiple myelomatosis—urinary amino-acid excretion is abnormal and characteristic of the disease. Professor Dodds referred to the work with isotopic tracers by means of which the rapidity of turnover of the proteins in the liver had been demonstrated: in rats half the protein is degraded and resynthesized within six days.[3] He also described how certain amino-acids had developed into therapeutic agents, two examples of these being methionine and glutamic acid.

Amino-acids as Therapeutic Agents

The importance of methionine in the body depends on two factors: it contains the element sulphur and a labile methyl group. Because of these two characteristics it plays an important part in the detoxication and lipotropic functioning of the liver. Several workers have shown that methionine can apparently improve cirrhotic conditions of the liver.[4–8] There have also been reports on the use of methionine in the treatment of infective hepatitis, but in this condition it has not been found uniformly successful. Methionine has been used successfully in the treatment of a patient with subacute necrosis,[9] and Eddy[10] reported that in trinitrotoluene and carbon tetrachloride poisoning it gave good results. Glutamic acid has been shown by Weil-Malherbe[11] to be of importance in the metabolism of brain tissue. Zimmerman, Burgemeister, and Putman[12] administered glutamic acid to children and adolescents with convulsive disorders, some of whom were also mentally retarded. They found what they considered to be a significant improvement in the results of intelligence tests.

In 1938 Fildes[13] made the interesting observation that indoleacrylic acid inhibited the growth of *Bact. coli*, and subsequent work showed that 4-, 5-, 6-, and 7-methyltryptophans all possessed the power of inhibition.[14] These observations have been extended to other synthetic amino-acids: Beerstecher and Shive[15] found that β-2-thienylalanine was strongly inhibitive, and Elliott, Fuller, and Harington[16] have shown that certain β-derivations of alanine have antibacterial properties. New chemotherapeutic agents may be found by continuing the study of the metabolism of bacteria in the manner that Woods[17] initiated when he discovered that the sulphonamides compete with *p*-aminobenzoic acid for an enzyme system necessary for bacterial growth.

Amino-acids and Cancer

The observation[18] in 1939 that dextro-rotatory glutamic acid (the presently accepted unnatural form) could be isolated from the protein of malignant tumours was contested by Chibnall and his colleagues,[19] but it was reaffirmed this year by Kögl as a result of tracer studies.[20] Professor Dodds pointed out the importance of such an observation as possibly giving a clue to the reason for the independent continuous reproduction of the cancer cell as compared with the self-limiting reproduction of the non-malignant cell. However, it would appear necessary for considerably more positive evidence to be produced before the presence of a dextro-rotatory acid can be regarded as a characteristic of the protein of malignant tissues.

Apart from the part played by individual amino-acids, there is evidence that they form certain conjugates either with other amino-acids or with chemical groups and that these compounds are of special importance in the body—for example, folic acid

1 *Biochem. J.*, 1948, **42**, xxix (proc.).
2 Ibid., 1948, **43**, xlviii (proc.).
3 Shemin, D., and Rittenberg, D., *J. biol. Chem.*, 1944, **153**, 401.
4 György, P., and Goldblatt, H., *J. exp. Med.*, 1942, **75**, 355
5 Fagin, I. D., and Zinn, F. T., *J. Lab. clin. Med.*, 1942, **27**, 1400.
6 —— Sahyun, M., and Pagel, R. W., ibid., 1943, **28**, 987.
7 Morrison, L. M., *J. Amer. med. Ass.*, 1947, **134**, 673.
8 Beams, A. J., and Endicott, E. T., *Gastroenterology*, 1947, **9**, 718
9 Ferriman, D. G., Williams, G. E. O., and Cadman, D. S., *Lancet*, 1946, **1**, 958.
10 *Industr. Med.*, 1945, **14**, 283.
11 *Biochem. J.*, 1936, **30**, 665.
[illegible] 175
[illegible] *it. J. exp. Path.*, 1947, **28**, 211.
[illegible] *ze-Seyl. Z.*, 1939, **253**, 57.
[illegible] 731.

(pteroylglutamic acid). Synthetic products which are modifications of this amino-acid derivative are being used extensively in the treatment of cancer, and typical examples are alpha-methopterin and aminopterin. Great improvement has followed the administration of these substances in certain cases of leukaemia and Hodgkin's disease, but the results appear to be of a transitory nature. Whatever their ultimate position in cancer therapy will be, they are of very great theoretical importance.

Professor Dodds also drew attention to the point made recently by Sir Robert Robinson—namely, that a number of amino-acids can be regarded as building-stones not only for proteins but also for alkaloids. Thus ornithine may be regarded as one of the originating substances of some coca bases.

Protein Composition

Dr. Kenneth Bailey described some features of the amino-acid composition of proteins and pointed out that exact amino-acid analyses, such as Sanger's work on insulin, were of great use in determining the make-up of proteins but did not disclose much about their physico-chemical nature. In nutrition research determination of the amino-acid make-up of the mixed proteins of the individual foodstuffs was of value. Dr. Bailey reported that when he plotted reliable data, such as Tristram's on amino-acid composition, in the form of a histogram he found that the essential amino-acids fell within a much narrower frequency range than did the dispensable amino-acids. This would indicate that with the exception of incomplete proteins such as zein and gelatin most proteins have relatively constant proportions of those amino-acids which are found to be essential in the diet. Dr. Synge also emphasized the uniformity of the mixtures of amino-acids encountered in nature. He thought this should lead in the near future to a systematization of procedures for determining amino-acids, though much further work was necessary on the more complicated substances such as peptides. Dr. Neuberger referred to the changed outlook on the chemistry of the proteins which had taken place between the two world wars, and Dr. Tristram and Dr. Barton-Wright described the chemical and microbiological methods for the determination of the amino-acid composition of proteins.

Dr. Lea drew attention to the amino-acid or Browning reaction which occurs in aqueous solution, or in the comparatively "dry" state, between protein or amino-acids and sugars to produce changes in odour, flavour, colour, solubility, etc. The net effect of this is sometimes desirable and purposely sought, but in other instances is highly undesirable, even sometimes amounting to a loss in the biological value of the protein. Investigations with dried milk and other foodstuffs have shown that the most rapid of the chemical reactions is a combination of the reducing sugar with the free amino groups of the protein. Since these are very largely the ε-amino groups of the lysine side-chains a nutritional deficiency of this amino-acid may result. The use of hydrolysed protein and of amino-acids as flavouring agents was considered by Dr. Rees: in small amount (0.05–0.5%) the monosodium salt of glutamic acid is said to improve and enhance the flavour of the food.

Dr. Dyson and Mr. Bavin described the careful methods which are necessary for the preparation of an enzymic hydrolysate of casein so that it is sterile, pyrogen- and anaphylactogen-free, and does not cause blood-pressure changes on administration. Precautions are also taken to reduce the deposition of tyrosine. These speakers also drew attention to the work of Geyer and his colleagues[21] on the usefulness of a fat emulsion in which the particle size is not more than two microns. This emulsion can be autoclaved and administered in 30% concentration without the risk of embolism.

Protein Metabolism

Dr. D. P. Cuthbertson reviewed the comparative physiology and pathology of amino-acid and protein metabolism and drew particular attention to Rose's[22] latest account of his human experiments on amino-acids and hydrolysates of protein for the maintenance of nitrogen equilibrium in man. The latter had found that for maintenance the eight amino-acids, *l*-tryptophan (0.25 g.), *l*-phenylalanine (1.10 g.), *l*-methionine (1.10 g.), *l*-leucine (1.10 g.), *l*-isoleucine (0.70 g.), *l*-valine (0.80 g.), *l*-threonine (0.50 g.), and *l*-lysine (0.80 g.), are necessary (his assessment of the minimum daily requirements of each for the adult is indicated in parentheses, but he recommends as the daily intake twice these amounts.) For the growing human organism histidine and arginine are probably necessary, and it may be that some of the amino-acids thought at present to be dispensable may be necessary if the synthetic capacity is liable to be overtaxed, for the human requirements of amino-acids for pregnancy and lactation or in different forms of illness are still not known. Rose has found disconcerting differences in the minimum amount of amino-acid required by different individuals under comparable experimental conditions. With certain amino-acids the results are consistent, with others there may be as much as a 100% difference. While the role of methionine, cystine, and vitamin E in the prevention of experimental acute liver necrosis is still not very clear, progress is being made. The recent observation by Patt and his colleagues[23] on the protective action of cysteine on rats exposed to *x*-radiation is also of considerable interest.

Dr. Cuthbertson stressed the relative constancy of the intake of protein in dietary surveys of all classes and at all energy levels in temperate climates when the protein is expressed as a percentage of total calories. This occurs at all ages from one year onwards. All the normal physiological states appear to be covered when the protein intake lies between 11 and 14% of the calories, the higher values being related to growth, reproduction, and lactation. The speaker also discussed protein insufficiency, the effects of trauma and infection, and the requirements for convalescence, as outlined in a recent paper by him in this *Journal*.[24]

JUVENILE DELINQUENCY

FIELDS FOR FUTURE RESEARCH

A conference on the scientific study of juvenile delinquency was held on October 1 at the Royal Institution, London. It was convened by the National Association for Mental Health, the Royal Medico-Psychological Association, and other bodies, and was opened by the Earl of Feversham, president of the National Association of Probation Officers. Introductory remarks were made by Miss Cecily Craven and by Mr. Alec Rodger, honorary secretaries respectively of the Howard League for Penal Reform and the British Psychological Society. The conference was attended by representatives of Government departments, local authorities, the magistracy, the Church, educational bodies, and voluntary and youth organizations. The Home Secretary, in a message, said that the Home Office was considering the question of Government assistance for research.

Limits of Present Knowledge

Dr. J. D. W. Pearce, medical co-director, Portman Clinic (*Institute for the Scientific Treatment of Delinquency*), said that much of the work on this subject had been handicapped by lack of knowledge of scientific method and by rather woolly recording. A difficulty had been the absence of adequate control groups, but a great deal was known about the intelligence and educational attainment of the juvenile delinquent. Many delinquents were skilful and therefore were never caught, so that it might be that the intelligence of delinquents in general was ranked too low and more nearly approximated to average intelligence. Something was known also of the problems of psychopathic personality and temperamental instability, though there was still disagreement about how far the latter was constitutional or acquired. Electroencephalographic studies were helping to throw light on conduct disorders. Sir David Henderson had reported cases in which cerebral surgery in adult criminals had brought about a remarkable change in character; but these things were in their infancy. Something was known about the psychological mechanism involved in delinquency, not only in the individual but in the group. Clinical types could be identified and treatment prescribed: prescription might be relatively easy and administration more difficult. Individual psychotherapy based on sound analytical

training had revealed a great deal about aetiology. Facilities for observation, care, treatment, selection, grouping, and experiment, however, were inadequate. Rarely was delinquent conduct to be explained by a simple cause; nearly always there were many factors concerned.

Dr. H. MANNHEIM, reader in criminology, London School of Economics, agreed that in this matter of the young delinquent all too often half-baked truths and slogans took the place of exact scientific knowledge. The weakness of most investigations—Sir Cyril Burt's *The Young Delinquent*, first published in 1925, was an exception—was that they were exclusively based on court cases; consequently very little was known about delinquents who did not appear in court or about non-delinquents who in essential characteristics resembled delinquents. Non-court cases ought to be included in any study. Dr. Mannheim, at the end of his paper, asked whether the research done so far had been of any practical use to anybody—to the legislator and administrator or to the practical worker in the field. Sixteen years ago Sir Alexander Paterson wrote a paper entitled, "Should the Criminologist be Encouraged?" He was not sure of the answer, apparently, but the greatest encouragement the criminologist could desire would be a favourable answer to the question he had put.

Personality and Social Factors

Dr. JOHN BOWLBY, director, Child Guidance Department, Tavistock Clinic, mentioned three false assumptions by which research in the past had been vitiated: (1) that delinquency was clear-cut and distinct from other forms of behaviour; (2) that there was no necessity for qualitative distinctions; and (3) that the problem could be studied by concentrating on cases brought into court. Little light would have been cast on the problem of malnutrition if physiologists and physicians had not studied large samples of the population irrespective of whether they came into hospital or not; many most informative studies on nutrition had been made outside the clinic. It was only a specially selected group of delinquents who came into court. Public-school boys rarely came before juvenile courts. Was that because they never stole or because their parents and schoolmasters dealt with them in some other way?

Individual susceptibility to adverse influences was clearly a psychological problem. Why was it that some individuals grew up more susceptible to antisocial influences than others? Research in child development suggested that it depended on the relation which the child had with his parents in his early years. Two factors specially common in the history of persistent delinquents were prolonged separation (not less than six months) of the child from his mother during the first five years, and the child being unwanted by parents who were themselves unstable and unhappy. Blanket generalizations regarding "family atmosphere" and "broken homes" were as useless as would be similar generalizations about diet in research on nutrition. A thorough analysis of the young child's social "diet" was required for a study of antisocial attitudes.

Dr. Bowlby suggested that a worth-while project in this field of research would require from 12 to 20 professional workers, a corresponding number of clerks and secretaries, a period of five or eight years, and an expenditure of £15,000 to £20,000 a year. The sum spent on research on nutrition, which had paid such splendid dividends, far outstripped these totals. "The whole of medical and sociological research could be financed for a decade out of the sums spent on the development of the Brabazon."

Professor T. S. SIMEY, Department of Social Science, University of Liverpool, said that it was not justifiable to consider the characteristics, behaviour, and treatment of the delinquent as an isolated individual. Not even the adult criminal, still less the young offender, should be considered as something essentially "different" merely because he had been found guilty of breaking the law. Crime was the result of dysfunction within the society in which it took place.

Call for a Central Research Body

A central authority to initiate, execute, and co-ordinate research and to provide technical advice was called for by Professor Simey, and the same idea was taken up by the last contributor to the symposium, Dr. DENNIS CARROLL, medical co-director of the Portman Clinic, who said that there was a case for setting up a "Delinquency Research Council," possibly covering social research in general. There was no shortage of suitable experienced individual advisers, but for the many highly expensive and complicated researches required such a central authoritative body would have the advantage of commanding enough money and enough general support to make the practical task really effective. For example, there was need for a thorough survey of probation to discover the best criteria for placing an offender on probation and the best form of probationary care. Many other things could be discovered at the same time, and some of them would quite likely lead to the development of special educational systems for certain ascertainable types of offender, such as the potential recidivist, the young psychopath, or the unstable dullard.

Dr. Carroll mentioned some generally unchallenged statements, such as that parental control had diminished, that religious faith had declined, that boys' clubs were a major weapon in preventing delinquency—all of which were plausible and probable, but none of them supported by studies which could withstand scientific criticism. Much was heard about defective control of children, but it was not always the fault of the parents; on the religious question it was very hard to avoid subjective bias; and as for boys' clubs, a survey in 1942, *Young Offenders*, by Carr Saunders and others, gave information which cast some doubt on the general assumption, though it did not settle the issue. It was not that these assumptions were necessarily wrong, but they were accepted without proof. Incidentally Dr. Carroll suggested that the Press might try to design a system of crime reporting which would have crime prevention as its main object. Finally he laid stress on the importance of keeping such records and statistics as would make it possible for others dealing with delinquents to know exactly what had happened.

MEDICAL PROTECTION SOCIETY

ANNUAL MEETING

The annual meeting of the Medical Protection Society (formerly the "London and Counties") was held at Victory House, Leicester Square, on September 28. Sir Ernest Rock Carling, who presided, referred with regret to the loss during the year of three vice-presidents—Dr. G. M. Stoker, Sir Edmund Spriggs, and Professor Harry Stobie. He welcomed as new members of Council Mr. H. L. Hardwick and Dr. J. H. Hunt.

The relation of the Society to the other two defence societies, Sir Ernest Rock Carling continued, was fruitful in many directions. On the question of sterilization the three societies had jointly sought the opinion of counsel, which was that the only circumstances in which a sterilizing operation could be rightfully performed were those in which the operator honestly believed upon reasonable grounds that such an operation was necessary to preserve the life of the patient or to avoid serious injury to his physical or mental health. A doctor should make sure that such danger existed, should obtain where possible a second opinion, should make plain to the patient the results of the operation, and obtain his consent in writing, freely given without undue influence by others. In such circumstances both surgeon and patient would be safe from any suggestion of illegality.

The Society did a great deal more for its members than appeared in the pages of its report. In addition to the cases which came before the Legal Committee, something like 40 applications a week were received for assistance, many of them in matters which, strictly speaking, were not within the Society's scope. The Society had been glad on several occasions to help—although it could not represent—members at hearings before medical or dental service committees under the National Health Service, as well as to appear for members at appeals. It was extremely important that the Society should receive the earliest possible information of any charge brought against a member.

A circular was issued by the Home Office forbidding the payment to salaried officers in the National Health Service of allowances as professional witnesses for attendance at court. The Society had taken the opinion of counsel, who advised that certain paragraphs of the Home Office circular were conflicting and had no legal force. A suitable case coming before an assize court, counsel was instructed to raise the matter of fees, and the judge ruled that the direction in the Home Office circular was too narrow. An intimation had now been received from the Home Office that the part of the circular which laid down these restrictions had been withdrawn.

An influential member had written to the Society to suggest that its insistence upon *x*-ray evidence in all cases of injury and the like was inexpedient in view of the cost and present shortage of *x*-ray films, but Sir Ernest Rock Carling, while mindful of economy, thought it would be a very unfortunate thing if such evidence were not obtained. It was the legal profession rather than the medical which required education in this matter. Other precautions which the experience of cases had emphasized during the year were the necessity for extreme care in the administration of intravenous fluids and the perennial matter of the checking of swabs. He was inclined to think that some authoritative body ought to undertake a survey of the methods of checking swabs, their recording and recovery. The Society had taken up the question of hypodermic needles broken in the course of an injection, and he thought that on every occasion the metallurgist had reported an actual defect in the needle.

Sir Ernest Rock Carling was unanimously re-elected, as were the retiring vice-presidents and other officers. The annual report, which was adopted, embodied a statement by the solicitors (Messrs. Le Brasseur and Oakley), who wrote:

". . . should it have been in the mind of any member that the advent of this [National Health] Service would render the protection of your Society unnecessary, the experience of the first year of the Service has most emphatically proved the contrary. . . . New risks have been created and new problems have arisen calling for advice. Our experience and that of the Society has been that more applications have been received from members for advice and guidance than at any previous time in the life of the Society. A new bureaucracy has been created, and though the various committees and tribunals are all under the Minister of Health the Minister has shown in our present experience a decided disinclination to interfere with the dicta of such bodies excepting in cases where there is a right of appeal."

Arab refugee children from Palestine in the Middle East area are being vaccinated against tuberculosis by Scandinavian medical teams, under the sponsorship of UNICEF, the United Nations International Children's Emergency Fund. Some 250,000 refugee children under 18 in Lebanon, Syria, Transjordan, and Palestine are being tuberculin-tested, and all who require it will be vaccinated to protect them against the disease. Tuberculosis has been a cause of increasing concern to medical officers in the refugee areas. There are hundreds of thousands of refugees in North and South Palestine and surrounding countries, living in tent camps, overcrowded and devastated villages, many in caves, shanties, and other improvised means of shelter. Five special vaccination teams, consisting of one doctor and four nurses each, were recruited in Denmark, Norway, and Sweden. These are skilled vaccinators, most of whom worked for some time in the joint UNICEF-Scandinavian International Tuberculosis Campaign in various countries of Europe. It is expected that they will complete the vaccinations of the refugees in about three months. Vehicles and medical supplies for the refugee vaccination programme were provided by UNICEF. The vaccine is being delivered regularly by air from the Danish State Serum Institute in Copenhagen to Beirut, Lebanon, for subsequent distribution to the vaccination centres. The vaccination programme is conducted in close co-operation with the medical officers of UNRPR (United Nations Relief for Palestine Refugees) and of the three agencies which are caring for the refugees: the League of Red Cross Societies, the International Committee of the Red Cross, and the American Friends Service Committee (Quakers). Dr. Mogens Fog-Poulsen, of Aarhus, Denmark, is chief of the mission.

NEW HUNTER DOCUMENTS EXHIBITED

The Hunterian Society held a cocktail party, instead of its annual dinner, on October 6, and displayed an interesting collection of historical relics which are in the curatorship of Mr. C. Robert Rudolf. Chief among them were legal documents relating to John Hunter and his eldest son, John Banks Hunter, which recently came to light and were displayed for the first time. John Banks Hunter was born eleven months after John Hunter's marriage and received his second name after his father's friend, Joseph Banks, the naturalist. His life is something of a mystery. He entered St. John's, Cambridge, but left without a degree and joined the Army. After serving for a number of years he bought himself out and went to live at Toulouse. There appears to have been some trouble, for Mrs. Hunter wrote in 1810 of "my poor unhappy son," and another relative refers to the eccentric cousin.

The new documents shown at the Hunterian Society concerned the earlier wills of this son, the first being the original sealed will of "John Banks Hunter (John Hunter Junior) Ensign in the 2nd Battalion Royal Regiment of Foot, dated July 18, 1794." The testator left his property to his mother, or, if she was deceased, to his only sister Agnes. There was a note in the will: "Add the freedom to Geo. Bristow"—a slave kept by Hunter, the provision for whose release is referred to in the next will, dated December 12, 1804. The second will is very similar to the first; it is interesting that J. B. Hunter should have used the crest of his father (then dead eleven years) to seal it. Later, twelve years after his mother's death, J. B. Hunter made another will, of which a photostat copy was shown, leaving his property in Scotland to his sister, but his personal estate to a friend in Toulouse. The absence of any reference to a wife seems to confirm what is stated in the *Reminiscences* of Elizabeth, daughter of Matthew Baillie, written 1866–8 (Royal College of Surgeons MSS), that J. B. Hunter died unmarried.

The new documents relating to the estate of John Hunter himself were a lawyer's copy of his will, and two drafts of a power of attorney by the son and heir on his going to Corsica. Among other recent acquisitions were snuff boxes belonging to John Hunter and also to a Dr. John Hunter who practised in the Minories and is stated to have been a friend of his illustrious namesake. There were also shown an original Laennec stethoscope, whose proportions were exactly those of the instrument illustrated in its inventor's *Traité de l'Auscultation Médiate* (Paris, 1818), and a tinted silhouette of Jenner.

The rest of the exhibition was devoted to the history of the Society, including a letter from Mr. T. J. Armiger, assistant surgeon to the London Hospital, who suggested the Society's foundation, and a reply in verse by the present Poet Laureate to an invitation from the Society. The Society's custom of holding an annual dinner was instituted during the presidency of Dr. Benjamin Robinson; a manuscript of his on a case of intestinal disease was also exhibited.

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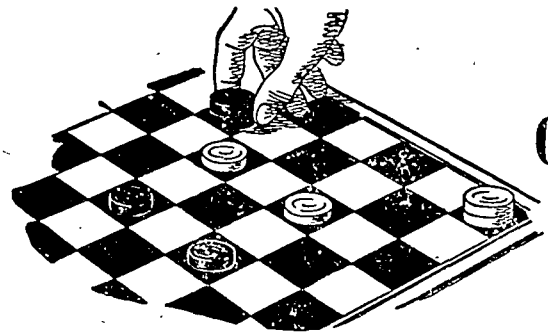
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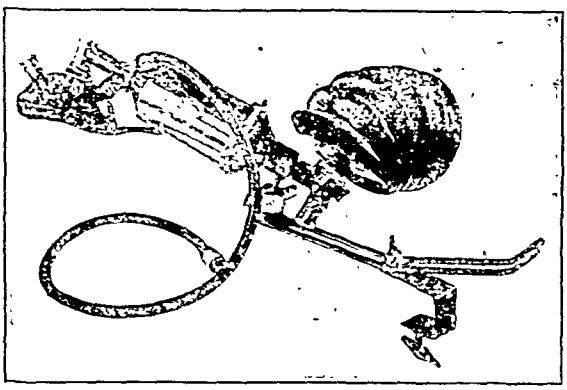
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THE LABORATORIES, CHELTENHAM, GLOS.

Oxford vaporizer concertina type of bag is used, the capacity of which is 2.84 litres. There is an inspiratory valve and pressure gauge mounted on the bag fitting.

In addition to the usual expiratory valve on the Waters mounting an expiratory valve is fitted on the facepiece as near the rubber rim as possible, thus reducing as much as possible the dead space. Between the canister mount and the canister is an easily removable copper-gauze filter of the finest mesh. This is inserted in order to reduce the blow-over of soda-lime powder. It has not been found to increase breathing resistance to any appreciable extent. It is easy to remove the canister, readjust the holding mechanism, and use the apparatus for assisted breathing should this be required, as often happens during the



administration of curare. The photograph shows the apparatus with the soda-lime canister.

Leigh and Belton, in their recent book on paediatric anaesthesia, state that the soda-lime in the end of the canister nearest the facepiece is used up first, thus creating an additional dead space. They advise the use of a reversible canister. I use this apparatus at the Royal Manchester Children's Hospital for such procedures as Blalock's and Pott's operations for pulmonary stenosis. In these cases it is essential to have perfect control over respiration; the concertina type of bag, mounted near the child's head, materially helps this control. Cyclopropane is given, and it is my practice to use a Cobb's connector with the largest endotracheal tube (consistent with safety for the larynx), thus giving easy access for catheter aspiration. A facepiece, with gamgee pad, is employed instead of an endotracheal mount, as it is found that a better gas-tight joint is obtained, giving more efficient control of respiration, particularly when positive pressure is required for inflation of the lung.

All chest cases leave the theatre with the apparatus (without canister) attached; expiratory valves are fully open and a flow of not less than 6 litres per minute of oxygen is supplied from a cylinder attached to the bed. Not until the patient is safely transferred to the ward, and breathing is satisfactory, is the apparatus detached. Adults continue oxygen inhalation either by B.L.B. mask or by spectacle, according to their condition; children are housed in an oxygen tent.

I am indebted to Mr. Wardlaw, of the Christie Hospital, for the photograph, and to the British Oxygen Company for making the apparatus.

The British Rheumatic Association at its annual general meeting elected Colonel Stoddart-Scott, M.P., chairman. Air Vice-Marshal Don and Dr. Francis Bach were elected vice-chairmen for the coming year. Among the nearly one million disabled persons registered, only 35,000 are rheumatic sufferers, and these are mostly ex-Servicemen. The British Rheumatic Association is concerned to secure the privileges available under the Act for the large number of rheumatic sufferers who could benefit by it.

Correspondence

Tuberculosis: Certain Unexplained Mortality Figures

SIR,—Mr. G. Herdan (September 24, p. 706) has conveyed the impression, which is erroneous, that the ageing of the Scottish population is sufficient to explain most of the changes in the mortality from pulmonary tuberculosis in that country to which Mr. Walter Elliot (August 6, p. 297) had drawn attention.

In support of his contention Mr. Herdan has adduced a very roundabout argument, but, most strangely, he has failed to make a full examination of the available direct evidence—the mortality in specific age groups for each sex separately. These mortality rates are unaffected by changes in the age distribution of the population. I present them below; they show quite clearly that the changes in the mortality from pulmonary tuberculosis in Scotland, and in particular the divergence from the experience in England and Wales, cannot be dismissed as a statistical fiction.

TABLE I.—*Annual Civilian Deaths from Tuberculosis of the Respiratory System per 100,000 Civilian Population by Age and Sex in England and Wales and in Scotland, 1939 to 1947*

	Age Group				
	15–24	25–34	35–44	45–54	55–64
Males:					
England and Wales					
1939–41	67	93	97	120	124
1942–44	78	127	98	115	121
1945–47	56	80	75	104	118
Scotland					
1939–41	80	105	105	115	91
1942–44	97	127	105	109	98
1945–47	82	104	100	113	110
Females:					
England and Wales					
1939–41	85	75	49	35	31
1942–44	80	69	41	30	27
1945–47	72	69	40	27	24
Scotland					
1939–41	116	92	51	35	29
1942–44	143	99	52	28	27
1945–47	135	132	51	28	22

Table I presents the civilian mortality from the disease in England and Wales and in Scotland. To save space the death rates are given for triennial periods, but the annual figures also justify the comments which follow. Figures for Scotland in 1947 were kindly supplied to me by the General Registry Office in Edinburgh. Otherwise the information is taken from the published reports of the Registrars-General.

Males.—In England and Wales the mortality of civilian males aged 15–34 increased during the war and then dropped substantially in the period 1945–7. In the older age groups the death rate was fairly constant during the war period, and afterwards declined. The picture in Scotland for young adults was similar to that in England, but at older ages the rates increased slightly after the end of the war.

Females.—For civilian females in England and Wales the mortality in each age group declined during the period studied. In Scotland there was between 1939–41 and 1942–4 a definite increase in the death rate amongst those aged 15–34, the rates for the older women remaining steady. By 1945–7 the mortality had increased still further for the women aged 25–34; for the other age groups it remained at the 1942–4 level.

The civilian mortality rates from pulmonary tuberculosis were presumably inflated in both countries during the war years by selective recruitment of the more healthy individuals for military service. It may be assumed that the effect upon the death rates was very similar in the two countries, since the same conscription laws applied to both. Hence the ratio of the tuberculosis death rates in the two countries will be largely unaffected by selective recruitment. This comparison is presented in Table II, and it indicates the extent to which the Scottish experience has diverged both during and since the war from that in England.

TABLE II.—*Ratio of Civilian Mortality from Tuberculosis of the Respiratory System in Scotland to that in England and Wales, by Age and Sex, 1939 to 1947*

	Age Group				
	15–24	25–34	35–44	45–54	55–64
Males:					
1939–41	1·19	1·13	1·08	0·96	0·73
1942–44	1·24	1·00	1·07	0·95	0·81
1945–47	1·46	1·30	1·33	1·09	0·93
Females:					
1939–41	1·36	1·23	1·04	1·00	0·94
1942–44	1·79	1·43	1·27	0·93	1·00
1945–47	1·88	1·91	1·28	1·04	0·92

An example will make the interpretation of this table clear. The ratio of 1.19 for males aged 15–24 years in 1939–41 means that the pulmonary tuberculosis mortality among males of this age group was 19% above that in England. In 1942–4 the excess was 24%, and in 1945–7 it amounted to 46%. The other age groups indicate a similar (though lesser) deterioration of the Scottish experience in 1945–7 relative to that in England. Among females the divergence between the Scottish and English rates is particularly noticeable for those women aged 15–34. During the period 1945–7 the rates in Scotland were about 90% greater than those in England.

The statistical evidence thus indicates that: (1) the mortality from pulmonary tuberculosis among young adults in Scotland compares very unfavourably with that in England and Wales, and is relatively much worse now than it was early in the war; (2) the increase which has occurred since the war in the death rate from the disease amongst Scottish women aged 15–34 is a matter meriting the fullest investigation.—I am, etc.,

Oxford. IAN SUTHERLAND.

Modern Trends in Radiology

SIR,—The rather curious views propounded by Dr. James F. Brailsford (October 1, p. 724) as representing modern trends in radiology are not likely to be supported by his clinical and radiological colleagues. It is notable that in the bibliography all the references are to himself. He has always been an opponent of case finding as a method of control of tuberculosis, and states that "it can be proved to have been responsible for the infliction of much mental and physical pain." The following are the facts.

In this country three and a half million people volunteered for mass radiography. As a result of the initial examination 13,401 were found to be suffering from active tuberculosis necessitating treatment. Samples of these patients compared with samples of patients reporting with symptoms to chest clinics have shown that those detected by mass radiography require from six to seven months' treatment before returning to work, as against eighteen months to two years required by those reporting to chest clinics.

A still larger group of individuals with minimal tuberculous lesions or lesions of doubtful activity detected by mass radiography have been kept under observation while at work. Presumably it is in this group that Dr. Brailsford believes that we are inflicting physical and mental pain. Chest physicians following up these cases and contact cases do not report any adverse mental or physical effects on the individuals concerned. If Dr. Brailsford has facts and figures supporting his contention that these simple procedures are being so badly handled as to cause serious neuroses it is high time he produced them.

Dr. Brailsford, in similar vein, makes a surprising criticism of Professor Morgan's work on the early diagnosis of carcinoma of the stomach, and suggests that he abandons it until "a cure for malignant disease is discovered." It is not misinterpreting Dr. Brailsford to summarize his views on the diagnosis of tuberculosis and carcinoma as follows—wait until the patient has a big haemoptysis or a palpable tumour.

Time prevents me from commenting on many other statements in this article which cannot be substantiated by facts. Its general tenor can be judged by such remarks as, "Mass surveys are essentially bureaucratic regimental measures, designed by officials and enthusiasts." And again, injection of opaque media "can, in the long run, result in atrocities, cruelties, or licensed murder." It is deplorable that such nonsense should have been given space in a scientific journal.—I am, etc.,

London, W.1. PETER KERLEY.

SIR,—Dr. J. F. Brailsford (October 1, p. 724) is again severely critical on the subject of mass radiography. Let us analyse some of his objections for what they are worth.

First he says, "Mass surveys are essentially bureaucratic regimentation." As far as chest radiography is concerned nothing could be further from the truth. The whole procedure is entirely voluntary from the first miniature film taken to the final clinical examination in abnormal cases. The fact that a number of people are able to pass through the unit in a short space of time smacks no more of bureaucracy than does the walking through the turnstiles of the Motor Show.

Secondly he says, "Mass radiography has added nothing new to our knowledge of radiography of the chest." Here again I would dispute his words very strongly. Quite apart from pulmonary tuberculosis, what about the unsuspected early *neoplasms* which are discovered? Up to the end of 1947 257 cases of pulmonary *neoplasm* were picked up by units in this country, 198 of which are known to have been referred to thoracic surgical units (Ministry of Health figures).

Apart from Dr. Brailsford, I think that practically every physician in the country recognizes and applauds the early detection of pulmonary tuberculosis by miniature radiography or any other means. Every experienced worker in the field of tuberculosis knows that some lesions, even if they appear soft radiologically, do not progress over a period of years, whereas others will spread rapidly. What nobody can yet say is exactly which type of lesion will or will not heal. Our knowledge in this field can only be broadened by the serial observation of more and more of these unsuspected cases.

The "stigma of being labelled tuberculous," which Dr. Brailsford so greatly fears, is surely diminishing in this enlightened age and will continue to do so if we find and boldly follow up all types of case.—I am, etc.,

Keresley, near Coventry. A. GORDON EVANS.

SIR,—No one could doubt the truth of Dr. James F. Brailsford's statement (October 1, p. 724) that there would be fewer errors in the interpretation of radiographs if radiology was always preceded by a sound clinical examination, but the second part of his statement, as far as diseases of the chest are concerned, is simply untrue and quite unsupported by experience.

I do not know how many chests Dr. Brailsford examines clinically, but I can put my experience on record. Of the 31 cases of pulmonary tuberculosis now awaiting admission for sanatorium treatment from my area, only 10 patients had signs which were revealed by clinical examination by, at least, two different examiners. One of the 10 patients has a large pleural effusion, five have far advanced, extensive, and incurable lesions, and only four have some chance of recovery by adequate treatment. Had, in the other 21 cases, radiography been omitted in favour of a negative clinical examination the consequences would have been disastrous.

It is highly regrettable that at the time when in medical papers all responsible workers who know every aspect of tuberculosis incessantly try to impress on the general practitioners the absolute necessity of referring all suspicious cases for a radiological examination as early as possible, notwithstanding whether clinical examination reveals any signs, unqualified views should be expressed with apparent authority to the effect that "the least harm will come from omission of the radiograph and most from omission of the clinical examination." Such a statement, without any evidence to support it and quite contrary to the experience of all chest physicians, can only achieve one purpose, to confuse the general practitioners, who to a great extent rely on the reading of scientific papers, and to diminish the co-operation with chest physicians with the result of losing valuable time and lives.

As regards Dr. Brailsford's remarks on mass radiography, is it possible that Dr. Brailsford has in the heat of the argument momentarily forgotten that tuberculosis is an infectious disease? I recently experienced some difficulty in persuading a young bus driver who "never lost a day's work" to be examined at the clinic after his 14-months-old baby had died of miliary tuberculosis. Actually his views, probably obtained from the lay press, were very much like those expressed by Dr. Brailsford, but at last he gave in and his *x*-ray film showed a large cavity in the left apex and his sputum was positive. Does Dr. Brailsford really think that in this case, and in similar cases which are a commonplace experience in any chest clinic, that a mass radiography survey, which would have picked up this man before fatally infecting his child, would have only "seriously interfered with his life without contributing any good"?

Every sane person will agree with Dr. Brailsford that "there would appear to be no more justification for removing a healed or quiescent lesion of the lung (which would not have been suspected if there had been no radiograph) than of any other structure, or in fact for removing any normal tissue; since valuable healthy lung is removed." But this sentence, read together with the previous paragraph stating that "the most successful surgical results have been obtained in cases which have previously healed themselves and are symptomless," implies that thoracic surgeons quite unnecessarily perform mutilating operations on patients with healed lesions. I doubt very much whether Dr. Brailsford really realizes the seriousness of this charge. A surgeon who would perform a major and often mutilating operation unnecessarily would be guilty not only of gross ignorance but at the same time he would expose himself technically to a legal suit by the patient for causing grievous bodily harm. It is not certain to me whether Dr. Brailsford levelled this very serious charge against American surgeons based upon his American experiences or whether he left in his American audience the impression that this sort of thing is being done by British thoracic surgeons, but the fact is that the reputation of British medicine and surgery is still very high in the United States and such a serious accusation should not pass unchallenged. As these utterances were made not only in print but apparently in several lectures in the United States, Dr. Brailsford should either substantiate this statement by incontrovertible evidence or should withdraw it publicly without reservation.—I am, etc.,

F. Kellerman.

Colchester, Essex.

Essential Hypertension in Pregnancy

Sir,—I feel it my duty publicly to acknowledge how deeply I deplore the fact that I have misunderstood Mr. R. H. Paramore's ideas on the mechanism which induces hypertension and causes renal cortical ischaemia in pregnancy. I might possibly be excused on account of the way in which Mr. Paramore expressed his ideas in his letter in the *Journal* of August 27 (p. 486). I quote from this letter: "In my view spinal analgesia acts by inducing a state comparable with shock. There is a great fall of blood pressure, and blood is not thrust into the renal medulla to maintain the obstruction to the exit of urine from the uriniferous tubules." To me it seems logical that if the belief of Mr. Paramore was that the spinal analgesia helped by preventing the blood from being thrust into the renal medulla it was because he thought this to be the responsible factor. However, as no one could know Mr. Paramore's ideas on the subject better than himself I am really admitting my mistake and again plead to be pardoned for my apparent lack of clairvoyance.

One thing I can state without hesitation—namely, that my letter (September 17, p. 650) answering Mr. Paramore's direct reference to me and to the book in the writing of which I collaborated was not dictated under any "misapprehension"; on the contrary, it was written with all sympathy to Mr. Paramore for his pioneer contribution to the treatment of eclamptic patients by means of spinal analgesia.—I am, etc.,

J. Trueta.

Oxford.

*** This correspondence is now closed.—Ed., *B.M.J.*

A New Neonatal Syndrome

Sir,—In reference to the letter by Drs. Crystal Bates and A. P. M. Page (October 1, p. 756) adding another case to the interesting series published by Mr. W. G. Mills (August 27, p. 464), we should like to record that we have seen 20 similar cases in Liverpool, the details of which we intend to publish shortly. We believe these cases were due to the intra-arterial injection of "cycliton," but we have not seen similar effects follow the use of lobeline.—We are, etc.,

F. P. Hudson.
Anne McCandless.

Liverpool.

Penicillin in Early Syphilis

Sir,—Your annotation on this subject (September 24, p. 694) presented in able fashion the position at this moment of transition, but I should like to take exception to the statement that the results of Eames and Miller (p. 672) "are appreciably worse than those reported *after similar treatment* [my italics] by McElligott, Jefferiss, and Willcox." Surely, Sir, the secret of the better results obtained by the latter method[1] lies in the choice of a more effective arsenic and bismuth course rather than in the method of employing penicillin, since it is generally accepted that the method using a daily single shot of penicillin in oil-beeswax is not superior to the three-hourly regime of adequate penicillin dosage in aqueous solution. The essential basis of this course consists in the concurrent administration of arsenic and bismuth twice weekly over a period of six weeks,[2 3] and the Ministry of Health recognized its value in preventing clinical and serological relapse in 1943.[4]—I am, etc.,

O. A. F. Ross.

Liverpool.

References

1 *Brit. J. vener. Dis.*, 1948, **24**, 45.
2 Ross, A. O. F., *Lancet*, 1930, **2**, 1206.
3 —— *Brit. J. vener. Dis.*, 1945, **21**, 123.
4 Ministry of Health Recommendations on the Treatment of Merchant Seamen, ibid., 1943, **19**, 77.

Myxoedematous Madness

Sir,—Dr. R. Asher's article on myxoedematous madness (*September 10, p. 555*) gave prominence to hypothyroidism as the aetiological factor in certain psychoses. The exhibition of thyroid extract in psychoses has frequently been tried with disappointing results, except in some cases of schizophrenia, and apart from myxoedema the mechanism of the therapy is very obscure. Hyperthyroidism is classified as a psychosomatic illness, and a considerable proportion of cases are an expression of an anxiety state. Occasionally it is associated with a manic-depressive psychosis. Because of this rare association of thyroid dyscrasia and psychosis I feel the following case is worthy of quotation.

A married woman, aged 49, came to see me in March, 1948. She was depressed and sleepless at nights. She felt "awful" in the mornings and found everything too much trouble. There was no evidence of physical disease, and I decided she was a case of mild involutional depression. She responded well to dextro-amphetamine sulphate and a sedative at night; but when after a year of this treatment she was much the same and very dependent on drugs I decided it was time she saw a psychiatrist. He agreed with my diagnosis and advised E.C.T., but she could not face the idea of a mental hospital.

In April, 1949, she became profoundly depressed. She felt so wretched she said she would agree to any treatment and went as a voluntary patient to a mental hospital. She stayed there for five days and then returned home as bad as ever. I was loath to certify her, and while I was observing her the picture changed completely and dramatically: within a month she was the picture of thyrotoxicosis. She lost weight, sweated profusely, had a tachycardia, and her thyroid gland enlarged. She looked a textbook picture. With the advent of this new syndrome her depression vanished. She became cheerful and started eating and sleeping. Thyrotoxicosis was confirmed at the local hospital, and she was put on the waiting-list for operation. Her admission was delayed until July, 1949, during which time she became manic. She arose at 4 a.m. and cleaned her house from top to bottom. She could not keep still—this with a pulse of 140 and oedema of her ankles. These symptoms subsided

on thiouracil, and when she was finally admitted for operation there was no marked psychic abnormality. Her thyroidectomy was uneventful, and she is now her normal self. She is still a bit apprehensive about exerting herself and doing a full day's work, but she eats well and sleeps well and keeps cheerful without any marked swing of affect.

In this case thyroid auto-intoxication appeared to raise endogenous depression. Mania intervened but was controlled by thiouracil. Thyroidectomy appears to have cleared the condition except for some residual anxiety such as one would expect after such a long illness. Was this a series of coincidences, or was there cause and effect? As in Dr. Asher's cases thyroid alleviated the condition, but she was no case of myxoedema in the first instance.—I am, etc.,

Ibstock, Leics. C. A. H. Watts.

Sir,—I feel confident that Dr. E. B. Davies has indeed earned the gratitude of all physicians and psychiatrists with his interesting letter (September 24, p. 706) on myxoedematous madness. When we next encounter a case of myxoedema with psychosis we must earnestly remind ourselves that the association of these two relatively rare disorders is probably fortuitous. Moreover, should the mental symptoms disappear as the myxoedema responds to thyroid we must remember that this, also, is likely to be accidental. After all, psychoses do remit or subside spontaneously.

On the other hand, if we have helped a psychotic patient to recall with emotion some highly significant event, such as, for example, having seen in childhood his mother or her father in the bath, we may rejoice at having struck gold. For then we can be quite certain that we have skilfully unearthed the specific cause of the mental disease, and not merely some irrelevant association.—I am, etc.,

Dumfries. Martin Roth.

Old Age

Sir,—I fear the wording of one or two phrases in my letter on old age (October 1, p. 758) was unfortunate. Naturally I was speaking to my colleagues, and all doctors know that euthanasia is not allowed. In any case, I no longer believe in it, as I am a Catholic. The mention of it was meant to be more in the nature of a query to other doctors—especially non-Catholics—as I am anxious to know their point of view about selfish and apparently useless old people.

But there are other, and kinder, and easier ways, surely, of dealing with such cases. One I mentioned was segregation—and here I would advocate the formation of another society—there is room for one—a society governed by a panel of a few doctors, clergy, and one or two barristers. Let this panel have authority to deal with the cases of hardship and frustration mentioned. Cases could be reported to the panel, or the down-trodden victims could consult it. Further, this panel should have authority to order segregation or other treatment. There are plenty of big, roomy rectories which the occupiers would be only too glad to vacate.—I am, etc.,

Portsmouth J. Rushworth Lund.

Sir,—I hope you will take up Dr. Lund's challenge (October 1, p. 758). Must we for ever, as a profession, pass by on the other side? Over 75, we become increasingly conscious that we are cumberers, but how can we combine effectively to express that point of view and get the co-operative help of those who bear the burden and heat of the day?

The last twenty-five years have shown how public opinion can change in such a matter as a general acceptance of cremation, for example. Must voluntary euthanasia be for ever "impossible" for serious discussion without such a prefix as "brutal" being applied to it?—I am, etc.,

"Seventy-nine."

Sir,—A letter by Dr. J. Rushworth Lund appeared in the *Journal* of October 1 (p. 758) entitled "Old Age." Many like myself must have read it and no doubt asked themselves the same questions that occurred to me. (*a*) Is the letter intended as a joke? (a poor one admittedly). (*b*) Is it merely a flippant response to the spate of enthusiastic articles on geriatrics? (*c*) Is it a bait to stimulate correspondence on the many problems concerning old age which are on the *tapis* at the moment as a result of recent legislation on health and welfare? (*d*) Could it, by any possibility, be meant to be taken seriously? I confess I do not know the answers to these questions.

It is, however, well that we should accustom ourselves to the idea that we are an ageing population, that the proportion of elderly persons to the wage earners has greatly increased. All the implications of this are by no means fully recognized. We need not, however, disturb our minds with erroneous ideas as to the selfishness of the old or that "so many live only for themselves," for we know better. Selfishness is inherent in all of us. From the moment we are born we are selfish. If we are spoilt in childhood and not trained to resist such impulses the fault grows in us, and if in adult life the spoiling goes on, as sometimes happens, then probably it will last into old age. For this we must not blame the old but rather pity them. Such persons are rarely happy, and who are we to sit in judgment on the faults of our neighbours? Some, it is true, may be a thorn in the flesh of those to whose lot it falls to look after them, but thorns are an essential part of life.

As to the question, "Why encumber they the ground?"—the only answer is yet another question, "Why encumber *we* the ground?" To question one corner of the plan of life is to question it all.

As to euthanasia, it is only when one reads a letter of this type (and maybe it was after all only a joke) that the hideous possibilities of such procedures suggest themselves to one's mind.—I am, etc.,

E. M. Hickey.

*** Several other correspondents have written to express their disagreement with Dr. Lund's earlier letter. This correspondence is now closed.—Ed., *B.M.J.*

B.M.A. Tuberculosis Group

Sir,—With the setting up of the Tuberculosis Group of the B.M.A. there are a number of urgent matters needing consideration. For many years the profession has played with the problem of the prevention of human tuberculosis of bovine origin. Dr. J. Arthur Myers[1] has claimed, "The control of tuberculosis in cattle, therefore, has markedly reduced the incidence of tuberculosis infection, the morbidity, and the mortality from tuberculosis in man." To-day only 16% of our cattle herds are certified free from tuberculosis. It is time that pressure was put on the Government to complete this eradication of bovine tuberculosis within a fixed date.

The next question that requires careful consideration is that a proper critical examination should be made and published of the results of treatment in all public sanatoria. Radical changes in our present methods for controlling this disease may be found necessary. The association of cancer of the lungs with tuberculosis in the lungs or in some other organ of the body is also worth investigating.—I am, etc.,

Itchingfield, Sussex. Sydney Gordon Tippett.

Reference

1 "Bovine Tuberculosis Eradication in the United States and its Resulting Beneficial Effects on Human Health." *Proceedings of the United States Livestock Sanitary Association*, 1941.

Men, Machines, and Materialism

Sir,—Inevitably there arise in the tides of men's affairs issues which demand attention. Wars and their accompanying problems call for direct action, and commonly the men and the means are found and the resources of the people are urgently deployed. There follows almost inevitably a period of relative exhaustion and uncertainty. With these phenomena we are familiar. With the threat of physical extinction or subjection we have grappled not once but again, and with a remarkable unanimity and singleness of purpose. To minimize the eroding effect on a civilization of two major wars in one generation would be futile, but the contemplation of certain human trends—trends which display the "inevitability of gradualness" and a malignant persistence—cannot fail to be gravely disturbing.

Two recent publications in your own columns have met and faced the most disquieting of these problems.

Professor Geoffrey Jefferson, in his Lister Oration (June 25, p. 1105), has assessed the value of the concepts embodied in Dr. Norbert Wiener's book *Cybernetics* and appraised the use of the varied analogies there propounded; but he sees "danger threatening—that of anthropomorphizing the machine," and ends by ranging himself with the humanists. Dr. F. M. R. Walshe, in his letter (August 13, p. 383) inveighing against the most recent example of "materialism" within our own gates, sees us being led "from the free status of a learned profession to that of a sub-group of that drab and alien abstraction 'economic man.'"

Not the least of our perils lies in our own approach to this spreading cult of materialism. Scientific method induces us to weigh and to analyse evidence and motive, and there is a compelling charm in these procedures which may blind us to the fact of our essential humanity and to the existence of the "incommunicables" which go to make it. Study of the computing machine and allied mechanisms may help us to greater understanding of those cerebral mechanisms which are explainable in such terms, and "analysis" (in the psycho-analytic sense) has afforded and may continue to afford us greater insight into the motivation of human behaviour. But the "analytic situation" and the "mechanistic analogy" may assume disproportionate significance, and paralysis of action with spiritual sterility ensue.

Other disciplines than ours stand thus imperilled. Professor F. H. Ayers (*Reflections on Our Age*) has shown how philosophy has long concerned itself with the minutiae of human conduct and endeavour but finds that though the "aims of philosophy" may be to discern how men ought to live there is as yet no common agreement how they should. So may the web become denser, the skein more tangled, and thus persist "the always frustrated struggle of human contrivance relying on itself" (Charles Morgan, *The River Line*).

There, Sir, I submit, lies the challenge to-day. The liberal profession of medicine no less than any other can refuse this challenge, can acknowledge the advance of materialism, can go with the tide. It may be argued that this conflict has progressed too far. I would remind you that the epic actions have always been fought by the rearguard, as at Roncevaux and at Thermopylae. To refuse the challenge is not to court defeat; it is to accept it.—I am, etc.,

Taunton, Somerset. R. SESSIONS HODGE.

St. Luke's Day

SIR,—The eighteenth of October is St. Luke's Day. On that day Christians in all parts of the world commemorate the patron saint of the healing profession. They recall with gratitude the gospel that he wrote for his fellow men. On that day the Church recalls with thankfulness the fact that this physician was called to be "an evangelist and physician of the soul," and prays that "by the wholesome medicine of the doctrine delivered by him, all the diseases of our souls may be healed." That is indeed a consummation devoutly to be wished. Let us study these prescriptions for the soul of a world, sick nearly to death, which this physician had learned from the Master and has preserved for us. In these latter days modern scholarship, and modern translations of Luke's Greek manuscript, give us the opportunity of understanding better perhaps than preceding centuries these prescriptions for a new way of life and health for a sick world. Was Renan right in calling this small book of this Gentile doctor "the most beautiful book we possess . . . a book full of joy"?

It is a pen portrait by a literary artist of the human Jesus Christ: of a man fond of little children; the champion of the cause of women; the Rabbi who welcomed women as his disciples; the friend of hated Quislings and notorious sinners shunned and neglected by the orthodox of his day; the Teacher who could remake these wrecks of humanity, transforming Quislings into true patriots and great sinners into saints, converting Matthew the tax collector to Matthew the scribe of the Kingdom, and Mary of Magdala to be Mary Magdalene, first witness of his resurrection to his chief apostles. This joyful book of Luke's is full of the joy of lives that seemed failures, hopeless failures, transformed to be happy and successful beyond all belief. And this miracle was effected by love—forgiving, understanding love, such as the world had never witnessed. Luke's own closest friend and colleague in his later life was perhaps the greatest case of this incredible marvel—Saul of Tarsus, the arch-persecutor of the early Christian church, the narrow nationalist Pharisee, transformed into Paul the devoted missionary of Christ to the Gentile world. And Luke's second great book, *Acts of Apostles*, is devoted to recording the work of Peter and Paul, both of them failures—transformed, both of them, by the resurrection of Christ, to become His messengers-in-chief to the world—both of them dying, if the tradition be true, as martyrs for "the gospel" at Rome.

Can the present sickness of the world's soul be remedied, or is it past redemption? It is the message of St. Luke (and St. Paul) that it can be remedied—that the world's sick soul can be cured. But only by the medicine prescribed by the Master Physician as recorded by St. Luke and his colleague St. Paul, in the gospel and *Acts of Apostles*. And the "active principle" of this "medicine" is derived from the historic fact of the resurrection of Jesus. That is the astounding climax to which Luke's first "treatise" leads, making sense of Jesus' mission and message to the world. Surely our mammon-ridden, war-weary world to-day needs the "wholesome medicines" prescribed in the *Gospel of St. Luke* and *Acts*: "You cannot serve God and Mammon," and "Remember the words of the Lord Jesus when He said, 'It is happier, more blessed, to be giving than getting.'"—I am, etc.,

Banstead, Surrey. HERBERT CAIGER.

Sensitivity to Streptomycin

SIR,—Dr. M. C. Wilkinson (September 24, p. 707) sets out some of the problems associated with the development of streptomycin sensitivity in nurses. He adds that by reporting experiences some way of protecting persons sensitive to streptomycin may be found. I therefore briefly report a case of streptomycin sensitivity to illustrate some other aspects of the problem which this condition presents.

Eleven months after commencing handling and administering streptomycin, a nurse, aged 43, with menopausal symptoms and of neurotic disposition, developed puffiness and itching of the eyelids. This was thought to be due to a local condition, but no local cause was found. Four weeks later the realization that the condition might be due to streptomycin sensitivity led to the carrying out of a patch test. This gave a strongly positive reaction. The chemosis of the eyelids increased and she felt unwell. She was at once removed from work involving the handling of streptomycin, she was given "anthisan" by mouth, and the condition cleared up within a week.

Four months later the swelling of the eyelids recurred, and in addition there was flexural dermatitis of both elbows. Interrogation revealed that she had recently been handling soiled linen which included napkins belonging to children receiving streptomycin for tuberculous meningitis. Once again the condition was controlled by removal from the apparent source of contact and by the administration of anthisan by mouth. Three months later a dermatitis appeared *on the wrists and hands as well as the other areas previously involved.* A month later, two days after commencing the use of a simple ammoniated ichthyol ointment to the eyelids, a severe chemosis of the lids occurred which subsided on stopping the use of the ointment. The dermatitis remained quiescent for a period of two months until recent weeks. Now, ten months after the first manifestation, a widespread contact dermatitis involving the forehead, neck, eyelids, elbows, wrists, and hands has occurred necessitating her being put off duty. Anthisan is now ineffective.

This case illustrates several points. As in Dr. Wilkinson's first case, the original manifestation of the sensitivity was in the eyelids and not on the hands as would be reasonably expected. In the second place, protection by wearing rubber gloves whilst handling streptomycin solutions may give a false sense of security if no protective measures are employed when other sources of contact such as soiled linen are handled. Most important of all, when sensitivity develops it is a very distressing and incapacitating condition which appears to persist after all obvious sources of contact with streptomycin have been excluded. This raises the question as to whether development of streptomycin sensitivity predisposes to sensitivity to other

accents. The fact that the development of streptomycin sensitivity in a nurse may accentuate the already critical shortage of tuberculosis nurses is a side-issue of no little importance.

I wish to acknowledge the help given by Dr. R. Aitken, Dr. G. A. G. Peterkin, and Dr. J. Macaskill in this case.

I am, etc.,

Edinburgh. N. W. HORNE.

Massage with Adrenaline

SIR,—My attention has been drawn to a letter by Dr. G. L. Foss on this subject (October 8, p. 816). I wish to point out that the circular to which he refers has no connexion with my article (*Medical World*, April 15, 1949). In it no suggestion was made of any relation between the adrenaline-cream treatment for chronic rheumatism and Kendall's "compound E," and the treatment of rheumatoid arthritis was not even mentioned. I wish especially to disclaim any association with, or knowledge of, the pamphlet to which Dr. Foss refers.—I am, etc.,

London, W.1. LOUIS MOSS.

Simulated Amnesia

SIR,—May I point out to Dr. Harold Palmer (August 27, p. 487) that I have put forward and fully discussed the contention that malingering only occurs in the hysterical personality (*Psychiatry, A Short Treatise*, 1948, Bristol, pp. 109 and 115)? This would appear to agree on all major points with his remarks in his letter. Malingering as a psychiatric notion should be discarded, as it carries a definite legal implication. From the medico-legal point of view it is unlikely that a diagnosis of hysteria would in any way distort the judgment of the courts in favour of an evildoer. Society cannot be expected to pay for the behaviouristic experiments of the so-called malingerer, of the hysteric, or of the psychopathic personality. By discarding the term "malingerer" no harm would therefore be done, while the integrity of psychiatric nomenclature would be preserved.—I am, etc.,

Kingswinford, Staffs. W. A. O'CONNOR.

Hypnosis in Treatment

SIR,—I am glad that my letter (September 17, p. 653) has stimulated some interesting views on hypnosis. However, I remain far from being reassured about its possible dangers.

Dr. Neville Murray (October 1, p. 756) admits that my postulates are correct in part, while the other parts of the whole remain among the great unknown imponderables. He mentions the Rorschach test as being one which gives objective evidence of personality structure. Although I have no experience of it, I believe that it works on the principle of the ink-blot test, and I would be surprised to find it more than a rough measure, which is difficult to assess and judge, apart from the preconceived ideas of the widely differing schools of psychology or from the subjective personality of the examiner. While some aspects of personality are rightly the concern of psychology, we cannot concede that other scientific and human disciplines should not be entitled to an equal or greater concern. Lastly, he makes an inaccurate presumption as to conceptions I am supposed to hold—I used the word "influence"; he uses the term "mental assault."

Dr. A. P. Magonet (p. 756) also makes an inaccurate presumption in stating that I believed hypnotized subjects to be "passive automatons." Fortunately there are limits to what even they will accept in the way of suggestion; we all know that well enough. He cites the case of a girl with cardiospasm who could not swallow the fact that her mother had died. This presupposes that the girl was intellectually capable of conceiving a symbolic idea containing a high degree of abstraction.

Symbols of this kind are all very well for the highly educated, but symbols in general are originally spontaneous and relevant, unless the subject is very suggestible and the idea is implanted from outside, which may well have been the case in this patient. Death is associated with ritual eating admittedly—e.g., wakes and the now extinct sin-eater—and we know something about the history of such practices. They are considered to be inappropriate to modern thought, but may be the basis of this symbol. The fact is that two separate events occurred at the same time with all probability of causal connexion. The nexus might consist of a symbol but might also be of a different nature altogether—e.g., a chronic manifestation of the swallowing difficulties some of us have felt in acute form while awaiting viva voce examinations. In this case feelings of emotional insecurity at the mother's death would give rise to the state of chronic anxiety, only understood in part by the patient, whose attention is concentrated on the symptom.

Under hypnotism, with the critical faculties depressed voluntarily even if not altogether in abeyance, it is likely that a variety of more or less plausible explanations would be acceptable. If the explanation is accepted by the patient in a case of that sort the symptom may disappear. So it has always done over the face of the globe and for many centuries.

Such examples do nothing to alter my conviction that the more widespread use of hypnotic methods for symptoms arising in patients not generally considered to be hysterical brings possibilities of dangers to the personality not at present realized. The fundamental criticism of hypnosis is an urgent need and must come from abler people than myself, as I have already suggested. Until more is known of its nature and long-term effects its use should be limited.—I am, etc.,

Birmingham. K. M. HAY.

Treatment of Early Pulmonary Tuberculosis

SIR,—The position regarding the treatment of early pulmonary tuberculosis is still deplorable. In my area it is usual for a patient to be told that he may have to wait for six months or more before being admitted to a sanatorium, even though he be a young person with an early lesion. Domiciliary treatment is handicapped by the fact that there are too few tuberculosis medical officers to help with the work.

If general hospitals were asked to deal with a sufficient number of these patients to reduce the sanatorium waiting-lists to a few weeks they would find that their own waiting-lists for other patients would be impossibly long.

I suggest that the B.M.A. approach the Minister of Health with the object of finding ways and means of providing more beds for the treatment of these cases. This would mean opening hospitals now closed for one reason or another, building others, and attracting staff to them by means, perhaps, of higher pay. This should have priority in the N.H.S., even if this means greater economy in some other parts of the Service.—I am, etc.,

Dorchester, Dorset. J. HERBERT-BURNS.

Manipulation for Low Backache

SIR,—Dr. N. B. Eastwood's letter on manipulation for rheumatism (September 24, p. 710) will probably stir many doctors to action, either mentally to contradict or manually to try their hand. Dr. Eastwood must be congratulated on manipulating his cases of low backache, for this takes considerable time in a busy practice. That it is the correct thing to do I am in no way in doubt, especially as soon as possible after it is first reported. That at least three-quarters of his patients benefited considerably is very satisfactory.

Two of his statements, however, invite criticism. The title of his letter continues to breed confusion of thought. The low backache and not rheumatism is the complaint and reason for manipulating. It is this pain in the back or buttock or the constant ache that the patient complains of. The doctor should not call it rheumatism or fibrositis. That the diagnosis is "probably of articular origin" is not in doubt by those who manipulate, but to state that the manipulation "appears to act on the sacro-iliac joint" is quite incorrect. The cause of low backache has been conclusively shown by many authors to be due to derangement of a lumbar intervertebral joint in the majority of cases. The sacro-iliac joint can easily be tested and excluded as a cause.[1]

The manipulation described is interesting but complicated. It can more easily be performed on a couch in comfort, with two or three variations should improvement not take place.[1]

The principle of the manipulation described is probably quite incorrect. The essential points are that some flexion of the lumbar spine and rotation at the same time be maintained and augmented momentarily by excessive rotation. The partial flexion is essential in that the posterior aspect of the intervertebral joint is widened, so as to allow the nucleus pulposus to return to its correct place. When extension is attempted on these cases it frequently temporarily aggravates the condition.

Before manipulation is attempted in cases of low backache it is hoped that the patient is carefully examined systematically, testing all spinal movements, sacro-iliac joints, hip-joints, and muscle strength of both legs, not forgetting the abdomen and a rectal or P.V. examination. Otherwise indiscriminate manipulating for low backache will be disappointing and patients will not grow to trust the doctor who manipulates. With experience and practice it is a most essential accessory to one's armamentarium.

In my experience manipulation is the only preliminary treatment of any value in a deranged lumbar intervertebral joint in the right type of case. Manipulation should always be followed up by extension exercises of the trunk. In those cases in which recurrence is frequent epidural injection or a lumbar corset may help.—I am, etc.,

Ryde, Isle of Wight. TREVAN HAMBLY.

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1 Cyriax, J., *Rheumatism and Soft Tissue Injury*, 1947, London.
2 *Handbook of Osteopathic Technique*, 1941, Los Angeles.

Locked Twins

SIR,—The purpose of this letter is to place on record a patient who had locked twins at Rosedene Maternity Hospital, Inverness, in March, 1949.

The patient, a 19-year-old primigravida, had been under observation in hospital for six weeks prior to delivery because of pre-eclamptic toxaemia. Pre-natal *x*-ray examination showed twins, one of which lay as a vertex and the other as a breech presentation. Labour started spontaneously at the 37th week and followed a normal course. The first infant, a breech presentation, delivered spontaneously to the neck from the left sacro-anterior position. Vaginal examination now revealed that the head of the second foetus was well down in the pelvic cavity in the left occipito-posterior position with the head of the first still at the pelvic brim. Attempts to disengage the infants were unsuccessful, and by the time specialist aid could be summoned the first infant had succumbed, so it was decapitated and, the second bag of membranes having been ruptured, the second baby was gently extracted with the forceps. The head of the decapitated infant was then delivered by passing the middle finger into its mouth, the other fingers protecting the uterus from damage by the severed vertebral column. The extraction was accomplished by traction and suprapubic pressure. After a normal third stage, inspection of the placenta proved it to be of the uniovular type. The infants were both males weighing respectively 4 lb. (1.81 kg.) and 4 lb. 1½ oz. (1.85 kg.).

—I am, etc.,

Inverness. JAMES W. DAVIDSON.

Treatment of Cutaneous Anthrax

SIR,—The description of the diagnosis and treatment of cutaneous anthrax by Drs. John A. Holgate and Reginald A. Holman (September 10, p. 575) should not pass without comment. Northampton, a centre of the leather industry, has a fairly steady incidence of cutaneous anthrax, and I have been responsible for the diagnosis and have followed the treatment of some 20 cases during the last eight years.

On admission the patient is given 0.45 g. of "stabilarsan" and 100 ml. of serum subcutaneously. A second 100 ml. of serum is given later if the clinical condition of the lesion warrants it. With this treatment recovery has always been uneventful. Two cases, however, were treated with penicillin. Both developed a sharp rise of temperature shortly after the injection, and there was a great increase in inflammatory reaction around the lesion. The condition of the patients deteriorated, and it was considered necessary to administer amounts of serum greatly in excess of those normally used. The penicillin appeared to be responsible for the unusual severity of these cases and its use has since been abandoned.

I would suggest that penicillin causes a sudden destruction of a large number of anthrax bacilli, with a liberation of endotoxin which increases the local inflammation and causes pyrexia. The literature on the treatment of anthrax by penicillin suggests that the disease is of great severity and danger, and that vast doses of penicillin are needed to control it. In our experience cutaneous anthrax is not a severe disease and is easily controlled by the use of serum and stabilarsan. Intravenous injection of the serum is rarely necessary or desirable. May I suggest that in their next series of cases Drs. Holgate and Holman treat alternate cases with and without penicillin, when I feel sure that they will soon abandon its use.—I am, etc.,

Northampton. L. HOYLE.

Treatment of Ringworm of the Scalp

SIR,—The paper by Drs. H. Haber and R. T. Brain and Mr. J. W. Hadgraft on the treatment of ringworm of the scalp (September 17, p. 626) raises many important questions, particularly in connexion with the mode of action of preparations containing fungicides. Since similar results were obtained with phenylmercuric nitrate and with salicylanilide, it is deduced that "it is not the fungicide which effects the cure but the penetrating power of the bases employed" (carbowax in the cases described).

This view is not, however, in accordance with the results we have obtained in a recent investigation concerned with 261 cases of ringworm of the scalp due to *Microsporon audouini*. Using three different fungicides in carbowax, cures ranging from 38% to 74% were recorded. The mode of action of fungicides is undoubtedly complex, and whether treatment with such compounds is necessary after *x*-ray epilation is controversial. Brain and his colleagues state that "*x*-ray epilation has to be followed by the application of a fungicide." Lydon, Stephanides, and Robb[1] have reported cures in 103 cases by *x*-ray epilation without the application of fungicides. We are fully in agreement with the statement that the hair itself resists penetration of reagents, but we have not been able to find evidence that carbowax is capable of softening the hair or loosening the connexion between the hair and the hair papilla.[2]—We are, etc.,

A. J. E. BARLOW.
F. W. CHATTAWAY.
C. S. WHEWELL.

Huddersfield.

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2 Barlow, A. J. E., Chattaway, F. W., and Whewell, C. S., *Brit. J. Derm. Syph.*, 1949, in press.

University Degrees

SIR,—I have been most interested in the views expressed by your correspondents on medical education, and wonder if you would consider printing some comments from a London clinical student who held senior officer rank in the late war and is somewhat older than his fellows.

While agreeing that the present multiplicity of qualifying degrees and diplomas, all of them more or less of the same standard, is most illogical and should be simplified, it seems a lot to hope that the universities, colleges, etc., will settle their differences before the Greek Calends, and meanwhile the non-university student graduating into the National Health Service is seriously handicapped.

I refer to the point (brought out by one of your correspondents) that none of the higher appointments in the profession, as it is at present being reorganized, is open to those who do not hold the M.D. or M.S. *in addition* to the M.R.C.P. or F.R.C.S. Now, although the university graduate is allowed by the Colleges to sit for the membership or fellowship without insisting that he take all their previous examinations, the qualified Conjoint man must in the case of London University (whose external regulations are the least exacting in this respect) go back to dissecting a frog and doing elementary physics and chemistry and all the other examinations for the external M.B. before being permitted to sit for a higher degree. There must be few indeed with either the time or money to waste in performing such a feat, and surely it is questionable whether it is desirable to employ a qualified man's time in undertaking such a pursuit.

On the other hand, I quite understand the natural reluctance of any university to cheapen its higher degrees—it would both lower the standard and discourage people from taking the initial M.B. But at the same time it must be admitted that it is very unfair for the brilliant Conjoint student to be perpetually condemned to a secondary position *vis-à-vis* his university colleagues as far as senior hospital appointments are concerned. This point, I should like to stress, has arisen in a particularly acute form since the institution of a service where higher degrees and diplomas are going to win promotion to the highest posts and which we should all enter without handicaps and with equal chances for our talents.

I therefore beg to suggest that London University (let it be hoped soon followed by others), through its national position and the fact that it possesses an external department, should take the lead in allowing any man or woman qualified in this country who is a matriculated student of the university and has spent at least three years in a medical teaching institution approved by the university to take a qualifying examination, which might consist of part or the whole of the M.B. finals, and which would in no sense confer a degree in itself but would allow successful candidates to go up for a "special" M.D. or M.S. degree later.

I feel that this might be a reform which could be put through with the least disturbance to existing institutions, and therefore that it might stand some likelihood of being adopted in time to be of some use to the students of to-day (many of them non-university simply because they are ex-Service), who feel a sense of frustration at qualifying into a nationalized profession with the highest posts permanently denied them however keen or able they may be.—I am, etc.,

London, S.W.3. E. O'C. TANDY.

Cigarette Cough

SIR,—I wonder if any of your readers have any views to express on the above subject. I have frequently been called on to differentiate between genuine cigarette cough and cough symptomatic of disease, and have found the following points of considerable help.

(1) A cigarette cough, though it sounds distressing, especially when well established, does not cause any distress; as soon as a fit of coughing is over the subject continues to breathe quite normally and without any noticeable acceleration of the respiratory rate. (2) Though the cough may have a moist quality it is not usually productive, unless the subject has a cold or other catarrhal condition of the respiratory tract. (3) The cough is invariably brought on by the first cigarette in the morning. (4) It is noticeable that very many heavy cigarette smokers who inhale steadily have little or no cigarette cough, while very frequently non-inhalers are severely afflicted. I believe that this is explained by the fact that non-inhalers are more prone to the habit of leaving the cigarette in the mouth while smoking. This means that while they may not inhale the filtered smoke pulled through the cigarette they are continuously inhaling the hot, unfiltered smoke trailing up from the tip, the irritant nature of which will be appreciated by anyone who has had the misfortune to sit beside an inconsiderate smoker at the pictures or the theatre.—I am, etc.,

Cavan, Eire. B. J. GALLIGHAN.

Diabetes and Gout

SIR,—Your leading article on diabetes and gout (September 24, p. 692) contains certain questionable statements which might mislead some of your readers. It is said that "in 1909 Ascoli and Izar showed that dog's liver contained an enzyme which converts uric acid to dialuric acid, so that probably uric acid can be converted into dialuric acid in man." The facts, however, are that dogs possess an enzyme, uricase, which converts uric acid into allantoin, but that neither this nor any other uricolytic enzyme is present in human tissues, which are unable to convert uric acid into any other substance.

Regarding experiments on birds, pigeons are alleged to have died "from a deposit of sodium urate over all the serous surfaces." Surely the inference should be that an inflammatory condition of these surfaces was associated with deposition of urates on them, but the cause of death is not evident. In general, results obtained for one species, or even sub-species, of animal cannot safely be extrapolated to other species, and this is particularly the case for purine metabolism. While there certainly appears to be a case for connecting rheumatoid and possibly gouty arthritis with steroid metabolism, the evidence presented is insufficient to establish any connexion between human diabetes and purine metabolism.—I am, etc.,

London, N.W.6. R. TRUSCOE.

Dysentery in Monkeys

SIR,—Until recently monkeys intended for experimental work were of necessity imported by sea. Recently, however, large numbers of the common rhesus monkey, *Macaca mulatta*, have been imported by air from India, and many have been re-exported to the U.S.A. after only a few days in this country. A high mortality among the animals was usual during the sea voyage, but this is much reduced by air travel. By this route a death rate of 2% is considered high by the airway companies.

However, the shorter time spent on the journey implies that a higher proportion of sick animals arrive in England, and some may well be carriers of infectious disease. Recently we have seen three outbreaks of clinical dysentery in such monkeys awaiting re-export and have isolated from them *Shigella flexneri* type 103 Z, as reported by us from these animals in 1948.[1] Another animal with the same infection was procured from a commercial dealer, but its method of import was not stated. From yet a fourth outbreak we have isolated *Shigella schmitzii*. Human infection with *Shigella flexneri* type 103 Z is rare in this country, but it appears to be more common in the U.S.A. However, we feel that a hazard exists. Spread of *Shigella schmitzii* from apes to their keepers was recorded by one of us in 1949.[2]

British Overseas Airways Corporation are fully cognizant of this matter and have already instituted control measures, both on the aircraft and at airports, to prevent any spread of such infections either to the aircrew or to those handling the animals during loading and unloading or while tending them during any stops.—We are, etc.,

R. E. REWELL,
Zoological Society of London.
R. F. BRIDGES,
Dysentery Reference Laboratory, Oxford

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2 —— *Lancet*, 1949, 1, 220.

POINTS FROM LETTERS

Resisting Pain

Dr. R. MACDONALD LADELL (Edgbaston, Birmingham) writes: Mr. Charles Davy's comment (September 24, p. 709) on the excellent article by Dr. E. B. Strauss (August 20, p. 411) reminds me that a few years ago I embarrassed my dentist (since deceased) by insisting that he should draw four well-rooted molars in succession without using any anaesthetic whatever. I am not a masochist. My main reason was the spiteful one that I heartily disliked the dentist as a man, though respecting his professional abilities. Every psychologist will appreciate that point. My other reason was to test my theory that pain when understood and accepted because it serves some end can have a tonic effect. Certainly I experienced no sense of shock and came away with a sense of well-being. This last of course may have been due to the fact that I was feeling pleased with myself. Is it not possible, however, that we make too much of a bogy of pain?

The Use of Experience

Dr. DAVID WHEATLEY (Twickenham, Middlesex) writes: In his article (September 24, p. 663) Sir Heneage Ogilvie rightly condemns the narrowness of outlook which may be produced in some by specialization. Yet does he not fall into the same error himself? Later, referring to the hollow needle, he observes that "it must bear the responsibility for spinal anaesthesia." This would seem to reflect upon the latter procedure and must surely be a personal opinion. And would he agree that the woman with severe hyperemesis gravidarum, to quote but one example, is "rejecting what is harmful or surplus to requirements [of her tissues]"? Even taken in its context I find it hard to reconcile such a sweeping statement with the objects of the article, although I may be biased through reading it with a physician's outlook.

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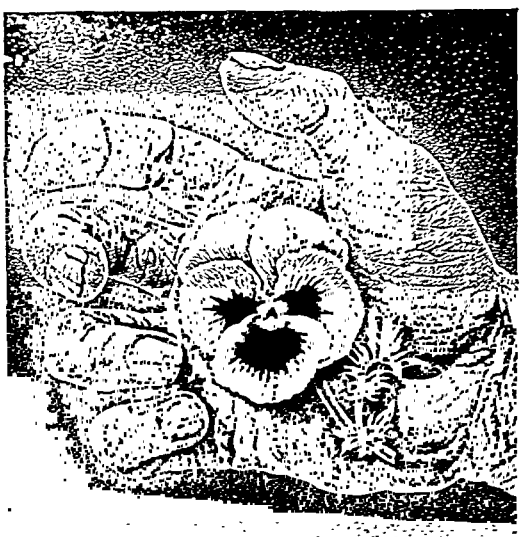
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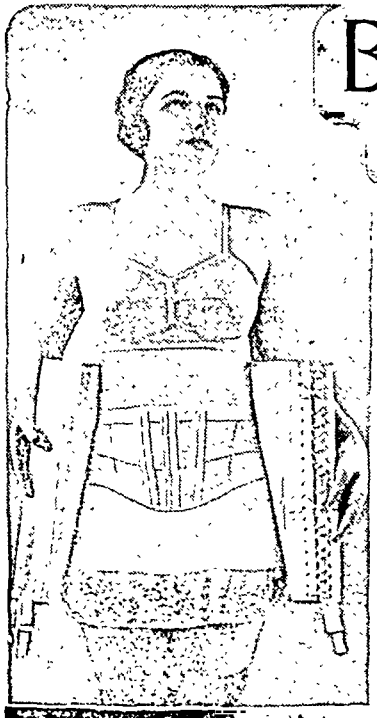
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Obituary

MAJOR GREENWOOD, D.Sc., F.R.C.P., F.R.S.

Major Greenwood, professor emeritus of epidemiology and vital statistics in the University of London, who died suddenly in London in his seventieth year, on October 5, was for more than a generation one of the outstanding figures of the day, both in his chosen field of medicine and among statisticians in this country and throughout the world. Though there is no doubt that he became the leading authority on medical statistics, at such a description he might himself have smiled sardonically, for throughout his career he was no respecter of authority, no lover of "expert witnesses," no accepter of *ex cathedra* statements. Indeed, in a somewhat "left-handed" way he had an abiding affection for the amateur in science, the amateur with no reputation and no technical tricks at his command, but with a questioning mind, a fund of common sense, and above all an intellectual honesty of purpose. It was such characteristics, probably, that made so dear to him John Graunt and his "shop arithmetic" on the seventeenth-century bills of mortality, and at a later date his great hero William Farr, who with the simplest of approaches built so firmly our English system of vital statistics, and so equally simply displayed its value. Though an able practical mathematician, Greenwood never lost this love of simple statistical tables or of what he himself invariably called "little sums."



Major Greenwood was born in 1880, the only son of a general practitioner in the East End of London. He was educated at Merchant Taylors' School, from which he went for his medical training to the London Hospital. On qualifying in 1904 he was appointed demonstrator of physiology in the London Hospital Medical College, where Leonard Hill had taken up the professorship. Here he was associated with Hill and his early work on caisson disease. During these years his mathematical leanings led him to University College, London, to study the then newly developing science of mathematical statistics under Karl Pearson. For these two men of international and lasting reputation, masters in very different fields of science, Greenwood never lost his early feelings of admiration and attachment. With both medical and statistical crafts now at his command he was in 1910 appointed statistician to the Lister Institute, and began to publish the long series of studies of vital statistics which were the foundation of his later career—studies, for instance, of infant mortality, of marital infection in pulmonary tuberculosis, of hospital mortality rates from pneumonia. Here, too, he made detailed investigations of the epidemiology of plague in India, working alongside Arthur Bacot, one of his most intimate friends, whose early death was a blow from which he never wholly recovered. Though on the staff of the Lister Institute till 1919, the first world war naturally redirected his activities. He took charge of a medical research subsection of the Ministry of Munitions and became immersed in the problems of hours of work, of the dietaries of munition workers, of the incidence of tuberculosis in the industrial community, and, lastly but probably the most remembered to-day, the incidence of repeated accidents in factory workers or what became known as "accident proneness." In this work he collaborated with Udny Yule.

These years led also to his association with Professor E. L. Collis and their joint book, *The Health of the Industrial Worker* (1921), and, more indirectly and some years later, to the Medical Research Council's Statistical Committee, which was a descendant of the wartime committee on the Health of Munition Workers. Greenwood became first chairman of the statistical committee, a position he held till 1948, and, aided by the members of the committee, the Council's statistical staff that he had gathered round him did much to raise the standard in the presentation and use of statistics in medical publications. At the end of the first world war he left the Lister Institute to take charge of medical statistics at the newly established Ministry of Health, where he worked in close association with Sir George Newman, the first C.M.O. Here his deep interest in historical epidemiology became increasingly apparent not only in his published papers but also in many unsigned contributions to Ministry of Health reports which unmistakably bear his mark—for example, that on the 1918 influenza epidemic. How he found time for it all is difficult to see, but he was a man of few interests outside reading, and he read late and early—not only indeed within his subjects but roving over the whole field of literature, modern and ancient, and with a phenomenal memory that allowed him to quote largely and at will—with Latin in the original as a mere sideline. So at this turning-point of his career there were papers on Galen and on Sydenham, on the fertility of the English middle classes and the vital statistics of Sweden, on the natural duration of cancer and the vital capacity of young healthy males, many of these papers, naturally, in collaboration with other workers.

From the Ministry Greenwood moved in 1928 to his final position—Professor of Epidemiology and Vital Statistics in the newly created London School of Hygiene and Tropical Medicine, a chair he held till his retirement in 1945. Here, though in fact its beginnings came a year or two earlier, he entered upon that long and productive phase of work in association with his colleague W. W. C. Topley, the School's professor of bacteriology and immunology, in their study of experimental epidemiology or, as Greenwood once wrote, the attempt "to mould a little epidemiological world of our own nearer to the heart's desire" in the hope of elucidating the laws of the epidemic rise and fall of disease. Though fifteen years of work did not allow them to give a precise quantitative expression to the law of development, it threw much light on epidemic occurrences and on such practical issues as the limitation of protection by inoculation. Here, for example, arguing from mouse to man, it seemed that artificial immunization could be of great value for a short or discontinuous period of even severe exposure but would not avail against a long-continued exposure to a very unfavourable environment. At this time, too, Greenwood developed an interest in the growing subject of psychology, and, collaborating with his colleagues Dr. May Smith and Professor Millais Culpin, both read and wrote thereon. He had also his teaching duties to perform—directed almost entirely to postgraduate students sitting for the University's diploma in public health. In the preface to his Herter lectures, "Epidemiology, Historical and Experimental," delivered in Baltimore in 1931, he expresses his

conviction "that the history of ideas is an essential part of the education of both public health officers and laboratory workers," and this view ran clearly through his lecture courses.

The student in search of "facts," to be transferred from the lecturer's notebook to the student's notebook "without passing through the mind of either," would find Greenwood of little help. He was not at his best either in teaching statistical methods—they came much too easily to him to allow him to appreciate the difficulties of others. But only a very mediocre student could sit through the course of lectures which he subsequently published under the title of *Epidemics and Crowd Diseases* (1935) without feeling an inspiration, a fascination which would long outlast a mere examination. In his final years Greenwood renewed his historical studies—perhaps, like many of us, as a temporary escape from the realities of the day during the second world war. These resulted in his Heath Clark lectures on British pioneers of social medicine.

Major Greenwood was elected a Fellow of the Royal College of Physicians in 1924—he had given the Milroy lectures in 1922; was awarded the Buchanan Medal of the Royal Society in 1927 and elected a Fellow in the following year; was honorary secretary of the Royal Statistical Society from 1919–34, its president in 1934–6, and, in 1945, one of the rare recipients of its gold medal; he served on the Senate of London University and on many of its committees. Many persons who never met him must have known him through his writings, for apart from the flow of scientific papers he wrote many articles and letters in this and other journals. They will have realized that he was a forcible fighter for what he believed to be right, and that his command of epigrammatic incisive English and his satirical wit made him an opponent that no one would lightly seek to provoke. He may thereby have inevitably discouraged some from entering the statistical field, one in which the way appeared so hard—but that is a risk that must be run by every medical statistician with an urge to raise the standard of what Greenwood once called "arithmetic guided by logic." Many others he must have encouraged and inspired, both by his zeal for accurate observation and clear presentation and by his unchanging belief in the importance of statistical methods in medicine, a belief which he lived to see widely accepted.

Sir Robert Hutchison writes: I first got to know Major Greenwood when he acted as one of my clinical clerks at the London Hospital about forty-six years ago, and was at once impressed by his keen intelligence. Although his father had been a general practitioner, he himself never attempted to practise. He felt probably that clinical work was not really his *métier* and he could never have acquired what is called a bedside manner. He took instead to the study of epidemiology and medical statistics, for which kind of work he was well suited by the penetration and accuracy of his mind and by his fondness, as he often put it, of "doing sums." There were some, I know, who thought him cynical and censorious, and to some degree they were right. He certainly had a poor opinion of modern man, and he had too much intellectual integrity to have any patience with stupidity. He could, indeed, be a devastating critic and controversialist, while his voice and expression were apt to make him seem supercilious. Those who knew him best, however, realized that much of his acerbity of manner and lack of geniality was really due to shyness and that he was as stern a critic of his own work as of that of others. It is true that he did not wear his heart upon his sleeve, but to the few whom he admitted to his friendship he was entirely loyal, and would send them long typewritten letters, sometimes weekly, in which he discussed anything and everything in his rather astringent style and with the frequent use of italics which was characteristic of him. Essentially, indeed, he was modest and unassuming; his foes were pretentiousness and pomposity, and these he fought with a rapier-like wit. He was by nature rather melancholy and, since the death of his wife, lonely. When he spent a week-end with me two or three months ago it was evident that he neither wished nor expected to live much longer, so doubtless death came to him as a friend and, as he would have wished, unheralded.

Dr. Millais Culpin writes: Perhaps only Greenwood's intimates could understand his curious blend of formality and good fellowship, and how even his humour demanded the precise word and the rounded phrase. He played a pretty game of chess, failed to reduce bridge to a mathematical formula, and reverenced piquet as the relic of a gracious past. Up to the end he visited a 90-year-old neighbour once a week, to cheer her up by playing with her a card game that only they understood. Unexpected doings like this last surprised those who knew only what seemed a rather formidable academic personality. Some have thought that he selected statistics as his life's work because that branch of medicine was most remote from the emotional. Perhaps they were right; he was a sensitive soul and often found refuge in doing sums, though the human meaning might still intrude. He once said he never knew till he visited that city why the death rate of Ditchworth was so high, but when he came out at the railway station he could see that no one there would wish to grow old. "And," he added, "I explained that to the city fathers before I left." He could be very blunt to his closest friends if he thought the occasion demanded bluntness. Indeed, he might seem to say that because he was one's friend he expected one's standard to be as high as his. He confided to me, after his return from a trip to America where he delivered some academic lectures, that he had scruples about accepting a fee for them. Some of the staff in his department at the School were Civil Servants, not very well paid, and they couldn't take time off for a holiday in the States and get extra money for it, so he was planning a subtle holiday-equalization fund to ease his conscience. He read many books in divers languages and had an old-fashioned facility for the apt quotation. With his literary memories at his command, on a country holiday he could give the stories of most of the people that had mattered in local history, bishops and agriculturists in particular. Although he might spend a week-end with a newspaper lord or go on some public errand to Geneva, he found satisfaction of his social needs chiefly in academic circles, and he had a deep-rooted pleasure in his association with the University of London. In discussing some matter of university policy with me he once said, "Remember, I was brought up in the Hackney Road—and you weren't far off." I had then known Major Greenwood for nearly half a century and I felt that we understood each other.

Dr. Charles Singer writes: I should like to send a tribute to the memory of my old friend and colleague, Major Greenwood. There must be very few members of our profession with such wide accomplishments. Your pages have for many years given evidence of his lively and felicitous style and not least in his article on "A Cholera Centenary," which appeared last week. Greenwood possessed an extremely exact mind. His accurate scholarship gave point—often somewhat painful point—to an exceptionally

ready and often mordant wit. Long ago I learned to regard as final his judgment, when he cared to give it positively, on any point of scholarship. How he succeeded in his busy and academically eventful life in acquiring such facility and accuracy in both mathematical and classical disciplines has always been a mystery to me. His learning had about it an almost uncanny element. It was often my honour and privilege to discuss with him matters of scholarship. I cherish the memory of these many meetings, but most of all I cherish the memory of being associated with him in his establishment of the first organization to assist scholars driven from their homes by the German Nazis. In this most successful venture he appeared at his very best as a humane physician and a lover of every form of learning. Despite his formidable humour, Greenwood was an extremely kind-hearted man and he hated every form of unfairness and injustice. I saw him at his gallant best as the effective mover for the foundation of the Academic Assistance Council (later the Society for the Protection of Science and Learning) in 1933. From that time on he served its cause—the salving of learning in a war-ridden world—with all his might, and he acted as treasurer of the society to the end of his life. He was thus the agent in preserving for civilized posterity the work of innumerable important scholars, thinkers, writers, and scientific investigators. In dealing with the complicated and difficult affairs of these unfortunate carriers of civilization he always showed them the utmost personal consideration, and no trouble was too great for him to take on their behalf. The world of learning owes him a very deep debt. Many hundreds of scholars all over the world will mourn the loss of this great-hearted, far-sighted, valiant little man. His life and bearing have lent a nobility to learning that could not fail to be recognized by all who knew him. The entire intellectual life of the next generation will be the richer for what Greenwood has done for it. He was personally a retiring and rather withdrawn man, and it may be that this great service will be forgotten; but it was none the less very real and effective, for Greenwood was a most determined and vigilant watchdog of civilization against the attacks of barbarism.

AUGUST KROGH, Ph.D.

Professor August Krogh, the famous physiologist, died on September 13 at his home in Copenhagen. He was 75, and had been ill for some time. Professor Krogh won the Nobel Prize in physiology and medicine in 1920. He had held the chair of zoophysiology in the University of Copenhagen from 1916 until his retirement in 1945.

We are indebted to Sir Henry Dale, O.M., for the following appreciation: In no country outside his own was Krogh more intimately known, or held in higher regard by workers in his own chosen field of science, than in Britain, where he made some of his closest scientific and personal friendships. He was a frequent visitor to this country, and when he came to a meeting of the Physiological Society he came as an ordinary and always welcome member. Krogh did not study or qualify in medicine; like some of our own most eminent contributors to physiological science, in particular some of the Cambridge school, his approach was from the side of general biology, and without immediate concern for specifically medical problems. It is hardly necessary to add that he was led by that route to studies of the highest medical interest and importance. He graduated at Copenhagen in zoology in 1899, but from 1899 to 1908 he was assistant in the department of physiology of the Copenhagen medical school, under the late Professor Christian Bohr. It was under Bohr that he had his first experience of research and acquired his interest in the study of the blood and of its function as a carrier of the gases connected with respiration. A communication of his work in this field to the International Congress of Physiology at Heidelberg, in 1907, first brought Krogh and his work to wider notice and made contacts for him with the late J. S. Haldane and with his own near contemporary, the late Sir Joseph Barcroft. Krogh's last visit to England, in 1948, was to take part in a conference at Cambridge on haemoglobin and its properties, held to commemorate Barcroft and his work.

Krogh's activities as a research worker, devoted to physiological problems of many kinds and over a wide range of animal species, have enriched physiological knowledge in a number of its departments. His fundamental work on the contractile and other functions of the capillary blood vessels brought him the award of a Nobel Prize in 1920, and was fully presented in a monograph, embodying his Silliman Lectures at Yale, in 1922. A little later he was concerned with the introduction of insulin to Denmark and the establishment of its manufacture there. He published other monographs on osmotic regulation in aquatic animals and on the comparative physiology of respiratory mechanisms. Having retired in 1945 from the university chair of zoophysiology, which he had held since 1916, Krogh was given a special appointment and provided with a small research establishment in the basement of his house in Gentofte, in the environs of Copenhagen. Here, until his last illness, he was happily at work in a relatively new field of investigation dealing with the special physiology of insects. For this purpose he was receiving a regular supply of live locusts by airmail from the international research centre on locust control in our British Museum of Natural History at South Kensington. To study the contractile activity and metabolism of locusts in flight he had constructed a light and delicately pivoted merry-go-round, which could be driven by the flight of attached locusts in such rapid rotation that they could be observed only by stroboscopic illumination. The work was already yielding new and important items of physiological knowledge, and it is sad to think that the guidance and inspiration of Krogh's special genius should be lost to it at so early a stage.

Krogh received many public recognitions, including several from Britain. The Royal College of Physicians of London awarded him its Baly Medal, while the Royal Society made him one of its limited group of Foreign Members in 1937 and appointed him to give its Croonian Lecture in 1940, though the war prevented its delivery till 1946. Krogh had a quiet and rather shy personality, with a jerky manner which did not obscure his warm friendliness or his ever ready response to humour. Like all loyal Danes, he suffered greatly in spirit under the German occupation, though, more fortunate in that than some of his colleagues, he escaped direct or physical ill-treatment. The experience seemed to make him only the more eager to renew ties of international friendship, and especially those with colleagues in Britain, by whom his memory will long be cherished in affection and esteem.

ROBERT MILNE, M.D., M.S., F.R.C.S.

Robert Milne, consulting surgeon to the London Hospital, died suddenly while on holiday on September 29 at the age of 68. He was born in 1881, son of Dr. Robert Milne, of Inverurie, and educated at the City of London School, joining the London Hospital as a medical student in 1899. In addition to an entrance scholarship he carried off scholarships in anatomy, physiology, and chemistry as well as many prizes. He qualified in 1904 and graduated M.B., B.S. a

year later, proceeding M.D. in 1907. After qualifying, Robert Milne held practically every house appointment there was to hold, house-physician, house-surgeon, receiving-room officer, resident accoucheur, with in addition assistantships in the departments of pathology, ophthalmology, oto-rhinolaryngology, and orthopaedic surgery. On this solid foundation of general training, and after taking the F.R.C.S. in 1906, he began, with his appointment in 1908 as surgical registrar, to build his surgical career under the aegis of Rigby and Furnivall. Appointed assistant surgeon to the London Hospital in 1910, he was surgical tutor and teacher of elementary clinical surgery from 1914 to 1920. During the 1914–18 war he served as a major in the R.A.M.C. in France and Italy. In 1922 he became a full surgeon to the hospital and assumed responsibility for the orthopaedic department—and with it the mantle of "Tommy" Openshaw. Between the wars, in addition to a busy consulting practice he was constantly in demand in the courts for an opinion in accident cases. He was consultant surgeon to Dr. Barnardo's Homes, a post to which his father, long associated with Dr. Barnardo's, had the joy of welcoming him officially. He examined for the Royal College of Surgeons, the Society of Apothecaries, and the University of Cambridge. With all this he was assiduous in his attendance at "the London" and was an inspiring teacher. In 1942 Robert Milne retired and was appointed consultant surgeon. But though ceasing active work at the hospital he was still active in mind and body. He had been civil consultant in orthopaedics to the Royal Navy since 1939, so on his retirement, nothing daunted, he shaved off his moustache and reappeared in the uniform of a surgeon rear-admiral and spent the remainder of the war devoting his considerable talents to the welfare of the Royal Navy.



Robert Milne was a most lovable character. Kindly, good-tempered, approachable, he was the soul of courtesy, and the one thing that moved him to wrath was discourtesy in any form. He had an impish sense of humour and an endearing propensity to kindly leg-pulling. As an orthopaedic surgeon he was conservative, having, one felt, in the course of his wide experience seen almost all the mistakes of over-enthusiasm. But his tidy, accurate, unhurried, and calm technique was an object lesson; his knowledge of the details of almost every form of human labour, which he applied with uncanny judgment to the problems of the partially disabled, was encyclopaedic; his memory for clinical details was astonishing. As a teacher he had the rare gift of imparting judgment as well as facts to his hearers, and his clinics were always packed to overflowing.

Apart from his work and the hospital his one absorbing interest was his family, with perhaps, coming third, an example of his impish humour which his son has described as "a leaning towards the collection of improbable trifles." One suspects that the interests in the byways into which the hunt led him, and in the people that he found there, were the real attraction. "Bobby" Milne's loss is a sore one. He leaves a widow, two sons, and a daughter, to whom the sincerest sympathy of all who knew him will be extended.—O. J. V.-J.

Sir Henry Souttar writes: The loss of Robert Milne will be deeply felt by those who were fortunate enough to be his friends and his colleagues. A quiet unassuming man whose one real interest was in his work and in his patients, he gave devoted service to the hospital which was the centre of his life. His shrewd common sense, not untinged with humour, won the confidence of both his patients and his students, and in every corner of the Commonwealth there are surgeons who owe to Milne their initiation into the correction of deformity. With an obstinacy so characteristic of his countrymen he refused to be divorced from general surgery, but his real affection was for orthopaedics, and in the handling of bones and joints he had a skill and an insight which came from long experience as well as a natural instinct. It was perhaps as an examiner that one saw Milne at his very best, for no one had greater skill in extracting the best from a candidate. He was a good fellow, and many will miss his cheery presence.

H. H. B. writes: Robert Milne, known to most of his friends and colleagues as Bobby, was the son of a deeply loved and respected general practitioner in Bow, an upright man with an unswerving belief in porridge and family prayers and much of the Roman *gravitas* that was so characteristic and, being mellowed by his deep kindliness, so comforting and inspiring a quality in Bobby himself. So far as any man can judge another, Bobby was never ruffled by anything. There was an invisible and infectious serenity in his speech, gait, and all his actions. He published little, but his judgment was seldom, I should imagine, at fault, and personally I never found it so. He was a careful and extremely competent operator and never in a hurry to operate if other measures, in his opinion, could profitably and safely be given a chance. We were friends from the day we first met in the dog-fish and frog-dissecting stage of our education, and if there are not, alas, very many survivors from that period there must be thousands of younger men who will be feeling the loss of one of the kindest and staunchest of companions, teachers, and helpers in every sort of trouble.

Dr. William George Simpson Thomson, who died on September 20 at the age of 62, had been deputy medical superintendent at Cheadle Royal for twenty-seven years. He was educated at Aberdeen, where he graduated first in classics and as M.B., Ch.B. in 1911. He took the D.P.H. in 1914 and the D.P.M. at Manchester in 1925. After a period as house-physician in the Aberdeen Infirmary he was for a time assistant medical officer at the county mental hospital at Cheddleton, Staffordshire, where he had considerable experience in mental disease. He was also a neurologist to the pensions boards set up after the 1914–18 war. In 1922 he was appointed senior assistant medical officer to the Manchester Royal Hospital, Cheadle, and two years later he became deputy medical superintendent. For many years Dr. Thomson was visitor to the licensed houses under the Mental Deficiency Act for the City of Manchester Courts. He was a member of the Royal Medico-Psychological Association and acted as an external examiner for the University of Manchester. He was a good general neurologist, and his advice was often sought on the diagnosis and treatment of functional and organic diseases of the central nervous system.—E. M. B.

Mr. Harry Freeman died on September 29 at a time when he had just attained his ambition of devoting his life to surgery. Born in 1894, he obtained an entrance scholarship in anatomy and physiology at King's College, London. He became a member of the Pharmaceutical Society, and by working as a dispenser in the evenings he earned money to help pay his hospital fees. He had a distinguished career at the Westminster Hospital, where he won the Bird gold medal and prize, the Chadwick prize, and the Sturges prizes for clinical medicine and surgery. He qualified in 1921, and after a resident appointment

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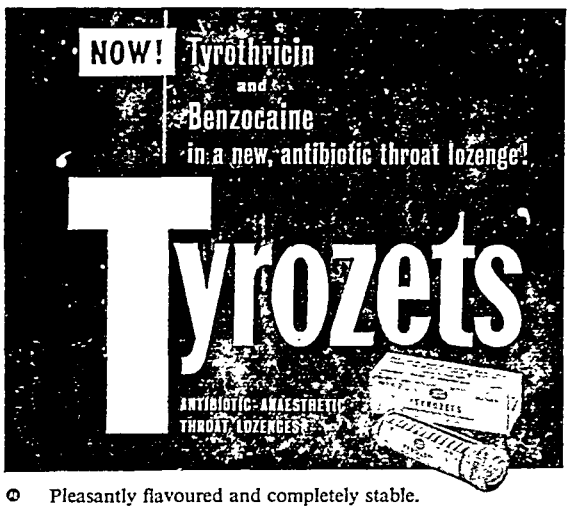
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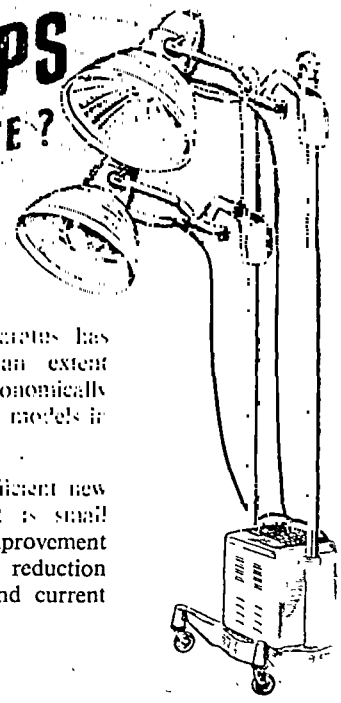
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PROCTOCAINE
LOCAL ANÆSTHETIC - ANALGESIC

as casualty house-surgeon at the Westminster Hospital he went into general practice in Dalston. Freeman's personality and skill soon brought him a large and busy practice, but he found time to keep in contact with hospital work at the Prince of Wales Hospital, Tottenham, where he held a series of clinical assistantships. In 1932 he obtained the diploma of master of midwifery of the Society of Apothecaries, moved to the West End of London, and practised midwifery. Six years later, at the age of 44, he passed the primary examination for the F.R.C.S., and he became a Fellow in 1941. By a stroke of good fortune he was able to perform surgical operations with a senior acting as his "assistant" during the war years. He took every advantage of this opportunity and soon became a competent surgeon. As an associate lecturer on surgery at the North-East London Postgraduate College he helped undergraduates who had failed in surgery at their first examination to pass at their second attempt. During the whole of the war he and his wife were in charge of an air-raid casualty centre in Holborn, and they were both on duty at this centre every night. He also operated on air-raid casualties at the Royal Albert Dock Hospital. Sir Hugh Griffiths has paid tribute to him as a "skilled and kindly surgeon and very gallant gentleman." Harry Freeman was appointed assistant surgeon to the National Temperance and Albert Dock Hospitals in 1946. Subsequently he studied gastroscopy under Mr. Hermon Taylor and published original articles on this subject. He also wrote a section of a book on gastroscopy which is in course of publication. His courage, strength of character, hard work, and great ability, which enabled him to conquer his early difficulties, will remain an inspiration to his friends. He leaves a devoted wife, who is in active medical practice, and two daughters, who are married and live abroad.—W. E. T.

Dr. Donald Campbell died on June 19 at his home near St. Helens, Lancs, at the age of 66. Dr. Campbell qualified in Dublin in 1915. He had been in general practice in St. Helens since 1919, and his sudden death came as a shock to his colleagues, since he had been working right up to the last. In 1928, while still in practice, he took the M.R.C.P. During the 1914–18 war Dr. Campbell served first of all as a combatant in the Indian Army and was later transferred to the R.A.M.C., serving in France, where he was wounded. During the recent war he was a medical officer for the local Home Guard. Dr. Campbell had studied in the School of Medical History at Oxford, and he was the author of *Arabian Medicine and its Influence in the Middle Ages*. He had always been interested in medico-political work and was honorary secretary of the local panel committee from 1924 onwards. He was chairman of the St. Helens Insurance Committee from 1933 until 1948, when he became vice-chairman of the local executive council. Dr. Campbell was always a helpful and agreeable colleague, and he will be sadly missed by his patients and his friends in the St. Helens area.—A. A. W. M.

Dr. Janet Young Laidlaw died on August 9 at the age of 66 after a long illness. She was a student at the London School of Medicine for Women, and qualified in 1931. She graduated M.B., B.S. two years later, and was for a time a resident house-physician at the Royal Free Hospital. Thereafter her professional work was mainly among children. She was school medical officer in Cambridge until increasing ill-health enforced her retirement just over a year before her death.

K. F. writes: I first knew Janet Laidlaw when we were students together over 20 years ago. She was then in her late thirties, for her opportunity to study medicine had only just arrived. Her determination and tenacity were almost hidden by her quiet and unobtrusive manner. She did not seek knowledge, or skill, or advancement for her own ends, but because she cared about the needs and the rights of others. Humility, integrity, charity—those of us who knew her and loved her know that she measured up to the true meaning of these old-fashioned words. Outside her work among the children whom she loved and understood her interests were in her own folk, in her garden, and in the little house in Galloway to which she turned whenever she could and which she had made into a haven of rest and peace for her friends.

Medico-Legal

DOCTOR CENSURED

TRIBUNAL FINDINGS

A Tribunal set up under Section 42 of the National Health Service Act recently considered a case which was reported in these columns (June 4, p. 1009) when it came before the Medical Services Committee of the West Sussex Executive Council. At the hearing both the complainant and the respondent medical practitioner were legally represented.

The Tribunal found as facts that the doctor, when he attended the infant whose father made the original complaint, "was under the influence of alcohol to such an extent that his professional judgment was impaired"; and that on the night in question the doctor had failed to notify his partner of his intention to be away. Though the respondent might have arrived at the house with greater promptitude than he did, it could not be said that the delay in his arrival was unreasonable or excessive. The doctor then examined the child, failed to appreciate that it was gravely ill, failed to prescribe any treatment for it, and left the house about 10 minutes after he had arrived. Within the next half-hour the child died. The doctor admitted before the Tribunal a serious error of professional judgment, an error which might well not have been made had he not been under the influence of alcohol.

The Tribunal did not find that the doctor failed to make a proper examination of the infant. Nevertheless all the members of the Tribunal took "an extremely grave and serious view of the conduct and behaviour of the doctor" on the night in question. However, the Tribunal considered that all these facts amounted only to a single incident and came to the conclusion that it was not justified in saying that this single incident was such as to cause the inclusion of the respondent in the Medical List to be prejudicial to the efficiency of the General Medical Services. The Tribunal was further of the opinion that "in all probability no treatment, whatever it might have been, would if administered at the time at which the respondent arrived at the house (or possibly even three or four hours earlier) have saved the life of the child" and that "no negligence of the respondent in any way caused or contributed to the death of the child."

The Tribunal made no order as to the costs of the parties to the inquiry.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Thomas Shirley Hele, M.D., F.R.C.P., Master of Emmanuel College, has been reappointed a Deputy Vice-chancellor of the University for the year 1949–50.

UNIVERSITY OF LONDON

A course of six lectures in physiology will be delivered by Dr. Bernhard Katz at University College, Gower Street, London, W.C., on Fridays, October 21 and 28 and November 4, 11, 18, and 25, at 5.15 p.m. His subject is "Transmission of Excitation in Nerve and Muscle."

Dr. Charity Waymouth will deliver two lectures on "Technique and Applications of Tissue Culture" at University College on Mondays, October 24 and 31, at 4.45 p.m.

A course of four lectures on "Bacterial Toxins" will be delivered by Dr. W. E. Van Heyningen at University College on Mondays, November 7, 14, 21, and 28, at 4.45 p.m.

On Monday, December 5, at 5.30 p.m., Dr. G. L. Brown, Jodrell Professor of Physiology in the University, will deliver his inaugural lecture at University College.

Professor V. du Vigneaud, of Cornell University Medical College, will deliver a course of three lectures on "The Indispensability of Biologically Labile Methyl Groups in the Diet and Transmethylation" in the Meyerstein Lecture Theatre, Westminster Medical School, Horseferry Road, London, S.W., on October 28 and 31 and November 2, at 5.30 p.m.

Admission to all the above lectures is free, without ticket.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended September 24. [No. 38

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949					1948 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	35	4	17	1	1	26	2	12	2	1
Deaths		1	—				—	1		
Diphtheria	92	13	34	5	2	125	12	38	6	1
Deaths	2	—	—	—	1	1	—	—	—	—
Dysentery	*78*	*16*	*76*	—	—	*68*	*22*	*49*	*1*	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	4	—	—	—	—	1	—	—	—	—
Deaths		—					1			
Erysipelas			30	9	2			30	11	—
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				136					29	
Deaths	30	4	7	8	5	22	1	14	3	—
Measles*	659	50	18	25	30	2,703	91	60	11	37
Deaths†			—	—	—			—	—	1
Ophthalmia neonatorum	44	2	10	—	—	36	2	11	—	2
Deaths										
Paratyphoid fever	23	2	2 (B)	7 (B)	1 (B)	15	1	—	1 (B)	—
Deaths	1	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	226	10	1	1	3	277	12	1	1	3
Deaths (from influenza)‡	5	1	—	—	—	7	—	—	1	—
Pneumonia, primary			118	8				117	10	
Deaths	113	18		6	6	120	17		2	6
Polio-encephalitis, acute	27	6				3	—			
Deaths										
Poliomyelitis, acute	268	42	7	3	1	70	2	3	—	—
Deaths§	12	1				4	—			
Puerperal fever		—	6				—	16		—
Deaths										
Puerperal pyrexia‖	88	5	5	—	1	87	8	2	—	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,097	78	165	73	95	1,068	70	216	130	38
Deaths†			—	1	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	8	3	1	5	1	29	—	1	3	—
Deaths	—	—	—	1	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,061	39	47	43	34	2,259	170	64	48	8
Deaths	2	—	—	1	—	8	1	1	2	—
Deaths (0–1 year)	213	25	33	20	11	250	30	53	13	12
Deaths (excluding stillbirths)	3,895	596	524	144	108	4,008	651	556	149	106
Annual death rate (per 1,000 persons living)			10·5	8·9				11·2	9·3	
Live births	7,111	1061	800	382	244	7,458	1166	885	463	223
Annual rate per 1,000 persons living			16·0	23·7				17·9	29·0	
Stillbirths	187	30	23			169	17	23		
Rate per 1,000 total births (including stillborn)			28					25		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† *Deaths from measles and scarlet fever for England and Wales, London* (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

The total number of notifications in England and Wales in the week ended October 1 was: poliomyelitis 331 (268), polio encephalitis 26 (27). The figures for the previous week are shown in parentheses. These are the highest figures this year. In 1947 figures for the corresponding week were poliomyelitis 441, polio-encephalitis 32.

Multiple cases (poliomyelitis and polio-encephalitis together) were reported from the following counties: London 44 (48), Bedford 5 (1), Berkshire 5 (3), Buckingham 2 (1), Chester 4 (7), Cornwall 8 (8), Dorset 5 (4), Durham 3 (1), Essex 26 (17), *Gloucester 17 (0), Hertford 12 (7), Kent 19 (18), Lancaster 4* (24), Leicester 2 (5), Norfolk 4 (2), Northampton 4 (4), Northumberland 6 (13), Nottingham 9 (9), Somerset 6 (7), Southampton 7 (8), East Suffolk 2 (5), Surrey 9 (11), East Sussex 5 (1), Warwick 13 (8), Wiltshire 8 (9), East Yorks 3 (1), North Yorks 2 (1), West Yorks 38 (19), Glamorgan 6 (3), Monmouth 2 (0).

Discussion of Table

In *England and Wales* decreases were recorded in the notifications of whooping-cough 119 and acute poliomyelitis 43. There were increases in the incidence of scarlet fever 155 and diphtheria 14.

The local trends of scarlet fever showed only small variations from the preceding week except in Yorkshire West Riding where there was an increase of 55. Notifications of diphtheria have almost been doubled in the past month; the chief feature of the returns was a rise of 17 in Lancashire (14 of the 21 cases in this county were notified in Liverpool C.B.).

There were only small variations in the local trends of measles, the largest being an increase of 27 in Lancashire. The largest fluctuations in the notifications of whooping-cough were decreases in Middlesex 29 and Essex 30.

In Durham, Hetton U.D., where 15 cases were reported in the preceding week, 17 further cases of dysentery were notified. Other large returns for dysentery were London 16, Lancashire 16 (Liverpool C.B. 10), Glamorganshire 8 (Cardiff C.B. 6). Outbreaks of food-poisoning were notified in Yorkshire West Riding 55 (Batley M.B. 32, Sheffield C.B. 20); Essex 5 (Southend-on-Sea C.B. 19); and London 34.

In *Scotland* there were increases in the notifications of scarlet fever 33, acute primary pneumonia 33, and dysentery 22, with decreases in the incidence of whooping-cough 28 and measles 22. The rise in the notifications of scarlet fever occurred in the western area. Of the 76 cases of dysentery 60 were notified in Glasgow.

In *Eire* the notifications of measles were 23 fewer than in the preceding week, while increases were reported for scarlet fever 11 and whooping-cough 10. The incidence of diarrhoea and enteritis remained high at 136 for the whole country; of these, 101 were notified in Dublin C.B. The rise in the notifications of scarlet fever and whooping-cough was contributed by Dublin C.B.

In *Northern Ireland* decreases were reported in the notifications of measles 10 and whooping-cough 11. The incidence of scarlet fever remained at the high level of the preceding week.

Week Ending October 1

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,305, whooping-cough 956, diphtheria 76, measles 780, acute pneumonia 313, cerebrospinal fever 25, acute poliomyelitis 331, acute polio-encephalitis 26, dysentery 163, paratyphoid fever 24, typhoid fever 12, food-poisoning 553.

The council of Dr. Barnardo's Homes announces that the Watts Naval Training School at Elmham, Norfolk, and the Russell-Cotes Nautical School at Parkstone, Dorset, are to be amalgamated as one establishment under the new title of the Parkstone Sea Training School. As a consequence of this change the Watts School will cease to function as a sea-training centre and will for the time being become a branch home for boys.

Medical News

Appointments to Royal Households

Dr. J. N. Loring has been appointed Apothecary to His Majesty's Medical Household in the room of Sir Frederick Stanley Hewett, who has been appointed Extra Surgeon Apothecary to His Majesty's and to Queen Mary's Medical Households. Dr. Loring has also been appointed Apothecary to Queen Mary's Medical Household and to the Household of Princess Elizabeth and the Duke of Edinburgh. Sir James Walton has been appointed an Extra Surgeon and Mr. Guy Capper Birt an Extra Surgeon Dentist to Her Majesty Queen Mary's Medical Household. All the appointments date from October 1.

Unesco Book Coupons

Individuals and institutions in "soft currency" countries may obtain book coupons to facilitate buying books or periodicals from the U.S.A., Switzerland, Czechoslovakia, India, and France. The coupons have a dollar face value, and may be bought with sterling from Unesco Book Coupons, Book Tokens Limited, 28, Little Russell Street, London, W.C.1. Further particulars may be obtained from the same address.

Gold Medal

The South Wales Institute of Engineers has awarded Dr. T. H. Jenkins the Institute Gold Medal for 1948 for his paper "Medico-mining Aspects of Pneumoconiosis in South Wales." Dr. Jenkins is divisional medical officer for the South-Western Division of the National Coal Board. While working as a collier in the Garw Valley he matriculated in 1924 and entered the University College of South Wales. He obtained his B.Sc. in mining, and subsequently studied medicine at University College Hospital, London, where he took the conjoint diploma and London degree in 1938.

Sir Sydney Smith

The honorary degree of M.D. of the University of Louvain was conferred upon Sir Sydney Smith, Regius Professor of Forensic Medicine and Dean of the Faculty of Medicine in the University of Edinburgh, at Louvain on October 10.

A New Journal

The Institute of Laryngology and Otology, Royal National Throat, Nose and Ear Hospital, has commenced publication of a new journal, *Annals of the Institute of Laryngology and Otology*. The *Annals* will publish reports of the work of the hospital, and contributions are invited from past and present members of the Institute. Based as they are on the largest hospital in Britain devoted solely to otorhinolaryngology, the *Annals* are an important addition to medical literature. They will appear half-yearly, price 5s. per issue, and are published from 330, Gray's Inn Road, London, W.C.1.

The American Heart Association's Journal

The American Heart Association is to begin publishing in January a new official monthly journal entitled *Circulation—The Journal of the American Heart Association*. With the new publication the American Heart Association will terminate sponsorship of the monthly *American Heart Journal* with the December, 1949, number. According to the announcement issued by the American Heart Association, "The needs of the members of the American Heart Association and of the medical profession in general require a larger official journal to keep pace with advances in the field of cardiovascular diseases. *Circulation* will be published in a larger format . . . which will assure accelerated publication of articles, bringing valuable medical material to the professional reader at the earliest possible opportunity." Dr. Thomas M. McMillan, for some years editor-in-chief of the *American Heart Journal*, will continue in that capacity for *Circulation*, and it is expected that the associate editors and editorial board of the older publication will also serve in the same capacities on the new magazine. The publishers will be Grune and Stratton, Inc., 381, Fourth Avenue, New York, 16.

Invested with G.C.V.O.

The King invested Sir Maurice Cassidy with the insignia of the G.C.V.O. at his home on October 10. Sir Maurice Cassidy was unable to go to Buckingham Palace to receive the honour, which, as reported previously, was gazetted in May, because of the injuries that he received in a car accident six months ago.

Photographic Exhibition

The Royal Photographic Society's annual exhibition at 16, Princes Gate, London, S.W.7, includes a number of photographs of interest to medical men. The illustrations of the pathological specimens of heart and kidney showed the remarkable clarity that photography can attain in skilled hands. Much depends on adept lighting of the object, as was shown particularly clearly in five photographs of a man with exophthalmic ophthalmoplegia directing his eyes to show the effects of the disorder. These photographs are of a quality that deserves study by anyone wanting to illustrate an article or a textbook. The exhibition remains open until October 26.

Periodicals at Special Rates

The Times has announced that full-time students may now buy it for 2d. Inquirers should write to the Manager, Subscription Department, *The Times*, Printing House Square, London, E.C.4. The weekly journal, the *Spectator*, is now obtainable by members of the medical profession for the special subscription of £1 1s. instead of 30s. a year. Particulars may be obtained from the *Spectator*, 99, Gower Street, London, W.C.1.

Tuberculosis as Industrial Disease

The Industrial Diseases Subcommittee of the Industrial Injuries Advisory Council is considering whether tuberculosis should be a "prescribed disease" under the National Insurance (Industrial Injuries) Act for nurses and other classes of health workers. "Prescribing" a disease in relation to any particular class of person makes the benefits provided under the Industrial Injuries Act available to people in that class if they are employed under a contract of service and develop the disease as a result of their employment. Industrial injury benefits are appreciably greater than those obtained under the National Insurance Act. Persons and organizations are invited to submit written evidence as soon as possible, and in any case before December 1, to Mr. F. K. Forrester, Ministry of National Insurance, 6, Curzon Street, London, W.1, who will supply further information on request.

B.C.G. from Denmark

The first consignment of B.C.G. to be imported under the Ministry of Health's scheme arrived in England by air from Copenhagen on October 3, and was sent to the Public Health Laboratory at Colindale. Part of the consignment, which contained 30 ml. of the vaccine, is to be used at the Children's Hospital at Sheffield, where some of the staff have volunteered to be vaccinated. The arrangements for trying out B.C.G. in this country were described in the *Journal* of July 2 (p. 29).

Child Health Lectures in Czechoslovakia

Professor J. C. Spence, Professor of Child Health in the University of Durham, is now in Czechoslovakia lecturing for the British Council. The Czech Ministry of Health, the Czech Paediatric Society, the Czechoslovak-British Medical Society, and the Institute of Social Medicine, Charles University, have co-operated in arranging the tour.

Wills

Dr. Alan Leonard Smith Tuke, of Dunfermline, left £65,246; Dr. George Ezra Halstead, of Bideford, £22,394; Dr. Alexander McConnell Erskine, of Goole, £18,477; and Dr. Percy Kitchin, formerly of Bournemouth, £46,847.

COMING EVENTS

Royal Medical Society

The 1949–50 session of the Royal Medical Society of Edinburgh (7, Melbourne Place, Edinburgh) opens to-day (Friday, October 14) at 8 p.m., when Professor A. Murray Drennan delivers the inaugural address entitled "Whither Are We Going?" Further meetings will be held on Fridays at 8 p.m., as follows: October 21, Mr. K. Wood, "Clubbing of the Fingers"; October 28, Sir Philip Manson-Bahr, "The Dawn of Tropical Medicine (The Life and Work of Sir Patrick Manson)"; November 4, Mr. C. W. Mercer, "The Aetiology and Treatment of Ulcerative Colitis"; November 11, Mr. R. C. Tyldesley, "Unorthodox Healing—An Assessment"; November 25, Mr. A. H. Duncan, "The Aetiology of Neoplasia"; December 2, Mr. J. J. MacCabe, "Disseminated Sclerosis"; December 9, symposium on "Pyrexia"; January 13, dissertation by Mr. I. B. Tait; January 20, Mr. D. W. MacLean, "The Handicapped Child"; January 27, Sir Hugh Cairns, "Head Injuries"; February 3, Mr. J. B. McWhinnie, "Physique, Diathesis, and Temperament"; February 10, dissertation by Mr. L. R. Roberts; February 17, Professor Walter Mercer, "Manipulative Surgery"; February 24, Mr. A. Fraser Darling, "The Nature of Cutaneous Sensation"; March 3, Sir Edward Mellanby, F.R.S., "Widespread Nerve Degeneration due to Abnormal Bone Growth—An Experimental Investigation"; March 10, valedictory address by the senior president. The presidents' annual dinner will be held at the Royal College of Physicians of Edinburgh, Queen Street, Edinburgh, on Thursday, November 17, at 7.15 for 7.30 p.m., when Sir Alexander Fleming, F.R.S., will be the guest of honour. The annual extraordinary general meeting of the society will be held on Wednesday, March 15, at 7 p.m.

Hunterian Society

The programme of the Hunterian Society for the 1949–50 session is as follows: October 17, 7 for 7.30 p.m., dinner-meeting at Talbot Restaurant, 64, London Wall, E.C., presidential address by Dr. William Thomson Brown on "Balance"; November 21, 8.30 p.m., at Society of Apothecaries of London, Black Friars Lane, Queen Victoria Street, E.C., discussion, "That Alcohol has Contributed more to the Happiness than to the Misery of Mankind," proposed by Dr. John Y. Dent and Dr. Desmond Curran and opposed by Dr. Henry Yellowlees and Mr. Archibald Crawford, K.C.; December 5, 7 for 7.30 p.m., dinner-meeting at Talbot Restaurant, discussion, "The Assessment of Surgical Risk," to be opened by Sir Horace Evans, Dr. Frankis T. Evans, and Mr. A. Lawrence Abel; January 16, 8.30 p.m., at Mansion House, London, E.C., Hunterian Lecture by Professor René-A. Gutmann (Paris), "The Early Diagnosis of Gastric Carcinoma"; February 16, at Grosvenor House, Park Lane, London, W., annual dinner; February 27, 8.30 p.m., at Mansion House, Hunterian Oration by Dr. Daniel T. Davies, "John Hunter, the Man and his Message"; March 20, 7 for 7.30 p.m., dinner-meeting at Talbot Restaurant, discussion, "Modern Trends in the Diagnosis and Treatment of Pulmonary Tuberculosis," to be opened by Dr. Geoffrey Marshall and Mr. T. Holmes Sellors; April 17, 7 for 7.30 p.m., annual general dinner-meeting at Talbot Restaurant, followed by a demonstration of hypnotism by Mr. Peter Casson.

Edinburgh Lectures

In connexion with the postgraduate courses in medicine and surgery the Edinburgh Postgraduate Board for Medicine has arranged a series of open lectures on subjects of wide biological interest to be given on Tuesdays, at 5 p.m., during the winter term in the Anatomy Lecture Theatre, Edinburgh University New Buildings, beginning on October 25. All students and graduates are invited to attend. Details will be published under "Societies and Lectures" in the *Journal*.

Forensic Medicine Congress

The Third Congress of the International Academy of Forensic and Social Medicine will be held in Cairo on March 21–26, 1950.

Institute of Diseases of the Chest

A ceremony to mark the opening of the new premises of the Institute of Diseases of the Chest (British Postgraduate Medical Federation) in the grounds of Brompton Hospital, Fulham Road, London, S.W., will be held on Wednesday, October 26, at 3 p.m., when inaugural addresses will be delivered by Sir John Anderson, chairman of the Governing Body of the Federation, Sir Francis Fraser, director of the Federation, Sir Robert A. Young, chairman of the Board of Governors of the Hospitals for Diseases of the Chest and consulting physician to Brompton Hospital, and Dr. S. Roodhouse Gloyne, consulting pathologist to the London Chest Hospital.

London Hospital Old Students' Dinner

The London Hospital Old Students' Dinner will be held at the Trocadero Restaurant, Piccadilly Circus, London, W., on Thursday, October 27. Tickets, price £1 1s., can be obtained from Dr. R. R. Bomford, 6, Devonshire Place, London, W.1.

SOCIETIES AND LECTURES

Friday

Royal Medical Society, 7, Melbourne Place, Edinburgh.—*October 14, 8 p.m., "Whither Are We Going?"* Inaugural address by Professor A. Murray Drennan.

Monday

Hunterian Society.—At Talbot Restaurant, 64, London Wall, E.C., October 17, 7 for 7.30 p.m., dinner-meeting; *"Balance,"* Presidential address by Dr. William Thomson Brown.

Institute of Laryngology and Otology, 330–332, Gray's Inn Road, London, W.C.—October 17, 2.30 p.m., *"Tumours of the Post-nasal Space,"* by Mr. F. C. W. Capps.

London University.—At University College, Gower Street, London, W.C., October 17, 5.15 p.m., *"The Structure of Peripheral Nerve,"* by Professor J. Z. Young.

Tuesday

Institute of Laryngology and Otology, 330–332, Gray's Inn Road, London, W.C.—October 18, 2.30 p.m., *"Malignant Diseases and Radiotherapy,"* by Mr. W. A. Mill.

Royal College of Physicians of London, Pall Mall East, S.W.—October 18, 3 p.m., *"Individuality in Medicine,"* Harveian Oration by Dr. Geoffrey Marshall.

Society for the Study of Addiction.—At Medical Society of London, 11, Chandos Street, Cavendish Square, W., October 18, 4 p.m., *"The Problems for Research in the Study of Addiction,"* Presidential address by Professor F. L. Golla. A discussion will follow.

Wednesday

Glasgow University: Department of Ophthalmology.—*October 19, 8 p.m., "Tobacco Amblyopia,"* by Dr. R. Leishman.

Harveian Society of London.—At King's College Hospital Medical School, Denmark Hill, S.E., October 19, 4.15 p.m., Clinical meeting.

London University.—At University College (Anatomy Theatre), Gower Street, W.C., October 19, 5.30 p.m., *"Growth and Reproduction of Bacteria,"* by Sir Paul Fildes, F.R.S.

North-East Metropolitan Regional Tuberculosis Society.—October 19, 2.30 p.m., visit to Ware Park Sanatorium, Herts *"Resection of the Lung for Pulmonary Tuberculosis,"* by Mr. O. S Tubbs.

Royal Institute of Public Health and Hygiene, 28, Portland Place, London, W.—October 19, 3.30 p.m., *"The Present Position of Diphtheria Immunization,"* by Dr. W. W. King-Brown.

Society of Radiographers.—At Royal College of Nursing (Cowdray Hall), 1A, Henrietta Place, Cavendish Square, London, W., October 19, 6.30 p.m., *"The Radiography of Infants and Children,"* Stanley Melville Memorial Lecture by Dr. C. G. Teall

Thursday

British Institute of Radiology, 32, Welbeck Street, London, W.—October 20, 8.15 p.m., discussion: *"Instrumental Aids to Diagnostic Techniques."* Speakers: Dr. T. H. Hills, Mr. R. W. Stanford, Dr. G. R. Airth, and Mr. E. D. Ormerod.

Edinburgh Clinical Club.—In B.M.A. Rooms, 7, Drumsheugh Gardens, Edinburgh, October 20, 8 p.m., opening meeting of club, *"Discussion on the Problems of Married Life,"* by Reverend W. S Tindal and Dr. W. P. Kraemer.

Institute of Urology.—At Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C., October 20, 5 p.m., *"The Conservative Treatment of Hydronephrosis,"* by Professor V. W. Dix.

London University.—At University College (Anatomy Theatre), Gower Street, W.C., October 20, 5.30 p.m., *"Growth and Reproduction of Bacteria,"* by Sir Paul Fildes, F.R.S.

Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, London, W.—October 20, 7.30 p.m., *"Tropical Medicine as a Career,"* Presidential address by Professor H. E. Shortt.

St. George's Hospital Medical School, Hyde Park Corner, London, S.W.—October 20, 4.30 p.m., lecture-demonstration: *"Neurology,"* by Dr. D. J. Williams.

Friday

FACULTY OF RADIOLOGISTS.—At Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C., October 21, 2.15 p.m., Diagnosis Section meeting, "*The Value of Tannic Acid Barium Enema in Colonic Investigation*," by Dr. J. H. L. Conway-Hughes; "*The Causes of Failure After Gastrectomy for Peptic Ulcer*," by Dr. C. N. Pulvertaft; "*The X-ray Appearances of Acquired Collapse (Atelectasis) of the Upper Lobes*," by Dr. G. Simon.

INSTITUTE OF PHYSICS: INDUSTRIAL SPECTROSCOPY GROUP.—At 47, Belgrave Square, London, S.W., October 21, 4 p.m., annual general meeting; "*Physical Methods in the Forensic Laboratory*," by Dr. F. G. Tryhorn.

LONDON UNIVERSITY.—At University College, Gower Street, London, W.C., October 21, 5.15 p.m., "*Transmission of Excitation in Nerve and Muscle*," by Dr. Bernhard Katz.

LONDON UNIVERSITY.—At University College (Anatomy Theatre), Gower Street, W.C., October 21, 5.30 p.m., "*Growth and Reproduction of Bacteria*," by Sir Paul Fildes, F.R.S.

ROYAL INSTITUTE OF PHILOSOPHY, 14, Gordon Square, London, W.C.—October 21, 5.15 p.m., "*Russell's Theory of the External World*," by Professor H. H. Price.

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh.—October 21, 8 p.m., "*Clubbing of the Fingers*," by Mr. K. Wood.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—At South Kensington Hotel, 41, Queen's Gate Terrace, London, S.W., October 21, 7.15 p.m. for 7.30 p.m., dinner; 8.30 p.m., "*The Dramatic in Gynaecology and Obstetrics*," Presidential address by Mr. V. B. Green-Armytage.

Saturday

BIOCHEMICAL SOCIETY.—At Biochemistry Department, King's College, Strand, London, W.C., October 22, 2 p.m., 280th meeting.

APPOINTMENTS

Dr. Herbert Kent, formerly Fellow in Physical Medicine and Rehabilitation of the New York University, Bellevue Medical Center, and National Foundation for Infantile Paralysis, has been appointed Chief of Physical Medicine Rehabilitation at the Veterans Administration Hospital, Indianapolis.

The Secretary of State for Scotland has appointed Dr. Catherine Haldane Stobie Begg to be a Deputy Commissioner of the General Board of Control for Scotland.

Dr. Begg graduated M.B., Ch.B at Glasgow University in 1932 and has held appointments in Glasgow Royal and Western Infirmaries, Glasgow Southern General Hospital, and various mental hospitals She is at present Senior Medical Officer at Stoneyetts Mental Hospital, Glasgow.

CENTRAL COUNCIL FOR HEALTH EDUCATION.—The following appointments have been announced: *Deputy to the Medical Adviser and Secretary*, L. J. H. Burton, M.R.C.S., L.R.C.P., D.P.H. *Assistant*, Anne F. Burgess, M.B., Ch.B., L.D.S.

NELSON, IVAN D. M., M.B., Ch.B., D.P.H., Deputy Medical Officer of Health, County Borough of Dewsbury.

RAFTERY, LILIAN, M.R.C.S., L.R.C.P., M.M.S.A., M.R.C.O.G., Assistant Visiting Gynaecologist and Obstetrician, King Edward VIII Hospital, Durban, South Africa.

RUNWELL HOSPITAL, near Wickford, Essex.—*Clinical Research Fellow*, P. Macdonald Tow, M.B., B.S. *Senior Registrar*, M. G. Valentine, M.D., D.P.M.

STEWART, R. H. M., M.D., Assistant Senior Medical Officer, Manchester Regional Hospital Board.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Black.—On October 2, 1949 at Dunfermline, to Hilda (née Murray), wife of J. Murray Black, F.R.C.S.Ed., a daughter.

Ferguson.—On September 6, 1949, at Douglas, Isle of Man, to Frances (née Wright), wife of Dr. J. H. Ferguson, a brother for Frances, Elizabeth, and Robert—George Wright.

Mills.—On October 6, 1949, to Margaret Jane, M.B., D.A., wife of Wilfrid Mills, F.R.C.S., a son.

MARRIAGES

Binns—Whitaker.—On September 17, 1949, at Ewell, Surrey, Surgeon Lieutenant-Commander George Augustus Binns, R.N., of Leicester, to Joan Whitaker, of Ewell.

DEATHS

Aspinwall.—On October 2, 1949, at Heswall, Cheshire, Joan Fullerton Aspinwall, M.R.C.S., L.R.C.P., aged 85.

Bentley.—On September 26, 1949, Harold Bentley, M.R.C.S., L.R.C.P., late of Mitcham, Surrey.

Ford.—On October 3, 1949, at 2, Derwent Road, Eastbourne, Frank Chubb Ford, M.R.C.S., L.R.C.P., late of Wimbledon and Rotherfield, aged 82.

Freeman.—On September 29, 1949, Harry Freeman, F.R.C.S., M.M.S.A., of 69, Harley House, London, N.W.

Greenwood.—On October 5, 1949, in London, Major Greenwood, D.Sc., F.R.C.P., F.R.S., of Hillcrest, 102, Church Hill, Loughton, Essex, aged 69.

Hoffman.—On September 26, 1949, at his home, The Red House, Cranham, Gloucester, Geoffrey Arthur Hoffman, B.A., M.B., T.C.Dub.

Johns.—On September 27, 1949, at the Old Mill House, Adderbury, Oxon, Archibald Tisdall Johns, M.D., aged 77.

Mathews.—On September 24, 1949, at Wayside, Gossamer Lane, Aldwick, Bognor Regis, Sussex, William L'Estrange Mathews, M.R.C.S., L.R.C.P.

Prentice.—On September 19, 1949, in hospital, John Stuart Prentice, M.B., Ch.B.

Williams.—On September 21, 1949, Geoffrey Commeline Williams, O.B.E., M.R.C.S., L.R.C.P., D.P.H., of 8, Belbroughton Road, Oxford.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Trachoma

Q.—*What is the cause of trachoma? How useful are the sulphonamides and antibiotics in the treatment of this condition? Where are the best articles to be found concerning the disease in all its aspects?*

A.—*It is now generally agreed that trachoma is due to a virus infection, the virus being one of the large-sized variety.* The mode of transmission—for example, the question whether the virus is louse-borne—is still in dispute. As with the other infections due to large-size viruses, the sulphonamides have proved of great value. The place of penicillin in the treatment of trachoma is still uncertain. When the sulphonamides are used it is advisable to eradicate secondary infection by a course of sulphonamide systemically. The trachoma itself appears to be readily amenable to local sulphonamide therapy, which may have to be continued for several months. Daily painting with 30% sodium sulphacetamide, and the use of an ointment of 6% of the same drug three or four times a day, give good results. It is advisable to eradicate as much of the infective material as possible by mechanical means such as expression before starting on local therapy. In old-standing cases eradicating a virus infection does not, of course, overcome mechanical distortion of the lid from shrinkage of tissue.

The best account of modern teaching is the *Aetiology of Trachoma* by L. A. Julianelle (Oxford University Press, 1938). *Trachoma*, by A. F. MacCallan (London, Butterworth & Co., 1936), is also useful, especially for the older teaching. An account of the use of sulphonamides in trachoma is contained in a paper on the treatment of trachoma by Arnold Sorsby in the *British Journal of Ophthalmology* (1945, 29, 98).

Hyoscine for Sea-sickness

Q.—*A family consisting of the parents and two children, aged 4 and 2, are travelling to South Africa. What would be the appropriate dose of hyoscine in each case? Should it be started before embarkation? How long should it be continued, and are there any side-effects?*

A.—Presumably the hyoscine is intended to prevent sea-sickness. If so, an adult should take a daily dose of 1/100 gr. (0.65 mg.) of hyoscine hydrobromide. One dose daily is enough, taken in the morning. A child of 4 should take one-fifth of this dose, and a child of 2 one-tenth. There is no need to start taking the drug before embarkation. It can be continued throughout the voyage. The only reaction is some dryness of the mouth.

Prostatectomy and Sexual Potency

Q.—*What is now considered the most satisfactory surgical approach in prostatectomy? What is the effect of the operation on the sexual life of an otherwise healthy male of middle age, particularly in relation to potency and libido, power of erection, emission and ejaculation, orgasm, spermatogenesis, and ability to procreate?*

A.—Potency and libido are not usually affected by prostatectomy in a healthy middle-aged male. Many of the patients undergoing prostatectomy have already ceased to have coitus, but Thomson-Walker found that, among males of all ages, no difference was observed in sexual power in 67%; 20% suffered subsequently from a gradual loss of vigour: and 13% became impotent. Ejaculation does not usually occur after enucleation of the prostate, the semen passing back into the bladder and being voided in the next specimen of urine. In spite of this the patient has an orgasm. It is usually said that sterility follows prostatectomy, but the writer has known two or three

cases in which the wife has conceived after her husband has been subjected to prostatectomy. If it were not for the fact that the wives of most men undergoing prostatectomy are themselves past child-bearing age, such cases would probably be more numerous. It must be remembered, however, that many surgeons divide the vasa in order to reduce the incidence of post-operative epididymitis, and that this leads to sterility.

It cannot be said that any one technique of prostatectomy is recognized as being superior to all others. What form of operation is carried out will depend on the state of the patient and on the surgeon's personal opinion. Retropubic prostatectomy and the Harris technique are both excellent operations for certain patients, but they should not be used as routine measures.

Coronary Thrombosis and Air Travel

Q.—*Are there any objections to air travel for patients with a history of coronary thrombosis some years ago?*

A.—Provided oxygen is used for flight above 10,000 feet (3,000 metres) there should be no greater risk to a subject well recovered from a coronary thrombosis in this mode of travel than in any other, and fatigue is likely to be considerably less.

Thrombophlebitis Migrans

Q.—*What is the treatment for repeated attacks of thrombophlebitis over a period of 18 months involving the superficial veins of arms and legs in a woman of 48? The erythrocyte sedimentation rate is 11 mm. in one hour, and the blood pressure 146/90 mm. Hg. She has no infected teeth or gall-bladder infection. Section of an infected vein has shown well-organized thrombus. Sulphonamides, large doses of vitamins, and the usual treatment for phlebitis have been unsuccessful. What further treatment could be tried, and what is the prognosis?*

A.—This patient seems to be suffering from thrombophlebitis migrans, although the usual associated pyrexia and low blood pressure seem to be absent. Dicoumarol is very useful in this rebellious complaint, and should be administered so as to keep the prothrombin time double the normal and persisted in for three to six months. The condition is as a rule not disabling, and the patient should, if possible, be ambulatory; this can be attained by supporting the legs with elastic bandages. A long holiday in a warm place is often beneficial. The disease is not usually dangerous and burns itself out in time, but rarely it may progress to a malignant thrombophilia in which the largest vessels may become involved and even arteries be blocked, with consequent cardiac damage or loss of limbs.

Quinine Test of Liver Function

Q.—*I have seen a reference to an article by Pallardo on the quinine test for liver function, for which he claimed good results. I should be grateful for details of procedure, the field of application, interpretation of results, and relative merits compared with other liver function tests.*

A.—The quinine test for liver function was described by Pallardo in 1947 (*Sem. méd.*, **54**, 721), and depends on the detection of quinine in the urine after oral administration of the drug. Quinine sulphate 0.2 to 0.25 g. is given to the fasting patient. The urine is collected at 30 minutes, two hours, and 12 hours afterwards. The three specimens of urine are tested for quinine with the Tanret reagent, which is prepared as follows. Dissolve 1.35 g. of mercuric chloride in 25 ml. of water, add to this solution 3.32 g. of potassium iodide dissolved in 25 ml. of water, then make the total solution up to 60 ml. with distilled water and add 20 ml. of glacial acetic acid to the mixture. After the Tanret reagent is added a positive reaction is indicated by the development of turbidity. Normal subjects give negative reactions under these conditions.

The test is positive in the urine from a high proportion of cases of liver damage, irrespective of the cause, although occasional negative findings are also recorded in conditions such as cirrhosis and infective hepatitis. The test may also be positive in cholecystitis and hepatic carcinomatosis, which would appear to limit its value in differential diagnosis. The author claims that it is a sensitive index of liver damage.

NOTES AND COMMENTS

Enlarged Liver after Amoebic Dysentery.—Dr. C. F. J. Cropper (Ronkswood, Worcester) writes: I should like to submit some comments on the answer to the query entitled "Enlarged Liver after Amoebic Dysentery" ("Any Questions?" August 20, p. 448). It appears to me that the writer was presented with a common, and in this case simple, problem to which he himself provided the solution by his demonstration of the regression of an enlarged liver beginning during the course of emetine injections. The history of amoebic dysentery and the response to this infallible therapeutic test can surely leave little doubt about the diagnosis. Incidentally, in general experience leucocytosis is frequently absent in amoebic hepatitis. There is no mention, either in the query or in the reply, of sigmoidoscopy. It is disturbing to find so essential a diagnostic procedure ignored in this way. If this neglect of sigmoidoscopy is widespread, innumerable cases of amoebiasis originating in both world wars are certainly being missed. (I use the word "both" advisedly, since more than one case has come to light in this hospital which has remained undiagnosed and untreated from the 1914–18 war: these have been diagnosed purely on sigmoidoscopy appearances.) Whilst in no way belittling the significance of stool tests, it needs to be stressed that only the select few with long apprenticeship can identify cysts with competence, and in any case the chronic patient so often yields negative results. Hand in hand with microscopy should go sigmoidoscopy, the technique and interpretation of which can readily be taught. This strangely neglected instrument frequently gives in a few moments a certain answer in the search for amoebiasis. Physicians handling cases potentially infected with this disease should have indelibly printed on their minds the picture of the tiny wart-like projections, aptly likened to colonies of pneumococci on blood-agar, which are the commonest lesions of chronic amoebic dysentery (*Lancet*, 1945, 2, 460). In the tropical section of this hospital, in the first six months of this year no less than nineteen cases with negative stools but with dysenteric symptoms were revealed by the finding of these "pin-point craters." In the great majority of cases both symptoms and lesions cleared up with anti-amoebic treatment. There is, in my opinion, no answer to the problem of amoebiasis in this and many other countries except the adoption of sigmoidoscopy as a simple out-patient procedure.

Wax in the Ears.—Mr. F. K. Hayman (Sharnbrook, Bedford) writes: Your correspondent ("Any Questions?" October 1, p. 767) asks about any prophylaxis against wax in the ears. I have found that a good deal of so-called wax is composed of bits of hair, dandruff, ordinary dust, etc., bound together by soap—shaving or toilet—insufficiently rinsed off, and probably pushed in by the towel. I have often found a soapy turbidity in the water used for syringing, and have cautioned such patients not to allow soap to enter the meatus if possible, and in any case to rinse about the ears very thoroughly.

Dichloracetylene Poisoning.—Dr. C. F. Scurr (London, S.W.) writes: Your answer upon this subject ("Any Questions?" September 24, p. 717) is incomplete. Had the question been referred to an anaesthetist instead of an industrial toxicologist a more adequate answer would have been given. Dichloracetylene is a product of the decomposition of trichlorethylene with alkali under certain conditions—e.g., by soda lime in a closed-circuit anaesthetic apparatus. A detailed account of the toxic effects and necropsy findings is given by Humphrey and McClelland (*British Medical Journal*, 1944, **1**, 315) and by Carden (ibid., 1944, **1**, 319).

Correction

Dr. Sidney G. Hamilton (Woolacombe, N. Devon) writes that in his letter on "Antihistamine Drugs in General Practice" ("Points from Letters," October 1, p. 760) the words "phenacetin and codeine compound" in the seventh line from the end of the paragraph should read "pyranisamine maleate."

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SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY OCTOBER 15 1949

THE SECRETARY REPORTS

THE MINISTER'S PRESS CONFERENCE

Nothing startling or novel came out of the Minister's Press Conference, reported on another page. On the subject of general practitioner remuneration it is useful to have had the Minister's assurance, in regard to the Ministry's survey of incomes, that he "would like to have the facts agreed with the profession," although he added his own impression that the evidence showed "that Spens has been more than honoured." The Minister made some other points which were interesting and have been noted. Some who were present at the Conference remarked afterwards on the pains the Minister was at to distinguish between the Health Service and the National Insurance Scheme. He spoke about "misunderstandings," and said that "many people still assume that the National Health Service is financed by the weekly contributions to National Insurance." This led to abuse through people being determined "to have their money's worth." He appealed to the Press to disabuse the public of these erroneous beliefs. The B.M.A. foresaw that this might happen and has been stressing the point for over a year. The same to a lesser extent is true of the Minister's appeals to the public to use the Service with restraint. It is true that he has made such appeals from time to time, but they have been so closely associated by a section of the Press with glowing advertisements of the "free" benefits to be obtained under the scheme that it is small wonder that less attention has been paid to them than might have been expected. Once again the B.M.A., at some cost to itself both in money and unpopularity (which these days seem to attach to anyone suggesting a damper on public extravagance), took the initiative.

What are the facts? So far back as May, 1948, the B.M.A. Public Relations Department was issuing leaflets for distribution to the public which *inter alia* pointed out that only 10d. out of the male worker's weekly contribution of 4s. 11d. would go to the Health Service, adding that ten-elevenths of the total money paid in respect of any one worker would go to the cash benefits of insurance. Two months later the Association issued an illustrated folder, "The New Health Service and You." Of this leaflet, copies of which were sent direct from B.M.A. House to all doctors who applied for them, 250,000 were printed and distributed in August, and in September a further 300,000 were printed. By the end of October altogether nearly half a million copies had been asked for and distributed. This folder pointed out that the public as well as doctors, other professional people in the Service, and the Government had "a part to play in making the Service a success," adding that "if there is 'a run' on the surgery just because the Service is 'free-at-the-time,' doctors will be unable to give as much attention to each patient as they would wish. No one can give his best if he is overworked."

In the same month posters were prepared and issued for display in surgeries, executive council offices, and elsewhere appealing to the public to help the doctor to make the best use of his time by sending in requests for home visits early in the day. Finally, early this year, after a Gallup Poll undertaken at the request of the Association had shown the public still widely believed that most of their weekly contributions were going to the Health Service, the Public Relations Department again embarked on a widespread poster and leaflet campaign.

Would it have been impossible for the Ministry of Health and the Ministry of National Insurance to have done all this themselves and made the Association's publicity efforts unnecessary? The Ministry of Health has its own publicity machinery, and if that is not sufficient it has access to the services of the Central Office of Information with all its grandiose apparatus of mass publicity through Press advertising, exhibitions, films, posters, and so on. One can think of many campaigns indulged in by the Central Office of Information which might seem to an outsider to have had less public justification than the work of public enlightenment about the Health Service which the B.M.A. has carried through at its own cost. One recalls the 32-page booklet which the Ministry of National Insurance—before its part in the scheme began—pushed through the letter boxes of every household in the country, making use of his Majesty's mails and postmen to do so. So far as mechanics go, the Government would have had no difficulty in getting across to the public a year ago the appeals for restraint and avoidance of "misunderstanding" which the Minister made last week.

Why was this not done? Was it that the Government was afraid, as many Governments may be afraid, to put the emphasis on duties as well as on rights? Or was it that the Government knew that the increased rate of weekly contributions was bound to be unpopular and was at least not averse from allowing the public to believe that the increase was due to what the Health Service generally and "the doctors" in particular were costing?

Changes in the Use of Hospitals

It does not always happen that one is able to commend important passages in a Ministry circular. But there has just been issued to regional hospital boards a circular (see p. 168) which is obviously on the right lines—though it may be justly said that it does not travel far enough along them. In discussing changes from general practitioner (cottage) hospitals to specialist hospitals, the circular states: "The Minister . . . would ask regional hospital boards to make sure that in carrying out their plans they are not depriving local patients of a valuable feature of the general practitioner (cottage) hospital. . . . It is, in the Minister's view, very valuable for the general practitioner service of the district when the family doctor has access to beds where patients of this type can be in his charge and he knows he can readily call upon the services of a consultant for a second opinion, and it is essential if the level of general practitioner medicine is to be maintained that the interchange of ideas between general practitioners and specialists should be facilitated by such consultation and by informal contacts on the occasion of regular visits from consultants to general practitioner hospitals. If such arrangements can be supplemented by the offer of a number of 'clinical assistantships' to general practitioners as part of a team in the district general hospital so much the better, but in the Minister's view the latter is not a substitute for the former, and if the result of reorganization is to deprive general practitioners of charge of hospital beds something valuable has been lost."

On the question of general practitioner maternity hospitals the following advice is given: "It has been the general practice to have obstetricians in charge of maternity departments and maternity hospitals. While recognizing the merits of this policy in the large unit where teaching and training is undertaken, the Minister feels that he should remind boards that, in the smaller types of maternity unit booking normal cases, staffing must necessarily vary. Where, in the larger of these, selected general-practitioner obstetricians have been in charge in the past, boards should carefully consider the position before altering the nature of the services provided and should be cautious about depriving general-practitioner obstetricians of the charge of maternity beds."

THE FIRST YEAR

MR. ANEURIN BEVAN'S REVIEW

The Minister of Health presented to a Press Conference on October 6 a review of the first year of the National Health Service. Great interest was taken in the occasion, and the pressure on Whitehall accommodation was such that some foreign and colonial correspondents had to be excluded.

Mr. Bevan began by saying that the launching of the Service had been accompanied by so much controversy, by emotions ranging from outright enthusiasm to destructive criticism, that it was thought well in the interests of the country to review the experience up to now, and to try to present a complete picture of what was going on. There was always the danger that such a picture might be obscured by sectional interests. One year was a short time in which to judge so great an experiment, but certain provisional judgments could be made. Pessimists had said that the Service would give rise to abuses, but after all it was a prerequisite of behaviour that people should be allowed to behave—should be given the opportunity of behaving—and from a study of such behaviour any necessary redirections might be made. It was true that there had been certain abuses, but on the whole the transition from the old system to the new had been accomplished with great smoothness, and he desired to pay his tribute to all concerned in such transition.

A Transferred Expenditure

The cost of the N.H.S., Mr. Bevan continued, must be regarded as a gigantic change-over from the private pocket to the public purse. In other words, the expenditure was not an addition to the total expenditure on health, but a transferred expenditure from the individual citizen to the nation. It was not the case, as was assumed by many people, that the cost was an additional burden. The people had been relieved of the necessity of making payments when in need of medical or other care, and the cost of payment for the whole "apparatus"—doctors, dentists, chemists, nursing, maternity—was laid upon the community as a whole. It was largely a redistribution. Various guesses had been made about what was spent on various health services by citizens on their own account before the Service started; it was probably more than £250 million.

Here he drew attention to an unfortunate confusion of language. There were the National Insurance Act, the National Health Service Act, and the former National Health Insurance scheme, and people seemed to assume that the N.H.S. was financed by the weekly contributions to national insurance. All that had happened was that the N.H.S. inherited that part of the old National Health Insurance contribution which was set aside for medical benefit, and which amounted to about £40 million a year; the remainder of N.H.S. expenditure fell upon national and local taxation.

No Army of Bureaucrats

Most of the administration was voluntary, and of this service there was no lack; the difficulty had been one of selection. To the members of governing boards of teaching hospitals, regional hospital boards, hospital management committees, local executive councils, and other bodies the administration had been entrusted. It was not run by an army of bureaucrats: It was this which accounted for the low administration costs—between 2½ and 3% of the total expenditure. This was made possible by the devoted service of 12,000 men and women drawn from all sections of the community. There was a central organization, but the bulk of the administration was pushed out to the periphery. The Central Health Services Council, whose function was to advise the Government on the various aspects of the Service, was very largely technical in character. Conditions of service and salaries were entrusted to Whitley Councils.

"It is obvious that a service of this sort, which provides free medical attention and drugs, is open to abuse both by those giving the service and those receiving it. But no abuse can arise unless it is connived at by two people—a member of the profession on one side and the patient on the other. When charges of abuse are made it must be recognized that they are made, not against the administration, but against some professional person who may have succumbed to the importunities of patients. There is evidence that abuse has taken place, but one does not read about the thousands of devoted professional men and women who go about their work in a proper fashion or the millions of people who receive proper attention."

One reason why abuses took place was because many thought they were paying a weekly contribution for the Service and were determined to get their money's worth. It should be widely known that expenditure increased just to the extent to which the Service was abused. It would be an advantage to have from every newspaper an appeal for the prudent and intelligent use of the Service, and such an appeal might well be made not only to the public but to the professions operating the Service.

Disciplinary machinery existed to deal with abuses, and had been operated. The chief sinners had been dentists and general practitioners. But he did not want to be misunderstood: the cases were few and far between, and when the vast volume of work done was considered it was extraordinary how few were the irregularities. The central tribunal to which the aggrieved person had a right of appeal had considered five cases—three dentists, one doctor, one optician. Two dentists had been removed from the Service, one for charging fees and one for failing to carry out treatment. Six other cases were awaiting hearing.

The Hospital Service

In the hospital service the shortage of nurses remained the prime difficulty. About 10% of available beds were denied to the Service for lack of nurses, but during the last year 8,000 full-time and 5,000 part-time nurses had been recruited, with the result that 7,000 additional beds had come into use. There had also been a complete change in the "climate" of the nursing profession; conditions of service and salaries had been improved, and nursing was now a real career. Between 40,000 and 50,000 more nurses were wanted.

All the hospital specialist services were contractual, either whole-time or sessional, and this should help to reduce the out-patient waiting-lists, especially as the appointments system was being rapidly extended. The new domiciliary specialist service was in operation, and during the first year 91,000 patients had been visited in their homes by specialists and 2,761 operations performed.

During the year 8,359 artificial limbs had been provided, 21,345 surgical boots, and 7,226 artificial eyes. He invited anyone who had sufficient curiosity to come and see what a great advantage had been conferred upon these recipients. As to the 5,071 wigs, he wished to remove the impression that wigs were dispensed on a beauty-parlour basis. They were provided on the prescription of a specialist, and two conditions were necessary: (1) that the baldness was due to accident, disease, or congenital causes, and (2) that the specialist declared the wig to be necessary. He deprecated the derision cast upon this part of the Service. To persons who had undergone a head operation leaving a serious scar, or who suffered from a scalp disease, a wig was as much a part of treatment as an artificial limb to others. It was a cardinal principle of the Health Service that medical care, attention, and appliances were provided where they were considered by the doctor to be needed.

"If he is not free to prescribe what is necessary, his liberty of action must be limited, in which case it would have to be said that he was free to prescribe so much, but not free to prescribe so much else. This would be almost impossible to administer. We must rest upon the principle that the doctor is free to prescribe what he considers to be necessary for the care and welfare of his patient."

The General Practitioner Service

The number of general practitioners in the Service was between 18,000 and 19,000. A great deal was heard in the early days about "direction" of doctors. Such direction had not taken place, nor was it ever intended. There was much discussion also about basic salary in "the early polemics of

the scheme." About 2,000 general practitioners were helped by fixed basic payments of £300. There were 57 doctors receiving special inducement payments (unpopular areas, etc.), and other claims were under review. The (mileage) payment for general practitioners in rural areas had been found to be too low, and £700,000 had been added to the fund to make up the deficiency. The doctors who had been approved for grants for training assistants numbered 374, and 250 doctors were utilizing post-graduate courses under grant.

"One of the worries of the scheme is over-prescribing. Over-prescribing occurs, not in the field of expensive drugs, but in ordinary things like aspirin and cotton-wool. The doctor may be protecting himself against a second visit by prescribing a little more in the first instance. He over-prescribes the prosaic medicaments. That is worrying us, and I make a serious appeal to general practitioners to be careful about this part of their work, and to patients not to be importunate. Most households are furnished with a small number of medicaments which every intelligent person knows how to use, and it should not be necessary to rush to the doctor every time something of that sort is needed."

Concerning health centres, the Ministry proposed to proceed steadily but cautiously. Some new buildings were being constructed, some old buildings adapted, and a few had been taken over which were there before. But it was desired to find out how people used health centres before embarking upon their widespread provision. The Ministry wanted to know how practical they were, what kind of health centres were most useful, and in what situations they would be most popular.

Mr. Bevan went on to speak of the dental, optical, and pharmaceutical services. About 8.5 million people had gone to the dentists for treatment, and the demand was rising again after a summer slackening. The normal demand might be assessed in about six months' time. There was a considerable "back log" to make up. The scale of payment was found to be too high and was cut by 20%. Some dentists resisted, but their resistance had not continued. It was here that most of the discipline had had to be exercised. As time went on he believed the position would improve. There had been an unanticipated rush for spectacles, and two pairs—sometimes three—had been prescribed rather too frequently. He had appealed to opticians on the matter and was satisfied that they had heeded. The production of lenses had been speeded up by about 50%, and three million lenses had been imported from "soft currency" areas. By the end of the year the production should be equal to the demand. As for the pharmaceutical services, the 14,000 chemists in the scheme had dispensed in the first year 187 million prescriptions.

The aural aids were now being produced at the rate of 2,000 a week, and about 29,000 had been issued. It was not only a question of producing the aid, but of teaching the recipients to use it properly, otherwise they gave up in despair. He hoped by the end of next year to have provided 150,000 aids.

The Overseas Visitor

Much had been made of the fact that people could come from abroad and make use of a service provided and paid for by the British people. There were two answers to that. In the first place people could not come from abroad merely in order to make use of the British Health Service: the immigration officers had been instructed to that effect. Secondly, any attempt to differentiate between an alien, a British citizen, and a person entitled by six months' residence to have recourse to the Service would be administratively expensive. He believed also that reciprocal arrangements would be made between Great Britain and other countries, and as reciprocity developed any sense of injustice would diminish.

Mr. Bevan was questioned on this point. He stated that American and Canadian visitors formed the highest proportion of those signing for temporary medical attention at one port where an analysis was made. Asked about reciprocal arrangements, he said that countries participating in the Brussels Pact were being approached. He thought that medical care should be part of the normal hospitality of any host country. If a visitor to this country had an accident he would, of course, be given medical attention, even if it involved prolonged treatment.

Mr. Bevan concluded his address by saying that the National Health Service began, as was inevitable, in an atmosphere of friction, controversy, doubt, and great hope. The first year had shown that a vast amount of good work was silently done, much relief afforded, but there was still friction at some points, and at some points shortages.

"It is obvious that in some parts of the country the general practitioners are overworked. It will take some years for the scheme to 'bed itself in.' More facilities will be needed before criticism dies down. One of the chief sources of our troubles here in Britain, as in many other parts of the world, is the increasing demand made upon hospital facilities by the aged sick. That is one of the great problems of modern civilization.

"I would have you realize that most of the shortcomings which have been revealed by the Service are not the result of the intrinsic difficulties of the Service, but of the overwhelming volume of need that the Service has disclosed. This will happen in other nations when they start the same kind of service. There has been in the past a vast amount of silent suffering, of preventable pain. What the National Health Service has done has been to make it articulate, and thus to make it readier of redress. In that respect, I believe, we have made a great start."

Mr. Bevan Questioned

A question asked of Mr. Bevan was, "Do you think the pay of general practitioners is disproportionately low when compared with the pay of dentists and opticians?" He replied that he could not accept that. When thinking of the payment to dentists it must be remembered that 52% of the gross earnings were regarded as expenses. The dentist had to employ his mechanics and provide his apparatus. It was not easy to fix the scales for dentists' remuneration, and for a while there had to be a period of experiment. The endeavour was to make it profitable for dentists to save teeth rather than extract them.

In reply to a further question about remuneration, he said that the Spens recommendations for the remuneration of general practitioners had been carried out. Discussions were proceeding with the British Medical Association, and before he made a statement about general practitioner remuneration he would like to have the main facts agreed with the members of the profession. "So far there is conclusive evidence that we have more than honoured the Spens recommendations."

Asked about a health tax, he said that he thought the Chancellor might try to find some additional revenue in view of the cost of the Service. If by "tax" was meant payment by the patient at the moment when the patient needs treatment the Ministry had set its face against it.

Questioner: That means a possibility of increasing the health contribution part of national insurance?

Mr. Bevan: The possibilities of taxation are infinite

The Minister added that the original estimate of the cost of the Service was based upon scales of remuneration far lower than those which had in fact been paid. In the hospital service alone 60% of the expenditure was on wages and salaries. The pay of medical officers, nurses, midwives, and domestic staffs had been increased.

In another reply he said that Sir Henry Cohen had been asked to preside over a committee to draw up a list of drugs which the general practitioner could prescribe and outside which he need not go except in special cases

Asked how far the Service had furthered the progress of medical science, he said that much valuable case history, not previously available, was being collected. A committee would be appointed to get agreement about the names of diseases. He was also asked whether any analysis had been made of the time a general practitioner spent in filling up forms. He replied tartly that he had no such analysis, nor had he any analysis of the time it took a general practitioner, before the Service came in, to make out his bills.

He was also asked about his attitude to the Trade Union Congress resolution calling for the immediate establishment of a hundred health centres. He replied that it would take its place in the queue along with other such resolutions. Health centres must not be regarded as being at the head of the queue.

Other Statistics of the Service

Figures in addition to those mentioned by Mr. Bevan were contained in a sheet handed to each person attending the conference. All the figures relate only to England and Wales:

Prescriptions

Estimated proportion of articles prescribed and supplied:	
Mixtures	40%
Tablets, pills, etc.	20%
Ointments	5%
Proprietary preparations	12%
Appliances (bandages, dressings)	7%
Miscellaneous (lotions, gargles)	16%

Hospitals and Specialist Services

Hospitals taken over	2,688
from local authorities	1,545
voluntary	996
teaching hospitals	147
Beds	501,738
teaching hospitals	26,552
others	475,186
Hospital clinics taken over	591
from local authorities	481
voluntary	108
teaching	2
Nursing and midwifery staff engaged in hospital service	149,783
whole-time	126,955
part-time	22,828

Disciplinary Service Committees

			Withdrawals of removals from list
Medical (18,585)	Proposals for removal from list	15	1
	Fines, etc.	15	
	Warning letters	28	
	No action	72	
Dental (9,401)	Proposals for removal from list	6	2
	Fines, etc.	85	
	Warning letters	27	
	No action	106	

N.H.S. IN SCOTLAND

The following approximate figures issued by the Department of Health for Scotland complement those given for England and Wales by Mr. Bevan.

Number of people on doctors' lists (96.6% of population)	4,954,897
General practitioners within the Service (plus 27 assistants on lists)	2,394
Chemists within the Service	1,749
Prescriptions dispensed in first year (estimate)	14,950,000
Doctors receiving basic payments of £300	145
Doctors receiving special inducement payments	30

Optical Services

Ophthalmic medical practitioners in the Service	77
Ophthalmic opticians (all)	848
Dispensing only (all)	23
Spectacles supplied and paid for	680,891
Estimated number of people receiving two pairs of spectacles (30%) (680,891 pairs for 530,880 persons).	

Dental Services

Cases received by Dental Estimates Board for approval or payment	1,380,527
Dentists in Service (practically all)	1,170

Hospital and Specialist Services

Appliances through hospitals. Total of all main types issued including artificial limbs (very roughly)	25,000

CHANGES IN THE USE OF HOSPITALS

GENERAL PRACTITIONER HOSPITALS

The Ministry of Health has issued the following circular (R.H.B. (49) 132):

Under the National Health Service (Functions of Regional Hospital Boards, etc.) Regulations (S.I. 1948, No. 60) the Minister's powers for planning and developing the hospital and specialist services were, subject to direction, delegated to regional hospital boards and boards of governors. It is therefore competent to the board, subject to direction, to make changes in the use of hospitals without prior reference to the Minister. The Minister is aware that boards have been considering changes of user in the hospitals under their administration, and it is right and proper that they should do so.

The Minister is anxious to avoid intervening where boards have arrived at a decision after full consideration, but the delegation of powers is subject to direction on his part, and under Section 6 (4) of the Act he is bound in using hospitals transferred to him by the Act "so far as practicable" to "secure that the objects for which [they were] used immediately before the appointed day are not prejudiced by the provisions of this Section" (i.e., transfer to the Minister).

He cannot, therefore, ignore representations made to him by members of the public and the profession, and may feel bound at any time to call upon a board to report to him their reasons for adopting their new policy. It is undesirable for this to happen after the actual process of change has been begun, and he thinks boards will find it useful, where a proposal is likely to give rise to substantial local or professional opposition, to keep the Department informed of their plans at all stages.

Boards may find useful the following indication of the Minister's views on a number of matters that arise in connexion with changes of use of hospitals. The principal factors are, of course, (1) the possible loss of service to patients, (2) the disturbance of medical staff.

Change from One Specialty to Another or from a General to a Special Hospital

In the case of infectious-disease and smallpox hospitals, which tend to be redundant owing to centralization, little difficulty is expected provided that regional boards have assured themselves that the new centralized facilities meet anticipated needs and have done their best to secure that the staffs of the redundant hospitals are not prejudiced by the change.

In the case of other changes of this nature—i.e., from one special use to another or from general to special hospital—the difficulties encountered may be more serious. In particular, where a hospital of long-standing repute is concerned, the board should see that the medical staff of the hospital has free opportunity of having its views considered by the board or their planning committee, orally if possible. An open meeting at which the proposal can be explained and members of the public can express their views may sometimes be desirable, particularly where it is proposed to use a small local general hospital for other purposes, since the local loyalty that such hospitals command must not be ignored even where reorganization is expected to produce greater medical efficiency.

Change from General Practitioner (Cottage) Hospital to Specialist Hospital

Local loyalty is again a factor of great importance. In the past general practitioner hospitals have, owing to the uneven distribution of consultants, been compelled at times to undertake work for which they were not properly equipped, and they have often been criticized for trying to do too much. The introduction of the National Health Service, and in particular the present review of establishments, has given an opportunity for improving this state of affairs and for developing hospitals staffed by consultants even in smaller centres.

The Minister is whole-heartedly in favour of development in this direction but would ask regional hospital boards to make sure that in carrying out their plans they are not depriving local patients of a valuable feature of the general practitioner (cottage) hospital—i.e., its use as a local hospital to which the general practitioners of the neighbourhood can admit patients.

who require treatment within the scope of a general practitioner but who, for various good reasons, cannot be treated at home. It is, in the Minister's view, very valuable for the general practitioner service of the district when the family doctor has access to beds where patients of this type can be in his charge and he knows he can readily call upon the services of a consultant for a second opinion, and it is essential if the level of general practitioner medicine is to be maintained that the interchange of ideas between general practitioners and specialists should be facilitated by such consultation and by informal contacts on the occasion of regular visits from consultants to general practitioner hospitals.

If such arrangements can be supplemented by the offer of a number of "clinical assistantships" to general practitioners as part of a team in the district general hospital so much the better, but in the Minister's view the latter is not a substitute for the former, and if the result of reorganization is to deprive general practitioners of charge of hospital beds something valuable has been lost.

In particular the Minister wishes regional boards to guard against the feeling that local cottage hospitals are merely buildings to be used as additional accommodation for relieving pressure on beds at the district general hospital of the group. There may be cases where it will improve the efficiency of the group organization for a general practitioner hospital within that group to be used as a specialist department—e.g., as a maternity unit or as a recovery hospital or a geriatric unit. But if the loss to the district of the "general practitioner beds" is to be avoided the board should make arrangements for the general practitioners of the district to have charge of a number of beds in the district hospital or elsewhere, which can then serve, in the way described above, as a "general practitioner wing."

General Practitioner Maternity Hospitals

It has been the general practice to have obstetricians in charge of maternity departments and maternity hospitals. While recognizing the merits of this policy in the large unit where teaching and training is undertaken, the Minister feels that he should remind boards that, in the smaller types of maternity unit booking normal cases, staffing must necessarily vary. Where, in the larger of these, selected general-practitioner obstetricians have been in charge in the past, boards should carefully consider the position before altering the nature of the services provided and should be cautious about depriving general-practitioner obstetricians of the charge of maternity beds.

In the smaller cottage hospital type of provision where general practitioners attend their own patients a selected general-practitioner obstetrician should have the general oversight of the unit.

Boards should endeavour to link the smaller units with the nearest maternity department and make readily available to the general-practitioner obstetricians concerned the consultant obstetric services of the larger hospital.

SPECIMENS IN THE POST

The Post Office has complained recently that packages containing specimens sent through the post for medical examination or analysis have in some cases been insecurely packed and fastened. In the interests of public health and the prevention of risk to Post Office staff great care should be taken to see that specimens sent through the post are securely packed, and that the containers are not likely to be broken or their contents spilt owing to corks and stoppers coming out. A new type of container is to be used, but even so it would not be safe unless securely fastened and well packed. The Post Office regulations are as follows:

Articles Sent for Medical Examination or Analysis

Deleterious liquids or substances, though otherwise prohibited from transmission by post, may be sent for medical examination or analysis to a recognized medical laboratory or institute, whether or not belonging to a public health authority, or to a qualified medical practitioner or veterinary surgeon by letter post, but on no account by parcel post, under the following conditions:

(1) Any such liquid or substance must be enclosed in a receptacle, hermetically sealed or otherwise securely closed, and this receptacle must itself be placed in a strong wooden, leather, or metal case in such a way that it cannot shift about, and with a sufficient quantity of some absorbent material (such as sawdust or cotton-wool) so packed about the receptacle as absolutely to prevent any possible leakage from the package in the event of damage to the receptacle. The packet so made up must be conspicuously marked FRAGILE WITH CARE and bear the words PATHOLOGICAL SPECIMEN.

(2) Any packet of the kind found in the parcel post, or found in the letter post not packed and marked as directed, will be at once stopped and destroyed with all its wrappings and enclosures. Further, any person who sends by post a deleterious liquid or substance for medical examination or analysis otherwise than as provided by these regulations is liable to prosecution.

(3) If receptacles are supplied by a laboratory or institute, they should be submitted to the Postal Services Department, General Post Office, London, E.C.1, in order to ascertain whether they are regarded as complying with the regulations.

VARIATION IN CAPITATION FEES

The capitation fees paid to general practitioners vary from one executive council area to another according to the prior payments made in the different areas, such as for basic salary. The following table from a report of the Management Committee of the Executive Councils Association (England) summarizes the distribution of the capitation fees paid by 122 executive councils in England:

Amount per Person	No of Councils
s. d.	
14 9	1
15 6 to 16 0	5
16 0 to 16 6	13
16 6 to 17 0	84
17 0 to 17 6	18
17 10	1
Total	122

ENTRY INTO PRACTICE

Noting that there is "widespread dissatisfaction throughout the profession" on the existing methods of entering general and consultant practice, the Medical Practitioners' Union has prepared a report entitled "Entry Into General Practice," which has been circulated to members of the medical profession.

The report considers that the medical student will tend to favour specialization, for the discrepancy between the earnings of the specialist and those of the general practitioner is "quite out of proportion to the relative value of each to the community." Nevertheless, the comparatively few specialist posts available will force the average medical student into general practice.

General Practice

The difficulties of the assistant are discussed, and the report says that the principal has every reason to postpone taking his assistant into partnership. To remedy this the M.P.U. proposes that the period during which a principal could have the benefit of an assistant should normally be limited to two years; he should then take a partner or be required to reduce his list. Moreover, the remuneration and conditions of work for assistants should be established.

Discussing the "relatively poor prospects" of the doctor who enters general practice by putting up his plate, the report recommends that the Medical Practices Committee should become a central employment agency, and should find suitable openings for anyone wishing to start general practice. In the under-doctored areas new entrants should be helped financially in three ways:

"(a) The local executive councils should be empowered to advance money to newcomers for their living expenses and for the purchase of cars, equipment, and surgery premises. The sums advanced would be gradually repaid over a long period by suitable deductions from the

quarterly cheques. (*b*) The allocation committees of the local executive councils should make full use of their powers to assist a newcomer in the acquisition of patients. (*c*) As a corollary the need for the fixed annual payment would be reduced and ultimately disappear."

When a doctor dies or retires the allocation committee should transfer his patients to existing practitioners or newcomers according to the needs of the doctors and the proximity of the patients to their surgeries, though the patient could still change to another doctor if he wished.

The M.P.U. advocates an expense allowance on a sliding scale and a graduated capitation fee. The payments for expenses would be a first charge on the Central Fund, and the capitation rate would therefore be reduced. The capitation fee should be 30s. a patient for the first 2,000 and 20s. for the rest.

Specialist Practice

The grade of senior hospital medical officer should be abolished by the Minister except in special circumstances. Regional hospital boards should create a medical "establishment" for each hospital, and the posts should be filled only by those of the proper grade. They should offer whole-time posts to specialists where possible.

A central board to hear grading appeals should be set up.

DOMICILIARY CONSULTATION

The Ministry has informed the Joint Committee representing consultants and specialists that the present arrangements for domiciliary consultations are not entirely satisfactory, and that direct contact between general practitioners and consultants is more workable.

The Central Consultants and Specialists Committee is therefore seeking the views of its constituents, so that it may report to the Joint Committee on whether they would prefer direct contact between general practitioners and consultants or domiciliary consultations to be arranged as at present through the hospital bureau.

HEARD AT HEADQUARTERS

The Minister Expounds

Mr. Bevan's first press conference on the Health Service was quite a personal success. There was no vituperation and little rhetoric. His account was predominantly factual, his delivery often deferential, and his approach almost solicitous to the representatives of "the most prostituted press in the world." As is customary on these occasions, he glossed over the defects of the scheme and painted a tranquil Impressionist picture of one corner of the English scene to-day. Though evasive at times, he was never abusive, and gave the journalists plenty of opportunity to fire questions at him. His grasp of detail in his replies was impressive; the Ministry officials at his side rarely whispered any information to him, and he had usually started on his reply before they had. It was a performance skilfully adapted to the audience—quite different from those Parliamentary "triumphs" that bring a glow to the cheeks of Labour back-benchers. We came away with heavenly choirs singing in our ears.

Hazards of General Practice

A correspondent asks, as have many others, whether there should not be a code of behaviour for patients, and he gives several instances of patients' conduct that the code would no doubt exclude. A young man recently looked in when passing at 1 a.m. on his way home from a dance—to consult the doctor about insomnia. Another man arrived at 8.30 p.m. in his own car asking the doctor to visit his wife, saying that she had a spot on her leg. When the doctor asked why she hadn't come in the car with her husband, he replied that her hair was in curlers. A more pathetic story was that of a lady who demanded an immediate visit six miles away because her father's will was disappointing.

Questions Answered

Superannuation and Repayment for Drugs

Q.—*When I am reimbursed for drugs and appliances on the special list supplied by me to my dispensing patients I suffer superannuation deduction on the amount received. Why is this? The money I receive is a repayment and not remuneration.*

A.—During the early discussions with the Ministry it was claimed that only so much of the remuneration as related to dispensing should count for superannuation and that the actual cost of the drugs should be ignored. This logical solution would have involved practitioners and executive councils in a great deal of work; moreover, to segregate the cost of drugs where the capitation method is accepted would be difficult, and to do so only for those practitioners who are paid by the other method would lead to undesirable discrimination. In addition, 8% of Government money is attracted to the whole amount. For these reasons it was decided not to oppose the present arrangements whereby superannuation contributions are paid on the actual amounts received.

AUSTRALIAN HEALTH SERVICE

PRESCRIBING ACT INVALID

The Australian High Court declared on October 7 by a majority of four to two that Section 7a of the Pharmaceutical Benefits Act is invalid (*The Times*, October 8). This section requires doctors to use a Government prescription form when prescribing free medicine.

The action had been taken by the Federal Council of the B.M.A. in Australia, which filed a writ on July 25 in the High Court challenging the constitutional validity of the Government's free medicine scheme.

The court found that the clause compelling doctors to operate the service amounted to a form of civil conscription, which is forbidden by an amendment to the constitution approved in 1946 empowering the Commonwealth Government to provide social services, including medical benefits. The Chief Justice held that if the clause were deleted the rest of the Act was valid and could be operated as a voluntary scheme.

ANNUAL CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL COMMITTEES

MOTIONS AND AMENDMENTS FROM LOCAL MEDICAL COMMITTEES

Standing Orders of Conference

MOTION by Worcester: That the second sentence of Standing Order (1) be amended to read as follows:

"That this Conference shall ordinarily be held in the month of October."

Remuneration

MOTION by Southport: That this Conference views with grave concern the delay which is incurred in the satisfactory settlement of remuneration of general practitioners, and demands that any increase be retrospective to July 5, 1948.

MOTION by Glasgow: That this Conference deplores the delay of the Ministry of Health in the negotiation of the terms of remuneration, and affirms that further delay may precipitate a complete breakdown of the National Health Service.

MOTION by Middlesex: That this Conference is strongly of opinion that full recognition of the claim of general practitioners in the National Health Service for increased remuneration on the basis of present-day values be established forthwith with the Ministry of Health.

Temporary Residents

AMENDMENT by Lothians and Peebles: That paragraph 44 of the Report of the G.M.S.C. be amended so that the words "advice and/or" be inserted between the words "medical" and "treatment."

MOTION by Isle of Wight: That this Conference is of the opinion that the submission of Forms E.C.7 and 8 to a patient's own doctor serves no useful purpose, whereas a detachable slip on Form E.C.19, bearing a diagnosis, which the patient could hand to his doctor, would be of clinical value.

Basic Salary

MOTION by Lancashire: That this Conference instructs the General Medical Services Committee to consider the question of basic salaries in all its aspects with a view to reopening discussion of the subject with the Minister of Health at the earliest opportunity.

Filling of Vacancies Caused by Death or Retirement

MOTION by Isle of Wight: That this Conference is of the opinion that it would appear desirable that there should be closer contact between the Medical Practices Committee and the Local Executive Councils, together with their Local Medical Committees, prior to the filling of vacancies.

MOTION by Lancashire: That the appointment of a successor to a practice declared vacant should be made by the Local Executive Council in consultation with the Local Medical Committee without submission to the Medical Practices Committee.

MOTION by Lancashire: That the machinery for hearing appeals by unsuccessful applicants should be investigated forthwith, as the delay which generally occurs under present procedure endangers the succession to the practice and the continuity of the medical services.

MOTION by Devon and Exeter: That all applications for entering practice be considered by the Medical Practices Committee in relation to any restrictive bond

Vaccination and Immunization

MOTION by Devon and Exeter: That this Conference protests most strongly against the long delay in payments of fees for vaccination and inoculation.

MOTION by Gateshead: That this meeting fully endorses the action of the G.M.S. Committee in informing the Ministry of Health that it will take no steps to discourage the refusal of the return of reports of vaccination and immunization pending the satisfactory conclusion of negotiations on this point.

Medicines and Appliances for Doctors' Surgeries

MOTION by Buckinghamshire: That the proposal that doctors should be allowed to order on official prescription forms stocks of medicines and dressings for emergency use in surgeries be strongly and urgently pressed for; and that, in addition, permission be sought for the extension of this system to all drugs and appliances which are to be administered or applied by the practitioner in person.

Specially Expensive Drugs and Appliances

MOTION by Buckinghamshire: That the present inordinate delay in the return of scrips from dispensing doctors by the Central Pricing Committee which require the sanction of the Minister before payment is wholly unjustifiable; and that in future their return should take place within two months.

Prescription Books

MOTION by Worcester: That the reconstructed Prescription Book be provided with carbon paper.

Mileage in Maternity Cases

MOTION by Isle of Wight: That in the opinion of this Conference the proposed mileage payment in respect of maternity services is inadequate and should be increased, and that the payment should come from the same source as the payments for maternity services.

MOTION by Buckinghamshire: That maternity mileage should be paid from the same source as other payments for maternity work.

MOTION by Buckinghamshire: That this Conference disagrees with a single payment of three shillings per mile for each maternity case booked, and asks for a reinvestigation of the matter with a view to payments for journeys actually carried out, on the lines ruling before July 5, 1948.

Medical Services Committee Procedure

MOTION by Norfolk: That this meeting considers that an independent chairman with legal qualifications should be appointed to preside at Medical Services Committee meetings.

MOTION by Isle of Wight: That this Conference is of the opinion that, as the regulations governing the consideration of complaints against the medical practitioner do not provide, as did the old National Health Insurance Benefit Regulations, for similar action against the patient, the Minister of Health should be pressed to provide for it under the new Service.

Specialization in General Practice

MOTION by Eastbourne: That this Conference is of opinion that doctors should be paid an adequate fee for performing circumcision within two weeks of birth (not less than £1 1s.).

General Practitioners and Hospital Work

MOTION by Cambridgeshire and by Sunderland: That this Conference protests against the present policy of exclusion of general practitioners from the clinical assistant type of post in teaching and other hospitals. It urges that every effort should be made to get the number of these posts greatly increased.

MOTION by Hastings: That this Conference strongly disapproves of the present regulations whereby a practitioner not in contract with a Regional Hospital Board is not allowed to attend his private patients in the private wards of a hospital.

MOTION by Kent and Canterbury: That this Conference, having given attention to the circular letter R H B (49) 132 (*Supplement* October 15, p. 168), considers that the advice given therein by the Minister of Health to regional hospital boards with regard to proposals for the change of function of cottage hospitals, the continued provision of beds which shall be in the charge of general practitioners (including maternity beds in the charge of general-practitioner obstetricians), and the suggested establishment in district general hospitals of posts as clinical assistant available to general practitioners is sound and acceptable. The Conference suggests to local medical committees that they shall take every opportunity to press in their areas for action to be taken by regional hospital boards and hospital management committees in accordance with the advice given in this circular letter.

General Practitioners and Special Departments of Hospitals

MOTION by Dewsbury: That this Conference feels that it is contrary to the interests of the patient that general practitioners should be excluded from certain departments of hospitals and that they should have direct access to such departments e.g. the *X*-ray Department, the Physiotherapy Department and the Pathological Laboratory.

General-practitioner Specialists

MOTION by Isle of Wight: That this Conference strongly deprecates the exclusion of large numbers of general-practitioner specialists from their hospital work, and is of the opinion that their status should be recognized and that they should be allowed to continue their work, as was promised by the Minister of Health

Remuneration of General Practitioners on Staffs of Cottage Hospitals

MOTION by Isle of Wight: That this Conference is of the opinion that £25 per occupied bed is totally inadequate, unless such items as anaesthetics and assistance at operations carry additional payment.

Superannuation

MOTION by Leicestershire and Rutland: That, as early as practicable after April 5 of each year, a single statement should be available to each general practitioner in the Service showing the total amount deducted in respect of superannuation contributions from all sources.

Grants for Training Assistants

MOTION by Middlesex: That this Conference is of the opinion that it should be obligatory for a formal contract to be entered into between the trainee assistant and the doctor undertaking the training.

Emergency Treatment Following Dental Operations

MOTION by Gateshead: That the G.M.S. Committee be instructed to continue to press for a payment from the Dental Estimates Board to practitioners called upon to deal with dental haemorrhage.

Treatment of Members of H.M. Forces on Leave

MOTION by Isle of Wight: That this Conference is of the opinion that immediate steps should be taken to ensure that the names of Service patients are restored to the list of their previous doctor on demobilization, as was done prior to July 5, 1948.

Frivolous or Unjustified Emergency Calls

MOTION by Gateshead: That rules for the conduct of patients, with appropriate disciplinary machinery, should be introduced forthwith.

Medical Card

MOTION by Lothians and Peebles: That provision be made for patients to obtain a new Medical Card to replace a lost one, as was formerly possible under the N.H.I. Acts.

Maternity Medical Services

MOTION by Gateshead: That where maternity hospitals do not fully implement their responsibilities to their booked patients during pregnancy, the general medical practitioner who is called upon to undertake such responsibilities shall be entitled to some proportion of the maternity fee.

Economy in Prescribing

MOTION by Inverness: That a Commission should be set up to go into the nomenclature of drugs and the standardization of bulk in packages with a view to eliminating waste and extravagant prescribing.

Status of General Medical Services Committee

MOTION by Bristol: That this Conference, wishing to clarify the position of the General Medical Services Committee, and in view of the statement that it is a B.M.A. Committee, emphasizes that the G.M.S. Committee is responsible to this Conference only and is in no way responsible to the Representative Body.

General Practitioner Refresher Courses

MOTION by Isle of Wight: That in the opinion of this Conference practitioners should have free choice of venue for refresher courses.

Admission to Medical List of Doctors from Adjoining Areas

MOTION by Middlesex: That this Conference views with alarm the practice of admitting practitioners from an adjoining area to an Executive Council's list irrespective of the distance from the applicant's surgery to the area of practice, and instructs the General Medical Services Committee to discuss the matter with the Medical Practices Committee so that a reasonable limit of distance may be set.

Correspondence

Entry to General Practice

SIR,—The Medical Practices Committee's first report (*Supplement*, September 10, p. 128) states under "Admissions to Medical List" (p. 129): "*(a) Applications to Start Practice.* . . . The committee in carrying out its statutory duty has, however, *been compelled to admit applicants to the medical list against* the advice of some executive councils that they be refused . . . but it of course remains the function of the executive council concerned *after* [my italics] his admission to its list to satisfy itself that the practitioner's arrangements for attending the patients he accepts are adequate."

Recently the executive council of this area advised the refusal of an applicant who gave as his surgery location an address at least six miles distant from the nearest point in the area, with surgery hours which made attendance by patients with ordinary working hours impossible. Between the area in which the surgery lay and this area there intervened a three-mile-deep belt of another area, so that the applicant's practice could not be said to be in an adjoining area. The whole district is urban, and the distribution and number of doctors are well up to average.

The Medical Practices Committee, however, overruled the advice of the executive council, and admitted the applicant to the list. (Having got so far, the applicant then withdrew from the medical list, and solved the problem.)

Such a decision makes nonsense of the latter part of the paragraph quoted above. Imagine the reaction, particularly of the non-medical members of an executive council, if asked to put into motion the machinery for removing a name from the medical list under such conditions.

May I add that my personal interest is solely that of a member of the local executive council. I did not enter the N.H.S.—I am, etc.,

Rochdale. L. KILROE.

Freedom and Closure

SIR,—I feel we need some clarification on the issues involved in serving on bodies connected with the National Health Service. One in particular is the question of open or closed areas. Is it not true that the principle of negative direction instead of positive direction was wrung out of the Minister? Does this or does this not mean that instead of young doctors being posted to under-doctored areas they would be encouraged to go there because other areas would be considered adequately doctored and would be closed? Is it not therefore nonsense to talk about the closing of areas in this case being a loss of freedom? Surely we need some expression of our policy in this matter to clear the minds of some of our more emotional and muddle-headed colleagues.—I am, etc.,

London, W.C.1. J. L. MCCALLUM.

Payment for Dispensing

SIR,—In our practice, as no doubt in most rural practices where drugs are supplied, we felt that the capitation fee for this service—at present 6s. 6d.—was going to prove grossly inadequate. I wrote therefore to the Association officers, who replied that the fee had been agreed by the Rural Practitioners Subcommittee, but that I could, if I wished, use the method for payment that chemists used.

At the beginning of this year we began to do so. The first six months of the year showed how right we were in our fear that the capitation fee was too small. We are now, in fact, being paid almost exactly double what we would be paid by the capitation fee, but it involves a considerable amount of extra work in the matter of writing the prescriptions, collecting and posting them, and sometimes considerable correspondence between us and the wholesale chemists on those occasions when the committee feels unable to make a price.

For the second six months of the year, however, a new method has been imposed on us, and greatly increased time has to be spent in the sorting and pricing of the prescriptions themselves. The extra work that results from the monstrous inadequacy of the capitation fee now amounts to a considerable proportion of our time. No medical practitioner in his right mind can enjoy the extra clerical work involved in this absurd method of paying him an adequate amount for this work. It is high time that the capitation fee was reviewed. Be it noted that the amount spent on medicines per patient by practitioners in the city areas is so far very considerably in excess of the sum we are using.

If an adequate sum is offered to the doctor, it would be *thankfully accepted. It would relieve the doctors of all this* pointless and irritating extra work and would enable the pricing committees to rid themselves of a vast quantity of their work and presumably to reduce their staffs.—I am, etc.,

Settle, Yorks. W. A. HYSLOP.

Payment of Locums

SIR,—May I suggest that "An Occasional Locum" (*Supplement*, September 17, p. 140) has a chip on his shoulder? When I did locums in 1923 I was very glad to get 5 guineas per week. I must now pay nearly three times as much to a deputy, who is therefore at least as well off as I was, without allowing for the fact that the 1923 £ was of much less value than the 1914 £.

My gross income now is a little in excess of £2,000 per annum. What holiday does "An Occasional Locum" think that I would or could have were I obliged to pay a locumtenent at the rate of £1,050 net as well as continuing to maintain for his use an expensive, fully manned establishment? (I, too, am "on call for 24 hours," but for every day in the year apart from my well-earned and inevitably costly holiday.)

While I am on the subject of locums may I suggest that these relatively junior people would do more to earn their stipend if they would treat the equipment of their absent employer as carefully as they would if it were subject to its owner's daily inspection, and if they would realize that their contempt for the alphabet causes a great deal of subsequent trouble. Having recently returned from a holiday I am trying to cope with abnormally large surgeries made up in great part of patients who would not come while a stranger occupied my chair, and of others who have come to make quite sure that "the young doctor" knew what he was talking about in their own cases. These busy surgeries are made much more harassing by the necessity to hunt through my cabinets to find "F.M.R.s" which were not accurately replaced.—I am, etc.,

ONE WHO DISLIKES BEING CALLED AN EXPLOITER.

Correction.—In the last sentence of the letter headed "Doctors and Dentists" by Dr. W. Ferguson Mackenzie (*Supplement*, October 8, p. 163) the word "inequities" was printed in error as "iniquities."

THE MEDICAL ASSOCIATION OF EIRE

Notice is hereby given to the members of the Medical Association of Eire (I.M.A. and B.M.A.) of the following proposed changes in the by-laws of that body.

The words "Division," "Division and," and "Division or" shall be deleted wherever appearing in the by-laws.

By-law No. 5, subparagraph of By-law 13, By-law 14, By-law 17, By-law 24 (*b*) (v) shall be deleted.

By-law No. 9 shall be deleted and the following substituted therefor:

(*a*) On and after the 1st January, 1950, the annual subscription to the Association shall be four guineas, or such sum as may be decided on by the Central Council, provided that

(i) the annual subscription payable by a member admitted to membership before the expiration of two years from the date of his registration under the Medical Acts for the time being in force in Eire shall be two guineas, or such sum as may be decided on by the Central Council until the 31st December next occurring after the expiration of four years from the date of such registration.

(ii) Any member who has been for not less than forty years a member of either the Irish Medical Association or the British Medical Association and the Medical Association of Eire (I.M.A. and B.M.A.) shall pay an annual subscription of two guineas, or such sum as may be decided on by the Central Council.

(iii) Any member of not less than ten years' standing of either the Irish Medical Association or the British Medical Association and the Medical Association of Eire (I.M.A. and B.M.A.) who has definitely and permanently retired from the active practice of the medical profession, and has signed and transmitted to the Treasurer of the Association a declaration to that effect, shall pay an annual subscription of two guineas, or such sum as may be decided on by the Central Council.

(iv) Any member admitted on or after the 1st July in any year shall pay only half his current subscription for that year.

(v) Any member who holds an appointment as a Commissioned Officer in the Defence Force in Eire shall pay an annual subscription of three guineas, or such sum as may be decided on by the Central Council.

(vi) A husband and wife both being members shall pay a subscription of £5 12s. 6d., or such sum as may be decided on by the Central Council.

(*b*) For the purpose of this By-law a member shall be deemed to reside in that place in which his ordinary place of abode is situate at the time at which, according to the Articles, his subscription is considered due.

That By-law No. 18 (*a*) shall be deleted, and the following By-law be substituted therefor:

The following shall be the special Groups of the Association until the Central Council shall otherwise determine: (i) Dispensary Medical Officers' Group; (ii) Public Health Medical Officers' Group; (iii) Medical Officers of Mental Hospitals' Group; (iv) Medical Officers of Voluntary Hospitals' Group; (v) County Hospital Surgeons' Group; (vi) Whole-time Medical Officers in the service of the Government of Eire: (vii) Private Practitioners' Group: (viii) Radiologists' Group; (ix) Ophthalmic Surgeons' Group; (x) Medical Officers of Local Authorities' Hospitals, not provided for in any other Group; (xi) Pathologists' Group.

Members of the Association may register in any one of the foregoing special groups, if eligible, and shall remain a member of such special group until notification is received of his wish to transfer to another special group, or to resign from his or her original special group. No member may elect to be included in more than one of these groups.

That By-law No. 18 (c) be amended by adding the words: "(xi) Pathologists' Group: Any member of the Association who is a Pathologist."

That By-law No. 23 shall be deleted and the following By-law be substituted therefor:

The Central Council shall consist of:

(*a*) The President, the immediate Past-president, the Vice-president, the Chairman (if elected), the Honorary Treasurer, and the Honorary Secretary of the Association.

(*b*) Members of the Association elected by their respective Branches for one year in the following proportions: Branches consisting of not more than fifty members shall be entitled to elect one representative. Branches consisting of more than fifty members, and not more than one hundred members, shall be entitled to elect two representatives. Branches consisting of more than one hundred members shall be entitled to elect one additional representative for each additional one hundred members or proportion thereof, provided that such proportion exceeds seventy-five in number.

(*c*) Members of the Association representing Special Groups elected in manner hereinafter stated for one year and who shall be entitled to representation on the same numerical basis as the Branches, as more particularly set out in the preceding paragraph.

Notwithstanding anything hereinbefore contained the Council shall have power to increase or decrease the number of Special Groups.

(*d*) Seven members of the Association elected for one year by the Annual General Meeting.

(*e*) Such members of the Association, not exceeding six in number, as may be co-opted for the remainder of the year by the members of the Central Council specified in sub-clauses (*a*) to (*d*) inclusive as above at their first meeting.

That By-law No. 24 (*a*) (ii), (iii), and (iv) be deleted and that the following By-law be substituted:

Members of Branches shall each year during the month of March hold an Annual Meeting of the Members of each Branch at which representatives to the Central Council shall be elected as hereinbefore provided. The election of a Branch representative or Branch representatives at such meetings shall be by secret ballot in which only the members present shall be entitled to vote. A statement as to the result of the ballot signed by the Chairman of the Branch at which such election shall have been held, as hereinbefore provided, shall be conclusive evidence of the election of representative or representatives of the said Branch to the Central Council.

That By-law No. 27 be amended as follows:

After the words "By-law 25" insert:

If the Branch or Group do not appoint a successor, then in that event the Central Council shall be at liberty to fill the vacancy by appointing a representative of the Branch or Group.

That By-law No. 33 be deleted and the following be substituted therefor:

The Central Council shall meet not less than twice a year and shall be presided over by the President of the Association or in his absence by the Vice-president, unless a Chairman of the Central Council and of the Executive Committee shall be elected as hereinafter provided.

If the Central Council by a majority vote decide in any year to elect a Chairman, then, in that event, the Central Council shall be entitled to elect from amongst their members a Chairman of the Central Council who shall hold office for the same period as the Honorary Secretary and Honorary Treasurer of the Association. The Chairman of the Central Council when elected shall also be deemed to be Chairman of the Executive Committee and shall preside at all meetings of the Central Council and of the Executive Committee.

That By-law No. 35 be amended by deleting the figure "4" and substituting the figure "6" where appearing.

That By-law No. 45 be deleted and the following By-law shall be substituted therefor:

There shall be appointed or elected at the first meeting of the Central Council following its own election an Executive Committee which shall consist of the President, the Vice-president, the immediate Past-president, the Chairman of the Central Council (if elected), the Honorary Treasurer, the Honorary Secretary, and not less than fifteen other members of the Central Council following its own annual election as hereinbefore provided. The quorum of the Executive Committee shall be five.

That By-law No. 48 be deleted, and the following shall be substituted therefor:

The President, the Vice-president, the immediate Past-president of the Union, the Chairman of the Central Council (if elected), the Honorary Secretary, and the Honorary Treasurer shall *ex officio* be members of all Committees of the Central Council.

The following additional By-law shall be made:

Notices of Motion for the Central Council must be in writing and must be signed by a proposer and seconder, and must reach the Secretary not later than sixteen days before a meeting of the Central Council. Such notices should state whether same are made (*a*) on behalf of the Branch, (*b*) on behalf of the Group, or (*c*) on behalf of individual members.

The Ministry of Health states that the disqualification imposed by Section 42 (8) of the National Health Service Act, 1946, on Mr. D. T. Williams, dental practitioner, of Ilford, Essex, has been terminated, and that he is now entitled to participate in the National Health Service.

Association Notices

NATHANIEL BISHOP HARMAN PRIZE

The Council of the British Medical Association is prepared to consider the award of the Nathaniel Bishop Harman Prize in the year 1950. The value of the prize is approximately £100. The purpose of the prize is the promotion of systematic observation and research among consultant members of the staffs of hospitals who are not attached to recognized medical schools. It will be awarded for the best essay submitted in open competition. The work submitted must include personal observations and experiences collected by the candidate in the course of his practice. A high order of excellence will be required. No study or essay that has been previously published in the medical press or elsewhere will be considered eligible for the prize.

Any registered medical practitioner who is a consultant member of the staff or senior hospital medical officer of a hospital in Great Britain or N. Ireland and is not attached to a recognized medical school is eligible to compete. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay the decision of the Council shall be final.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1950 but will be offered again the year next following this decision, and in this event the money value of the prize on the occasion in question shall be such proportion of the accumulated income as the Council shall determine.

The writer of the prize-winning essay may be required to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate Section of the Annual Meeting of the Association. Each essay must be typewritten or printed in the English language, and must be distinguished by a title and a motto. The essay must not bear the name of the writer, which should be sent with the essay in a sealed envelope bearing only the motto on the outside.

The title of the proposed essay and the motto should also be notified in writing to the Secretary by December 1, 1949, on a form to be obtained from the Secretary. Essays must be forwarded to reach the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, not later than March 31, 1950. The prize will be awarded at the Annual Meeting of the Association to be held in 1950. Inquiries relative to the prize should be addressed to the Secretary.

RADIOLOGISTS GROUP

A meeting of the Radiologists Group will be held at B.M.A. House on Thursday, November 17, 1949, at 1.30 p.m. It is hoped that as many members of the Group as possible will attend the meeting.

LANCASHIRE AND CHESHIRE BRANCHES

The names of the two new Branches in Lancashire and Cheshire which, with the Merseyside Branch, will replace the old Lancashire and Cheshire Branch will be decided by the Branches themselves when they are inaugurated. At a meeting in Manchester on October 6 of the old Branch Council the following titles were suggested: North Lancashire for the northern group, and South Lancashire and East Cheshire for the southern group.

Diary of Central Meetings

OCTOBER

17	Mon.	Psychological Medicine Group Committee, 2 p.m.
18	Tues.	Proprietary Medicines Committee, 11 a.m.
18	Tues.	Committee on the Association of the General Practitioner with Hospitals, 2 p.m.
18	Tues.	Building Committee, 2 p.m.
19	Wed.	Film Committee, 2.30 p.m.
20	Thurs.	Dermatologists Group Committee, 10.30 a.m.
20	Thurs.	*Maritime Subcommittee of the Private Practice Committee*, 11 a.m.
20	Thurs.	Publishing Subcommittee, 11 a.m.
20	Thurs.	Health Centres Subcommittee, 11.15 a.m.
20	Thurs.	Journal Committee, 2 p.m.
20	Thurs.	Committee *re* Salaries of Medically Qualified Teachers, etc., 2 p.m.
20	Thurs.	Maritime Subcommittee, Conference of Port Medical Officers, 2 p.m.
20	Thurs.	Occupational Health Committee, 2 p.m.
21	Fri.	Public Health Committee, 1.30 p.m.
21	Fri.	*Venereologists Group Committee*, 2.30 p.m.

Branch and Division Meetings to be Held

CAMBERWELL DIVISION.—At 134, Denmark Hill, S.E., Tuesday, October 18, 8.30 p.m., Dr. W. J. O'Donovan: "The Problems of a Modern Dermatologist."

GREENWICH AND DEPTFORD DIVISION.—At Miller Hospital, Greenwich High Road, London, S.E., Wednesday, October 19, 8.30 p.m. Dr. C. W. L. Jeanes: "The Scope of Treatment in Pulmonary Tuberculosis." Members of neighbouring Divisions are invited to attend the meeting.

KESTEVEN DIVISION.—At George Hotel, Grantham, Thursday, October 20, 8.30 p.m. Dr. D. P. Stevenson (Deputy Secretary, B.M.A.): "Current Events."

MID-HERTS DIVISION.—At Red Lion Hotel, High Street, St. Albans, Friday, October 21, 8.45 p.m. Annual general meeting. Election of officers, etc. Dr. H. I. Coombs: "Blood Groups, with Particular Reference to the Rhesus Factor."

NORTH MIDDLESEX DIVISION.—At North Middlesex County Hospital, Silver Street, Edmonton, London, N., Tuesday, October 18, 9 p.m. Dr. Mair E. Morgan Thomas: "The New Bacteriological Service of the Medical Research Council."

NORTH OF ENGLAND BRANCH.—At Royal Victoria Infirmary, Newcastle-upon-Tyne, Thursday, October 20, 7.15 p.m., clinical demonstration by Mr. H. Vernon Ingram: "Squint"; 8.45 p.m., address by Professor J. C. Spence: "Comparison of Medicine in America, Australia, and Britain."

SUNDERLAND DIVISION.—At Royal Infirmary, Sunderland, Friday, October 21, 8 p.m., address by Sir James Walton: "The Progress of Gastric Surgery in the Last Half Century."

SWANSEA DIVISION.—At Osborne Hotel, Langland, Swansea, Thursday, October 20, 7.30 p.m., annual dinner.

Meetings of Branches and Divisions

MERSEYSIDE BRANCH

The inaugural meeting of the Merseyside Branch was held at Liverpool on September 28. The following officers were elected: President, Mr. B. L. McFarland; vice-presidents, Dr. H. S. Pemberton and Mr. A. A. W. Merrick; secretary and treasurer, Dr. V. Colton Cornwall.

At the dinner which followed Professor C. A. Wells proposed the toast of the new Branch and surveyed briefly the history of the Association. The time had come, he said, for the consultants as a whole to take a fuller part in the activities of the Association and for all members of the profession in this compact Merseyside Branch and Region to speak with one voice. Mr. Bryan McFarland replied, and said that it was n[illegible] that the president of the new Branch and the [illegible] Association (Professor T. P. McMurray) were [illegible] rgeons, remarking that the National Health Service might well need some corrective treatment. Referring to the next Annual Meeting of the B.M.A. on Merseyside, he asked for the support and help of all in making it a success, stating how proud the new Branch would be that Professor McMurray was to be president.

Professor McMurray proposed the health of the Association coupled with the name of Dr. Charles Hill, its Secretary. He mentioned that when its original membership was only 310 its Council consisted of 70. Soon after the creation of the Association two members of Parliament had brought in a Bill for the regulation of the profession, and after an interrupted struggle of 26 years the first Medical Act was passed in 1858, which was the first-fruit of the work of the Association. The problem of providing a perfect health service was not finished; the organization which we had now could be improved in many ways. Faults must be eliminated and improved methods adopted. Effective measures were available, but they could be completed only with the undivided support of the whole profession. The struggle of the Association depended large on its officers.

Dr. Charles Hill replying thanked the previous speaker, and paid tribute to the contribution of the Merseyside Branch in past years, mentioning the work of men like J. C. Matthews, R. W. Kennon, and R. E. Gibbons on the Council, and Sir Henry Cohen, chairman of the Association's committees on undergraduate and postgraduate medical education. The profession had sometimes failed to realize when it had established a position, and tended to press for some other point, almost forgetting what it had achieved. The profession's unity and strength depended on its achieving right conditions of service and on the quality of the service that it gave.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

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ARTIFICIAL KIDNEY*

BY

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EDMUND DELORME, F.R.C.S.Can.

AND

NEWELL THOMAS

Toronto, Canada

In ancient times it was thought that the kidneys were linked closely with the temperament of the individual, and physicians of old practised largely on physic and examination of the urine. With modern pathology, much more has been learned about the kidneys in many respects, but their detailed function is still a mystery.

Our interest in an artificial kidney came only as a sideline to the work being done with heparin, and fundamentally a good anticoagulant is paramount when blood is to be circulated through any system of artificial tubes.

There were other reasons which made such an investigation more or less logical. The ever-present patient with anuria, for whom so little could be done unless the kidneys themselves decided to go to work, also offered a real challenge. The persistence of anuria in a patient who may look and feel well induces in the doctor in charge a series of changing moods ending in desperation and an admission of helplessness from ignorance of the disease of uraemia, its cause, how it acts, and its cure.

With heparin as an anticoagulant, attempts were made to clear the blood stream of toxic substances by transplantation of a kidney from one animal to another and from one species to another. This work was done in 1933–5 with moderate success (Murray, Delorme, and Thomas, 1947). The objective in this present investigation was to produce similar effects by preventing a patient from dying of acute toxaemia in such conditions as acute mercury and phenol poisoning, in the toxaemias of acute infections such as nephritis or pneumonia, etc., with oliguria or anuria, as well as in acute anurias following blood transfusions, crush, excessive sulpha-drug administration, eclampsia and toxaemia of pregnancy, severe skin burns, induced abortions, acute injury to ureters and kidneys from calculus obstructions, reflex or otherwise, or following operation. This thesis is supported by Trueta's (1947) work, in which it was shown that the cortex of the kidney may be put out of action by various reflex or other means, and that it may regain its function provided the patient survives long enough.

It therefore seemed possible, if the patient could be protected from death from toxaemia in such conditions, that after a time a number of the kidneys affected might recover enough to resume function, and such has been the case in several instances.

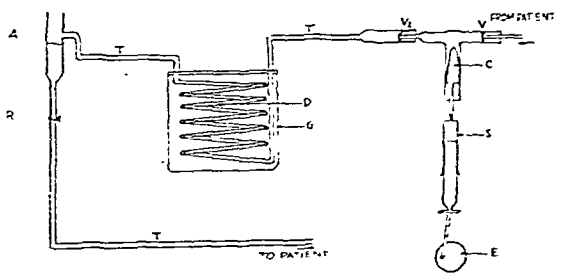
It was with satisfaction, therefore, that experimental results to justify this thesis were noted and also that clinical evidence has supported the claim. Also, it has been demonstrated repeatedly that the apparatus works smoothly for long periods, and that it performs the functions for which it was developed.

Many workers, including Abel, Rowntree, and Turner (1913, 1914), Thalhimer (1938), and numerous others, have embarked on similar investigations, but the work has not to our knowledge been developed to a point where it was a proved effective clinical method of treatment. The one exception is that of Kolff and Van Noordwijk (1946), in Holland. We were not aware of their investigations, and not until after the war did we hear of their results. Their excellent monograph gives evidence of the treatment of an extensive series of patients, with some good clinical results. Apparently our efforts have been carried on simultaneously, and they were quite independent. It was interesting, therefore, to compare the methods and the material used, and to note the different avenues followed, which evidently converged fairly closely towards the same goal of end-results.

Development of the Apparatus

The principles of our artificial kidney are: (1) a dialysing membrane which is selective in allowing the passage of some substances and not of others from the blood stream—namely, non-protein nitrogen and other toxic substances. (2) a method of circulating the blood through this extrinsic system; (3) protection from removal of necessary substances from the blood stream.

It was not until very extensive and arduous trials and experiments had been made that we finally arrived at the present set-up (see Diagram), which works satisfactorily both experimentally and in clinical patients.



Schematic diagram of artificial kidney (not drawn to scale). V, and V₁ = valves. C = condom. S = syringe E = eccentric. T = rubber tubing. A = air trap. R = inlet control. D = dialysing membrane. G = Bath jar.

*Based on the Alexander Simpson-Smith Lecture delivered at the Hospital for Sick Children, Great Ormond Street, on July 11 by Dr. Gordon Murray.

The following is a summary of some of the series of events which led to the development of the apparatus and of what might be termed the evolution of this instrument.

1. The first method was the circulation of arterial blood with return through the venous side through several coils of cellulose acetate tubing (sausage-casing) bathed in warm tap-water. This tubing was 1 in. (2.5 cm.) in diameter and presented the primary disadvantage of the volume/surface-area ratio. Also, the size of the tubing allowed escape of too much of the animal's blood before there was sufficient return, if a reasonable length of it was used. In this way the animal really had haemorrhage into the tubing. Filling this with blood beforehand overcame the difficulty.

2. Later on, with considerable effort, tubing ½-in. (1.25 cm.) in diameter was obtained, with somewhat better results. Then ¼-in. (0.6-cm.) tubing was obtained from the Visking Corporation, of Chicago, and this gave fairly satisfactory results.

3. With sufficiently long sections of this tubing *in vitro* we were able to demonstrate that there was some passage of N.P.N. substances through this membrane and that the larger protein molecules did not pass (Chart 1).

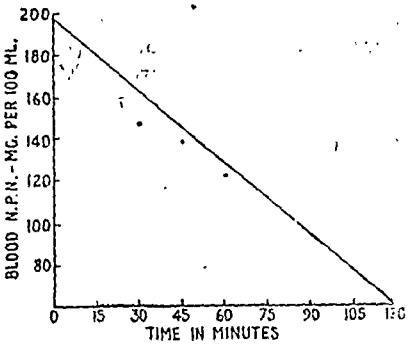


Chart 1.—Showing dialysis of N.P.N. from human blood *in vitro*. 2.3 g. of N.P.N. was removed in two hours. No proteins came through.

4. To diminish the volume of these tubes, it was attempted at first to pass the tubing through a series of wire cells containing the dialysing tubes.

5. Next, concentric wire cylinders between which the tubes were partly compressed were used.

6. Then we tried a wooden reel on which the coils could be assembled fairly quickly. This did not control the volume satisfactorily.

7. Next it was decided to coil the tube round a small platform, when plastic perforated sheets were applied on each side and bolted together to compress the tubing in the coil. These were found to be unsuitable because of the bulging under the pressure of the fluid in the coil.

8. Then sheets of the plastic plates were replaced by wood, and these were found to warp.

9. The latter were replaced by aluminium-steel plates, which were bolted together with a thin definite spacing between them. This worked moderately well, but was finally discarded for

10. A vertical wire-mesh cylinder around which the tube was wound in spiral fashion and held in place by cross-pieces of wood. This method finally gave the best result with the ¼-in. tubing, and lengths up to 150 ft. (45.72 metres) of tubing could be used quite satisfactorily, giving a fairly high rate of dialysis.

Sources of the Blood for Dialysis

The next problem to be solved was that of a method of circulating the blood. Early on it was decided that using an artery as the propelling force had many disadvantages: (1) The artery could be used only once; if further attempts were to be made another vessel would be required. (2) The pressure in the system was such that there was not a satisfactory return of the venous blood by this type of pressure. Moreover, the animal tended to act as from the result of haemorrhage from the arterial bleeding.

In all these methods, of course, it is quite obvious that the animal was highly heparinized to make sure that there was no clotting or thrombosis either in the system or at the points of intake or output or in the animal itself.

It was decided to attempt to develop a method by which the blood could be taken from the venous system and then returned to it through another point. On this basis, blood was taken first from femoral veins, then from external jugular veins, but it was found that with any pump system which produced suction the vessel collapsed and acted as a valve over the tube. To overcome this difficulty a catheter of fairly large diameter was finally passed through the femoral vessels and into the inferior vena cava or into the right heart region. From this any quantity of blood could be removed by aspiration without any interference or obstruction, and it could be returned quite readily to a vein on the opposite side. This seemed to have many advantages: (1) there was no ill effect on the animal's pressure simulating haemorrhage; (2) the quantity of blood removed could be controlled accurately, which was not the case when an artery was used; (3) the venous blood, unoxygenated, was circulated through the system, and therefore more impurities were available for dialysis by this method; (4) the blood was not oxygenated, and, as well as dialysing it, it was easy to add oxygen during the circulation through the system of tubes.

Pump System

The next problem was one of providing a circulating pump system which would not damage or crush the blood corpuscles, would not produce haemolysis, would work smoothly, and would not become plugged and clotted with fibrin. At first the blood was drawn into a flask, circulated through the dialyser, and then returned to the venous system by gravity.

Next a piston syringe was used as a pump, with intake and outlet valves on glass seats, but it was early demonstrated that in spite of high heparinization the spinning of these valves and the passage of the blood through the small apertures tended to cause some collection of fibrin and to interfere with the functioning of the system. In place of this a rotary-pump effect was used, but it was only moderately satisfactory. Finally, a pump system was used whereby a rubber tambour was inflated and deflated by the action of the piston syringe attached to an electric motor. Rubber intake and outlet valves gave good results, so that a smooth circulation, without injury to blood and without clotting and deposit of fibrin or platelets, could be ensured for many hours at a stretch.

Experiments on Increasing Dialysis

Many efforts were made to increase the rate of dialysis through the membrane.

1. The best and most obvious means was by increasing the length of the tubing used. Lengths up to 35 ft. (10.67 metres) were employed quite satisfactorily, and it is possible that this length could be considerably increased with still more beneficial effect. Recently lengths of 150 ft. (45.72 metres) have been used.

2. It was thought that by attempting to reduce the atmospheric pressure surrounding the tubing an improvement in dialysis might be obtained, but the results were not very satisfactory.

3. By increasing the pressure within the dialysing tubing it was hoped that there might be some increase in the dialysis, but again this requires further study to be certain of the effect.

4. Some investigation was carried out to see if the work described by McBain and Kistler (1928, 1929, 1930, 1931) would apply under these conditions. These authors indicated that the use of 64% zinc chloride solution would stabilize the apertures in the membrane and increase the rate of dialysis. Extensive tests, covering several months, were done with this. It was our conclusion that, while there was some benefit in the rate of dialysis early in the exchange, in the final results there was not a very great difference. The difference did not seem to be great enough to justify the effort and trouble of treating the tubing, and for that reason the method was discarded and the untreated tubing was used. It was noted in our experiments

that the use of zinc chloride, with adequate washing afterwards, did not seem to produce any toxic effects in the animal.

The Dialysate

The next problem, related to the protection of the animal against the removal of substances which are necessary for life, involved a great deal of work and was the most difficult to solve.

If an animal's blood was dialysed through this instrument *with a surrounding bath of tap-water it was found that* within five to seven minutes the animal showed very striking clinical changes. The rate of breathing was accelerated until this became very violent. There was shock and collapse, and the animal died within a period of seven to fifteen minutes.

At this stage we were not certain whether important substances such as adrenaline, "pituitrin," insulin, heparin, and so on were being removed and whether the animals were going into shock on this account. As the chemical tests for some of these substances are exceedingly difficult and uncertain, we were not convinced by chemical analysis whether such was the case or not. However, we arrived at our final conclusions by the following methods:

During dialysis it was demonstrated that the animal had an increasing concentration of haemoglobin, and that it showed evidence of water loss. It was therefore decided to balance the dialysate surrounding the tubing with some of the normal substances in blood as indicated in Ringer's solution. It was found that by an addition serially of each one of these substances we could overcome one or other of the difficulties and could carry on a dialysis without producing these disastrous effects on the animal. When the chlorides, the calcium, the magnesium, the potassium, the sodium, the phosphate, the carbonate, and the sugar were balanced in turn these disastrous effects did not occur. In the preparation of our dialysate it was found that with the potassium left out the animal suffered ill effects and when potassium was added it was protected against these effects, and similarly with the other salts and sugar. Variations in the *p*H also caused alarming results. It was necessary to add bicarbonate to the solution so as to maintain the *p*H at a level of about 7.3. With the dialysate at this level there was no change in the blood *p*H during or following dialysis.

However, as both quantitative and qualitative tests for some of these chemicals are difficult and unreliable, we found it difficult or impossible to prove the specific effect of the lack of potassium, calcium, etc., although the experimental proof of this seemed to be adequate. Finally, a bath solution similar to that used by Seligman, Fine, and Frank (1946) was used. It contained sodium chloride, calcium chloride, magnesium chloride, potassium chloride, sodium hypophosphate, sodium bicarbonate, and dextrose in physiological amounts. This solution was well buffered, but a certain care in mixing and autoclaving was required to prevent precipitation of insoluble salts.

Transfusion of Blood

The next problem was the fact that in a smallish or medium-sized animal there was so much loss of blood into this machine before any was returned that the animal was left with saline in its circulating system and all its blood out in the apparatus. However, this was overcome by filling the machine with suitable blood for the animal. When this was done the circulation could be carried on indefinitely without ill effects.

Many of our earlier experiments were carried out *in vitro* by circulating blood and other solutions through the instrument and by placing substances in the circulating fluid which could be detected in the surrounding dialysate. Next, in a normal animal, with the circulation going, 5 g. of urea was injected and the rate or removal of this was determined. With the tendency of urea to form a closer relation in the blood of the dog, it was probably not as fair a test of dialysis as might occur in the human being, in whom the urea is separated more readily and is more easily dialysable. However, this did demonstrate the rate of removal of N.P.N. substances from a normal animal.

Uraemia in Animals

The next problem was to produce azotaemia in an animal so that the effectiveness of the apparatus could be assessed under these conditions. Bilateral nephrectomy was found to involve a number of uncontrollable factors, and the uraemia so produced was so severe and was associated with such a poor resistance in the animal that it did not lend itself to these experiments. A more gradual onset of uraemia was desirable, and was thought to be more comparable to the clinical condition in patients.

The chemical production of oliguria and anuria was investigated, but no completely selective uncomplicating poison which seemed suitable was encountered. Most of the work done on specific kidney damage involved the perfusion of the kidney by exposure and cannulization of renal vessels.

Ligation of ureters was performed on a series of animals, but sudden death, presumably from cardiac arrest, as has been described in the literature, was so frequent before dialysation could be carried out that many of the animals succumbed. Finally, an interesting method of producing uraemia was employed. The ureters were transplanted into the small bowel in the hope that there would be enough resorption of non-protein-nitrogen bodies to produce uraemia. This took place in a surprisingly short time, and high levels were reached in three or four days, associated with lethargy and diarrhoea. The animals, however, maintained their food and fluid intake, which was not the case with nephrectomized animals or in those with ligated ureters.

The study showed that blood may be circulated outside the body, and that with a reasonable length of dialysing tubing moderate amounts of N.P.N. can be removed in short periods from normal and uraemic animals, provided these animals are not moribund or in a state of severe circulatory depression. The N.P.N. level in the blood varies greatly in the above state and is a less reliable guide to the efficiency of the dialysation than is the N.P.N. measurable in the dialysate removed during the test run.

It seemed obvious from the experiments as well as from the effects on patients clinically that the level of N.P.N. substances measured in the blood gave only a poor indication of the effect of such dialysis. Obviously the N.P.N. substances in the blood stream are not produced there, but are the waste products delivered to this circulating medium from the tissues in which they are formed. This circulating medium, the blood, has the function of carrying these substances to points where they are detoxified and prepared for excretion, and finally are carried to the kidney, where they are excreted from the system. While the level of N.P.N. substances in the blood may be reduced somewhat, the essential point in treatment is to reduce these and other toxic substances in the vital centres and other fixed tissues. During many of the experiments and in the clinical runs more N.P.N. was removed than was contained in the total volume of blood in the animal and still the level in the blood stream was lowered only slightly. Thus it was obvious that there is a constant drainage of these substances from fixed tissues into the blood stream, one of whose functions is to transport the substances for disposal.

It seemed of interest to investigate this aspect of the problem. For that purpose animals were nephrectomized and the N.P.N. of the blood and spinal fluid was followed as the animal developed uraemia. When the N.P.N. had reached a high level in these two fluids the animal was sacrificed and blocks of tissue were immediately frozen, ground up, and N.P.N. estimations done on these by Dr. Gornall. Chart 2 indicates the state of affairs here. When

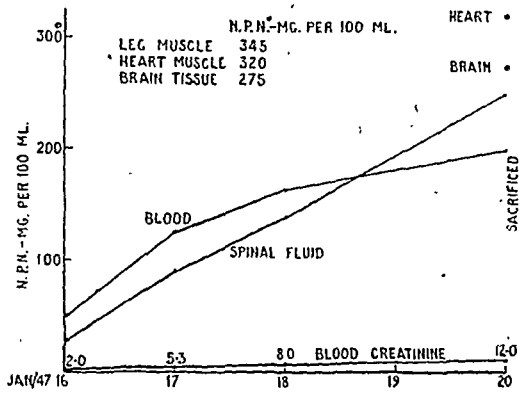


CHART 2.—N.P.N. levels in a male dog weighing 12 kg. after left nephrectomy and ligation of right ureter.

the blood N.P.N. reaches a certain level the spinal fluid level is above this, and the level of the N.P.N. substances in the tissue examined was above that level again. This would tend to bear out the point already made that the blood is only a medium for the collection of these substances and washing away of them for disposal.

When, therefore, in a clinical patient it was reported that 12.97 g. of N.P.N. substances was removed and readings of the blood showed only a slight depression of the N.P.N. level it was obvious that the N.P.N. substance removed was bringing down the level of these toxic substances in the vital fixed tissues of the patient, and the proof of this was the clinical improvement, with diminishing signs of toxaemia, even though the blood N.P.N. was still at a fairly high level.

From the events observed in animals and clinically, we think it can be assumed with fair certainty that, while N.P.N. substances can be removed, there are other substances that are also removed by this dialysing system. These substances are probably responsible in large part for the severe toxaemia and ultimately for death. Proof of this is the fact that in a normal animal from four to ten times the amount of urea necessary to place the N.P.N. at a high level can be given without much injurious effect. Probably, therefore, another substance is responsible for the toxaemia. This substance has not yet been separated and has not been described or analysed, but this system offers an excellent method of approach to the study of such substances, as suggested by Abel, Rowntree, and Turner (1913, 1914).

This work represents some early excursions into a field which offers great prospects for expansion. The method might be used therapeutically to remove toxic substances as well as to administer substances which may be beneficial for the individual.

Several tests have been made on patients to assess the functioning of the apparatus. The cases reported illustrate the ability of this apparatus to perform what was intended

Case 1

The patient, a woman aged 26, had anuria for a period of nine days after an attempt at induced abortion. During these nine days she was passing about 35 ml. of urine daily, and when first seen was in a state of uraemia. She was comatose, was having mild uraemic convulsions, was severely oedematous, and was not passing urine. She was seen by the physicians, the gynaecologists and the genito-urologists, all of whom agreed that her case was utterly hopeless; in fact, they had given up treatment except for some diathermy which was being applied through the loins.

On the ninth day the patient was attached to this artificial kidney by passing a catheter through the saphenous vein into the inferior vena cava on the right side, and another into the femoral vein on the left. With the machine running for one hour she was moderately improved. The results of the run are shown in Chart 3.

Towards the end of the hour the patient showed some discomfort. She developed a fairly severe chill. Because of this and not knowing just what the effects were, and because of difficulty in following the chemistry accurately, the dialysis was discontinued at the end of an hour. It was shown fairly conclusively on subsequent runs without any similar ill effects that the probable trouble was inadequate washing of the tubing. On all occasions we used new tubing throughout, including rubber tubing, the tambour in the pump, and the dialysing membrane. On the subsequent occasions this was thoroughly washed through with distilled water for an adequate period of time and then washed for a short time with blood solution to remove any remaining substances either in the dialysing membrane or in the tubing. On subsequent runs lasting up to eight hours there were no ill effects whatever in the form of thermal reactions, changes in respiration, pulse rate, blood pressure, or otherwise.

Following the treatment the patient was considerably improved clinically. The next day her condition was fair.

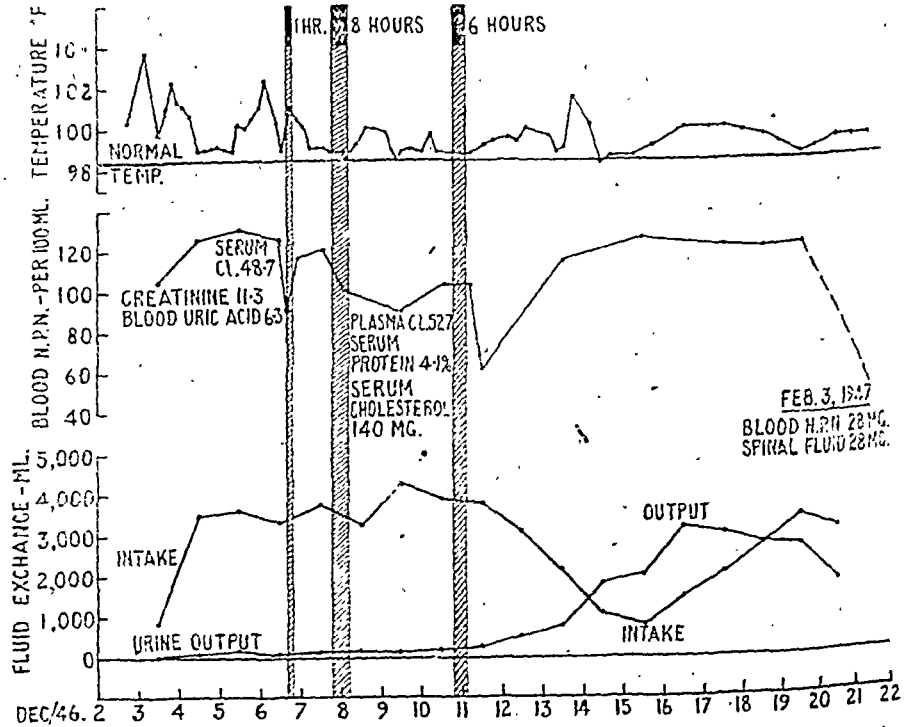


CHART 3.—Case 1. The shaded columns on the sixth, eighth, and eleventh days show the period of dialysis with the artificial kidney. The fall to normal of the blood N.P.N. on February 3 is indicated.

The day after that she was much worse again and another run of eight hours was given on the machine. The results of this are shown in Chart 3. Her condition was very greatly improved. There was still only 45 ml. of urine. Three days later the patient's condition was again serious and another run of six hours was given. The clinical improvement of the patient was very striking. She was comatose at the beginning of each one of these runs on the machine; at the end she was quite bright. The delirium and coma had disappeared. The patient would drink small quantities of fluid, would respond to questions and conversation, and stated that she felt much better. In spite of the pronounced oedema there was some appearance of intelligence in her face.

During the runs on the machine samples of blood, ascitic fluid from the peritoneal cavity, and spinal fluid were removed, and N.P.N. and other tests done on these.

After the last dialysis there was a moderate secretion of urine, and next day there was an enormous secretion of 4,000 ml. of urine. Subsequently the patient made a progressive and uninterrupted recovery and returned to normal health. During the next two weeks samples of both blood and spinal fluid showed a progressive fall of N.P.N., until on the twenty-fifth day these had both reached normal. The oedema had entirely disappeared. The patient was up and about, and was in normal health. At this stage the gynaecologists reported that the foetus was not present in the uterus. While there was no record of its escape, I think one cannot assume that the dialysing apparatus removed it by this means. The patient was in hospital 33 days.

The only remaining abnormality was a lack of concentration on the two-hour test. The urinalysis otherwise was quite normal and the two-hour test showed a concentration only up to 1012. However, as shown on the final point on Chart 4,

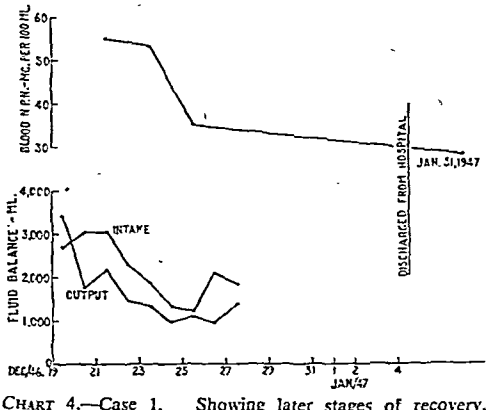


CHART 4.—Case 1. Showing later stages of recovery. N.P.N. and water balance returned to normal.

on the sixty-first day the blood N.P.N. was 28 mg. per 100 ml. The spinal fluid N.P.N. was also 28 mg. per 100 ml., and the two-hour test showed considerable improvement. Here the concentration went up to 1018, and the day and night quantities were fairly normal. The patient has gone back to her regular work and is in normal health. She has since married and given birth to a normal child. Kidney function was watched closely throughout pregnancy, and at no time was there evidence of toxaemia or impaired function.

Case 2

A married woman aged 40 was seen by the courtesy of Dr. J. Crosbie. After caesarean section, when a blood transfusion was given, there was oliguria, and the urine contained haemoglobin and haematin. She passed only 3 to 5 ml. of urine daily for eight days, at which time the blood N.P.N. was 179 mg. per 100 ml. and the patient was showing signs of uraemia.

She was then treated for 26 hours with the artificial kidney. Fifty-four feet (16.5 metres) of tubing was used and 70 g. of N.P.N. was removed from the blood. The following day the urinary secretion increased to 210 ml., rising to 6,730 ml. on the fifth day. The patient gradually improved, and has made an excellent recovery. Renal function has returned to normal and she is in normal health.

There has been survival in about 50% of the patients treated. Those who succumbed were found on the whole to have had chronic kidney disease, and even though the purification of the blood was accomplished satisfactorily they relapsed into a uraemic state.

We wish to thank Professor Van Wyke and Professor J. McClelland for providing some of the patients. We acknowledge with thanks the privilege of laboratory space and the use of some chemicals provided by Professor Andrew Hunter. The assistance of Dr. Allan G. Gornall in doing N.P.N. assays of tissues is acknowledged with thanks. Otherwise the work was carried on independently of the University or other assistance.

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MALARIA

WITH SPECIAL REFERENCE TO CERTAIN EXPERIMENTAL, CLINICAL, AND CHEMOTHERAPEUTIC INVESTIGATIONS*

BY

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LECTURE II: CHEMOTHERAPY

The factors which may modify the results obtained by treatment with antimalarial drugs include not only the species of the malaria parasite but the variety or strain of the particular plasmodium implicated. The presence or absence of immunity or partial immunity in the patient is very important, and racial considerations may be relevant. Those of negroid stock are sometimes relatively refractory to infection, while Caucasians show maximum susceptibility.

Regarding strains of parasite, James (1931) reported that the Rome strain required eight times as much quinine as the Indian strain of *P. falciparum* to elicit a satisfactory therapeutic response; both strains were equally susceptible to "atebrin" (mepacrine). The Madagascar strain of *P. vivax* was twice as susceptible to "neosalvarsan" (neoarsphenamine) as the local Dutch strain.

Variations in the sensitivity of different strains of the same species of parasite to a given antimalarial drug illustrate the inadvisability of assuming that because a drug in a certain dosage is effective in one geographical area it will necessarily be equally so in another. This point will be specifically illustrated later with reference to mepacrine and proguanil in New Guinea strains of *P. falciparum*.

*Second of the Croonian Lectures delivered at the Royal College of Physicians of London on May 3 and 5, 1949.

The antimalarial drug or combination of drugs used may vary according to the stage, or stages, of the life cycle of the parasite on which the chemotherapeutic attack is made —i.e., the pre-erythrocytic cycle, the asexual blood parasites, the late exo-erythrocytic forms, or the gametocytes.

Prevention and Suppression of Malaria by Chemotherapy

Precise knowledge regarding the suppressive and prophylactic value of antimalarial drugs in non-immunes was very unsatisfactory at the outbreak of hostilities in 1939. The entry of Japan into the war in November, 1941, found the Allies unprepared for warfare in tropical climates and especially for using their non-immune troops in hyperendemic areas of malaria. Malaria casualties in the South-West Pacific and South-East Asia in 1942 were very grave. Some 90% of the forces operating in the Solomons and New Guinea developed severe malaria within four months, and in all these campaigns the type of malaria breakdown was constant. Malignant tertian malaria was responsible for approximately 80–90% of overt attacks during actual jungle fighting, the remaining 10–20% being caused by benign tertian malaria. Later, after a full course of quinine–mepacrine–pamaquin therapy, troops relapsed predominantly with benign tertian malaria, recrudescences of falciparum malaria being uncommon provided reinfection had not taken place.

The malaria problem was one of great gravity, and Allied military and medical authorities decided that every possible channel should be explored to increase the effectiveness of the control of malaria in the forward areas, and that special efforts should be made to discover more potent antimalarial drugs for its control and prevention in jungle warfare. In this connexion a large medical research unit was established at Cairns, in Northern Australia, for the specific purpose of investigating the effectiveness of various antimalarial drugs in experimentally infected Australian Army volunteers living in the Tropics and tested under conditions simulating jungle warfare. During these researches some 850 healthy volunteers were experimentally infected with sporozoite-induced malaria, using strains of *P. falciparum* and *P. vivax* from New Guinea and New Britain. Despite intense hyperinfection none of these volunteers died from malaria, and though subinoculation was practised on a scale never previously attempted no ill effects were noted. The subinoculation technique adopted by Fairley (1945) and Fairley *et al.* (1946a, 1947) afforded data which enabled antimalarial drugs to be classified into one of two groups:

1. *Schizonticidal suppressants*—i.e., those which exerted suppressive and possibly curative effects by schizonticidal action after asexual parasites had appeared in the blood. The drugs which were found to produce suppression of malaria by schizonticidal action on the asexual erythrocytic parasites included quinine, sulphadiazine and allied drugs, mepacrine, "sontochin," and "chloroquine." While taking an effective suppressant dose of these drugs each day, subinoculation of 200 ml. of blood collected on the seventh day after exposure of the donor to infection with *P. falciparum* and on the ninth day with *P. vivax* invariably led to malaria in the recipient, showing that suppression was achieved by schizonticidal action and not by its effects on pre-erythrocytic forms of the parasite.

2. *Causal prophylactics*—i.e., those which acted on sporozoites or pre-erythrocytic forms, either destroying them before they gave rise to asexual erythrocytic parasites (complete causal prophylaxis) or temporarily inhibiting or modifying their schizogonous cycle so that the appearance of asexual erythrocytic parasites in the circulating blood was delayed and the incubation period prolonged (partial causal prophylaxis). Subinoculations made on the seventh day in *P. falciparum* infections and on the ninth day in *P. vivax* infections were invariably negative. Only the biguanides or the 8-amino-quinolines fall into this category. As all the more important antimalarial drugs were tested at Cairns for suppressive and prophylactic purposes under experimental conditions not available elsewhere, my remarks on the control of malaria by chemotherapy will largely be based on these researches.

1. Schizonticidal Suppressants

Quinine

Quinine sulphate in a dosage of 10 gr. (0.65 g.) daily proved ineffective as a suppressant against malaria resulting from mosquito-transmitted New Guinea strains of *P. vivax* and *P. falciparum*. When the daily dose was increased to 20–30 gr. (1.3–2 g.) suppression was complete; radical cure resulted in falciparum malaria provided this dosage was continued for 23 days after exposure, though not in vivax malaria. With this high dosage parasites were not demonstrated in thick smears, but subinoculations were positive on the seventh day in malignant tertian infections, showing that radical cure was obtained by schizonticidal action, not by a causal prophylactic effect.

As 10 gr. of quinine approximated to the maximum daily dose that could generally be tolerated for any prolonged period, it was evident that quinine was unsuitable for suppressive purposes in the South-West Pacific. With certain Indian and African strains of *P. falciparum* and *P. vivax* a daily dose of even 5 gr. (0.32 g.) of quinine effectively suppresses malaria, but after medication ceases overt malignant tertian and benign tertian malaria develop.

The great drawback to quinine as a suppressive drug is that it so often fails to produce radical cure of malignant tertian malaria in the usual suppressive dosage and leads to a condition of chronic latent or chronic recrudescing malignant tertian malaria, in the presence of which true blackwater fever is apt to develop. For this reason, if for no other, quinine is unsuitable for suppressive purposes in Europeans. Blackwater fever practically disappeared from New Guinea and elsewhere in the South-West Pacific with the radical cure of malignant tertian malaria in the early stages of the infection. This was occasioned by the introduction of mepacrine for suppressive purposes and for the treatment of the clinical attack. A similar result was recorded by Findlay and Stevenson (1944) in West Africa.

Sulphonamides

Coatney and Cooper (1948) record that prophylactic action against gallinaceum malaria in birds has been demonstrated for over 30 sulphonamide derivatives since they established early in 1942 that sulphadiazine would prevent this infection (Coatney and Cooper, 1944). Several years earlier "proseptasine" in large dosage had been reported to have true prophylactic action against *P. falciparum* by Sinton, Hutton, and Shute (1939), and late in 1942 high hopes existed in the U.S.A. that sulphamerazine would prove a true causal prophylactic for human species of malaria parasites. In 1943 supplies of sulphamerazine were sent from the U.S.A., and that drug, along with sulphadiazine and sulphamezathine, was fully investigated by Fairley (1945) for prophylactic action in human malaria, unfortunately with disappointing results.

In vivax malaria all these drugs proved ineffective suppressants of both trophozoite and sporozoite experimentally induced infections, even in a dosage of 1 g. daily. In falciparum malaria they proved good suppressants and generally brought about radical cure. Though parasites were rarely demonstrable in thick blood smears, subinoculations on the seventh day after exposure to infection were

positive—a result which showed they were not true causal prophylactics in man. Owing to their failure to suppress vivax infections and because of toxic effects such as agranulocytosis, it was decided that these sulphonamides should not be used in the South-West Pacific for malaria suppression.

Using sulphadiazine and sulphapyrazine, Coatney *et al.* (1947a, 1947b) reported similar experimental findings in volunteers infected with the McLendon strain of *P. falciparum* and the St. Elizabeth strain of *P. vivax*.

Mepacrine ("Atebrin")

Though the dosage of mepacrine advised in the South-West Pacific had been one tablet daily (0.1 g.), malaria casualties in the Huon Peninsula campaign in 1943 were devastating. The ratio of medical : battle casualties was 15 : 1; malaria constituted over 60% of the medical casualties. There was definite evidence that mepacrine discipline was poor and that the drug was not being regularly taken.

Later in the same year excellent results were obtained in volunteers at Cairns receiving one tablet (0.1 g.) of mepacrine on six or seven days of the week for four weeks before exposure to infection, during the period of exposure, and for 23 days after the last infective bite (New Guinea strains). Controls not taking the drug, who were bitten by the same number of infective mosquitoes from the same batch, invariably developed malaria.

1. *Benign Tertian Malaria.*—Though volunteers infected with *P. vivax* did not develop attacks of overt malaria when receiving mepacrine in the above dosage, overt malaria developed two to seven weeks after stopping the drug.

2. *Malignant Tertian Malaria.*—Volunteers repeatedly exposed to 10 to 20 infective bites (*P. falciparum*) failed to develop overt malaria when following an identical suppressive mepacrine regimen. Mild clinical features associated with slight transient rises in temperature, fleeting aches and pains, and perhaps some tenderness or temporary enlargement of the liver and spleen were sometimes noted, but symptoms were never severe enough to necessitate rest in bed, and the volunteers invariably carried on their routine activities. Despite these minor symptoms parasites were rarely, if ever, demonstrable in thick blood films during exposure to infection while taking mepacrine, though subinoculations might be positive. After cessation of the drug overt malaria failed to develop, subinoculations were negative, and on superinfection volunteers showed normal susceptibility—i.e., they developed overt malaria when they were reinoculated with blood containing the same strain of *P. falciparum*. These findings constituted a chain of evidence indicating that malaria infection had been either prevented or cured. Early subinoculation from the seventh to the 11th day after infection or reinfection, however, had revealed parasites in the blood even though they could not be demonstrated microscopically. It was therefore evident that in malignant tertian malaria mepacrine was not acting as a causal prophylactic, but was producing radical cure by schizonticidal action, destroying the young asexual parasites after they had gained access to the circulation.

3. *Mixed Infections with P. falciparum and P. vivax.*—In jungle warfare troops were generally infected with both *P. falciparum* and *P. vivax*. To reproduce field conditions experimentally it was necessary to infect volunteers repeatedly over a period of several months by exposure to vivax- and falciparum-infected mosquitoes. In addition it was essential to subject these volunteers to conditions generally believed to favour malaria relapses, such as physical fatigue, cold, anoxia, blood loss, etc.; all this was done, but in no instance did overt malaria develop while they were taking mepacrine. On an average of 30 days after cessation of mepacrine, volunteers developed overt benign tertian malaria; falciparum parasites, however, were not found.

These experiments were of considerable significance from a military point of view. They indicated that where similar strains of *P. falciparum* abounded troops could fight in hyperendemic areas of malaria without significant malaria casualties provided they were taking mepacrine in adequate daily dosage: in addition they implied that there should be no deaths, no malaria carriers, and no blackwater fever if the daily dose was continued for three to four weeks after leaving the endemic area. After stopping mepacrine, however, troops infected with suppressed vivax malaria would develop overt attacks.

Following receipt of the results of these experiments, military disciplinary measures in regard to mepacrine administration were widely enforced. Malaria casualties rapidly diminished and the experimental findings were confirmed in jungle warfare throughout the South-West Pacific except in 1945 in the limited Itape-Wewak area, on the northern coastline of New Guinea, where moderately severe malaria casualties occurred. Fairley *et al.* (1946b) found that in addition to the universal mepacrine-sensitive strain a relatively insensitive strain of *P. falciparum* was present in troops there which required 0.2 g. daily for its certain suppression and larger doses than usual for therapeutic purposes.

In volunteers infected with the ordinary New Guinea strains the mean plasma mepacrine level of over 20 μg. per litre was found adequate to suppress either vivax or falciparum infections. With the atypical Itape-Wewak strain which was relatively insensitive to mepacrine breakthroughs occurred in volunteers when the plasma mepacrine level was well above 30 μg. per litre. This strain showed no decreased susceptibility to chloroquine or proguanil, and if either of these drugs had been available it could have been substituted in the usual dosage for mepacrine with certainty of success. Bang *et al.* (1946a), as a result of studies on the efficiency of mepacrine suppression in the South-West Pacific, concluded that it was mainly a problem of drug administration and that clinical malaria developed in the presence of inadequate amounts of mepacrine. The concentration of mepacrine present in break-throughs was the same in chronic relapses and primary attacks of malaria. They considered there was no need for a dosage greater than 0.1 g. per day. They also found that in at least 98% of the American troops in strenuous combat who received 1 g. of mepacrine per week (generally in bi-weekly doses of 0.5 g. each) malaria was fully suppressed (Bang *et al.*, 1946b).

The 4-amino-quinolines

Sontochin and chloroquine ("resochin") belong to the 4-amino-quinoline group of compounds which were synthesized by German chemists in 1934 and patented in 1939. They had not then been subjected to extensive biological testing and their clinical study was being attempted by the French at the time of the invasion of North Africa, when sontochin fell into Allied hands. These drugs and others of the group were resynthesized in U.S.A. and tested biologically on a large scale in both bird malaria and man in 1943–4, when they were sent to the Cairns unit to be investigated as suppressants and causal prophylactics. Detailed results, which were summarized by Fairley (1946), were communicated to the National Medical Research Council, U.S.A., in 1944.

The suppressive dosage used was 50–100 mg. daily for chloroquine and 100–200 mg. for sontochin. The results obtained with *P. vivax* and *P. falciparum*, as well as with mixed infections in the field type of experiment, were identical with those obtained with mepacrine. Both drugs

suppressed vivax malaria and suppressed and radically cured falciparum infections. Subinoculations on the eighth day in falciparum infections and on the ninth and tenth day in vivax infection proved positive, showing that infection had occurred and that no inhibitory or lethal action was being exerted on the pre-erythrocytic forms. Subinoculations on the twenty-first day after exposure were negative in falciparum infections, indicating radical cure; none of these volunteers subsequently developed overt malaria. Significant toxic reactions or skin discoloration were not noted with either drug.

Field trials are still in progress, using chloroquine diphosphate in a dosage of 0.5 g. (0.3 g. base) once weekly. Coatney (1949) states that, in Panama, Clarke found that this regimen resulted in almost complete protection against the three common species of human malaria parasite, and Field (1949) has reported very favourable results from Malaya.

2. Causal Prophylaxis by Drug Action on Pre-erythrocytic Forms

Two groups of compounds possess such an action—the 8-amino-quinolines and the biguanides. As it is necessary to use pamaquin or pentaquine in toxic dosage to get a causal prophylactic effect they need not be further considered.

The brilliant researches of Curd, Davey, and Rose (1945) culminated in the synthesis of the biguanides and the discovery of their causal prophylactic and therapeutic action in bird malaria. It was arranged through Dr. C. M. Scott and the Medical Research Council for investigations on their suppressive and causal prophylactic action to be undertaken at Cairns by Fairley and his colleagues (1946a). Over 200 volunteers were used in these experiments on paludrine (proguanil) alone.

Proguanil

When volunteers were exposed to infective biting by falciparum-infected mosquitoes while taking proguanil in a daily dosage of 100 mg. no minor symptoms of malaria appeared, parasites were never demonstrable in the blood by microscopical examination, and subinoculation from the seventh day onwards was invariably negative. This result indicated that the primary wave of erythrocytic merozoites arising from rupture of the pre-erythrocytic schizonts was either delayed or failed to appear. Proguanil administration ceased some 21 days after exposure, and the subsequent failure to develop overt attacks of malaria or demonstrable parasites in the blood indicated that destruction of the pre-erythrocytic parasites had been achieved. In other words the drug was acting as a true causal prophylactic.

Similar results regarding suppression and negative subinoculations were obtained in volunteers experimentally infected with *P. vivax* while taking 100 mg. of proguanil daily, except that after ceasing to take the drug they ultimately developed overt vivax malaria. Proguanil was here acting only as a partial causal prophylactic, inhibiting pre-erythrocytic schizogony but not destroying the tissue phase of the parasite.

Similarly, in field experiments where volunteers were bitten by as many as 250 mosquitoes containing either falciparum or vivax sporozoites in their salivary glands, suppression was complete during the daily administration of proguanil (100 mg.). Some 24 to 33 days after the last dose of proguanil overt vivax malaria developed.

Single-dose Regimen in Prophylaxis

Subsequent experiments showed that proguanil in a single dose of 50–100 mg., given at any time between the 39th and 131st hours after a single exposure to falciparum-infected mosquitoes, acted as a complete causal prophylactic and entirely eradicated infection in the pre-erythrocytic stage. A single dose of 300 mg. given three hours before or three hours after exposure to infection failed to protect; so it did at 168 hours, though at 144 hours it gave protection. These findings indicated that the pre-erythrocytic forms were much more susceptible to the action of proguanil than either the sporozoites or the first generation of erythrocytic merozoites which would be escaping into the circulation about this time—i.e., on the seventh day.

In native labour groups comprising partial-immunes it is convenient to administer a prophylactic drug at weekly intervals. In doing so with proguanil, however, it is important to appreciate that 300 mg. once weekly may not prevent merozoites of even the most proguanil-sensitive strains of *P. falciparum* gaining access to the blood stream if the individual has been infected six to seven days previously. Furthermore the individual would still be vulnerable to reinfection with *P. falciparum* on the eighth day if bitten by infective mosquitoes some hours before or a few hours after the weekly dose of proguanil had been taken. Subsequent suppression and radical cure would then depend on the schizonticidal action of the drug, and if the strain of *P. falciparum* happened to be relatively insensitive to proguanil in this respect occasional break-throughs with overt attacks would not be surprising. In such circumstances, once overt falciparum malaria develops it is essential to establish radical cure before the patient reverts to prophylactic proguanil.

Covell *et al.* (1949b) investigated the causal prophylactic action of proguanil in patients infected with a West African strain of *P. falciparum* which was relatively insensitive to the schizonticidal action of that drug. They found, even with this strain, that complete protection was afforded and malaria prevented by proguanil when given in doses of (1) 50 or 100 mg. daily, (2) 100 mg. twice a week at intervals of three or four days, or (3) 300 mg. once weekly.

With Europeans or non-immunes generally, experience has shown the best regimen to adopt is one tablet (0.1 g.) of proguanil taken regularly every day at the same time so that it becomes a habit. Provided the individual is completely free from malaria when suppressive proguanil is begun, this regimen should lead to the prevention of falciparum malaria and to the suppression of benign tertian and quartan malaria, though not to their radical cure.

Proguanil-resistant Strains

Following the administration of subcurative dosage of proguanil during a series of overt attacks, proguanil-resistant strains have been recorded as developing in *P. gallinaceum* in chicks by Bishop and Birkett (1947) and Williamson, Bertram, and Lourie (1947), and in *P. cynomolgi* in monkeys by Hawking and Perry (1948) and Schmidt *et al.* (1949). Such proguanil-resistance may appear within two and a half months, when the full impact of treatment must fall on the early erythrocytic parasites. Proguanil-resistance, once developed, is retained on successive transmission through both sporozoite-infected birds and monkeys. Rollo, Williamson, and Lourie (1948) failed to produce resistance when the treatment was administered in latent infections—i.e., after the phase of acute parasitaemia—even when treatment twice daily was continued for one

year; in these circumstances treatment fell mainly, if not exclusively, on the exo-erythrocytic forms.

Seaton and Lourie (1949) produced resistance to proguanil in a strain of *P. vivax* by giving small doses of the drug to consecutive patients in whom the strain was being maintained by blood inoculation. The resistance was unaffected by passage through mosquitoes. Resistance was produced under highly artificial conditions over a period of 20 months, but only during the last few weeks had the resistance risen to doses within the range of those ordinarily in use for either suppression or treatment of malaria. They concluded that the danger of producing a serious degree of resistance in a strain of *P. vivax* by the ordinary use of proguanil in clinical practice was slight, if not negligible, both in the treatment of the clinical attacks and in prolonged use of the drug for prophylactic purposes.

In Australia, where many thousands of patients with relapsing vivax malaria were treated with proguanil or other drugs during the acute attack and subsequently received proguanil (0.1 g.) bi-weekly for six months or longer, increased resistance to the drug was not found.

Though proguanil-resistant strains have been produced in man and monkeys experimentally, the conditions underlying their production have been highly artificial. Time alone will reveal if they have practical significance in clinical practice. Fortunately, when a strain of parasite becomes drug-resistant it does so for one particular antimalarial drug or group of drugs and not for others. This appears to be the case whether the resistant strain has been produced experimentally or naturally, as in the Itape-Wewak strain of *P. falciparum* which was relatively insensitive to mepacrine. It follows that when a drug is being used for suppressive or prophylactic purposes the development of specific drug resistance by a given strain of parasite can be circumvented by the substitution of another antimalarial drug of a different group.

Schizonticidal Drugs (Asexual Erythrocytic Parasites)

The clinical cure of overt malaria generally presents little difficulty, while the clinical and radical cure of falciparum malaria in particular is most satisfactory unless there is profound hyperinfection or the strain of parasite is unduly insensitive to the schizonticide employed.

Routine treatment for the overt attack of malaria in the Australian Army consisted of 30 gr. (2 g.) of quinine for three days, mepacrine for the next five days, and pamaquine (base) 10 mg. thrice daily for three to five days. At first mepacrine was given in a dosage of 0.3 g. daily from the fourth to the eighth day; later it was increased to 0.6 g. daily on the fourth and fifth days, and 0.3 g. daily on the sixth, seventh, and eighth days. Then a maintenance dose of mepacrine (0.1 g.) was given daily for six weeks. In all clinically severe cases of overt malaria and in hyperinfections intravenous quinine (10 gr.) was given without delay and repeated where necessary.

This combined therapy was most effective. Radical cure of falciparum malaria generally resulted, carriers were eliminated, and the malaria mortality rate was extraordinarily low, not exceeding 1 per 1,000 in treated cases, including complications.

Quinine.—It has been appreciated for many years that clinical and radical cure of overt malaria by quinine could be achieved with most strains of *P. falciparum* if 10 gr. was administered thrice daily for three weeks. Furthermore, the use of quinine is entirely free from the danger of precipitating true blackwater fever in primary falciparum malaria, as this complication arises only in the presence of chronic latent or recrudescing falciparum infections.

Mepacrine.—The schizonticidal properties of mepacrine were well known before the war, but the work of Shannon *et al.* (1944) in establishing the pharmacological basis for its more rational use was outstanding. Their investigations showed that mepacrine is extensively localized in the tissues and that its effectiveness as a schizonticide is a function of its concentration in the plasma. A large loading dose was recommended during the first day (1 g. in divided doses) to obtain rapid saturation of the tissues and a high plasma level; this resulted in a more rapid clinical response, especially in falciparum malaria.

Reference has already been made to the schizonticidal action possessed by the 4-amino-quinolines when given in suppressive dosage, and this is also manifest in their effectiveness in rapidly controlling clinical attacks.

Chloroquine.—This drug is probably the most potent schizonticide yet discovered. Berliner *et al.* (1947) state that it is superior to mepacrine owing to its lower toxicity, its small dosage, and the small drug concentration required to produce a given effect. Coatney (1949) reports that in falciparum malaria three or four days' treatment with chloroquine gives better results than a week's treatment with mepacrine, and that it is the drug of choice in the treatment of the acute attack. The course advocated consists of 2.5 g. of chloroquine diphosphate administered over three days. Since chloroquine, like mepacrine, is extensively stored in the tissues, a large initial dose (1.5 g.) is advised on the first day of therapy in order to get an adequate plasma concentration. If chloroquine can produce radical cure of the different strains of falciparum malaria with regularity in non-immunes after three days' treatment unassociated with toxic symptoms it is superior to other schizonticides. It produces clinical cure of benign tertian and quartan malaria, but there is no evidence that it is more effective than other schizonticides in producing radical cure.

Proguanil.—Maegraith and his colleagues (1945) treated 22 patients naturally infected with West African strains of *P. falciparum* with proguanil, the dosage varying from 50 to 600 mg. twice daily. The clinical and parasitological response was satisfactory in all instances, but it was not feasible to determine the radical cure rate. Fairley *et al.* (1946a) reported radical cure in 45 out of 46 experimentally induced sporozoite infections and in 41 out of 41 natural infections with New Guinea strains of *P. falciparum*.

Therapeutic trials have been generally satisfactory in Malaya and India, but results in Africa have been widely divergent, some being satisfactory, others the reverse. With the object of clarifying this problem, Covell and his colleagues (1949a) recently investigated the action of proguanil in infections with a West African (Lagos) strain of *P. falciparum* in the treatment of overt attacks. Nine out of 10 patients with overt primary malaria treated with 0.3 g. of proguanil twice daily for 10 days had recrudescences after three weeks. Despite a second similar course, three patients had recrudescences later. When patients infected with this strain received 0.6 g. of proguanil daily for 10 days, reinforced on the first day of treatment by either quinine (2 g.) or mepacrine (0.9 g.), radical cure resulted in all instances. Until more is known about the therapeutic response to infection with falciparum strains in other parts of Africa, and indeed in falciparum infections generally, it would seem advisable to reinforce the schizonticidal action of proguanil with mepacrine. As an alternative to 0.9 g. of mepacrine on the first day only, a dosage of 0.2 g. thrice daily on the first day and 0.1 g. thrice daily on the second and third days should be well tolerated and prove satisfactory for this purpose.

In volunteers infected with New Guinea strains of *P. falciparum* treatment was instituted at variable periods after exposure to infections, from the time sporozoites first entered the blood on the seventh day before fever had started to some weeks after its onset. No significant difference was noted between early- and late-treated cases, so the development of partial immunity could not be the factor responsible for the high radical cure rate obtained.

The most likely explanation of the different therapeutic results is that these two different geographical strains vary

markedly in their sensitivity to the schizonticidal action of proguanil, the New Guinea strain being very sensitive and the Lagos strain relatively insensitive.

Single-dose Regime for Treatment of Overt Malaria

One of the remarkable features of proguanil is that a small single dose of the drug will frequently control the clinical attack. This was first noted at Cairns in several non-immune volunteers who were suffering from overt falciparum malaria with high parasite densities; a single tablet (100 mg.) resulted in clinical cure and temporary disappearance of parasites in thick blood films. Parasites, however, shortly reappeared and clinical recrudescences occurred. A similar effect was also observed in vivax infections.

The advantages of such single-dose therapy among native populations with partial immunity are obvious. Field trials have been made in Malaya, India, and elsewhere—generally with favourable results. The dose usually adopted for this purpose has been 0.3 g. In India, Afridi *et al.* (1947) considered that 0.3 g. was the optimum single dose of proguanil, and found it sufficient for the clinical cure of overt falciparum and vivax malaria in a high proportion of cases. Field (1949) compared the effects of 0.6 g. of mepacrine given on one day in divided doses and one single dose of 0.3 g. of proguanil in the treatment of overt malaria in Malaya. The larger dose of mepacrine was used because it was found that 0.3 g. was not effective in falciparum malaria. The disappearance of parasitaemia was quicker in overt falciparum malaria with proguanil than with mepacrine and slower in benign tertian and quartan overt malaria. The disappearance of fever was slower with proguanil than with mepacrine in all forms of malaria, but the sense of well-being in the proguanil-treated cases was stressed.

In prophylaxis the high suppressive action of proguanil was confirmed in falciparum and vivax malaria, and little difference was noted between a dosage of 0.1, 0.2, or 0.3 g. given once a week.

Drugs Acting on Exo-erythrocytic Forms (8-amino-quinolines)

Clinical cure of vivax malaria with any of the well-known schizonticidal drugs like quinine, mepacrine, or chloroquine is highly satisfactory, but radical cure is not. There is no evidence that any of these drugs destroy the late exo-erythrocytic forms which are responsible for relapses. Proguanil, even in small dosage, is an effective though somewhat slower schizonticide for vivax malaria. It slows up or temporarily inhibits schizogony in the pre-erythrocytic phase if administered over the first week after infection, but there is no evidence that it affects later tissue forms so as to produce radical cure. For such a result we have to turn to the 8-amino-quinolines, of which the best-known compounds are pamaquin, pentaquine, and iso-pentaquine.

Pamaquin.—The first demonstration of the radical cure of vivax malaria by one of these drugs was made by Sinton and Bird (1928) in India. They reported that while 70% of patients with chronic malaria treated with quinine relapsed, only 30% of those treated with pamaquin did so; when quinine was administered simultaneously with pamaquin, as in "plasmoquine co.," the relapse rate was reduced to 8.5%. These results were confirmed in India and elsewhere, but owing to the troublesome toxic effects this effective combined treatment for recurrent vivax infections unfortunately lapsed. It was revived in the later stages of the recent war, and radical cure rates approximating to 80% were generally obtained in natural vivax infections treated with 2 g. of quinine and 30 mg. of pamaquin (base) daily for 12 to 14 days. In Australia proguanil (0.3 g. daily) combined with pamaquin (30 mg. daily) was given for 12 to 14 days, with results which were comparable to those obtained in a similar series treated with quinine and pamaquin, except that relapses appeared somewhat later in the proguanil–pamaquin series. With proguanil (0.3 daily), toxic complications were no more common than with quinine. Monk (1948) concluded that this treatment was likely to prove at least as successful as quinine–pamaquin therapy.

Pentaquine and Iso-pentaquine.—After 1944 much of the American war effort in regard to antimalarials was expended in attempting to find an 8-amino-quinoline derivative which was curative for vivax malaria and less toxic than pamaquin. Alving *et al.* (1947) in a clinical trial of 18 analogues of pentaquine concluded that per kilogram of body weight pentaquine has greater curative activity and lower toxicity than pamaquin. Coatney (1949) reports two of these compounds—pentaquine and iso-pentaquine—to be superior to pamaquin. The dosage generally advocated consists of quinine sulphate 2 g. and pentaquine (base) 60 mg. daily for 10 to 14 days. Its radical curative action in overt vivax malaria has been shown by Loeb (1946), Monk (1948), and others. White *et al.* (1948) have also shown that this treatment is just as effective when given during the latent phase of *P. vivax* in the complete absence of erythrocytic parasites. The action of the drug in these circumstances can only be on late exo-erythrocytic forms.

Identical toxic reactions appear to arise with pamaquin, pentaquine, and other 8-amino-quinolines. They include gastro-intestinal disturbances, methaemoglobinanaemia, and haemolytic anaemia supervening on the third to fifth day of treatment. Rosenfeld, Zubrod, *et al.* (1948) and Blake (1948) found that methaemalbumin consistently appeared in the serum of individuals receiving quinine and pamaquin concurrently. These findings signify that the administration of quinine and pamaquin and probably other 8-amino-quinoline derivatives is always associated with some degree of intravascular haemolysis, which in certain instances produce frank haemolytic anaemia and in rare cases haemoglobinuria.

The toxic manifestations and the radical-cure rate in vivax malaria, associated with pentaquine–quinine and pamaquin–quinine combined treatments, seem so similar that it is difficult to assess their exact status at the present time. Treatment with any of the 8-amino-quinoline group of drugs should be under medical supervision.

Gametocidal Drugs

The treatment of the malaria carrier has often attracted less attention than it merited. In hyperendemic areas of malaria effective carriers are found essentially in infants and young children and not in the older members of the community who have become immune as a result of repeated infection. The individual possessing solid immunity and tolerance may harbour asexual but not sexual parasites in the blood. On the other hand, non-immune adults who develop primary malaria become effective carriers if the primary trophozoite wave is not rapidly cut short by therapy; this is a major factor in the development of epidemics in unsalted troops in malarious areas.

While quinine and mepacrine are reasonably effective primary gametocides in infections with *P. vivax* and *P. malariae*, they do not exert any deleterious action on the mature gametocytes of *P. falciparum*. Pamaquin, on the other hand, is a polyvalent gametocide and even in minute doses (10–20 mg. base) renders falciparum gametocytes non-infectious to mosquitoes within 24 hours, and causes their disappearance from the blood in three to four days.

Mackerras and Ercole (1947) found that when proguanil was given in a dosage of 0.1 to 0.3 g. daily to falciparum or vivax gametocyte carriers (New Guinea strains) no effect was observed on the number or microscopical appearance of the gametocytes in the blood. Only when given very early in the attack was gametocyte production affected by proguanil, and then only indirectly, because the primary trophozoite wave was checked before gametogony had started.

In the stomach of the mosquito ingested falciparum or vivax gametocytes may undergo exflagellation and fertilization and even produce small oöcysts, but development ceases at this point and the oöcysts die if proguanil is present even in small quantities in the blood feed. Complete sterilization of the gut infection in mosquitoes results some one to two hours after 0.15 g. of proguanil has been administered to a carrier. In mosquitoes fed on the second day vermicules may form, but in those fed on the third or fourth day of proguanil administration neither vermicules nor oöcysts are detected. The same effect was produced by letting mosquitoes first engorge partially on a normal person taking 0.1 g. of proguanil daily and then allowing them to complete their feed on a carrier with plentiful gametocytes in the blood.

Shute and Maryon (1948) confirmed these findings with the Rumanian strain of *P. falciparum* and suggested it was the female gametocytes on which the drug acted.

These experimental findings imply that it would be difficult for salivary-gland infections to become established in the local anophelines when they are feeding on the blood of people who are taking proguanil regularly. Thus the daily administration of proguanil to a military force in a hyperendemic area would not only be acting as a causal or partial causal prophylactic in individuals inoculated with sporozoites but by inhibiting the development of the sexual cycle in the mosquito it would be a potent factor in limiting transmission and preventing the development of epidemics.

Comment and Conclusions

In conclusion, I would remark that during the past decade we have learnt how to use and when not to use the older antimalarial drugs like quinine, pamaquin, and mepacrine. During this period several potent antimalarial drugs have been discovered or rediscovered and their therapeutic action worked out with considerable exactitude. Proguanil is unique among these owing to (1) its true causal prophylactic action in falciparum malaria, (2) the schizonticidal effect often exerted by a single small-dose in overt malaria, and (3) its polyvalent gametocidal properties. Chloroquine is probably the most potent schizonticide yet discovered; it is of great value both as a schizonticidal suppressant given once weekly and in the intensive treatment of the overt attack. For the radical cure of benign tertian malaria pentaquine and iso-pentaquine are now becoming available; just how superior they are to pamaquin when given in combination with quinine future work will decide.

Malaria casualties in non-immune troops operating in hyperendemic areas could be prevented or kept at an insignificantly low level by the routine administration under supervision of such drugs as mepacrine, proguanil, and chloroquine in correct dosage. During military operations it would be advisable to have stock-piles of two such antimalarial drugs for suppressive or prophylactic purposes, since the development of resistance to any particular antimalarial drug is specific and can be circumvented by the substitution of another drug of a different group.

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THE NATURAL HISTORY OF ASTHMA

A REVIEW OF 300 CASES

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It is known that asthma is a disease varied in its causation but unvarying in its mechanism, essentially involving contraction of the smooth muscle of the bronchioles. This contraction may occur in response to any of a wide range of stimuli—inflammatory, allergic, mechanical, reflex, psychological, endocrine. Such factors may be "aetiological" (inducing the first of the patient's attacks) or "aggravating" (being concerned in the precipitation of subsequent attacks). The former may act either centrally, by increasing the patient's sensitivity to asthmogenic agents, or peripherally, by producing a permanent state of irritability of the respiratory mucosa or musculature, whereby an attack of asthma occurs in response to appropriate stimulation. Aetiological and aggravating factors may be identical or they may be apparently unrelated. For example, in many instances asthma may be initiated by some endocrine crisis such as puberty or pregnancy, or by acute respiratory infection, but the same patient may nevertheless have subsequent attacks brought on by a

completely different aggravating factor such as dust, exertion, or psychological shock.

In brief, the genesis of asthma may be said to be a triple phenomenon, depending, first, upon the establishment of the "asthma diathesis," in which a family history of allergic diseases, previous allergic manifestations in the patient, and organic abnormalities in the bronchial tree or upper respiratory tract are also known to be significant. The other essential elements are the presence of aetiological factors and exposure to aggravating stimuli.

With a view to correlating the rates of incidence of the above factors and assessing their relative significance the case records of some 300 cases treated at the Liverpool Royal Infirmary Asthma Clinic between 1935 and 1940 have been surveyed.

Signs of the "Asthma Diathesis"

Family History.—Previous allergic disease in the family was found in 51% of 147 males, and in 50.6% of 158 females. In this series at least one member of the patient's family (parents, grandparents, brothers, sisters, uncles, aunts, or cousins) had suffered from asthma, hay-fever, urticaria, eczema, migraine, or epilepsy. Sometimes there were many such instances in the family, and it was found that 22.5% of the males, and 24% of the females had two or more members of the family so affected. Of 141 non-asthmatic patients in the same hospital, a group representing the same class of population, only 12.2% gave "positive" family histories. These findings are very similar to those of Coke (1927) but differ from those quoted by Witts (1934), who found a 60% incidence of "positive" family histories, and more significant than those of Pearson (1934) and Vaughan (1933), who quote much higher rates of incidence of allergy in families of normal subjects.

Age Incidence.—The present series comprised in all 294 patients—141 males and 153 females. They were classified into two main groups—"F.H. positives" with an allergic family history, and "F.H. negatives" with no such family history—and the incidence of asthma beginning at different age groups is shown in Table I.

TABLE I.—*Incidence of Asthma Related to Sex, Ages of Onset, and Family History*

Age Group	Sex		F.H. Positive	
	Male	Female	Male	Female
0–10 years	60	36	63·3%	75·0%
11–20 ,, ...	21	40	57·1%	45·0%
21–30 ,, ...	18	35	28·0%	34·3%
31–40 ,, ...	13	24	53·8%	54·2%
41–50 ,, ...	14	9	35·7%	44·4%
Over 50 ,, ...	15	9	26·7%	33·3%
Total	141	153	50·0%	50·0%

Possible Effect of Menstruation and Pregnancy in Production of Asthma.—Figs. 1 and 2 illustrate the relative ages at *onset* of asthma in the two sexes, and in Fig. 1 the incidence of "positive" family histories in each age group is also shown. There appears to be quite a close parallel between the incidence of positive family histories in the two sexes and at similar ages of onset (see Table I), but the female incidence curves C and D (Fig. 1) and A (Fig. 2) cross the male incidence curves A and B (Fig. 1) and B (Fig. 2) respectively at age groups 11–20 and remain higher until the ages at onset exceed 40 years, after which the figures in each case become similar. This suggests the possibility of some factor or factors having a different effect in the two sexes, beginning approximately at the time of puberty and having in females an aggravating effect upon the asthma. Female endocrine functions seemed significant in this respect, and reference was therefore made to details of female cases in which the onset of asthma occurred between the ages of 14 and 50 years and in which there was a clear history of aggravation by menstruation, pregnancy, or a combination of both. Of 62 cases in which the ages of onset of asthma were stated, the numbers falling into each decade are shown in Table II.

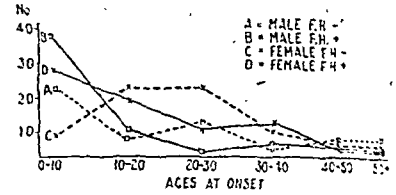


FIG. 1.—Relative incidence of asthma at different ages and subdivided according to sex and family history.

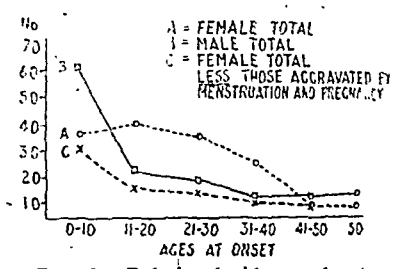


FIG. 2.—Relative incidence of asthma at different age groups, subdivided according to sex and incidence of menstrual or pregnancy aggravation.

TABLE II.—*Incidence of Asthma Aggravated by Menstruation and/or Pregnancy, With Ages of Onset of Symptoms*

Age of Onset:	0–10	11–20	21–30	31–40	41–50
No. of patients ..	5	24	21	11	1

If all such patients are excluded from the total number of females in each age group the remainder represents those in which there is no apparent association with pregnancy or menstruation. They are shown in curve C (Fig. 2), a striking feature of which is its close similarity to that found in males (curve B). Statistical analysis of the figures illustrated by the curves A, B, and C in Fig. 2 shows that the difference between A and B is greater than is likely to be caused by chance ($\chi^2=22.1$, $\eta=5$, $P<0.01$) and that curves C and B differ by amounts which cannot exclude chance as a possible cause ($\chi^2=5.9$, $\eta=5$, $P=0.3$). These findings suggest, therefore, that a proportion of cases of asthma in females may be due to causes associated in some way with female reproductive activity. While it is freely admitted that other associated factors such as psychological changes or reflex sensitivity otherwise enhanced may in many patients have a more direct bearing on the association of asthma with menstruation, evidence is not lacking (Zondek and Bromberg, 1947) that allergic hypersensitivity to the patient's own hormones is by no means rare and may be demonstrated by appropriate skin tests.

Cutaneous Hypersensitivity.—Cutaneous hypersensitivity tests were performed, using Bencard's intradermal and scratch tests for the usual series of allergens. Results were available in 211 cases, and were positive in 35.5%. No comparable series of normal controls was tested, but other workers, such as Pearson (1943), report 20% of positive findings in normal persons, whilst in asthmatic patients the incidence of positives was 75%. On the other hand, Witts's (1934) figures show 40% of positives only among those affected.

It was found that 26 out of 100 "F.H.–" cases were positive to skin tests, while 44% of 111 "F.H.+" cases were positive also on skin-testing. The standard error of these two proportions being 6.42, this difference in the incidence of positive skin tests appears to be statistically significant.

Previous Allergic Manifestations.—Of 246 cases in which the information was available, 40.24% gave a history of one or more of the usually suspected "allergic" manifestations, consisting of the following:

Hay-fever (or vasomotor rhinorrhoea)	39
"Eczema" (including infantile eczema)	54
Migraine	5
Urticaria	12
Epilepsy	2

In 13 cases two of the above conditions occurred together, thus: epilepsy and hay-fever, 1; eczema and hay-fever, 4; migraine and hay-fever, 3; urticaria and eczema, 1; urticaria and migraine, 1; eczema and migraine, 1; urticaria and hay-fever, 2.

It is observed that migraine, though occurring in five patients, does not appear alone, being combined with hay-fever, urticaria, or eczema. Epilepsy occurs once by itself, and once in combination with hay-fever. These findings correspond to those of Witts, in whose series 40–50% of patients had other allergic manifestations, and of Coke, who reports that 22% of his patients had suffered previously from eczema.

Aetiological Factors

Information about factors associated with the onset of asthma was available in 276 cases. The results are shown in Table III. Some light may be thrown on the possible

TABLE III.—*Incidence of Alleged Causal Factors*

Aetiological Factor	Males	Females	Total
No known associated circumstances	50	50	100
Acute respiratory infection (bronchitis, pneumonia, measles, pertussis, etc.)	57	57	114
Psychological "shock" or "worry"	6	8	14
Pregnancy		10	10
Menstruation		5	5
Irritating fumes or dust	7	6	13
Excessive exertion	7	2	9
Miscellaneous causes (food, change of locality, or change of climate)			11

association of allergic tendencies and the nature of the aetiological factors by the data in Table IV, which compares the incidence of positive family histories (F.H.+), skin-test positives (S.T.+), and histories of previous allergic manifestations (P.A.M.) in the four largest aetiological

TABLE IV.—*Incidence of the "Allergic" Features in the Four Principal Aetiological Groups. The Actual Number of Patients in each Group is Shown in Parentheses*

	Aetiological Factors			
	Not Known	Respiratory Infection	Psychological	Pregnancy and Menstruation
F.H.+	50% (97)	55·5% (108)	57% (14)	28·4% (14)
S.T.+	36% (80)	27·4% (73)	36% (9)	12·5% (8)
P.A.M.	36·4% (89)	35·5% (93)	36% (9)	45% (11)

groups. These figures show that, although there is very little difference between the respective incidence of these allergic factors in the first three aetiological groups, in the fourth (pregnancy and menstruation) group the incidence of F.H.+ and S.T.+ is strikingly less, but that of other allergic manifestations somewhat increased. While the figures are too small to warrant definite conclusions, this would add further support to a hypothesis that "menstruation asthma" is truly allergic in origin in a high proportion of cases. The low positive-skin-test incidence would then be explained by the absence of hormonal extracts from the test series, and the low family incidence by the "sex-linked" nature of the allergy, which would be expected to reduce the family incidence of the manifestations to females only.

Aggravating Factors

An attempt was made to compare factors associated with the onset of individual attacks of asthma with those believed to have been concerned in the aetiology of the condition. The results are shown in Table V. These figures

TABLE V.—*Incidence of Aggravating Factors, Grouped According to Aetiological Factors in Numbers of Patients in Each Subgroup*

Aggravating Factors	Aetiological Factors				
	Unknown	Respiratory Infection	Pregnancy and Menstruation	"Dust"	Psychological Trauma
Respiratory infections	14·3% (85)	14·4% (91)	0 (12)	0 (13)	25·0% (12
Food	34·1% (85)	32·2% (91)	16·7% (12)	15·4% (13)	33·3% (12
Psychological disturbances	25·0% (85)	25·5% (91)	18·3% (12)	0 (13)	66·7% (12
Pregnancy and menstruation	28·7% (40)	59·4% (45)	83·3% (12)	66·7% (6)	29·4% (12
"Dust"	22·4% (85)	21·1% (91)	25·0% (12)	92·4% (13)	16·7% (12
Climate	70·6% (85)	55·5% (91)	33·3% (12)	53·9% (13)	50·0% (12
Exertion	35·3% (85)	37·0% (91)	41·5% (12)	15·4% (13)	16·7% (12

show that three out of the four known aetiological factors also aggravate the asthmatic condition in a high percentage of patients. These are, pregnancy and menstruation (aggravated in 83.3%), "dust" (92.4%), and psychological disturbances (66.7%). Respiratory infections, on the other hand, differ markedly in that in only 14.4% of patients was the asthma aggravated by further respiratory infections. Thus it would appear that, while acute respiratory infections have initiated asthma so often that their association is unlikely to be fortuitous, subsequent attacks of asthma are surprisingly seldom occasioned by recurrences of respiratory infection. This might perhaps be explained on the assumption that the respiratory centre, or some other portion of the mechanism governing the tone of bronchiolar muscle, may have received a non-specific sensitization from the original infection which has facilitated an "asthmogenic" response to other stimuli, and may, in fact, establish the "asthma diathesis."

The relationships of aetiological to exacerbating factors may be summarized provisionally by their classification as follows:

Class A.—Factors which initiate the asthmatic condition and exacerbate asthma in a high proportion of cases. These are pregnancy and menstruation, "house dust," pollens, and psychological disturbances.

Class B.—Factors which are apparently associated with the aetiology of the asthma, but not with its subsequent aggravation, such as acute respiratory infection.

Class C.—Factors which frequently aggravate asthmatic attacks, but seldom seem to have played a part in the aetiology of the condition. These are food sensitivity, climatic conditions, and exertion. Together with dust and emotional upsets, such stimuli are well-known aggravators of any respiratory disturbances, particularly cough and dyspnoea.

Clinical and Other Findings in Cases of Asthma

No obvious abnormality was found on clinical examination in 122 out of 251 patients. As might be expected, where physical signs were present the vast majority of patients showed rhonchi. Obvious emphysema was found in 15 patients in this series. Only five of the patients had gross chest deformity (pigeon-breast, kyphosis, or "sunken chest"), the onset of asthma occurring in early life in four of them.

Radiologically, out of 196 patients whose films were available, 66 showed some abnormality—50 had chronic inflammatory changes only, four had old healed tuberculosis.

one active tuberculosis, four pulmonary fibrosis, three emphysema, two pleural thickening, and two cardiac dilatation.

Of 260 patients in whom the upper respiratory tract had been examined, no abnormality of nose, throat, or sinuses was found in 120. Of the rest, 66 had inflammatory lesions of the sinuses, throat, or nose, and 74 showed evidence of changes attributable to allergy only, such as vasomotor rhinitis, simple mucosal oedema, or polyp formation.

Progress

A questionary was circulated to 150 patients who had attended the asthma clinic between 1935 and 1940. Of these, 64 replied; their general progress is shown in Table VI.

TABLE VI.—*Results as Compiled from a Questionary*

Result	Males	Females	Total
"Cured" (i.e., no attacks for at least one year)	7	5	12
Died	7	4	11
Improved	13	9	22
Unchanged	4	2	6
Worse	4	9	13

Recoveries.—In the 12 instances of recovery the condition resolved suddenly in six, and gradually in the remainder. The mean duration of asthma in these cases was nine years. The alleged causes of cessation of the attacks are shown in Table VII. In two patients recovery was attributed to more than one cause.

TABLE VII.—*Alleged Causes of Recovery*

Causes	No.	Ages at Onset	Duration
"Grew out of the asthma"	3	15, 2, 3 years	2, 10, 11 years
Change of environment (war evacuation)	3	2, 2, 1 year	8, 14, 12 ,,
Cautery of nose	2	21, 48 years	23, 10 years
Specific protein desensitization	1	25 years	8 years
Tonsillectomy	1	2 ,,	8 ,,
Breathing exercises	1	2 ,,	14 ,,
Senility	1	57 ,,	24 ,,
Unknown	2	44, 29 years	10, 8 years

Eight of the above 12 patients therefore seem to have recovered without any active therapy, six of these being children. Analysis did not reveal any correlation between age of onset of asthma and ultimate prognosis.

Remedies Found Effective in Attacks.—From the nature of the information received from patients no accurate account could be compiled of the details of treatment found most helpful. It is of interest, however, to find that among the patients who did give a reasonably clear answer the use of one or more proprietary inhalants was considered to have been more effective than medicine from a bottle or than ephedrine tablets.

Discussion

From the above results several points emerge. First, there is support for the accepted view that most cases of asthma are of allergic origin, differences being dependent more upon variations in the nature of the allergic stimuli and their mode of action than upon departure from the allergic process. Secondly, the evidence implicating hormonal activity in the production of asthma is strongly suggestive and lends support to more conclusive findings by other workers regarding the allergic nature of this association (Zondek and Bromberg, 1947).

Clinical abnormalities in the chest (apart from wheezing) were remarkably few, and more interesting still was the rarity of any gross deformity of the chest, particularly when it is considered that in approximately 30% of this group of patients the asthma began in the first decade of life.

Unfortunately our records are not informative enough to enable conclusions to be drawn on the efficacy or otherwise of treatment of nasal sinuses or tonsillar abnormalities in relation to asthma. These conditions appear to fall into two main categories. The first, occurring in 25% of patients, consist of oedema of the nasal mucosa, polyp formation, and other non-inflammatory conditions, which are all possibly of allergic origin, and therefore probably symptomatic of the allergic state of which asthma is but another manifestation (Rackemann, 1937). The second group, including true sinusitis, infected tonsils, and chronic (infective) nasal catarrh, occurred in about 28% of all cases of asthma, and may be aetiologically significant. Although the results of active treatment of upper respiratory diseases has generally been found disappointing (Witts, 1934), it is possible that better results might follow treatment if it were confined to those in the latter group.

Mortality and Morbidity.—This series of cases is spread over a period of between seven and twelve years. It would therefore not be of value to compare the mortality here with that of groups observed over a much shorter period (e.g., Coke, 1927). An adequate follow-up of hospital patients is not always possible, for many drift elsewhere, and others for various reasons do not reply to letters. Of the 64 patients of whom later information was obtained 11 had died within the period—a somewhat surprising mortality of 17.2%; three had developed phthisis in the course of their asthma and died of the disease; three died as a direct result of their asthmatic attacks, and three others died of secondary cardiac failure. That asthma is potentially a fatal disease is too often overlooked, and the above figures underline the importance of long-term treatment in an attempt to safeguard the patient's future. While it is true that the patient must "learn to live with his asthma," it is clear that life would be both happier and longer in its absence.

Summary and Conclusions

Clinical and other findings in 294 cases of asthma have been examined with the object of analysing the natural history of the disease, its aetiology, and its prognosis. Evidence was obtained of the importance of the allergic factor, particularly of the relevance of hormonal allergy in the production of asthma in women. Comparison of the incidence of aetiological factors relative to those aggravating the condition suggests that the factors involved in the production of the asthmatic state may be of three kinds: aetiological and aggravating, aetiological but not aggravating, and aggravating but not apparently connected with aetiology.

From a relatively small series of cases which were followed up over a period of seven to twelve years, 19.4% had apparently fully recovered, while 17.2% had died. This mortality rate, though occurring in a series too small to warrant statistical analysis, nevertheless suggests that asthma as a potentially fatal disease has received rather less attention than it deserves.

We are particularly indebted to our former teacher and chief, Dr. Robert Coope, both for his permission to use the records of the Liverpool Royal Infirmary Asthma Clinic and for his kindly advice and helpful criticism during the production of this paper.

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ANTIHISTAMINES IN BRONCHIAL ASTHMA

BY

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The beneficial action of antihistamines in hay-fever, perennial rhinitis, and urticaria is undisputed, but their use in human asthma has been doubted. In this paper experimental and clinical evidence is presented that the antihistamines are of considerable value in the treatment of this condition.

Experimental Evidence

Method

Bronchial spasm was induced in normal and asthmatic subjects by the aerosol inhalation of spasmogenic substances. This method avoided the risk connected with their parenteral injection in asthmatic subjects, whose response varies so widely; furthermore, their local application imitates the natural conditions more closely and avoids the danger of producing a strong general reaction.

The aerosol was produced by a pressure pump (kindly supplied by Messrs. Aerosols, Ltd.) to which a series of commercial nebulizers were attached. The unit was incorporated in the inspiratory part of the breathing circuit of a recording spirometer (Herxheimer, 1949a). The efficiency of the aerosol so produced can be judged from the fact that when isopropylnoradrenaline was inhaled a 0.25% solution produced similar effects in the same time as a 1% solution administered by a hand-operated inhaler.

As the amount of any drug inhaled cannot be determined accurately, the time of administration was counted in seconds. The degree of bronchial spasm was estimated by measuring the vital capacity, to which it was directly related (Curry, 1946). The maximum breathing capacity cannot be used as a test, as the overbreathing has in many cases a direct influence on the degree of spasm. Other tests which are based on the time required for full expiration do not seem to present any advantage. It is believed that the determination of the vital capacity is fully reliable provided that the thoracic cage is mobile and that there is no venous congestion.

The vital capacity was determined three times before each experiment and the mean was taken as the base-line. Subjects who could not produce three vital capacities within a range of 150 c.cm. were excluded. The spasmogenic substances used were 3% histamine acid phosphate, 2.5% acetyl-β-methylcholine chloride, and allergenic extracts of mixed pollen and of mixed inhalants, made extra strong for this purpose by Bencard's. For the relief of spasm isopropylnoradrenaline was used in 0.25% to 1% solution, pyribenzamine in 1.5% and other concentrations, and sometimes ephedrine and "chlorothen." In all cases one drop of glycerin was added to 2 ml. of the solution, except in the case of acetyl-β-methylcholine chloride, which was dissolved in propylene glycol. If bronchial spasm so produced did not subside spontaneously an antispasmodic was given after some time and immediate relief obtained. In other experiments with the same subjects an antihistamine substance was given beforehand orally or, in a few cases, as an aerosol, and the spasmogenic aerosol inhaled for the same time as before.

In a number of control experiments with the same subjects various substances were inhaled as aerosols—physiological saline, allergenic extracts, ephedrine in various concentrations, 10% ammonium chloride, aminophylline, and some antihistamines. Saline and ephedrine in low concentrations and ammonium chloride produced no effect, but high concentrations of ephedrine, pyribenzamine, and amethocaine caused reduction of vital capacity and wheezing in asthmatic subjects. In a number of patients genuine asthma was treated in the same way as induced asthma, and in some an antihistamine was given intravenously.

Results

Normal Subjects.—The inhalation of histamine in most cases caused subjective symptoms during the third minute, consisting of redness of the face, sometimes a headache, and a sense of constriction of the chest. Of the 16 subjects three showed no decrease of vital capacity. In two of these higher concentrations of histamine were tried. One showed a decrease after 10% histamine phosphate had been breathed for four minutes; the other showed no decrease. Of the remaining 13 subjects five showed reductions of between 5 and 9% and eight between 12 and 26%. The inhalation of acetyl-β-methylcholine chloride caused fewer and milder general symptoms. In only two cases out of 14 was the vital capacity decreased. This difference may be entirely due to the arbitrarily chosen amounts of aerosol administered. For instance, in one subject the vital capacity decreased after three minutes of inhalation from 4,000 to 3,600 c.cm. with mild general symptoms After four

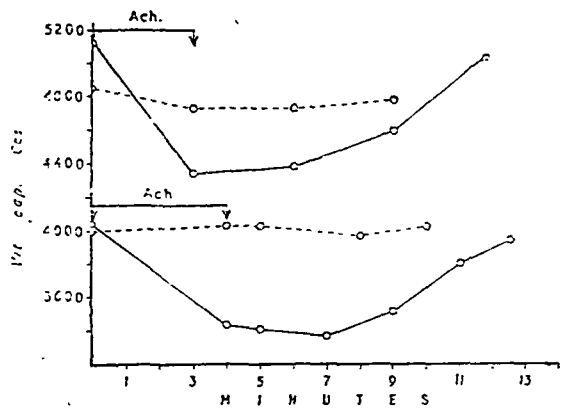


FIG. 1.—Change of vital capacity (as a measure of bronchial obstruction) in two normal subjects who inhaled acetyl-β-methylcholine chloride (Ach.) for three and four minutes. The interrupted lines show the same experiment after 25 and 50 mg. of phenergan had been given beforehand.

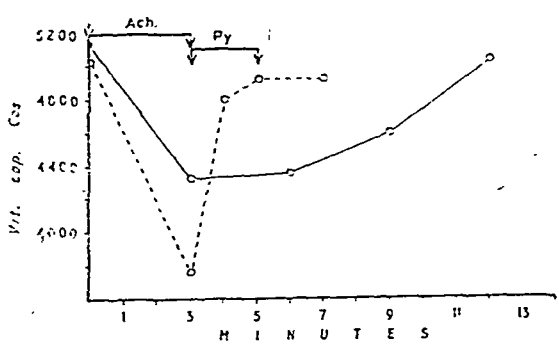


FIG. 2.—Change of vital capacity, representing the degree of bronchial obstruction in a normal subject after inhaling acetyl-β-methylcholine chloride for three minutes (uninterrupted line) and the same when inhaling pyribenzamine (Py.) 1.5% immediately afterwards for two minutes (broken line).

minutes' inhalation the symptoms were more severe, and the vital capacity decreased to 3,360 c.cm. When "phenergan" ("R.P. 3277") was given 90–120 minutes before the experiment the general symptoms were suppressed or reduced to a minimum. The vital capacity did not change. This was the case after histamine as well as after acetyl-β-methylcholine chloride (Fig. 1). In one case the inhalation of 1.5% pyribenzamine, given immediately after the acetyl-β-methylcholine chloride had depressed the vital capacity, very quickly restored it to its normal value (Fig. 2).

Cases of Induced Asthma.—The induction of bronchial spasm—the asthmatic attack—in patients involves some risk, as a very small amount of inhalant may cause a severe attack. In a patient whose reaction to a substance is unknown it is advisable to start with one whiff of the inhalant only and to await the reaction. With histamine and acetyl-β-methylcholine chloride this reaction usually appears at once in full strength. The patient feels tightness of the chest, and when he attempts to breathe out deeply he encounters difficulty not felt before. With allergenic extracts, especially when a very small amount produces a reaction, this difficulty in breathing—the "wheeze" which also indicates a decrease of vital capacity—often does not appear at once. Only a mild tickle or soreness is felt in the throat or in some related region (for instance, the shoulder), and the wheeze develops gradually two to five minutes later.

The protection against attacks induced in this way required more antihistamine than in normal subjects—phenergan was mostly used—and if the induced attack was severe—if, for instance, the vital capacity was reduced by about one-half—no protective effect could be obtained even with 75 mg. of phenergan. If, however, the amount of inhalant was just small enough to induce a mild attack, phenergan or "anthisan" ("neoantergan") suppressed it either completely or at least partly (Figs. 3 and 4). Pyribenzamine as aerosol was effective in partially relieving the induced spasm in some cases, but not in others.

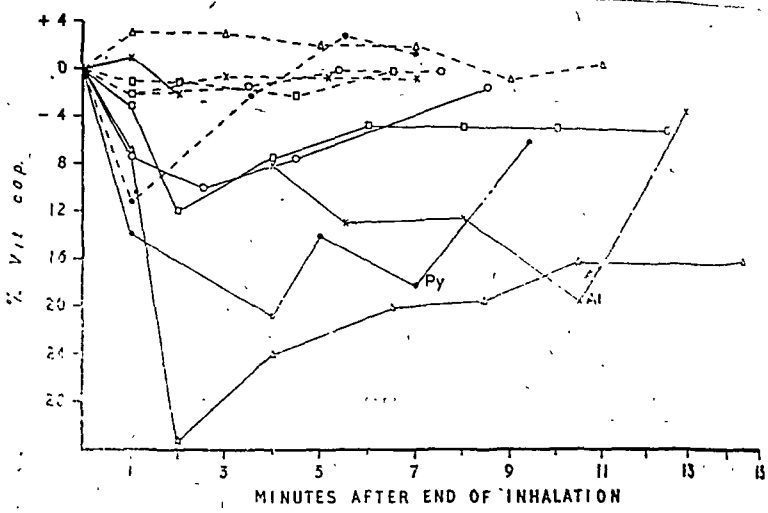


FIG. 4.—Protective action by antihistamines against bronchial asthma induced by mixed pollen inhalation. Five subjects. *Full lines* = Change in vital capacity after inhalation without protection. *Interrupted lines* = Change in vital capacity after varying doses of phenergan had been given beforehand.

Period of inhalation	Dosage of phenergan
△ 45 sec.	37.5 mg.
× 5 ,, ...	25.0 mg.
○ 30 ,, ...	37.5 mg.
□ 25 ,, ...	37.5 mg.
● 180 ,, ...	50.0 mg.

Py. Al. = Pyribenzamine 1.5% or aleudrine 1% inhaled in order to terminate the asthmatic attack.

Cases of Genuine Asthma.—Pyribenzamine aerosol frequently relieved bronchial spasm. As shown in Table I, in 12 patients the vital capacity was increased by over 200 c.cm. after inhalation of this drug. There were 12 other patients in the group, five of them elderly and sufferers from emphysema, in whom the increase was absent or negligible. Intravenous anthisan often produced marked relief, but the substance must be injected very slowly to avoid vomiting and circulatory collapse (Table II). Three cases in which no increase of vital capacity was obtained are not included in the table. Phenergan injected intravenously had also a beneficial effect (Fig. 5).

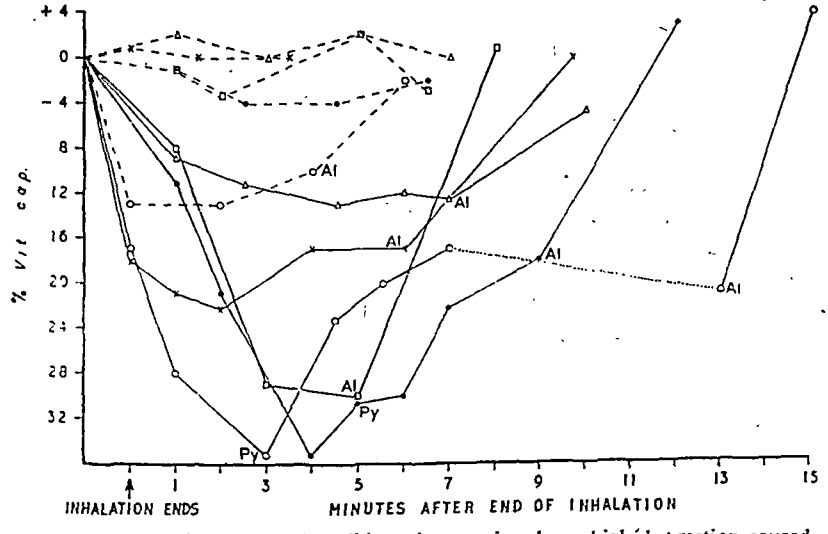


FIG. 3.—Protective action of antihistamines against bronchial obstruction caused by acetyl-methylcholine chloride inhalation. Five subjects. *Full lines* = Change in vital capacity after inhalation without protection. *Interrupted lines* = Change in vital capacity after varying doses of antihistamine had been given beforehand.

Period of inhalation	Dosage of antihistamine
△ 90 sec.	62.5 mg. phenergan
× 180 ,, ...	500 mg. anthisan
○ 60 ,, ...	50 mg. phenergan
□ 12 ,, ...	50 mg. ,,
● 35 ,, ...	75 mg. ,,

Py. Al. = Pyribenzamine 1.5% or aleudrine 1% inhaled in order to terminate the asthmatic attack.

Clinical Evidence

The spontaneous and rapid changes in the asthmatic condition and the psychological factors which are almost always involved in the aetiology necessitated certain precautions in the selection of patients. Those who showed rapid fluctuations and those with long free intervals were excluded. This left the patients with moderate or mild attacks which occurred frequently and those who were in an asthmatic state.* Of these, only patients were selected who had a long experience of the disease and had tried many remedies, often without success, and thus appeared not unduly prone to suggestion. They had been known to the observer for some time; their reaction to various drugs had been investigated and their seasonal

*The term "asthmatic state" is used in this paper for bronchial spasm continuously present for long periods whether mild, moderate or severe.

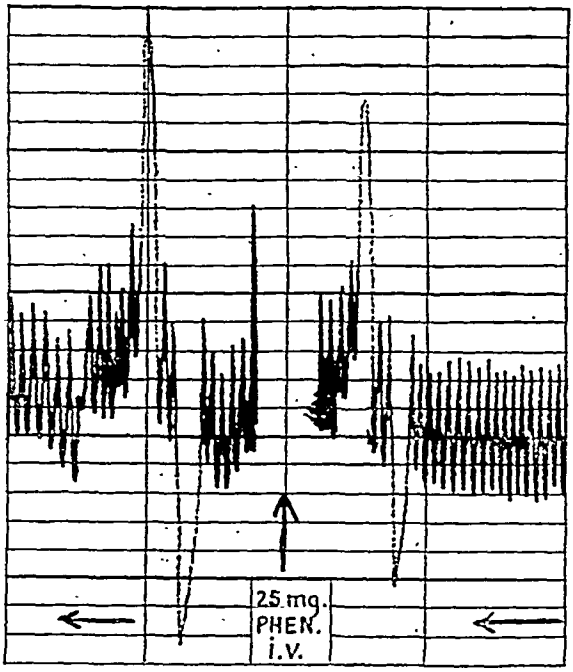


FIG. 5.—Asthmatic state. Vital capacity before (1,700 c.cm.) and 15 minutes after (2,240 c.cm.) intravenous injection of 25 mg. of phenergan.

TABLE I.—*Effect of Pyribenzamine Aerosol in Genuine Asthma*

Case No.	Highest Vital Capacity Ever Recorded	Vital Capacity Before Inhalation	Vital Capacity After Inhalation	Strength of Aerosol (%)
1	3,015	1,620	2,260	5
2	2,960	1,860	2,240	5
3	2,995	1,550	2,190	5
		2,000	2,300	5
		1,680	1,940	1
		2,100	2,650	1
4	2,980	2,290	2,520	5
5	3,900	3,420	3,900	5
6	2,560	2,325	2,550	1
7	2,540	2,330	2,540	1
8	3,690	2,550	3,060	1
9	3,500	2,700	2,960	1
		2,770	3,405	1
10	3,460	2,740	3,300	1·5
11	5,180	3,270	4,100	1·5
12	3,670	1,640	2,200	1·5

The 5% inhalation was carried out by hand nebulizer, the 1% and 1·5% inhalation by air-pressure pump.

TABLE II.—*Effect of Anthisan and Phenergan Given Intravenously in Genuine and in Induced Asthma*

Case No.	Highest Vital Capacity Ever Recorded	Vital Capacity		Amount of Anthisan Given	Remarks
		Before Injection	After Injection		
1	3,015	1,870	2,200	50 mg.	Genuine asthma
2	2,960	2,360	2,620	50 mg.	"
3	2,995	1,900	2,190	40 mg.	"
		2,655	2,805	50 mg.	"
13	5,300	3,785	4,005	50 mg.	"
14	4,440	1,690	2,190	100 mg.	"
15	4,260	1,620	2,600	100 mg.	"
16	2,535	1,980	2,230	50 mg.	"
17	2,640	2,195	2,360	50 mg.	"
18	2,430	1,470	1,790	75 mg.	"
19	1,760	1,470	1,700	100 mg.	"
		1,300	1,640	100 mg.	"
1	3,015	1,690	2,070	50 mg.	Induced by mixed inhalants
13	5,300	3,340	4,080	50 mg.	Induced by mixed pollen
		4,240	5,250	50 mg.	" "
20	5,510	3,860	4,510	100 mg. Phenergan	" "
1	3,015	1,710	2,230	25 mg.	Genuine asthma
3	2,990	1,760	2,170	25 mg.	" "
26	2,910	2,145	2,505	25 mg.	" "

variations were known. Their remedies were changed periodically, sometimes to placebos. These precautions made large-scale controlled experiments with dummy tablets unnecessary, in my opinion. The severity of the individual complaint was conveniently indicated by the number of aerosol inhalations required each day. The aerosol usually contained papaverine, atropine, and either adrenaline or isopropylnoradrenaline. The patients were asked to use their hand inhaler only when the wheeze became intolerable. As a rule they had to inhale on waking and at bedtime, but often four or six inhalations were taken during one night. The reduction in the number of inhalations required was regarded as an indication of the efficacy of an antihistamine substance.

The antihistamines used were mainly anthisan (100–600 mg.), phenergan (25–100 mg.), and "benadryl" (50–250 mg.). These doses were always given at bedtime, as their soporific effect is too great to allow their use during the day. These patients were therefore in need of an antispasmodic in the daytime, and ephedrine was usually given in its optimum amount on waking and after lunch. This combination proved very useful, because ephedrine interferes with sleep and could not be given at bedtime, and two daily doses of it do not cause tolerance. For those intercurrent superimposed attacks not suppressed by antihistamine and ephedrine, isopropylnoradrenaline ("aleudrine") was used either by inhalation or perlingually.

Twenty-six patients improved after receiving anthisan and ephedrine. Thirty-one were given anthisan and phenergan on alternate nights and ephedrine in the daytime, 11 received phenergan and ephedrine, two had phenergan alone, four had anthisan alone, five had benadryl and ephedrine, and two were prescribed benadryl only. All these patients showed definite improvement in the number of inhalations and in their physical efficiency. Three patients with severe chronic asthma and six with mild or moderate chronic asthma obtained no beneficial effects from any of the antihistamines. In others the effect of these drugs could not be assessed because of sudden changes in the character of the disease.

It should be noted that not all of the patients on anthisan reacted well to phenergan, or vice versa, although many of them did. Some of those who did not respond to either were found to respond to benadryl. In no case did we succeed in influencing an acute attack by an oral dose of antihistamine. Night attacks were suppressed only if they were mild attacks superimposed on a moderate asthmatic state, but not if they occurred as comparatively violent spasms after a free interval, frequently seen in the juvenile type of asthma.

Small doses which are satisfactory in hay-fever, urticaria, and perennial rhinitis were not sufficient in the treatment of asthma. The effective evening dose of anthisan was found to be 300–500 mg. and that of phenergan 50–75 mg. Benadryl, in the few cases in which it was effective, was active in small amounts—50–100 mg. Pyribenzamine was not tried; chlorothen and "histadyl" had no definite effects.

The side-effects of the antihistamine drugs varied with the dosage. Both anthisan and phenergan caused drowsiness, which was of longer duration with the latter agent. The action of phenergan was often evident after 12 hours or longer, and its antiasthmatic effect in the early morning after an evening dose was highly desirable. On rare occasions, however, these drugs caused sleeplessness. This effect was particularly noticeable with phenergan, and appears to be more pronounced if an overdose is given. A most undesirable side-effect is the nausea that is often caused by anthisan. This drug should always be taken with food.

No clinical signs were found to discriminate between patients who would or would not be responsive to antihistamines. On the whole I think—and this is not more than an impression—that patients with asthma of extrinsic origin responded more easily, and those in whom the bronchial spasm had developed subsequent to emphysema, less. Young subjects tend to respond more favourably than older persons.

Case Reports

The following are extracts of some representative case histories:

Case 21.—Woman aged 30, October 15, 1948. Asthma since 5 years old. Has been waking up three to four times a night during the last nine months, and has had to inhale a papaverine-atropine mixture which gave relief. Increasingly breathless on exertion; thorax emphysematous; unable to do her work; rhonchi ++. Treatment: anthisan 0.3 g. and phenobarbitone ½ gr. (32 mg.) at bedtime; ephedrine ¾ gr. (50 mg.), later 1¼ gr. (81 mg.), morning and after lunch; "theamin" mid-morning. October 22: Very fair, hardly needed inhaler; breathing exercises started. February 11, 1949: She is occasionally a little breathless on exertion and has then to make use of her inhaler, but she has been very well and fit for her work.

Case 22.—Man aged 36, July 16, 1948. Had nocturnal attacks for three years, which became more frequent when he moved from Southampton to London. He was wheezy during both night and day, and could not sleep much because of breathlessness. Ephedrine previously gave relief, but is now ineffective. On examination: chest barrel-shaped, rhonchi +++, vital capacity 2,980 c.cm. (reduced by about 33%). Treatment: anthisan 0.4 g. at bedtime with phenobarbitone ½ gr. (32 mg.); ephedrine 1½ gr. (97 mg.), later 2 gr. (130 mg.), morning and after lunch. July 23: Much better. No attacks during the night, although he wakes up for short periods. Can move about more easily; sputum much decreased. November 12: Has been very well; only one attack in four months. A little wheezy during fog. March 11, 1949: Unchanged. Vital capacity 4,520 c.cm.

Case 23.—Man aged 22, May 28, 1948. Asthma since the age of 3. Frequent coughs and colds every winter. May be free from wheezing for two to three weeks only. During summer, hay-fever and asthma. "Felsol," ephedrine, and the inhalation of a papaverine-atropine mixture give temporary relief: inhales three times during the day, three times during the night. On examination: chest deformed, kyphosis, rhonchi ++. Treatment: anthisan 0.5 g., plus 1 gr. phenobarbitone (65 mg.) at bedtime, ephedrine 1½ gr. (97 mg.) morning and after lunch; neb. aleudrine 2% for inhalation. August 27: Does not require treatment during the night, but is still wheezy on waking, and then has to make use of his inhaler, but he does not need it during the day. December 10: Has remained well except for one setback caused by an infectious cold, but has now become intolerant to anthisan (diarrhoea and vomiting). Benadryl 200 mg. substituted, but the nocturnal attacks recurred; phenergan 75 mg. permitted the patient to sleep through till 5.30 or 6 a.m., when he had to use the inhaler. No inhalations required during the day. Since then he has been able to complete his training as a bookbinder.

Case 10.—Woman aged 25, May 21, 1948. Asthma since the age of 2½; hay-fever since 10. Asthma worse during the last 10 years. Attacks last from two to four weeks. There may be free intervals of six months or more, but the intervals are not completely free from wheezing. Summer usually worse than winter. Sensitive to small doses of ephedrine. On examination: no signs of emphysema; few expiratory rhonchi; vital capacity normal (3,400 c.cm.). Treatment: anthisan 0.15 g.; later phenergan 25 mg. at bedtime, ephedrine ¼ gr. (16 mg.) morning and midday. Later the ephedrine was replaced by methylephedrine 2/3 gr. (45 mg.). February 25, 1949: Very well. Occasional mild attacks easily checked by aleudrine perlingually.

Case 26.—Man aged 34, August 6, 1948. Asthma since the age of 8. Until six months ago attacks occurred every night and occasionally during the day. They then increased in frequency, but were relieved by the inhalation of a papaverine-atropine mixture. Five weeks ago a severe attack made injections of adrenaline necessary. Has not been free from wheezing since; inhales twice during the night, three times during the day, and needs 5–10 minims (0.3–0.6 ml.) of adrenaline daily. On examination: barrel chest, kyphosis; vital capacity 3,150 c.cm.; rhonchi +++. Treatment: anthisan 0.5 g. at bedtime, which reduced the nocturnal attacks to one. Later, ephedrine 2½ gr. (162 mg.) was given on alternate days, and 75 mg. of phenergan every other night instead of anthisan. Under this regime the patient could sleep through till 5 or 6 a.m., when he had to use his inhaler. Phenergan usually enabled him to sleep about an hour longer than did anthisan. In daytime he had to inhale three to four times, but he did not need adrenaline, and he can now move about without restriction and look after his business.

Case 24.—Woman aged 53, October 1, 1948. Asthmatic attacks for 15 years. For the last three months had frequent attacks, provoked by mild exertion and during the night. Ephedrine ½ gr. (32 mg.) and inhalations of a papaverine-atropine mixture give temporary relief. Believes that her present work with wool caused the deterioration. On examination: chest barrel-shaped, rhonchi +++, vital capacity 1,700 c.cm. Treatment: anthisan 0.3 g., with phenobarbitone ½ gr. (32 mg.) at bedtime and ephedrine 1 gr. (65 mg.) twice in the day, did not have any effect; benadryl 150 mg. plus phenobarbitone 1 gr. (65 mg.) at bedtime improved the condition at night so much that after a week only one inhalation was needed instead of five. Her condition during the day was equally improved by ephedrine 2 gr. (130 mg.) in the morning and after lunch. Breathing exercises were now started. January 28, 1949: Very well; seldom required inhalation. March 11: Well, apart from a transient cold and cough. Sleeps well, is able to move about freely and to do her work. Vital capacity now 2,670 c.cm.

Further case histories are published elsewhere (Herxheimer, 1949b).

Discussion

The evidence that antihistamines have any action against bronchial spasm has so far been received with scepticism It had been shown experimentally that they counteracted bronchial spasm induced by histamine in animals and man (Curry, 1946). Schiller and Lowell (1947) and Curry and Lowell (1948) could not find a protective effect when the bronchial spasm was induced by mecholyl or by the inhalation of allergenic extracts. Unfortunately, they used the weaker antihistamines (benadryl and pyribenzamine) in small amounts, and tried them on a few patients only. From these negative results it appeared as if the histamine-induced bronchospasm were a spasm *sui generis* and had nothing in common with other types of bronchial spasm—for example, that induced by acetylcholine or the spasm of genuine asthma. From the present experiments with induced bronchospasm it is not possible to distinguish different types, except that they develop with different speed.

The strongest antihistamines, if used in sufficient dosage, are able to suppress induced bronchial obstruction if it is mild—e.g., if it does not depress the vital capacity by more than approximately 30%. If a severe attack is induced the protection becomes partial or fails altogether. This is in accord with clinical experience. I have never seen an acute asthmatic attack influenced by an antihistamine. The failure to abolish any bronchial obstruction completely can also be seen if the effect of the antihistamines is compared with the effect of isopropylnoradrenaline, as seen in Figs. 3 and 4. When in some of these experiments pyribenzamine gave partial relief, aleudrine quickly restored the vital capacity to normal. This partial action may be comparable to the results of Bain (1949), who could not abolish the histamine effect on the skin completely with antihistamines.

It must be emphasized that the dosage of phenergan used in the induced attacks varied greatly—from 25 to 75 mg.—and that in one case I was not able to suppress a mild attack caused by acetyl-β-methylcholine chloride. Pyribenzamine used as aerosol had a definite effect in some cases but not in others. This confirms the experience that none of these substances is effective in every subject. Some patients are sensitive to one but not another, and so far it has not been possible to predict whether a given substance would be effective in a particular patient.

As the experimental evidence is definite it seems strange that some observers should have had negative clinical results (Hunter and Dunlop, 1948 ; Southwell, 1948 ; Dunlop and Hunter, 1948). Their method was not completely satisfactory, as I have pointed out before (Herxheimer, 1948b). The patients were unselected, and the dosage was uniform and rather low. Under such conditions a small proportion of successes may be expected, and it will not differ much from the pseudo-successes achieved by the natural vagaries of the disease and by suggestion.

I have described some effects of anthisan (1948a), and the North American literature contains numerous reports of so-called clinical successes. The percentage of cures reported is usually much smaller than in urticaria or hay-fever, and the assessment of clinical success is indefinite. Our clinical experience shows that the stronger antihistamines (and in some cases benadryl) have a beneficial effect on those patients who are sensitive to them. They do not help at all in severe attacks and in those acute attacks which develop after a long interval of freedom. They are excellent in the mild and moderate chronic asthmatic state (for instance, *after* acute attacks), although they do not abolish the disease completely.

Two criticisms of the present series must be considered. One is that the beneficial action of the antihistamines in asthma is due to their sedative influence. There is no doubt that these drugs have a sedative action, but it is distinct from their antispasmodic property. I have attempted to obtain the same anti-asthmatic effect with large doses of phenobarbitone, up to 2 and 3 gr. (130–195 mg.), but without success. The patient feels very tired, but is still awakened by the attacks. The soporific effect of anthisan and phenergan wears off to some measure after four or five days' use, but the antispasmodic effect persists. Some patients do not experience a soporific effect at all, and in spite of this the antispasmodic effect is present.

The other criticism is that the beneficial effect is due to suggestion. It is certain that asthmatic patients respond to suggestion more readily than normal persons. But in my patients many different drugs were tried in different dosages, and it usually happened that one particular dosage of one or two drugs was found effective, and any change to another substance or dosage was quickly followed by a relapse. When many attempts have been made at treatment the asthmatic patient is no longer deceived by suggestion. Even if many of the beneficial results were due to suggestion this could not be the explanation of the experiments with induced bronchoconstriction in normal and asthmatic subjects.

I have come to the conclusion that the antihistamines constitute a definite improvement in our treatment of some kinds of chronic asthma. They are the best agents we have for night-time administration, and, if they are combined with ephedrine in the daytime and aleudrine (isopropylnoradrenaline) or aminophyllin to cut short acute superimposed attacks, the success achieved is worth the laborious process of determining the optimum dosage, which may require weeks of patient observation. The practitioner may feel that this will be difficult ; but our experience is still very small, and it may well be that more effective substances and simpler ways of applying them will be found. In any case, it would be a grave error to add the antihistamines to the vast rubbish-heap of anti-asthmatic remedies which have been found wanting.

Summary

Phenergan and anthisan suppress mild bronchial spasm in humans induced by histamine, acetyl-β-methylcholine chloride, and allergenic extracts.

Severe attacks so induced could not be suppressed. There is no evidence that oral doses of these substances suppress acute severe attacks of genuine asthma.

Clinical evidence suggests that the stronger antihistamines are of great value in the mild and moderate asthmatic state, especially during the night. In this condition they can be conveniently combined with day doses of ephedrine and, if necessary, aleudrine in order to check acute exacerbations. The wide variation of the response makes it necessary to try out the antihistamine and its dosage individually.

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A CASE OF TOXOPLASMOSIS*

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An annotation in the *British Medical Journal* of April 23, 1949 (p. 718), reviews toxoplasmosis and gives references to important contributions to our knowledge of this disease. A paper by Callahan, Russell, and Smith (1946) and Binkhorst's (1948) book may also be found useful by those interested in the subject. As is stated in the annotation, the first case of congenital toxoplasmosis recognized in this country was described by Jacoby and Sagorin (1948). At the time when their report was published we were investigating another case, which we now put on record.

Case Report

The patient, a girl aged 4, was born normally at full term ; weight 6 lb. 5 oz. (2.86 kg.) The neonatal period was uneventful—no jaundice, anaemia, haemorrhagic phenomena, or respiratory distress—and during the first year she was regarded by her mother as normal, having no illness, feeding difficulties, skin rashes, diarrhoea, or vomiting. At 18 months of age her parents noticed that she was partially blind and had a squint. She was clumsy in her gait and had a tendency to fall over objects placed in her way. Apart from this she was in good health

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and was able to walk and play and to pick up objects when she dropped them.

Her mother, father, sister, aged 5, and brother, aged 2, are alive and well. No abnormality can be found in their eyes, and their mental development is normal. There is no history of tuberculosis or syphilis in the family. The mother has had three normal pregnancies and no miscarriages, and she has no recollection of any illness, even slight or transitory, during any of the pregnancies.

Because of her difficulty in seeing and her squint, the patient at 18 months was brought to see one of us (A. B. N.). Examination of the fundi at that time revealed a choroido-retinal scar involving each macula. She was kept under observation, but it was not until June, 1948, that the possibility of toxoplasmosis was considered on account of the clinical similarity of her condition to that of cases seen in Geneva with Professor Franceschetti and Dr. Bammatter.

On October 20 she was admitted to hospital for more complete investigation. At that time she weighed 37 lb. (16.78 kg.). Nothing of consequence was found in the general physical examination. The results obtained by cytological and biochemical examination of the blood, cerebrospinal fluid, and urine were within normal limits; the Wassermann reaction and the Kahn test on the blood were negative. Certainly, however, the child was mentally retarded.

The visual acuity could not be accurately determined; obviously it was low centrally, but it was good enough peripherally for the child to distinguish large objects. There was a left convergent strabismus and a searching nystagmus. The anterior segment of each eye was normal and the pupils reacted to light both directly and consensually, but the reaction was sluggish.

In the right eye there was slight pallor of the disk, but the retinal vessels were of normal calibre. There was a large oval macular scar measuring 4 D.D. horizontally and 2½ D.D. vertically (Fig. 1). The edges were fairly well defined. The inner half of the area showed choroido-retinal atrophy with little or no pigment, but in the outer half there was gross pigmentary



Fig. 1

disturbance surrounding an area in which choroidal vessels could be seen.

In the left eye there was an advanced degree of optic atrophy, with some attenuation of the retinal vessels. The temporal margin of the disk was obscured by a slightly elevated, possibly glial, mass, on the surface of which there was fine pigmentary disturbance. There was an extensive choroido-retinal scar (Fig. 2). It consisted of a central portion more or less circular in shape and approximately 2 D.D. across. This was joined to a larger and more temporal scar by a short, narrow isthmus of choroido-retinal atrophy traversed by a large choroidal vessel. The larger scar was triangular in shape, the sides being about equal in length, the apex pointing to the periphery in the



Fig. 2

horizontal meridian and the base towards the disk. Each side of the triangle measured about 3 D.D. The edges of the whole scar were sharply defined. The white sclera was widely exposed and a number of large choroidal vessels could be seen running across its base.

There was fairly gross pigmentary disturbance, especially in the temporal portion of the scar, and both showed connective-tissue proliferation.

Serology

The patient's cerebrospinal fluid was examined for toxoplasma, but without success. Sera from the patient and from other members of her family were then examined for the presence of toxoplasma-neutralizing antibodies by intradermal tests in rabbits as described by Sabin (1942). The first test, carried out with fresh serum from the patient (not shown in the following Table), indicated that it neutralized a 1:10,000 dilution. This Sabin interpreted as equivocal, and recommended that the test should be repeated. This was done, and sera from other members of the family were also tested, with the following results.

Subject	Age (Years)	Date of Test	Serum	Size of Skin Lesions produced by Dilutions of Toxoplasma Suspension Mixed with Serum Under Test			
				1:20	1:100	1:1,000	1:10,000
Patient	3¾	19/11/48	Fresh	+++	+++	+	0
Mother	27	,,	,,	+++	+++	++	0
Sister	5	,,	,,	+++	+++	+++	++
Father	36	14/1/49	,,	+++	+++	+++	++
,,	,,	21/1/49	Freeze-dried	+++	+++	++	+
Brother	2	14/1/49	Fresh	+++	+++	+++	+
,,	,,	21/1/49	Freeze-dried	+++	+++	+++	+
All controls				+++	+++	++	+

The accompanying Diagram shows the size of the skin lesions produced in the rabbit. Comparison of the control series (dilutions of toxoplasma suspension without serum) with the test series (dilutions of toxoplasma suspension to which was added serum from the patient) will show the extent to which her serum neutralized the toxoplasma. These results suggested the presence of toxoplasma antibody in the serum of the patient and her mother. Freeze-dried specimens of their sera and of the serum of the sister were sent to Dr. Sabin, who very kindly examined them by his dye-test method (Sabin and Feldman, 1948) and by the complement-fixation method. He reported as follows:

	Dye Test (Titre)	Complement-fixation Test (Titre)
Patient	1:1024	1:10
Mother	1:32	1:4
Sister	0	0

Sabin considered that these results supplied strong evidence that the disease from which the patient suffered was congenital toxoplasmosis. The titre in the mother he thought rather lower than is sometimes found four years after infection.

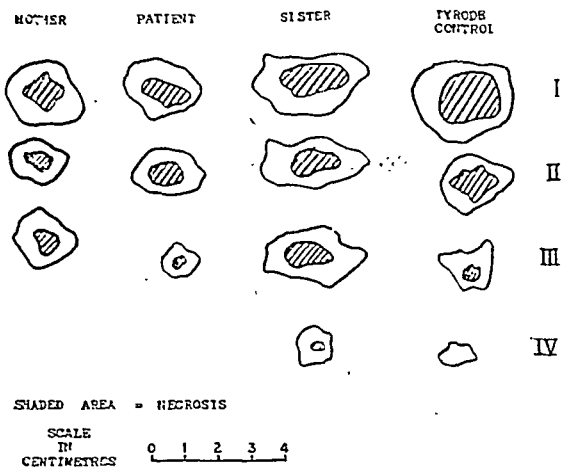


Diagram showing tracings of skin (rabbit) neutralizing test for toxoplasmosis. Final dilution of toxoplasma suspension I, 1 : 20; II, 1 : 100; III, 1 : 1,000; IV, 1 : 10,000.

Discussion

In 1942 a group of 151 cases was investigated by Sabin, employing the toxoplasma-neutralizing antibody test. He found that not only did the infants and children showing the now well-recognized tetrad (convulsions, internal hydrocephalus, intracerebral calcification, and choroidoretinitis) and their mothers give positive reactions for the toxoplasma, but so also did other varied types of case. These were mothers who had given birth to anencephalic monsters, older children and adults with chorioretinitis of unknown aetiology, some unexplained cases of encephalitis, and children and adults who had congenital cataract and other disturbances of the eyes. The above findings are quoted as a reminder that infection with the toxoplasma may produce a very varied clinical picture, including isolated disorders of the eye in which previously the aetiology was said to be obscure or simply congenital.

As regards the ocular findings in toxoplasmosis, Binkhorst (1948) found focal retinal lesions in all his cases, and he suggests that chorioretinitis may sometimes be the only clinical manifestation of this infection. He considers that for the clinical diagnosis of toxoplasmosis ophthalmoscopic examination is indispensable.

In 1942 Cowen, Wolf, and Paige reported six cases of toxoplasmosis, in all of which the outstanding features were ocular abnormalities such as chorioretinitis, microphthalmos, and strabismus. The ocular signs in toxoplasmosis have been carefully studied and recorded by Koch, Wolf, Cowen, and Paige (1943). The fundus lesions are predominantly bilateral, focal, and multiple. The macular region is invariably involved, and, less often, the periphery. The earliest change is localized oedema of the retina. The ultimate scar has a punched-out appearance, and there is extensive choroido-retinal degeneration together with connective tissue and pigment proliferation, the rest of the retina remaining normal in appearance during all observed stages of the infection. Optic atrophy seems to be the rule.

The case reported above was first brought for medical advice because the mother noticed the child's clumsy movements and suspected defective vision. To the mother the child appeared otherwise quite normal. It should be stressed that the main features of the case were ophthalmic in their presentation. It was only on closer examination and on watching the progress of the child that mental retardation was recognized. This latter is certainly more than could be attributed to defective vision.

Intracerebral calcification has been found post mortem or detected by radiography in most cases of congenital toxoplasmosis. The finding, however, does not seem to be specific or essential for the diagnosis, and this impression is confirmed by Binkhorst (1948), Adams *et al.* (1948), and Sabin (personal communication). The last-named, however, has had only one other case in which intracerebral calcification was absent.

Admittedly a diagnosis of toxoplasmosis is clinched only by isolation of the toxoplasma. At the same time it is felt that the clinical picture in this case, combined with the serological results, warrants the diagnosis of congenital toxoplasmosis. It is inferred that the infection was acquired *in utero* from the mother, as her serum gave a positive result in the neutralizing antibodies tests. An interesting point is that the patient's sister, aged 5, showed no evidence of antibodies, nor did the brother, aged 2. This suggests the possibility that the mother's infectivity may have been limited to a period within three years.

Summary

A case of congenital toxoplasmosis is described in a girl aged 4 years.

The main clinical features are defective vision with a searching nystagmus, bilateral chorioretinitis, and mental retardation.

Evidence in favour of the diagnosis is supported by the toxoplasma-neutralizing antibody test, the dye test, and the complement-fixation test.

Ophthalmoscopic examination would seem to be important for the clinical diagnosis of toxoplasmosis, and evidence of choroido-retinal disturbance should be looked for in all children with a history of convulsions, hydrocephalus, and mental retardation.

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In order to help build up the National Hospital Service Reserve, which will provide an organization of trained men and women in the event of war to meet the needs of expanded hospital services, the Ministry of Health has asked local authorities to provide at civil defence corps recruiting centres facilities for officers of the St. John Ambulance Brigade and the British Red Cross Society to recruit auxiliary members of the reserve.

CHLORAMPHENICOL IN TYPHOID FEVER

A PRELIMINARY REPORT OF CLINICAL TRIAL IN 6 CASES

BY

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Chloramphenicol (chloromycetin) is a new antibiotic derived from a soil streptomyces known as *Streptomyces venezuelae*. It was first isolated for therapeutic purposes by Ehrlich and his associates in 1947.

The first report of the beneficial effect of this antibiotic in typhoid fever came from Woodward and his co-workers in Malaya in 1948. Since then the drug has been given a trial by many workers in different parts of the world. Murgatroyd (1949) has tried it in one case in London. A controlled trial is in progress in the United Kingdom as a result of the recent Berkshire outbreak (Bradley, 1949). In India the drug has been tried in typhoid fever by Shah (1949) and by Vakil (1949).

The diagnosis of typhoid fever may be open to doubt in many of the cases of these two Indian authors. Shah's series of 33 cases contains only eight with positive blood cultures, and Vakil does not mention the number of cases in which blood culture was positive in his series of 14. Neither of these authors mentions previous T.A.B. inoculation in their cases.

Method

We have tried the drug in the clinical investigation ward of the King Edward Memorial Hospital in six cases—three males and three females, all being adults. Details of these cases are given in the Table. In all of them blood culture was positive, the Vi phage types of *Salmonella typhi* isolated being "A" in three cases, "E_1" in one case, and ? (untypable) in two cases. These six cases were encountered during a period extending from the latter half of May to July, 1949. Typhoid fever being endemic in Bombay, it was not possible to collect all the cases from the same outbreak. The cases came from widely scattered parts of the city and from different walks of life: two were peons, one a hotel worker, one a nurse, and two were performing domestic duties. None gave a history of contact. In all probability the source of infection was different in each case (also compare the phage types, see above). None of the cases had previously been inoculated with T.A.B. vaccine. Five cases were severely toxic before the treatment was started and one was moderately toxic. Two of the cases (Nos. 2 and 5) had received previous type-specific parenteral phage therapy without any demonstrable benefit.

All the six cases were observed in the investigation ward meant for treatment of typhoid cases alone. Hence all the patients received the same general nursing and dietetic treatment (Patel *et al.*, 1947), the administration of the drug being the only controlled variable.

Chloramphenicol was started in the second week in one case, in the third week in three cases, in the fourth week in one case, and in the fifth week in one case. In the last two cases the drug was tried during a clinical relapse. The dosage schedule was uniform in all cases: 1 g. initially followed by 1 g. one hour later and 0.25 g. two-hourly day and night until temperature was normal for 48 hours. Then 0.25 g. three-hourly for the next 48 hours, and finally 0.25 g. four-hourly till a total dosage of 18 g. was given. However, only one case (No. 2) could be given the full 18 g. The response was dramatic, the temperature touching normal in 36 hours and remaining normal.

Owing to short supply the other two cases that recovered (Nos. 5 and 6) received 12 g. and 16 g. respectively. Both of them responded very well, the temperature coming down to normal in 24 and 48 hours respectively, but the former case relapsed after an afebrile period of 12 days. This might probably indicate that 12 g. was an inadequate dose. During this relapse *Salm. typhi* were again isolated from the blood. As chloramphenicol was unobtainable the relapse could not be treated with it.

The other three patients died. They received chloramphenicol orally for 48, 26, and 40 hours respectively, the amount of drug given being 8, 5.5, and 6 g. respectively.

Case 1 received 8 g. of chloramphenicol in 48 hours. This patient should have at least started responding (cf. Bradley, 1949: in nine treated patients the signs of resolution were obvious within 48 hours—i.e., after the administration of 8 g. of the drug), but she rapidly developed peripheral vascular failure and died. Owing to her early death No. 3 apparently received inadequate dosage. In Case 4 the patient developed a rigor about 24 hours after starting the treatment. She went into hyperpyrexia and died 16 hours later.

Table Giving Various Data of Six Cases

Case No.	Age and Sex	Vi Phage Type	Previous Specific Treatment	Initial Toxicity	Day of Disease on which Treatment Started	Duration of Treatment	Total Dosage	Temperature Normal in Hours	Toxic Reactions	Result	Comment
1	25 F	A	Nil	Severe	28th	48 hours	8 g.	—	—	Died	Case of clinical relapse with bacteriaemia
2	23 M	?	Parenteral phage therapy	,,	35th	6½ days	18 g.	36	—	Cured	,, ,, ,,
3	38 M	?	Nil	,,	11th	26 hours	5·5 g.	—	—	Died	Probably chloramphenicol did not get a chance to act
4	24 F	E_1	Nil	,,	17th	40 ,,	6 g.	—	Rigor	,,	Patient went into hyperpyrexia and peripheral vascular failure
5	20 F	A	Parenteral type-specific phage therapy	Moderate	19th	70 ,,	12 g.	24	—	Cured	Dramatic response in a phage failure case. Relapse after an afebrile period of 12 days
6	25 M	A	Nil	Severe	15th	6½ days	16 g.	48	Erythemo-papular rash	,,	Rash disappeared in 3 days

Results

In all the three cases that recovered the temperature fell by crisis or rapid lysis in 24–48 hours. This is the usual experience of other workers in most of their cases. In all these three cases the constitutional improvement was

striking and was seen earlier (within the first 24 hours) than the fall in temperature. Woodward *et al.* (1948) had a similar experience. Shah (1949), however, finds just the reverse thing. In his opinion the effect on the toxic state is slower than the effect on fever. The fall in temperature occurs in two stages (Murgatroyd, 1949 ; Vakil, 1949). An initial fall is followed by a rise, the temperature then subsiding gradually. This was seen in two of our cases.

Toxic Reactions.—Chloramphenicol seems to be non-toxic for all practical purposes (Murgatroyd, 1949 ; Shah, 1949 ; Vakil, 1949). One of our cases developed a transitory erythemo-papular rash, mainly on the trunk. A similar finding has been noted by Shah in one case. The rigor that occurred 24 hours after the beginning of treatment in Case 4 may not have been a symptom of drug toxicity. It could well have been a hyperpyrexial reaction during the course of the disease, or it may have been due to rapid lysis of a large number of organisms. It is only tentatively included here, because it has not been observed by other workers. Shah found signs of cerebral irritation in seven cases. We did not come across any other toxic reactions, neither did Woodward *et al.* However, Shah and Vakil attribute nausea, anorexia, diarrhoea, circulatory failure, oliguria, and retention of urine in some cases to chloramphenicol. The cause of death in Case 1 in the present series was circulatory failure, but whether this was due to the drug or the disease it is difficult to say. Vakil describes a tendency to leucopenia.

Relapse.—One of our cases (No. 5) relapsed after chloramphenicol therapy and after an afebrile period of 12 days. The blood culture became positive during the relapse.

Vakil has noticed relapse following chloramphenicol therapy in two cases, and Shah found one relapse in his blood-culture-positive cases and four cases of relapse if his whole series of 33 cases is considered. In three of Shah's cases the relapse occurred during maintenance therapy and in one case after an afebrile period of nine days. Woodward *et al.* found that in the doses used chloramphenicol did not prevent relapses. He came across relapses with bacteriaemia in two cases after an afebrile period of 10 and 16 days. Both responded to a second course of the antibiotic. The organisms isolated during these recurrences were as sensitive to chloramphenicol as before. Shah's cases, too, responded to further chloramphenicol therapy.

Complications.—It has been shown by Woodward *et al.* that chloramphenicol does not prevent intestinal perforation and haemorrhage even in the afebrile period of the disease. After treatment with it one of his cases developed intestinal perforation on the second day of normal temperature, and another case had massive intestinal haemorrhage on the fourth day of normal temperature. Such complications were also encountered by Vakil. In our small series we have not come across these complications.

Duration of Fever After Institution of Chloramphenicol Therapy.—The average duration was 3.5 days with Woodward *et al.* and 1.5 days in our cases. The average duration of the afebrile course of the disease was approximately 12.5 days, whereas in Woodward's control group it was 35 days.

Urine Cultures.—The urine cultures before, during, and after chloramphenicol treatment have been found to be consistently negative by Woodward *et al.* The urine cultures were not done in the present series.

Stool Cultures.—Positive stool cultures after chloramphenicol therapy are well known (Woodward *et al.*, 1948 ; Murgatroyd, 1949 ; Rumball and Moore, 1949). Murgatroyd's case had a stool culture positive for *Salm. typhi* after the course of chloramphenicol. Woodward *et al.* found positive stool cultures in two cases ; later these became negative. Rumball and Moore treated a 9-year-old chronic faecal typhoid carrier with 30 mg. chloramphenicol per kg. of body weight (i.e., three times the therapeutic dose) for seven days, and the boy still continued to pass typhoid bacilli in the stools. This was surprising in view of the fact that *Salm. typhi* are inhibited *in vitro* by 0.25 μg. of chloramphenicol per ml., while in the usual therapeutic dose the blood level attained is 40–80 μg. per ml. (Woodward *et al.*, 1948).

Blood Culture.—With chloramphenicol therapy the blood cultures become sterile, but turn positive during a relapse. This is what we observed in Case 5.

Comment

Our series is too small for any statistical evaluation of the drug ; neither is the series ideal for such a purpose, because in none of the cases was the treatment started in the first week. We agree with Bradley (1949) that the advantages of chloramphenicol cannot be fully explained or exploited until the effect on cases in the first week of the disease is measured. It may be mentioned that Shah has tried chloramphenicol in six blood-culture-positive cases (out of his series of 17 cases). In four of these the treatment was started in the first week. All these cases have recovered dramatically and without any complications following on it. Chloramphenicol is more effective in typhoid fever than aureomycin, and that, too, in a smaller dose per kg. of body weight (Patel *et al.*, 1949). We believe that the drug is the most effective therapeutic agent available at present against typhoid fever.

Summary

Six culture-positive typhoid cases treated with chloramphenicol are reported.

It is plain that chloramphenicol strikingly alters the course of typhoid fever by exerting a specific therapeutic action. However, an extensive controlled trial is necessary to determine the optimal dose.

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The Cerebral Palsy Unit at Queen Mary's Hospital for Children, Carshalton, Surrey, was opened in January, 1943, and was the first of its kind in Great Britain. There has since been set up an "advice clinic" at the Lambeth Hospital, where cases of cerebral palsy are assessed from the point of view of suitability for treatment and where parents and relatives are given advice about the management of cerebral palsied children. A booklet has now been produced presenting advice to parents and others on daily treatment, schooling, rest, speech, and other points. The booklet, which is well produced, contains a number of black-and-white sketches and gives useful information in the form of question and answer. Copies may be obtained from the hospital at Carshalton (price 1s.).

PNEUMOCOCCAL MENINGITIS OF REFRACTORY TYPE TREATED BY REPLACEMENT OF C.S.F. WITH PENICILLIN

BY

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Does the pneumococcus develop resistance to penicillin? It would seem from a study of the following case that it does, although such resistance has not, so far as I know, hitherto been noted.

Case Report

The patient, a female child aged 13 months, was admitted to hospital as a typical case of bronchopneumonia, which responded in three days to a combined course of sulphamezathine and penicillin. She then appeared to be well for a fortnight, but at the end of this time the pneumonia recurred and did not respond to treatment.

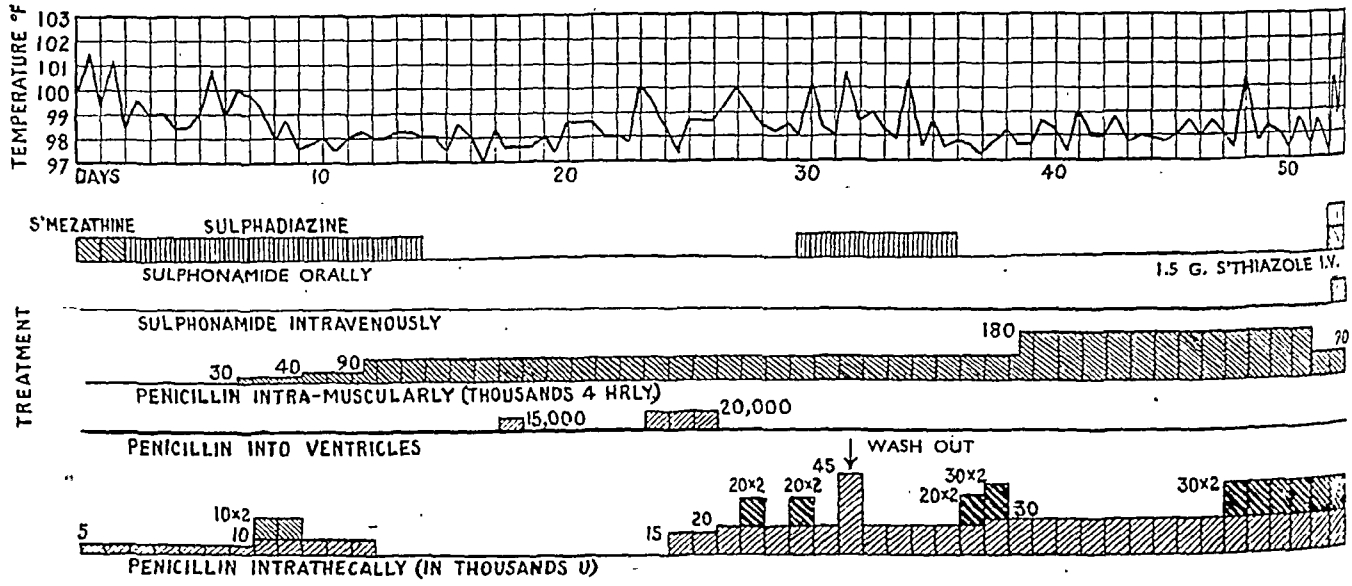
Twenty-four days after the beginning of the illness slight neck stiffness was noted and was thought to be due to meningism. Nevertheless, a lumbar puncture was performed and C.S.F. under normal pressure was withdrawn. Contamination with blood precluded its immediate examination, but a typical culture of encapsulated lanceolate diplococci was obtained, giving a diagnosis of pneumococcal meningitis. Later examination of the C.S.F. confirmed this. The organisms were tested against penicillin and were found to be moderately sensitive. (The test used was a modification of the filter-paper method which was in vogue at that time. On this occasion the strain was inhibited by a concentration of 5–10 units of penicillin per ml.) Lumbar puncture was immediately repeated, turbid fluid under increased pressure was withdrawn, and intrathecal penicillin therapy was begun, details of which are given in the Chart. (The days are numbered from the beginning of treatment for meningitis.) On the fifth day neck stiffness had almost disappeared and the C.S.F. was found to be nearly normal, as judged by the glucose level, which experience showed to be the most sensitive index to the state of the infection, and the first figure to be affected by either an increase or a decrease in its severity.

On the sixth and seventh days, however, relapse occurred in spite of treatment. Neck stiffness became pronounced and the fluid again became turbid. Sensitivity of the organism to penicillin *in vitro* was now found to be slight (growth inhibited by 10–20 units per ml.). Accordingly the dosage was increased, 10,000 units being given intrathecally twice daily. The results were dramatic, for in less than 72 hours the C.S.F. was quite clear. The sugar had returned to normal, but there was still some neck stiffness. Improvement continued until the 18th day, when the C.S.F. again became cloudy, with an increased cell count. It was decided that, as penicillin given by lumbar puncture was unlikely to inhibit organisms in the exudate at the base of the brain, the drug should also be given into the ventricles so that it could penetrate with the C.S.F. every part of the circulation. This was done, with some improvement.

It was felt, however, that it was possible that once the penicillin in the C.S.F. had been brought to a high level it could be maintained by heavy intramuscular doses. That this was probably correct is shown by the fact that improvement was maintained for some days by intramuscular dosage alone, until unfortunately, by a mischance, the intramuscular penicillin was stopped one evening. Next morning the meningitis had recurred in a severe form with tooth-grinding and neck stiffness. The C.S.F. was turbid and teeming with encapsulated pneumococci, which were now said to be completely resistant *in vitro* up to 25 units of penicillin per ml. (24th day).

However, as the Queckenstedt test was normal and as indigo carmine injected into the ventricle appeared at lumbar puncture next day, thus demonstrating patency of the system, it was decided to resume intensive treatment (24th day). This produced some improvement, but on the 28th day, in view of the sharp drop in the sugar, it was decided that the only hope lay in more drastic treatment.

Both clinically and *in vitro* the resistance of the organism had appeared to rise, necessitating repeated increase in the dosage of penicillin. As strong solutions of penicillin are irritant it was decided that the only practicable thing to do was to replace the infected C.S.F. with penicillin solution of a safe concentration. It was thus hoped to spread the penicillin as evenly as possible over the whole system.



Consequently, on the 32nd day simultaneous puncture of the right ventricle and the lumbar region was performed. Indigo carmine (3 ml.; 1%) was injected by the lumbar needle to serve as a marker, and it was followed by 45 ml. of penicillin solution (1,000 units per ml.). The dye appeared through the ventricular needle and both needles were then withdrawn. There were no ill effects from the operation and great improvement in the C.S.F., the sugar rising sharply in spite of the dilution by saline. The cells increased greatly (see Table), but as all were old and degenerate it was almost certainly due to the "stirring up of the mud" all the way up the cord and the base of the brain.

Table Showing Cell and Sugar Content of C.S.F.

Day	Cells per c.mm.	Sugar mg./100 ml.	Day	Cells per c.mm.	Sugar mg./100 ml.
2	1,700	39	33	2,200	75
5	610	66	35	160	78
6	280	31	37	130	70
7	1,800	33	39	280	51
9	360	92	43	65	66
12	28	65	44	290	59
18	800	59	46	140	47
24	—	25	47	20	61
27	4,000	54	50	14,560	57
28	1,000	29	52	210	65
31	100	63	53	20,000	17

Paracolon bacilli were found on days 50, 51, 52, and 53.

During the next few days the patient improved, but intensive penicillin therapy was continued in order to keep up the concentration in the C.S.F. By the 37th day the cerebral cry had quite disappeared, as had the neck stiffness. During the succeeding days, although the condition of the meningitis fluctuated, the child improved greatly. She began to resist treatment forcibly, to eat well, and to play with her toys. Up to the 47th day honours were divided between the penicillin and the organisms, although the Queckenstedt test remained normal. Repeated examination of the nose and ear by an E.N.T. surgeon again revealed no source of reinfection.

On the 53rd day, however, there was a disastrous relapse. The neck became retracted and the C.S.F. purulent and under increased pressure. Paracolon bacilli (first noted in a culture four days before) were seen in large numbers in a smear, although no pneumococci were present. In spite of double cleaning with iodine, these bacilli had presumably been introduced from the skin by the needle. The "cerebral cry" returned, and in spite of intensive intravenous sulphonamides the patient became collapsed and comatose. Convulsions developed at 8 p.m. and death came three and a half hours later. Unfortunately it was impossible to perform a post-mortem examination, invaluable as this would have been.

Discussion

The infecting organism rapidly developed an apparent resistance to penicillin *in vitro* (at least according to the tests used at that time), but it was still possible to kill it *in vivo* by means of large doses. It appeared likely that the case would ultimately have become chronic in the same way as do some cases of tuberculous meningitis treated with streptomycin, relapse occurring as soon as the drug is withdrawn. Because large doses of intrathecal penicillin were known to be dangerous, this case was at first treated too conservatively. The initial doses should have been bigger and given twice daily. If this had been done the organism might have been destroyed before it became resistant. In a case of meningitis of this severity large doses are worth the risk. The child seemed to suffer no ill effects from the use of huge intrathecal doses. It seems that it is local concentration, not dosage, which is dangerous, but it is dosage or general concentration which is important therapeutically. C.S.F. lavage and replacement with penicillin offer a reasonable method of achieving this general concentration safely, and a technique has been developed and found to be satisfactory. C.S.F. replacement had no ill effects. It is also possible, while doing this, to demonstrate with dye the patency of the foramina of Magendie and Luschka. This is important in prognosis.

Finally, it is known that penicillin is poorly excreted into the C.S.F., but it has been demonstrated clinically that large intramuscular doses can keep up the concentration once this has been achieved by intrathecal administration.

The case demonstrates the necessity for a bold approach and decision in the treatment of pneumococcal meningitis. Intensive treatment, with close observation and frequent laboratory examinations, is essential if the disease is not to become chronic, and if a final cure is to be achieved.

Summary

A case of pneumococcal meningitis is described in detail. Apparent growth of resistance to penicillin on the part of the organisms is demonstrated, and the necessity for maintaining a high concentration of the drug in the C.S.F. is shown. C.S.F. replacement therapy and its results are described, and it is shown that penicillin concentration in the C.S.F. can be maintained by intramuscular dosage. A technique for demonstrating patency of the foramina in the roof of the fourth ventricle is given.

Acknowledgments are due to Dr. C. Adamson, of Durham County Hospital, for permission to publish the case, and to Mr. P. O. D. Hopps for his invaluable work in the laboratory.

Medical Memoranda

Chloramphenicol in Typhoid Fever

In view of preliminary reports of cases of typhoid fever treated by chloramphenicol (chloromycetin) (Bradley, 1949: Murgatroyd, 1949), it is considered that publication of the following case may be of interest.

Case Report

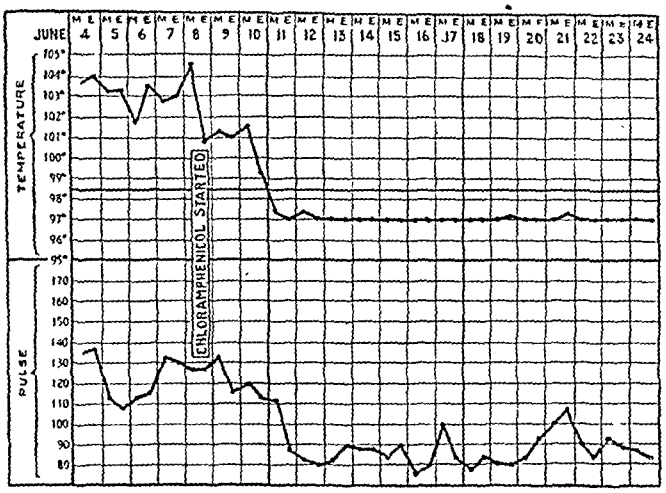
A Service patient aged 20 was admitted to hospital on June 4, 1949, with a provisional diagnosis of typhoid fever. Preventive inoculation with T.A.B. was reported to have been given in February, 1949.

He had sailed from Port Said on May 21 and first felt unwell on May 26, complaining of headache, vomiting, and sore throat. He disembarked at Southampton on May 31 and travelled by train to his home in Nottinghamshire. He still complained of frontal headache, had several rigors, and also complained of marked generalized weakness. On June 2 he had epistaxis, and on the following day was admitted to the medical ward of a general hospital for P.U.O. A few papules were noticed on the abdomen on June 4, and he was transferred to an isolation hospital. There was no history of constipation or diarrhoea.

On admission his temperature was 104° F. (40° C.), pulse 138, and respirations 26. He was mentally confused, answered questions slowly, and had difficulty in pronouncing words. There were a dozen rose-coloured spots on the front of his abdomen, which was distended but resonant. The spleen was not palpable. There were no other physical signs except a coarse bilateral nystagmus which was congenital. His condition deteriorated until on June 6 he was comatose and could not be roused. The eyes were sunken, the tongue was covered with a brown fur, and there was muttering delirium with purposeless picking at the bedclothes. The rash was heavy on the chest and buttocks, and there was retention of urine. Constipation was marked, and it continued throughout the illness. The white cell count was 6,000 (polymorphs 78%, lymphocytes 19%, eosinophils 2%, and monocytes 1%). No abnormal red or white cells were found, and films showed no malaria parasites. The urine was sterile, but a non-lactose-fermenter was grown on blood culture.

On June 8 the pulse was irregular and he showed signs of hypostatic pneumonia. At this stage a supply of chloramphenicol was obtained and an initial dose of 16 capsules (4 g.) was given by nasal tube. This was followed by six capsules (1.5 g.) with glucose twice daily for four days. Two days after treatment was started there was such a remarkable improvement in his condition that he was able to swallow capsules and fluids normally and to answer questions, although his speech was slurred and indistinct. On the following day (June 12) temperature, pulse, and respirations had returned to normal (see Chart) and he asked for food and permission to

walk round his bed. Chloramphenicol was continued with a dosage of three capsules twice daily for a further week, making a total dosage of 33½ g. He made an uninterrupted recovery except for slight hoarseness of voice lasting two days, and when seen in August he was feeling very well and had regained his usual weight.



Bacteriological Results.—June 4:—Supplementary report from Salmonella Reference Laboratory: Blood culture organism has the following antigenic structure: O = IX, XII (Vi); H=d. Therefore it is *Salmonella typhi*. Dr. Felix, Central Enteric Laboratory, reported that the culture belonged to an untypable Vi strain (degraded). June 8: Faeces positive for *Salmonella typhi*. The patient's serum gave a positive agglutination with this organism to a titre of 1/250. June 14:—Blood Widal test: *Typhosus*, H −, O 1/250; *paratyphosus A*, H −, O 1/500; *paratyphosus B*, H −, O 1/250.

Three subsequent specimens of faeces and urine showed no pathogens, and he was discharged from hospital in excellent health on July 7. A subsequent examination of faeces on August 11 was negative for organisms of the enteric group.

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Staphylococcal Portal Pyaemia

This condition has a grave prognosis, and before the introduction of penicillin was nearly always fatal. In the following case a severe infection of several weeks' duration was cured by combined penicillin and sulphonamide therapy.

CASE REPORT

The patient, a fitter aged 31, was referred to hospital with a diagnosis of *infective hepatitis*. His illness had apparently commenced three weeks previously with complete loss of appetite followed by severe upper abdominal pain, constipation, and vomiting. A few days before admission he noticed his urine was dark and his faeces pale. Before this illness the patient had been troubled with recurring carbuncles of the skin, but had not received any chemotherapy. The last one occurred on the buttock and had healed two weeks before his present symptoms began. He had served in the Middle East during the war and gave a history of several attacks of malaria, but none of dysentery.

On examination he was pale and thin. Icterus was observed in the conjunctivae but not in the skin. The temperature was 100.4° F. (38° C.). There was epigastric tenderness, but no enlargement of the liver or spleen, and no ascites. The urine showed a trace of bile.

The patient's temperature rose the following day to 102° F. (38.9° C.), and thereafter exhibited a daily swing from 99 to 103° F. (37.2–39.4° C.). Blood count showed: haemoglobin 83%; white cells 31,800 per c.mm. (polymorphs 91%, lymphocytes 7%, monocytes 2%). The clinical picture was unlike that of infective hepatitis, which view was supported by the results of liver function tests (thymol turbidity, 1 unit; thymol flocculation, 0; alkaline phosphatase (Jenner and Kay) 19.2 units). His condition deteriorated rapidly. The jaundice became deeper, and was apparent in the skin as well as the conjunctivae; the liver became tender and enlarged to four finger-breadths below the right costal margin. The abdominal pain was almost constant and became very severe. The haemoglobin fell to 66% and the white cells increased to 41,000 per c.mm. The patient was now dehydrated, thin, and desperately ill. He vomited on several occasions and had severe anorexia.

One week after admission he complained of pain in both shoulders, and these joints became swollen, hot, and painful to move. The diagnosis of pyaemia with multiple liver abscesses and suppurative arthritis of the shoulder joints then became apparent, and was confirmed by a blood culture. The organism was a penicillin-sensitive *Staphylococcus aureus*. A few days previously a needle biopsy of the liver (performed by Dr. H. A. Dewar) showed infiltration of the portal tracts with polymorphs. A fluoroscopic examination did not show any elevation or restricted movement of the diaphragm.

Penicillin, one million units daily, was started on the tenth day after admission. After three days the evening temperature was still 102° F. (38.9° C.). The next day sulphamezathine was added; the temperature fell rapidly to normal and the patient's condition improved dramatically. His appetite returned, the jaundice faded, and the liver diminished in size and lost its tenderness. He began to put on weight and became lively and cheerful. The penicillin was continued for ten days and the sulphamezathine to a total dosage of 40 g. The swelling and pain in the left shoulder joint subsided, but the right shoulder remained painful and stiff. There was no radiographic bone or joint change. The affected joint was treated by immobilization in a sling for three weeks, followed by exercises and heat. During this time the patient showed a steady improvement and the temperature did not rise above normal. He was discharged after a month in hospital.

Six weeks later he was feeling well and was free of symptoms, apart from some residual stiffness in the right shoulder.

COMMENT

The diagnosis of pyaemic abscesses of the liver was assisted in this case by the development of metastatic arthritis in the shoulder joints. Both lesions were complications of a systemic pyaemia which appeared to follow a carbuncle. The suddenness of the hepatic enlargement was a striking feature, and was similar to that observed by Wyndham (1945) in each of his three cases. The appearance of jaundice may be taken as an indication of the severity of the infection, for it is regarded by several authors (Rothenberg and Linder, 1934; Ochsner *et al.*, 1938; Smith, 1944) as a late and infrequent sign of ominous significance occurring only when the abscesses are multiple and widespread throughout the organ.

I wish to express my thanks to Dr. A. G. Ogilvie for permission to record this case.

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Royal Victoria Infirmary, Newcastle-upon-Tyne.

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Reviews

PRACTICE OF OPHTHALMOLOGY

Modern Practice in Ophthalmology, 1949. Edited by H. B. Stallard, M.B.E., F.R.C.S. (Pp. 525; 231 illustrations; 30 coloured plates; £3 5s.) London: Butterworth. 1949.

The Modern Practice series is written for the general medical practitioner as a guide when he shares with a consultant the responsibility of the conduct of a case ordinarily outside his province, or when it falls to his lot to act on his own responsibility when the consultant is not available. The present volume on ophthalmology is written by 14 well-known contributors under the general editorship of Mr. H. B. Stallard, who has written several sections himself.

A book of this type is difficult to prepare. Obviously it cannot be comprehensive, and there are few decisions requiring more judgment than the selection of the essentials and the discarding of the non-essentials. Ophthalmology presents more problems in this respect than any other branch of medicine, for it is peculiarly specialized and the effects of disease of the eye may be dramatic and catastrophic. The tendency for most books of this type is to be encyclopaedic, treating the diseases of each tissue systematically. This is the style of the present volume, and without question each section is good and its teaching reliable.

As a rule, however, disease presents itself to the general practitioner in a different way. In his experience the essential problem is to assess the importance of such questions as the significance of a red or a painful eye. The answer would be difficult to find from the present book unless the reader consulted a multitude of headings and studied the differential diagnosis of each. To take another example, a common complaint addressed to the general practitioner is that of double vision. Reference to the index leads to a description of diplopia goggles in testing for squint. There is, however, an excellent section on ocular palsies in the chapter on medical ophthalmology, a separate section on paralytic squint written from the standpoint of muscular function, while in the chapter dealing with cataract uniocular diplopia (the commonest cause of double vision in practice) is noted. This tendency is accentuated, to take a further example, in the duplication of the discussion of the vascular retinopathies and of vascular occlusions. These lesions are extensively described in the chapter on medical ophthalmology, and the discussion is repeated by a different author in another chapter dealing with diseases of the retina. Both sections are well illustrated, but there is no cross-reference to the text or the illustrations. The best chapter, from this viewpoint, is that on the cornea. The subject is treated non-compartmentally, and an account is given of the different types of corneal lesion, their main causes, the main symptoms and signs of corneal disease, the main features providing aetiological clues, what conditions elsewhere may throw light on the local lesion, the prognosis, and the general principles of treatment. The presentation of the subject-matter in this case makes it relatively easy for the practitioner (who is always assumed to have forgotten his ophthalmology) to use the book as a useful vade-mecum.

The book is well produced, and the illustrations are lavish and excellent. As is to be expected in a work of this type, most of these are not original but are derived from periodicals or other books: for the use of these the publishers have been acknowledged but not the authors—an omission which, it is hoped, will not become a practice in British medical literature.

STEWART DUKE-ELDER.

TEXTBOOK OF HAEMATOLOGY

Hematology. By Cyrus C. Sturgis, M.D. (Pp. 915; illustrated. £3 3s.) Oxford: Blackwell Scientific Publications. 1949.

An author intending to write a new general textbook of haematology must face the fact that there is already one superlatively good work on the subject—Wintrobe's *Clinical Hematology*, published in 1942. Yet it is evident that no textbook, however good, can dominate the field indefinitely. Time by itself favours the new work, because research on haematology is active and every year there is much to add and a little to take away. Moreover, many different approaches are possible, and a new publication may be welcome simply because it is written from a new viewpoint.

The strongest feature in the present book is its historical approach, and for this alone it will be a valuable work of reference. For instance, anyone trying to understand why forty years ago anaemic adolescent girls turned green, whereas now they simply turn pale, will be comforted to read Cabot's description, written in 1915: "It takes the eye of faith to see any justification for the title of the disease [chlorosis]. . . . If one exercises a great deal of imagination, one might possibly see the slightest imaginable tint of olive green in the shadow beneath the chin, that is all."

Perhaps the chief weakness of the book is its lack of interest in methods and standards; indeed, methods are not described at all, and in the first paragraph the author is content to refer to values obtained in a group of persons "in the vicinity of Ann Arbor." Nowhere is mentioned the problem of obtaining consistency between different centres in making haemoglobin estimations, or of the innumerable sources of error in haematological methods.

A book published in 1948 ought not to have to admit that "the separation of acquired . . . hemolytic anemia with acholuric jaundice [from the congenital form] . . . causes considerable difficulty." This statement ignores the fact that two methods of distinguishing between these conditions are now known: first, erythrocyte survival tests, and, secondly, the direct Coombs test. Further examples of the rather patchy treatment of recent work are as follows: no mention of the work on the anaemia of infection by Wintrobe and his co-workers; no reference to the iron-binding protein or to the Rh "blocking" antibody; no mention of the use of urethane in the treatment of leukaemia or of the advantage of adding citric acid to citrate-glucose mixtures for blood preservation.

In short, this book cannot be regarded as a first-class scientific work, but it can be strongly recommended as a very readable introduction to haematology which should prove useful to anyone who wishes to know more of the history of any particular syndrome.

P. L. MOLLISON.

THE TECHNIQUE OF TRANSFUSION

Blood Transfusion. By Elmer L. De Gowin, M.D., Robert C. Hardin, M.D., and John B. Alsever, M.D. (Pp. 587; 200 diagrams. £2 5s.) Philadelphia and London: W. B. Saunders Company. 1949.

The three authors of this book were all concerned with the organization and running of blood banks in the United States during the recent world war, and one of them was responsible for teaching the facts of blood transfusion in

the Army. During these activities they all came to feel the need for a book covering the entire field of blood transfusion, and the present volume is designed to cover this deficiency. The volume is large and certainly contains a great amount of information about transfusion, but it does not form a really comprehensive treatise on the subject. The emphasis throughout the volume is on the technical side, and the result is an admirable practical handbook. Its chief value will be for the laboratory worker and those employed in blood banks; the clinician will not find in it a readable account of the medical and surgical sides of the subject. An important feature of the book is what the authors call "a series of flow diagrams." These are marginal line drawings illustrating the steps of the various technical processes, so that the operator may acquire his technique with the least effort of the mind. The diagrams have been admirably done by the instructor in art at the State University of Iowa.

In their preface the authors deplore the fact that blood transfusion has become a minor specialty, but they believe that the necessity for this is genuine. A blood transfusion cannot be carried out simply as it used to be, though the process can be done largely by technicians. The present volume certainly produces the impression that the physicians and surgeons can now take back seats in the transfusion arena, and that the philosophy of blood transfusion is a matter of little importance.

GEOFFREY KEYNES.

RADIOLOGIST AND CLINICIAN

Confrontations: Radio-Anatomo-Cliniques. By De M. Chiray, R. A. Gutmann, and J. Sénèque. (Pp. 79; 150 figures. 1,000 francs.) Paris: G. Doin, Masson. 1949.

In this symposium from a number of Paris hospitals some forty case histories are presented in such a way as to bring together the *x*-ray appearances, the pathological anatomy, and the clinical course. About half of each page is taken up with illustrations, and the *x*-ray reproductions and pathological photographs are excellent. The quality of the case histories varies, but in most of them the reader feels he is given an insight into the way the clinician's mind worked when they were taken. Many phrases have that epigrammatic clarity which is typical of French medicine at its best, and which is so difficult to imitate in other languages. Considerable space is allotted to highly critical commentaries on the *x* rays.

As might be expected from the editors' interests, the problems are mainly gastro-enterological. However good the radiological and gastroscopical technique, it is often impossible to decide whether a distortion of the pyloric antrum is due to gastritis or carcinoma, whether a jejunal ulcer is present or not, and whether an ulcer is carcinomatous. In elderly subjects decisions on correct procedure may be fraught with anxiety, and in most clinics unnecessary mistakes probably occur in the borderland between clinical and *x*-ray responsibility. The moral of these studies is that the radiologist who takes a superficial clinical history and allows it to influence his diagnosis is a menace. Certain *x*-ray appearances make operation desirable, regardless of the diagnosis suggested by classical clinical medicine. On the other hand, the clinician cannot shift his responsibility on to the radiologist. It is his duty repeatedly to ask himself whether all the symptoms can be explained by the *x*-ray findings or whether an alternative explanation is essential. The *x*-ray department can only be as good as the clinicians allow it to be, and without the fullest collaboration mistakes and mutual recriminations are inevitable.

The value of the book lies in the cases it describes. They are too uncommon to be properly dealt with in a textbook, and too common to find a place in ephemeral journals. In addition, few textbooks or journals could afford the lavish but essential illustrations.

D. A. JENNINGS.

HYPNOSIS

Medical Hypnosis. By Lewis R. Wolberg, M.D. (Volume 1: pp. 449; $5.50. Volume 2: pp. 513; $6.50.) New York: Grune and Stratton. 1948.

These handsomely produced volumes provide an account of theory and practice in hypnosis which has been largely oriented by psycho-analytic teaching. Thus, in his interesting chapter on the nature of hypnosis the author rejects one by one theories of a neuro-physiological kind; and though he finds points of criticism in the usual psycho-analytic theory of hypnosis he finally adopts a theory which is little removed from it. Those who are not analysts will be inclined to criticize this critique. The psycho-analytic theory places great importance on the personal relationship between the hypnotist and the subject; the hypnotist becomes the "intrapsychic representative of the parent or superego." This would seem to be altogether too narrow a conception. The phenomena of hypnosis will be unintelligible until they are brought into relation with a very wide class of observations on both human and animal behaviour. The hypnosis of animals has been a frequent subject of experiment, and certainly cannot be accounted for by explanations involving the fabulous superego. Any satisfactory theory would have to be applicable to the phenomena of psychic shock, hysterical conversion symptoms, normal dissociative processes such as are seen in sleep-walking, the "miracle" cures of religious conversion, and many others, besides hypnosis itself.

In the author's view the applications of hypnosis in treatment are wide and varied, but they should always be a part of a consistent scheme of psychotherapy. He discusses the use of hypnosis for the simple removal of a symptom, as a part of non-analytic types of psychotherapy, reassurance, and persuasion, and as a technique to aid progress in psycho-analysis. Nearly every chapter of the second volume is profusely illustrated with recorded conversations between doctor and patient which effectively display the author's methods. In a final note the use of hypnosis for public displays is deplored, and the author demands protective laws which would confine the use of hypnosis to the medical profession.

ELIOT SLATER.

ADVANCES IN TUBERCULOSIS

Fortschritte der Tuberkulose-Forschung und -Behandlung. Edited by H. Birkhaeuser. Vols. 1 and 2. (Pp. 446. 45.40 Swiss francs.) New York and Basle: S. Karger. 1948.

In this account of progress in research and treatment in tuberculosis abstracts have been compiled of those items of wartime literature which "seemed to the authors, on the basis of their special knowledge, worthy of notice." There are 19 articles, unequal in value and scope, and on entirely different aspects of tuberculosis. Most of them are without comment or criticism.

The best of these articles are: H. Bloch's account of the morphology, chemical constitution, and pathogenicity of the tubercle bacillus; "Experimental Pathology and Therapy," by Noel Rist; "Collapse Therapy," by Haeberlin; and "Sarcoidosis," by Loeffler and Jaccard. The workers on sarcoidosis concluded that the condition

was marked by well-defined clinical and histological characteristics. In their opinion this did not exclude a tuberculous aetiology, nor did it favour it. That sarcoidosis can be followed by tuberculosis may be due to a special predisposition. Uehlinger's case, in which sarcoidosis was followed by fulminant tuberculous septicaemia, may support this, but in the reviewer's opinion it was a single, exceptional case. As a rule, when sarcoidosis is followed by tuberculosis the latter is ordinary in appearance and course and lesions of both conditions can be found in intimate association with each other. The authors reject the virus hypothesis. From their suggestion that sarcoidosis should be catalogued as a disease of the reticulo-endothelial system they seem to expect some compensation for our ignorance of its aetiology.

W. PAGEL.

MORGAGNI'S SYNDROME

Morgagni's Syndrome. By Professor F. Henschen, M.D. (Pp. 172; illustrated. £1 10s.) Edinburgh and London: Oliver and Boyd. 1949.

The triad of hyperostosis frontalis interna, virilism, and obesity was first described by Morgagni in 1761, and in 1936 Professor Henschen suggested the term "Morgagni's syndrome." The hyperostosis which he considers the essential component of the syndrome is found in over half the population past 70, and is a necropsy finding rather than a clinical entity, for it is often symptomless. The syndrome itself is admitted by the author to be "a not very strongly pathologically accentuated variant of the endocrine state of the woman after the climacteric." People vary widely in their endocrine equipment, and there is some doubt whether Morgagni's syndrome has yet deserved to be christened. Syndromes are born easily but die with difficulty, and the bestowal of an eponym for some reason guarantees their longevity. Until doctors are clearer in their minds about what constitutes an abnormality, and until they decide how closely abnormalities must be associated to justify their being grouped together as a syndrome, there will always be doubts about the usefulness of a label. This book says, in effect, that many elderly, fat, hairy ladies have thick fronts to their skulls and nobody really knows why.

The volume is well produced and illustrated, and the thoroughness with which this painstaking work has been done results in a complete and authoritative survey of a very specialized subject.

RICHARD ASHER.

The purpose of the series of reviews of which *The Annual Review of Microbiology* (Editor, C. E. Clifton; pp. 532; £1 16s.; London: H. K. Lewis and Co.; 1948) is the second volume is not to survey the whole field of microbiology but to select about a score of important subjects in which significant advances have been made. Each topic is the responsibility of an expert contributor, who gives a critical summary of recent research. Much of this research is of a fundamental character, and it is assumed that the reader is familiar with earlier work. These reviews are thus designed primarily for those engaged in teaching and scientific research. The present volume contains articles on bacterial and protozoal metabolism and growth factors, on antibiotics and chemotherapeutic agents, and on chemical disinfectants. Immunology is represented by reviews on the nature of antibodies and complement and the inheritance of immunity, and systematic microbiology by papers on the pathogenic streptococci, spirochaetes, and the neurotropic viruses. There are also several articles on fungi, soil, and water which are likely to be of interest to industrial and agricultural bacteriologists. The contributors have succeeded admirably in producing a concise and readable summary of the work of the last few years, without notable omissions. The extensive lists of references are particularly valuable. The book will be welcomed by teachers and others whose duty it is to keep pace with the ever-increasing volume of new knowledge in microbiology.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

Homöopathie und Harmonische Ordnung der Heilkunde. By A. Bier. (Pp. 268. M. 19.50.) Stuttgart: Marquardt. 1949.

The Story of the Johns Hopkins. By B. M. Bernheim, M.D. (Pp. 274. 12s. 6d.) Kingswood, Surrey: The Worlds Work (1913). 1949.

Science and International Relations. By J. Needham, F.R.S. (Pp. 30. 2s. 6d.) Oxford: Blackwell Scientific Publications. 1949.

Body and Mature Behaviour. By M. Feldenkrais. (Pp. 167. 12s. 6d.) London: Routledge and Kegan Paul. 1949.

Het Rubella-Probleem in het Licht van Nederlandse Ervaringen. By A. E. H. M. Kamerbeek. Foreword by J. P. Bijl. Vol. 14. (Pp. 212. 15s.) London: H. K. Lewis. 1949.

Autobiography of Dr. Robert Meyer. With a memoir by E. Novak, M.D. (Pp. 126. $2.50.) New York: Henry Schuman. 1949.

Neurocirugia. (Pp. 316. No price.) Santiago, Chile: Instituto Central de Neurocirugia y Neuropatologia. 1948.

Textbook of Bacteriology. By C. H. Browning, M.D., F.R.S., and T. J. Mackie, C.B.E., M.D. 11th ed. of Muir and Ritchie's *Manual.* (Pp. 907. 50s.) London: Geoffrey Cumberlege. 1949.

Dental Caries. By T. Ockerse, D.M.D., D.D.S. (Pp. 80. No price.) Pretoria: Department of Health. 1949.

The Energetics of Human Behavior. By G. L. Freeman, Ph.D. (Pp. 344. 20s.) New York: Cornell University Press. London: Geoffrey Cumberlege. 1948.

The Family in a Democratic Society. Anniversary Papers of the Community Service Society of New York. (Pp. 287. 21s.) New York: Columbia University Press. London: Geoffrey Cumberlege. 1949.

Hematology. By W. M. Fowler, M.D. 2nd ed. (Pp. 535. 44s.) London: Hamish Hamilton Medical Books. 1949.

Brain and Behaviour. By N. E. Ischlondsky, M.D. (Pp. 182. 21s.) London: Henry Kimpton. 1949.

Biochemistry in Relation to Medicine. By C. W. Carter, B.M., B.Ch., and R. H. S. Thompson, B.Sc., D.M. (Pp. 442. 25s.) London, New York, Toronto: Longmans, Green. 1949.

Ophthalmic Medicine. By J. Hamilton Doggart, F.R.C.S. (Pp. 329. 32s.) London: Churchill. 1949.

Tom Cullen of Baltimore. By J. Robinson. (Pp. 435. 21s.) London, Toronto, New York: Geoffrey Cumberlege. Oxford University Press. 1949.

Therapeutic Group Work with Children. By G. Konopka. (Pp. 134. 14s.) London: Geoffrey Cumberlege, Oxford University Press. 1949.

Rehabilitation of the Handicapped. Edited by W. H. Soden. Foreword by S. Licht, M.D. (Pp. 399. 55.) New York: The Ronald Press. 1949.

A Calendar of Food and Wine. By Nell Heaton and André Simon. (Pp. 268. 16s.) London: Faber and Faber. 1949.

Pharmacology and Toxicology of Uranium Compounds. Edited by C. Voegtlin, Ph.D., and H. C. Hodge, Ph.D. (Pp. 1,034. 60s.) London: McGraw-Hill. 1949.

Human Personality and its Minor Disorders. By W. Harrowes, M.D., F.R.S.Ed. (Pp. 260. 15s.) Edinburgh: E. and S. Livingstone. 1949.

The Anatomy of the Female Pelvis. By F. A. Maguire, F.R.C.S., F.R.C.O.G. 4th ed. (Pp. 176. 42s.) London: Angus and Robertson. 1949.

Trends in Medical Education. Edited by M. Ashford, M.D. (Pp. 320. 16s.) London: Geoffrey Cumberlege. 1949.

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FRESH LIGHT ON MALARIA

So much has been added to knowledge about the parasitology and treatment of malaria during the last decade that a total revolution of ideas has taken place. The new facts, however, have come in such a fragmentary manner, major and minor discoveries jostling each other, that at times they have seemed rather to complicate than clarify existing problems. In his Croonian Lectures—published in this and last week's *Journal*—Professor N. Hamilton Fairley has fitted the new pieces of knowledge together and enabled them to be seen in perspective. It seems that *Plasmodium vivax* and *P. malariae* exist in man in five distinct forms—the sporozoite, the pre-erythrocytic form in the liver, the schizont in the red blood corpuscle, the exo-erythrocytic form in the liver, and the gametocytes in the red cells. *P. falciparum* apparently does not develop the exo-erythrocytic form, but is otherwise similar. The sporozoite is merely a transitional stage inoculated by the mosquito, and it quickly changes into the pre-erythrocytic form, which then multiplies in the body. The schizont, which incidentally produces the fever, seems to be a rather unnecessary phase in the protozoon's life history, except that gametocytes perhaps branch off from it to constitute the form infective to mosquitoes. The exo-erythrocytic stage is not essential for the protozoon's survival, but provides a long-living resistant reservoir from which new broods of schizonts arise; these cause clinical relapses and are the source, directly or indirectly, of fresh gametocytes which may ensure the organism's ultimate survival.

Each of these forms reacts differently to drugs, and it is now hardly surprising that the old quest to find a drug which would eliminate the schizont and the fever it caused had little success in so far as the radical extermination of the parasite was concerned. Perhaps all forms are susceptible in some degree to the action of the known antimalarial drugs. Within the limits of tolerated doses quinine, mepacrine, and chloroquine are effective against schizonts only. In consequence they offer no prospect of radical cure of *P. vivax* infections, which may continue in the exo-erythrocytic form untouched by the drug. They are not true causal prophylactics, though when properly administered mepacrine and chloroquine may destroy the schizont so rapidly that clinical signs are suppressed; in consequence they appear to act as true prophylactics against *P. falciparum* infections and are good suppressants of the others. Proguanil has a wider range, acting on the pre-erythrocytic form of *P. falciparum* malaria as well as on the schizonts and gametocytes of all species. It is therefore a true causal prophylactic of *P. falciparum* malaria and a suppressant of *P. vivax* infections; it brings about a clinical but not a radical cure of *P. vivax* infections, and renders gametocytes non-infective to mosquitoes. The range of the 8-amino-quinolines—pamaquin, pentaquine, and iso-pentaquine—is still wider, for they have an observable effect on the pre-erythrocytic, schizogony, exo-erythrocytic, and gametocyte stages. This group is therefore the only one from which there is a prospect of obtaining an efficient antimalarial drug for the clinical cure, radical cure, and prophylaxis of all forms of malaria. Unfortunately the toxicity of these drugs makes them useless for the control of schizogony and its clinical effects or for prophylaxis, and for other purposes they should be administered under strict medical control. Efforts in the U.S.A. to discover less toxic members of this group have met with some success, for recent reports indicate that iso-pentaquine has a maximum tolerated dose about four times that of the original pamaquin, while weight for weight it is apparently slightly more effective. It is, however, still too toxic to be of any use as a prophylactic or schizonticide, or to be taken except under medical supervision. For the time being, then, until some drug is discovered with the range of action of the 8-amino-quinolines but without their toxicity, a variety of drugs must be prescribed, according to the purpose of medication and the species of parasite concerned.

Professor Fairley's account of the life history of the parasite is satisfying in that it explains all the known facts, and most of it has been objectively proved, but a great field lies open for further work. The pre-erythrocytic cycle of *P. falciparum* malaria is still hypothetical; happenings in the "premune" state are obscure; the relationship between "premunity" and re-action to treatment requires further investigation; there is no effective prophylactic against *P. vivax* malaria; the risk of parasites acquiring tolerance to proguanil and perhaps other drugs cannot be ignored; some of the available drugs are too toxic for common use; and the variety of drugs needed for the treatment of one disease is greater than desirable. In the past work has been slow because it has largely depended on human volunteers, often intentionally inoculated, in whom the course of events had to be laboriously studied for several months. The recent use of parasites of birds and monkeys has greatly eased the preliminary work, but this is not entirely satisfactory, because the relationship

[1] *British Medical Journal*, 1949, 2, 222.

between avian and human parasites is insufficiently close, and the monkey is an expensive and difficult animal for large experiments. More rapid progress could be made if the human parasites could be cultured in ordinary laboratory animals or if a closely related parasite could be found in one of them. The discovery of a new *Plasmodium* (*P. berghei*) in Congo tree rats holds out hope that the second of these conditions may be fulfilled. It is not yet certain that it will be, because mosquito transmission, not mere blood inoculation, must be maintained, and the anopheline vector, probably *Anopheles dureni*, has not been finally confirmed or established by culture in Europe or America. If the difficulties in using this parasite could be overcome and large stocks of the rats infected by mosquito transmission maintained, it should be possible to screen drugs in a much more realistic manner than before by tracing their immediate effects on each form of parasite by post-mortem examination. Chemotherapeutic research would thus be greatly accelerated, though the need for final confirmation on man would remain.

These advances in the treatment of malaria come at a time when its prevention is being undertaken on a rapidly increasing scale. Total extinction, eliminating the need for treatment, is still beyond the vision of even the most enthusiastic. Progress in mosquito control—a subject discussed in a recent leading article[1]—has, however, advanced to the stage when many doubt the place of mass therapy or drug prophylaxis in the protection of the civilian population except during epidemics, believing that the funds and administration needed for them could more effectively be used in mosquito control. The field of treatment is, therefore, becoming narrower in comparison with past years, but this is all to the good if it means that blunderbuss therapy gives way to the practice of scientific medicine.

TUBERCULOSIS IN ENGLAND AND SCOTLAND

The death rate from respiratory tuberculosis in England and Wales is now only one-quarter of the rate of one hundred years ago. At that time the death rate for females was higher than that for males, but because it fell more rapidly it is now lower than the male rate. In 1851–60 the standardized death rate for males was 2,694 and for females 2,854 per million; in 1921–30 the figures were 868 for males and 677 for females. The death rate for both sexes continued to decline until 1939, when the war interrupted the trend and the rate began to increase. The peak was reached in 1941, but after remaining at a high level for two years the rate fell, and in 1946 and 1947 it was below the pre-war figure. The death rate from non-pulmonary tuberculosis has followed a similar but not parallel trend. The speed of decline was slower at first, but since the beginning of the century the fall has been faster for non-pulmonary than for pulmonary tuberculosis. Again there was a rise during the early war years, but since then the rate has declined more rapidly than that for respiratory tuberculosis. The comparative mortality index for non-pulmonary tuberculosis in 1947 was only three-quarters of the 1938 value, while the index for respiratory tuberculosis was slightly over nine-tenths of the 1938 value.

Judged from the trend of the death rates the present position appears to be satisfactory, and a continued fall in mortality might safely be expected. But a doubt is cast on this prediction by the notification figures. The number of new cases diagnosed rose from 40,742 in 1938 to 47,186 in 1947. How far this signifies a true increase in the incidence of tuberculosis is problematical. It may be due, in part at least, to more strenuous efforts to diagnose and control the disease: the large decrease in notifications, almost 2,000, recorded in 1940 indicates that notification is related to the facilities for diagnosis and treatment. The greater number of notifications may also be partly due to mass radiography. Many minimal lesions have been found that would otherwise have escaped detection. It is impossible at present to estimate in what proportion of these cases the infection becomes clinically active during observation, but it should be possible to answer this question during the next few years. The higher number of notifications probably does not signify an actual increase in incidence. But there has been no falling off of the number of deaths from tuberculosis of persons not notified before death. In fact there has been in recent years a slight increase; the numbers not notified before death were 3,468, 3,603, 3,580, and 3,682 for the four years 1944–7. In 1947 13% of the persons dying from respiratory tuberculosis were not notified during life; in 1938 the figure was 9%.

The proportion of tuberculous patients being treated in institutions in 1947 was 2% more than in 1946; but the demand for hospital beds had not been met, and the delay in admission had increased. In the first quarter of 1947 there were 32,586 beds provided, of which 4,618 were temporarily not in use—mainly because of lack of staff. The situation improved during the year, and in the last quarter the percentage of beds available but out of use dropped from 14.2 to 11.5. This was, however, offset by the rapid increase in the numbers on the waiting-list. In the first quarter of 1947 6,882 persons were awaiting institutional treatment, and by the last quarter the number had gone up to 8,269. Adequate staffing of all available beds would reduce the number on the waiting-list by almost one-half. The rise in the numbers awaiting admission may be due partly to the fact that modern treatment necessitates a longer stay in hospital, partly to a real

increase in incidence, or partly because patients are placed on the waiting-list in an earlier stage of the disease, with the result that there is a smaller loss through deaths before admission. Whatever the cause, or combination of causes, there are not enough beds.

In Scotland the trend of the death rate from tuberculosis has been similar to that of England and Wales, though the figures have been consistently higher. The rate did not start to decline so early in Scotland, but from 1866 it fell until 1939, when a rise occurred. Contrary to the post-war experience of England and Wales the tuberculosis death rate in Scotland failed to decline, the death rate from respiratory tuberculosis being 64 per 100,000 in 1946, 66 in 1947, and 66 in 1948—a reversion to the level of 20 years earlier. A few weeks ago in this *Journal* Mr. Walter Elliot[1] described the failure of the rate in Scotland to follow the same trend as the English rate as "a fascinating problem of public health to which no solution has yet been found." In a letter published in last week's *Journal* (p. 869) Dr. Ian Sutherland, of the Institute of Social Medicine at Oxford, compared the mortality from the disease in England and Wales and in Scotland by sex and age: in his opinion the statistical evidence indicates that "the mortality from pulmonary tuberculosis among young adults in Scotland compares very unfavourably with that in England and Wales, and is relatively much worse now than it was early in the war," and also that "the increase which has occurred since the war in the death rate from the disease among Scottish women aged 15 to 34 is a matter meriting the fullest investigation."

Notifications of respiratory tuberculosis in Scotland were diminishing in the pre-war years, but recently they have risen steadily each year, from 4,637 in 1939 to 8,010 in 1948, and are now at the same level as in 1921. The rate of increase exceeds that recorded in England and Wales. Despite the rapid rise in the number of notifications a large proportion of tuberculous persons escape notification during life; 530 (15%) of the 3,472 persons who died from respiratory tuberculosis in 1947 were notified only at or after death.

It is even more difficult to obtain a vacancy in a sanatorium in Scotland than it is in England. The number of available beds rose from 4,263 at the end of 1946 to 4,707 at the end of 1947, while those empty through lack of staff decreased from 742 to 572, but the waiting-list increased from 1,889 to 2,572 during these years—if there had been enough staff this would have been reduced by one-fifth. The number of staffed institutional beds available for the treatment of respiratory tuberculosis in Scotland is only about two-thirds of the estimated minimum requirement. While Scotland has its special difficulties it is plain that the control of tuberculosis presents fundamentally the same problems in England, Wales, and Scotland. As Sir Andrew Davidson, Chief Medical Officer of the Department of Health for Scotland, recently remarked,[2] "The present need is for full and adequate co-operation between the health officers and the hospital services." New methods of prevention and treatment are being rapidly developed, and it is essential that all doctors engaged in the task of eradicating tuberculosis should work closely together so that useful knowledge is disseminated with the shortest delay.

[1] *British Medical Journal*, 1949, 2, 297.
[2] Ibid., 1949, 2, 806.

CHEMOTHERAPEUTIC TREATMENT OF TYPHOID

The chemotherapeutic treatment of typhoid may be said to have begun in 1887 with the observations of Chamberland[1] that the vapours of certain essential oils—sweet marjoram, camphor, sandalwood, and cloves—had an inhibitory action on the growth of typhoid bacilli. The earlier sulphonamides appeared to give some protection to mice against multiple lethal doses of *S. typhi* and *S. paratyphi B*,[2] but Britton[3] was unable to detect any bacteriostatic or bactericidal action *in vitro* on the growth of these organisms by sulphanilamide or allied drugs, and in human infections results were contradictory. With the discovery of the action of sulphaguanidine and sulphasuxidine on the organisms of bacillary dysentery hopes were raised that a cure for typhoid also might be in sight, but though abdominal discomfort was sometimes reduced the fever and general course of the infection were uninfluenced. With penicillin the same story was repeated: occasionally good results were obtained, but more often they were similar to those reported by Riser and his colleagues,[4] who found that in one chronic typhoid carrier bacteriological tests became negative after a total dose of 2,200,000 units, and in a second they became negative after 2,650,000 units but relapsed one week after the drug had been stopped. Streptomycin *in vitro* appears to inhibit the growth of *S. typhi* in concentrations of from 1 to 16 units per ml., but in man the results are unimpressive. Of 11 patients with *S. typhi* or *S. paratyphi A* infections, including three carriers, treated by Pulaski and Amspacher,[5] nine recovered and only two died, but in the six cases where *S. typhi* was the causative organism there was no real evidence that streptomycin had shortened the course of the infection. It was concluded that parenteral streptomycin alone was useless, but that possibly combined oral and systemic penicillin might be of value.

Very much more encouraging results have been obtained with chloramphenicol ("chloromycetin"), which was first used in Malaya by Woodward and his

colleagues[6] almost as a by-product of their investigations on scrub typhus. We have already drawn attention to these studies[7]: 10 patients were successfully treated, though two relapsed after afebrile periods of 10 and 16 days and one had a haemorrhage. The average total dose was 19.1 g. per patient, given over an average period of 8.1 days. Both the patients who relapsed were cured by further chloramphenicol. These preliminary results have been amply confirmed. Murgatroyd[8] reported one dramatic recovery in this *Journal*: a total dosage of 22.75 g. was given. Bradley[9] gave preliminary findings relating to the use of the drug during an epidemic in Berkshire in which an attempt was made to obtain an unbiased result by treating alternate cases: the change in the constitutional symptoms was remarkable, though three of nine patients relapsed. Among all those treated with chloramphenicol in this outbreak four only relapsed, and these responded to further doses of the antibiotic. Douglas[10] treated two cases, in one of which administration of chloramphenicol was begun on the third day of illness. The dose was 4 g. in the first hour, 0.25 g. two-hourly until the patients were afebrile, and then 0.25 g. four-hourly until a total of 20 g. had been given. Four days after beginning treatment the temperatures were normal, but though blood cultures on the second, third, and fourth days were negative *S. typhi* was present in the stools until the sixth day. There were no relapses. In this issue of the *Journal* Dr. W. Lomax describes the successful treatment of a severe infection which the patient contracted in Egypt and which developed on the voyage to England. From the U.S.A. Foster and Condon[11] record complete remission of the temperature in 96 hours in a patient who had shown no change after streptomycin therapy for four days. In Syria Kiledjian[12] successfully treated three patients infected with *S. typhi* and one with *S. paratyphi B*, and from Transjordan Tutunji[13] reported good results in two girls with *S. typhi* infections. No relapses were recorded. Shah[14] and Vakil[15] in India describe the use of chloramphenicol in series of 33 and 14 cases, though since blood cultures were not always performed it is uncertain how many of these patients were actually suffering from typhoid. Elsewhere in this issue Drs. J. C. Patel, D. D. Banker, and C. J. Modi, of Bombay, describe a series of six cases in which the blood cultures were all positive. As noted by other workers, the constitutional symptoms improved before the fall in temperature, which occurred very frequently in two stages—an initial reduction being followed by a rise and then by a slower subsidence. One of the six cases relapsed. In Egypt El Ramli[16] found that of 17 patients treated with chloramphenicol nine relapsed, whereas among 122 previous cases treated with other drugs only 16 had relapsed. In a series of 45 cases treated in Port Said and as yet unpublished there were only two relapses. The largest series of cases so far recorded is that by Musotto,[17] who describes a water-borne outbreak of typhoid at Pozzallo, near Ragusa, in which some 500 cases occurred. Unfortunately in his preliminary account he gives no precise figures, but all severe cases were treated with chloramphenicol and excellent results were obtained. The initial dose was 50 to 60 mg. per kg. of body weight in the first hour, capsules being given every 10 minutes, followed by a maintenance dose of 0.25 g. in adults and 0.12 g. in children every two to three hours. When the temperature had fallen to normal the same maintenance dose was continued four-hourly for at least five days. With this regime there were few relapses, and these promptly responded to further chloramphenicol. One patient who had an intestinal perforation recovered.

Comparatively few cases of paratyphoid infection have so far been treated. In Musotto's series there were a number of paratyphoid A infections which apparently responded satisfactorily. Montuschi[18] treated one case of paratyphoid B which reacted somewhat slowly: the temperature did not fall till the fourth day of treatment after 0.5 g. had been given three-hourly for 24 hours. Christie[19] briefly refers to eight cases of paratyphoid of unspecified type. One child died after six days' treatment with chloramphenicol; in most of the seven other cases the temperature became normal after four to five days, though one patient was afebrile in 48 hours. This result is no better than that in children treated on conservative lines, though it is mentioned that in another series of 10 children to whom no antibiotic was given pyrexia persisted for from nine to 15 days. It is thus possible that paratyphoid infections react less

[1] Chamberland, *Ann. Inst. Pasteur*, 1887, 1, 153.
[2] Buttle, G. A. H., Parish, H. J., McLeod, M., and Stephenson, D., *Lancet*, 1937, 1, 681.
[3] *Brit. J. exp. Path.*, 1938, 19, 140.
[4] *Amer. J. med. Sci.*, 1946, 212, 331.
[5] *Bull. U.S. Army med. Dept.*, 1947, 7, 101.
[6] *Ann. intern. Med.*, 1948, 29, 131.
[7] *British Medical Journal*, 1949, 1, 672.
[8] Ibid., 1949, 1, 851.
[9] *Lancet*, 1949, 1, 869.
[10] Ibid., 1949, 2, 105.
[11] *J. Amer. med. Ass.*, 1949, 141, 131.
[12] *Lancet*, 1949, 2, 629.
[13] Ibid., 1949, 2, 629.
[14] *Indian Physician*, 1949, 8, 192.
[15] Ibid., 1949, 8, 185.
[16] El Ramli, A. H., 1949: quoted by El Borolossy, A. W., and Buttle, G. A. H., *Lancet*, 1949, 2, 559.
[17] *Il Policlin.*, 1949, 56, 1026.
[18] *Lancet*, 1949, 2, 675.
[19] *Post-Grad. med. J.*, 1949, 25, 409; *J. Mt. Sinai Hosp.*, 1949, 16, 71.
[20] *British Medical Journal*, 1949, 1, 943.
[21] Aureomycin in Typhoid Fever. Rept. to the Therapeutics Trials Committee *Ind. Res. Fund. Ass.*, 1949.
[22] *J. Amer. med. Ass.*, 1949, 141, 129.
[23] *Lancet*, 1946, 1, 81.
[24] *Z. Hyg. InfektKr.*, 1949, 129, 119.
[25] *Lancet*, 1949, 2, 559.
[26] Ibid., 1946, 2, 114.
[27] Comerford, C. H., Richmond, H., and Kay, W. W., ibid., 1946, 2, 343.
[28] El Ramli, A. H., and El Borolossy, A. W., quoted by El Borolossy, A. W., and Buttle, G. A. H., ibid., 1949, 2, 559.
[29] Banks, H. S., in *Diseases of Children*, 1949, p. 863. Edited by Paterson, D., and Moncrieff, A. London.
[30] Bevan, G., Evans, R., Pugh, I., Sudds, M. V. N., Parker, M. T., and Sladden, A. F. S., *Lancet*, 1948, 1, 545.
[31] Parsons, C. G., ibid., 1948, 1, 510.
[32] Fry, R. M., Jones, R. E., Moore, B., Parker, M. T., and Thomson, S., *British Medical Journal*, 1948, 2, 295.
[33] *J. Bact.*, 1945, 49, 193.

readily to chloramphenicol than does typhoid. Further investigations are obviously necessary.

From published reports it appears that chloramphenicol does not readily induce drug-fastness, a point greatly in its favour. It is very nearly free from toxic effects, though Musotto and Patel and his colleagues refer to eczematous skin rashes. Ramli mentions anorexia, stomatitis, glossitis, mental apathy, and skin rashes. The most frequent complaint is of slight nausea, but it should be emphasized that reactions are both rare and mild. The greatest drawback to chloramphenicol is that in the doses used it is often bacteriostatic rather than bactericidal. This is borne out by Rumball and Moore,[20] who gave a chronic typhoid carrier, a boy 9 years of age, 10.5 g. in seven days without any effect on the presence of *S. typhi* in the stools: a further course of 5.25 g. in seven days caused the stools to become negative, but two days after treatment had ceased the organisms were again being excreted.

Since chloramphenicol in the doses so far used cannot be guaranteed to destroy all typhoid organisms in the body, three further methods of treatment have been explored. Other recently discovered antibiotics have been tested: aureomycin was given by Musotto to six patients, but the diarrhoea and vomiting were such that it had to be stopped. In India, Patel and his colleagues[21] also found aureomycin of no value. Polymyxin has been tried in five cases and found to be useless.[19] The administration of chloramphenicol for a longer period has been recommended. Smadel and his colleagues,[22] who incidentally find that synthetic chloramphenicol is quite as effective as the natural form, now recommend that the antibiotic should be given for not less than nine and not more than 14 days. Thus of 13 patients treated for eight days or less (average 6.9 days) seven relapsed; of 19 patients treated for nine to 14 days (average 11.2) none relapsed; and of 12 patients treated for 14 to 23 days (average 18) none relapsed. The total dose of chloramphenicol in the three groups averaged 13.5, 13.7, and 20.8 g. respectively. The dosage now recommended is 4 g. (16 capsules) in the first hour, followed by 1.5 g. (six capsules) twice daily till the patient becomes afebrile; then 0.75 g. (three capsules) twice daily for one week. The administration of the drug twice daily is less disconcerting for the patient and makes for easier nursing.

The third method which is being investigated is that of combined therapy. A synergistic action between penicillin and sulphonamides on *S. typhi* in mice was reported by Bigger[23] and has been confirmed by Knapp[24] and by El Borolossy and Buttle.[25] Advantage has been taken of this phenomenon in the treatment of typhoid in man by McSweeney,[26] but while some observers have obtained good results[27 28 29] others have entirely failed to demonstrate any synergistic effects.[19 30 31 32] The explanation for this divergence is that various strains of typhoid bacilli vary greatly in their sensitivity to penicillin. A similar synergistic action was found in mice by El Borolossy and Buttle with sulphadiazine and chloramphenicol. In human cases a combination of sulphathiazole and chloramphenicol might possibly be preferable to sulphadiazine and chloramphenicol, though it should be noted that Schweinburg and Yetwin[33] found *in vitro* that sulphamezathine is more bactericidal and bacteriostatic than sulphadiazine against *S. typhi*. There is thus a possibility that synergistic treatment of human typhoid infections with chloramphenicol and a sulphonamide may overcome the tendency to relapse characteristic of insufficient dosage with chloramphenicol by producing a rapid bactericidal effect.

THE ARTIFICIAL KIDNEY

In spite of much effort and ingenuity it is fair to say that the artificial kidney is still only an ideal and not an accomplished fact. In the opening pages of this issue Drs. Gordon Murray and E. Delorme and Mr. N. Thomas describe one form of "artificial kidney"; similar devices have been used by Kolff[1] and Alwall.[2] In all of them heparinized blood is led through a long cellophane tube immersed in a bath of fluid in which salts of sodium, potassium, calcium, and magnesium have been dissolved to simulate the electrolyte pattern of normal plasma. The cellophane membrane allows the passage of urea, electrolytes, and water, but not of protein or of red cells; as the blood flows along urea diffuses out into the bath fluid, while electrolytes diffuse outwards or inwards depending on whether their concentration in the actual plasma is greater or less than that in the "ideal plasma ultrafiltrate" of the bath fluid. In this way the blood leaves the apparatus having lost some of its diffusible non-protein nitrogen and having had its electrolyte composition restored to a somewhat arbitrary "normality."

The principle is simple enough, but its translation into practice brings difficulties to the doctor and real hazards to the patient. If the cellophane tube is made long enough to allow the dialysing process to be anything like complete, then the arterial blood pressure becomes an inadequate driving force and some sort of pump has to be introduced into the apparatus. Kolff uses a helical pump, having found a satisfactory way of joining the stationary tube in a vein to the tube wound round a rotating drum. Murray and his colleagues incorporate a syringe pump with rubber inlet and outlet valves, and claim that the use of large amounts

1 *The Artificial Kidney*, 1946, Kampen, Holland.
2 *Acta med. scand.*, 1947, 128, 317.
3 *Arch. intern. Med.*, 1949, 83, 528.
4 *Amer. J. Med.*, 1949, 7, 45.
5 *Lancet*, 1949, 2, 229.
6 Fine, J., Frank, H. A., and Seligman, A. M., *Ann. Surg.*, 1946, 124, 857.
7 Black, D. A. K., and Stanbury, S. W., *British Medical Journal*, 1948, 2, 1101.

of heparin will prevent clotting on the valve flaps. Again, if the tube is long its internal volume may be appreciable in relation to the volume of blood which can be safely withdrawn, however temporarily, from the patient. The authors overcome this difficulty by "priming" their apparatus with suitable blood. Besides such difficulties, which are inherent in the apparatus, there are the further dangers of haemorrhage in a patient whose blood has to be made incoagulable by heparin throughout the period of dialysis. Also the anuric patient cannot protect himself against dehydration or water overload, and these may easily arise if the composition of the bath fluid is unsuitable.

The dangers of the artificial kidney are admitted by its makers and users, but they argue that acute renal failure is so serious a condition that desperate measures may be justified. This contention is based on the assumption that acute renal failure carries a very grave prognosis, and figures can be found which support this view. Several critical surveys have lately appeared, however, which show that the high mortality of anuria is largely attributable to faulty treatment, and that conservative treatment gives good results provided that excessive amounts of fluid are not given. Muirhead and his colleagues[3] found that renal function recovered spontaneously in most patients with anuria "provided they are not overloaded with salt and water in the vain attempt to stimulate urine production." Similar results were reported by Stock,[4] who found that the mortality in 22 patients with anuria was only 50% and that in the majority of the 11 fatal cases fluid overload was a more important feature than nitrogen or other retention. Even more convincing is the experience of Bull and his colleagues[5] at the London Postgraduate School, who have advisedly given up the use of the artificial kidney in favour of a high-calorie low-protein diet and a controlled fluid intake of a litre per day. They have had good results with this regime, and it can be safely carried out by those who lack the technical knowledge and fortitude to maintain a patient on the artificial kidney.

It seems clear that until artificial kidneys become safer they have no place in the treatment of acute renal failure. To say this is not to suggest that the work done in this field has been wasted or that it should not continue. Already the excretory functions of the kidney can be artificially performed for a short time, not only by the various forms of artificial kidney but also by such expedients as peritoneal irrigation[6] or intestinal intubation.[7] All these methods require the use of large volumes of irrigating fluid, since the excreting surfaces have no power to concentrate metabolites; they can therefore be used only in special clinics, where a close watch can be kept on the electrolyte composition of the plasma. So far no artificial method has been found for performing the homeostatic, as opposed to the excretory, functions of the kidney. This is a serious matter, for while it is logical to suppose that continued failure of renal excretion would cause death, the observed facts indicate that in acute anuria immediate danger arises from the patient's lack of any effective defence against overloading with water and salt. Bull and his colleagues[5] believe that water intoxication is a real risk in such patients. When patients with anuria have already been maltreated by large infusions, a policy of deliberate and controlled dehydration may be indicated, and intestinal perfusion with 5% lactose, as used by Brun in Copenhagen, may be a suitable way of doing this.

ASTHMA

Reports on the value of antihistamine drugs in asthma have, on the whole, been disappointing.[1-5] Their failure, however, is only relative in comparison with the great relief of symptoms which these drugs give in some cases of acute urticaria and hay-fever, in the treatment of which they have a permanent place. Most observers claim that in the symptomatic treatment of asthma the antihistamine drugs can be of value.[2-6] Elsewhere in this issue Dr. H. Herxheimer substantiates these claims and gives particulars of the partial relief of artificially induced and naturally occurring attacks of asthma afforded by various antihistamine drugs. In the routine treatment of asthma they are especially useful in preventing nocturnal attacks, and in this respect they seem to be superior to ephedrine or adrenaline analogues both because of their sedative side-effect and because some at least continue to exert their action for a much longer period of time. Even so, their value in asthma is limited. In some of Herxheimer's cases the antihistamine drugs were quite ineffective, severe attacks of asthma not being controlled even after large doses. Moreover, though the vital capacity was often notably increased, in no case was it restored to the maximal, and therefore presumably normal, figure for the patient. It may be that with newer, more potent preparations, less apt to cause unpleasant side-effects, better results will be obtained. At the moment the place of antihistamine drugs in the treatment of asthma must remain *sub judice*.

Some observers have pointed out that these drugs are valueless in the presence of bronchial infection or nasal abnormality.[2 5] It is indeed not surprising that the response to treatment varies considerably. On the evidence available few would maintain that asthma is invariably caused by the action of histamine on the bronchioles, or even agree with Drs. E. O. and G. E. O. Williams, whose paper on the natural history of asthma appears in this issue at page 897, that it is always due to bronchiolar spasm: oedema of the submucosa probably plays an almost equally important part. These authors emphasize the variation in aetiological and aggravating factors in asthma, the absence of any clear-cut relationship between them, and, by implication, the present ignorance of the essential pathogenesis. Most of the factors commonly regarded as of aetiological importance act merely as detonators which explode the hidden charge, thus converting the latent into the overt asthmatic.

Williams and Williams bring evidence to show that the onset of asthma and of subsequent attacks is in some cases definitely related to the disturbances associated with

[1] Hunter, R. B., and Dunlop, D. M., *Quart. J. Med.*, 1948, n.s. 17, 271.
[2] Levin, S. J., and Moss, S. S., *J. Pediat.*, 1949, 34, 616.
[3] Waldbott, G. L., and Young, M. L., *J. Allergy*, 1948, 19, 313.
[4] Serafini, U., ibid., 1948, 19, 256.
[5] *Allergy*, 1948, 6, 569.
[6] *et. Gynaec. Brit. Emp.*, 1947, 54, 1.
R., *Ann. Allergy*, 1948, 6, 239.
1945, 33, 4.

pregnancy and menstruation. Such observations are of course not new, but evidence is accumulating that sensitization to endocrine products may cause asthma.[7 8] If this is so, and more information must be collected before such a view can be accepted, the whole field of autosensitization as a cause of asthma must be re-explored. In summing-up the evidence, it must be remembered that pregnancy often exerts a beneficial effect in chronic asthma, and that psychological disturbances which may be of aetiological importance occur commonly during pregnancy and menstruation. Another significant observation is that eleven out of sixty-four patients followed up for a period of from 7 to 12 years had died, six as a result of their asthma. Flensborg recorded a mortality of 5% in a group of children seen between 1926 and 1939.[9] Asthma not only cripples, it can also be a killing disease.

INSULIN REQUIREMENTS

Newspaper reports of scientific work are seldom sufficiently detailed or accurate to make it possible to express any opinion on the merits or conclusions of the work described. In the *New York Times*[1] there recently appeared an article by William L. Laurence in which are summarized studies carried out on 4,000 diabetic patients over a period of 14 years by a group of chemists and physicians of the Jewish Hospital of St. Louis, headed by Dr. Michael Somogyi. These workers are said to have come to the remarkable conclusion that provided proper attention is paid in treatment to dietary control 99% of adult diabetics do not require insulin. The essence of such control appears to be the reduction of weight to the ideal level and the dietary restriction of fats—protein and carbohydrate apparently being allowed in liberal amounts. The scientific arguments, as reported, need not be considered at this stage, and in the absence of detailed case reports no conclusions can be drawn about the validity of the remarkable claim made by Dr. Somogyi and his co-workers. The statement that less than 1% of adult diabetics require insulin is, however, so contrary to the experience of workers throughout the world, including the U.S.A., that it should not be accepted without very careful study of the evidence on which it is based. Until such evidence is available both diabetics and those who treat them will be wise to adhere to the generally accepted principles of treatment which are based on considerably more than 14 years of intensive study and research on many thousands of cases of diabetes. If Dr. Somogyi and his colleagues have only discovered that there is a large group of obese diabetics in whom a reduction in weight is the most effective form of treatment and in whom insulin is not only unnecessary but usually contraindicated, then nothing new has been added to our knowledge of the treatment of diabetes. If, on the other hand, as the article in the *New York Times* suggests, the conclusions apply also to the young adult with severe diabetes, the whole conception of insulin therapy in diabetes will have to be readjusted and the importance of Banting and Best's great discovery reassessed; it is unlikely that time will prove this to be necessary.

[1] *New York Times*, September 19, 1949.

WMA

An account of the proceedings of the General Assembly of the World Medical Association is published in this week's *Supplement*. From this it will be seen that the interest of this new body extends over a wide field of medicine—medical ethics, international medical congresses, hospitals, pharmacopoeias, postgraduate education, and social security. Perhaps the most interesting debate was on the last item based on the report of a committee of which Dr. Charles Hill was chairman. This report presented a factual summary of the conditions now existing in 24 countries. Dr. H. Guy Dain summarized for the foreign visitors what he called the teething troubles of the National Health Service. Our colleagues from other countries were restrained in their criticism of the system adopted in Britain, but those who spoke did not consider that the British N.H.S. was the final solution to the problem of providing medical care. Dr. Paul Cibrie, for example, considered that the capitation method of paying the doctor put him at the mercy of his patient. Dr. W. Magner said that while the Canadian Medical Association approved the principle of contributory health insurance it would oppose any Act modelled on the British Act. For the U.S.A. Dr. W. Cline told how in his country the medical profession were developing and enlarging the voluntary insurance system, and considered that the care of the indigent was the responsibility of the local community. Dr. S. C. Sen gave some idea of the tremendous problems facing India when he observed that for a population of 350 million there were at present only about 50,000 qualified doctors.

The position of the general practitioner in medicine is evidently causing concern abroad as well as at home. The view was expressed that in these days there was a tendency to look down upon the general practitioner, and Dr. Dag Knutson observed that if the general practitioner accepted an economically lower status than the specialist he would continue to be looked down upon. There was some discussion on a proposition in one of the committee reports about the work of general practitioners in hospitals, and the Assembly approved of the suggestion that general practitioners should be integrated into the Hospital Service. Dr. Fishbein pointed out that the tendency of medical progress was to give the general practitioner the opportunity of treating cases that formerly went to the specialist. The development of medical services is closely linked with the work and status of the general practitioner, and it seems likely that these two problems will come to the fore in the discussions held by the WMA during the coming year.

It has been announced in Oslo that the Nobel Peace Prize for 1949 has been awarded to Lord Boyd-Orr, M.D., F.R.S., Chancellor of Glasgow University, and formerly Director-General of the United Nations Food and Agriculture Organization. Sir John Boyd-Orr, as he then was, was created a Baron at the beginning of this year. In Stockholm last month he was re-elected President of the World Movement for a World Federal Government. The Nobel Peace Prize is said to amount to £7,815 at the present rate of exchange.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

THE ACUTE EAR

BY

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The cardinal symptoms of ear disease are earache, deafness, vertigo, and tinnitus. Any of these symptoms, if of acute onset or if severe, might be called an "acute ear." This article will deal only with acutely painful affections of the external and middle ear. The pain is, in the majority of cases, inflammatory, but in a small minority no local lesion is to be found in the meatus or tympanic membrane.

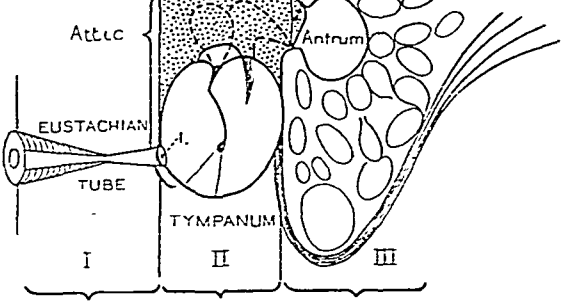
To decide whether the site of pain lies in the external or middle ear it is essential to examine the ear carefully. The electric auriscope affords the easiest view, especially if the patient is a child or is in bed. The skin of the meatus is normally pale pink, and the presence of the speculum should cause no discomfort. The tympanic membrane can be seen at a distance of about one inch (2.5 cm.) from the concha. Since the ceruminous glands and hair follicles occupy only the outer two-thirds of the meatus, infections—e.g., boils—occur only in this area.

Acute Infections of the External Ear

The Pinna.—The pinna is subject to the same infections as other parts of the skin and does not come within the compass of this article.

The External Auditory Meatus.—Furunculosis, or boils in the glands or hair follicles of the outer two-thirds of the meatus, is an extremely painful condition. At an early stage the boil may be too small to produce any swelling and can be diagnosed only by the presence of an area of red skin and the discovery of a tender spot by a probe. Later, an obvious tender swelling or swellings simplify the diagnosis.

The lymphatics of the meatus drain to glands (1) in front of the tragus, (2) behind on the surface of the mastoid process, and (3) below the tip of the process. Tenderness in any of these positions is an aid to diagnosis. Lymphangitis may occur as a complication. The swelling to which it gives rise is over the mastoid process and is often sufficient to push the pinna forward and downwards. It pits on pressure and may raise a suspicion of acute mastoiditis with subperiosteal abscess. The type of tenderness differentiates between the swellings—that of lymphangitis is superficial, and if pressure is maintained the bone can be reached without causing any increase in pain; in the case of mastoiditis, on the other hand, the harder the pressure the worse the pain.



1. Opening of tube into tympanum. 2. Aditus—opening from attic into the antrum. 3. Plate of bone forming the roof of attic in front and of the antrum behind; it is also the floor of the middle cranial fossa. 4. Dura mater.

No loss of hearing occurs in furunculosis unless the boils are extensive enough to block the meatus; even then a narrow speculum insinuated between the boils will restore hearing to normal.

Treatment of Furunculosis

The meatus, including that part deep to the boil, must be kept clean and dry. Every otologist has favourite drugs for this purpose, either in the form of drops or for application on gauze wicks. Well-tried prescriptions are:

Glycerin of phenol and glycerin, equal parts.
Saturated solution of magnesium sulphate, with or without glycerin.
Ichthyol in glycerin (10%).
Gentian violet in spirit (2%).
Silver nitrate (10%).
Aluminium acetate (8%).

Penicillin drops should not be used.

Incision should only be employed when a furuncle shows pus at its apex, though rupture of the boil may be hastened by the application of a minute drop of pure carbolic acid. The application of warmth is comforting, and an electrically heated pad is satisfactory for the purpose.

Although a course of sulphonamide may effect a dramatic cure, the fact that so many different drugs have been advocated is an index of the unsatisfactory results of treatment of this most painful affection.

Acute Infections of the Middle Ear

Any acute infection of the upper respiratory tract involves the nasopharynx and may spread to the Eustachian tube and so to the middle ear.

Anatomy.—The middle-ear tract extends from the nasopharyngeal end of the Eustachian tube, through the tympanum or middle ear, and thence through the aditus to the mastoid antrum to the air cells in the mastoid process. The tract may be conveniently divided into three parts: (1) The Eustachian tube, (2) the middle ear or tympanic cavity, and (3) the mastoid antrum and mastoid cells (see Figure). Inflammation may be mainly confined to part 1, or to parts 1 and 2, causing acute otitis media. Inflammation can spread from here through the aditus to the mastoid antrum. It is probable that some inflammation develops in the antrum in most cases of acute otitis media, and in suppurative cases the mastoid cells become involved to produce acute mastoiditis. In the case of severe haemolytic streptococcal or pneumococcal infections the whole tract may be rapidly involved.

desired to maintain a column of heparin unmixed with blood in the tubing and attachment.

Serial estimation of clotting time has shown that the polythene does not impair the anticoagulant effect of heparin. The apparatus has been used mainly for the initial administration of heparin to patients suffering from intravascular thrombosis for the period of two to four days before dicoumarol, simultaneously administered, has exerted its effect. It has also been employed effectively for much longer periods in patients in whom there existed a specific contraindication to dicoumarol therapy.

It is essential that the strictest sterile precautions are observed in the preparation and setting up of the apparatus. The tubing is most conveniently inserted at the antecubital fossa, where veins are most easily found (see Fig. 2). The patient is still able to flex the elbow and retains reasonable use of the arm. It is felt that the apparatus has considerable advantages over an indwelling intravenous needle, such as that described by Olovson (*Lancet*, 1948, 2, 495), in that it is more comfortable for the patient, allows free movement of the limb, and is not liable to require changing, since the polythene stimulates no foreign-body reaction. Furthermore, the special attachment is more easily cleaned and sterilized than the cumbersome indwelling needles that have been described. If polythene is not available the attachment can, of course, be inserted into any Record-fitting intravenous needle to serve as a simple indwelling apparatus.

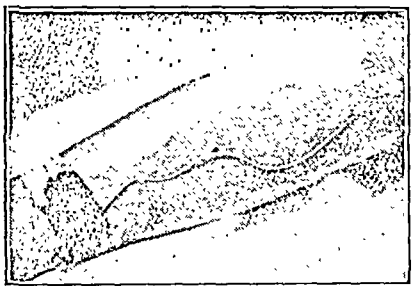


Fig. 2.—Intravenous polythene tubing in use. The skin has been painted with iodine to demonstrate the cannula more clearly. For the same reason the latter has been left longer than is necessary.

I wish to record my gratitude to Dr. A. Fergus Hewat, physician, Royal Infirmary, Edinburgh, for his kindness in permitting me to study the cases under his care.

Reports of Societies

PROGRESS IN OPHTHALMOLOGY

In his presidential address to the Section of Ophthalmology of the Royal Society of Medicine on October 13 Mr. Montague Hine said that this was a suitable occasion on which to stress the continued progress of ophthalmology. A similar review in a presidential address to the Section was given in 1926 by Mr. Ernest Clarke, who carried his story back to 1881 when he started ophthalmological practice. Mr. Hine took up the story from the point where Mr. Clarke left off. During these last 23 years, he said, treatment in many directions had improved, new operations had appeared or old ones had been perfected, and recently discovered remedies were being used with remarkable results. In addition much work had been done on the pathology and biochemistry of the eye, the full harvest of which had not yet been reaped.

The most spectacular advance in surgical treatment had been for detachment of the retina. The first Gonin type of operation at Moorfields was carried out in 1930. During the next year or two the means of obtaining a less localized reaction in the choroid and retina was sought for, and after some trial and error very weak diathermic currents were found to be most suitable, and these replaced the cautery in 1933. Since that time it could fairly be said that among unselected cases some 50% had been successfully treated, though a considerably higher figure—up to 75%—could be obtained if the material was of better quality and the operator more experienced. This was a very different story from the pre-Gonin days, when less than 1% of all detachments were successfully treated. It seemed almost a miracle that in the course of a few years after 1929 the treatment of detachment, from being one of the most hopeless procedures in ophthalmology, became one of the most hopeful. In 1926 in the Moorfields group the operations for detached retina by cautery puncture numbered only 20; in 1947 with the use of diathermy there were over 500 such operations.

Mr. Hine then touched on the treatment of squint, comparing the figures for 1926 and 1947. There was no doubt, he said, that orthoptic departments were of great assistance to ophthalmic surgeons and had influenced their views on operative measures. There were now 800 squint cases awaiting admission into the hospitals of the Moorfields group. He was rather surprised a few weeks ago to encounter a resident officer at one of the eye hospitals who confessed that he had never seen an excision of the lacrimal sac. In 1926, 96 cases of excision of the sac were recorded at Moorfields and 23 at the Royal Westminster Hospital; in 1947 the numbers were respectively 44 and 9, but in the latter year dacryocystorhinostomy—not a difficult operation—was carried out on 46 cases at the former hospital and 22 at the latter. The first record of this operation in the Moorfields reports was in 1932, but not until 1944 did it become the method of election among ophthalmic surgeons in this country and in America.

The development of corneal grafting dated from the experimental work of Tudor Thomas in 1930–4, and the first successful graft of a human eye in Great Britain was in 1933. Now this operation was undertaken by many ophthalmic surgeons. In 1947 five cases were operated on at Moorfields and four at the Royal Westminster.

Turning to contact lenses, he said that in 1926 it was only rarely that such a lens was ordered. Some few thousand contact lenses were now being made in Great Britain. The use of transparent plastic material for some optical appliances was a development of the last twenty years. Finally he made a brief mention of new drugs; the sulphonamides and penicillin had brought about an altered outlook in the treatment of eye infections.

Dr. Harold Levy, in proposing a vote of thanks, said that Mr. Hine had modestly omitted any mention of his own contribution to the treatment of detached retina, but it had been outstanding. During the 23 years which he had taken as the period of his review knowledge and treatment of ophthalmic disease had progressed out of all recognition, and there had also been a change, perhaps not so marked, in the nature of the cases which came to the out-patient department. The picture of the general affections of the eye which they saw thirty or forty years ago was not quite the same as it was to-day, thanks largely no doubt to better nutrition and to other social factors.

A recent circular from the Ministry of Health to hospital boards and committees outlines the procedure to be followed when they are threatened with legal actions. Proceedings should normally be brought against those bodies and not against the Ministry. If the Ministry is sued it should be informed at once, so that it may have the opportunity through the courts of having the appropriate board or committee substituted for the Ministry in the proceedings. In some exceptional cases it will be appropriate for the solicitor to the Ministry to act in the matter although the proceedings are being taken against a board or committee. The Ministry should be consulted on cases involving the construction of the Act and Regulations, in cases where an application is being threatened for leave to apply for a writ of mandamus, prohibition, or certiorari against the authority, and in cases involving questions of major legal importance. Authorities are not in general authorized to undertake the defence of hospital doctors sued in respect of alleged negligence. If it is sought to make an authority liable for negligent acts of a doctor it should take such steps as are open to it under the Law Reform (Married Women and Tortfeasors) Act, 1935, to obtain a contribution from him in respect of damages that may be recovered. In claims based on negligent treatment by a nurse it is expected that the authority will be sued as her employer, but if the nurse is joined in the proceedings the authority is authorized to see to her defence if she so desires.

Correspondence

Progress in Obstetrics

SIR,—In his enthusiasm to claim rights for the general practitioner that none would deny him, the writer of your leading article (October 8, p. 799) has loosed shafts at all and sundry. The barb directed at obstetricians for having abused caesarean section is both blunt and ill-directed. The medical schools are to be castigated if the new graduate is not "fully competent in obstetric technique"—and presumably surgical technique too. But further on in Dr. Haultain's papers, to which only carefully selected references are made in the leading article, it is pointed out that the student only learns sufficient to enable him to practise obstetrics *under supervision*, and therefore before undertaking domiciliary midwifery the new graduate should spend six months as a house-officer to a maternity unit. From a recent circular it would appear that the Central Health Services Council agree with Dr. Haultain in this.

At the time he wrote these papers Dr. Haultain envisaged that under the new Service the proportion of practitioners refraining from domiciliary midwifery would continue to increase. The speakers at the British Congress were "fearful" because the present regulations provide a financial inducement to the opposite effect. Moreover, the standard of antenatal supervision is dangerously low if two antenatal examinations suffice to qualify the practitioner for payment.

The writer of your leading article is obviously convinced that it is the aim of the obstetric specialist to oust the general practitioner from the sphere of midwifery. This is not true. It is his aim to see that the standard of domiciliary midwifery is kept high and that its practice is confined to those practitioners who are interested and well trained in the obstetric art. Nor does the specialist favour the midwife or encourage her in antagonism to the doctor, for it is obvious that the doctor must maintain his practice of normal midwifery if he is to recognize and treat the abnormal at the midwife's request.—I am, etc.,

S. BENDER.

Liverpool.

SIR,—The leading article entitled "Progress in Obstetrics" (October 8, p. 799) calls for a reply from a teacher in obstetrics. The adequacy of undergraduate teaching is constantly under consideration, and in this university centre as in others the quality of teaching has markedly improved and the quantity greatly increased during the 26 years which have elapsed since I did my student appointment in obstetrics.

Then we spent one month attending the hospital practice, not living in, and a second month attending district cases. I took 11 deliveries, a number at the time above the average, and most of them were on the district. The antenatal clinics at the hospital were not well attended, as less than one-third of the booked cases came regularly; they were for nine months of the year conducted by the resident tutor in obstetrics, a graduate of three years' standing. Only one member of the honorary staff shared in this work, of which she took charge during the remaining three months. Ward teaching and instruction on difficult deliveries were done almost entirely by the tutor, both on the mother and the baby. The tutor was a very good teacher, but we had next to no instruction from senior obstetricians.

Now students do a three months' appointment in obstetrics. During the last quarter the average number of cases taken by each student was 21. Throughout the appointment they live in a hostel adjoining the hospital. Each of the four obstetricians attends his own antenatal clinic each week, and the attendance of the booked patients is not far short of 100%. All emergency cases are written up by the students. There is ward teaching by the professor each week, and the other obstetricians teach in their duty weeks. The professor of child health and his staff conduct regular teaching on neonatal problems. The students obtain most of their cases in hospital, as the district is now much smaller than it was 25 years ago (about 300 cases a year instead of over 1,000). They get about three district cases each. The forceps deliveries, if difficult, are usually taken by a registrar who teaches on them; the easier ones are taken by the house-surgeons under supervision. Sometimes a student may be allowed to do one, but there are not enough for all to get one. It is better to let a limited number of people have a moderate experience, perhaps 10 cases, with the forceps than to let every student, including the potential anatomists, pathologists, and others, have just one each. We hope that most of the general-practitioner obstetricians of the future will have six months' resident experience in a maternity unit. The scheme of teaching is not perfect, but it has steadily improved.

If anyone thinks that it is possible to turn out a competent obstetrician after three months' student instruction he cannot have given a great deal of thought to the question. At the time when I qualified there were in the country large numbers of experienced and skilful general-practitioner obstetricians who gave their assistants a good deal of instruction. I was in general practice for a short time and was admirably taught how to deliver with the forceps by my father-in-law, in whose practice I worked. These skilled men have diminished considerably in numbers, partly because of the increased number of hospital beds and partly because of the larger number of cases taken by midwives. Few practitioners in a city such as Leeds book as many as 30 cases a year. It therefore comes about that a man has much less chance of learning or being taught his obstetrics efficiently in practice than he had 25 years ago. Hence the desire of the Royal College of Obstetricians and Gynaecologists to improve the service by restricting obstetric practice to senior practitioners of experience and those who have had a resident obstetric appointment.

The writer of your leading article appears to take exception to the statement in the *Practitioner* special number that "the average midwife is better trained to deal with normal midwifery than is the average general practitioner." What does he expect? Most midwives in this city book 60 to 80 cases a year, and they spend their whole time in the practice of obstetrics. A few general practitioners may book half these numbers, most of them many less than half. The practitioner, if enthusiastic, may perhaps spend as much as a tenth of his time at obstetrics.

The resident appointment in obstetrics, as in other branches of medicine, can be of great value. It is unfortunate, therefore, that at present few men take one. Usually a man prefers to take an appointment in general medicine or surgery before going into the Forces. For many years now the great majority of our residents have been women, and though it is natural that women should have a special interest in maternity work many of them are soon lost to practice because they marry.

The new graduate in medicine is better trained in obstetrics than his predecessors, but he cannot become skilled unless he has adequate postgraduate experience.—I am, etc.,

ANDREW M. CLAYE.

Leeds

SIR,—Your remarks in your leading article (October 8, p. 799) about the general practitioner's place in the maternity services were long overdue. It is indeed unfortunate that this controversy has engendered a certain amount of resentment on the part of the general practitioner, who feels that the criticisms of his competence are not only unjustified but also unjust, since his own teachers, if not themselves responsible, have at least condoned them.

There must be many general practitioners who until quite recently have had to spend long hours at the bedside taking personal responsibility for normal deliveries assisted only by an untrained handywoman because no midwife was available, and for aught I know there must be many in the remoter parts of the country still doing this. If these doctors have failed to profit by the experience thus gained at the expenditure of so much time and patience it must only be because their teachers have failed to instil into them the fact that every doctor must remain a humble student of medicine until the end of his professional career. It is pertinent to ask where the specialist obtains his experience of normal labour, since, outside the teaching hospitals, most of his normal cases are delivered by his house-surgeons for him. Nor do all house-surgeons

necessarily become specialists, and quite often they go into general practice.

But my purpose, Sir, is not to provide further ammunition for the protagonists in this dispute but to plead that it is not too late to undo the harm that has been done and to try to bring together the specialists, the general practitioners, and the midwives into one team, each complementary to the other and all necessary to the future maternity service. Official policy would seem to be setting out to destroy what vestiges of co-operative spirit remain, and I would humbly suggest that it is ill-advised.

For example, it is the official policy of the hospital boards that in the future the beds under their control in maternity hospitals will be closed to the general-practitioner obstetrician. Surely it would be far better to encourage the general practitioner to deliver primiparae and women with minor types of abnormality in maternity hospitals. It would be an advantage to the patient, whose first pregnancy should be a period of training for future motherhood, to have her baby in proper surroundings, and that her care and training there should be associated with her own general practitioner, for, as you rightly stress, here is the "very root of general practice." It would be an advantage to the specialist to know that those very cases most prone to require his assistance should anything go wrong would be from the first already in an institution suitable for that purpose; this would materially reduce his greatest bugbear, the failed forceps far away in a filthy cottage. It would be an advantage to the midwife, who has to obtain much of her training in such maternity hospitals, to have a ready supply of normal cases for that purpose. And it would be an advantage to the general practitioner himself to know that a select number of his patients can be delivered with all the advantages of modern technique at his disposal.

But above all it would effect an improvement in the whole maternity service, because it would offer a common meeting ground for the keen general practitioner with his colleagues and with the specialists and the midwives with whom he has to work, not only in those casual discussions which inevitably take place in the course of daily visits but in the possibilities for team-work, for regular clinical meetings and discussions, and for staff meetings, and the maternity hospital would thus become a centre for the dissemination of modern teaching and technique.

In due course it would be found that the keenest general-practitioner obstetricians would be anxious to seek opportunities for service in such maternity hospitals, and this would be the means of selecting those who would become most competent and of discouraging the remainder, and thus would bring about the conditions which the Minister of Health is most anxious to encourage. This would be a far more just and equitable method of selecting the best general-practitioner obstetricians than giving this invidious task to a small committee of specialists, who cannot always have the means of assessing the true worth of their more remote colleagues.—I am, etc.,

Wivenhoe, Essex. WALTER RADCLIFFE.

A Year of N.H.S.

SIR,—The review in the *Journal* (October 1, p. 746) of the recently published *Practitioner* dealing with the National Health Service in its first year fails to point out the omission from that journal of any contribution by a worker in the field of preventive and social medicine. The Part III services are referred to only very briefly and incidentally by the medical administrator (undoubtedly a hospital officer) and at somewhat greater length in the paper discussing the Ministry and the Service (almost certainly by a medical officer within that department). This is symptomatic and worthy of note.

It is clear evidence that in the minds of those engaged in Part II and IV services (as represented in this symposium) the Act provides a curative service and not a preventive one. There is no evidence even of the lip service paid in the recent past to social and preventive medicine; there is no reference in the contribution by the young doctors to public health or social medicine as a career—that is significant in itself; no discussion of the difficulties of linking up preventive work with curative work in publicly organized medicine in schools and among young children; no reference to the partial collapse of the school eye service; no reference to the present unsettlement in the public health services; no reference to the absolute exclusion alone among doctors of medical officers of health as such from regional hospital boards.

The obstetrician in his contribution criticizes the general practitioner whom he (collectively) has trained and allowed to graduate, and makes the unpleasant suggestion (unsupported by evidence) that considerations of financial economy have prompted local health authorities to instruct midwives to call in private practitioners early in the pregnancy. A friendly relation between general practitioners and midwives is essential in a world in which specialists are in a small minority, and this is what those local health authorities which are asking midwives to encourage their patients to see their own doctors early in the pregnancy are now trying to secure. The better standard of medical training is, under the General Medical Council, the responsibility of the medical schools with their consultants, and it is a grave responsibility. To improve the obstetric training of both general practitioners and midwives is a better policy and will safeguard the mothers more than by arousing antagonism between them.—I am, etc.,

Dewsbury. E. D. IRVINE.

The Innocence of Deans

SIR,—Dr. E. R. Boland's letter (October 8, p. 812) is rich in entertainment but obscure in intellectual intention. He apparently misinterprets my feelings towards deans, for whom I have the greatest respect. They work hard, and often thanklessly; they have the difficult job of adjusting situations as between crotchety colleagues; they must arrange teaching programmes, deal with difficult students and refractory committees. In a word, theirs is the art of the administrator and of the politician. Unless "honest and faithful subservience to an institution"—the phrase, apparently, so disliked by Dr. Boland—is regarded by them as their first function, they would fail as deans.

But the crux of the whole State medicine problem is the simple question, Is Medicine to be subservient to politics or is it not? The training and general outlook of a dean, or of a "posse," "clutch," or "diabolry" of deans, would incline them to answer yes. Dr. Boland also, I suspect from the possibly not unintentional irrelevance of his letter, would say yes.

One result of the political direction of a previously free profession is this laughable attempt to assess individual professional status on a points system. Lister, James Mackenzie, Ronald Ross, and indeed most pioneers have usually had their contemporary colleagues against them, particularly so their seniors. If the seniors are unsound judges and if the judgment of the juniors is unacceptable, what judiciary, pray, is there left? Well—I forgot the politicians and the good committee men.—I am, etc.,

London, W.1. GEOFFREY BOURNE.

Modern Trends in Radiology

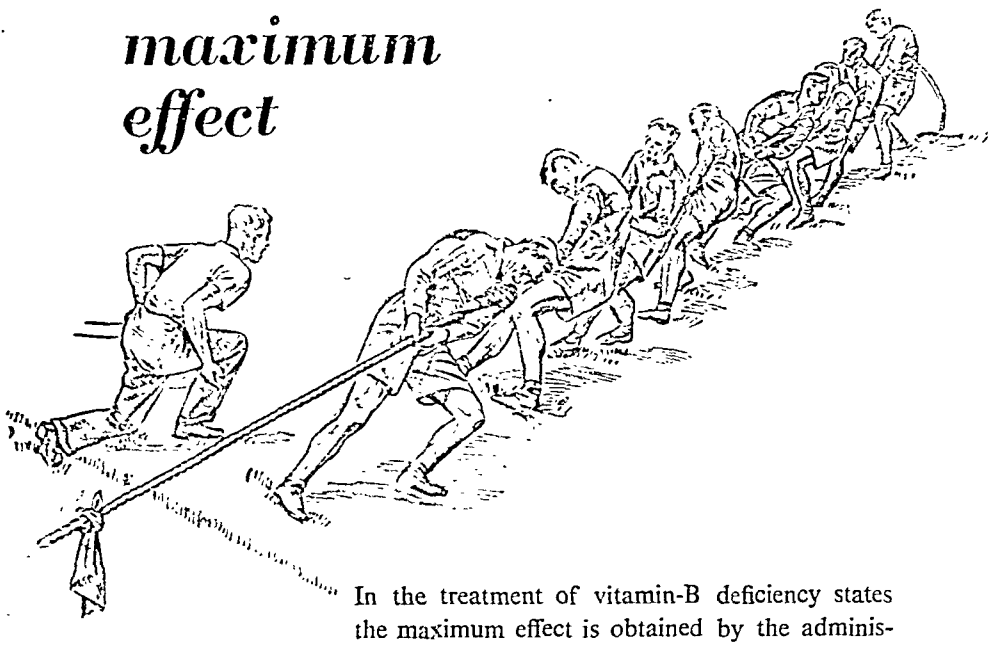
SIR,—Dr. James F. Brailsford in his article entitled "Modern Trends in Radiology" (October 1, p. 724) indicts modern radiology in medical practice. While the charge may itself be accepted, I feel he is less than just when he cites mass radiography as the arch-criminal. Those who practise mass radiography are, on the contrary, less likely to make the omissions he suggests. I will comment on them in his order.

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4. It is true that disease may be present before radiological evidence is apparent, but this applies no more to mass radiography of the chest than to other radiography. In fact the problem arises less frequently, as the vast majority of those attending for mass *x* ray consider themselves, or would be considered on clinical examination alone, to be in good health.

5. Those attending mass *x*-ray units are not treated on the *x*-ray appearances alone but on the whole clinical picture.

There is no belief that active progressive disease is symptomless, nor is this concept part of the propaganda. It is found, however, that people with early active and progressive disease often have symptoms so vague and indefinite that it will not occur to them to consult a doctor, but they will nevertheless volunteer for mass radiography.

It is fully realized that a large proportion of persons who have had active pulmonary tuberculosis do in fact recover from it without knowing of its existence, and this fact will doubtless be emphasized when mass radiography has been with us long enough for a useful follow-up of a sufficient number of cases to establish that such recovery is permanent. Does Dr. Brailsford seriously suggest that no patient with active tuberculosis should be acquainted of the fact or treated until his symptoms are sufficiently severe to force him to consult his doctor? Recognition of ill-health can be as elusive to the patient as shadows on an *x* ray are to a radiologist. How frequently one hears a patient say after treatment, "I thought I was well before, but now I realize how much better I am."

I believe mass radiography may in time, by finding cases in a treatable or pre-infective stage, do much to negative the fear and stigma of tuberculosis which has become established in the public mind by the high proportion of advanced and untreatable cases in our midst.—I am, etc.,

London, S.E.12. F. D. BEDDARD.

SIR,—His colleagues in Great Britain know enough about Dr. James F. Brailsford to discount the various extravaganzas in which he indulged in his article entitled "Modern Trends in Radiology" (October 1, p. 724). Dr. Peter Kerley (October 15, p. 870) has drawn attention to some of the grosser misstatements, and I would merely like to draw attention to the absurdity of his recommendation that medical students should perform upon one another "every kind of injection, including ventriculography, myelography, arteriography, etc." This from the director of radiological studies in living anatomy of a distinguished university.

It is disquieting, however, to learn from a footnote that Dr. Brailsford has been talking such nonsense in various parts of the United States. It is important that our American colleagues should realize that these views are Dr. Brailsford's own and do not represent the consensus of intelligent radiological opinion in this country, and it is with that object that I write this letter.—I am, etc.,

London, W.1. S. COCHRANE SHANKS.

Vitamin Deprivation

SIR,—Professor A. C. Frazer (October 1, p. 731) should be congratulated on his conception of a new mechanism in the explanation of vitamin deprivation. The idea of bacterial invasion of the upper small intestine is not novel, and I myself reviewed the literature both for pernicious anaemia[1] and for the sprue syndrome[2] some years ago. Professor Frazer's great merit lies in putting forward the hypothesis that the periodic increase of bacterial invasion into the higher small intestinal regions might result in competition between bacteria and host, leading in many cases to signs of deprivation in the host.

While there are reasons to believe that the deficiency of the vitamin-B group may be connected with interference of absorption in general,[3] Professor Frazer adequately proved that this is not intimately related to the fat-absorption defect in sprue.[3] Many will agree that the competition hypothesis—if this should be proved in the future—might account for the exacerbation of some vitamin deficiencies in general, for selective deficiencies often observed in the sprue syndrome, and also for many other conditions suggested by Professor Frazer. I have, however, some doubts as to the statement that it might explain the administration of one vitamin precipitating the deficiency of another.

The considerable literature dealing with vitamin imbalance contains many well-documented cases where a bacterial invasion of the higher small intestine was most improbable.[4] It has been suggested, when discussing the aetiology of the sprue syndrome, that phosphorylation constitutes an important link between sprue and the B vitamins.[3] It was found later by Magyar that the consumption and excretion of these vitamins were dependent on phosphorylation.[5] The same author reported recently experiments on rats showing that previous administration of a large dose of any of the main members of the vitamin-B group interferes greatly with the absorption of a standard dose of thiamin. He attributes his findings to the exhaustion of the phosphorylating capacity of the animals.[6] Further experiments will have to decide whether this is the real explanation of vitamin imbalance as it is claimed.

This comment is not meant to detract from the importance of the competition hypothesis, and it is hoped that the Birmingham workers will further elaborate this conception.—I am, etc.,

London, W.1. Z. A. LEITNER.

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2 *Trop. Dis. Bull.*, 1942, 39, 497.
3 *British Medical Journal*, 1947, 2, 641.
4 Leitner, Z. A., ibid., 1948, 1, 917.
5 *Experientia*, 1948, 4, 33.
6 Magyar, I., and Gabor, G., *Int. Z. Vitaminforsch.*, 1949, 21, 1.

Infant Vaccination

SIR,—In the current issue of the *Monthly Bulletin of the Ministry of Health* (1949, 8, 204) Dr. E. T. Conybeare, of the Ministry of Health, gives a report on the amount of infant vaccination in England and Wales during the six months July–December, 1948. He shows that for this period, the first half-year under the new Act, the proportion of infants vaccinated has fallen to about half what it was before the Act came into force. He concludes his article by saying:

"If the figures for 1949, when they become available, show that the decline of infant vaccination under the National Health Service is not temporary, measures, such as an increase in the number of vaccination clinics . . . and the working out of some plan to facilitate domiciliary infant vaccination in areas not served by such clinics, may be urgently required. Such measures, pursued with the energy put into the campaign for immunization against diphtheria, might well produce similar results and make the child population of this country as well vaccinated as that of the United States or other countries, where protection against smallpox is regarded as the important matter that it undoubtedly is."

Is not Dr. Conybeare rather begging a highly debatable question when he makes that final assertion? Is a well-vaccinated child population really such a very important matter in protecting a community such as ours against smallpox? Surely there is a great deal of valid evidence pointing to the opposite conclusion. Decline in infant vaccination is not a new phenomenon. It has been going on continuously for over half a century, but so far from its having been followed by any increase in smallpox mortality the latter has fallen steadily, until now it is practically negligible. Moreover, in those parts of the country where the decline in infant vaccination has been greatest the same decrease in smallpox mortality has been witnessed. Thus in the city of Leicester the average percentage of infants vaccinated has for very many years been under 5 (Dr. Conybeare tells us that it has now fallen to 1.4%), yet during the past 40 years there have been only two deaths from smallpox, and other places have had a similar experience.

After all, it is the adult population who are most exposed to the danger of smallpox, and the effect of infant vaccination in protecting this section of the community is very doubtful. It may reasonably be argued that infant vaccination by masking the disease in adults, when the protection conferred on the individual is wearing off, neutralizes—or more than neutralizes—any value to the community derived from the partial immunity conferred on the individual adult. Incidentally, it may be mentioned that in the 14 years 1932–46 there were in England and Wales only 28 smallpox deaths (an average of two per annum

in a population of 40,000,000), and not one of the fatal cases was under the age of 1 year. Yet in the same period there were 51 deaths from vaccination under 1 year of age.

Dr. Conybeare mentions admiringly the United States and "other countries." What other countries, including U.S.A., can show better results in dealing with smallpox than Great Britain? So I venture to suggest, with all respect to Dr. Conybeare, that perhaps, after all, infant vaccination is not such a very important matter in protecting a community such as ours as he seems to think.—I am, etc.,

Leicester. C. Killick Millard.

Malignant Tertian Malaria

Sir,—In his address on the treatment of malignant tertian malaria Sir Gordon Covell (October 8, p. 773) gives an excellent and comprehensive survey of the present position as regards therapy. In his discussion of diagnosis and symptomatology, however, there is much that many practitioners with long experience of malignant tertian malaria will disagree with. Sir Gordon repeats the warnings about the difficulties of diagnosis—the statement that M.T. malaria may "simulate a great variety of other diseases"—which are to be found in every textbook since Manson's original *Tropical Medicine*. He repeats the classification into cerebral, algid, bilious, remittent, and cardiac forms, which appear to me to be singularly useless and misleading.

Is M.T. malaria really a very difficult disease to diagnose? Does it really imitate other diseases to such an extent? Is it not possible that this view is based on a fundamental fallacy which arose in the early days, when the finding of the recently discovered M.T. parasite in the blood stream of white, black, and brown patients was hailed as the explanation of all their symptoms? Has not a process of disentanglement been in operation over the past quarter-century?

Sir Gordon refers to a series of 80 cases of British soldiers treated by him at Nairobi in the 1914–18 war. They arrived from the Lake Victoria district. All showed M.T. parasites in their blood, but some showed symptoms suggesting dysentery, typhoid, biliary colic, etc. All responded to quinine and hospitalization. I fail to see how this proves the versatility of malarial symptomatology. Surely it is at least possible that some of those troops, under the conditions obtaining, had other diseases besides malaria—bacillary and amoebic dysentery, for instance. Is it not possible that some had double infections of M.T. and quartan? Knowing that area well, I would say it is more than possible.

My own experience in Africa has convinced me that there has been a great deal of nonsense talked about the "protean" nature of M.T. malaria and its so-called pneumonic, dysenteric, appendical, and other "forms." In some thousands of European cases I have treated I have seen a few where malaria was complicated by pneumonia, by dysentery, and by other infections, but I would say that in the main M.T. malaria presents a remarkably constant clinical picture (more so than quartan), besides being quite easy to diagnose in the vast majority of cases. I would say that great harm can be done by teaching young practitioners going to the Tropics that they may have serious difficulty in distinguishing malaria from appendicitis. I have seen only three cases where such difficulty might have arisen. In two of these I removed acutely inflamed appendices in the middle of typical blood-positive malarial attacks. In the third the patient formed an appendical abscess after his malaria had subsided. Nowadays, when I read about appendical forms of malaria, I do what the man in the *Ingoldsby Legends* did: I say no word to indicate a doubt, but . . . Sir Gordon rightly emphasizes the dangers of delay in diagnosis, but his two illustrative cases merely show the effect of *gross* delay and provide two typical histories of untreated M.T. malaria. There was apparently no difficulty in diagnosis, nor were there any extraordinary symptoms. I do not think they should deter anyone from delaying for a short time, unless the case is dangerously ill when first seen or is a young child, in order to establish a microscopical diagnosis. Sir Gordon states that "in a primary case parasites may be so scanty in the peripheral blood during the first few days of fever that they may not be detectable in a blood smear, even if no antimalarial drug has been administered." This is not my experience nor, I am sure, that of many others. If antimalarial drugs are withheld in a patient showing pyrexia, and blood examinations made at intervals over 48 hours, I believe that parasites will be found practically invariably if M.T. malaria is the cause of the pyrexia, and I believe this to be a perfectly safe procedure to adopt. Sir Gordon's method of giving an antimalarial drug after examination of one smear and waiting for the temperature to drop before taking another would tend to confuse rather than clarify diagnosis by making the parasites more difficult to find. Moreover, in a first attack of M.T. malaria the temperature is very unlikely to drop for four to five days even when treated intensively—another very constant feature of this "protean" disease.

In short, I would advise practitioners going to the Tropics not to be too much impressed by classical descriptions of M.T. malaria. (If they do native work they will soon learn not to ascribe a native's pathology to malaria parasites in his blood.) I would advise them to put the greatest reliance on the microscope for diagnosis and not to be put off intelligent use of it for fear of dire calamities, to beware of ascribing atypical symptoms to a disease which follows a very typical course, and to operate on patients who show signs of acute surgical conditions even if there are M.T. parasites in the blood. In modern tropical European practice there is much more harm and confusion caused by ascribing to malaria all manner of symptoms when it does not exist than by failing to recognize it when it does.—I am, etc.,

Craven Arms, Shropshire. P. Ross.

Poliomyelitis

Sir,—Your correspondent, Dr. N. G. Nicholson (October 1, p. 757), describes a series of cases of non-paralytic poliomyelitis occurring in Colombo, and then details his own unfortunate experience. His description of his own symptoms, in particular "the most terrific pain I have ever experienced in my left shoulder" and the delay in appearance of muscle wasting, is quite characteristic of acute brachial radiculitis, or the "shoulder-girdle syndrome."[1,2]

It is interesting to note that Parsonage and Turner[2] describe a case of coincident poliomyelitis and the shoulder-girdle syndrome, and I myself have seen a rather similar case in which the syndrome developed two weeks after an abortive attack of poliomyelitis. The pain in the affected muscles is much more severe in acute brachial radiculitis than I have ever encountered in poliomyelitis.—I am, etc.,

Harrogate. R. Harris.

References

1 Turner, J. W. A., *British Medical Journal*, 1944, 2, 592.
2 Parsonage, M. J., and Turner, J. W. A., *Lancet*, 1948, 1, 973.

Poliomyelitis Vaccination

Sir,—Mr. M. H. F. Johnson (October 1, p. 757) has raised an important point in asking why, following the lead of Jenner and Pasteur, active immunization against poliomyelitis is not practised. It has been shown by Kolmer[3] and Brodie[4] that the vaccination of monkeys with living attenuated ricineolated or formalized virus, prepared from the spinal cord of a monkey after serial passage, produced an active immunity sufficient to enable them to withstand intracerebral inoculation of infective doses of virus. These experimental results immediately suggested that a vaccine suitable for human use was feasible.

Field trials with poliomyelitis vaccine have unfortunately been inconclusive, due largely to administrative difficulties. The low morbidity of poliomyelitis (an attack rate of 1 in 1,000 even during epidemics being exceptional) necessitates the immunization of many thousands to show any significant statistical results. Furthermore, it is now accepted that many different strains of poliomyelitis virus exist, some of which show antigenic inter-relationship while others appear antigenically distinct. The experiences of Gillam and Ornstroff[5] and Reynolds and Knox[4] illustrate the difficulties of field trials. These workers together vaccinated 1,000 children, another 1,000 being used as controls. No case of poliomyelitis developed in any of the 2,000 children employed.

The fact that poliomyelitis vaccination is not devoid of serious danger has been shown by Leake,[5] who collected a series of 12 cases; five of the patients died and three of them were left severely paralysed after vaccination. The clinical onset of the disease occurred within 6–14 days of either the first or the second inoculation—i.e., within the accepted incubation

period. Leake, after a careful analysis of all attendant circumstances in these cases, points out: (1) Poliomyelitis was not epidemic in any of the areas where these cases occurred. (2) The expectation of poliomyelitis among the vaccinated, judging by its occurrence by age groups in the community at large, was less than 1/10 of a case in these localities, yet cases occurred. (3) The likelihood of the whole series of cases having occurred by natural causes was extremely small. (4) In none of the cases was exposure to infection outside its own area known to be of any special significance. (5) In every case in which the sequence of events was known, the level of the spinal cord first affected corresponded to the limb in which the injection was made, paralysis beginning either in the same or in the contralateral side. While any one of these cases may have been entirely unconnected with vaccination, the implication as a whole is clear.—I am, etc.,

Manchester. W. P. SWEETNAM.

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1 *Amer. J. med. Sci.*, 1934, 188, 510.
2 *Science*, 1934, 79, 594.
3 *Amer. J. publ. Hlth*, 1936, 26, 113.
4 Ibid., 1936, 26, 95.
5 *J. Amer. med. Ass.*, 1935, 105, 2152.

Lead Nipple Shields

SIR,—Shades of Dr. Wansborough! Little did that worthy if imaginary gentleman think when he "invented" his nursery requisite about 50 or 60 years ago that he would cause such apprehension and alarm in 1949. Yet I have no doubt his intentions were kindly and well meant, for these 3-in. (7.5-cm.) disks of thin, smooth metal, carefully shaped to fit the contour of the nipple snugly, like a little conicle-crowned broad-brimmed hat, and with as much zinc as lead in their composition if one may judge from their lightness and shape-retaining qualities, were worn on the nipples between feeding-times and during the night, and removed, of course, when the child was put to the breast.

The Minister of Health reasoned, no doubt correctly, that during the longer periods of rest and warmth the film of milk around the nipple and imprisoned by the shield would turn slightly sour, forming an infinitesimal amount of lead lactate, thus exerting *in situ* a very mild, soothing, and astringent action on the macerated and tender part, akin, as it were, to the same beneficial effect that liq. plumbi subacet. dil. (Goulard's water) has when used as a dressing on moist excoriated surfaces. As regards the risk of lead-poisoning, surely the ordinary instincts of cleanliness would prompt the mother to cleanse the breasts and shields, if not before each feed, at least once or twice daily. However, the Ministry has apparently some startling news for us, and has promised the publication at an early date of the full details of how babies can absorb such an amount of lead by this means as to cause saturnine encephalopathy, a state of poisoning which as a rule, in my experience, indicates a severe saturation with the metal. Let us hope the mothers have not been excreting diachylon taken in the early months of pregnancy.

But apart from the foregoing, who in all the earth prescribes lead nipple shields nowadays? I saw them 40 years ago when in business, and the pair we had then were real museum pieces, marked for many a day as dead stock and quite unsaleable. In this town of 50,000 inhabitants not a single one can be bought. There are 18 chemists—principals and staffs totalling about 100—all handling N.H.A. scripts. Out of these, three had actually seen lead nipple shields many years ago, eight apparently knew about them, and the remainder had never heard of them at all. The same circular from the Ministry has been sent to them too, each one wondering what it is all about.—I am, etc.,

Lancaster. R. G. HOWAT.

SIR,—The announcement in the Press of the Ministry of Health's embargo on the use of lead nipple shields has only just brought to my notice this controversy. Like many women handicapped by severely cracked nipples, I have reason to be grateful for this effective aid to breast-feeding: when all other remedies failed lead nipple shields enabled me to feed each of three babies for a normal period of nine months. If the breasts are thoroughly washed before each feed it is difficult to see how the babies can suffer.

I should like to examine some evidence before I acquiesced in the Ministry's fiat and abandoned the shields for a fourth child, which would inevitably mean weaning at a few days old—in my view a tragedy. I could, with difficulty, obtain a pair of shields from France, where they have been in common use for generations, but such a course of action, in opposition to the full weight of medical opinion in this country, would be a terrifying responsibility for any mother.

Can you tell me where the evidence which led to the Ministry's decision can be examined? And can you perhaps influence the public press to publish the source, so that women can test such evidence against their own experience before making a very difficult decision?—I am, etc.,

Barnstaple, Devon. JOAN S. BLACKSELL.

*** In the *Lancet* of October 8 there is a paper (p. 647) by Dr. I. Gordon and Mr. T. P. Whitehead entitled "Lead Poisoning in an Infant from Lead Nipple Shields" and a letter (p. 674) by Drs. Helen Mackay and Donald Hunter on the dangers of lead nipple shields.—ED., *B.M.J.*

Congenital Pyloric Stenosis

SIR,—The occurrence of congenital pyloric stenosis in three consecutive children in a family is not so unique as Dr. J. L. Adlington (October 1, p. 740) suggests. Brendle[1] records its occurrence in three brothers in the same family, and Fabricius and Vogt-Muller[2] described its occurrence in all four children of the same mother, three of whom had the same father. I saw three consecutive children (two girls and one boy) of the same parents who were successfully treated by "eumydrin" at the Leicester Royal Infirmary. These cases—Nos. 44, 57, and 103—were included in a series of 112 cases of pyloric stenosis admitted over a period of eight years and reported in *Archives of Disease in Childhood* (1947, 22, 75).—I am, etc.,

Liverpool. R. MCLAREN TODD.

REFERENCES
1 *Mschr. Kinderheilk.*, 1937, 68, 295.
2 *Hospitalstidende*, 1937, 80, 166.

Symptoms of Psychoneurosis

SIR,—The results of an investigation briefly described below may be of some interest. The symptoms were studied of two groups of medical out-patients and of one group of in-patients on whom the physician's opinion was asked. The 672 patients were seen during Naval service and were mostly men of the Royal Navy and R.A.F. Two-thirds were between 17 and 35 years of age.

A diagnosis of neurosis was made in 31% and 30% of the two out-patient groups and in 24% of the in-patients. When those patients were included whose symptoms were mainly neurotic the percentages were 38, 36, and 34 respectively, with an average of 36% (244 out of 672 patients). Pain was the commonest symptom in these 244 and was complained of by two-thirds of them, often in more than one site. It was a more common symptom in these people than in a sample of non-neurotic patients. In half of those complaining of pain the pain was a headache. One-third of the 244 complained of dyspnoea of some sort (on exertion, on lying down, waking up panting for breath, a feeling that the chest could not be filled, etc.) and one-third complained of insomnia. One-quarter complained of tiredness (weakness, exhaustion) and one-quarter of giddiness ("dizziness"). One-sixth complained of either trembling, palpitations, precordial pain, or abdominal pain. Only about 5% complained of loss of confidence or of loss of concentration or of irritability.

Twenty-two of the 244 patients suffered from a cardiac neurosis. This proportion (9%) is much less than that found among neurotic patients in the Army.[1,2] Fifteen patients may be said to have had a pulmonary neurosis. Fear of tuberculosis appeared to be the commonest cause of this. Eleven had mainly genito-urinary symptoms (enuretic patients without

other evidence of neurosis were not included in the 244). Two patients had a neurosis simulating rheumatism. One-third of the neurotic and mainly neurotic patients gave a family history of psychopathy according to Slater's definition[3] as against 5.9% of the non-neurotic patients.—I am, etc.,

Rochester, Kent. F. A. Richards.

References

1 Douglas-Wilson, I., *British Medical Journal*, 1944, 1, 413.
2 Todd, J. W., ibid., 1944, 1, 19.
3 Slater, E. T. O., *J. Neurol. Neurosurg. Psychiat.*, 1943, 6, 1.

Tetraethylthiuramdisulphide in the Treatment of Alcoholics

Sir,—I was most interested to read Dr. A. E. Carver's article on the treatment of alcoholics with tetraethylthiuramdisulphide (August 27, p. 466). I have used the drug in more than 50 cases of alcoholism during the past eight months, and I fully agree with Dr. Carver's conclusion that it is a useful ancillary in the treatment of this serious and troublesome illness.

Dr. Carver describes two methods of the administration of the drug—either to give it surreptitiously without the patient's knowledge or consent, or to give it after a full explanation with the patient's co-operation. I consider that the first method he describes is dangerous. I have observed a few very severe reactions following the ingestion of alcohol in sensitized patients which, if they had occurred in the patient's own home or in public, might have led to serious consequences.

On a recent visit to Scandinavian hospitals, where the drug is widely used, several deaths following the treatment were reported to me. Jones[1] has reported very fully the case of a healthy young male who died a few hours after taking a test dose of an ounce of rum, following premedication with tetraethylthiuramdisulphide during the previous four days. It is clear, therefore, that this is potentially a dangerous drug unless its administration is carefully controlled.

The patient's reaction to alcohol when taking the drug should not be left to chance, but a test should be carried out under hospital conditions. It is wise, too, to inform the patient and his relatives that alarming symptoms may follow the ingestion of alcohol, and that a clinical trial with a small amount of alcohol will be made to test out his reactions before he is allowed to run the risk of drinking at his own discretion. Unless these precautions are taken I feel there is a danger that this valuable adjunct to the treatment of alcoholism will fall into disrepute.

I am surprised at Dr. Carver's suggestion that the drug should be given only for a month or two. It is surely a matter of clinical experience that an alcoholic must be considered prone to relapse until he has been abstinent for a very much longer period.—I am, etc.,

Dublin J. N. P. Moore.

Reference

1 *Canad. med. Ass. J.*, 1949, 60, 609.

Treatment of Varicose Veins

Sir,—Mr. C. H. Wickham Lawes has misread and misquoted me; and, moreover, his otherwise courteous letter (September 24, p. 708) has given no less provocation by his repeated "of course"—a term that I hope you will allow me to show fits too loosely to his arguments about a matter of some importance. He has "tried most methods including Dr. Hanschell's (it is, of course, not new)." In my letter (March 19, p. 500) I gave a summary of this method, brief yet sufficiently precise to be intelligible and identifiable. It is not new, in so far as I arrived at it very slowly over a period of years by trial and error and comparison with controls; have practised it for a decade; and find it adopted by colleagues. It is new only in that no one else has yet described it (nor have I, fully, in boring detail). I take leave, therefore, with due respect to Mr. Lawes, to doubt whether he knew of it, "of course," or anyhow, or has in fact tried it; and I beg him to extend his courtesy to re-read my letter with closer attention.

Again, "Dr. Hanschell states" that minimal injections give extra pain and longer convalescence, and that sclerosant injection is a dangerous ally and a useless one. Of these statements Mr. Lawes writes, "Of course they are far from correct." But, Sir, what I wrote was to the effect that he would find his minimal injections, as ally to ligations, had served only to give a pain and convalescence respectively extra and longer than that attached to ligations alone in control legs. How correct that is, Mr. Lawes can know "of course" only if he (as I had) tried those controls—and he hasn't. I wrote that sclerosant injection was dangerous *or* useless, not *and* useless. The difference in a serious discussion is not unimportant. Will not Mr. Lawes oblige by re-reading my letter? Furthermore, he states, "Operation or injection alone is not enough." Which certainly confesses that the uselessness of injection alone is not "of course far from correct."

Now it has happened that some (however few) deaths have resulted from "the method of choice . . . a combination of operation and injection." I suggest it is not "of course far from correct" to find here a not dubious implication that some injection, although not enough alone, may be dangerous enough as an ally to operation—and the plain corollary that this ally injection to be safe must be useless. I have no doubt that Mr. Lawes will have more than glanced at Sir Heneage Ogilvie's restrained damning (September 24, p. 665), on the facts of observation (and how timely), of this ally injection. I have given facts of observation, that any one may find for himself, to speak for themselves. "My opinion" would be supererogatory pomp, uncomplimentary to a professional brother and unbecoming to me. It would be, of course, far from correct to pretend that a death here and there, following this or that induction of thrombophlebitis, made a holocaust: but it has made more than one dead human, who would not have died of varicose veins.—I am, etc.,

London, W.1. H. M. Hanschell.

Serous Fluid in Wounds

Sir,—After certain operations it is common to find an accumulation of serous fluid in the wound. This is usually of minor degree, but on occasion the effusion may be gross, persistent, and have the characters of a lymphatic fistula. Such is occasionally the case after a radical mastectomy, after dissections of the lymphatics of the lower neck, and after dissections of lymphatics in the groin and upper thigh. If the leakage does not cease spontaneously or respond to simple measures such as firm strapping, the condition appears readily curable by the injection of one of the sclerosants used for the treatment of varicose veins.

Exploration of such wounds shows, after about 10 days, a cavity lined with granulation tissue. No doubt there is by this time a very definite walling-off by the granulation-tissue barrier and fibrosis deep to it. The method used would therefore appear safe, providing the wound is not clinically septic. Apart from its use after mastectomy and similar operations I have used it with success in a case of pancreatic fistula. As illustrating the method, the following case may be quoted.

An elderly woman, two weeks after radical mastectomy, was having over 600 ml. of serous fluid removed from the wound, by probing and pressure, each day. The skin wound was well healed and the evacuated fluid not purulent. A rubber catheter was introduced into the cavity as far as it would go and all the fluid evacuated. Monoethanolamine oleate solution (15 ml.) was then injected via the catheter, the catheter removed, and the chest wall firmly bandaged. Twelve hours later the patient complained of some burning pain. A catheter was inserted and the cavity irrigated with normal saline, stringy clots of exudate being thus removed, along with, presumably, surplus sclerosant. A firm dressing was applied for 48 hours. There was no further discomfort, no visible reaction, and no further accumulation of fluid. The patient was discharged a few days later.

Both monoethanolamine oleate and "ethamolin" have been used. The amount required varies with the size of the cavity—from 5 to 15 ml. It is seldom necessary to repeat the treatment. The above case is the only one in which irrigation to remove surplus sclerosant and debris has been necessary—if indeed it was.

It would appear that the treatment acts in two ways: first, by the coagulation of albuminous fluid a stringy tenacious jelly is produced which glues the walls of the cavity together and occludes open lymphatic channels; secondly, the irritation of

the cavity walls enhances the effect and probably aids adherence of the gel. No general or regional reaction has been observed. The number of cases treated has been small, and one feels that the treatment should be used with care and discrimination. The method has proved most satisfactory in my experience. I do not imagine it to be at all original, but as I have not seen it recorded it seems a pity not to make it more widely known.—I am, etc.,

Dartford Kent. STEPHEN BARCLAY.

Streptomycin in General Practice

SIR,—It is very pleasing that the production of streptomycin has so increased that the supply and distribution of the drug no longer require to be organized by the Ministry of Health through various "key" hospitals. Under new regulations coming into force in November streptomycin will be available to all on prescription. It has, however, been the experience locally, and no doubt the same has been the case elsewhere, that in recent months there has been no difficulty in obtaining adequate, prompt supplies of streptomycin for all those cases of tuberculosis encountered at the chest clinic and in hospital who may be expected, in the light of present knowledge, to be benefited by the treatment.

In view of the prolonged course of many forms of tuberculosis and the fact that cases of advanced or chronic phthisis may have to wait nearly a year for hospital treatment, or may never be admitted to an institution because of the shortage of beds, it seems likely to me that many general practitioners will be moved by the laudable desire to do something for their patients to prescribe streptomycin in cases not really suitable. Where general practitioners hesitate, some may be pushed into this course by anxious patients who have heard of the wonder-working medicine.

Apart from possible toxic effects, a very great danger exists in the frequent development of resistance to streptomycin in the tubercle bacilli. If chronic pulmonary cases are given prolonged courses we may find that without benefiting the patients we have produced chronic carriers of streptomycin-resistant bacilli. Any new patients infected by them with these bacilli, and as a result suffering from miliary, meningeal, or other forms of tuberculosis previously responsive to streptomycin, will be unable to be helped. They will have to get better without the help of streptomycin. The meningeal cases will die, and the chest cases will further spread the resistant bacilli. In short, we shall be back where we were five years ago.

It is significant that in the official notice published in the *Journal* of October 1 (p. 752) it was found necessary to give advice on the proper use of streptomycin. I feel, however, that it is too much to expect of general practitioners that they will entirely refrain from using streptomycin in those cases of chronic or advanced disease which form the majority of the tuberculous patients whom they have to treat at home.

I would suggest, therefore, that it would be better for all that the use of streptomycin should depend upon a hospital physician's prescription, just as have been, I understand, less potentially dangerous remedies such as surgical trusses for herniae and physiotherapeutic measures. I hope the responsible bodies will act in this matter.—I am, etc.,

Welwyn Garden City, Herts. B. COUTS.

POINTS FROM LETTERS

Transitory Retrobulbar Neuritis

Dr. HORATIO MATTHEWS (London, W.13) writes: Your critic (September 17, p. 662) is a bit too severe. In my 40 years of eye work I have on several occasions come across transient depreciation of visual acuity following local sepsis. In one case the patient was a G.P. whose visual acuity fell in the right eye from 6/6 to 6/9 with obvious embarrassment within a week of removal of a meibomian cyst from that eye. And there are many I could recall associated with sinus infections. I do hope too much emphasis will not be laid on hysteria. The diagnosis of ? mild or axial or macular retrobulbar neuritis is involved anyway. Is it possible that the whole business is not retrobulbar (in most instances) but microscopically macular ?

Obituary

JAMES KYLE, M.R.C.S., L.R.C.P.

Air Commodore James Kyle, for the past four years assistant director of medical services of the British Overseas Airways Corporation, died suddenly in St. George's Hospital on October 8. He was born in 1888, and was educated first at Watson's College, Edinburgh, and later at Shrewsbury. He studied medicine at Guy's Hospital before the first world war, but left his medical studies in 1914 to serve as a combatant in the Artists' Rifles. He was gassed in France and returned to his medical school at the end of 1916, taking the Conjoint diploma in 1918. After qualifying he was for a short time an assistant medical officer at Lambeth Hospital. In the Royal Air Force, in which he served as a regular officer from 1919 to 1945, he held many important posts.

Sir Harold Whittingham writes: "Jimmy," as he was known in the Royal Air Force and among his wide circle of friends, was commandant of the Medical Training Establishment and Depot just before the war and during most of the war period. Here he was to a large extent responsible for the high ideals instilled into the R.A.F. medical officers and medical orderlies which did so much to mould their characters and to build up a medical service which won great distinction during the recent war.

Kyle had natural charm and grace, and was good-humoured, kind-hearted and generous, possessed of much common sense and a breadth of mind that always appreciated and gave due consideration to the other person's point of view. He was calm, tactful, and outstandingly loyal, and was an ideal administrator beloved and respected by his colleagues, staff, students, and all who had to deal with him. Some eleven years ago he had a severe attack of coronary occlusion. Despite this he bravely and unflinchingly carried on onerous duties in the Service throughout the war and, after his retirement from the Royal Air Force, in the medical service of the British Overseas Airways Corporation, playing a prominent part in its establishment and administration. In addition he undertook the duties of R.A.F. representative on the Armed Forces Committee and on the Council of the British Medical Association. In this committee and at all times he worked hard to improve the conditions of the medical service of the Royal Air Force, which he loved so well. Those of us who have been privileged to serve alongside him for the past thirty years cannot speak too highly of his contribution to Service and aviation medicine, nor of the value of his friendship, help, and advice. We wish to express our deepest sympathy with his wife and two daughters in their great loss.

Dr. JAMES MCALISTER RAMSAY died in an Edinburgh nursing-home on July 26 at the age of 79. He was born in Airdrie, Lanarkshire. It was originally intended that he should be a schoolmaster, and he did some teaching, but his heart was in medicine. He obtained the triple qualification of Edinburgh and Glasgow in 1896, and after preliminary assistantships in Sheffield and Glasgow he took up practice at Parkhead in Glasgow. He built up a successful practice and continued his work there until 1914, when he was appointed medical officer to the Fife office of the Mineowners Defence and Mutual Insurance Association, Ltd. In the exercise of this office he came in contact with most of the doctors practising in the mining areas in Fife and earned their respect and esteem. He was a popular examiner for the St. Andrews Ambulance Association, having the knack of putting candidates at their ease and drawing the best out of them. He was made a J.P. in 1930,

Dr. Ramsay retired in 1945 and came to live in Limekilns, a village outside Dunfermline, where he took part in all the social activities of the village and formed a new circle of friends. He kept his hand in professionally by occasionally deputizing for the local doctor, and he was always ready to give of his best in any emergency. He was a cultured, genial, and kindly man, and his passing is regretted by all who knew him.—R. C. W.

Dr. JOHN PRIDMORE RABAN died in Bristol on October 2 at the early age of 44. Born at Harpenden, Hertfordshire, he received his medical education at the Middlesex Hospital, taking the Conjoint diploma in 1929. After an appointment as house-physician at St. James's Hospital, Balham, he returned to the Middlesex, where he became in turn house-surgeon to Sir Gordon Gordon-Taylor, to the ear, nose, and throat department, and to the gynaecological and midwifery department. It was then that he decided to make radiotherapy his specialty, and he was appointed to what has since become the Meyerstein Institute of Radiotherapy. He took at this time the D.M.R.E., and continued to gain experience until the outbreak of war. In his student days John Raban had been a keen member of the University of London O.T.C., and on qualifying he took a commission in the R.A.M.C. (T.A.), assuming command of the company composed of cadets from the Middlesex and St. Mary's. The training and seniority so gained stood him in good stead during the war years. After a period as radiologist to a general hospital in India, he was given command of one of the first two units of its kind—a Forward Malarial Treatment Unit. Following inevitable teething troubles, this unit moved into the Burmese jungle, where its operational success was outstanding, and recognition of this was accorded by John Raban's mention in dispatches. His final war appointment was to the command, as full colonel, of a general hospital in Ceylon. In 1945 he returned to the Middlesex as first assistant in the Meyerstein Institute, and subsequently was appointed radiotherapist to the Bristol Royal Hospital. With the change of administration in July, 1948, his sphere became that of the United Bristol Hospitals. It was soon after his return to civilian life that his health began to fail, and there can be no greater testimony to his courage and tenacity of purpose than the success he made of this responsible task against increasing odds. He stuck to his job until a few days before his death. John, as he was affectionately known to all colleagues from the most senior to the most junior, never made any claim to academic brilliance. But this was more than offset by a fund of common sense, of human understanding, and an ever-growing clinical intuition. His judgment was respected by all. His was a strong character which enabled him in all circumstances to speak his mind, and was shown perhaps best in his great qualities of leadership. In both war and peace he earned the respect, loyalty, and friendship of all those who served under him. He was blessed with a great sense of humour, and he loved gaiety. These latter qualities were shown in a most successful series of amateur revues which he produced and took part in during his earlier days. He also enjoyed his sport, being a keen horseman and playing for his hospital at rugger. Those who knew him will feel the world a poorer place for his departure. He leaves a widow.—L. C. B.

Dr. S. Curwen writes: I shall always remember John Raban for his great quality of trying to make life as easy as possible for others. A more selfish man could well have preserved himself, but John, with that apologetic way of his, was always so anxious to pull his full weight that he wore himself out.

Dr. KENRICK STANTON WISE, whose death was announced over a year ago, was Surgeon-General in British Guiana from 1914 to 1919, and in Trinidad and Tobago from 1919 to 1936.

A former colleague of his, Dr. J. E. A. Boucand, writes: Dr. Wise arrived in Trinidad just in time to introduce fundamental changes aimed at improving the efficiency of the health services. His was the task of putting into effect the Public Health Ordinance of 1915. Also in 1919 he was appointed chairman of a local committee to inquire into the organization of the medical service. The main recommendations of this committee provided for increases in personnel and in the salaries of medical officers and nurses. As a result of further requests for an improved service, in 1932 another committee with Dr. Wise as chairman was appointed. The report of this committee showed evidence of a very searching inquiry and contained recommendations affecting all branches of the health service. Dr. Wise resigned from the Service in 1936, and was therefore unable to witness the implementation of these recommendations. During his long term of office lepers were transferred from the mainland to a settlement on an island, Chacachacare, where the inmates benefited from the most modern advances in the treatment of leprosy, and their life was made generally more agreeable. The domiciliary treatment of non-infectious cases was encouraged. Dr. Wise was responsible for the setting up of a new "House of Refuge," a modern institution for the treatment and care of the aged and destitute. He urged with success the provision of facilities for postgraduate study, improved the training of nurses, and stressed the need for residential accommodation for nurses. He made great efforts to have a sanatorium established, and formulated the first plans for renovating and extending the Colonial Hospital, Port of Spain, and for rebuilding the Colonial Hospital at San Fernando. He introduced the ear, nose, and throat clinic, the eye clinic, the dental clinic, and a venereal diseases clinic, and was a strong advocate of the medical inspection of schools and of intensification of antimalarial work. He was an able pathologist and born administrator, realistic in his outlook. He was a quiet thinker, with a ready grasp of the most difficult problem. He did much for the West Indian doctors and nurses, but failed in his endeavour to establish a school of dispensing in Trinidad. A man of decision, with a great respect for the opinion of others, he had a fine understanding of human nature, and was able to assess at their true values the officers in his department. Dr. Wise lived a quiet life in the Colony, retreating every week-end to his country seat at Morne Bleu. He spent his leisure moments in the study of history, and was the founder of the Trinidad Historical Society and its first president. His ability and public service were recognized by his appointment to the Executive Council of the Colony. Great regret and sorrow were felt when news of his death in London belatedly reached the Colony he served so well and where he left so many lasting memories.

Medico-Legal

OVERDOSE OF NITROUS OXIDE

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

A married woman of 38 underwent a minor operation on a septic thumb at the Adelaide Hospital, Dublin, under nitrous oxide and oxygen anaesthesia. The oxygen cylinder was empty, and the student nurse who was assisting was sent for another. She brought from the rack outside the door of the theatre a cylinder which contained, not oxygen, but nitrous oxide. After a few minutes the woman house-surgeon who gave the anaesthetic noticed that the patient was slightly blue and turned off the cylinder which she knew to contain nitrous oxide, but left turned on the new one, which she in error thought to contain oxygen. It was then discovered that this, too, was a nitrous-oxide cylinder. The mask was removed and artificial respiration was continued for two hours, but the patient did not recover consciousness. An account of the inquest[1] on May 31 appeared in this section of the *Journal*.

The prosecuting authorities summoned the house-surgeon[2] before the Dublin District Court on a charge of manslaughter. The student nurse said in evidence that she had been in training for two years but had never previously assisted in the minor operating theatre when a general anaesthetic was being administered. There was no qualified nurse in the theatre at the time. She did not then know of the distinguishing marks on both types of cylinders. She had thought that the cylinders in the rack, about four, were all oxygen cylinders, and had not looked

[1] *British Medical Journal*, August 27, p. 490.
[2] *Irish Times*, September 2, 6, 9, and 20.

at the one she brought into the theatre. A statement made by the house-surgeon showed that she thought the cylinder brought by the nurse contained oxygen, but she did not check it. Other evidence showed that oxygen cylinders used in the minor theatre were black with a white top and were stencilled "O_2" on the neck. Nitrous-oxide cylinders were plain black with a green label bearing the words "nitrous oxide," and both the cylinders in the machine had such a label, though they were not produced in court. Labels and paint were not always in good condition, but the manufacturers repainted the cylinders at least every two years, and often much more frequently. Each type had a differently coloured label and a different serial number. The fittings and valves were identical; in the appliance used in the present case the cylinders were clamped and not screwed into position.

Giving judgment, District Justice Mangan refused to commit the doctor for trial. He found that there had been a default by the doctor, but that the State had not proved that the death had been due to that default. The patient's recent confinement might, as the medical evidence had suggested, have had the effect of raising her blood pressure under the anaesthetic and of leading to a cerebral haemorrhage. The State had not brought evidence of the cause of death, nor even shown that a necropsy had been performed.

Comment

The very full reports in the Irish press do not give any answer to the question why the prosecuting authorities saw fit to arraign this young doctor on a charge of manslaughter. The textbooks show that a much greater degree of negligence is necessary to support a criminal charge than to justify an award of damages in a civil action. The conduct must show such disregard for the life and safety of another as to amount to a crime and deserve punishment. There is no indication in the report that the State adduced any evidence of negligence beyond the mere fact that the accident had occurred, nor was the degree of negligence material to the judgment of acquittal. The prosecutor's omission to lay the groundwork of the case was sufficient to secure that fortunate result. But it is a melancholy reflection that such accidents can still happen after all the fatalities that have already been due to this cause and all the work that the Association of Anaesthetists, the Medical Defence Union, and other bodies have done to prevent them.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

A course of lectures, primarily intended for general practitioners, began on October 12, when Dr. A. M. McFarlan spoke on "Preventing Epidemics: the Doctor's Role." Further lectures in the series, which has been arranged by Professor A. Leslie Banks, Professor of Human Ecology in the University, will be given on the second Wednesday of each month from November, 1949, to July, 1950, at 2.30 p.m., at Addenbrooke's Hospital, Cambridge. Details will be published in the "Societies and Lectures" column of the *Journal*.

UNIVERSITY OF DURHAM

Dr. Arthur Hughes will deliver the sixth Rutherford Morison Lecture on "The Study of the Living Cell" at the Royal Victoria Infirmary, Newcastle-upon-Tyne, on Thursday, November 17, at 5.15 p.m.

UNIVERSITY OF LONDON

Erwin Stengel, M.D., has been appointed to the University Readership in Psychiatry tenable at the Institute of Psychiatry, from October 1.

UNIVERSITY OF WALES

The following candidates for the degrees of M.B., B.Ch. at the Welsh National School of Medicine have satisfied the examiners at the examination indicated:

HYGIENE.—A. G. Alexander, D. F. Brown, Josephine J. Candy, D. E. Copas, B. M. Davies, Ilid M. L. Davies, S. I. Davies, J. M. S. Dixon, J. L. A. Dowse, D. R. T. Evans, J. Evans, B. M. Frost Smith, B. J. Fudge, S. G. Gang, Nansi G. Gwynne, A. R. Harris, A. J. Hooper, Dilwyn T. Jones, Mary E. V. Jones, J. Magell, T. M. Morgan, W. B. Morgan, E. D. Morris, T. L. Morris, G. J. Moses, Margaret Pugh, Dilys Rees, T. A. I. Rees, T. B. Stephens, A. P. Thomas, Margaret E. Thomas, Margaret H. J. Thomas, Anne G. Tighe.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a quarterly meeting of the Council of the College, held on October 13, with the President, Sir Cecil Wakeley, in the chair, a resolution of condolence was passed on the death of Mr. Robert Milne, a past-member of the Court of Examiners.

It was reported that Professor R. V. Bradlaw would deliver the first Webb-Johnson Lecture and that Dr. John Gillies would be the Joseph Clover Lecturer for 1950.

A Diploma of Fellowship was granted to E. J. P. Dennehy.

Diplomas of Membership were granted to R. T. Hughes and O. L. Thomas.

Other diplomas were granted as follows:

FELLOWSHIP IN DENTAL SURGERY.—S. Wilson Charles, R. Fairhurst, G. W. Cathergood, A. R. Thompson, W. F. Collyer, K. P. Liddelow, A. T. Marston, J. W. E. Snawdon, A. M. Norsnell.

FELLOWSHIP OF THE FACULTY OF ANAESTHETISTS.—N. Macdonald, T. Macdonald, R. A. Hingson (Baltimore, U.S.A.), Harry Daly (Sydney, New South Wales).

Diplomas in Tropical Medicine and Hygiene, in Ophthalmic Medicine and Surgery, in Industrial Health, in Child Health, and in Physical Medicine were granted jointly with the Royal College of Physicians of London to the following successful candidates:

DIPLOMA IN TROPICAL MEDICINE AND HYGIENE.—M. el H. Abu Bakr, I. F. Bache, D. N. Banerjee, D. Banerjee, P. H. Birks, S. M. H. Bokhari, S. Chen, Gladys Connor, J. M. Daniel, K. K. Datey, M. M. Desai, J. C. Dutta, H. El Hakim, S. Fazlullah, A. C. Franks, F. C. Harris, J. M. Karim Rehmany, P. W. Kent, S. M. A. Khadri, H. K. Kong, W. S. Kulesza, D. Lawrence, T. Lee, W. S. M. Ling, I. A. McGregor, D. S. McLaren, H. G. McQuade, K. R. Mahajan, A. H. Marsh, A. N. I. Meneces, Deirdre Moore, J. M. Mungavin, C. K. Newman, Gwynfryn A. Owen, W. R. Rochester, A. M. A. Shamy, A. Singh, R. P. Sinha, I. M. S. Stewart, D. E. Thompson, I. G. Thomson, F. G. Williams.

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—M. M. Ahmad, A. A. Al-Hassany, P. E. Anderson, E. L. Arnold, P. W. Arundell, L. G. Bell, A. Bhattacharya, L. S. Bhave, B. J. Campbell, F. W. Campbell, R. L. Dudhia, G. Forrester, E. Gartside, C. Goldin, J. S. Gourlay, H. J. Harcourt, M. M. Hasan, R. J. A. Heron, R. M. Hewat, K. A. Jabbar, D. B. Jagger, Ruby E. Joseph, W. F. Kinnear, K. Lahiri, S. T. Leong, F.-M. Li, Ethel M. J. Loudon, J. D. McConn, D. G. S. MacPherson, W. G. Merriman, S. S. F. Munro, A. H. O'Malley, R. E. O'Neal, J. V. O'Sullivan, V. Raghavachar, S. R. Robson, S. V. Rush, A. N. Sabbagh, O. W. Salkeld, A. C. Sandston, J. W. R. Sarkies, A. G. Shane, B. S. Sher, G. F. G. Siggins, P. Sivasubramaniam, Marjory B. Snodgrass, M. J. Squires, A. Stafford Steen, A. V. Stevens, K. Vythilingham, A. G. Zalzala.

DIPLOMA IN INDUSTRIAL HEALTH.—L. Banerji, J. J. A. Blakely, C. Crowley, J. J. Das, C. D. Edwards, P. J. Feeny, C. J. Goedvolk, J. Gregory, G. G. Mathews, P. A. B. Raffle, S. K. Raychaudhuri, J. B. L. Tombleson, R. N. E. Watt.

DIPLOMA IN CHILD HEALTH.—C. Abraham, Patience C. Agate, Edith M. M. Alexander, S. U.-D. M. Anabtawi, N. P. Bector, N. R. Butler, W. L. Calnan, J. D. Chalmers, B. E. Cohen, V. B. B. Conaglen, E. G. Cook, Rosemary I. Cook, Jessica B. Core, Flora C. Cowan, J. O. Craig, B. N. Das Gupta, Gwendoline A. M. Donald, W. Edgar, G. V. Feldman, P. M. S. Fischer, Joan Frankton, Patricia Frodsham, W. M. Fyfe, J. M. Garvie, Dora Green, L. Haas, D. C. Henchman, Elisabeth C. W. James, K. E. Jefferson, Barbara Jennings, A. Jervis, A. C. Kendall, Sibyl D. Kiani, G. V. Kinariwala, Grace R. B. Kumarakulasinghe, B. Lake, N. H. Low, R. McDonald, Elizabeth M. Mackie, R. L. Macpherson, Mary R. Menzies, E. H. Minors, E. H. Mirando, M. Mirchandani, Jean Mitchell, Cecil M. Moore, Janet H. Mountford, D. N. Mukherjee, Annie M. Peach, I. C. Peebles, A. F. S. Perera, Maeve Powell, Phyllis Rashbass, Helena M. Reckless, R. V. Rele, Stella M. Ring, E. G. G. Roberts, Marion C. Robinson, A. A. W. Roe, Sheila MacL. Ross, C. M. H. Rotman, R. D. Rowe, R. C. Roxburgh, M. H. Russell, T. R. Savage, Isabel B. Schooling, N. L. Sharma, Margot Shiner, Joan E. T. Spong, J. Steven, A. F. H. Stewart, Victoria W. Symonds, J. J. Tillie, W. M. L. Turner, B. P. Webber, O. H. Wolff, S. Wolff, F. B. M. Woodhouse.

DIPLOMA IN PHYSICAL MEDICINE.—A. R. Brown, W. A. Fell, R. Harris, Ursula E. K. Leitner, A. T. Richardson, B. Shanson, G. R. M. Sutcliffe, J. M. Titcombe, N. M. Vallely.

The following hospitals were recognized under the Fellowship regulations in respect of the resident surgical post required of candidates for the Final Fellowship examination: Amersham General Hospital (resident surgical officer and house-surgeon); Stepping Hill Hospital, Stockport (resident surgical officer and resident assistant surgical officer).

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended October 1. [No. 39

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	25	3	14	1	—	28	2	26	2	2
Deaths		1	—				3	—		
Diphtheria	76	8	21	2	7	114	15	55	10	2
Deaths	1	—	—	—	—	1	—	—	—	—
Dysentery	163	24	68	1	6	58	12	59	1	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—	—	—	1	—	—	—	—
Deaths		1					—			
Erysipelas			22	3	2			26	12	7
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				120					57	
Deaths	34	3	8	7	6	29	3	5	3	2
Measles*	780	40	27	51	45	3,546	94	67	45	71
Deaths†			—	—	—			—	—	—
Ophthalmia neonatorum	39	5	6	—	—	65	6	20	1	
Deaths										
Paratyphoid fever	24	1	1(A) 10(B)	3 (B)	1 (B)	6	—	2 (B)	3 (B)	2 (B)
Deaths	1	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	313	16	1	3	2	402	22	2	1	—
Deaths (from influenza)‡	4	—	—	—	1	5	—	—	—	—
Pneumonia, primary			139	15				171	26	
Deaths	94	15		5	7	150	21		6	7
Polio-encephalitis, acute	26	—				5	2			
Deaths										
Poliomyelitis, acute	331	44	7	—	1	83	7	6	1	1
Deaths§	23	4				2	1			
Puerperal fever		—	8				—	13		—
Deaths										
Puerperal pyrexia‖	104	8	7	—	5	97	5	10	2	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,305	112	204	96	104	1,234	79	249	126	51
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	12	4	1	2	—	40	1	—	2	—
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	956	43	52	66	65	2,204	157	69	44	24
Deaths	2	—	1	1	2	5	1	—	1	1
Deaths (0–1 year)	230	27	41	27	16	255	40	39	19	14
Deaths (excluding stillbirths)	3,972	602	524	166	107	4,239	663	527	168	109
Annual death rate (per 1,000 persons living)			10·5	10·3				10·6	10·5	
Live births	7,738	1213	899	347	236	8,066	1269	979	473	242
Annual rate per 1,000 persons living			18·0	21·5				19·8	29·6	
Stillbirths	184	25	20			189	22	36		
Rate per 1,000 total births (including stillborn)			22					35		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

Notifications in *England and Wales* for the week ended October 8 were: poliomyelitis 340 (331), polio-encephalitis 34 (26). The figures for the previous week are shown in parentheses. The high prevalence this year is being prolonged beyond the usual time.

The following counties reported multiple cases (poliomyelitis and polio-encephalitis together): London 52 (44), Bedford 5 (5), Berkshire 6 (5), Buckingham 2 (2), Cambridge 3 (0), Chester 5 (4), Cornwall 2 (8), Devon 3 (1), Dorset 7 (5), Durham 2 (3), Essex 31 (26), Gloucester 23 (17), Hertford 4 (12), Kent 26 (19), Lancaster 24 (41), Leicester 4 (2), Lincolnshire, Lindsey 6 (8), Middlesex 30 (18), Norfolk 4 (4), Northampton 4 (4), Northumberland 6 (0), Nottingham 8 (9), Salop 2 (0), Somerset 6 (6), Southampton 4 (7), Suffolk East 4 (2), Surrey 9 (9), Sussex East 2 (5), Warwick 19 (13), Westmorland 2 (0), Wiltshire 4 (8), Yorks East Riding 2 (3), Yorks North Riding 3 (2), Yorks West Riding 50 (38), Glamorgan 7 (6).

Discussion of Table

In *England and Wales* there were increases in the notifications of scarlet fever 208, measles 121, acute pneumonia 87, dysentery 85, and poliomyelitis 63. The only decreases were in the incidence of whooping-cough 105 and diphtheria 16.

The largest increase in the incidence of scarlet fever was 47 in Lancashire. A small increase in the notifications of measles was recorded in most areas; in the north-western counties, however, a fall of 27 was reported.

The largest falls in the notifications of whooping-cough were Warwickshire 39, Yorkshire West Riding 37, and Lancashire 31. A rise was recorded in the incidence of pneumonia in every region except in the south-eastern and south-western counties.

The large rise in the incidence of dysentery was contributed by Lancashire, where 102 cases were notified (Ince in Makerfield U.D. 53, Liverpool C.B. 15, Abram U.D. 10). In London the notifications of dysentery rose from 16 to 24 (Hampstead 18). There was a large incidence of food-poisoning in Lancashire 270 (Liverpool C.B. 257); London 92 (St. Marylebone 67); and Essex 55 (Southend-on-Sea C.B. 20).

In *Scotland* increases were recorded in the notifications of scarlet fever 39 and of acute primary pneumonia 21. The rise in the incidence of scarlet fever occurred in the eastern and western areas. A decrease of 10 in the notifications of dysentery was recorded in Glasgow. An outbreak of paratyphoid B affecting 9 persons was notified in Lanark county.

In *Eire* there were increases in the notifications of scarlet fever 23, whooping-cough 23, and measles 26, with a decrease of 16 in the incidence of diarrhoea and enteritis. The rise in the notifications of measles was due to an outbreak of 24 cases in Waterford C.B.

In *Northern Ireland* an increased incidence was reported for whooping-cough 31, scarlet fever 9, and measles 15. The largest increases were: whooping-cough, Belfast C.B. 20; measles, Co. Down 20; scarlet fever, Belfast C.B. 9.

German Statistics

The *Monthly Statistical Bulletin of the Control Commission for Germany (British Element)* is to be discontinued in its present form. The last issue was that for July, which has just been published. Most of its contents will be continued in *Wirtschaft und Statistik* (published by Kohlhammer Verlag, Stuttgart. The articles and reports will be in German only, but a glossary will be appended giving translations into English of table headings, important footnotes, and explanations.

Diphtheria in Scotland

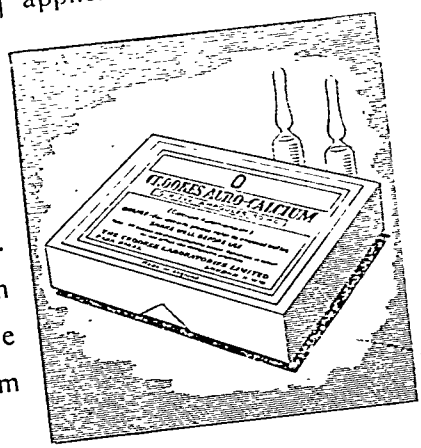
According to an analysis in the October *Health Bulletin* issued by the Department of Health for Scotland, confirmed cases of diphtheria in 1948 numbered 723, and of these 521 occurred in persons who had not been immunized. Deaths in Scotland in 1948 totalled 31, which corresponds to less than 6% of the deaths in 1941. Of the 31 fatal cases, 29 were children who had never been immunized, one was an adult who

GOLD THERAPY in Rheumatoid Arthritis

Controlled studies have shown that chrysotherapy is of definite value and that it is the only treatment which can change the course of the disease in a significant percentage of cases. "It might accomplish in six months or less what nature or general measures might take six years or more to achieve." (*Brit. med. J.*, *1948*,2,755).

Toxic reactions have still to be reckoned with but ". . . because of a reduction in course dosage and the growing use of calcium aurothiomalate, these only occur now in a very small proportion of cases". (*Practitioner*, *1948*,161,156).

AURO-CALCIUM (calcium aurothiomalate) is fully described in the booklet "Crookes Gold Products" (4th edition), obtainable on application.



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When glycogen-laden epithelial cells and Döderlein's bacilli are absent, the pH rises, and pus cells, Trichomonas vaginalis and pathogenic gram-negative bacteria appear.

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provides *carbohydrates* and *boric acid* to restore the pH and other conditions favouring the growth of Döderlein's bacilli, *acetarsol*, a tested trichomonacide and *flavazole*, an antiseptic active against both *gram-positive* and *gram-negative* pathogenic bacteria.

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Tablets each containing 4 grains (0.25 G.) of Acetarsol B.P. and 0.2% of Flavazole. Bottles of 25 and 100. *Powder* for insufflation containing 12.5%. of Acetarsol B.P. and 0.2% of Flavazole.

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had not been immunized, and only one was a child who had been immunized. Half of the children of pre-school age and almost three-quarters of the school-children had been protected by 1948. A decrease in the number of immunizations was recorded in the second half of 1948, the number of inoculations being 38,639, compared with 73,761 in the first half-year and 46,242 in the second half of 1947.

Week Ending October 8

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,624, whooping-cough 908, diphtheria 84, measles 926, acute pneumonia 312, cerebro-spinal fever 37, acute poliomyelitis 340, acute polio-encephalitis 34, dysentery 290, paratyphoid fever 18, typhoid fever 18, food-poisoning 121.

Medical News

The R.C.O.G. Dinner

Princess Elizabeth and the Duke of Edinburgh were the principal guests at the dinner of the Royal College of Obstetricians and Gynaecologists held at the Dorchester on October 12, when the president, Sir William Gilliatt, was in the chair. In proposing the toast of the College, the Duke of Edinburgh said he was doing this on behalf of his wife as well as on behalf of himself. The College, he said, had been largely instrumental in reducing infantile and maternal mortality. It was, he said, the first to be "a Commonwealth college." He congratulated the president, Sir William Gilliatt, on looking after its affairs for the last three years: "If he has looked after them in the same capable way that he has looked after my affairs I am not surprised your College has flourished." In response Sir William Gilliatt voiced what was in the mind of everyone in saying that they were proud and delighted that their Royal Highnesses had graced them with their presence. He hoped they felt that the College had made a significant contribution to the community in looking after the welfare of mothers and infants. His fervent hope was that the College would press for the continuous improvement in medical practice of all kinds. Sir William then thanked the officers and all those on the council and committees for their good work. In greeting Professor Hilda Lloyd as his successor he observed that they were the first Royal College to elect a woman as president. Mr. J. A. Stallworthy in a highly felicitous speech proposed the health of the guests. Sir Bennett Hance and Mr. Geoffrey Keynes suitably replied.

Postgraduate Travelling Fellowships

The British Postgraduate Medical Federation (University of London) is offering a limited number of travelling fellowships, tenable for one year, to registered medical practitioners who are training as specialists in one of the preclinical or clinical branches of medicine or surgery at one of the medical schools or teaching hospitals of the University of London. *Further information about these fellowships will be found in* the advertisement columns at p. 34.

Chelsea Clinical Society

The first dinner meeting of the fifty-third session was held on October 11 at the South Kensington Hotel, with the president, Dr. Maurice Bewley, in the chair. An interesting discussion on hormones was opened by Dr. P. M. F. Bishop and continued by Dr. Raymond Greene.

Road Accidents

Discussing physical disabilities and alcoholism in relation to road accidents at the Congress of the Royal Society for the Prevention of Accidents on October 5, Dr. J. A. Gorsky said that the field was comparatively unexplored. There was an urgent need for further investigation into the problems of visual defects and accident proneness as causative factors in road accidents. The danger of alcohol to drivers was becoming recognized and appreciated by the responsible majority of motorists, but more needed to be done by way of propaganda and public relations. He was astonished that in the case of fatal road accidents the Ministry of Transport did not adopt the same procedure as the Ministry of Labour, which sends one of its factory inspectors to attend the coroner's inquest when there has been a fatal industrial accident. It might be necessary to make tests for driving licences more stringent. That would mean a sacrifice of freedom. Most people who thought clearly about the problem had recognized the point, but it meant an enormous change of attitude and outlook.

History of War

The lines on which the official medical histories of the last war are being prepared were described in the *Medical Journal of Australia* of June 18 (p. 818) by Mr. W. F. Mellor, secretary of the United Kingdom Official Medical History of the War. In Britain as early as March, 1941, an editorial board was set up under the chairmanship of the Rt. Hon. R. A. Butler, M.P., then President of the Board of Education, with Sir Arthur MacNalty as Editor-in-Chief. The board first met in July of the same year. Subsequently Sir Cyril Flower, Deputy Keeper of the Public Records, succeeded to the chair of the board. Similar work was started in the Commonwealth and the U.S.A. The medical history will be divided into three main sections: (1) Evolution and development of the administrative services to meet war conditions; (2) the medical aspects of the campaigns; and (3) the advances in clinical medicine and surgery. There will also be sections on medical research and statistics. A number of the histories were already in preparation when the war ended in 1945. A conference of Commonwealth medical historians to study the possibilities of collaboration was therefore held in London in January, 1946, and as a result a liaison committee was established. This committee last met at Canberra on October 3–8 and discussed in particular the campaign in the Near and Far East, as well as the progress made in those theatres in the prevention and treatment of tropical diseases.

Memorial to Dr. John Snow

A tablet commemorating Dr. John Snow's residence at 18, Sackville Street, London, W.1, was affixed to this house on October 18. The tablet is inscribed "John Snow (1813–1858), physician and specialist anaesthetist, who discovered that cholera is water-borne, lived here." It was John Snow who administered chloroform to H.M. Queen Victoria on April 7, 1853, at the birth of the Prince Leopold. His work on cholera overshadowed his fame as a pioneer anaesthetist

Exploring Norway

The British Schools Exploring Society is arranging an expedition to Northern Norway from August 2 to September 15, 1950, and invites applications for the posts of honorary physician and honorary surgeon. The cost to each member of the party will be £110, plus £12 for personal equipment. Applicants should write as soon as possible to the assistant secretary of the society, c/o Royal Empire Society, Northumberland Avenue, London, W.C.2, suggesting a day when they could come to London for an interview.

Princess Tsahai Memorial Hospital

A bazaar will be held at the Kingsway Hall, London, W.C.2, on December 1 from 3 p.m. to 7 p.m. and on December 2 from 11 a.m. in aid of the Princess Tsahai Memorial Hospital. Funds are still urgently needed to complete the hospital, and cheques and postal orders will be gratefully received by the honorary treasurers, Lord Horder and Lord Amulree, c/o Messrs. Gould and Prideaux, 88, Bishopsgate, London, E.C.2. Gifts for the bazaar and offers to help should be sent to the honorary secretary, Miss E. Sylvia Pankhurst, 3, Charteris Road, Woodford, Essex.

Carnegie United Kingdom Trust

Mr. J. Murray Black, surgeon to Dunfermline and West Fife Hospital, was elected a life trustee of the Carnegie United Kingdom Trust in March this year.

Milk Foods

Proprietary infant milk foods and National Dried Milk are now available as an alternative to liquid milk for children up to 2 years of age instead of 1 year. Anyone wanting to obtain permission to buy these preparations for a child between the ages of 1 and 2 should take or send the child's ration book to the local food office.

COMING EVENTS

Honyman Gillespie Lectures

A series of Honyman Gillespie Lectures has been arranged in association with the Edinburgh postgraduate courses to take place during the autumn term in the anatomy theatre, University New Buildings, Teviot Place, Edinburgh, on Thursdays, at 5 p.m. The first lecture on "Regional Ileitis" was delivered by Mr. James S. Jeffrey on October 20, and the series will end on December 1. Details will be published under "Societies and Lectures" in the *Journal* week by week. The lectures are open to all graduates and senior students.

Torquay Medical Society

The following lectures will be given at the meetings of the Torquay and District Medical Society at Torbay Hospital: "Common Gynaecological Lesions and their Diagnosis," by Mr. H. J. Drew Smythe, October 27 at 8.30 p.m.; "Headache," by Dr. Anthony Feiling, November 24 at 8.30 p.m.; "The Coroner and the Modern Medical Profession," by Mr. Bentley Purchase, January 12, 1950, at 8.30 p.m.; "Modern Clinical Endocrinology," by Dr. S. L. Simpson, February 9, 1950, at 8.30 p.m.; "Some Recent Advances in Paediatrics" by Dr. Wilfred Sheldon, March 9, 1950, at 8.30 p.m.; and "Diseases of the Rectum and Anus and their Treatment," by Mr. R. Marnham, March 23, 1950, at 8.30 p.m.

University College Hospital Medical School

The annual dinner of past and present students (men and women) of University College Hospital Medical School will be held at Savoy Hotel, Strand, W.C., on Friday, October 28, at 7.30 for 8 p.m., when the chair will be taken by Mr. John B. Hunter. Applications for tickets (£1 7s. 6d. each), accompanied by remittance, should be made to the dinner secretary, University College Hospital Medical School, University Street, London, W.C.1. On Thursday and Friday, October 27 and 28, there will be lectures and demonstrations for old students at the medical school from 10.30 a.m. to 5 p.m., and on Friday, October 28, at 5 p.m. the annual general meeting of the Old Students' Club will be held in the Medical Society's rooms in the Medical School.

Royal Dental Hospital of London

A dinner of past and present students of the Royal Dental Hospital of London will be held at the Savoy Hotel, London, W.C., on Saturday, October 29, at 7 for 7.30 p.m., when Professor E. C. Sprawson will preside. The annual clinical "At Home" will be held at the hospital, 32, Leicester Square, W.C., at 3 p.m. the same day, when cases of clinical interest illustrating the scope of the work undertaken by the hospital will be shown and the various departments of the hospital and school will be open for inspection. At 12.30 p.m. Dr. Lilian Lindsay will formally open the Stobie Memorial Library.

Organic Nervous Disease

The Committee on the Welfare of the Disabled of the Scottish Council of Social Service has arranged for a conference to be held on "The Disability of Organic Nervous Disease" at the Lesser City Hall, Perth, on November 4–5. There will be delegates representing the education, health, and welfare committees of local authorities and of voluntary organizations. The speakers include Dr. G. W. Ireland, on "The Problems of Nervous Disease from the Point of View of a General Practitioner"; Dr. John B. Gaylor, on "The Nature of Epilepsy"; Dr. J. Romanes Davidson, on "The Function of the Epileptic Colony"; and Mr. Joseph Schorstein, on "Head Injuries." Further information may be obtained from the Scottish Council of Social Service, 10, Alva Street, Edinburgh.

Lighting in Hospitals

A paper on "Specialized and General Lighting in Hospitals" by Mr. M. W. Pierce and Mr. D. J. Reed will be read at a meeting of the Illuminating Engineering Society on November 8 at 6 p.m. The meeting starts at 5.15 p.m. and will be held at the Lighting Service Bureau, 2, Savoy Hill, London, W.C.2. Particulars may be obtained from the society at 32, Victoria Street, London, S.W.1.

SOCIETIES AND LECTURES

Friday

BRITISH INSTITUTE OF RADIOLOGY.—At Reid-Knox Hall, 32, Welbeck Street, London, W., October 21, 5 p.m., Meeting of medical members; 6.30 p.m., "*Standardization of Radioactive Isotopes*." Speakers: L. H. Gray, Ph.D., J. L. Putman, M.A., and W. K. Sinclair, M.Sc.

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES MEDICAL SCHOOL. Maida Vale, London, W.—October 21, 5 p.m., clinical demonstration by Dr. A. Feiling.

MEDICAL WOMEN'S FEDERATION.—At City Hall, Cardiff, October 21, 3 p.m., annual general meeting; 8.30 p.m., at National Museum of Wales, reception by Cardiff Division of B.M.A.

MIDDLESEX COUNTY MEDICAL SOCIETY.—At Hillingdon Hospital Uxbridge, October 21, 3 p.m., demonstration of radiographs and pathological specimens; 3.15 p.m., business meeting, followed by paper on "*Respiratory Patterns during Surgery and Anaesthesia*," by Dr. H. J. V. Morton; 5 p.m., "*Diagnosis in Cases of Jaundice*," by Dr. A. R. Harrison. A discussion will follow each paper.

Monday

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, London, W.—October 24, 8.30 p.m., Discussion: "*Deafness*," to be introduced by Messrs. T. E. Cawthorne and I. G. Robin.

UNIVERSITY COLLEGE, Gower Street, London, W.C.—October 24, 4.45 p.m., "*Technique and Applications of Tissue Culture*," by Dr. Charity Waymouth.

Tuesday

BARROW AND FURNESS CLINICAL SOCIETY.—At Orthopaedic Clinic, North Lonsdale Hospital, October 25, 8 p.m., first meeting of season.

BRISTOL UNIVERSITY.—At Large Physics Lecture Theatre (Royal Fort), October 25, 8.15 p.m., "*The Use of Tracer Elements in Biology and Medicine*," 38th Long Fox Memorial Lecture by Professor J. E. Harris.

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At University New Buildings (Anatomy Lecture Theatre), Edinburgh, October 25, 5 p.m., "*New Orientations in Epilepsy*," by Dr. Denis J. Williams.

EUGENICS SOCIETY.—At 26, Portland Place, London, W., October 25, 5 p.m., "*Intelligence and Fertility: An Investigation of Scottish Children*," by Sir Godfrey Thomson, D.C.L., Ph.D., D.Sc. All interested are invited to attend.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—October 25, 5 p.m., "*Histopathology of the Skin*," by Dr. I. Muende.

INSTITUTE OF OBSTETRICS AND GYNAECOLOGY.—At Postgraduate Medical School of London, Ducane Road, W., October 25, (1) 2 p.m., "*The Problems of Mammary Carcinoma in Pregnancy*," by Mr. A. Lawrence Abel; (2) 3 p.m., "*Anaemia in Pregnancy*," by Professor L. S. P. Davidson.

LONDON UNIVERSITY.—At St. Mary's Hospital Medical School, Norfolk Place, Paddington, London, W., October 25, 5 p.m., "*Recent Studies in the Physiology and Pharmacology of the Cerebral Circulation*," by Professor C. F. Schmidt (University of Pennsylvania).

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—October 25, 5 p.m., "*The Development of the Mammary Gland*," Arris and Gale Lecture by Mr. E. S. R. Hughes.

Wednesday

GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY.—October 26, 8 p.m., "*Gyrate Atrophy of the Choroid*," by Dr. A. Wright Thomson.

INSTITUTE OF OBSTETRICS AND GYNAECOLOGY.—At Chelsea Hospital for Women, Dovehouse Street, London, S.W., October 26, (1) 11 a.m., "*Vaginal Hysterectomy, Indications and Technique*," by Mr. C. M. Gwillim; (2) 12 noon, "*Oestrogens*," by Professor E. C. Dodds, F.R.S.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, London, W.—October 26, 3.30 p.m., "*Some Popular Fallacies Regarding Human Nutrition*," by Dr. H. E. Magee.

ROYAL SANITARY INSTITUTE, 90, Buckingham Palace Road, London, S.W.—October 26, 2.30 p.m., "*The Common Cold*," discussion to be opened by Dr. W. H. Bradley (Ministry of Health).

SOCIAL PSYCHOTHERAPY CENTRE, 7, Fellows Road, London, N.W.—October 26, 5 p.m., "*The History of Social Psychiatry and Group Psychotherapy and the Principles of Social Psychiatry*," by Dr. Joshua Bierer.

SOCIETY OF CHEMICAL INDUSTRY.—Joint meeting of Nutrition Panel and Agriculture Group at Chemical Society's rooms, Burlington House, Piccadilly, London, W., October 26, 6.15 p.m., "*Genetic Factors Affecting the Nutritional Value of Animal Products*," by Dr. J. Hammond; "*Genetic Factors Affecting the Nutritional Value of Crops*," by Mr. R. H. Richens.

Thursday

HONYMAN GILLESPIE LECTURE.—At Anatomy Theatre, University New Buildings, Teviot Place, Edinburgh, October 27, 5 p.m., "*Diastole*," by Dr. Bruce Williamson.

INSTITUTE OF UROLOGY.—At Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C., October 27, 5 p.m., "*Bone Syphilis*," by Mr. A. E. W. McLachlan.

MEDICO-LEGAL SOCIETY.—At 26, Portland Place, London, W., October 27, 8.15 p.m., "*The Use of Scientific Research in Medico-legal Practice*," Presidential address by Dame Louise McIlroy.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—October 27, 4.30 p.m., lecture-demonstration: "*Psychiatry*," by Dr. D. Curran

TORQUAY AND DISTRICT MEDICAL SOCIETY.—At Torbay Hospital, October 27, 8.30 p.m., "*Common Gynaecological Lesions and their Diagnosis*," by Mr. H. J. Drew Smythe.

Friday

KENT AND CANTERBURY HOSPITAL, Canterbury.—October 28, 8 p.m., clinical meeting.

LONDON UNIVERSITY.—At Westminster Medical School (Meyerstein Lecture Theatre), Horseferry Road, London, S.W., October 28, 5.30 p.m., "*The Indispensability of Biologically Labile Methyl Groups in the Diet and Transmethylation*," by Professor V. du Vigneaud (Cornell University Medical College).

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES MEDICAL SCHOOL, Maida Vale, London, W.—October 28, 5 p.m., clinical demonstration by Dr. S. Nevin.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos Street, London, W.—October 28, 8 p.m., "*Is Treatment Before Diagnosis on Suspicion of Venereal Disease Advantageous to (a) the Patient, (b) the Public Health?*" discussion to be opened by Colonel L. W. Harrison.

ROYAL INSTITUTE OF PHILOSOPHY, 14, Gordon Square, London, W.C.—October 28, 5.15 p.m., "*Russell's Neutral Monism*," by Professor H. H. Price,

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh.—October 28, 8 p.m., "*The Dawn of Tropical Medicine (The Life and Work of Sir Patrick Manson)*," by Sir Philip Manson-Bahr.

UNIVERSITY COLLEGE, Gower Street, London, W.C.—October 28, 5.15 p.m., "*Transmission of Excitation in Nerve and Muscle*," by Dr. Bernhard Katz.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

John.—On October 6, 1949, at 2, Chessel Avenue, Southampton, to Gene (née Sinton) and Dr. Alan Oakley John, a sister for Marilyn and Elisabeth—Alison Ruth.

Kerr.—On October 9, 1949, at Aylesbury, to Mary (née Talbot), wife of J. G. Kerr, M.Ch.(Orth.), a son.

MARRIAGES

Critchley—Watson.—On October 1, 1949, at St. Paul's Church, Birkenshaw, Yorks, James Michael Allis Critchley, M.B., Ch.B., to Isobel Vernon Watson, M.B., Ch.B.

Davies—Stuart.—On September 13, 1949, at Blackfriars Church, Glasgow, David M. Davies, M.B., B.Ch., to Marie Stuart.

DEATHS

Inglis.—On October 12, 1949, at Falkirk Royal Infirmary, James Charles Inglis, M.B., Ch.B.

James.—On October 13, 1949, at the National Hospital, Queen Square, London, W.C., Richard Gostwycke James, O.B.E., M.R.C.S., L.R.C.P., of Kingham, Norwich, Norfolk.

Kaye.—On October 2, 1949, at Boscombe Hospital, Ernest George Kaye M.B., B.S., of 40 Princess Road, Bournemouth West, aged 76

Kyle.—On October 8, 1949, at St. George's Hospital, James Kyle, M.R.C.S., L.R.C.P., Air Commodore, R.A.F. Medical Branch, Ret., of Brendon, Wendover, Bucks.

La Frenais.—On October 2, 1949, Joseph Everett La Frenais, L.R.C.P.&S.Ed., L.R.F.P.S., of Tower House, Runcorn, Cheshire.

Lanyon.—On October 4, 1949, at Penzance, Edgar Temple Lanyon, M.R.C.S., L.R.C.P., of 49, Udet Road, Liverpool.

Lewis.—On October 3, 1949, suddenly, at Great Ormond Street, London, W.C., Jonathan Nicholas Lewis, aged 1 year 6 months, very dear son of Drs. Charles and Evelyn Lewis, of 28, Michelham Gardens, Twickenham, Middlesex.

MacInnes.—On October 9, 1949, at Cairn Villa, Broadford, Skye, Alexander MacInnes, M.B., Ch.B.

Masson.—On October 14, 1949, at 33, Kaimes Road, Corstorphine, Edinburgh, James Masson, M.B., Ch.B., F.R.C.S.Ed., Lieutenant-Colonel I.M.S., Ret.

Milne.—On September 29, 1949, at Aldeburgh, Suffolk, Robert Milne, M.S., F.R.C.S., Surgeon Rear-Admiral R.N., of 75, Portland Place, London, W.

Raban.—On October 2, 1949, at Bristol General Hospital, John Pridmore Raban, M.R.C.S., L.R.C.P., D.M.R.E.

Wilkes.—On October 8, 1949, at Folkestone, Ernest Alfred Freear Wilkes, M.R.C.S., L.R.C.P., D.P.H., of 2, Clare Lawn Avenue, East Sheen, London, S.W.

Wilson.—On October 6, 1949, at 35, Park Place, Elie, Fife, John Johnstone Wilson, M.D., F.R.C.P.Ed., formerly of Anstruther, Fife, aged 81.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Copra Bug

Q.—*From time to time I am called upon to treat dockers suffering from alleged bites by an insect known as the "copra bug," which infests cargoes of copra. I should be glad of information about the nature of this insect, and of advice about prophylactic measures. The best solution would be treatment of the cargo with an insecticide which would not impair the edibility of the oil subsequently expressed from the copra, but, failing this, is there any local application which could be used on the dockers' skin?*

A.—The "copra bug" is a species of mite. *Tyrophagus castellani*. This mite occurs fairly commonly among stored food with a relatively high fat and protein content, such as linseed, dried egg, nuts, cheese, herring meal, and copra. Skin irritation is caused to people handling infested foodstuffs, possibly by the excretory products as well as by the mites themselves, for material containing large numbers of dead mites is said to cause the same symptoms. The easiest way to deal with complaints of irritation from this mite is to introduce a repellent to be rubbed on the skin of persons coming in contact with it. Undiluted dimethyl phthalate can be used, or a preparation containing 30 to 40% of it; several such preparations are available. A small quantity of the repellent should be rubbed over the skin of the hands, arms, etc., of the workmen each morning.

Cancer of Cervix Uteri

Q.—*Is it ever necessary or advisable to repeat treatment with radium for cancer of the cervix? A woman of 36, a multipara, with a carcinoma proved at biopsy, has been given three radium exposures of 1,800, 2,000, and 1,875 units (total 5,675 units) followed by 12 deep x-ray irradiations at one to two days' intervals. The bleeding stopped after the first exposure to radium. Severe excruciating pain radiating down the left thigh and the coccygeal region occurred after the second radium exposure and persisted till a month ago, when an ulcer covered by offensive slough was detected at the site of the cancer. The surrounding area was hard and tender. A course of penicillin injections was then started, and this relieved the pain. Every evening there is tingling or mild pain in the lower abdomen or left thigh. The ulcer is clean but not healed, and the surrounding area is somewhat hard. Local penicillin ointment is being continued. There is no glandular enlargement or metastasis. Could you advise me on the next steps to be taken? What is the latest treatment of this type of cancer?*

A.—This question is in three parts. The first is a general question on the need for or advisability of repeated treatment with radium for cancer of the cervix. Only in a very few cases of cancer of the cervix specially selected on their merits would irradiation with radium be justifiable. In general, subsequent irradiation of the cervix following a full course of irradiation by radium or by radium and *x* rays will do nothing but harm.

The second part of the question is concerned with an individual patient. The information given does not include details of the time between the radium exposures or the size, arrangement, or dosage of the *x*-ray fields or the quality of the *x*-ray radiation used. If the treatment was of the type frequently used, it would seem that the initial course was reasonably adequate or even possibly a little excessive. It appears likely that there is some infection in the left pelvis, the situation of the pain suggesting that this might have been in a lymph node in the pelvic wall. The presence of an ulcer at the site of the cancer does not necessarily indicate a recurrence; this might be a radio-necrotic ulcer to which infection could have

been a contributory cause. It would be advisable to make sure that the ulcer is free from Gram-negative organisms before using penicillin ointment. In spite of the absence on examination of evidence of glandular enlargement or metastasis, the pain of which the patient complains suggests some irritation of the upper lumbar nerve distribution on the left side. As regards treatment, the following is suggested. Biopsy of the ulcer should be performed and local treatment with sulphonamides and penicillin continued. If the ulcer is malignant, hysterectomy should be carried out if possible, at which the glands can be inspected and localized; these might subsequently be irradiated. A Wertheim hysterectomy in skilled hands would be preferable. If hysterectomy is contraindicated, then local treatment by diathermy coagulation should be given, followed by local removal of the cervix if healing does not seem to be well advanced in two months. If the ulcer is benign, local treatment with sulphonamides and penicillin supplemented by hypertonic saline douches should be continued. Coagulation diathermy of the ulcer could be tried, but not until at least three months have elapsed.

To the third part of the question—What is the latest treatment for this type of cancer?—the answer is, Very extensive surgery, according to the clinical stage, or radium and *x*-ray treatment combined; though different practitioners would probably give different answers. The best published results are from the Marie Curie Hospital, London, and the Fondation Curie Hospital, Paris, both radiotherapeutic institutions.

Suspected Food-poisoning

Q.—*During the summer there have been numerous isolated attacks of sickness and diarrhoea which have cleared up in a few days with simple treatment. These attacks are probably due to something the patients have eaten. Should these cases be notified and, if so, under what heading?*

A.—If it is suspected that cases of sickness and diarrhoea are due to food inherently non-poisonous but to which has been added, or in which has developed, a toxic substance (chemical or bacterial) or a growth of pathogenic bacteria, such cases should be notified as food-poisoning under Section 17 of the Food and Drugs Act, 1938. The main purpose of this section of the Act is to ensure that the local medical officer of health is informed of outbreaks of illness occurring in his district and believed to have been caused by food. The Act did not give any definition of the term "food-poisoning," but the matter is dealt with in the Ministry of Health Memorandum on Food Poisoning, No. 188/Med. (revised 1949), from which it is clear that cases in which food causes an infectious disease otherwise statutorily notifiable as such—for example, typhoid fever, scarlet fever, and dysentery—should not be notified as food-poisoning. It is evident, however, that there would be no reflection on a doctor who, on clinical grounds, notifies as food-poisoning a case in which the final diagnosis after investigation proves to be dysentery. The medical officer of health can, with the consent of the doctor concerned, correct such provisional notifications in the quarterly return made to the Registrar-General. Illness due to individual idiosyncrasy to certain foods—that is, to allergy or hypersensitivity—and to the consumption of foods inherently poisonous—for example, toxic fungi mistaken for mushrooms—should not be notified as food-poisoning.

Interpretation of Dreams

Q.—*Can you explain why the manifest dream is sometimes, if not always, so fantastically different from the thoughts or feelings which have given rise to it? I was woken by such a dream last night. Associations came easily and soon the underlying causes seemed clear. But for a long time I lay awake wondering why it had been necessary to wrap them up so elaborately.*

A.—There are several theories of the interpretation of dreams, but in the writer's opinion the dream is always the product of an unresolved problem, which, because we cannot solve it, we repress so that it becomes unconscious (which, indeed, is the next best thing to do if we cannot solve it, so that we may get on with the business of life). But the problem nevertheless remains, and refuses to be repressed, being insistent that its claims should be attended to. Therefore what we refuse to acknowledge in waking life emerges as a dream, which forces us to face a problem we are refusing to face. But also because we refuse to allow the problem in consciousness it must appear in disguised forms. Sometimes it does this by symbols which are less direct than the unpleasant facts themselves. Sometimes we draw upon earlier experiences of the same nature, having the same emotion, exemplifying the same type of experience, or illustrative of the same problem. So bits of past experiences, apparently irrelevant and illogical, but always associated with the problem, appear in the dreams. In other cases the problem is put in a more acceptable light, such as when feelings of rage appear as righteous indignation, or feelings of humiliation are transformed into humiliating others. Indeed, it does not seem to matter a great deal how the problem or emotion comes out so long as it is released and the unpleasant problem is brought to mind. Freud has dealt with many of the causes of such "dream distortion" in his *Interpretation of Dreams*.

In brief, distortion is due to our refusal to face the problem as such, so that other relevant material illustrative of the problem or in some way associated with it is drawn upon to serve the purpose of forcing its attention on a reluctant mind for solution. It is all these symbols, scraps of experiences, transformations, and substitutions which give to the dream its bizarre nature; and it is only by investigating each item that we can fit them, like a jigsaw, into a reasonable pattern.

NOTES AND COMMENTS

Antiseptics for Minor Dressings.—Mr. John Roberts (Bangor, Caernarvonshire) writes: I would like to support Dr. Rupert Palmer (October 1, p. 768) in his spirited defence of mercury perchloride. Without doubt it is one of our most valuable, efficient, and inexpensive antiseptics, with the great advantage of being lethal to the majority of pathogenic organisms, which cannot be claimed for some of the modern and selective biochemical products. There are theoretical disadvantages to this chemical in that it is highly toxic parenterally and it coagulates tissue albumins, etc., but these objections come from laboratory workers and others out of touch with daily clinical work in which the drug is used as a surface application. It may be that it has come under suspicion because of occasional harmful results from mercurial diuretics or from occasional cases of chronic poisoning in pink disease and in finger-print workers using the material habitually, but this is no reason for condemning such a useful and potent antiseptic.

A 1 in 4,000 solution of mercury perchloride in warm water is invaluable as an irrigating lotion in cases of middle-ear suppuration, and if the tympanic membrane is intact a 1 in 2,000 solution can safely and most efficiently be used for external otitis (including the fungoid infections). I have used the weaker solution with much success for washing out the odd case of persistently dirty maxillary antrum (a few with gross fungus infection), but only through an antrostomy opening. Idiosyncrasy has been extremely rare in my experience, and this is in agreement with Dr. Palmer's remarks.

For surgery or hospital use mercury perchloride is available in the small, readily soluble 1.75-gr. (50-mg.) tablet, coloured blue, and one of these dissolved in 4 oz. (114 ml.) of water gives a 1 in 1,000 solution. One tablet in 16 oz. (454 ml.) of warm water is correct for middle-ear suppuration. These tablets are of course intensely poisonous by mouth, and the 1 in 1,000 solution (coloured blue) for appropriate dilution should be used for dispensing, with all due precautions. I am aware of the claims of the new organic mercurials (phenyl mercuric acetate, nitrate, chloride, etc.), but so far I have been quite satisfied with the older chemical.

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SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY OCTOBER 22 1949

WORLD MEDICAL ASSOCIATION

GENERAL ASSEMBLY IN LONDON

International Standards of Medical Practice

The national medical associations of 28 countries were represented by twice that number of delegates at the third annual assembly of the World Medical Association, which was held at B.M.A. House, London, from October 11 to 15. In addition to the delegates the meeting was attended by observers from WHO, Unesco, ILO, the World Federation for Mental Health, and various international medical organizations. Observers were also attached to several of the delegations, and 30 members of the United States Committee—the supporting organization of the WMA in America—were present in the same capacity.

The following are the countries from which the delegates came: Australia, Austria, Belgium, Canada, Colombia, Cuba, Denmark, Eire, Finland, France, Great Britain, Greece, Iceland, India, Italy, Luxembourg, Netherlands, Norway, Pakistan, Peru, Philippines, Portugal, South Africa, Spain, Sweden, Switzerland, Turkey, United States of America.

The delegates from the British Medical Association were Dr. H. Guy Dain and Dr. J. A. Pridham, with Dr. E. A. Gregg and Dr. S. Wand as alternates. Dr. John Yui, of the Chinese Medical Association, was not able to attend, but he sent a cablegram of greeting, and the assembly was continually reminded of its Far Eastern affiliation by the Chinese temple gong—a gift by Dr. Yui at a previous meeting—with which the president kept the delegates in order. The languages spoken were English and French, with occasional Spanish. Dr. Gérin-Lajoie, of Canada, rendered excellent service as an interpreter.

Election of Dr. Charles Hill as President

The assembly opened on the morning of October 11 with a welcome to the delegates by the outgoing President, Professor Eugène Marquis (France), who referred to two large pieces of work which the Association had already accomplished—its declaration on the punishment of war crimes by medical men, and the Declaration of Geneva, a modern version of the Hippocratic Oath. He then moved confirmation of the election of Dr. Charles Hill as President, saying that in all countries they knew enough of Dr. Hill's quality to be sure that under his guidance the Association would make great progress.

The election having been unanimously confirmed, Dr. Hill took the chair, and, after expressing his sense of the honour done to him, proceeded to thank Professor Marquis in the name of the assembly for his outstanding services as first President of the Association. The Chairman of Council (Dr. T. C. Routley) and Dr. Dag Knutson (Sweden) spoke in similar terms, and the former asked the President to present to Professor Marquis in token of his term as President a suitably inscribed gavel; and this was done, the delegates standing and applauding.

Certain formal business was then taken, including the admission to membership of two national medical associations which had qualified under the articles—namely, the Asociacion Medica Nacional of Panama and the Colegio Medico of Salvador.

The Finance of the Association

Dr. O. Leuch, the Treasurer, presented the accounts for the past year and the budget for 1949–50. He said that the Council had decided that for the coming year the annual subscription for countries in the sterling area should remain at the same amount as for 1948–9. National associations in the sterling area, if their membership had not increased, would pay no more than before, notwithstanding the devaluation of their currencies. The whole matter would be reconsidered next year. Dr. L. L. Davey (Australia) expressed appreciation of this decision.

Dr. L. H. Bauer (Secretary-General) brought forward the annual budget of the United States Committee. He recalled that at the meeting in Paris in 1947 the U.S. delegation had offered to subscribe 50,000 dollars a year for five years to get the Association on its feet financially. That was accepted, and in 1948, although the committee was operating only for nine months of that year, the amount actually expended was 59,481 dollars, and for the first half of 1949 29,484 dollars. For 1950 the tentative budget was 75,700 dollars.

The committee had been established as a non-profit organization. The American Medical Association, in addition to its annual subscription to the WMA, was a contributing member of the U.S. Committee, as were other medical organizations in the States, as well as certain well-recognized pharmaceutical houses. An effort had been made to interest individual doctors in the matter by proposing a subscription of 10 dollars a year, and this year 12,000 dollars had been subscribed by individual doctors.

Dr. Leuch moved a vote of thanks to the U.S. Committee, and especially to the leaders of the American Medical Association who had created it. The motion was supported by Dr. Knutson, who said that most doctors did not know what was going on outside their own association, and the American example should be copied in every country.

Report of the Council

Dr. Routley, in presenting the report of the Council, said that three meetings had been held—in Geneva, in Madrid, and in London. The report dealt with a number of matters, but he wished to make it clear that it was the view of the Council that the Association should not attempt to propose to any member-country how it should conduct its affairs; its function was to make known to all countries the information which reached it and to endeavour so far as possible to maintain international standards of medical practice.

Dr. Routley went on to indicate certain proposals, all of which were adopted, for the future programme of the Association. The first was a proposed conference for the co-ordination of scientific medical organizations. He said that the Council was not unmindful of the activites of Unesco in this field, and had no desire to overlap, but what they had in mind was something beyond the scope of Unesco activities. The Council also proposed to make a study of pharmaceutical practices, including the newer therapeutic agents (the sulphonamides, penicillin, streptomycin, etc.), the extent to which these agents were available in different countries, any government subsidies affecting their distribution, and any restrictions on prescribing these agents, either in private practice or in social security schemes.

A further study proposed concerned hospitals, their types (government, private teaching, etc.) in each country, the number of hospital beds in relation to the population, the availability of hospital facilities, and the control and financial support of hospitals.

Further, a study of the status of the medical profession, especially in relation to medical man-power and membership of the national associations in the different countries, was proposed. This would be supplementary to a study which the Association had already published, concerning 23 countries, dealing with medical man-power and other subjects.

Dr. O. Rasmussen (Denmark) asked whether it would not be wise to include in this last study an examination of the economic position of doctors in different countries in relation to that of other professions. Dr. Routley said that this suggestion had much merit, and unless there were objections which did not occur to him at the moment he would agree on behalf of the Council that this study should include the wider field of economic relationships.

The reports and proposals of the Council were all accepted by the assembly, and Dr. Routley concluded by expressing appreciation of the help afforded by the Assistant Secretaries for Asia, Australasia, Europe, and Latin America respectively; by the editor of the *Bulletin*, Dr. Morris Fishbein, and his collaborating editors, and by the observers on intergovernmental organizations, such as the WHO. The WMA must be to WHO, he said, what electric power was to the transmission line.

The assembly adopted an emblem—a globe, with the rod of Aesculapius placed diagonally across it, and around the border the words "Societas Medicorum Mundi. MCMXLVII A.D.".

Reports from the Continents

Three of the Assistant Secretaries—the fourth, Dr. J. G. Hunter for Australasia, has only recently been appointed and was not present—gave brief reports. Dr. S. C. Sen, for Asia, said that of 16 countries in his region four were represented in the WMA. In India at the present moment the problems engaging the attention of the Government and the medical profession concerned the recognition, status, and educational standard of the indigenous systems of medicine, known as Ayurveda, Unani, etc., a scheme in connexion with the Employees Insurance Act, and the establishment of new medical colleges and upgrading of departments in colleges with a view to providing facilities for research and post-graduate education.

Dr. Paul Cibrie, Assistant Secretary for Europe, reported that it had been impossible to correspond with three countries which originally adhered to the Association—Poland, Czechoslovakia, and Rumania. An inquiry was being made into the activities of the Red Cross in time of peace; it appeared that in some European countries certain activities of the Red Cross invaded the sphere of general medical practice. The outstanding event of the year in Europe was the inauguration of the National Health Service in Great Britain, but that, if it came before the WMA at all, would properly be introduced by the British delegates.

Dr. J. A. Bustamante, for Latin America, described the activities of the Pan-American Medical Confederation, which ran parallel in Latin America with those of the WMA. Dr. Bustamante himself was secretary-general of the Confederation, so that the liaison could not be closer. Chile, Colombia, Cuba, Peru, Guatemala, Venezuela, and Ecuador had entered the WMA

International Code of Medical Ethics

Up to this point the proceedings of the assembly had presented no points of controversy, but the President said that now they came to a series of important reports which invited a lively exchange of views. The first of these was a proposed International Code of Medical Ethics, which incorporated the Declaration of Geneva, adopted by the general assembly in September, 1948, and a code setting out the duties of doctors in general and to the sick. Dr. Paul Cibrie, chairman of the committee which had elaborated the code, said that this was discussed a year ago. The code contained no more than general rules for the good practice of medicine. It was for each country to modify the wording for use within its borders, provided the principles of the code were respected. He moved that the code be approved.

Dr. P. Moran (Eire) took exception to a reference in the code to therapeutic abortion. The paragraph read:

"A doctor must always bear in mind the importance of preserving human life from the time of conception. Therapeutic abortion may only be performed if the conscience of the doctor and the national laws permit."

No one should have any right, except by judicial process, to pronounce sentence of death. The Association should not do anything which would make easier the path of the abortionist. Otherwise, where were they going as a profession? He moved that the reference to therapeutic abortion be omitted.

Dr. Paul Cibrie (France) reminded the last speaker that only a very severe condition would permit in certain countries the operation of therapeutic abortion. The abortionists were condemned implicitly in the declaration of Geneva.

Dr. W. Magner (Canada) supported Eire, although, he said, the question of therapeutic abortion had never been discussed by the Canadian Medical Association; and the Irish point of view was also supported by Dr. F. Sondervorst (Belgium), Dr. L. G. Tornel (Spain), and the Austrian and Portuguese delegates. Dr. J. A. Pridham said that Dr. Moran had stated that in no circumstances must a doctor commit murder. But murder could be committed either by deed or refraining from deed. If a doctor, after consultation with his colleagues, was certain that a woman would die unless therapeutic abortion was performed, and yet allowed the pregnancy to continue, might he not morally be guilty of murder? Dr. S. C. Sen (India) said that the question might arise whether to preserve the mother's life or the life of the foetus, and therefore it might be wiser to delete this sentence and leave it to the conscience of the professional man and the laws of his country. Dr. L. L. Davey (Australia) suggested that the governing consideration should be the welfare of the mother.

On a division the amendment to delete the sentence was lost by 19 to 22. Later, however, in view of this narrow vote, it was agreed to appoint a small committee to consider this whole paragraph, and on the following day the committee reported its view that the paragraph should simply read:

"A doctor must always bear in mind the importance of preserving human life from conception until death"—

leaving out any specific reference to therapeutic abortion, and in this form it was adopted by the assembly.

Duties of Doctors to the Sick

Dr. O. Rasmussen (Denmark) took up a statement in the report that it was unethical to participate in any plan of medical care "in which the doctor does not have complete professional independence." He objected to the word "complete," which in his view represented something unattainable. The assembly agreed to delete the word.

Dr. Sen found fault with the expression used in another paragraph, where it was stated that if a doctor found examination or treatment beyond his capacity he should "summon" another doctor. In his view the word "summon" had a legal connotation, but here the assembly adhered to the original text.

Various other emendations of the document were proposed, but the only one that found favour was a rewording of a paragraph as follows (on the proposition of the Luxembourg delegate):

"Under no circumstances is a doctor permitted to do anything that would weaken the physical or mental resistance of a human being, except for strictly therapeutic or prophylactic indications imposed in the interest of the patient."

The document was then approved, and it was agreed that it be left to national medical associations to modify the wording of the code, provided that any altered wording conformed to the principles which the code set out.

The WMA Bulletin

Before the assembly adjourned Dr. Morris Fishbein, editor of the WMA *Bulletin*, gave a brief report. Three numbers of the *Bulletin* had now been issued, and a proposal was being considered that six numbers be issued each year instead of four. He hoped that ultimately the *Bulletin* might prove to be the main financial support of the Association. It was the first medical publication to be published simultaneously in three languages. Incidentally, one of the editing difficulties was that the Spanish translations required 10% more words than the English or French. Dr. Fishbein gave some amusing instances of translators' difficulties. In another year

he thought the *Bulletin* would be on a firm foundation. Dr. Sondervorst (Belgium) said that in his own country they were very touchy about translations, which he hoped would continue to improve.

Postgraduate Education and Specialist Training

On the second day of its meeting the assembly, again under the presidency of Dr. Charles Hill, addressed itself to a report on postgraduate medical education and specialist training. The report—a long and exhaustively tabulated document—set out the results of a questionary to which the national medical associations in 32 countries had returned answers concerning the existence and establishment of standards for specialists, the period and type of training, details of examinations, certificates, schools, faculties, recognized specialties, and the opportunities for advanced education for doctors not interested in becoming specialists.

Dr. J. A. Pridham, in submitting this report, said that it embodied the results of work which only the WMA could have undertaken. The study had shown that the level of postgraduate education differed widely in different parts of the world, and so did the facilities for such education. He suggested to the assembly that here they had the possibility of doing something really valuable. It did not suffice for one country to go ahead in this field and leave other countries in a backward state. In view of the universal ethical standard which they had proclaimed, doctors in the more advanced countries should surely assist other countries to raise their own standards of education and practice. In that way they would be doing something to fulfil one of the main objects of the WMA—which was the maintenance of world peace.

He added that the report drew attention to the need for the continued education of the general practitioner, an important condition in any national scheme of medical care. It was obvious that there was a fear in many countries that the family doctor might be squeezed out, and that too large a proportion of men, on qualification, might seek to become specialists.

Dr. A. P. Cawadias (Greece) spoke on the education of the specialist. With the development of medical science the general consultant was disappearing. In future they would speak of specialists only. He emphasized the need for a generous pre-professional education. In the Greek universities there were severe examinations before professional education was embarked upon. He believed that this background of general culture was even more necessary for the specialist than for the general practitioner. Something should be done to ensure that examinations for specialists exacted a certain standard of general culture.

Dr. Paul Cibrie (France) declared himself not in entire agreement with this Athenian point of view. The general culture of the general practitioner should be on the same level as that of the specialist. He was not in favour of cultural hierarchies in the medical profession. General practitioners must not be regarded as at the bottom of the ladder and specialists as at the top.

Dr. F. Sondervorst (Belgium) objected to a proposal in the report that where a doctor's remuneration came mainly from a State social insurance scheme that scheme should finance his refresher course. In his view the course fees and expenses should be paid by the doctor himself or provided by scholarships or fellowships.

"Looking Down" on the General Practitioner

Dr. S. C. Sen (India) said that there seemed to be a tendency for specialists to regard themselves as belonging to the higher strata of the profession, and a tendency also to extend the period of specialist training. He believed that in Austria they insisted upon six years' additional education if a man was to become a specialist. Medical education was already sufficiently expensive and time-consuming. He thought they should emphasize the minimum standard and not expect to decide on the maximum. He deplored a tendency to "look down" on general practitioners. In the United States they were now setting up specialists in general practice, and an academy of general practice had been established, recognized by the American Medical Association, and requiring its members to undertake 150 hours' training every three years. The background of general culture had been mentioned, but culture should not be narrowly interpreted as a matter of leisure and books, but rather of tolerance and a wide outlook upon life. He suggested also that a knowledge of ancient Eastern philosophies should be regarded as a cultural equipment equal to Latin or Greek.

Dr. Morris Fishbein (United States) objected to a suggestion in the report that "wherever possible there should be general practitioner hospitals, or general practitioner beds in ordinary hospitals where he [the general practitioner] may attend his own cases and call in the help of his specialist colleagues." It was an error to propose hospitals for general practitioners as distinct from hospitals in which both general practitioners and specialists carried on their work. This proposal would promote disruption in the profession. The tendency in countries where there was a State medical service had been to make the general practitioner "second class." He was considered to be one who merely directed cases to a specialist. Yet if the progress of medicine were studied in recent years the tendency seemed to be to give the general practitioner increasingly the care of cases which formerly went to the specialist. This had come about because of the advent of antibiotics, also blood transfusion and the use of blood products, as well as other advances. In the field of otolaryngology, for instance, little remained for the specialist except such things as the fenestration operation, and in the field of dermatology the specialist was left with only a few conditions to which he could give a name but for which he had no treatment! There should be complete integration of the general practitioner in the hospital services, with adequate representation on the staff of the hospital and on the executive medical committee.

Dr. L. G. Tornel (Spain) also was of the opinion that the general practitioner should be ranked as highly as any specialist. Dr. K. E. U. Jäämeri (Finland) held the same view. In his country too much importance had been attached to the scientific status of those who held posts in institutions. Dr. Dag Knutson (Sweden) said that it was not so much that others looked down upon the general practitioner as that the general practitioner seemed inclined to look down upon himself by referring patients to specialists more and more quickly, as though afraid to handle them himself. The general practitioner was the backbone of medicine, but if he was content to accept an economically lower status than the specialist he would continue to be looked down upon.

Dr. W. Cline (United States) proposed the following words as an improved version of what was stated in the report.

"In addition hospitals should welcome visits from general practitioners. Posts should be made available to them. Such posts are of benefit both to the specialist and the general practitioner. There should be general practitioner beds in ordinary hospitals, and general practitioners should be integrated into the hospital service. In this manner a general practitioner will become a better doctor and have more interest in his work."

Asked what he meant by an "ordinary hospital," he said that he meant one from which cases requiring certain special care, such as cases of mental disease and perhaps tuberculosis, were excluded. Asked if he would include teaching hospitals, he said that this would depend upon local circumstances. Some hospitals found it advisable for the training of medical students to utilize the services of general practitioners, although the bulk of the teaching was done by specialists.

Professor K. Fellinger (Austria), Dr. O. Rasmussen (Denmark), and Dr. F. Wibaut (Netherlands) said that in their countries owing to the system of hospital administration it would be impossible to put this proposal into effect.

Dr. Routley (Chairman of Council) said that they were losing sight of the fundamental principles of the WMA. The Association did not dictate to any member-association. It was for each association to apply the spirit of the resolution in the way it found best.

The version suggested by Dr. Cline was adopted, with the deletion of the word "ordinary," and with the insertion of the words "where possible" before "posts should be made available to them."

Period of Practice under Supervision

Certain recommendations of the committee were adopted. The first was that every doctor, after obtaining his licence to practise, should spend a period during which he practised under supervision, usually in hospital, but possibly as assistant to a general practitioner. Dr. Harvey Pirie (South Africa) said that in his country the importance of this had recently been recognized, and it was now legally compulsory for medical graduates to do a year's internship or occupy some approved post before they could be admitted to the *Register* and take up independent practice.

It was also agreed that to become a specialist it was necessary to obtain an adequate postgraduate training, particularly in the field of the specialty. National medical associations were requested to endeavour to secure by mutual arrangements that opportunities for postgraduate studies and practical experience should be made available to members of the profession from other countries. It was realized that to accomplish this it might be necessary in the respective countries to overcome legal and other difficulties.

Dr. H. Guy Dain said that one of the provisions of the new Medical Act in Great Britain would be to provide that a graduate of another country coming here for further study might be placed on the British *Register* temporarily whilst he was engaged in his studies here in order to give him the opportunity for taking responsibility for cases without offending the principal Medical Act. He would be allowed to practise in this country for a limited period and be able to take charge of cases because he would be officially on the *Register*.

The final recommendation on this subject, which was agreed to, was that the national medical associations and the various international organizations should arrange an exchange of information regarding vacancies and opportunities for graduate and postgraduate study in foreign countries.

Progress reports were submitted by the Committee on Medical Care and Allied Subjects (dealing especially with efforts to improve the medical libraries of the world), and the Committee on Ways and Means of Securing Publicity. It was reported that a Committee on Standard Nomenclature had been appointed.

Reports of Observers on Intergovernmental Bodies

Dr. J. Maystre, the Association's observer on WHO, gave a brief account of the WHO assembly in Rome, and said that the relations between the two bodies were permanent and official. An inquiry of WHO on the use of habit-forming drugs had been entrusted to WMA.

Dr. M. H. Hafezi, of WHO, brought the best wishes of its Director-General, and spoke of collaboration in many subjects. The WMA was WHO's main link with the medical profession.

Dr. H. Guy Dain asked whether WHO was proposing to deal with questions of medical ethics in any sense through a committee. In Great Britain they would resent having any code of medical ethics imposed upon them by a partly lay body.

Dr. Maystre said that when this matter came before the Executive Council of WHO he drew attention to the work of WMA, and the Director-General was instructed to hold it in abeyance until WMA had taken some action. He was also asked about the action of WHO in respect of an international pharmacopoeia, and said that WHO was attempting only to formulate nomenclature that could apply to all countries, but the list of remedies was not limited.

Dr. Fishbein said that he was a member of the board of directors of the *U.S. Pharmacopoeia*. The Commission of WHO which was concerning itself with an international pharmacopoeia was composed of representatives in the field of pharmacy and pharmacology and had no representative of medicine. The proposal to have a selected list of remedies—a list of 141 drugs for which common names might be chosen throughout the world—had various implications. In some countries endeavours were being made to restrict the right of the physician to prescribe what he thought best for the patient. This must limit choice in prescribing and contribute to the lowering of the status of the general practitioner, and would tend also to inhibit progress in the field of research.

Dr. Hafezi mentioned the care with which experts were selected for the committees of WHO. With regard to drugs, it was not proposed in any sense to replace national pharmacopoeias, but only to endeavour to arrive at common standards.

The President said that they were grateful to Dr. Hafezi. He would understand that national medical associations by tradition were vigilant in observing what their respective governments did, and that assembly as representing the medical associations of the world would be equally vigilant in watching the work of WHO. But they looked forward to the closer collaboration which had been promised.

Dr. Maystre also gave a report as observer on ILO and its activities in social security. Dr. Manuel de Viado, who attended as an observer from ILO, also brought greetings from the Director-General, and said that ILO had fully documented information about the medical services of 62 countries. It was anxious to collaborate and exchange information.

Dr. Maystre gave one further report, as liaison officer at the recent Diplomatic Conference for the Establishment of International Conventions for the Protection of War Victims, held at Geneva. He was asked about the position of doctors who were prisoners of war, and said that a number of medical prisoners would be exchanged for similar personnel from the enemy country, but some prisoner-of-war doctors would be retained to look after their compatriots in prison camps. He believed the conditions as established by the new conventions were better than those prevailing during the recent war.

The final observer report was from Unesco, on which Dr. Cibrie made a brief statement. He said that collaboration with Unesco was likely to be very useful both for that organization and for their own, and it was important that the contacts should not be reduced.

Mme. I. M. Zhukova, who represented Unesco as an observer at the assembly, brought the greetings of the Director-General, and gave an account of the work of Unesco, particularly in initiating—at a time when there was no other body to undertake the task—the co-ordination of international medical congresses. She said that Unesco had set up an independent non-governmental liaison committee between itself and WHO, with its headquarters in Brussels. There was no intention to interfere with the agenda of international medical meetings, but only as far as possible to arrange time and place in such a way as to afford the maximum convenience to those attending. A calendar of international congresses would be published.

Dr. Sen asked how many members of the medical profession were on Unesco committees. On the national commission in the United States he understood that there was no representative of the American Medical Association. What was the composition of this independent body established by Unesco and WHO?

Mme. Zhukova said that it was for the national medical associations to ask for representation on commissions of Unesco.

Dr. Sondervorst (Belgium) testified that the new committee set up in Brussels was non-governmental. He hoped that the Secretary-General of WMA would be instructed to get in contact with this new organization with a view to participation.

Dr. Routley (Chairman of Council) said that the Council was not fully informed when it passed a resolution on the subject of the permanent committee for the co-ordination of international congresses of medical science. Therefore he suggested that the debate be adjourned, and that the whole matter be referred back to the incoming Council for reconsideration. The WMA were concerned to secure the closest co-operation with all other world bodies which had a place in the field of health.

It was agreed to remit the matter for the consideration of the incoming Council.

Next Meeting of the Assembly

The President said that it had already been agreed that the United States should be selected as the country for the 1950 session of the assembly, but this required confirmation by the present meeting.

Dr. Routley formally moved and Dr. R. L. Sensenich (United States) seconded that the meeting in 1950 be held in the United States, and this was agreed to.

Dr. Taalman Kip (Netherlands) said that he did not oppose the motion, but at the same time he pointed out the time and expense involved for European and other delegates attending a meeting in the United States. The Secretary-General said that the meeting would be held in October, at a period of the year when reduced passenger fares came into operation, and this reduction might compensate for the disadvantage arising out of devaluation. Moreover, in America they were anxious to help delegates from the sterling area, and a certain amount of hospitality would be forthcoming.

The second day of the assembly then concluded. On the following day there were no meetings, and an excursion to Windsor, Eton, and Hampton Court was arranged.

Social Security and the Medical Profession

The last day of the assembly, October 14, was devoted to the discussion of a report on social security, the work of a committee of which Dr. Charles Hill was chairman and Dr. Paul Cibrie, Dr. P. Glorieux, Dr. E. L. Henderson, and Dr. Dag Knutson were the other members. The report was presented by Dr. Hill, Dr. T. C. Routley temporarily presiding.

Dr. Hill said that wherever schemes of social security, embodying medical services, were being evolved, the medical profession was presented with the problem of preserving—in the interests not of the medical profession but of the public—the essential freedoms of the profession in the conduct of its work. Bearing in mind that it was not the role of the World Medical Association to dictate to its member-associations the line they should take in dealing with schemes in their respective countries, his committee had begun the preliminary work of survey, and the report now presented was a factual summary of the conditions in 24 countries. Governments were closely associated together in these matters, each government making a careful study of what was going on elsewhere. Information was passed from government to government, and because of this intergovernmental activity it was only right that the medical profession in each country should be informed of what was going on elsewhere. The function of the World Medical Association was to provide an international forum for the expression of the views of the profession on relations with governments. It was important that the profession should be informed of the trend of governmental activities, should maintain a wise vigilance, and should be prepared to resist tendencies which threatened the freedom of the profession.

National Health Service in Great Britain

Dr. H. Guy Dain made a short statement on the early experience of the new National Health Service. The British Government had been warned beforehand that there was not sufficient provision to establish a free service of all medical requirements for the entire population in one jump, but the Minister believed in "the method of teaching you to swim by throwing you in and seeing what happens." The profession in Great Britain had urged a general medical service for the nation for many years, but it had not expected that a free service for the entire population would be brought in other than gradually. The inevitable had happened, that where a community found itself entitled to a free service it made immediately the maximum demand. The Service had been inaugurated without a sufficient provision of doctors, nurses, hospital beds, and material equipment. The consequence was that doctors had been overworked, there were long waiting-lists at hospitals, and with regard to material provision, such as spectacles, the demand had far outstripped the supply. Some means must be found of bringing the demands within reasonable control. It had been suggested that a small, but not prohibitive, charge should be made for various articles supplied.

The position of the medical profession had been made very difficult. The remuneration of the general practitioner had not been finally settled, and consultants and specialists had only recently been acquainted with their terms and conditions. The profession held that the freedom of the patient to choose his doctor was essential to the progress of medicine and to the proper relationship of doctor and patient. They had opposed from the beginning any idea of a salaried service, because that inevitably limited the right of choice. The doctor should also be free to act within his discretion as to the kind of practice he undertook and the place in which he practised. This had been attained in the British system. The profession also considered it essential that private practice should be continued side by side with any State service. In this respect they had only partially succeeded, and the opportunities for private practice in the field of general practice were limited, partly because the Government would not allow the private patient to obtain his drugs and dressings within the Service. He was convinced that private work outside the State Service should be maintained. A few hospitals privately owned and supported were independent of State control and possibly represented the beginning of a free service outside the State Service.

Great Britain, with a long history of contract practice, had approved a system of capitation payment for general practitioners; he knew that this method was not favoured in some other countries, but it did save the doctor from being dependent on the State or on a superior officer in the State Service. In a Service which embraced 95% of the population, and upon which so large a proportion of the doctor's income depended, it was important that doctors should be free to express themselves in any way they liked, not only about medicine in general but about the Service itself.

What had been the effect of the Service on medicine and on doctors generally? At the moment there was disorganization. The rush of work was such that many doctors complained that they could not give their patients as much time and attention as they desired. That was a temporary phase which would be corrected as doctors became better distributed. On the subject of remuneration, the size of the general practitioners' pool had not yet been agreed; the total amount was still the subject of negotiation. The difficulties of the rural practitioner had been largely overcome by an addition to what was called the mileage fund, but which in fact included the time as well as the mileage factor. The doctors who had suffered most were those in practice in the higher-class residential areas. The private patients from whom they had formerly drawn their income were now National Health Service patients. Until some readjustment had taken place in the number of doctors practising in such areas, and some weighting of the capitation fee was made for the first thousand patients on a doctor's list, so that a doctor who had necessarily a small list owing to the circumstances of his area would not be so gravely disadvantaged, this difficulty would continue.

This was only a brief outline of the "teething troubles" from which they had suffered in Great Britain during the first year; it might have some interest for those in other countries who might have to face similar developments.

Continental Opinion

Dr. Paul Cibrie (France) objected to the capitation fee method of payment, which he thought put the doctor at the mercy of the patient. In France and Belgium payment was made on an item-of-service basis according to a fixed tariff. Dr. P. Glorieux (Belgium) said that in his country a scheme of health insurance was started without any consultation with the medical profession, but the cost was considered to be too high, and now a commission was sitting to consider the question anew. Dr. O. Leuch (Switzerland) considered that social insurance was needed only for people below a certain economic level; other persons should be treated on a voluntary or private basis. In Switzerland social sickness insurance embraced the whole family, and specialist and hospital services were included.

Dr. Dag Knutson (Sweden) described the projected Swedish programme of comprehensive and compulsory social insurance, with the transformation of all doctors into Civil Servants controlled by the State. The Swedish Medical Association had set up a committee of doctors with experts in economic questions to work out the cost of the proposed service. This was difficult because of the vagueness of some parts of the Government's proposal. But it was believed that the inauguration of the

programme would cost £70 million, and the annual cost would be over £50 million. At present taxation in Sweden was at a forbidding level, a number of people paying from 40 to 60% of their total income in taxation. In the view of the Swedish Medical Association, which favoured an extension of the insurance scheme which already covered 60 to 65% of the population, the proposed system was incompatible with free choice of doctor.

Dominion Experience

Dr. W. Magner (Canada) said that in May, 1948, the Prime Minister of Canada announced a national health programme in which some 30 million dollars a year was to be made available to the Provinces for the improvement of health services. The Canadian Medical Association, which had for long been on record as approving the principle of contributory health insurance, met in June of this year and formulated its policy, which he read to the assembly. This favoured a system of health insurance, and declared that the Canadian Medical Association would oppose any Act modelled on the British Act and any conditions of general practice such as were imposed on British general practitioners. Government subsidies for the medical care of the lower income groups were welcomed.

Dr. L. L. Davey (Australia) said that the Pharmaceutical Benefits Act, which provided free pharmaceutical benefits according to a formulary and on the prescription of a doctor, was apparently a dead letter, following a recent decision of the courts. The National Health Services Act had not yet been proclaimed; it was only an enabling measure, and the details of the Service would be determined by regulations, which had not yet been promulgated. The medical profession had laid down certain conditions, which were unacceptable to the Government. In Australia the poorer no less than the middle and upper classes had always been assured of service.

Dr. J. H. Harvey Pirie (South Africa) said that ten years ago the Medical Association of South Africa put forward a scheme for a National Health Service; he doubted whether they would put forward a scheme of the same kind to-day. They were more likely to call for a system of national insurance so far as the white population was concerned. The medical profession in South Africa had won the first round of its fight against an Act whereby all persons would have had a complete free hospital and medical care service, and had now a breathing space in which to organize themselves further.

The Issue in the United States

Dr. W. Cline (United States) said that any scheme on a comprehensive federal basis in the United States would be beset with difficulties on account of the great disparity as regards population density in the different regions. The complications were greater than in a smaller and more homogeneous country. The American Medical Association believed that progress in medicine could be best promoted by preserving the freedom of the profession. It had not accepted any participation with the Federal Government in supplying coverage for groups that could not easily afford medical attendance. Rather it looked upon the indigent as the responsibility of the local community, their medical care to be provided by doctors at no charge or such charge as could reasonably be made, and their care in hospital to be provided by public or charity institutions. With this end in view the profession had endeavoured to develop and enlarge the voluntary insurance system. There were a number of voluntary plans in the States adapted to the economic circumstances of different communities. Various proposals had been laid before them during the last ten years for systems of compulsory health insurance, somewhat similar to the Health Service Act in Great Britain, and likely to confer upon one individual or department powers similar to those of the Minister of Health in this country. It had been stated that large sections of the current proposals before Congress had been taken bodily from the British Act. This was regarded as a purely political move on the part of people concerned to attract votes. Compulsory health insurance was "the foot in the door." The result would be Government dictation in medicine. The profession was determined to fight the domination of medicine by the Government, and already the efforts it had made had brought about a material change in public opinion. Apart from this, the other issues involved in social security were not the direct concern of the medical profession.

Dr. S. C. Sen gave a brief account of the situation in India. There were at present about 50,000 qualified doctors for a population of 350 million, but in addition there were five times that number of practitioners practising the ancient systems of medicine. The Government of India had in preparation a scheme to provide a medical service with cash benefits for sickness, maternity, and occupational injury for about five million industrial workers. It was expected that funds would be derived from compulsory insurance contributions. It was not yet known whether medical treatment would be provided through a panel system or by full-time medical officers.

A Continuing Study

In closing the discussion Dr. Hill said that the discussion had shown that at future assemblies a prominent subject on the agenda on each occasion must be social security. The exchange of information was not only of value in keeping the record straight and in stimulating national medical associations to interest themselves in this problem, but it would have the effect of sparing the necessity for criticisms based on lack of information or on inaccurate information. In this report a beginning had been made in the collection of facts. It would be necessary to compare the facts so collected with those obtained by governmental and intergovernmental organizations. This work was the most important to which the Association had set its hand.

The various factual reports were adopted, and the assembly agreed on the recommendations of Council to invite each national member-association to furnish details of the total annual cost of the social security scheme in operation in its country or of the estimated total cost of any proposed scheme, and of the proportion of the national budget which the cost of any such scheme involved. The national associations are also to be asked to give their considered opinion on the results of social security based on the experience gained in their own countries, and to furnish various other information. The information thus forthcoming is to be circulated in a quarterly bulletin for the information of national member-associations.

The Chairman of Council (Dr. Routley) expressed to Dr. Hill and his committee the thanks of the assembly for their labours.

Closing Proceedings

The assembly, which meets in the United States in 1950 and in Sweden in 1951, had three invitations for 1952—from Canada, Cuba, and Greece. The choice of venue was left to the Council.

Dr. R. L. Sensenich (United States) moved, and Dr. L. G. Tornel (Spain) seconded, that Dr. Elmer Lee Henderson, of Kentucky, U.S.A., Fellow of the American College of Surgeons and President-elect of the American Medical Association, be President-elect of the World Medical Association, and this was agreed to unanimously.

Dr. Henderson, in accepting the nomination, said that in the United States they had great hope for the future of the WMA, not only from the standpoint of promoting medical care in all countries of the world, but from that of establishing world peace.

The three retiring members of Council—Dr. P. Cibrie, Dr. Dag Knutson, and Dr. J. A. Pridham—were re-elected.

Dr. Henderson then proposed a vote of thanks to the British Medical Association for the arrangements it had made for the assembly, to Dr. Charles Hill for the excellent way in which he had presided over the assembly, to the interpreters for their able assistance, and to the Ladies Committee for providing entertainment for ladies accompanying the delegates.

The vote of thanks was carried with enthusiasm, and Dr. Hill, after acknowledging the compliment on behalf of the British Medical Association, expressed his own thanks to the Secretary-General (Dr. Louis Bauer) and his staff for all that they had done to ensure the outstanding success of the third assembly.

COUNCIL DINNER

At the conclusion of the assembly of the World Medical Association on October 14 the Council of the British Medical Association gave a dinner in the Great Hall in Tavistock Square. It was the first occasion since before the war that a Council dinner has been held in the building, and the presence of so many delegates from foreign countries, with their ladies, gave special significance and colour to the gathering. The guests, to the number of 211, were received by Dr. E. A. Gregg, Chairman of Council, and Miss M. Gregg. In proposing the toast of the World Medical Association Dr. Gregg said what a pleasure it had been to the Association in London to act as hosts and to have an opportunity of returning the welcome which was given to the British guests at the two earlier assemblies in Geneva and in Paris. Another reason why the B.M.A. was glad that the international body had come to London was because it had seen fit to honour Dr. Charles Hill by making him its President. In the British Medical Association they held Dr. Hill in very high affection. He was a wonderful man and he was going far before he had finished his course. They were proud and honoured that it was in the British Medical Association he proved his abilities and found his voice.

Dr. Charles Hill remarked that it would be an under-statement for him to say that he was proud to be in a position to respond for the WMA, particularly when its meeting was held in that building. It was perhaps inevitable that while enjoying the temporary glory of the chair during the past week he should have made comparisons between the assembly of the WMA and the Representative Body. The former, though embracing many nationalities and races, from Iceland to Australia and Cuba to Pakistan, was relatively placid. It lacked the tempestuous tone which had characterized recent Representative Meetings. This was partly due, no doubt, to the fact that it had been necessary to interpret all the speeches in another language, and during the interpretation any feelings which might have been aroused had a chance to simmer down. One thing which his temporary occupancy of the chair had shown him was that the wisdom and efficiency of a Chairman or President were largely due to the promptings of an efficient Secretary. He had noticed a certain succinctness about Dr. Louis Bauer's adjurations to the occupant of the chair which he himself would endeavour to imitate when he resumed his secretarial seat. During the week the assembly had discussed an international code of ethics, postgraduate medical education, and social security, but the one thing that mattered most of all was the contribution which such meetings made to international relations and world fellowship.

Dr. T. C. Routley recalled the inaugural meeting held at B.M.A. House in 1946, when Sir Hugh Lett (whom they were glad to see present that evening), with great patience and tolerance, assisted at the birth of this lusty infant. Dr. Elmer Henderson, President-elect, made a further response, and said with what pleasure they would welcome the next assembly in the United States.

Dr. L. G. Tornel then in a tornado of Spanish eloquence proposed the health of the British Medical Association, speaking of England as a country of noble traditions and love of freedom. Dr. Paul Cibrie added a few words in praise of the generous hospitality and what he called the graciousness of the British hosts. A response was made by the President of the British Medical Association, Dr. C. W. Curtis Bain, who spoke of the broadmindedness of the WMA, as exemplified in the fact that, although the subject of therapeutic abortion had come forward and had elicited sharply contrasting views, it had been quickly settled in what they used to think was a peculiarly British way, but which was evidently a world medical way, of compromise without forfeiture of principle.

To the great pleasure of the company Sir Lionel and Lady Whitby arrived before the proceedings closed, having come direct from the boat which brought them back from their American and Canadian tour. Sir Lionel Whitby in a few graceful words proposed the health of the ladies, remarking on the contribution they could make to international peace and fraternity, and a response was given by Mme. O. Leuch, of Switzerland.

HEALTH CENTRES

PRIVATE PRACTICE AMENDMENT

The Minister of Health tabled an amendment for the Report Stage of the National Health Service (Amendment) Bill the effect of which is to enable a general practitioner practising from a health centre to see and treat private patients there. The amendment reads:

Page 22, line 9 (Schedule), at end, insert—

At the end of paragraph (*a*) of subsection (1) of section twenty-one (which requires facilities at health centres to be available for the provision of general medical services), there shall be inserted the words "and, on such terms and conditions as may be determined by the Minister, for the provision by medical practitioners of such other personal medical services (if any) as may be so determined in the case of a particular health centre."

Opinions differ on whether private practice from a health centre is desirable or not. Advocates of the scheme point out that practice expenses may be reduced, since the doctor would not need to have a surgery and other facilities at his home. On the other hand some fear that if private patients are treated at health centres they may cease to enjoy those few advantages that induce them to remain as private patients, and that therefore private practice would disappear.

HOSPITAL DENTAL STAFF

The Ministry of Health has informed hospital boards that they should now offer permanent contracts to all grades of dental officer on their staffs in accordance with the published Terms and Conditions of Service.

DISCIPLINE AND PUBLICITY

Proceedings before medical service committees are private, and reports of these committees go to executive councils for consideration. A circular from the Ministry of Health states that the Press should not be admitted while an executive council is discussing a medical service committee's report, but they should normally be admitted when a decision has been reached, and told the decision. The Minister suggests that it might be convenient if the council were to publish a summary of the case and of the findings.

Further Publicity

In due course the council is notified of the Minister's decision. The council may then give further publicity, and the Minister considers that that would be desirable in serious cases. A summary of the case could be published, together with a report of the Minister's decision.

No Names

The circular states that at no stage should the names of the parties to the proceedings be mentioned, or particulars which might lead to their identification.

OCCASIONAL ATTENDANCE ON ARMY PERSONNEL

The Association has received several complaints in recent months in cases where doctors have experienced considerable delay in obtaining payment from Army funds of fees due in connexion with the treatment of soldiers "sick on leave" or on the lodging list. The War Office has pointed out that no undue delay should occur if the completed Army Forms O.1667 are sent to the Assistant Director of Medical Services of the local district, or to the Deputy Director of Medical Services of the Command in which the doctor is practising. Members are advised, therefore, to follow the procedure outlined above and not to send accounts to the officer commanding

the unit concerned (which, however, is still the procedure for R.A.F. personnel). Addresses of D.Ds.M.S. are as follows :

Headquarters, Eastern Command, Hounslow, Middlesex. Headquarters, Northern Command, York. Headquarters, Western Command, Chester. Headquarters, Southern Command, Salisbury, Wilts. Headquarters, Scottish Command, Edinburgh.

Addresses of A.Ds.M.S. of local districts can be obtained from the D.D.M.S. of the Command concerned. Initial requests for copies of A.F.O.1667 should be made to these officers and not to the officer commanding the soldier's unit. The forms are also obtainable from the local executive council.

Questions Answered

Circular to General Practitioners

Q.—*I am in full-time employment as a surgeon, and shortly changing over to part-time hospital work and entering private consultant practice. What form of circular may I send out to the general practitioners of the district acquainting them of this fact?*

A.—There is no ethical objection to a circular letter being addressed to any practitioners in the area who may reasonably be expected to be interested. The circular should be brief and should confine itself to a statement (for example) that "Mr. X is now available to see private surgical patients by appointment at (address). Telephone No.: 1234." The letter should be enclosed in an envelope, which need not be sealed.

The ethical considerations to be borne in mind are such brevity and simplicity of announcement as are consistent with clarity, and a reasonable restriction of the field of circularization.

Examining Hospital Employees

Q.—*I am a whole-time medical registrar at a teaching hospital and examine weekly, prior to their engagement on the hospital staff, domestics, porters, cooks, stenographers, etc. Am I entitled to any fee for performing these examinations, and, if so, what is the fee?*

A.—A whole- or part-time medical officer in contract with a board of governors is not entitled to claim a fee for the examination of employees or prospective employees of the hospital where he is engaged.

No Fee Allowed

Q.—*Is a whole-time officer forbidden from charging a fee for a private consultation carried out in his own home outside the usual hospital working hours or at the week-end?*

A.—A whole-time officer is not entitled to undertake private practice. This is laid down in the Terms and Conditions of Service of Hospital Medical and Dental Staff, paragraph 14.

Practising Elsewhere

Q.—(*a*) *I am in general practice under the National Health Service Act and I wish to change from one area to another. How do I go about it?* (*b*) *Will my compensation be based on my new practice or my old one?*

A.—(*a*) If a general practitioner giving general medical services under the National Health Service wishes to leave his present practice he may do so by giving three months' notice to the clerk of the local executive council or such less period as may be permitted in a particular instance.

The practitioner may either study the advertisements of vacancies and make application for those that interest him, or he may apply through the local executive council to the Medical Practices Committee for permission to practise in the area of his choice. If this is not a closed area, the consent of the Medical Practices Committee is automatic unless the number of applicants exceeds the number required for the area to be adequately doctored. Application may also be made to the Director of the Medical Practices Advisory Bureau at B.M.A. House, who may be able to put him in touch with a practitioner who wishes to obtain a successor.

(*b*) The amount of compensation to which the doctor is entitled (and on which he receives payment of interest) is assessed in regard to the practice in which he was engaged on July 5, 1948, and does not alter. Under the Act it is payable on retirement from practice as a medical practitioner providing general medical services under Part IV of the Act, but payment cannot be made at the present time, as the total amount of all claims for compensation is not yet known. A change from one practice to another does not constitute retirement for this purpose.

Certificates for Corsets

Q.—*In reference to the Questions Answered paragraph "Certificates for Corsets" in the Supplement of August 27 (p. 115), I should be grateful if the position be still further clarified. Does a prescription for a corset for any disability exempt the garment from purchase tax, or has the disability to be one of a number of named disabilities laid down by the Government department concerned?*

A.—Customs and Excise Purchase Tax Exemption Schedule 78 sets out those disabilities which on production of the necessary medical certificate exempt the purchaser from purchase tax on a corset.

Retrospective Pay

Q.—*With reference to retrospective pay, am I entitled to this as regards a post to which I had been appointed before July 5, 1948, but which did not become vacant till a little after this date, and where the salary was raised after the completion of my appointment? If I am entitled to such pay, where and when am I to apply?*

A.—In general the salary of hospital medical staff will be adjusted in accordance with the practitioner's recent grading on the basis of the terms and conditions of service retrospectively to July 5, 1948, or to the date of appointment, whichever is the later. Where different posts have been held, the adjustment will take into account the grading of each appointment. Thus in the case of registrars the posts held from time to time since the appointed day will be reviewed and classified in accordance with the new grading and remuneration then adjusted retrospectively. In the case of house officers, the period since registration will be divided into six-monthly periods, the salary for the first six months being calculated at £350, for the second at £400, and thereafter at £450 per annum.

The practitioner should apply to the employing authority for payment of any sum to which he is entitled in respect of the expired appointment.

National Insurance Contributions

Q.—*At present I am doing a locum for a doctor who had a car accident. Prior to this I had done a hospital job, and between ending it and obtaining the locum I was unemployed for a week. This locum finishes this week, and when it ends I intend to take driving lessons, during which time I do not wish for another position. I intend, therefore, to be unemployed for about a month. I would be much obliged if you would let me know what contributions I have to make under the National Insurance Acts for the period I was unemployed before the locum, and for the period of my locum; and what the position is with regard to the National Insurance Acts for the subsequent period of virtual unemployment. I would also like to know the position with regard to superannuation for the period of my locum. If you could clear up these points I would be most grateful.*

A.—As an employed male person your employee's contribution is 4s. 11d. per week. When unemployed you pay 4s. 8d. as a non-employed person unless a "credit" is obtained by registering as unemployed at an employment exchange. The employment of a short-term locumtenent by a principal does not involve any superannuation scheme. This differs from the case of an assistantship. If you have previously been subject to a superannuation scheme you should ascertain from your previous employer the position regarding past payments.

Retrospective Pay for Housemen

Q.—*Is retrospective pay up to the present scale of remuneration payable from July, 1948, to persons employed as house-physicians at that time (and for the remainder of the year)?*

A.—The Ministry has laid down that, in applying the new rates for house officers retrospectively to the appointed day, the period since registration during which posts in this grade have been held should be divided into six-monthly periods (irrespective of the period of tenure which in practice attached to the posts). The remuneration for the first six months after registration is calculated at the rate of £350 per annum, for the second six months at the rate of £400 per annum, and thereafter at the rate of £450 per annum.

Therefore the questioner would appear to be entitled to retrospective adjustment of salary at the rate of £350 per annum in respect of the period July 5–August 31, 1948 (i.e., that part of his first six-monthly appointment which comes within the National Health Service), and at the rate of £400 in respect of the period September 1–December 31. The principle of retrospective application of the terms has been determined by the Ministry, and the practitioner should press his claim with the hospital.

HEARD AT HEADQUARTERS

A New Word

It came with dreadful suddenness upon our ear recently in listening to a public address by one of the principal medical officers of the Ministry of Health—the word "pathologize." He spoke of a patient being "*x*-rayed and pathologized," meaning, of course, submitted to various pathological examinations. This sort of thing comes trippingly to the tongue. It is not so long ago that the word "hospitalize" was minted. "Anatomized" is, of course, already in the *Oxford*. It will not be long before a patient is "clinicized" or a pregnant woman "obstetricized."

Sweden To-morrow

A few days spent in Stockholm recently were sufficient to reveal to one the outstanding excellence of the Swedish hospital system. In Sweden, we were told, only 3% of hospital beds are in private institutions. Sweden is looking forward next year, or in 1951, to the introduction of a comprehensive and compulsory health scheme. Every Swedish citizen will then be entitled to free treatment at the public hospitals. Certain basic medicines will be dispensed free; others at half price on presentation of a doctor's prescription. Three-fourths of the doctor's fee will be paid for under the scheme, as well as the travelling expenses of the patient, with compensation during the period of his illness, and the patient will be able freely to choose his doctor. Under the present health insurance scheme about 60% of the adult population participate, and the health insurance or sick benefit organizations, which are recognized by the Government, pay two-thirds of the doctor's bill. Sweden's great problem is the shortage of doctors—4,000 to serve a population of 7,000,000, a ratio of 1 to 1,750.

Insomnia

A patient seeking sleep that knits up the ravelled sleave of care hopes to get help from the Health Service in a novel way. A doctor tells us that he has received the following letter from her: "Dear Dr. X, I wonder if you could possibly let me have a certificate to get a small electric massage machine through the National Health Service. I have been suffering from insomnia during the last year or so, and do not want to take any tablets, etc., in order to cure this. I am in fact rather nervous of them. But I do think that about 10–15 minutes' massage every evening before going to bed would have a very soothing effect, and would do the trick. If you could possibly help me in this way I would be very grateful."

The Language Difficulty

The language difficulty was well surmounted at the WMA, although the delegates who came to London spoke, between them, at least sixteen languages in their own homes and practices. Here they spoke remarkably well in French or English, and some of them in both, interpreting their own speeches. Interpretation doubles the length of the proceedings, but, as Dr. Hill suggested, it may do something to becalm them. The WMA interpreter, Dr. Gérin-Lajoie, of Montreal, was a two-way man. Usually in international assemblies two interpreters are employed, one to turn French into English and the other to turn English into French, but Dr. Gérin-Lajoie did it both ways without turning a hair, and was as fresh as paint at the end of the day. Miss Roverano also gallantly assisted on the Spanish side, though her interpretations were mainly *sotto voce* for the benefit of the two or three delegates who needed the Spanish.

GENERAL MEDICAL COUNCIL

ELECTION OF DIRECT REPRESENTATIVE

Practitioners in England and Wales will receive within the next few days voting papers for the purpose of electing a Direct Representative of the profession to the General Medical Council to fill the vacancy occasioned by the death of Dr. J. W. Bone. Dr. O. C. Carter, of Bournemouth, has been chosen as the Association's candidate, and his Election Address is set out below. All members of the Association are asked to cast their votes for Dr. Carter.

Dear Sir or Madam,

I have the honour to offer myself for election as a Direct Representative of the profession on the General Medical Council. I believe the best qualifications a candidate for the office of Direct Representative can have are a long and wide experience in the practice of his profession and a sound knowledge of the many difficult and varied problems that confront the profession. I believe that reforms are needed in the constitution, functions, and procedure of the General Medical Council, and I support strongly the recommendations of the British Medical Association, among which appear the following:

Every complaint made to the Council should be supported by an affidavit.

The Council should be empowered and required to establish two distinct and separate committees to be known as (*a*) the Penal Cases Committee; (*b*) the Disciplinary Committee.

No member of the Penal Cases Committee should be permitted to sit as a member of the Disciplinary Committee hearing any case which has appeared before the Penal Cases Committee at which he was present as a member.

The attendance of witnesses and the production of documents before the Disciplinary Tribunal should be enforceable by subpoena, and evidence should be given on oath.

There should be a right of appeal to the High Court against the removal of a practitioner's name from the *Medical Register*.

If elected to the General Medical Council I shall press for such revision of medical education as will bring it into closer correspondence with the progress of knowledge and the requirements of modern practice.

My candidature has been endorsed by the Divisions of the B.M.A. in England and Wales. I assure you that if I am elected I shall devote to your service whatever time and energy may be necessary to the further fulfilment of my duty as Direct Representative. I ask you to accord me your vote, and I shall be grateful for your active assistance in securing the votes of your colleagues.

I submit my qualifications for the position of Direct Representative: I was Division Secretary for 23 years; I was a member of the Spens General Practitioners Committee; I am a member of Council British Medical Association and of the General Medical Services and Central Consultants and Specialists Committees.

Yours faithfully,

O. C. CARTER.

Hursley, Poole Road, Bournemouth.

SCOTTISH COMMITTEE

The first meeting of the new session of the Scottish Committee was held at B.M.A. Scottish House, Edinburgh, on October 4. Dr. I. D. Grant (Glasgow) was elected chairman in succession to Dr. George MacFeat (Lanarkshire), and Dr. J. G. M. Hamilton (Edinburgh) was elected deputy chairman.

In proposing the appointment of Dr. Grant as his successor, Dr. MacFeat commended the setting up of small study groups throughout the country to work on problems as they occurred locally. The groups, working through the machinery set up by the Association, could help towards practical solutions and influence future developments. In watching the development of the Health Service during the first year he had been deeply disturbed by the signs of deterioration in the position held by the general practitioner.

In accepting office, Dr. Grant paid tribute to the competent and unselfish service of Dr. MacFeat. Many members of the Scottish Committee, he said, had probably felt that much of its importance was removed when certain other committees became autonomous. It remained important, however, to have a widely representative body such as the Scottish Committee to watch the interests of all sections of the medical profession.

Dr. P. Martin Brodie (Edinburgh), Dr. I. Simson Hall (Edinburgh), and Dr. J. B. Miller (Bishopbriggs) were co-opted to the committee.

Alterations to the Scottish House

Dr. E. A. Cormack, chairman of the Building Subcommittee, and Mr. W. H. Kininmonth, architect, outlined the alterations and improvements proposed on the Scottish House property. These provide for more adequate accommodation for the meeting of members in both a business and social capacity. The reconstruction will provide improved accommodation not only for the Association but also for the Medical Insurance Agency. At present there are no catering facilities in the building, and it was proposed therefore to provide a members' dining-room. In the meantime snacks, light lunches, teas, etc., will be served. Mr. Kininmonth had estimated the cost, including equipment, at £15,000, but the final cost would probably be higher. The total cost of the project, including furnishings, would be about £20,000.

The Scottish Committee approved the plans and remitted the matter to the Central Building Committee.

Other Business

On the question of police fees, Dr. Grant said conditions in Scotland differed materially from those obtaining in England. He thought they might have a report on the position. The committee agreed that the Scottish Secretary should take the matter up with the Crown Office and thereafter submit a report to the Chairman's Subcommittee.

Representatives were appointed to meet the National Committee for the Training of Teachers on the question of equal pay for its medical officers.

A communication from the Ministry of Health on the setting up of Whitley Council machinery was remitted to the Whitley Council Subcommittee for consideration.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

Correspondence

Status of General Practice

SIR,—I wish to endorse every word of Dr. Ian D. Grant's letter on the "Status of General Practice" (*Supplement*, October 1, p. 155). The feeling of dissatisfaction which is almost universal among general practitioners under the National Health Service is not entirely, or even mainly, financial in origin, but is due to the futility of a large part of their work, and to the feeling that their status in the Service is becoming lower and lower in the estimation of their specialist and administrative colleagues as well as the general public. Moreover, they themselves feel that their clinical ability is degenerating inasmuch as they are overwhelmed with trivial complaints and have little time and less incentive to improve the quality of their practice of medicine.

Such a state of affairs is inherent in the present set-up of the Service, and can only result in general practice procuring as its recruits the mediocre and the money-grubber; for no amount of financial inducement will attract a good doctor to a job which is a cross between a rubber-stamp and a finger-post.

What, then, can be done about it? Fundamentally there must be an inducement for the general practitioner to improve the quality of his work (and not only the quantity) and an opportunity to raise his professional prestige among his colleagues. A good man must be able to "get on" in the Service, and indeed I know of no other service in which this is not the rule.

I would suggest, therefore, that there be a grading of general practitioners according to their ability, experience, higher qualifications, etc., and that the higher grades would in some measure act in an advisory capacity to their more junior colleagues. Moreover, I would have specialists in most clinical subjects, and especially medicine, recruited from the ranks of general practice, where their vision and wisdom would be enlarged and where their knowledge of human ailments would become more catholic and not directed wholly along the narrow channels of their specialty, as it is now, almost from the date of their graduation. One sees so frequently nowadays the young specialist with great knowledge of disease and little of humanity, great technical skill and little judgment, great learning and little wisdom. I cannot think that this is a state of affairs to be encouraged.

Thus, although the system would not be rigid, the young graduate would normally enter the junior grades of general practice after completing one or two house appointments, and having proved himself in that sphere would have the opportunity of qualifying for the higher grades or branching off into an apprenticeship for his chosen specialty, which he would enter with some practical knowledge of general medicine.

All this would, I think, involve a whole-time salaried service, and although there were very sound arguments against this before July 5, 1948, we have now been jockeyed into a position where we can lose nothing by it, and where many benefits would result to ourselves, the public, and the Treasury. Certainly nothing could be worse than the financial and medical chaos that is going on in general practice at present, and I would prophesy that in the not too distant future the profession itself will beg for a salaried service.

This letter merely contains a number of disjointed and disputable points which require an elaboration beyond the bounds of your correspondence columns, but unless some such revolutionary changes are made the general practitioner will continue to suffer the frustration of a man educated above his job and its prospects, and the National Health Service will suffer the fate of a house built on sand.—I am, etc.,

Selkirk. E. H. DUFF.

Bifocal Glasses

SIR,—I do not understand the reason for the recent Ministry embargo on a patient's having two pairs of glasses at once (*Supplement*, September 3, p. 125), the rule now being that he gets his near-sight glasses in about seven months' time and his

distance ones in about 18 months. There is absolutely no need for anyone to have two pairs of glasses, bifocal ones in the same frame being much better. If the patient goes out with his distance glasses on, in a great many cases when he or she wants to see something—e.g., in a shop—close to, he finds that he has left his near-sight glasses at home on the mantelpiece or has lost them. Without glasses I can see nothing either near or far properly, but some years ago I got fitted with a bifocal pair, and since then have been able to see everything, both near and far, perfectly.

When I write "Bifocal necessary" on the green O.S.C.1 forms I supply to patients I find that in nine cases out of ten the ophthalmic surgeon or optician has turned me down and has told the patient that he needs two pairs of glasses, with the accompanying intolerable delay. As the only G.P. member of our local ophthalmic committee I asked the reason for this, and the answer given by one of the opticians present was, "Pure laziness." Apart from the inexcusable slackness so freely admitted by a member of the ophthalmic fraternity, surely it would be cheaper to have two lenses in one frame than to have two separate pairs of glasses.—I am, etc.,

Stowmarket, Suffolk. H. S. GASKELL.

Pay of Hospital Staff

SIR,—In the issue of September 3 there is an advertisement for an R.M.O. (B1) at the Devon and Exeter Hospital. It states that a senior medical qualification and experience will be required. Does the Devon and Exeter Hospital intend to pay an able man with several years' experience and a higher qualification as a junior registrar? Are all the Spens recommendations now in the wastepaper basket, put there by our own profession? When Mr. Bevan himself has stated that he intended to abide by the spirit of Spens, we find our own profession failing to do so.

No doubt you have good reasons for publishing this advertisement, but it does seem surprising, especially in view of your firm attitude towards cut-price advertisements for assistant M.Os.H. Hospital jobs are difficult enough to get nowadays. Let the successful men be paid a salary in accord with their qualifications and the work they are expected to do.

The fact that the administrative members of the medical profession are grading and paying hospital men far below the scales formerly agreed upon could surely be used as evidence that men in other fields of medicine are being overpaid. Mr. Bevan might justifiably apply the axe all round, merely stating that he was following the example set by our own profession.

While we realize that the assessing committees would not allow this outburst to influence their attitude to our appeals now under consideration, we have accepted the advice of senior colleagues, and sign ourselves

SIX BEWILDERED.

Squatter's Comments

SIR,—The Medical Practices Committee's report (*Supplement*, September 10, p. 128) and the *Practitioner's* review of the Health Service contain material of great interest and importance to general medical practice. But when I correlate my own experiences as a squatter with the truths, half-truths, and discrepancies of these two publications I have a sense of despair and frustration. All we ask is a chance to examine and treat patients and to claim a reasonable living.

It is generally accepted that the best way to enter general practice now is as an assistant. It is the best way because it is the only easy way. But it puts the young and not so young doctor at the mercy of the established practitioner.

The review suggests that the local committees should be given more power to regulate practice in their own areas. The Medical Practices Committee, according to their report, would scarcely agree with that. It is not local knowledge alone that must be considered, but local peculation. If my own local committees had had their way I should not have been able to practise here. As it is I have managed to scrape up a panel of about 1,500 in less than 12 months. That is not much on which to rear five children, but it is a beginning, considering the delay and opposition which I experienced.

The fact seems to be that we cannot expect members of our own profession in positions of authority to behave without prejudice when their own decisions may affect their own incomes, as must be the case with the present system of remuneration. The present attempt at regulated commercialism is not a safe resting-place between complete freedom on the one hand and a full-time salaried service on the other. If the influential members of our own profession continue to act in this way we shall soon be "ripe for the plucking." There will arise sufficient hardship and sufficient unemployment within the profession to enable a Government to bring in a full-time salaried service.—I am, etc.,

L.

Higher Pay without Parades

SIR,—In your issue of September 3 appears an advertisement requesting applications from surgeons, gynaecologists, and E.N.T. specialists to serve with the R.A.M.C. overseas in a civilian capacity. An F.R.C.S. is offered a salary of £1,700 per annum, plus accommodation and other allowances, for a period of up to two years.

Had the same man, in a more patriotic mood, accepted a commission in the R.A.M.C. eight years ago and attained the rank of major and the same qualification he would now be earning a salary (as a bachelor) of £784 15s. plus £73 qualification pay, together with similar allowances and a right to a pension after a further 12 years' service.

It is therefore theoretically possible, in fact probable, that a civilian surgeon could be working side by side with an R.A.M.C. specialist and be drawing twice the pay of the latter without having to attend parades, etc. Such an offer, seen from within the Service, can only increase one's resentment at the delay in bringing specialists' pay into line with that in the National Health Service. Until this is done I consider that such advertisements should not be accepted for publication in the *B.M.J.*—I am, etc.,

MAJOR, R.A.M.C.

Representation of Hospital Medical Staffs

SIR,—In your report (*Supplement*, October 1, p. 151) of the last meeting of the Central Consultants and Specialists Committee you omitted to mention the most important of its decisions.

It was decided, without reference to the regional committees, to agree to the proposal of the Joint Committee that the Joint Committee would appoint and instruct the members of the staff side of the Whitley Council which the Government had announced its intention of setting up shortly. In effect, this decision means that the Central Consultants and Specialists Committee has finally subordinated itself and surrendered the power it was given, when it was constituted by the A.R.M. of 1947, to the Joint Committee, a body which for the most part is not elected even indirectly by or can be fully in touch with the working hospital medical staffs of the country. This in itself is contrary to the meaning of a Whitley Council, which is a committee composed of representatives of the employed staff on the one side and of the employers on the other. As once the medical Whitley Council is set up it will be the Standing Committee for the settlement of disputes or alterations of the terms of service, it will be essential to hospital medical staffs to be able to appoint and instruct directly the members of the staff side of the council. They will not be able to do so through the Joint Committee, over which they will have no control except through the minority of its members derived from the Central Consultants and Specialists Committee.

It was understood when the Consultants and Specialists Committee of the B.M.A. was reconstituted that the object was to provide democratic representation of consultant opinion from the whole country. This appears to have been negatived by the latest action of the Central Consultants and Specialists Committee on a question of major policy, as indeed it was last year, by the setting up of the Joint Committee.

The South-West Metropolitan (Western Area) Regional Committee has, from the first, disagreed on this ground with the formation of the Joint Committee. However, it considers that there may have been some justification for the existence of the Joint Committee during the past year to act as a Liaison Committee between the Colleges and the B.M.A. while the general terms and conditions of service for hospital staffs have been under discussion. But in its view there is now no need or justification for this undemocratic condition to continue. It has noted that the move to form the Joint Committee was made even before the Central Committee had first met, and that the representation of the Central on the Joint Committee was fixed at a small minority.

It has been noted also that the Joint Committee has omitted to report regularly its proceedings to the Central Committee and finally acted without authority in agreeing with the Ministry to recommend the terms for the permanent contracts for hospital staffs, while discarding almost all the points of objection or modification which had been previously put forward by the Regional and Central Committees. Such behaviour does not inspire confidence in the Joint Committee for the future conduct by it of the affairs of hospital staffs, even if the staffs were prepared to waive their right to democratic representation.

The South-West Metropolitan (Western Area) Committee considers that interest in the B.M.A. organization for hospital medical staffs is not likely to be maintained if the Central Committee continues to surrender its power. The lessening attendance at central and local meetings is already an indication of this.

Our committee has decided unanimously that if the Central Consultants and Specialists Committee continues to be subordinated to a Joint Committee it will consider withdrawing its representatives from the Central Committee and relying on representation of its members by other means. The other regional committees of the B.M.A. organization have been informed of this decision.—We are, etc.,

C. B. S. FULLER (Chairman). D. ROSS STEEN.
T. COLLEY. R. F. SWINDELL.
J. D. MARTIN JONES. E. COWPER TAMPLIN.
H. H. LANGSTON. P. G. TODD.
R. G. M. LONGRIDGE. C. HEYGATE VERNON.
R. F. MACHARDY. F. WILSON HARLOW.
M. P. MITCHELL. H. TAYLOR YOUNG.
N. ROSS SMITH. H. C. ZORAB.

Bournemouth. Members of S.W. Metropolitan (Western) Regional Committee.

Freedom Preferred

SIR,—I have read with dismay—indeed with some disgust—Dr. Conn McCluskey's letter (*Supplement*, October 1, p. 157). Surely he is one of an extremely small minority in desiring to be "directed . . . what to do and when to do it," or possibly he has cast himself in the role of a director and not one to be directed.

His statement that "there seems to be little tyranny in the artisans' trade unions" is very far from the truth. Has he not heard of men being debarred from a particular employment because they did not belong to a particular trade union? Has he not heard of restrictions of effort and output being imposed by trade unions upon their members?

He thinks that a "democratically elected body" cannot implement a tyranny. History is full of evidence to the contrary; or, if historical evidence does not seem relevant to him, then all contemporary politics will furnish him with abundant examples to confute his statement.

A state of tyranny must inevitably arise when a tyrannically disposed individual or group of individuals acquires power over a community whose members prefer the security of serfdom to the perils of freedom. In that unenviable predicament I believe the medical profession now to be. I trust we shall not reverse Aesop's fable and add King Log to King Stork by forming a trade union which would be—I hope—as impotent as it would be degrading. The only foreseeable advantage in such an action would be to have attained a point in the spiritual evolution of our profession where we could truly say, "He that is low need fear no fall."—I am, etc.,

Stafford. JOHN FREW.

BRITISH MEDICAL STUDENTS ASSOCIATION

The seventh Annual General Meeting of the British Medical Students Association will be held at B.M.A. House, Edinburgh, on November 11–13. The guest lecture will be given by Mr. P. Eggleton, D.Sc., reader in biochemistry at the University of Edinburgh, on November 11, at 2.30 p.m. Anyone interested is invited to attend this lecture.

Representatives from most medical schools in the country will be attending to discuss such matters as student health services, clinical conferences, staff–student discussions, further-education and training grants, and medical films, as well as routine domestic matters.

B.M.A. LIBRARY

The following books have been added to the Library:

Advances in Surgery. Volume 1. 1949.
American Association of Physical Anthropologists: Studies in Physical Anthropology. No. 1, Early Man in the Far East. 1949.
Atomic Energy Year Book: Edited by John Tutin. 1949.
Banzer, G.: Arzneitherapie des praktischen Arztes. Dritte Auflage. 1949.
Banzer, G.: Medikamentenlehre für Schwestern. 1949.
Bargmann, W.: Histologie und mikroskopische Anatomie des Menschen. Band I, Zellen- und Gewebelehre. 1948.
Berghoff, E.: Max Neuburger, Werden und Wirken: eines österreichischen Gelehrten. 1948.
Berndorfer, A.: Die Asthetik der Nase vom plastisch-chirurgischen Standpunkt aus Betrachtet. 1949.
Bilikiewicz, T.: Psychologia marzenia sennego (The psychology of dreams: Polish text with English summary). 1948.
Böhler, L.: Medullary Nailing of Küntscher. Translated from the 11th German edition by Hans Tretter. 1948.
Breckenridge, M. E., and Vincent, E. L.: Child Development. Second edition. 1949.
Brownell, K. O.: A Textbook of Practical Nursing. Third edition. 1949.
Campbell, J. D.: Everyday Psychiatry: concise, clinical, practical. Second edition. 1949.
Conference, First International Poliomyelitis: Papers and Discussions. 1949.
Conference on National Social Work, Atlantic City, N.J., April 17–23, 1948: Proceedings. 1949.
Congress, International, on Population and World Resources in Relation to the Family. Cheltenham, August, 1948. 1949.
Das, K.: Clinical Methods in Surgery. Second edition. 1948.
Depisch, F.: Die Diät- und Insulinbehandlung der Zuckerkrankheit: für Studierende und Arzte. Vierte Auflage 1949.
Fleming, C. M.: Adolescence. 1948.
Fowler, W. M.: Hematology: for students and practitioners. Second edition. 1949.
Geckeler, E. O.: Plaster-of-Paris Technic. Second edition. 1948.
Goodall-Copestake, B. M.: Theory and Practice of Massage and Medical Gymnastics. Seventh edition. 1949.
Graber, G. H.: Mental Life of the Child. 1949.
Gregory, Sir R.: Gods and Men: a testimony of science and religion. 1949.
Groves and Brickdale's Textbook for Nurses. Seventh edition, revised by J. A. Nixon and Sir Cecil Wakeley. 1948.
Gunther, J.: Death Be Not Proud: a memoir. 1949.
Haire, N.: Everyday Sex Problems. 1948.
Hanby, J. H., and Walker, H. E.: Principles of Chiropody. 1949.
Hansen, H. F.: Review of Nursing: with outlines of subjects, questions and answers. Sixth edition. 1949.
Hansen, I. F.: Investigations on Agonal Acidosis. 1948.
Hay-Shaw, G.: Your Child and You. 1949.
Hinsie, L. E.: Understandable Psychiatry. 1948.
Hoch, P. H. (Editor): Failure in Psychiatric Treatment. 1948.
Horsfall, F. L., jun.: Diagnosis of Viral and Rickettsial Infections. 1949.
Ikin, A. G.: Religion and Psychotherapy: a plea for co-operation. Thesis edition. 1948.
Ingram, M. E.: Principles of Psychiatric Nursing. Third edition. 1949.
Jamieson, E. M., and Sewall, M. F.: Trends in Nursing History. Third edition. 1949.
Jones, E.: Hamlet and Oedipus. 1949.
Jones, E.: What is Psychoanalysis? 1949.
Lee, M., and Wagner, M. M.: Fundamentals of Body Mechanics and [illegible]. 1949.
Mace, [illegible] (isis. 1948.
McMu[illegible], [illegible] of Orthopaedic Surgery. Third edition. 1949.
Mayo Clinic Diet Manual. 1949.
Mayo, E.: Social Problems of an Industrial Civilization. 1949.
Meleney, F. L.: Clinical Aspects and Treatment of Surgical Infections. 1949.
Minnitt, R. J.: Gas and Air Analgesia. Fourth edition. 1949.
Neil, J. H., and Neil, T. H.: Ear, Nose, and Throat Nursing. Fourth edition. 1948.

Northern Surgical Association, 23rd Meeting, Stockholm, June 26–28, 1947: Transactions. 1948.
Oakes, L., and Bennett, A.: Materia Medica for Nurses. Third edition. 1949.
Osborn, F.: Our Plundered Planet. 1948.
Piney, A., and Hamilton-Paterson, J. L.: Sternal Puncture. Fourth edition. 1949.
Randell, M.: Training for Childbirth: from the mother's point of view. Fourth edition. 1949.
Saunders, H. St. G.: Red Cross and the White: a short history of the Joint War Organization of the British Red Cross Society and the Order of St. John of Jerusalem during the War 1939–45. 1949.
Schafer, R.: Clinical Application of Psychological Tests. 1948.
Scott, G. E. M.: Juvenile Rheumatism: a clinical survey. 1948.
Smith, A.: Technic of Medication. 1948.
Stopes, M. C.: Birth Control To-day. Ninth edition. 1948.
Taylor, H. P.: A Shetland Parish Doctor: some recollections during the past half-century. 1948.
Taylor, S., and Gadsden, P.: Shadows in the Sun. 1949.
Tidy, Sir H. L.: Synopsis of Medicine. Ninth edition. 1949.
Tidy, N. M.: Massage and Remedial Exercises in Medical and Surgical Conditions. Eighth edition. 1949.
Tobias, N.: Essentials of Dermatology. Third edition. 1948.
Walshe, F. M. R.: Diseases of the Nervous System: described for practitioners and students. Sixth edition. 1949.
Worrall, R. L.: Energy and Matter. 1948.
Yater, W. M.: Fundamentals of Internal Medicine. Third edition. 1949.

H.M. Forces Appointments

ROYAL NAVY

Surgeon Commander S. J. Savage has been placed on the Retired List.

Surgeon Lieutenant R. R. B. Baxendine to be Surgeon Lieutenant-Commander.

ROYAL NAVAL VOLUNTEER RESERVE

Surgeon Lieutenant-Commander E. J. S. Woolley, O.B.E., has been placed on the Retired List.

Surgeon Lieutenants W. E. A. Buchanan, A. C. MacDonald, J. F. McHarg, and R. A. McKeown to be Surgeon Lieutenant-Commanders.

ARMY

Colonel R. S. Dickie, late R.A.M.C., having attained the age for retirement, is retained on the Active List supernumerary to Establishment.

Lieutenant-Colonel J. N. Atkinson, late R.A.M.C., to be Colonel.

ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel P. E. D. Pank has retired on retired pay, and has been granted the honorary rank of Colonel.

Major D. S. Cochran to be Lieutenant-Colonel.

Major W. N. S. Donaldson, T.D., from Short Service Commission, to be Major.

Captains T. B. Harrison, O. S. Williams, and J. F. Webb, M.C., to be Majors.

Captain C. C. Petrovsky has retired, receiving a gratuity, and has been granted the honorary rank of Major.

Short Service Commission (Specialist).—Captain (War Substantive Major) I. F. Fraser has retired, receiving a gratuity, and has been granted the honorary rank of Major.

Short Service Commission.—Captains J. E. G. Earle and J. M. Corall have retired, receiving a gratuity, and have been granted the honorary rank of Lieutenant-Colonel. Captains I. A. Jackson, M.B.E., and A. J. Leslie-Spinks to be Majors. Captains W. G. Canning and J. P. X. Fox have retired, receiving a gratuity, and have been granted the honorary rank of Major.

REGULAR ARMY RESERVE OF OFFICERS

ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel (Honorary Colonel) C. B. C. Anderson, O.B.E., having attained the age limit of liability to recall, has ceased to belong to the Reserve of Officers.

Captain B. E. Schlesinger, O.B.E., from Supplementary Reserve of Officers, to be Major, and has been granted the honorary rank of Colonel.

Captains J. P. Stewart, F. A. D'Abreu, R. G. M. Longridge, N. M. L. Lund, J. C. Harland, and G. Macpherson, from Supplementary Reserve of Officers, to be Majors, and have been granted the honorary rank of Lieutenant-Colonel.

Captains D. C. Muir, A. C. F. Green, H. J. Browne, J. H. Chambers, F. G. Wood-Smith, D. P. Kearns, R. Cox, M.B.E., T. J. Fairbank, W. M. Macleod, P. H. Newman, D.S.O., I. N. Samuel, G. C. Steel, F. R. Store, I. H. Griffiths, E. H. C. Harper, G. Lorriman, M.B.E., R. R. Simpson, and A. W. F. Catto, from Supplementary Reserve of Officers, to be Majors.

Captain R. A. Strang, from Emergency Commission, to be Captain, and has been granted the honorary rank of Major.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel (Honorary Colonel) Sir Hugh W. B. Cairns, K.B.E., has been appointed Honorary Colonel.

Colonels C. P. Oliver, C.B., C.M.G., T.D., and W. D. Watson, T.D., have relinquished their appointments as Honorary Colonels, their tenure of appointment having expired.

Captain (*acting* Lieutenant-Colonel) G. E. Parker, D.S.O., has been granted the acting rank of Colonel.

Major G. K. D. Edwards has been granted the acting rank of Colonel.

Captains (Acting Majors) M. F. Ronayne, M.B.E., J. G. Waugh, T. P. Sewell, and J. Bleakley to be Majors.

Captains J. Davidson, T. M. Lennox, M. A. Watson, I. R. McNeish, and C. J. Cobbe, M.B.E., to be Majors.

Association Notices

GROUP COMMITTEE ELECTIONS

As a result of elections held recently among the Special Groups, the following have been elected to the various Group Committees. Re-elected members are indicated by an asterisk, and, subject to the amendments shown below, the full list of members of the Committee is as set out in the *Supplement* of August 20 (p. 90).

Anaesthetists Group

Provinces: *Z. Mennell.
*W. W. Mushin.
Scotland: A. C. Forrester (*vice* H. H. Pinkerton).

Consulting Pathologists Group

*J. G. Greenfield.
R. Cruickshank, W. H. McMenemey } *vice* A. F. S. Sladden and F. B. Smith.

Dermatologists Group

London: D. I. Williams (*vice* L. Forman).
Provinces: *F. F. Hellier.
Scotland: *J. Ferguson Smith.

Orthopaedic Group

London: *P. Wiles.
Provinces: *S. A. S. Malkin.
Scotland: R. Barnes (*vice* A. Miller).

Physical Medicine Group

*F. S. C. Cooksey.
*J. W. T. Patterson.
One vacancy (*vice* J. B. Burt).

Psychological Medicine Group

*P. K. McCowan.
*J. R. Rees.
T. Ferguson Rodger (*vice* A. A. W. Petrie).

Radiologists Group

*J. F. Brailsford.
*S. Whately Davidson.
*J. L. A. Grout.

Spa Practitioners Group

North: T. G. Reah (*vice* L. J. Prosser).
South: J. E. Dawson.

Venereologists Group

R. C. L. Batchelor.
R. Lees.
A. E. W. McLachlan.
C. Hamilton Wilkie.

PRIZES FOR MEDICAL STUDENTS, 1950

The Council of the British Medical Association is prepared to consider the award in 1950 of prizes to medical students for essays submitted in open competition.

The subject of the essays shall be "Clinical Teaching in Relation to the Practice of Medicine."

The purpose of these prizes is the promotion of systematic observation among medical students. In awarding the prizes due regard will be given to evidence of personal observation. No study or essay that has previously appeared in the medical

press or elsewhere will be considered eligible for a prize. Any medical student who is a registered member of a medical school in Great Britain or Northern Ireland at the time of submission of the essay is eligible to compete for a prize.

If any question arises in reference as to the eligibility of a candidate or the admissibility of his or her essay, the decision of the Council of the British Medical Association shall be final. In determining the number and the value of the prizes to be awarded the Council will take into consideration the number of essays received. Should the Council decide that no essay entered is of sufficient merit, no awards will be made.

Each essay must be typewritten or legibly written in the English language, on one side of the paper only, must be unsigned, and must be accompanied by a form of application which can be obtained from the undersigned. Essays must be forwarded so as to reach the Secretary of the British Medical Association not later than December 31, 1949. Inquiries relative to the prizes should be addressed to the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1.

SCHOLARSHIPS IN AID OF SCIENTIFIC RESEARCH

The Council of the British Medical Association is prepared to receive applications for Research Scholarships as follows: An Ernest Hart Memorial Scholarship of the value of £200 per annum, a Walter Dixon Scholarship of the value of £200 per annum, and four Research Scholarships each of the value of £150 per annum. These scholarships are given to candidates whom the Science Committee of the Association recommends as qualified to undertake research in any subject (including State medicine) relating to the causation, prevention, or treatment of disease. Preference will be given, other things being equal, to members of the medical profession.

Each scholarship is tenable for one year starting on October 1, 1950. The scholar may be reappointed for not more than two additional terms. A scholar is not necessarily required to devote the whole of his or her time to the work of research but may hold an appointment at a university, medical school, or hospital, provided the duties of such an appointment do not interfere with his or her work as a scholar.

Conditions of Award: Applications

Applications for scholarships must be made not later than Friday, April 28, 1950, on the prescribed form to be obtained from the Secretary of the Association, B.M.A. House, Tavistock Square, London, W.C.1. Applicants will be required to furnish the names of three referees who are competent to speak of their capacity for the research contemplated.

CHARLES HILL,
Secretary.

Diary of Central Meetings

OCTOBER

21	Fri.	Committee *re* Capital Punishment, 2 p.m.
25	Tues.	Anaesthetists Group Committee, 2 p.m.
25	Tues.	Central Ethical Committee, 2 p.m.
26	Wed.	Joint Subcommittee *re* Remuneration of National Coal Board M.O.s (Conference of Colliery Medical Officers), 2 p.m.
26	Wed.	Spa Practitioners Group Committee, 2 p.m.
27	Thurs.	Annual Conference of Representatives of Local Medical Committees, 10 a.m.
28	Fri.	Library Subcommittee, 11.30 a.m.
28	Fri.	Consulting Pathologists Group Committee, 2 p.m.
28	Fri.	Science Committee, 2 p.m.
31	Mon.	Armed Forces Committee, 2 p.m.

NOVEMBER

2	Wed.	(At Lion Hotel, Shrewsbury) Welsh Committee, 2.15 p.m.
3	Thurs.	Committee on Industrial Health Services in relation to the National Health Service, 2 p.m.
9	Wed.	Committee on the Postgraduate Education of General Practitioners, 11 a.m.
10	Thurs.	General Medical Services Committee, 11 a.m.

Branch and Division Meetings to be Held

BOURNEMOUTH DIVISION.—At Grand Hotel, Fir Vale Road, Bournemouth, Friday, October 28, 7.30 p.m., annual dinner.

CAMBRIDGE AND HUNTINGDON BRANCH.—At Lecture Theatre, Addenbrooke's Hospital, Cambridge, Sunday, October 30, 3.15 p.m. Address by Dr. Robert Forbes: "Legal Hazards in Medical Practice." A discussion will follow.

KENSINGTON AND HAMMERSMITH DIVISION.—At St. Mary Abbots Hospital, Marloes Road, London, W., Tuesday, October 25, 8.30 p.m., clinical lecture. Mr. J. H. Carver: "Male Sterility"; Mr. V. B. Green-Armytage: "Female Sterility." A general discussion will follow.

OXFORD DIVISION.—At Horton General Hospital, Banbury, Wednesday, October 26, 5 p.m., clinical meeting. 7.15 p.m., dinner at Whateley Hall Hotel, Banbury (price 6s. 6d.).

WEST MIDDLESEX DIVISION.—At Nelson Room, Town Hall, Ealing, Friday, October 28, 8.30 p.m., Mr. Angus Maude: "The Conservative Attitude Towards the Health Scheme." Wives are invited.

WEST SUSSEX DIVISION.—At Warne's Hotel, Worthing, Tuesday, October 25, 6 p.m. Business meeting, followed by an address by Dr. Charles Hill on "Problems of the Moment"; 7.15 p.m., dinner (10s., including tip), followed by a discussion. All medical practitioners in West Sussex are invited to attend.

Meetings of Branches and Divisions

LEEDS DIVISION

The newly qualified medical graduates of Leeds University were invited to lunch by the Executive Committee of the Leeds Division on Thursday, September 29.

MASHONALAND BRANCH

The annual report of the Mashonaland Branch Council includes the following statement on State medicine: At the beginning of 1948 the Minister of Internal Affairs met separately both Branches of the British Medical Association in Southern Rhodesia. The verbatim report of the meeting in Salisbury was circulated to all members of the Branch and was discussed at a subsequent meeting. It has been only too obvious to all concerned that the Minister's proposals have not been acceptable to either Branch for the reason that the medical profession does not agree that such proposals will result in any improvement in the health services rendered to the population of Southern Rhodesia, European and African.

In the past there was not only a shortage of hospital beds, nursing staff, and medical equipment, but of medical practitioners as well. This last shortage has been remedied by private enterprise. The Government has failed to remedy the remaining lack, and, because of the Government's policy of providing hospital accommodation at an uneconomic rate to all, no private nursing-homes have been erected, and there is also no adequate private general or midwifery nursing service. The latter might have been remedied if a hostel had been built in which private nurses could live. However, in spite of this lack of private midwives, the Minister proposed to embark on a maternity service designed to encourage women to be delivered in their own homes. It is a matter of opinion whether it is better for a confinement to take place in a hospital or in the home, but without sufficient midwives the answer is obvious.

The Mashonaland Branch has felt in the past that, if the Government is determined to introduce a State medical scheme, the only efficient service would be one controlled by a Commission on which the medical profession is adequately represented. If the medical profession should form part of a Civil Service the Treasury would have the final say, and necessary schemes would not be carried out for lack of funds. The system whereby sums voted this year if not spent cannot be carried forward is iniquitous and leads to money being spent unnecessarily in times of plenty and for essential services to be curtailed in times of poverty. A sinking fund controlled by the Commission would remedy this. The Government's concern should in the first place be with the poorest, and it is feared that any so-called free national health service may result in less money being spent on the poorest and most numerous section of the community—the Africans. At present the medical vote for European and African health services is not divided.

To-day Southern Rhodesia is materially ill-equipped to supply a health service for the community. Given the tools, the private practitioners will render a service to the public more efficiently and at less cost than any other scheme, and if it should be said that the financial burden of ill-health cannot be borne by the individual we can rightly point out that a considerable proportion of the population can be members of medical aid societies, and that it should not be a difficult matter for the Government to provide medical aid in the form of a subsidized medical aid society for those of limited means who could not be members of one of the present societies.

METROPOLITAN COUNTIES BRANCH

Members of the Metropolitan Counties Branch, accompanied by their president, Dr. C. G. Martin, visited the Port of London on September 21 as guests of the Port of London Authority. The party was received by Admiral Sir Allan Hotham, member of the authority, and embarked in the P.L.A. s.y. *St. Katharine* at Tower Pier for a cruise down the River Thames and through the Royal Victoria and Albert and King George V Docks.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 29 1949

INDIVIDUALITY IN MEDICINE

HARVEIAN ORATION DELIVERED BEFORE THE ROYAL COLLEGE OF PHYSICIANS ON OCTOBER 18, 1949

BY

GEOFFREY MARSHALL, M.D.Lond., F.R.C.P.

Consulting Physician to Guy's Hospital; Physician to Brompton Hospital for Diseases of the Chest

My Lord President and Fellows,

I have to thank you for the great honour which is mine in being entrusted with the delivery of the annual Oration, the two hundred and thirtieth to be given since the series was instituted by William Harvey's gift to the College in 1656. As you know, he directed that the Oration should be made in Latin, and should include a commemoration of all the Benefactors of the said College by name. With the passage of nearly three hundred years, good and practical reasons have been found for disobeying the strict letter of the terms of the Gift. I should add little to the dignity of this College if I attempted to address you in Latin, and I should like to pay tribute to the magnanimity of Dr. Alexander Sutherland, who, while giving the Oration in Latin in 1863, suggested that his successors might be allowed to address the College in English.

Benefactors

It is no longer the custom to commemorate all the Benefactors of the College by name and to record particulars of their benefactions, for the honourable reason that the list has become too long. I have pleasure, however, in recording a very recent benefaction, most appropriate to be commemorated in this Address. It is that of Dr. Ernest Christison Carter, who, being the senior member of this College, has presented the sum of one thousand pounds "to the end that friendship between members of the College may be continued and maintained, for the entertainment of distinguished guests from other countries, and if the Treasurer laid down some Port, that the health of the Senior Member should be drunk at one of the College Dinners."

William Harvey

Harvey bids us to search and study out the secrets of Nature by way of experiment; and also, for the honour of the profession, to continue in mutual love and affection among ourselves.

In these things Harvey was the great exemplar. When he was appointed Lumleian lecturer on anatomy in this College in 1615, there had been no notable advance in medicine for a thousand years. For political reasons the subject was confined within the orderly system formulated by Galen, and study consisted largely of disputation on the applications of this authoritarian creed. Unorthodoxy was punished by the civil power, as is happening now in a great territory governed by a union of republics.

A sidelight on Harvey's independence of mind and preference for personal observation is afforded by his discussion of the escape of the chick from the egg. First he quotes Hippocrates and his own teacher Fabricius of Padua. The latter had written:

"The chick wants air sooner than food, for it has still some store of nourishment within it; in which case the chick by his chirping gives a sign to his mother of the necessity of breaking the shell, which he himself cannot accomplish by reason of the hardness of the shell and the softness of his beak. The chick, nevertheless, is already so strong, and the cavity in the egg so ample, and the air contained within it so abundant, that the breathing becomes free and the creature can emit the sounds that are proper to it. These can be readily heard by a bystander, and were recognized by both Pliny and Aristotle, and perchance have something of a petition in their tone. For the hen, hearing the chirping of the chick within . . . she breaks the shell. The chirping of the chick is consequently the first and principal indication of the creature desiring to make its escape and of its requiring air. This the hen perceives so nicely, that if she hears the chirping to be low and internal, she straightway turns the egg over with her feet, that she may break the shell at the place whence the voice proceeds without detriment to the chick."

Harvey comments, "All this is stated pleasantly and well by Fabricius: but there is nothing of solid reason in the tale. I have found by experience that it is the chick himself and not the hen that breaks open the shell. I have further seen the chick raise up the top of the shell upon his head and remove it." So Harvey demolished an ancient fallacy by the simple method of observation; but he did it with gentle urbanity, a quality which we find in the exposition of his great discovery of the circulation of the blood. He deprecates harsh criticism of opponents in a field in which, as he says, "all have laboured well." His courtesy to opponents and his good humour were proof against many provocations. Physician to King Charles I, he received friendship and aid in his researches from his royal patient. While attending the King at Nottingham on the outbreak of the Civil War Harvey's lodgings in London were entered by a mob of citizen-soldiers. He writes:

"This is the cause of my sorrow: Whilst in attendance on the King during our late troubles and more than civil wars, not only with the permission but by the command of Parliament, certain rapacious hands not only stripped my house of all its furniture, but what is a subject of far greater regret to me, my enemies abstracted from my museum the fruits of many years of toil. Whence it has come to pass that many observations,

particularly on the generation of insects, have perished with detriment, I venture to say, to the republic of letters."

His exclamation does not seem over-emphatic: "Let gentle minds forgive me, if recalling the irreparable injuries I have suffered, I here give vent to a sigh."

At the end of the Civil War Harvey returned to London and we know that he attended meetings of this College. Here he must have encountered Fellows who had taken a prominent part with the Parliamentary Forces, and it is surely to his credit and to that of the College as a whole that no record of discourtesies or ill-natured repercussions can be discovered. Should we perhaps give special heed to this dignified tradition in a time of social change? Fortunately there is now no deadly civil war, but rapid changes in the relation of the individual to the State are not accomplished without injustice and resentment.

In 1654 Harvey was unanimously elected President of this College, an honour which he modestly declined. He had held the Lumleian lectureship for forty-one years, and seems to have discharged its duties with as much regularity as the times and his travels would allow. We hear of no complaints by the authorities of the College, but his absences caused uneasiness to some of his colleagues at St. Bartholomew's. He had been appointed physician to that hospital in 1609, and at a meeting of the Court of the hospital held on Sunday, January 19, 1633, inquiry was made into "a complaint of some of the chirurgeons of this hospital that whereas Doctor Harvey physician for the poor of the said hospital by reason of his attendance on the King's Majesty cannot so constantly be present with the poor as heretofore he hath been; but sometimes doth appoint his deputy for the same." The difficulty was resolved, and the Governors of the Hospital seem to have treated Harvey with consideration and respect.

In 1628 was published his book on *The Motion of the Heart and Blood*, which liberated medicine from the Dark Ages and set it on the path of progress which it has travelled ever since. The incontrovertible evidence with which he supports the validity of his discovery is based partly on anatomical dissection, partly on experiments on living animals, and partly on clinical observation. With regard to the latter, he quotes many illustrative cases of circulatory disease met with among his private patients and among the sick poor whom he attended at St. Bartholomew's Hospital.

British Hospitals

Let us review briefly the provision of hospitals in this country before and since Harvey's time. While medicine was dominated by the Church, under the Saxons and Normans, many hospitals were founded; we have written records of over eight hundred, and the majority of them survived to Tudor times. In 1534, Henry VIII broke with the Pope and soon set about the suppression of the religious houses. A statute of 1545 alleges that "governors and wardens of hospitals, or the greatest number of them, did not exercise due authority and expend the revenues in alms according to the foundation." The object of the Act was "to bring them into a more decent and convenient order." At the same time assurance was given that the King would not suffer "poor and miserable people to be unrelieved." Political propaganda is no new thing. Poor and miserable people did go unrelieved, for the hospitals were closed and deserted. Pressure by the citizens of London led in due course to the reopening of St. Bartholomew's and St. Thomas's, but these seem to have been the only two hospitals in London in Harvey's time, apart from St. Mary's of Bethlehem for the insane. In other parts of the country there were only a few vestiges of the old foundations. No renascence of hospital establishment occurred until the eighteenth century, but then the movement grew and flourished. In quick succession came the Westminster, Guy's, St. George's, the London, the Royal Infirmary in Edinburgh, and similar institutions in all the larger cities. By the end of the eighteenth century some forty important hospitals had been established, and in recent years the number of voluntary hospitals exceeded nine hundred.

These hospitals were not of equal size or merit. They were diverse in tradition, function, and administration. They were born and grew according to the need and the enterprise of the community, but they had certain features in common. They were modelled on the ancient foundations which had so well stood the test of centuries. They were governed by a group of laymen, usually men and women of proved ability and integrity, known and respected for their achievements in their own walks of life. They worked without fee or reward. In partnership with them was a medical staff, visiting or honorary, who received a token or peppercorn stipend, sufficient perhaps to pay their travelling expenses between home and hospital. The medical staff were responsible for the investigation and treatment of the patients allotted to them, and every member of this visiting staff was a member of the medical committee of the hospital. This committee advised the lay governors on all matters within their competence, and the governors referred to them all questions having a direct bearing on the medical and surgical work of the hospital. To quote from Harvey's great contemporary, Shakespeare, "I tell you that which you yourselves do know," and I hope that I shall not outwear your patience.

Appointments to the staff of the hospital were made by the governors, but in fact they depended on election by their colleagues acting in concert, of recent years with the help of external referees or assessors. I know of no other method so free of fear or favour, or which has given rise to fewer wrong decisions. The medical committees have advised the governors, in particular, concerning improvements in hospital equipment and accommodation required to make available to the patients the advances in medical science. It has been a point of honour with the medical committees to refrain from unreasonable demands, and it has been the constant endeavour of the lay governors to keep their hospital in the highest state of efficiency. Many of them have set an inspiring example of unselfish service, and out of this has grown a living corporate spirit in the voluntary hospitals. Their independence of central authority gave them individual character, vitality, and adaptability. They were institutions in which men and women were proud to work for no proportionate financial reward.

The service given by the voluntary hospitals to the public and to humanity in general has been no mean contribution. For many years in co-operation with the general practitioners they undertook the care of the poor in most cases of acute illness and severe injury.

In association with the universities they have been responsible for medical education. At first the students' fees went to the physicians and surgeons who taught in the wards and theatres, and the rewards were very high indeed by our standards. On the organization of medical schools, the clinicians gave up the major part, and in some hospitals the whole, of their teaching fees in order to finance the building, equipment, and staffing of the departments for preclinical teaching.

The increasing demand for hospital service, and its continuous elaboration, may be traced more or less directly

to Harvey's awakening of medicine from its long sleep. As a combined clinician and investigator he had worthy successors. Sydenham's work on fevers opened men's minds to the conception of specific infections. John Hunter established the principles of research in physiology and surgery. Edward Jenner laid the foundation-stone of immunology: a statue in Boulogne records his landing there to introduce vaccination into France at a time when our two countries were at war. Addison demonstrated the nature of pernicious anaemia, and with his description of the effects of disease of the suprarenals was a pioneer in the study of the ductless glands. Accurate knowledge of kidney disease dates from Bright. Anaesthesia was made practicable by Simpson, and all the great advances of surgery stem from Lister. Patrick Manson is known as the father of tropical medicine. Similar advances continue in our own time: those of Mott in mental disease, Mackenzie and Lewis in diseases of the heart, Gowland Hopkins and the Mellanbys in vitamins, Fleming and Florey in antibiotics. Medicine is not national and cannot flourish when confined; but we have a right to be proud of our share in fundamental discoveries, and most, if not all, of these workers were products of our voluntary hospitals.

Increasing elaboration of the methods of investigation and treatment necessitated the establishment of special departments, and at the same time attracted increasing numbers of patients to the hospitals, so that the visiting staffs had to cope with a vast free consulting service, which grew more rapidly after the passage of the Insurance Act. The cost in new building and equipment was heavy, but the hospitals expanded to meet the new requirements, drawing aid from the King's Fund and from contributory schemes.

Florence Nightingale

No individual has done more for the improvement of our hospitals and for the efficient and humane practice of medicine and surgery than Florence Nightingale. Her establishment of a training institute for nurses at St. Thomas's Hospital in 1859 led to the setting up of similar schools in all the large hospitals of this country. We may be thankful that we work under conditions revolutionized by her vision and determination. The nurses, doubly inspired by their foundress and by the corporate tradition of the various institutions in which they worked, raised our hospitals to a new excellence. Sir Henry Burdett, author of that standard work *Hospitals and Asylums of the World*, and originator of King Edward's Hospital Fund, did not hesitate to criticize those of our hospitals which he found inefficient. Influenced, perhaps, by his memories of Florence Nightingale's exposures of "officialism" in her reformation of the military hospitals in the Crimea, he wrote:

> "Anything more opposed to the best interests of the people than the substitution of State hospitals for the voluntary hospitals as they at present exist cannot be imagined. . . . We believe and hope therefore that the day is far distant when any serious effort will be made to substitute State hospitals for the noble medical charities which are at one and the same time the wonder of foreigners and the just glory and pride of the British nation."

Burdett was writing in 1900, a time made distant by great changes in the history of nations.

Florence Nightingale accomplished other reforms besides the reorganization of hospitals in the Crimea and the widespread establishment of training schools for nurses. Illness now confined her to bed for the rest of her life, but she kept in touch with many of the nurses who had been trained in her institute at St. Thomas's. One of them wrote to her from the Workhouse Infirmary at Liverpool and described the conditions in which the patients wore the same shirts for seven weeks and bedclothes were not washed for months. Such information as this she used to persuade the authorities to draft the Act of 1867 which separated the Poor Law infirmaries from the workhouse and provided them with resident medical superintendents. This was not all she wanted, and she said, "This is a beginning; we shall get more in time." In 1929 these institutions became the responsibility of the county and county borough authorities, since when many of them have attained a very high standard.

The Impact of War

In the recent war the voluntary hospitals were integrated with those of the local authorities, and a friendly partnership was in most cases established. They were placed under an Emergency Medical Service, and had an instructive experience of centralized control in an attenuated form. They learned something of its benefits and drawbacks, and minimized the latter by their traditional adaptability, especially in misinterpreting regulations and instructions which would have prevented efficient and humane treatment of their patients.

The hospitals in London were instructed to lock their gates when aerial bombardment was heavy, in order to prevent the breaking in of panic-stricken mobs. To the best of my knowledge only one hospital was mobbed. When heavy bombs struck the main block and destroyed both lift shafts and staircases a message was shouted from street to street that "Guy's is afire," and the men of Bermondsey and Southwark came out of their cellars and shelters in their hundreds and helped to carry the patients down the outside of the stricken building.

There was a great discrepancy in the efficiency of the hospital services provided by the different county authorities. Some were admirable and others miserably incompetent. Their responsibilities and obligations were heavy: one of the most troublesome was the provision of adequate and efficient institutional accommodation for those suffering from pulmonary tuberculosis.

In the good areas a patient urgently requiring admission would be taken into hospital within twenty-four hours, and the average period of waiting for a sanatorium vacancy for less acute cases did not exceed four weeks. On the outbreak of war a large proportion of the beds in tuberculosis institutions were emptied for the service of war casualties. A central administration which had failed to prepare for war thus repeated the mistakes of 1914. The premature return of infectious patients to their homes was followed by a steep rise in the tuberculosis rate, and there was a spectacular increase in child deaths from tuberculous meningitis. The hospital service for tuberculosis has not yet recovered from the disorganization resulting from this expropriation. Five thousand of its beds are still closed for want of staff. Patients in urgent need of treatment must wait from six to twelve months for admission to sanatoria or even to hospitals. Patients are lying in their homes begging for the treatment which can only be given in hospital, and which cannot be obtained until it is too late. Is there a Tudor echo in the recent assurance that the patients shall not suffer?

Ministry of Health

The Ministry of Health dates from 1919, and already has a distinguished record in preventive medicine. In the recent war it administered the Emergency Medical Service and so undertook responsibility for the treatment of

patients in many different types of hospitals. Experience so gained suggested the advisability of perpetuating the control, especially as it was said that the increasing cost of hospital maintenance and the heavy taxation of those who had heretofore financed the voluntary hospitals would make it impossible for them to survive on a voluntary basis. Lord Dawson's scheme for reorganization of the medical services, published in 1920, was revived and transfigured in the Beveridge Report. When the latter was published, it seemed to some of us that insufficient attention had been paid to the essentials which stimulate individuals and institutions to strive for progress in the science and practice of our calling. By memorandum and by word of mouth we reminded a former Minister of Health of the work of Florence Nightingale. We even suggested that this plan might undo some of the work that she had done, and that nurses might not care to work under such a scheme. We received no more encouragement than we expected. Others explained to us that Government money would be used, and that he who pays the piper calls the tune. This seemed to us an over-simplification : if each individual had his own piper he might get the tune he desired. In this case we are all paying the piper. Under a central authority there are millions who pay, and there is only one piper, remote in his office. Many of us call for different tunes. The piper has not the music for all the tunes, and some of them are unfamiliar to him. In the end, the piper is apt to play the tune which comes most easily to him, the one that suits his pipe.

State Hospitals

Our hospitals are now State hospitals : let us see to it that the change is not so disastrous as Sir Henry Burdett feared. We have inherited a splendid tradition from our great predecessors. Tradition grows like a tree, gathering strength by degrees ; but even a mighty tree can be cut down in a few hours. The tradition of the teaching hospitals is being respected ; they are being allowed to keep their constitution and character. They still have boards of governors ; but there is cause for regret that some of the most outstanding members of these boards, individuals of special distinction in the recent history of the voluntary hospitals, should have been superseded in the general reorganization.

Some of the other hospitals seem to be faring less well. Fifty thousand beds are out of service, largely, we are told, for lack of trained nurses. Some of the smaller voluntary hospitals have been closed. The character of others is undergoing a change. A recent official communication informs us that a hospital for pulmonary disease some sixty miles from London will no longer include consulting physicians on its staff. We are given to understand that, though their visits might be desirable, they cannot be fitted into the administrative pattern set by an Act of Parliament. We hear rumours of plans to standardize the design and limit the variety of instruments and chemical preparations used in the treatment of patients.

There are bound to be difficulties at the inception of a new service, and it is easy to criticize. We are here to help and not to hinder, but we shall do less than our duty if we fail to call attention in good time to inadvertences which tend to destroy the will of the individual to serve the community. The progress of medicine and the development of our hospitals have resulted from freedom and diversity, not from standardization and conformity.

With due humility let us ask that administrative departments of Government when taking over the control of our hospitals shall themselves absorb something of the spirit and tradition which has made them live and grow. Those who serve the sick cannot give of their best unless they possess the sense of urgency and personal responsibility. If Government control is to be beneficial to the hospitals there must be a new spirit in the ministries. There seems a need for more effective co-ordination between Government departments, and a stronger determination to avoid enmeshing themselves and us in a web of regulations and restraints. We would urge them to consider whether a multiplicity of committees may not be a hindrance to those who are striving to heal the sick.

I have strayed far from the course indicated by Harvey for the guidance of those who were to deliver the Oration, so make amends by reminding you again of his exhortation that we should search and study out the secrets of Nature by way of experiment ; and also, for the honour of the profession, continue in mutual love and affection among ourselves.

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I. P. PAVLOV*

BY

J. KONORSKI, M.D.

Head of the Department of Neurophysiology, Nencki Institute of Experimental Biology, Lodz, Poland

It is both a great privilege and a great pleasure to take part in the centenary commemoration of the outstanding Russian physiologist Ivan Petrovich Pavlov. It is also a privilege to revive the memory of my work with this great scientist—work which, though now belonging to the past, I always recall with great affection.

I shall try first to survey briefly Pavlov's work and its significance for modern science, and then to give personal reminiscences of my association with him. I shall not deal here with the first phase of his work, which was devoted to the physiology of digestion and which alone was already sufficient to establish his permanent reputation, but with the second phase, in which he created a new branch of physiology—namely, the physiology of higher nervous activity.

To begin with, take a look at the study of physiology of the central nervous system at the stage it had reached by the turn of the century—that is, at the time when Pavlov was beginning his work. The rapid development of neurophysiology in the second half of the nineteenth century, achieved by physiologists and clinical workers such as Flourens, Hitzig and Fritsch, Ferrier, Goltz, Sherrington, Hughlings Jackson, Broca—to mention only the most outstanding ones—led to the establishment beyond doubt of the fact that mental processes depend on the function of the brain, more particularly of its highest and most complex part, the cerebral cortex. This does not mean that this fact had not been recognized earlier, but the research carried out by the scientists I have mentioned developed it in a direct and, so to speak, tangible manner.

On the one hand, the experiments of Hitzig and Fritsch, Ferrier, and others demonstrated that certain mental processes are localized to certain parts of the brain—a finding

*Lecture delivered on August 29, 1949, at the Polish Cultural Institute, London, on the occasion of the commemoration of the centenary of Pavlov's birth.

which was corroborated by clinical observation. On the other hand, the experiments of Flourens and Goltz indicated that after the removal of the cerebral cortex animals remained alive and in good health, but became, it was said, "soulless automata," "creatures without memory and mind." It must be remembered, moreover, that this work was going on in the full tide of nineteenth-century scientific materialism, when the theory of evolution on the one hand and the rapid progress of biochemistry on the other made it seem as though nothing could now impede the triumphant march of science towards the unravelling of all mysteries—even that of life itself. This, then, is the background of the events here reviewed.

It was becoming clear at the time that all our conscious activity and behaviour is controlled by the brain, and as such could be investigated, theoretically at least, by physiological methods, without reference to psychic phenomena.

This idea was already beginning to take hold on a very big scale. It was first clearly formulated by the prominent nineteenth-century Russian physiologist Sechenov in his booklet *The Reflexes of the Brain*. It is not surprising, therefore, to find that at the end of the nineteenth and the beginning of the twentieth centuries widespread attempts were being made to find an experimental approach to the problem in question. Of all the attempts then made two were developed further than any others and became part of the permanent structure of modern science. One line of inquiry was opened up in America at the end of the nineteenth century by Thorndike and later developed into that branch of psychology now known as "behaviourism." The other began several years later in Pavlov's physiological laboratory and gave rise to the physiology of higher nervous activity.

Although both these lines of investigation are concerned with one and the same field—namely, the objective approach to the study of animal behaviour—and although they now tend more and more to converge and coalesce, their origins and points of departure were widely different.

Thorndike, aiming at the objective investigation of animal behaviour, rejected introspective explanations. He was not concerned with the problem of what the animal "thought" or "felt" in its activities, but concentrated on trying to discover the laws governing its response to external conditions and stimuli. But, although he was not concerned with the subjective analysis of mental processes, he was nevertheless a psychologist, not a physiologist. Consequently, the physiological explanations he gave from time to time to supplement his arguments, though ingenious and penetrating, were somewhat amateurish. They neither were an integral part of his system nor were they later developed or elaborated.

With Pavlov it was a quite different matter. He was a physiologist through and through. His approach to cerebral activity was purely physiological, and he came to its study from what might appear to be a remote field—the physiology of digestion. It cannot be too strongly emphasized that both his aims and his methods were strictly physiological. Consequently, whereas the behaviourists, who in their investigations discounted mental processes as a link between external stimuli and reaction, had nothing to offer in place of these processes, Pavlov deliberately substituted physiological mechanisms for psychic activity.

Aim of His Work

The aim of Pavlov's work was not so much the description and classification of the phenomena of animal behaviour—the aim, more or less, of the behaviourists—as the explanation of those phenomena with reference to the relevant cerebral processes.

We must now look more closely at the starting-point and sources of Pavlov's work. In contradistinction to Thorndike, Pavlov worked solely on the basis of the physiological data then available. To him the fact that conscious behaviour of the organism depends on the cerebral cortex and therefore can be investigated as an expression of its functions admitted of no doubt. The problem consisted solely in how these investigations could be carried out. It was perfectly clear to Pavlov that experiments in the extirpation of certain cortical areas or in the stimulation of the cortex by electric shock—which were then widely practised—however fruitful and important they might be, did not represent the true method of investigating the normal and, so to speak, everyday activity of this organ. The problem was to find an appropriate method and the best starting-point for studying its *normal* activity.

While the work of Sechenov provided Pavlov with the theoretical basis, the practical method had already been formulated in Pavlov's earlier work. In the course of examining the activity of the salivary glands he had come across the phenomenon of so-called "psychological salivation." This occurs when the animal salivates, not in response to the actual presence of food or other stimulants in the mouth, but in response to the sight of food or to the sound of food being prepared—in other words, to the "idea" of food.

Pavlov saw that this simple fact offered a basis for the study of normal cortical activity. For if salivation in response to the presence of food in the mouth is an innate reflex, or, as Pavlov called it, "an unconditioned reflex," so salivation in response to the sight of food or the other stimuli signalizing its imminent presentation may also be regarded as a reflex action—not innate, but acquired through the animal's experience. This is what Pavlov called a "conditioned" or "conditional reflex."

The unconditioned reflex occurs by way of existing nerve channels established in the phylogenetic development of the nervous system, and is mediated mainly by the lower parts of the nervous system. The conditioned reflex, on the other hand, operates as the result of intercentral connexions established during the individual animal's lifetime as a result of its experience—connexions which depend, according to experimental evidence, chiefly on the cerebral cortex.

Pavlov argued that if the first of these reflex actions can be studied successfully by physiological methods—and no one can question the validity of these methods for the purpose—there can be no reason to doubt the validity of the physiological method for the study of the second group—that is, the conditioned reflexes.

It is thus apparent that the cerebral cortex (along with some subcortical structures), in contradistinction to the lower parts of the nervous system, may be regarded as a creative organ, a place where new connexions, and consequently new forms of animal behaviour, are established. This is its biological role and the essence of its physiological function.

And so we might sum up Pavlov's chief merit in this first period of his work on conditioned reflexes in the following way: it consists not in the fact that he understood the possibility of a physiological approach to problems of behaviour, for that possibility was well understood at the time and resulted from the general state of knowledge in the biological sciences; his great merit lay in bringing to

realization what hitherto had existed only in the realm of possibility—a *method* whereby cortical activity might be effectively and fruitfully examined.

Here it should be stressed that the method he then worked out for investigating conditioned reflexes in salivation may still be considered classical; for, although many other methods have since been added, his own has never been challenged for precision and scope.

It would be impossible, perhaps even inexpedient, to attempt to give an account, even in general outlines, of the work done by Pavlov's school during its 40 years' activity. But I should like to touch on some general questions closely related to this branch of science, particularly those which have given rise to some misunderstanding.

Reaction to His Work

Almost from the very beginning of the development of the study of higher nervous activity there sprang up a vast literature devoted to criticism, positive and negative, of the subject—criticism of a philosophical rather than a physiological character. This criticism was concerned with such questions as the validity of these investigations, their scope, their general philosophical significance, and so on. This critical literature is perhaps no less extensive than the literature of the subject itself, and often tends to overshadow the question at issue. Indeed, it frequently happens that a purely factual lecture or communication on the study of conditioned reflexes is at once made the pretext for a discussion which has nothing whatsoever to do with the real subject of the lecture but is devoted to such questions as the relation of mind to body, materialism, idealism, and so on, until amidst all these issues the proper subject is completely lost.

And so some people fulminate against the physiology of higher nervous activity, asserting either that it denies the existence of mind, that it attempts to explain mechanistically all our conscious activity, or that it over-simplifies the highly complex and subtle phenomena of mental life and tries to force them into the narrow framework of "reflexes," which these critics dismiss as elementary and primitive nervous functions. Others, on the contrary, extol the physiological method to the skies, dismiss with contempt years of psychological achievements, and maintain that psychology is not a science at all and that physiology alone is capable of giving a complete and adequate explanation of all our mental activity.

For some people the so-called intrusion of physiology into a field regarded as the preserve of psychology amounts to nothing less than sacrilege against the dignity of the human spirit. Others, on the contrary, consider the possibility of a physiological and objective approach to our conscious behaviour as the crowning achievement of the human spirit and its ultimate triumph.

Physiology of Higher Nervous Activity

For these reasons it may be useful if we try to clear away some at least of the confusion surrounding these questions and to define what the physiology of higher nervous activity is—and what it is not.

First we must realize that the subject we are dealing with is a branch of the biological sciences and, particularly, a part of neurophysiology. It is an experimental science which, on the basis of the observation of certain physiological phenomena, attempts to draw conclusions regarding their physiological mechanism. It would be no more reasonable to doubt the validity of these conclusions than to doubt, for instance, the validity of the findings concerning the structure of chemical compounds arrived at by chemical experiments.

That, of course, does not rule out the possibility that our present assumptions concerning the cortical functions may prove erroneous and that we may have to revise them more or less in the light of subsequent knowledge. For it must be remembered that this study of the most complicated arrangement of organisms, the brain, is one of the utmost difficulty, and therefore, in Pavlov's phrase, "when you aim so high it is no disgrace to fail." In fact, it is certain that in the development of this science many of our concepts will be proved wrong and will have to be replaced. All such changes, however, must occur in the fire of experiment, on the basis of strictly relevant factual evidence, and certainly not as the result of barren and purely speculative disputes such as I have already described.

But while the direct evidence of the science of conditioned reflexes and the laws formulated on the basis of that evidence cannot be at the mercy of general philosophical disputations—though they can and must be liable to constant and the closest scientific scrutiny—the general question of the application of these laws to various phenomena of animal, including human, behaviour is another matter altogether.

The problem under consideration may be expressed in this way: whether the laws discovered in experiments on conditioned reflexes in animals can be applied to human cortical activity and whether even now all cortical activity can be explained in physiological terms, or whether those laws are, as yet, applicable only to the most elementary cortical phenomena and their extension to the whole field of higher nervous activity is at present impossible.

Pavlov's standpoint was not unequivocal. On the one hand, endowed as he was with a highly critical mind, he realized that his work was only the beginning of the physiological analysis of cortical activity, and that, as he put it "the mountain of the unknown will long remain enormously greater than the fragments we have managed to detach and study."

On the other hand, with the characteristic sweep of his genius he was always trying to embrace wide fields of phenomena both of animal and of human cortical activity and to subject them to physiological analysis, and he would often apply the laws discovered in his experiments to phenomena far removed from the material on which those laws were originally based.

Two Points of View

As I consider this point particularly important, I should like to examine it in greater detail. Up to now experiments in the field of higher nervous activity have been concerned almost exclusively with certain specific classes of phenomena, chiefly the elaboration of conditioned associations between various external stimuli and specific reflex activities such as alimentary activity, defence activity, and so on. In this way many important experimental results have been obtained and a number of laws governing higher nervous activity established.

If we take the view that these laws can be extended to all associations between various perceptions and experiences, and that associative function (both in the sense of the formation of associations and in the sense of their fading or inhibition) represents the only cortical activity of animal or man, then the simple conclusion is that conditioned reflexes are the elements of which all this activity is composed—in other words, to revert to Pavlov's figure

of speech, it suggests that we now know with reasonable certainty the substance of which the mountain of the unknown which looms before us is made.

If this were so, then the general scheme of cortical activity in both animal and man would be mastered, and our task would consist only in interpreting and deciphering the more complicated forms of behaviour and in reducing them to their most elementary terms.

The other viewpoint (which I am rather inclined to accept) is as follows. Experimental work on animals, as well as man, in the field of higher nervous activity concerns, as I have stressed, only some particular groups of relatively simple phenomena. And there is no doubt that these groups have already been physiologically analysed more or less thoroughly, or are in the process of being so analysed. Of course, it is extremely important, and very useful, to apply the knowledge we have gained in this work to the phenomena of everyday behaviour—not only of animals but also of children and adult human beings—and to foresee the effects of various experiences on individual behaviour and welfare. This, after all, is the same procedure as that followed by the physicist who, having discovered and analysed a particular phenomenon in the laboratory, tries later to recognize and identify it in the world outside the walls of his laboratory.

But just as a scientist of, say, Galileo's day would have erred in claiming that he understood why the sky is blue or what is the mechanism of lightning—and any explanation he might have offered would necessarily be inaccurate and pseudo-scientific—so, it seems to me, those physiologists are equally in error who maintain that they understand those very complex phenomena of our cortical activity which have not yet been submitted to physiological analysis. Thus, while it is unquestionably sound and useful to winnow out from our behaviour those facts which are susceptible of physiological study, and while we should try to explain from this standpoint as much of normal and pathological behaviour as possible, we must avoid giving pseudo-scientific explanations for those facts which have not, up to now, lent themselves to physiological interpretation. It seems to me that such "explanations" are all the more harmful because they give the impression that everything has been explained and made clear in a field where there is in fact still very much to be done.

If we accept this view, and try to place Pavlov in his historical perspective, I should say that his role can be compared with that of Lavoisier in chemistry and Galileo and Newton in physics.

Just as Lavoisier, and not the alchemists, pointed the way to modern chemistry, and Newton rather than Aristotle showed the way to Einstein and Rutherford, so, I believe, the work of Pavlov will prove to have opened up the true paths towards the objective investigation of animal behaviour, and he may well be regarded by future generations as the man who laid the permanent foundations of this vital branch of human knowledge.

His Work Compared with Other Lines of Approach

But now let us come back from the days of Newton and Lavoisier to our own time, and from physics and chemistry to neurophysiology, and let us see what is the position of the physiology of higher nervous activity in relation to other main lines of investigation of the central nervous functions, represented by two leading neurophysiologists of this country, Sir Charles Sherrington and Professor Adrian.

There is no great difficulty about comparing the Pavlovian line of research with Sherrington's. It is particularly interesting for the historian of science to note that, although Pavlov's research on conditioned reflexes and Sherrington's work on spinal reflexes were undertaken quite independently of each other, the approaches to their respective fields were the same. For both of them the concept of reflex action was the basis of their research, and both of them tried to deduce the central nervous mechanism of animal activity by applying well-defined stimuli or combinations of stimuli, and measuring the animal's responses to them. For both of them the organism was, so to speak, a highly complicated device capable of an extremely wide range of responses to an extremely wide range of stimuli They differed only in that, while Sherrington investigated the ready-made mechanisms of this device, Pavlov was concerned with those mechanisms which the experimenter himself had brought about. This far-reaching parallelism in their lines of investigation was of course not accidental, it arose from the fact that both of them had their roots in nineteenth-century biological materialism.

On the other hand, it is rather more difficult to draw a comparison between Pavlov's line of research and that of Adrian on the physiology of the brain. As is well known, Adrian's approach to the problems of brain physiology differs significantly from that of Pavlov. By means of modern electrophysiological methods which consist in recording action potentials in the brain, Adrian and all who follow him attack this organ, so to speak, in a *direct* way and try to discover what is going on in the brain during its activity. Adrian is therefore not concerned, as Pavlov was, with hypothetical mechanisms of the brain deduced from external responses of the animal, but deals with the brain activity itself as recorded in action potentials.

Here perhaps lie both the strength and the weakness of this approach. The strength consists in the fact that any scientist much prefers to deal with factual evidence than with even the most fully elaborated and attractive hypotheses and theories. The weakness lies in the fact that, owing to the high complexity of the organ and its function, the evidence we obtain is as yet largely unintelligible Indeed, so far, it represents nothing more than some fragments of a magnificent and extremely complicated mechanism, but we are still unable to find from these fragments how this mechanism functions.

I think that the following comparison might be helpful in suggesting the relation between Pavlov's and Sherrington's lines of research on the one hand and Adrian's on the other.

Imagine that our task is to discover what is going on in a certain huge and complicated secret factory without being provided with clues. On the one hand, we could do it by examining both the raw material supplied to the factory and the products delivered from it. If we were allowed to do this we might change the raw material in order to see what changes there would be in the products, or even destroy some parts of the plant in order to see how that would affect production From all this evidence we could form some idea how this factory works. Of course these conclusions would be only hypothetical, and must change according to our further knowledge of the factory. But, at the same time, in this way we could have a fair picture of what this factory was intended for. On the other hand, we could find a way into the factory and watch the machinery at work. This, one would imagine, would bring us nearer to a comprehension of the functioning of the plant, but as there would be no guide to explain to us the logic and sequence of the processes of production it might happen that we should be at a loss—seeing all the details but unable to understand the whole.

And so, it seems to me, genuine progress in our understanding of that most astonishing and perhaps also the

most mysterious of all mechanisms on earth, the brain, will be reached when these two lines of investigation, from outside and from inside, converge and coalesce—in other words, when we are able to express in Adrian's terms what is going on in the brain when the conditioned reflex is established or elicited and, vice versa, which behaviour patterns correspond to the particular patterns of brain activity recorded by particular action potentials.

Some Memories of Pavlov

I should like now to recall some of my memories of Pavlov from the time when I was working with him in the early 'thirties.

When anyone has achieved as much as Pavlov, and has left a legacy as significant both in scope and in ideas as his, we are naturally curious to know how and why he did it—to know what were the psycho-physiological qualities that made such achievements possible.

He is universally recognized, of course, as a genius. No one who had ever had the opportunity of meeting him could fail to be aware of it even without knowing who he was. And, what is more, that first impression did not fade when one came to know him better—as so often happens with the great of this world. After working under him for two years I still felt for him the same admiration he inspired when I first met him. If anything, that admiration had grown and become deeper. And others who worked with him have told me they had the same experience.

But merely to say he was a genius is to use an intellectual abbreviation, to give a rather too general idea of his achievements and of the impression he made on his contemporaries. For the word does nothing to explain how his work was done and in what particular qualities lay the secret of his unique position in his field.

His Surgical Skill

To begin with one of his most immediately striking qualities, I should like to remind you that he was a brilliant surgeon. Of this I have, unfortunately, only second-hand knowledge. By the time I came to work with him he had already given up performing operations. I have been told, however, that it was an extraordinary experience to watch him at work. His surgical precision, style, and unfailing certainty were fascinating. But it was far from easy to act as his assistant during an operation. For one thing, he operated mainly with his left hand, which made it extremely awkward for the assistant. (Pavlov, by the way, could use either hand with equal skill; he wrote, for example, with his right.) The other factor which made work with him difficult was his speed. Assistants simply could not keep pace with him. This was inclined to throw him into fits of temper which he could not conceal, and which made his unhappy assistants nervous at times to the point of sheer clumsiness. I have read in some memoirs of Pavlov that, once when he was demonstrating the rather complicated so-called "Pavlovian pouch" operation on the stomach in the presence of a foreign guest, the guest thought that Pavlov was still in the first stage of the operation when it was, in fact, almost finished.

Some idea of the surgical skill which he showed at the very beginning of his career may be gathered from the fact that the discovery of the secretory nerves of the pancreas had to wait many years for confirmation simply because no one succeeded in performing the necessary operation—although Pavlov himself demonstrated it quite frequently to his students.

To a physiologist surgical skill is, of course, of the utmost importance, because it enables him to bring his ideas to realization. We know definitely that many of Pavlov's achievements were due to his surgical technique, especially in the first stage of his research, when he was working on the digestive glands.

His Capacity for Work

Another important facet of his personality was his extraordinary capacity for work. At the height of his powers he was utterly tireless. The whole of the work carried on in his laboratories, where several dozen research workers were employed, was done not only under his direct control but also with his personal participation. He himself once said, "Up to the age of 75 I didn't know what it was to be tired"; and I am sure that this was not an overstatement, for he had no liking for exaggeration.

Then there was his astounding memory. I do not know whether, by the time I knew him, his powers of memory had been diminished at all by his age, but I do know that even then he had a better memory than any of the people who worked with him. He could remember not only the names and patronymics—according to the Russian custom (*imia i otchestvo*)—of all his present and past students (an achievement he liked to boast about from time to time) the names of the dogs used for experiments, and the particular experiment performed on each dog, but he also remembered practically everything he had ever heard. And, in any case, he certainly remembered everything he wanted to remember. He never made notes, but he never forgot to return records he had borrowed and had promised to bring back by a certain time, or to be present at an experiment he had promised to watch. I believe that he alone was capable of grasping the whole scope of the research work done by his school, and he stored in his memory an astonishing number of facts.

His Quality of Mind

But all these qualities, admirable and essential as they were for achievement of Pavlov's order, were not enough in themselves to determine the essential quality of his genius. There still remains something more, something extremely difficult to define, which, for want of a more exact word, we can only call "quality of mind." Pavlov's "mind" was extraordinarily rich and many-sided.

It is well known that the work done by his school was animated and guided by his thoughts and ideas—a fact which was always gratefully acknowledged by his pupils in their papers. And his own articles and lectures always bore the imprint of his personal concepts, hypotheses, and syntheses, some of which formed the basis for entirely new lines of investigation undertaken by his followers. And yet all this written material represents only a small part of what he had to say. The richness of his ideas, the quickness of his thought, his extraordinary vision and inventiveness—all this could be fully appreciated only by those who came in contact with him and had the opportunity of listening to him or talking with him. He was always ready for a discussion, and whenever he was not engaged in experiments he was prepared to talk over either problems closely connected with the experimental work of the laboratories, or more general questions such as the potential scope and practical applicability of the study of conditioned reflexes. Such discussions—an everyday feature of his laboratories—created a highly stimulating atmosphere for collective work, and gave everyone the

satisfaction of sharing in the work of the school as a whole.

Pavlov came upon his discoveries by the process which Newton so modestly described as "continuous thinking on a subject." The modesty of this definition may suggest that anybody who is prepared to exercise his mental faculties in "continuous thinking" may do so at will. This of course is not so, for continuous thinking on a subject is precisely that which many—if not most—people cannot do. In Pavlov's case I had the impression that thinking was something he just could not help doing—a passion which he could not resist. And this passion was fed because thinking came so easily to him, and was so fruitful in new ideas, that, to use his own term, it was constantly being "reinforced" by the positive results of his discoveries.

It was characteristic of Pavlov that he had no liking for unsolved problems and would rather find a temporary solution than no answer at all. It was indeed particularly interesting to follow the process by which he gradually modified and developed his ideas until they satisfied him. And here, if I may digress, I should like to recall an incident which I myself witnessed. One of Pavlov's collaborators, a woman of a rather not very critical mind, came once to ask him for an explanation in connexion with an experiment she was engaged on. Pavlov, busy at the time with something else, got rid of her with an obviously incorrect and even somewhat naive explanation. When, later, he was discussing her work with her, she quoted his "explanation." Pavlov was furious and demanded, "Who told you such rubbish?"—then roared with laughter when he learned that the "rubbish" was his own words.

Pavlov showed a great deal of elasticity in the formation of his concepts. He was ready to admit mistakes and to renounce ideas—even when they were well established or dear to him—if he suspected that they might be wrong. Even when he was fervently defending a certain concept and when it appeared he was professing it dogmatically, he never entirely suspended his faculty for self-criticism and even scepticism. He could see himself and his school with detachment and he was able to say that for certain problems "we are already too rusty" and that others would have to try to solve them. That was why he liked to see his pupils go their own ways and break away from the routine of the school. He knew how to give them wise encouragement, but he also knew how to subject them to sharp and vehement criticism. And so far as his school was concerned, he saw to it that all work published under its auspices remained in harmony with his teachings.

I remember a conference at which a well-known Soviet histologist attacked Pavlov's theory of cortical localization on the basis of recent histological evidence. Pavlov defended his theory with extraordinary energy, ruthlessly demolishing his opponent's arguments. It seemed as if he was as convinced as his audience that the counter-arguments he was putting forward were irrefutable. But those who knew him were certain that he would not forget his opponent's objections. And in fact, when at one of his weekly conferences Pavlov read a paper on conditioned reflexes (intended, I think, for an encyclopaedia) and was asked why he had omitted his theory of cortical localization, he replied that in this paper he wanted to deal only with things he was absolutely sure of, and did not think that theory sufficiently proved. And he proceeded to quote the histologist with whom he had argued so strongly.

This gift for self-criticism, combined with his creative powers, enabled him to see problems from so many aspects that all his scientific speculations had an air of uncommon wisdom. He had also a gift for plain, concise speaking enlivened with an enthusiasm which carried away his audiences, but he hated the use of words for their own sake or in order to secure a mere effect. Once he told one of his more loquacious assistants, "You are in the power of words." And even when I came to know him his speech was free from the repetitions characteristic of advanced years.

His natural charm, the love of scientific work which was radiated by his whole personality and infected others with his ardour, his wisdom and simplicity—all these qualities gave him a singular power over all who came into contact with him. And to these we must add a talent for teaching and a strong administrative sense which enabled him to co-ordinate the work of many collaborators in the one single, monumental achievement of his school.

Pavlov the Man

I have tried to touch on the most characteristic of those features of Pavlov's intellect and personality which, to my mind, made up his genius. I have no illusions about the fact that they are far from complete and that there are many facets of his complex personality which I have not mentioned. I also realize that the picture I have sketched of this great scientist may seem somewhat one-sided, for I have paid little attention to Pavlov the man. It would, I am afraid, have been quite impossible for me to do so. I should like only to add that of all the things I admired in him it was perhaps his humanity and simplicity that attracted me most. Those qualities manifested themselves in all he did—whether he was expressing doubt about his own attainments or glowing with enthusiasm and the dynamic faith of youth after having obtained some unexpected results, or whether he was giving way to his weaknesses, quarrelling and obstinately sticking to his point even when his error was obvious—only to admit his fault when he had cooled off.

Conclusion

I should like to finish by quoting extracts from Pavlov's message to young scientists—words which I think are of interest to us all, and which perhaps express his personality better than anything I can say.*

"What would I wish for the youth of my country who devote themselves to science? First of all—consistency. . . . I can never speak without emotion of this most important condition for fruitful scientific work. From the very beginning of your work train yourselves to be strictly systematic in amassing knowledge. Learn the A B Cs of science before attempting to ascend its heights. Never reach for the next step without having mastered the preceding one. Never attempt to cover up the gaps in your knowledge by even the most daring conjectures and hypotheses. No matter how the colourings of this bubble may please your eye, it will inevitably burst, leaving you with nothing but confusion. . . . Study, compare, and accumulate facts. No matter how perfect a bird's wing, it could never raise the bird aloft if it were not supported by air. Facts are the air of the scientist. Without them you will never be able to soar. Without them your 'theories' are useless efforts. Yet while studying, experimenting, observing, try not to stop only at the surface of facts. Do not become an archivist of facts. Try to penetrate the mystery of their origin. Seek persistently the laws governing them.

"Secondly, modesty. Never think that you already know everything. No matter in what high esteem you are held, always have the courage to say to yourself: 'I am ignorant.' Don't allow yourself to be overcome by pride. On account of pride you will be stubborn where it is necessary to be

*Translation of Horsley Gantt.

conciliatory; you will reject useful advice and friendly assistance; you will lose your sense of objectivity. In the group which I am called upon to direct, atmosphere is everything. We are all harnessed to one common cause, and everyone furthers it to the best of his strength and ability. Frequently we cannot distinguish what is mine and what is thine, but through this our common cause only gains.

"Thirdly, passion. Remember, science requires your whole life. Even if you had two lives to give it would still not be enough. Science demands of man effort and supreme passion. Be passionate in your work and in your quests. . . ."

PENICILLIN IN SUBACUTE BACTERIAL ENDOCARDITIS*

BY

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In February, 1945, 14 centres were appointed by the Medical Research Council to investigate the value of penicillin in subacute bacterial endocarditis. By March, 1946, 269 patients had been treated, and the results were reported in this *Journal* (Christie, 1948). These patients have been followed for a further two years, and, in addition, 139 new cases have been treated. From the more recent results it is clear that some recommendations made in the previous report must be revised.

Results of Investigation

By March, 1946, 58 previously untreated patients had received 500,000 units of penicillin daily for one month; four (7%) relapsed or died infected. Since then another series of 71 previously untreated patients have been treated by the same system of dosage, and 14 (20%) have relapsed or died infected (Table I). No reason has been found for

TABLE I.—*Patients Treated for 28 Days with Daily Dose of 500,000 Units. (No Patient had Previously Received Penicillin)*

	No. Treated	Died with Infection Apparently Controlled	Died with Infection Uncontrolled	Relapsed	"Cured"	Average Follow-up (Months)	Relapsed or Died Infected
Before March, 1946	58	25	3	1	29	43	7%
After March, 1946 ..	71	22	2	12*	35	20	20%
Total ..	129	47	5	13	64	30	14%

* One patient relapsed with the same organism after 1½ years.

the higher rate of relapse and uncontrolled infection in the second series—in fact, it may have been due to chance—but the therapeutic implication seems to be that the standard daily dosage should be greater than 500,000 units.

A closer relation between the sensitivity of the infecting organism and the results of treatment can now be shown (Table II). When the resistance of the organism does not exceed that of the standard Oxford staphylococcus the relapse rate after 500,000 units a day is low; with slightly more resistant organisms the relapse rate increases.

More recently 18 previously untreated patients have received 2,000,000 units daily for at least one month; none of these relapsed or died infected (Table III). In none was the resistance of the infecting organism more than twice that of the Oxford staphylococcus. Another 13 patients who had relapsed after previous treatment were given 2,000,000 units a day for at least one month (Table III). The infection was uncontrolled in four, but in all of these the coefficient of resistance of the infecting organism was at least 64. The infection in another patient was eliminated although the coefficient of resistance was 32

TABLE II.—*Comparison of Results of Treatment with Sensitivity of Organism to Penicillin. (Resistance Expressed as a Multiple of the Resistance of the Standard Oxford Staphylococcus.) All Patients Received 500,000 Units a Day for 28 Days. No Patient had Previously Received Penicillin*

Result of treatment	Coefficient of Resistance						Total
	1 or Less	–2	3–6	8–16	32 or More	Not Known	
Died controlled ..	23	6	4	2	—	12	47
Died uncontrolled ..	—	2	1	—	1	1	5
Relapsed	5*	3	2	—	3	—	13
"Cured"	33	12	4	2	—	13	64
Total ...	61	23	11	4	4	26	129
Relapsed or died infected	8%	22%	27%	0%	100%	4%	

* One patient relapsed with the same organism after 1½ years.

TABLE III.—*Patients Treated for 4 to 6 Weeks with a Daily Dose of 2,000,000 Units*

	No. Treated	Died with Infection Apparently Controlled	Died with Infection Uncontrolled	Relapsed	"Cured"	Average Follow-up (Months)	Relapsed or Died Infected
No previous treatment with penicillin	18	9	—	—	9	11	0%
Previously treated with penicillin	13	1	—	4	8	16½	31%

Revised System of Dosage.—These results indicate that a dose of 2,000,000 units of penicillin a day for four or six weeks is adequate in most cases. This dosage may be expected to cure the infection in nearly every patient when the coefficient of resistance of the infecting organism is not more than 4 or 8. The coefficient of resistance of the infecting organism is rarely over 8, but when it is there is a greater risk of relapse. The blood should be cultured several times both during and after treatment; if infection continues or recurs at least 10,000,000 units a day should be given. Very resistant organisms (i.e., those with a C.R of over 32) are unlikely to be controlled by fewer than 10,000,000 units a day, and may not respond to 40,000,000. Treatment with other antibiotics, alone or combined with penicillin, or the use of substances such as "caronamide," which delay the excretion of penicillin, have then to be considered.

Delayed Relapses and Reinfections.—In patients who relapse after treatment the blood culture becomes positive usually within 60 days. But in 14 patients infection recurred after periods ranging from 4 to 50 months, and in five of these the second infecting organism clearly differed from the first. Many patients have now been followed up for four years, and the incidence of delayed relapse or reinfection among them has been found to be about 2% per annum.

Bacteriologically Negative Cases.—Only the 408 patients with a positive blood culture have so far been considered, but reports of 35 patients with negative blood cultures have

*Report to the Medical Research Council on 408 patients treated in 14 centres appointed by the Penicillin Clinical Trials Committee.

been collected by six of the centres (Table IV). Three facts have been established: (*a*) with the comparatively small doses of penicillin used only 6 of 26 previously untreated patients were cured; (*b*) the fever returned or was not controlled in 11 of the 26 previously untreated cases; (*c*) in the 13 who died with uncontrolled fever, organisms were seen post mortem in the vegetations of 6. It is not known whether larger doses will produce better results, but it is

TABLE IV.—*Bacteriologically Negative Cases*

	Dosage	No. Treated	Died with Fever Controlled	Died with Fever Uncontrolled	Fever Returned	"Cured"
No previous treatment with penicillin	2,000,000 units for 1 month or more	2	2	—	—	—
	500,000 units for 1 month (approx.)	15	5	6	3	1
	250,000 units for 1 month (approx.)	7	2	1		4
	Unclassifiable	2		1		1
	Total	26	9	8	3	6
Previously treated with penicillin	2,000,000 units for 1 month or more	1		1		
	500,000 units for 1 month (approx.)	4	3	1		
	250,000 units for 1 month (approx.)	2		2		
	Unclassifiable	2	1	1		
	Total	9	4	5		

suggested that these patients should be given 2,000,000 units a day and that the dose should be increased if the clinical response is unsatisfactory. In view of the importance of establishing the coefficient of resistance of the infecting organism it is unwise to abandon blood cultures until at least three have proved negative. An anaerobic culture should always be included.

Factors Affecting Prognosis.—In general the recent results confirm the conclusions regarding prognosis and causes of death discussed in the previous report. A detailed analysis of these patients will be incorporated in a review of the subject which is now being prepared.

Conclusions

Patients with subacute bacterial endocarditis should be given at least 2,000,000 units of penicillin a day for a month or six weeks.

When the infecting organism is highly resistant to penicillin, or when it cannot be isolated, it is difficult to estimate the appropriate dose. Some factors involved in making this assessment are discussed.

The incidence of delayed relapse or reinfection is approximately 2% per annum.

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According to a report (B.U.P.) Dr. Robert Coghill, who played an important part in the development of penicillin mass-production, told a meeting of the American Chemical Society that, although 200 antibiotics had been investigated, only six have appeared on the market, and of these two are of limited use only. While the term "miracle drug" could legitimately be applied to penicillin, Dr. Coghill stated that the chief miracle in connexion with one or two currently used antibiotics would be if they were still in use in five years' time. He added, "The truth of the matter is, unfortunately, that the vast majority of antibiotics are for a variety of reasons utterly worthless for human therapy."

SUDDEN OBESITY AND PSYCHOLOGICAL TRAUMA

BY

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It has long been recognized that loss of weight can accompany psychotic and psychoneurotic illnesses such as depression and anorexia nervosa. Clinicians also meet atypical cases of depression in which there is an increase of weight, and this has been vaguely linked with endocrine disturbances, such as may occur at the female and male climacteric. This paper is concerned with a group of cases showing a sudden onset and rapid development of obesity, with or without amenorrhoea and menstrual disturbances, which gives rise to a syndrome of obesity, anxiety, tension, and depression.

The investigation first arose when it was observed that some obese patients who failed to respond satisfactorily to the usual methods of treatment dated their obesity and also some psychoneurotic symptoms to a specific incident that might well have inflicted psychological trauma. We found that too little attention had been paid to the emotional factors in the first instance, and the patients had been treated on an organic basis for long periods. We do not claim that the treatment pursued with this group is primarily aimed at reducing weight, but we have used it to alleviate the associated mental distress and have found that patients often show a parallel reduction of weight and become more amenable to accepted methods of treatment of obesity.

The problem of obesity has been extensively investigated by physiologists for many years, and no essential underlying disorder of metabolism has been convincingly demonstrated. Newburgh (1942) reviewed the subject and came to the conclusion that excessive intake of calories with reduced activity could account for almost every case. He explained the irregularity of loss of weight when on a strictly limited calorie intake as being due to fluid retention, and quoted an example that demonstrated this point clearly.

Effect of Lesions of the Hypothalamus

Lesions of the hypothalamus in animals in which the anterior lobe of the pituitary has either been removed or left intact result in obesity (Hetherington, 1943). This obesity does not, however, follow extensive damage to the hypophysis provided the hypothalamus is intact. These clear-cut experiments of Hetherington's have solved the controversy that has lasted for over 30 years between Fröhlich, who maintained that damage to the hypophysis was the necessary factor, and Erdheim, who believed the essential lesion must be in the hypothalamus. Animals that have had suitably placed lesions in the hypothalamus not only show an increase in appetite that accounts for their obesity in almost all instances, but the manner in which they eat their food changes from the normal habit of the species.

The appetite of the animals operated on is described as voracious, savage, or wolfish by various authors, and rats

that normally store their food and eat it by night will devour every morsel immediately it is dropped into their cage. The increased intake of food accounts for the increase in weight when the animal is fed *ad libitum*. But a small proportion of rats whose food is restricted show some minor increase in weight over the control animals, indicating that in them a mechanism other than increased intake is operating. This may be related to the change in feeding habits to which we have already referred, as Tepperman *et al.* (1943) have shown that normal rats will convert glucose into fat at an accelerated rate if the animals are trained to eat their normal 24-hour portion within a short time.

It has also been shown that rats with a hypothalamic lesion and hyperphagia had exceptionally high R.Q.s—well over unity during the absorption of glucose, indicating that most of the carbohydrates were being converted into fat. This phenomenon develops only gradually within the first week after operation (unlike the increase in appetite and the temperament changes, which can be observed almost before the animal is out of the anaesthetic), suggesting that it is the result of the altered feeding habit and hyperphagia. A marked change in temperament as well as in appetite has been observed in these animals, and they may become aggressive and savage.

The effect of emotions acting through the hypothalamus in man has been well demonstrated by Verney (1946) in his series of experiments on the action of the antidiuretic hormone of the posterior pituitary. He has shown that emotional stress, by acting on the hypothalamic nuclei, releases from the pituitary the antidiuretic substance, and has suggested that conditions associated with low sympathetic tone in man might be favourable to prolonged secretion of the substance. His experiments may explain the undoubted retention of fluid that is shown by many obese subjects who have no organic lesion of the hypothalamus but in whom emotional disturbances may have produced effects on the hypothalamic nuclei.

The enormous increase in appetite and very definite alteration in temperament and activity of animals with organic lesions of the hypothalamus may be in part mirrored by our patients through stimuli coming from the higher senses acting on the nuclei in the hypothalamus in a manner similar to that already demonstrated by Verney in his work on the supraoptic nucleus. Thus there is a background of evidence from careful physiological observations to account for our finding that violent emotional stress may result in rapidly developing obesity.

The following three cases are representative of the group we are studying.

Case 1

A woman aged 38 complained on admission to hospital in June, 1947, of rapid increase of weight and amenorrhoea since suffering a very severe shock in 1943, with a further increase in weight in 1944 after a narrow escape in a bomb incident. At the same time she complained of an inability to pass sufficient urine, difficulty in concentration, and poor memory. Her father died, aged 58, from coronary thrombosis and "urinary retention." He was a military bandsman, a strict disciplinarian, and short-tempered, and would beat his children. He taught them to hide their feelings. Her mother had a "cold temperament," would not accept her children's confidences, discouraged their emotion, but gave in to their wishes. There was little love between the parents, only duty. She had a lonely childhood and average schooling, and was always afraid of expressing any emotion. She was a student teacher till 18, then studied music and passed her L.R.A.M. For a while she earned her living as a piano-teacher and gave piano recitals. She married three times.

The first marriage, at 18, was to a man 14 years her senior, who was irresponsible, "too sexual for her immature years," and constantly in debt. He died 14 years ago. They had two children, a girl—a brilliant child who died in 1943 at the age of 13 from a sarcoma of buttock—and a boy, now aged 14. The second marriage was a failure, as her husband was impotent, had "brain storms," and led her a "shocking life." In order to keep the peace for her children's sake, she says, she had to shut out her emotions and give up piano-playing because it irritated him; and to be away from him as much as possible she joined the police force in 1939, as she was a tall, powerful woman brought up to appreciate discipline and order. This marriage was annulled after five years' misery. The third marriage, in 1945, was to a police sergeant. It was satisfactory at first, but she soon became frigid, and now feels socially and intellectually her husband's superior, although she loves him.

In 1943 she experienced a severe shock when told that her daughter had a sarcoma of buttock and had only a few months to live. "I showed no emotion. I did not feel any. I was dead." Her periods stopped and she was "mentally distressed and began to swell." She increased in weight from 12 to 19 st. (76.2 to 120.6 kg.). The amenorrhoea lasted three months, and after that she saw only a few spots. The child lay ill at home for months, and required frequent morphine injections. The patient stayed up with the child most of the night and then had to go on duty. She kept up appearances before the child, but also experienced strong feelings of guilt because of previous lack of affection for her.

In 1944 she experienced another severe trauma. While on duty alongside an escalator at Waterloo Station a flying bomb crashed near her and there were numerous casualties. She was blown over and then took part in the rescue work. Three weeks later she collapsed and was taken to hospital, where she had a rest for three months. After the bombing incident her weight increased from 19 to 20 st. (120.6 to 127 kg.). She was given stilboestrol injections and had a very scanty cyclical bleeding. Her emotional tone returned and she began to grieve for her daughter and reproach herself. She had to give up work after a few months and was investigated for a possible pituitary lesion at Guy's Hospital, but the findings were negative. Two years ago she began to receive regular injections of "neptal" and lost weight rapidly. With regular injections for two years her weight went down to 13 st. (82.5 kg.); but the effect diminished, and before admission to hospital she went up to 14 st. 8 lb. (92.5 kg.). She remained tense, felt confused and exhausted, and had not worked for over a year. There was an absence of libido.

On physical examination her weight was 14 st. 8 lb. and her obesity was of the simple type with normal feminine distribution. There were no signs of organic disease either in her endocrine or her cardiovascular system. The blood pressure was 140/80 and her urine contained no abnormal constituents.

On psychiatric examination she volunteered the information that her "inflated condition" depended on whether she was mentally relaxed or not, and said she was convinced that the mental illness caused the physical illness. She complained of a tight feeling in the head, but stated that she had taught herself to school and control herself, but it required a great effort. "I have often thought I require an emotional release."

She experienced considerable mental relief from a discussion of events and symptoms under sodium amytal narco-analysis. She was then abreacted under ether, the bombing incident supplying the starting-point of the abreaction. There was a violent emotional release as she re-enacted the scene, accompanied by piercing shrieks when she described the flying bomb coming down. An amnesia for events connected with the incident was uncovered, and she revealed the conflict at that time between her duty and her own and her child's safety—she could not decide whether to run for shelter when she heard the bomb. The day following the abreaction she said she felt entirely different; her mind felt clear, and she decided to resign from the police force in order to be "more feminine" to her remaining child. She also resumed her music-playing (she had not played at all since the start of her illness). The ether abreaction

was repeated twice, with further release of affect. When she left the hospital her weight had fallen to 13 st. without any dietary restriction, and she resumed her previous occupation of teaching music. A fortnight later she had a menstrual period which lasted three days, and she described this as the most normal she had had for four years.

This case of sudden onset of gross obesity with water retention and amenorrhoea, following a clear-cut psychological trauma and exacerbated by a second, illustrates the benefit that can be obtained by an abreaction of the precipitating events.

Case 2

A woman aged 30 complained in 1948 that she was very worried by her rapid increase in weight from 10 to 15 st. (63.5 to 95.3 kg.). This took place over a period of some months five years previously and followed the shock of the sudden death of her mother. There have been only minor fluctuations in weight since then.

At the first interview she stated that her father was a nervous, lonely, sanctimonious man who had had a nervous breakdown in the 1914–18 war. She was afraid of him because of his very violent temper and frequent quarrels with his wife. She was extremely fond of her mother, a hard-working woman who suffered from migraine and died from a cerebral haemorrhage at the age of 48. There is one brother, a medical student. The patient was a nervous child, a nail-biter, with fears of the dark. She had a normal schooling, mixed well, and did secretarial work before her marriage. Her characteristics are described as knowing her faults and liking to be the centre of interest. She married at the age of 21, and has daughters aged 7 and 2 and a son of 5. She claimed that the marriage was a happy one, although she had not experienced any sexual satisfaction and her husband frustrated her by the methods he adopted. Her health was good, but she had operations for uterine prolapse in 1946 and 1947.

In October, 1943, she was in a nursing-home awaiting tonsillectomy and was visited by her mother. The next day she was told of her mother's sudden death. "I always remember the shock. I could not believe it. I am always thinking of her. Even now I imagine I see mother." From this time she put on weight rapidly, was unable to reduce effectively despite numerous therapies, and felt very sensitive about her figure. She denied that she ate excessively, and alleged that dieting did not help her. She admitted that she had had a large appetite in the past. She also developed a troublesome itching rash on the inside of her legs and a pruritus ani which disturbed her sleep.

On physical examination her weight was 15 st. and her obesity was of the simple type, the chief excess of fat being on the buttocks (upper part) and on the abdomen. Her skin was soft and her body hair scanty. Her blood pressure was 160/100, and her urine contained no abnormal constituents. There was no evidence of any endocrine disorder. Her dietetic history showed that at this time she was taking a diet of approximately 2,500 calories, with an excess of carbohydrate.

On psychiatric examination she was tense and anxious. She felt lonely, frustrated, and tired, and experienced bad dreams in which she generally harmed her children. She complained that she screamed at the children and "could kill them." She was treated by sedation and a weekly series of ether abreactions which are set down here in some detail.

In the first treatment she described her aggressive feelings towards her second child (the obesity began eight months after this child's birth). The main emotional release, however, was over her mother, in whom, at this stage, she stated she had always confided. In the second abreaction the patient exhibited a good deal of rage when discussing her husband. He calls her "Tiny" and irritates her with his lack of understanding and complacency. She wished she were back to her schooldays, when she was known as "Starving Russia." In the third abreaction, after going over old ground, she suddenly abreacted violently over her mother's death and screamed, "What do they do at a post-mortem? The wounds do not heal like ordinary operation wounds." She regretted not having her mother cremated, and visualized her in a cold grave. The fourth abreaction was mainly over a comparison between her husband and her father, whom she hated, but this she denied as soon as she had expressed her loathing. She felt less tense after each treatment, and lost 10 lb. (4.5 kg.) in the 24 hours after the first, and had lost 1 st. (6.4 kg.) after four weeks without any attempt at dieting. She thought it was due largely to fluid loss. In the past, strict dieting had been a failure, and in any case she was unable to keep it up for any length of time. The irritating rash was ameliorating, and "although far more preoccupied with thoughts was also far more able to deal with them."

She began dreaming about her mother, and the fifth abreaction ranged over this and the post-mortem examination. The next abreaction was over an elderly spinster neighbour who had been dominating her for some time and referred to her as "my adopted daughter." She felt this woman had replaced her mother.

It is interesting to note that at this stage her attitude towards her mother was beginning to change. The ensuing abreactions were mainly concerned with her marital difficulties, guilt over recent masturbation, her ambivalent attitude towards her father and her husband, and general feelings of frustration and hostility.

From the eleventh abreaction she began to talk more freely about her mother, and at the fourteenth abreaction was showing resentment. She described her feeling of desolation and resentment when her mother suddenly left her in a boarding-school at the age of 7 and went abroad to her husband for two years. She also disclosed: "I was never allowed to have an opinion of my own." Her mother did not approve of her marriage and "bred deceit"—"sex was taboo, and I had to do everything underground." By the fourteenth abreaction she had lost 2 st. (12.7 kg.) in weight and was showing an appraisal of the situation regarding her mother. She was gradually freeing herself from the mother's dominating influence, and at the present time is continuing treatment.

Case 2 illustrates the unsatisfactory mother–child relationship often found in obese subjects. The trauma of the sudden breaking of this tie was sufficient to start off gross increase in weight. After a series of abreactions she was not only improved from the psychological standpoint but had lost 2 st in weight without any other form of treatment

Case 3

A woman aged 48 was first seen in March, 1946, when she complained principally of obesity, "blackouts," headaches, fits of depression, swollen ankles, and insomnia. She stated that her weight went up from 11 to 16 st. (69.8 to 101.6 kg.) after the birth of her last child in 1942. Her periods were regular up to 18 months ago, but she had had only three scanty ones in the past seven months.

Her father was a regular soldier and strict disciplinarian who would not allow her to answer back, and her mother is described as "very sweet." The patient, one of seven siblings, was brought up very strictly, knew nothing of sex or menstruation, and was ignorant on such matters at her marriage. She had an excellent school record and, apart from smallpox at the age of 5, had good health. After the death of her first husband, when she was 26, she trained as a mannequin because she loved clothes, and did exceptionally well as a freelance for several years, but in 1932 her second husband compelled her to give it up. He bought her two tobacconist shops, which she managed successfully till 1939. The business failed early in the war and she became an ambulance nurse, but since her last confinement she has worked as a housing officer and Civil Service clerk. When well she is said to be full of confidence, energetic, hard-working, capable, a good mixer, over-conscientious, meticulous, fastidiously clean, and gay with a strong libido.

Her first marriage, at 17, was a happy one and lasted nine years, when her husband died from pneumonia. There are three children of this marriage. The second marriage, five years later (1932), was a ghastly failure, and ended with the

husband's suicide in 1937. He was an aggressive psychopath, terribly jealous and possessive, and constantly threatened to murder her and commit suicide. He insisted on perverted sexual relations with her, drank heavily, beat her, and on several occasions tried to gas her. She had a depressive spell with "blackouts" and loss of weight for some months after his death, but soon recovered her old interests and married a third time in 1939.

The history of obesity dates from her confinement in 1942. She had toxaemia during pregnancy and underwent a prolonged induction of labour, during which she became very frightened and was convinced she was dying. In the puerperium she developed pneumonia and femoral thrombosis followed by emboli in the lungs and right kidney. At this time the hospital was bombed; windows were blown in around her, and she was carried into the corridor. She was a semi-invalid for 18 months after leaving hospital, gained 2 st. (12.7 kg.) in weight during the first year and steadily after, despite constant anxiety and numerous traumatic incidents occurring throughout the war. Her son was reported killed at Arnhem in 1944, but she later learned that he had become a prisoner of war and that he had advanced tuberculosis. Another son was torpedoed three times and is badly disabled, and she had to help support both sons. Her home was blasted four times. She also underwent numerous stress incidents while on ambulance duty during the raids and in the flying-bomb periods, but she continued to work most of the time. Two years ago, soon after the return of her glider-pilot son, she became worried, was afraid to be alone at night, felt that her husband was turning against her, and became depressed. She could not concentrate; she became forgetful, and complained of occipital headaches, dyspnoea on exertion, sleep-walking, frequency, and "blackouts" about once a fortnight. She also had transient unreality symptoms—"a blankness of mind and a feeling of walking on water."

On examination the obesity was simple in type and was most pronounced on the buttocks. The cardiovascular system and C.N.S. were normal. Her blood pressure was 120/70. Urine: n.a.d. She was very tense, anxious, depressed, and hypochondriacal. She had previously reduced from 16 st. to 14 st. 9 lb. (93 kg.) by diet, but on admission weighed 15 st. 1¼ lb. (96 kg.). She was taking a well-balanced diet of approximately 2,000 calories.

An intravenous sodium amytal narco-analysis was concerned with many distressing experiences, particularly in air-raids: in one flying-bomb incident she felt sure her young baby was killed. After the investigation she tended to dissociate. Some days later she abreacted under ether, and there was a violent emotional release with screaming and weeping. She had some amnesia for the flying-bomb incident, but knew she threw her baby under a falling chimney when she saw a bomb coming towards her. She wept freely after the abreaction and dissociated for about 15 minutes. She then asserted, "I feel a load off my mind," but was unable to explain this.

She remained in a tense state, and a week later again abreacted violently under ether. There was a most intense release of emotion when she described an attempted rape by her psychopathic second husband. He tore off her clothes and slashed her with a razor, demanding a child which she refused to give him. "He tore my inside out." The next day he threw himself under a tube train and she identified his mangled body. She confessed to feeling guilt and responsibility since then, as she had threatened, and wanted, to kill him. During the abreaction she showed great rage and desire to kill him, and finally dissociated. Later she continually returned for reassurance that she was not responsible for his death and wept freely.

A week later, under ether, she was again violent with fear, horror, and rage directed against her former husband. "I'll kill you," and "Go and kill yourself," were phrases frequently expressed. She reiterated that her former husband was a beast, wept, and dissociated.

Some days later, when interviewed, she said she could now talk about her former husband without feeling guilt. She also played the piano and sang, which she had not done for many years, and no longer felt that life was not worth living. Menstrual flooding occurred after six months' amenorrhoea, and it is of interest that she had a flooding lasting six weeks after her second husband's attack on her, and she linked this similarity with the severe abreaction over her husband.

As some tension persisted she was again abreacted a week later. This was even more violent than the others; she reached an extreme pitch of excitement to the point of exhaustion, and showed little tendency to dissociate after coming round. She wept for some time and described her husband's behaviour in much greater detail. For the first time she returned to the ward without assistance.

She was now much improved and no longer worried about her second husband, but soon after became preoccupied with the flying-bomb incident previously mentioned. It was decided to attempt to clarify that situation by further abreaction. She described working in her office one afternoon when a flying-bomb swished past the windows, which were then blown in, and a filing-cabinet fell on her. When she arrived home she heard the sirens again and rushed out to reach her baby playing in the garden. A flying-bomb came down, and she held her child against the wall of a shelter. The bomb hit a near-by factory and she could see a chimney-pot coming straight at her. She threw the child into the shelter and fell, and as she did so she believed the chimney had hit and killed the child. She lost the use of her limbs and "blacked out" momentarily, then heard the child cry and crawled to him. Immediately after this episode she became very hysterical and attacked her husband for not having been present. At this stage of her treatment she had lost 11 lb. (5 kg.) in weight without dieting, and, although much better, she remained mildly tense and preoccupied with the bombing incident and was abreacted a sixth time. Further details were clarified with good effect, and there was a marked easing of symptoms. She ceased to blame herself, was able to travel in a tube train for the first time since her husband's suicide in 1937, stopped sleep-walking, regained her former confidence, and continued to lose weight each week.

Case 3 is of special interest in that the patient failed to gain weight after numerous traumatic incidents connected with her psychopathic second husband: she actually lost weight after his terrible and sudden death—a circumstance that can reasonably be attributed to relief and loss of tension. The psychological trauma that actually led to a rapid increase in weight was the bombing of the hospital in which she was a patient suffering from pneumonia during the puerperium. The abreactions in her case did not centre round the actual precipitating trauma, as it was found that sufficient affect was released by the incidents she brought up spontaneously whilst under treatment.

Discussion

Psychosomatic studies of simple obesity (Weiss and English, 1943; Dunbar, 1943) suggest that it is an "organ neurosis," its manifestation depending on constitutional factors and pre-existing fears. Fenichel (1945) in a psychoanalytical approach to the subject also regards obesity as an organ neurosis. He stresses the basic importance of exhibitionistic and pre-oedipal mother conflicts. "Oral gratification" is emphasized by many authors: the individual remains emotionally immature and overeats from early childhood. Psychological investigators into obesity in childhood emphasize the factors of lack of parental love with prolonged over-protection of the child (Bruch, 1940; Bronstein *et al.*, 1942; Gastineau and Rynearson, 1947). As Bruch points out, the child may go in for the pleasures of food if it does not get the pleasure of love from its parents.

When an individual becomes obese for the first time in early adult life, oral gratification, as a result of latent conditioning, may again allay anxiety or conflicts. Schopbach and Matthews (1945) found that most of their cases had

emotional problems and tension which produced an urge to eat, and if the urge was not satisfied the tension would mount. Freed (1947), in a study of 500 obese patients, also found strong evidence that anything which increased emotional tone increased the appetite for food. Personality studies have been carried out by various workers (Rennie, 1940; Nicholson, 1946), and include patients who fail to respond to a dietetic regime. The practical result of such studies is the conviction that a psychotherapeutic approach is a useful treatment in these cases, and attempts have been made to resolve or ameliorate factors contributing to neurotic breakdown, such as family relations, environment, social and sexual maladjustments, prolonged tension, and insecurity.

There is little mention in the literature of the influence of severe emotional stimulation in the rapid production of obesity. Bruch (1940) quotes Lichtwitz (1923) as observing during and after the 1914–18 war rapidly developing obesity in women who had been under severe mental stress. Lützenkirchen (1924) described the case of a woman of 29 who developed adiposity, diabetes insipidus, genital atrophy, and amenorrhoea after serious psychic traumata of long duration. The condition was thought to be organic, but some success was achieved in treating the case along psychological lines alone. Hochman (1938) illustrated the relation between severe emotional stress, such as the shock of the death of a parent or a financial reverse, and overeating in six cases. Greene (1946) has recorded a fascinating example in which emotional stress led to obesity, and an improvement in the patient's circumstances was followed by a reduction in her weight without any other form of treatment, although she abandoned her diet. Gilbert-Dreyfus (1948) published a survey of a large series of cases suffering from "paradoxical obesity" as a result of bombing, prisoner-of-war, or concentration-camp experiences, the increase in weight usually taking place over some weeks. The incidence was almost exclusively in women, and the trunk and abdomen were the sites mainly affected. There was considered to be evidence of water–salt retention, and a few abbreviated case records and an outline of treatment were reported.

Our cases fall into a special category in that severe traumatic incidents seem to form the direct precipitant of sudden and marked simple obesity. The connexion between the obesity and this psychological trauma in time decided us to make use of abreactive techniques, the primary object of which is to relieve anxiety, tension, and aggression. The value of emotional release in "traumatic" anxiety states by excitatory abreaction and the technique employed under ether has been described in previous papers (Sargant and Shorvon, 1945; Shorvon and Sargant, 1947). The patient relives and re-experiences the original trauma, and, if the abreactions are successful, traumatic incidents tend to lose their emotional significance and thus cease to worry the patient. Though preferable, it is not necessarily essential to abreact the specific incident or range all over the traumatic incidents, and in practice we find that even an abreaction of a non-specific kind may produce symptomatic improvement providing the emotional release is of sufficient intensity. We have applied the technique of ether abreaction to many obese patients of the kind under discussion, and this will form the subject of another paper, but the cases quoted above are examples of the method and results. There is a symptomatic improvement with pronounced easing of anxiety and loss of weight of from 1 to 2 st. (6.35 to 12.7 kg.). The method has the advantage of being quicker and more practicable than prolonged psychotherapy, and certainly requires fewer interviews. Some psychotherapy, however, is essential, as the implantation of new ideas and reintegration of the abreacted patient are very important. There is reason to believe that patients treated in this manner are then more likely to be able to observe a strict diet if this is considered necessary, and drugs such as "dexedrine" (dextro-amphetamine) may be better tolerated.

A brief analysis of the clinical findings and case histories of 12 women suffering from this syndrome is of interest. Anxiety, tension, giddiness, aggression, irritability, and depression are symptoms common to all, and many show hysterical features, such as "blackouts" and "fainting turns." The majority had stern aggressive fathers and overindulgent, over-protective, kindly but "cold" mothers, and they were brought up in a strict fashion. All assert that before marriage they were almost completely ignorant of sexual matters. A good example is the patient who developed an anxiety state at the age of 23 after she had been kissed, as she believed pregnancy took place via the mouth. It is therefore hardly surprising that among an emotionally immature group of this kind many experience little or no satisfaction in their sexual relationship, and maladjusted marriages are common. The death of a mother, an undesired pregnancy, or the near-miss of a bomb explosion were the most frequent immediately preceding psychic trauma. Menstrual disturbances following the trauma occurred in some. One young woman still has a persistent amenorrhoea, although the precipitating incident occurred five years ago, but it is more common for patients to experience a temporary amenorrhoea of some months' duration.

In a personality assessment of this series we find certain traits common to practically all—namely, immaturity, impulsiveness, lability, and a poorly organized emotional life. They present a hysterical picture with a tendency to refuse to accept their inner urges or to express them in a satisfactory manner. Further personality studies, however, on control groups showing loss in weight are necessary if one is to get a clearer view why some patients put on weight rapidly under severe stress, whereas the majority appear to lose weight under similar circumstances.

Summary

The association between the sudden onset of simple obesity and severe psychiatric trauma is illustrated by three case histories taken from a larger series of cases.

A fairly uniform personality pattern in these cases is described.

The results of abreactive techniques in treatment are discussed, and it is suggested that they may provide a useful adjuvant or preliminary to the accepted forms of dietetic treatment in certain selected cases of obesity.

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UPPER-LIMB PAIN DUE TO LESIONS OF THE THORACIC OUTLET*

THE SCALENUS SYNDROME, CERVICAL RIB, AND COSTOCLAVICULAR COMPRESSION

BY

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Cunningham calls the upper opening of the thorax the inlet, the lower opening the outlet. It is assumed that we are referring to the upper opening, for there can be few if any lesions of the lower one which produce pain in the arm.

The Upper Opening of the Thorax.—The superior aperture of the thorax is a narrow opening which is bounded by the first dorsal vertebra, the first pair of costal arches, and the manubrium sterni. From it issue the great vessels and nerves to the upper limb, and interference with them at their egress by certain structures may cause pain of two kinds: that of neuralgia or neuritis, or that of ischaemia.

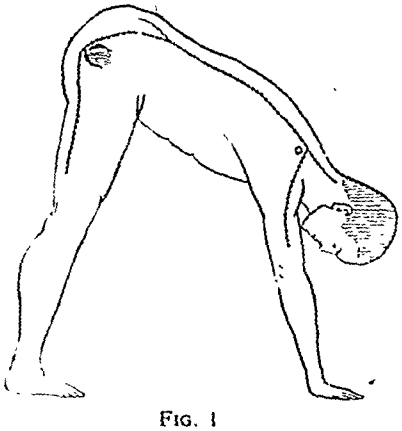


FIG. 1



FIG. 2

FIG. 1.—With the four limbs on the ground the nerve trunks of the limb plexuses enter the limbs approximately perpendicular to their origin and are neither acutely angled nor stretched.

FIG. 2.—With the assumption of the upright position the lowest of the nerve trunks of the forelimb plexus which leaves the thorax is angled acutely. The nerves to the lower limb pass almost vertically downwards and there is no tendency to angulation.

*Read in opening a discussion in the Section of Orthopaedics at the Annual Meeting of the British Medical Association, Harrogate, 1949.

Pain in the Upper Limb

Two questions to be answered are: (1) What structures may produce this interference and so cause this pain? and (2) Why are these painful conditions relatively common in the upper limb and uncommon or absent altogether in the lower limb?—because we now have definite evidence that sciatica, which of course is common enough, is not due to any lesion at the pelvic outlet but to a radiculitis that is usually the result of an intervertebral disk lesion.

Dealing with the second of these questions first, I suggest that it is man's upright posture combined with the great use of the forelimb when erect which causes the pain in the arm and accounts for its absence in the leg. As the erect position is assumed there is an angulation of the structures leaving the superior aperture of the thorax, so that they are readily stretched across any abnormal or at times even normal structure that may here form the boundary of the opening, whereas in the case of the lower limb the upright position undoes or opens out any such angulation of the neurovascular elements which enter the limb from the pelvis (Figs. 1 and 2).

Character of the Pain

Neural Pain.—This is usually of a tingling or stabbing character and of ulnar distribution. It is due to the lowest trunk of the brachial plexus being stretched over and/or compressed against (*a*) a cervical rib, (*b*) a fibrous band corresponding to a rib (Fig. 3), (*c*) the medial tendinous lower fibres of the scalenus medius (those arising from the seventh cervical transverse process), or (*d*) occasionally an abnormal scalene muscle (pleuralis of Sibson, intermedius of Testut, minimus of Albinus) lying between the artery and the nerve trunk.

The Scalenus Syndrome.—The part played by the scalenus anticus has been exaggerated, and simple division of this muscle may fail to relieve symptoms. The syndrome should be called the scalenus syndrome and not the scalenus anticus syndrome, as so frequently the scalenus medius (also the scalenus minimus less often) plays a part in its production. At operation it is essential to free the lowest trunk of the plexus from the rib, band, or tendinous scalene fibres over which it may be stretched. A frequent finding in these cases is an abnormal origin of the posterior scapular artery from the third part of the subclavian. The artery passes between the trunks of the plexus and tends to hold down the lowest trunk against the structure over which it is stretched (Fig. 4).

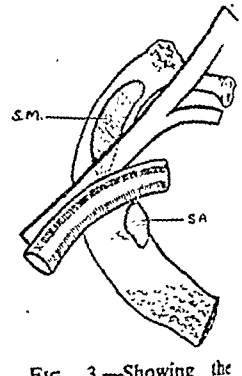


FIG. 3.—Showing the relationship of the lowest trunk of the brachial plexus to the lower medial tendinous fibres of the scalenus medius.

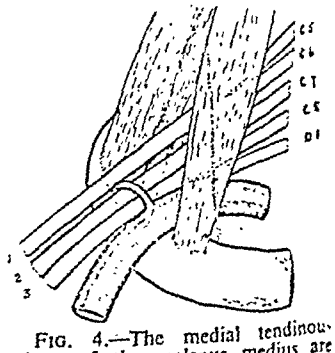


FIG. 4.—The medial tendinous fibres of the scalenus medius are shown and the abnormal posterior scapular artery arising from the third part of the subclavian and passing outwards and backwards between the trunks of the plexus so as to hold the lowest trunk against the subclavian artery.

Vascular Pain.—This is usually of a dull aching character, and is due to a relative ischaemia brought about by compression of the subclavian artery (the costoclavicular syndrome).

The Costoclavicular Syndrome.—Interference with the blood flow in the subclavian artery at the

thoracic opening is the consequence of the artery being compressed, when the arm is placed in certain positions, between the clavicle and either the first rib or a cervical rib. Elevation or depression of the shoulder may open out or diminish the space between the bones, according to the shape of the upper thoracic opening as modified by the abnormal rib (cervical or thoracic). While this is probably the explanation in most cases in which the syndrome is well developed, a minor degree of compression may be produced by the scalenus anticus, the artery being compressed between the contracted muscle in front and a rib or band or even the scalenus medius behind (Murphy, 1906; Wingate Todd, 1911).

An alternative hypothesis has been suggested by Wingate Todd (1913), Telford and Stopford (1930), and others, that irritation of the sympathetic fibres accompanying the lowest trunk of the brachial plexus may account for the vascular symptoms by inducing vasospasm, but there is little evidence in favour of this, and recently Sunderland (1948), of Melbourne, who has investigated the question by histological studies of the brachial plexus in some cases in which the syndrome had been present, finds no support for this view.

Other Aetiological Factors.—In addition to abnormalities of the upper thoracic opening, certain other factors may contribute to the appearance or the severity of either the scalene or the costoclavicular syndrome by leading to the depression of the shoulder girdle and thereby increasing the angulation of the issuing nerve trunk and artery. This may come about as the result of: (1) The dropping downwards and backwards of the shoulder girdle which takes place in late adolescence. (2) A downward pull on the shoulder as by a post-bag (Maddox, personal communication, 1946) or, as was seen early in the war when respirators were worn constantly, the respirator strap (Rogers, 1941a, 1941b). Long ago, de Quervain (quoted by Cushing, 1903) noted that rifle drill produced the syndrome in some young recruits, and even the direct pressure of a violin on the root of the neck has been productive of symptoms (Sheen, 1912). (3) Fatigue which may lead to an atonic condition of the supporting muscles of the shoulder girdle.

Diagnosis

Diagnosis is usually evident. A young person who has numbness and tingling in the hand and fingers and along the ulnar border of the forearm, aching around the shoulder girdle, and flattening of the thenar eminence, whose symptoms are relieved by elevating the arm, and whose radial pulse may be obliterated or diminished in volume by stretching the arm well above the head, presents a typical picture, particularly if the symptoms have developed in late adolescence, after losing weight, or after some unusual dragging on the arm or depression of the shoulder as in carrying a respirator. *X*-ray films may show the presence of cervical ribs or of large costal processes the ends of which are pointed and directed downwards and outwards. They may also indicate abnormalities of the thoracic inlet, and it must be remembered that the first rib may be the cause of symptoms in some cases. Sometimes the subclavian artery can be seen elevated in the supraclavicular triangle so that its pulsations are apparent and may even resemble those of an aneurysm.

Differential Diagnosis

The syndrome must be differentiated from ulnar neuritis, herniated cervical nucleus pulposus producing a radiculitis, and writers' cramp.

Ulnar Neuritis.—In ulnar neuritis (for example, a lesion at the elbow) there is no flattening of the thenar eminence except in a few rare cases of ulnar innervation of the thenar muscles (Highet, 1943), there is no shoulder pain, the lesion is strictly confined to ulnar territory, and relief does not follow abduction of the limb.

Cervical Disk Lesions.—In cervical disk lesions the disk involved is usually that between C5 and C6 or that between C6 or C7, so that the root affected is either C6 or C7. Pain is more intense in the shoulder region; ulnar-sided pain or tingling is not present in the forearm or in the hand, and symptoms usually appear at a later age. Radiology may show a narrowed disk space between the vertebrae. Elevating the head—pressing upwards below the mastoids—may relieve the pain during an attack, and further differentiation may be provided by the abduction test.

Writers' Cramp.—This has a hysterical background which is often elicited on cross-examination—e.g., it occurs only when writing Service or business letters and not when writing for pleasure, and there is an absence of the precise mechanical picture presented by the patient with a scalene syndrome.

The Abduction Test.—If the signs and symptoms are due to the scalene syndrome or a cervical rib they are produced by a chafing action of the lowest trunk of the brachial plexus over the rib or the band representing it. If the nerve trunk is therefore lifted off the rib or band and kept thus elevated, the condition is alleviated. This may be achieved by placing the arm at rest in abduction on an aeroplane splint and so maintaining it for a few days.

Treatment

Non-operative.—In early and mild cases relief may be obtained by splinting and rest followed by exercises designed to develop the elevating musculature of the shoulder girdle In more persistent cases, in which the abduction test has confirmed the presence of a chafing structure below the lowest trunk of the brachial plexus, operation is indicated

Operative.—This consists of exploration of the region of the lowest components of the brachial plexus and also the subclavian artery in its three parts. A straight incision running upwards and outwards across the root of the neck in a crease-line just above the clavicle gives adequate access If care is taken to free completely the artery from compression and the lower side of the nerve trunk from chafing or other irritation, the results of operation are excellent

Comment

The views here expressed are derived from my experience of 33 operations which in the past twelve years I have performed for the scalene syndrome or costoclavicular compression. Eight operations were performed for cervical rib, 25 for the scalene syndrome. These 33 operations represent 30 patients. Bilateral operations were performed in two—in the one case separated by an interval of four months, in the other by one of 11 years. These were both cases of scalene syndrome in which a second operation on the other side was requested because of the benefit obtained from the first operation. In another case I performed two operations on the same side because of a return of symptoms due to adhesions. Three other patients had been operated upon previously by other surgeons. In one a cervical rib had been removed on the left side, and as similar symptoms occurred on the opposite side she requested removal of the rib on that side also: the other two cases were recurrences due to the lower side of the lowest trunk of the plexus not having been freed from its source of irritation. Of my 30 patients, 17 were women, 13 men; their ages varied between 17 and 55. One patient, a man of 45, was in jeopardy with gangrene of his fingertips and a subclavian aneurysm due to the artery being damaged by costoclavicular compression. I resected the aneurysm and left the rib. He has been well and doing hard work in a motor garage for nine years since the operation.

Conclusion

The scalene syndrome is of commoner occurrence than cervical rib in producing pain in the upper limb, and when symptoms are persistent it is not enough merely to divide the scalenus anticus, because the lowest trunk of the brachial plexus may still be stretched over and from time to time chafed by an underlying rib or band, or by the medial and tendinous lower fibres of the scalenus medius or an abnormal scalene muscle. It is necessary to divide any such structure so as to free completely the lowest trunk of the plexus, exploration of which is therefore the indication and not merely anterior scalenotomy. Similarly, where the subclavian artery is elevated over and compressed between an abnormal rib behind and the scalenus anticus in front, the part of the abnormal rib lying below and behind the artery must be removed so that the vessel is free to sink down on to Sibson's fascia. Only if these principles are applied in operating on cases of pain in the upper limb due to lesions of the thoracic operculum may we expect results that are wholly satisfactory.

Summary

Pain in the upper limb due to lesions of the upper thoracic opening may be the result of compression of the subclavian artery (the costoclavicular syndrome), or irritation by a band, rib, the scalenus medius, or an abnormal scalene muscle of the lowest trunk of the brachial plexus stretched over it and compressed from in front by the scalenus anticus (the scalene syndrome).

Similar pain does not occur in the lower limb, because acute angulation of the nerve trunks leaving the pelvis does not occur as in the case of the neurovascular bundle leaving the thorax. This angulation in the case of the upper limb and its absence in the case of the lower limb is due to the upright posture.

Elevation of the limb to a right-angle will usually relieve symptoms, indicating that similar relief can be obtained from operation.

Operation is best performed through an incision above the clavicle crossing the posterior triangle of the neck.

Anterior scalenotomy is not enough. The under surface of the lowest trunk of the plexus must be cleared so that no further chafing action of this nerve trunk can occur.

I am indebted to my friend and colleague Mr. Cecil Lewis, F.R.C.S., for the accompanying drawings.

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THE COMPARATIVE MERITS OF SODIUM AND PROCAINE PENICILLIN GIVEN INFREQUENTLY

BY

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Penicillin is widely used in general practice and in the out-patient departments of hospitals for the treatment of acute staphylococcal infections of the skin and subcutaneous tissues, but as yet the dosage employed in different hospitals varies widely.

One school, of which the chief protagonist has been Eagle, believes that the aim should be to maintain a bactericidal level of penicillin in the blood, and hence in the tissues, continuously throughout treatment. This belief is based (Eagle, 1948) on the principle that the frequency of penicillin administration should depend on the generation-time of the micro-organism concerned. If too long a period after administration is allowed the blood will become free from penicillin and surviving organisms will be able to multiply. If this is permitted for only a brief period the effect of treatment will merely be counteracted in part; if, however, too long an interval is allowed the effect of treatment may be counteracted by the supervening multiplication of organisms. This view receives tacit support from the fairly general practice of treating out-patients with large doses of penicillin once or twice a day, and admitting to the wards serious cases, or those which do not improve, for treatment with three-hourly injections.

On the other hand, clinical reports in ever-increasing numbers suggest that penicillin given in large doses daily or twice daily is effective for staphylococcal infections.

For instance, Wheatley (1947) treated seven cases successfully, in six of which single daily doses of not more than 200,000 units of penicillin were employed. D'Abreu, Flood, and Hewitt (1947) and Barclay (1949) report some benefit from the use of spaced doses in the treatment of septic hands, although in the last group systemic penicillin was combined with local penicillin.

The object of this paper is to describe a clinical investigation in which acute septic infections of the skin and subcutaneous tissues, mainly staphylococcal, have been treated by one of two methods, the first designed to keep a low penicillin concentration in the blood throughout most of the 24 hours, the second to produce two high concentrations of penicillin in the 24 hours, allowing the blood to become free from penicillin during an appreciable part of that period. The opportunity has also been taken to make some general observations on the treatment of infections of this type.

Methods of Treatment

The first group of patients was given a single daily intramuscular injection of 300,000 units of procaine penicillin in arachis oil, an amount which has been shown to produce low concentrations throughout most of a 24-hour period

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The Scottish Society of the History of Medicine, which was founded in April, 1948, has just issued its first annual report. There are already 75 members of the Society, and it is hoped that this number will increase. The sixth meeting, and the first annual meeting of the society, was held in the council room of the University of Edinburgh on October 1, 1949. It took the form of a discussion on "The Teaching of the History of Medicine." The subject was introduced by the president, Dr. Douglas Guthrie, followed by Dr. W. D. D. Small, P.R.C.P.Ed., and Mr. Denys Hay, lecturer on history and director of studies in the Faculty of Arts. A large number of members took part in the discussion, and the honorary secretary, Dr. H. P. Tait, brought the meeting to an end with a brief review of the opinions which had been expressed.

in the majority of patients (Jones and Shooter, 1948): the second group received two intramuscular injections of 300,000 units of sodium penicillin in saline in the day. In the latter method penicillin was given when the patient was first seen, and subsequently between 9 and 10 o'clock in the morning and at 5 o'clock in the afternoon. In this way two high penicillin levels were produced each day and there was a total period of 8 to 14 hours in which no penicillin would be detectable in the blood. Both forms of treatment were continued for five days. In a small number of cases the treatment was continued for a few extra days.

A smaller group of patients, not included in the main series, was treated with 300,000 units of procaine penicillin in arachis oil with 2% aluminium stearate. These injections were given once every two days.

As local treatment, sodium sulphate (12½%) dressings and, in some cases, kaolin poultices were used, and immobilization of the affected part was advised. Lesions were incised only when necessary, with minimal incision. Boils and carbuncles were never so treated. In general it can be said that the local treatment in the two series followed exactly the same lines, without reference to the type of penicillin used.

All the patients were seen by one of us (E.G. or P.F.J.), usually at daily intervals, and never less frequently than once in three days. Clinical findings were recorded on a special form. As a rule swabs were taken from lesions before beginning treatment, but when the lesion was not open at the start it was swabbed as soon as possible after it had begun to discharge. Subsequent swabs were taken at five-day intervals until the lesions healed.

Conditions Treated

The patients treated were those attending the out-patient department of the hospital suffering from acute staphylococcal infections of the skin and subcutaneous tissues who required penicillin for treatment. Patients attending during the first month were allotted to the procaine penicillin series and those in the next month to the saline penicillin series, and this alternation was continued throughout the trial. In view of the ample evidence of the value of penicillin in the treatment of staphylococcal infections it was not considered justifiable to deprive patients of the antibiotic in order to provide a control series.

The types of infection treated are given in Table I.

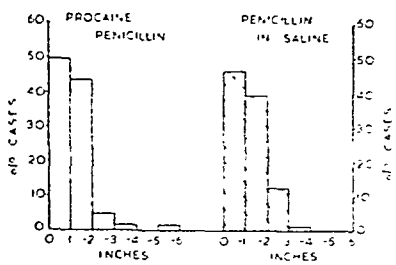
TABLE I.—*Types of Infection Treated (116 Patients in Each Group)*

Condition	Procaine Penicillin	Saline Penicillin	Total
Boils	32	23	55
Cellulitis	15	13	28
All carbuncles except dorsal finger carbuncles	23	25	48
Dorsal finger carbuncles	6	8	14
Other conditions	40	47	87
Total infections	116	116	232

Patients who took their discharge while under treatment were not included in either series; neither were those patients with infected burns, chronic osteomyelitis, and hand infections (other than dorsal finger carbuncles) who were treated with penicillin while this trial was in progress. The final category in Table I, "other conditions," included those lesions which were not numerous enough to form separate groups, and comprised such conditions as lymphadenitis, abscesses, and erysipelas.

Comparison of Lesions in the Two Groups

Dealing with such a heterogeneous collection of infections, it has been difficult to ensure that the two series of cases were comparable, and some lesions were included in one series which had no strict parallel in the other. In an attempt to compare lesions in the two series the approximate diameter or greater transverse measurement of the area of redness and induration was recorded. These findings, together with the time interval between the patient's noticing any abnormality and his attendance for treatment (time to treatment), are given in Table II. Fig. 1 shows diagrammatically the extent of induration. All three findings were not always recorded for each patient. In the table the means are based only on the patients for whom the findings were recorded.



EXTENT OF INDURATION

FIG. 1

TABLE II

	Mean Time to Treatment (Days)		Mean Redness (in.)		Mean Induration (in.)	
	Procaine Penicillin	Saline Penicillin	Procaine Penicillin	Saline Penicillin	Procaine Penicillin	Saline Penicillin
Boils	3·5	3·7	1·5	1·3	1·1	1·1
Cellulitis	6·7	4·1	2·6	2·9	1·3	1·6
Carbuncles of neck	7·1	7·9	1·7*	2·5	2·0*	2·1
All carbuncles except dorsal finger carbuncles	5·8	5·3	1·8	2·5	1·7	1·9
Dorsal finger carbuncles	6·0	3·9	1·8	1·7	1·2	1·0
Other conditions	4·8	4·6	2·1	2·1	1·6	1·4
All conditions	4·9	4·5	1·9	2·1	1·4	1·4

* *The apparent inconsistency shown here is due to the fact that for one patient with a large indurated area the redness was not recorded.*

Results of Treatment

As a criterion of the results of treatment, the time between onset of treatment and the relief of pain, and the healing time, which was defined as the time from the start of treatment to epithelization, have been taken. These times are given in Table III and diagrammatically for the individual groups of lesions in Fig. 2. Information was not recorded in every case, and the figures in parentheses indicate the number of cases on which the mean times were

TABLE III

	Mean Time to Relief of Pain (Hours)			Mean Healing Time (Days)		
	Procaine Penicillin	Saline Penicillin	All Cases	Procaine Penicillin	Saline Penicillin	All Cases
Boils	28 (19)	24 (17)	26 (36)	8·2 (29)	7·9 (21)	8·0 (50)
Cellulitis	35 (5)	24 (10)	27 (15)	8·4 (15)	7·3 (12)	7·9 (27)
Carbuncles of neck	—	39 (6)	38 (10)	13·1 (10)	12·3 (7)	12·8 (17)
All carbuncles except dorsal finger carbuncles	35 (9)	27 (22)	29 (31)	14·7 (22)	11·9 (23)	13·2 (45)
Dorsal finger carbuncles	28 (5)	19 (7)	23 (12)	12·0 (5)	12·3 (8)	12·2 (13)
Other conditions	28 (19)	27 (35)	27 (54)	8·9 (38)	7·5 (45)	8·1 (83)
All conditions	29 (57)	26 (91)	27 (148)	10·0 (109)	8·8 (109)	9·4 (218)

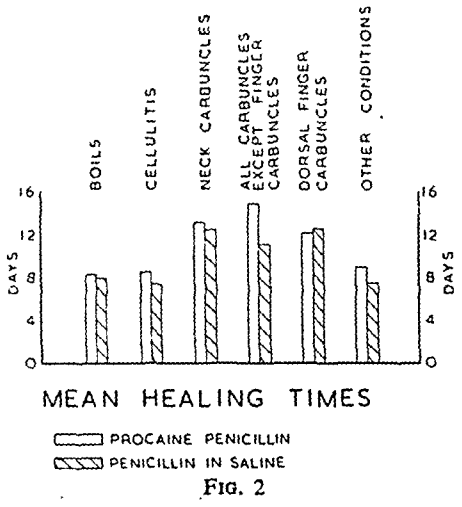


FIG. 2

based. Where this number was less than five no entry was made in the table.

There was an indication that the longer the period before the patient attended for treatment the longer was the healing time. Table IV gives the mean healing times for both series together, corresponding with days before patients sought treatment, where this information was recorded.

Two groups of lesions which responded similarly in both series merit further comment.

TABLE IV

Mean Time to Treatment (Days)	Number in Group	Mean Healing Time (Days)
−1	14	5·4
−2	43	7·6
−3	35	9·5
−4	22	10·2
−5	22	9·5
−6	16	9·8
−7	15	12·9
−14	20	13·0
14+	1	14·0

The correlation coefficient between mean time to treatment and mean healing time is 0·27, which is significant ($p < 0·05$).

Carbuncles

These have been among the most satisfactory infections to treat. In all cases treatment has been entirely conservative, and the relief of pain and toxaemia has been remarkable. Usually within two days, sometimes within hours, the surrounding area of redness disappeared and the induration softened. Finally, with separation of the slough the lesion was left as an area of healthy granulation tissue, with no reaction in the surrounding skin or connective tissue. Some carbuncles responded with exceptional speed and seemed to be completely absorbed, without slough formation. No complications of any kind were seen in this series.

Dorsal Finger Carbuncles.—The importance of the dorsum of the proximal phalanx as a site for carbuncular lesions seems to be insufficiently recognized. Donald (1948) and Pilcher *et al.* (1948) are among the few authors who specifically mention these lesions, which, we have found, are generally diagnosed as boils and sometimes treated by incision, with disappointing results. If not treated with penicillin they tend to pursue a chronic course and are apt to give rise to complications such as osteomyelitis, stiff finger, and tender scar (Pilcher *et al.*, 1948). No complications followed in the 14 cases treated.

Cases Treated with Procaine Penicillin and Aluminium Stearate

A small group of 24 patients was treated with 300,000 units of procaine penicillin in arachis oil with 2% aluminium stearate, this amount being given when the patient was first seen and repeated every two days. The infections treated comprised boils, carbuncles, and abscesses. Although in 22 of the patients amounts of penicillin which could be assayed were present in the blood towards the end of the first 24 hours of treatment, and in the blood of 10 of the 11 patients tested towards the end of the second 24 hours, the clinical response was unsatisfactory. After six of the 24 patients had been transferred to treatment with procaine penicillin with successful results no further patients were treated with procaine penicillin containing 2% aluminium stearate.

Bacteriology

All the swabs were sown direct on to horse-blood agar plates from which two cups had been cut with a cork-borer. After inoculation the cups were filled with 1 unit per ml. and 10 units per ml. of penicillin respectively. Staphylococci which after subculture from the primary plate coagulated plasma in a tube were described as *Staphylococcus pyogenes*. Penicillinase production was noted from the primary plate by the method described by Waterworth (1948).

The results of the swab examinations when organisms were grown are given in Table V.

TABLE V

Organisms Isolated from Initial Swabs	Cases
Staph. pyogenes, penicillin-sensitive	180
Staph. pyogenes, penicillin-resistant	13
Gram-negative bacilli	8
Haemolytic streptococci	11

Of the eight Gram-negative bacilli isolated, two proved to be *Proteus* and one *Ps. fluorescens*; six were not identified. Of the 11 haemolytic streptococci, only two occurred in the absence of *Staph. pyogenes*.

A further 231 swabs were examined from patients during the course of treatment, and four more Gram-negative bacilli were recovered which were not present in the initial swabs. One of these was *Proteus* and one *Bact. coli* (intermediate type II); two were not identified. From only one of these subsequent swabs were haemolytic streptococci isolated when they had been absent originally.

General Observations on Treatment

During the course of this investigation it was our impression that the cases in the two series were responding in much the same way, and this has been confirmed by statistical analysis, there being no significant difference between any of the groups in either series. The two series were tested for differences in mean (t) and differences in distribution (χ^2) in all groups. The apparent consistency with which the healing times for the saline penicillin series were shorter than the healing times for the procaine penicillin series, shown in Table III, was also shown not to be significant.

Three observations were made which had no bearing on the main course of the investigation, as the facts observed occurred in both series. The first was that when the pain was relieved it sometimes went very quickly—at one moment it was there and within half an hour it had almost entirely gone. The second observation was that in many cases the original purulent lesion was replaced by apparently healthy granulation tissue in a fairly short time, and it took as long again for this comparatively small area to be covered by epithelium. This was particularly noted in the boils and carbuncles, and accounted for a considerable part of the healing time.

Thirdly, it was interesting that in some of the lesions coagulase-positive staphylococci could be demonstrated

before and during treatment, persisting until the lesion healed; this persistence apparently did not influence clinical recovery.

Discussion

Judged by the results obtained in the two main series of cases it would appear that an equally satisfactory response can be obtained in the treatment of out-patients by the use of either daily injections of 300,000 units of procaine penicillin in arachis oil or twice-daily injections of 300,000 units of penicillin in saline. It would therefore seem that for treatment of infections of the kind described a continuous bactericidal level of penicillin in the blood is not necessary.

Our experience of the use of 300,000 units of procaine penicillin with 2% aluminium stearate was not extensive, but it appeared that while clinical improvement took place it did not occur as rapidly as in the patients treated with procaine penicillin or with penicillin in saline. This suggested that persistence in the blood had been obtained at the expense of adequate blood concentration. The preparation containing aluminium stearate may well provide excellent treatment for infections caused by more sensitive organisms than staphylococci, but for the treatment of staphylococcus infections there would seem to be a place for a preparation of procaine penicillin, with or without aluminium stearate, which also incorporated crystalline penicillin to provide a high initial blood concentration.

The number of cases with resistant staphylococci was too small to allow of their being placed in a separate group, and, although it would have been highly desirable, no comment can be made on the response of such cases to treatment with penicillin. At present the number of infections in out-patients due to penicillin-resistant staphylococci is small, but in view of the growing number of reports of the increasing proportion of resistant strains in hospital wards it is likely that these infections may in time present a serious problem.

The number of lesions in which Gram-negative bacilli were present was also small, and there was no evidence in this series of cases that infection with Gram-negative bacilli played any major part in delaying healing.

Summary

The results of a clinical investigation are presented in which 116 patients with acute septic infections of the skin and subcutaneous tissues, mainly staphylococcal, were treated with daily injections of 300,000 units of procaine penicillin and a similar number of patients were treated with twice-daily injections of 300,000 units of penicillin in saline.

No significant difference between the response to treatment of these two groups was detected.

We would like to thank Professor Sir James Paterson Ross and Professor L. P. Garrod for the advice and encouragement they have given us; Miss Deal, sister in charge of the surgery, and the nursing staff for their co-operation; and Miss M. Rhodes and Mr. R. Andrew for technical assistance. The procaine penicillin used was supplied by Messrs. Glaxo Laboratories, to whom we are indebted for the supply of procaine penicillin with 2% aluminium stearate.

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"NEO-EPININE" IN THE DYSPNOEA OF COAL-MINERS

BY

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The most outstanding symptom of the pneumoconiosis of coal-miners is dyspnoea. This symptom occurs in mild degree in the earliest stages of the disease, but progresses over a period of years to such an extent that it may wholly incapacitate. In the advanced stages of anthracosilicosis gross pulmonary fibrotic changes have taken place, and in order to compensate for such loss of healthy functioning lung tissue respiration is speeded up and therefore dyspnoea becomes marked. In the beginning, however, the breathlessness is more difficult to explain. It could be attributed to various factors such as early bronchitis, focal emphysema, the psychic outlook of the patient, or a possible bronchospasmodic effect of siliceous matter.

As it was considered probable that some of the dyspnoea might be due to bronchospasm, alone or associated with emphysema, it was decided to try the effect of the most potent modern bronchodilator available.

Konzett in 1940 described the pharmacological actions of homologues of adrenaline and noted that the isopropyl derivative had a powerful relaxing effect on bronchial muscle spasm. The relaxant power of this derivative was considered to be 10 times stronger than that of the parent substance adrenaline. Little or no clinical application of this knowledge was made in this country until last year, when Herxheimer (1948) recorded his favourable findings with "aleudrine" (isopropyl adrenaline) in cases of asthma, although satisfactory reports had been forthcoming in the intervening years from the Continent (Stolzenberger-Seidel, 1940; Quitschal, 1942) and the United States (Segal and Beakey, 1947: Charlier, 1947).

Present Investigation

In order to assess the merits of such a bronchodilator in this disease 58 colliers, all complaining of shortness of breath in some degree or other, were investigated. The preparation used in the experiment was isopropyl-noradrenaline sulphate, "neo-epinine" (Burroughs Wellcome and Co.), which is chemically *dl*-α-3 : 4-dihydroxyphenyl-β-isopropylaminoethanol sulphate, and which is known to have the therapeutic quality of enhancing vital capacity. The neo-epinine had for convenience to be used in tablet form, each tablet containing 20 mg. of the drug. Strict instructions were given regarding slow sublingual dissolution and the swallowing of as little saliva as possible. Inert tablets of exactly identical appearance were also supplied by Messrs. Burroughs Wellcome and were used in all cases for the first week of treatment and when it was thought that functional factors were clouding the issue.

Type of Case.—No special attempt was made to select any particular type of anthracosilicotic so far as age-grouping, radiographical grading, length of time in mines, etc., were concerned. The youngest man was 33 years old, the oldest 65, and the average age for the whole group 56.3 years. Radiographical grading, international classification (International Labour Office Studies and Reports, 1930), was: 29 showing partial distribution of linear shadowing and an early indication of nodulation (Ia), five more widespread shadowing (Ib), five generalized but still

discrete nodulation (Ic), and five increase in number and size of discrete shadows with a tendency to confluence (II). Those that could not be classified according to this standard were regarded as: emphysema, five; bronchitis, five; and negative, four. If, however, cardio-renal disease was thought to play any part in the development of the dyspnoea, then such patients were considered to be unsuitable for investigation. The criteria for the test were simply (1) that the man was or had been working in the coal-mines for many years, and (2) that his main complaint was shortness of breath which could be attributed to his work, no other cause being found.

Routine Adopted

At the first visit of the patient to hospital the following details were recorded: (*a*) careful medical and occupational history; (*b*) clinical examination; (*c*) urinanalysis; (*d*) Hb percentage, leucocyte count, erythrocyte sedimentation rate, sputum examination, blood urea, and electrocardiography if considered necessary; (*e*) vital capacity estimation; (*f*) *x*-ray examination.

It was at this time explained to the man that as his chief complaint was shortness of breath we were going to try to improve this by means of tablets, but that we would need his careful co-operation and he would be required to report back to hospital each week for a period of five or six weeks so that we might assess his progress. He was then given a seven-days supply of inert tablets, being told to take one three times a day, with the already noted injunction about slow sublingual melting. On the succeeding visits the patients were given a weekly supply of neo-epinine after the vital capacity had been recorded. It was considered that the study of the vital capacity would be the most valuable estimate of the effect of the drug. Especial care was taken on all occasions to allow each man plenty of time to explain exactly how he felt and what effect, if any, the new drug had on his breathing and general feeling of well-being.

Results

It was found, during the test period when the patients were having the inert tablets, that there was on the average a slight increase in the vital capacity but not such as could not be ruled out by experimental error. With neo-epinine, however, there was an actual average increase of 236 ml. Irrespective of vital-capacity estimations, the comments of the patients were interesting, as 44 admitted improvement, 11 considered that their condition was unchanged, and one said that he felt worse; two did not complete the test. The 44 who felt better were further classified according to their expressions of well-being: 17 were enthusiastic about the effect of treatment, another 17 said they were better but thought that they could still make more of it, while the remaining 10 thought that they had improved a little, though they still complained of symptoms such as shortness of breath on hurrying, ascending hills, etc.

As was to be expected, the commonest side-effect complained of with neo-epinine was palpitation; this, however, was always a transient feature, lasting only a matter of 10 to 15 minutes after taking the tablets. Other passing complaints were shakiness, giddiness, and flushing.

The inert tablets did not give rise to any untoward symptoms. It has to be noted that no attempt was made to vary the dose of the drug according to the severity of the dyspnoea, and whether or not any degree of tolerance arises with the use of this drug in such cases cannot at present be stated.

Summary

On the assumption that dyspnoea in the earliest stages of pneumoconiosis might be due to bronchospasm associated with focal emphysema it was considered desirable to try the effect of a bronchodilator. It was thought that the iso-propyl derivative of adrenaline, a powerful bronchial antispasmodic, might prove useful in these cases.

Fifty-eight colliers complaining of breathlessness were given inert tablets for one week, followed by *neo-epinine* tablets for four weeks. It was found that there was little or no difference in vital-capacity estimations with the inert tablets, but after *neo-epinine* had been taken for four weeks there was an average increase of 236 ml.

Forty-four of the men commented upon a feeling of improvement in varying degree while under treatment. Although there was an average increase in the vital capacity with this drug, it is realized that some of the improvement could be "spiritual," as in Fletcher's (1948) classic description of such cases.

Toxic effects of the drug are noted.

I am indebted to Dr. A. Fergus Hewat for kind co-operation and permission to establish an out-patient pneumoconiosis clinic attached to his wards; also to Professor D. M. Lyon for much helpful criticism of this paper.

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RECTAL HAEMORRHAGE ASSOCIATED WITH INFECTIOUS MONONUCLEOSIS

BY

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Rectal bleeding in the course of glandular fever is so rare an occurrence as to warrant a brief description.

Case Report

The patient, a man aged 34, gave no relevant previous history and had never manifested any haemorrhagic tendencies. He suffered a typical mild attack of glandular fever during which there was no jaundice or severe malaise and the temperature did not exceed 100° F. (37.8° C.) at any time. Generalized lymphadenopathy affecting the glands of the neck, axillae, and groins was first noticed on the fifth day, following an ill-defined influenza-like onset. On that day the patient sought medical advice at hospital, where a palpable spleen was found and the clinical diagnosis of infectious mononucleosis confirmed by a blood examination (see Table).

Subsequently the patient seemed to make a satisfactory recovery, becoming completely apyrexial on the seventh day and getting up for a short period during the ninth. However, later in the evening of that day, while micturating, he passed some bright, partly clotted blood per rectum. The bleeding was not profuse and could be stopped by rest, but it was immediately brought on again by straining such as passing urine or flatus. This condition persisted during the night and the following morning (the tenth day), when the patient presented

Laboratory Findings

	Day of Disease				2 Months after Clinical Recovery (55th Day)
	5th	10th	14th	23rd	
Erythrocytes (per c.mm.)	5,990,000	4,910,000	4,530,000	4,630,000	5,590,000
Haemoglobin (g.%)	16·6 (120%)	13·6 (98%)	12·4 (90%)	12·7 (92%)	15·5 (112%)
Colour index	1·00	1·00	0·99	0·99	1·00
Leucocytes (per c.mm.)	15,300	9,450	8,700	8,600	6,800
Polymorphs	19·0%	—	28·3%	37·25%	55·3%
Eosinophils	0%	—	1·0%	4·25%	4·7%
Basophils	0·3%	—	0·3%	0·5%	0·7%
Lymphocytes	38·7%	—	59·0%	43·75%	33·0%
Monocytes	31·7%	—	9·7%	14·25%	6·3%
Atypical "mononuclear cells"	10·3%	—	1·7%	0%	0%
Total mononuclear cells	80·7%	—	70·4%	58·0%	39·3%
Platelets (per c.mm.)	N	202,000	N	N	N
Prothrombin time		13 secs.			
Prothrombin time (normal control)		15 secs.			
Heterophile antibody (Davidsohn's technique)		1:448			

N = Normal in films.

himself at hospital and was admitted at once. An immediate sigmoidoscopy merely confirmed the occurrence of active bleeding from above the pile-bearing area of the rectum, but failed to locate an actual bleeding site.

Treatment was conservative and consisted of complete rest in bed, a strict ulcer diet, and 10 mg. of vitamin K three times a day. During the night following admission one motion consisting almost entirely of clotted blood was passed. From then onwards active bleeding stopped. Altered blood in diminishing quantities was present for two more days, after which the faeces became normal and clinical progress was rapid. It is estimated that the total blood loss sustained during the 36 hours of active though intermittent bleeding amounted to at least ½ pint (284 ml.).

On the fifteenth day sigmoidoscopy was repeated after proper medical preparation. The instrument was passed to 1 in. (2.5 cm.) beyond the pelvi-rectal junction, where faecal matter was encountered. A thorough search failed to show any abnormality of the rectum. Finally, a full radiological examination of the alimentary canal, including barium enema and "follow-through," was carried out, again without revealing any pathological condition.

The patient was discharged on the twenty-second day after the onset of symptoms. At that time the enlargement of the lymph glands and spleen had almost completely subsided. There has since been no recurrence of the bleeding, and the patient has remained well up to the time of writing—a period of over twelve months.

Discussion

Haemorrhagic manifestations varying from epistaxis to purpuric lesions are well recognized among the rarer complications of infectious mononucleosis (Tidy and Morley, 1921; Downey and McKinlay, 1923; Bernstein, 1940). However, rectal bleeding seems to be almost unknown. It is not mentioned in any of the current textbooks or in recent reviews (e.g., Contratto, 1944; Bethell, Sturgis, Rundles, and Meyers, 1946; Gardner and Paul, 1947). Only two instances were found in the literature. In 1934 Tidy made reference to the occurrence of "rectal haemorrhage with bright blood in a child" without giving any further details. Israëls (1937) reported recovery from a "single quite considerable haemorrhage from the rectum after defaecation" in a woman aged 21, but this particular case presented various unusual features and was further complicated by the fact that the patient was known to possess a definite bleeding tendency.

The association of rectal haemorrhage with the attack of glandular fever here recorded is suggestive though not conclusive, and no claim can be made that a definite causal relationship between them has been established. On the other hand, the patient gave no history of a haemorrhagic diathesis and has shown no signs of a recurrence since his recovery. Unfortunately, the bleeding and clotting times were not determined, but clinically there was no evidence of purpura, and the normal prothrombin and platelet findings go far to rule out the existence of a bleeding state. A very thorough search for alternative and more usual causes of intestinal haemorrhage was made by means of the sigmoidoscope and radiographs; there can be few pathological conditions (with the possible exception of a minute haemangioma or telangiectatic focus) that would escape detection when so investigated. There was no personal or family history of telangiectasis. Other rare factors like congenital diverticula can probably be excluded in view of the patient's age.

Summary

The occurrence of rectal haemorrhage during a mild bout of infectious mononucleosis was observed in a man aged 34.

The bleeding resulted in a loss of over half a pint of blood and was not accompanied by significant thrombocytopenia or hypoprothrombinaemia. Thorough investigation of the alimentary canal by sigmoidoscopy and radiographs revealed no pathological condition which might have accounted for the haemorrhage. Recovery was apparently complete, and there has been no recurrence of the bleeding for a period of more than twelve months.

We wish to thank Mr. B. N. Brooke, of the Department of Surgery, Queen Elizabeth Hospital, for his permission to publish this account and for access to the case notes.

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DISSECTING ANEURYSM OF THE AORTA SIMULATING EMBOLISM AT THE AORTIC BIFURCATION

BY

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The details of a fatal case of a dissecting aneurysm of the aorta are here recorded. At one stage an embolus near the aortic bifurcation was suspected, and during a phase of recovery coldness of the skin over an area proximal to the ankles persisted longer than coldness of the feet.

Case Report

A man aged 66 who had had a coronary thrombosis 15 years previously was seized with an agonizing pain round the upper abdomen and also low down in the back while chasing cattle. An hour later a severe pain developed in the left thigh and calf, followed in half an hour by similar pain in the right limb. He collapsed and could neither feel nor move his legs. Four hours after the onset of the illness the pulse was regular, the

blood pressure was 130/100 mm. Hg, and auscultation of the heart did not reveal any abnormality.

Left Lower Limb.—The colour was normal, active movement was present only in the left great toe, the left common femoral pulse was present though small in volume, but the posterior tibial and dorsalis pedis pulses were absent. The skin was anaesthetic as far up as the lower abdomen and was cold from the knee downwards. The knee and ankle reflexes were absent.

Right Lower Limb.—The leg was pale from the knee downwards; there were no active movements and the common femoral pulse was absent. The skin was anaesthetic as far up as the middle third of the thigh and was cold from the knee downwards. The reflexes were absent.

Five hours after the onset of the illness there was no change in the right limb, while in the left full movement had returned and the only abnormalities were absence of the posterior tibial and dorsalis pedis pulses and coldness of the skin below the mid-shin, including the foot. Two hours later the skin above the left ankle was still cold, while the thigh and foot were warm. There had been full recovery of movement in the right limb, and the common femoral pulse was now present and was larger in volume than the left; coldness was found on the dorsum of the foot and as far as the knee, while the toes were warm. Oscillometer readings were as follows:

	Thigh		Calf	
	Right	Left	Right	Left
180 mm. Hg	3½	1	2½	½
160 „ „	5	1	4	½
140 „ „	5½	1½	5	½
120 „ „	5	2	6	½
100 „ „	4½	1½	6	1½
80 „ „	3	1	5	1½

The areas of coldness showed no further change until 14 hours after the onset, when the whole of the right foot was warm, but coldness of the skin above each ankle remained for several hours longer.

The following day the limbs were normal except for the difference in common femoral pulsation. The blood pressure had risen to 260/140, but the patient was cyanosed and breathless, and he died 48 hours after the onset of the illness.

Limited Necropsy.—A dissecting aneurysm started in the first part of the aorta, involved the abdominal aorta, and extended as far down as the middle of the right common iliac artery. There was a large atheromatous plaque in the right common iliac artery at the same level as the lower margin of the extravasated blood. The left common iliac artery was normal. The dissecting aneurysm extended about one-third of the way round the ascending part of the aorta and a quarter of the way round the right common iliac artery. There was a large collection of blood in the pericardium and of blood-stained fluid in the left pleura.

A large fibrotic area was present in the mid-posterior zone of the heart, due to an old coronary thrombosis, and there was advanced coronary atheroma, particularly of the anterior descending branch. No evidence of a recent infarct was found. The middle of the aorta and the femoral arteries were not examined.

Discussion

The difficulty in diagnosis of the vascular cause of sudden pain and paralysis in a limb is the element of arterial spasm which may occur both in embolus and in dissecting aneurysm; a dissecting aneurysm may also directly interfere with the blood supply of the spinal cord. The only constant findings in embolus are absence of the peripheral pulse, lowered surface temperature, and pallor (Allen, Barker, and Hines, 1946). The initial physical signs suggested an embolus completely blocking the right common iliac artery and partially blocking the left, but the fact that symptoms on the left preceded those on the right by half an hour made this unlikely, and rapid and marked improvement of the condition of the limbs finally excluded embolus and ischaemia of the cord.

The changes in the surface temperatures over different parts of the lower limbs merit emphasis. In both limbs the last area of skin to warm up was not over the foot but over the area surrounding the leg just above the ankle. This area remained cold for some hours while the foot and calf were warm. Dr. John Homans told one of us (H.S.S.) that it was not uncommon after anaesthetizing the lumbar sympathetic ganglia to find the first area in the limb to warm up is behind and above the malleoli, a reaction which takes place well in advance of the temperature changes in the toes. The delayed vasodilatation in the area of skin proximal to the ankle in this case and the early vasodilatation in the same area following lumbar sympathetic block point to a peculiarity in the arteriolar pattern which may be related to the formation at this site of ulcers that are variously labelled varicose, post-phlebitic, or gravitational.

Summary

In a case of dissecting aneurysm of the aorta there was marked spasm of the lower limb arteries, with coldness and paralysis of the legs simulating embolism at the aortic bifurcation. In the recovery phase the last portion of the skin in each leg to become warm was a localized area of the skin just above the ankle. It is suggested that there may be an exceptional vascular arrangement at this site, possibly related to the occurrence of ulcers of the legs.

We are grateful to Dr. G. F. Fowler and Dr. C. V. Light for their help with this case.

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Medical Memoranda

Case of Erysipeloid of Rosenbach Treated with Penicillin

Infection of human beings with *Erysipelothrix rhusiopathiae* is by no means common. It is, however, to illustrate the response of this infection to penicillin therapy that the following case is described. Few cases treated with penicillin have been recorded in this country; Barber, Nellen, and Zoob (1946) reported five cases, all of which responded well to penicillin. In America three cases have been reported (Ehrlich, 1946; Ferguson *et al.*, 1947; Stiles, 1947). All these cases showed a rapid response to penicillin. The progress of the disease untreated is slow and may be anything from one to five weeks, during which time complications may arise. Other treatment is of little or no value: the organism is not sensitive to sulphonamides, and serum therapy is uncertain and often gives rise to severe reactions.

Case Report

The patient, a man aged 34, is a veterinary surgeon engaged on research. Two days before attending he had been dissecting turkeys which had died of *Erysipelothrix rhusiopathiae* infections and from which the organisms had been cultured. During the dissection, not wearing gloves, he pricked himself on the left thumb. He presented with a typical lesion in that region. The skin over an area about 1 in. (2.5 cm.) in diameter was red, raised, and shiny, and the edge was sharply demarcated. Pruritus was marked and there was considerable pain and throbbing. Axillary adenitis was present, but there was no lymphangitis.

The arm was put in a sling and kaolin poultices were applied. Penicillin sodium, 100,000 units intramuscularly, was given twice daily. The improvement in 24 hours was marked, and in 48 hours the thumb appeared normal. The patient defaulted after five injections, however, and attended again two days later. The lesion then measured 2 by 1¼ in. (5 by 3.75 cm.): it was extremely painful and typical of the condition. Both lymphadenitis and lymphangitis were present.

Penicillin therapy was restarted, the dosage being increased to 250,000 units intramuscularly twice daily. In 48 hours there was a great improvement, and in 72 hours there was only a small area of erythema and no induration. Penicillin was continued for a further four days, after which the lesion had completely subsided.

Comment

The diagnosis was quite definite clinically in view of the history, the typical incubation period of two days, and the typical lesion. Demonstration of the organism requires biopsy, which was not considered justifiable. There were a dramatic response to penicillin, a rapid recurrence after inadequate therapy, and a further rapid response on restarting treatment. The appearance of the disease in turkeys is most unusual and has not been reported in this country before. The organism may therefore have been a particularly virulent one. It was shown, however, to be penicillin-sensitive on culture.

The case demonstrates a rapid response to penicillin in a case of erysipeloid, and the need for full doses of penicillin for an adequate period.

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Imperforate Anus and Congenital Rectal Fistulae

Imperforate anus is said to occur once in every five or six thousand births; it is complicated by recto-urethral or recto-vaginal fistula about once in every 50,000 births.

Imperforate Anus

This condition may vary from a simple membranous occlusion to a large gap which it is difficult to bridge by surgery.

Case 1.—A male European child aged 12 hours was referred to me as a case of imperforate anus. On examination it was seen that although the anal depression was present the anal passage was not patent. A bulging membrane occluded the canal. This membrane was incised and faeces immediately poured out. Dilators were passed to complete the opening. This case was simply a failure of the anal membrane to disappear. It is probably the commonest form of imperforate anus and is certainly the simplest to relieve.

Case 2.—A female Tamil child aged 12 hours. The child had vomited, and the mother said there had been no bowel movement since birth. On examination there was a normal anus; the anal canal admitted a probe for a distance of half an inch (1.25 cm.) and was then stopped by a membrane. *Operation:*—An attempt was made to rupture the membrane with a myringotomy knife. No faeces appeared. A perineal opening was then made, but there was no sign of the rectum. A lower midline laparotomy was performed, and it was seen that the rectum ended at the upper end of the sacrum. There appeared to be no opening in the pelvic floor for the bowel. Working from above and below, a loop of sigmoid colon was brought through an opening made in the posterior pelvic floor. The loop of colon was opened and stitched to the dilated anal canal, the upper end of which had been cut to receive it. The abdominal incision was then closed. The child recovered without incident.

Imperforate Anus With Fistula Formation

Case 3.—A male Malay child aged one and half months. Since birth both urine and faeces were passed through an opening at the peno-scrotal junction. There was no sign of an anus. *Operation:*—A small probe was passed into the sinus. A midline perineal incision about 1 in. (2.5 cm.) long was then made back to the tip of the coccyx. This incision was deepened. By feeling for the probe the fistulous track was found and the rectum searched for. It was found to end about 1¼ in. (3.75 cm.) above the perineal skin surface and could not be drawn down. An opening was made in the lowest part of the rectum and a piece of soft rubber catheter tied in and brought through the perineal opening. The sinus was not ligated. Finally, a drain was put in just in front of the coccyx. The child passed a little faeces through the perineal drain for a few days, but this stopped and the fistula once again acted as a cloaca. It was decided to leave further attempts at closure until the child is old enough to stand the extensive procedures involved.

This case was due to failure of the urorectal septum to unite completely; the paramesonephric ducts were also involved. It is notable that the penile urethra was found to be patent. The case shows well the difficulty in treating high rectal occlusion. It would have been impossible even to open the rectum if the peritoneum had been traversed. A perineal anus could probably be made for this child at a later date by using pelvic colon, as it is unlikely that the rectum could be brought down. The remaining problem is that of sphincter function: should one make a perineal anus which may be uncontrollable?

Case 4.—A female Malay child of 5 months. Examination showed a perforate hymen and an opening in the posterior vaginal wall in the midline. Faeces were seen to come from this opening, and the mother stated this had been occurring since birth. *Operation:*—A midline perineal incision was made. The blind end of the rectum was found about ¾ in. (1.9 cm.) above the skin level. It was easily brought down and opened. The edges of the opening were stitched to the edges of the perineal incision. This child ceased to pass faeces into the vagina 48 hours after operation, although the fistula was not ligated.

The embryological fault here was an opening in the urorectal septum which also penetrated the paramesonephric ducts. This operation was completely successful, but as no evidence of a sphincter was seen it is doubtful if there will be a reasonable degree of control. According to Keith (1908) there is always an anal sphincter muscle present in cases of imperforate anus. This may be so, but it was not found in Cases 3 or 4, although it was present in Case 1. From the practical viewpoint it seems unlikely that there will be useful sphincteric action of the anus in the more severe degrees of maldevelopment. It is interesting to note that in neither of the cases with fistula was there any evidence of infection.

This paper is published by permission of the Director of Medical Services, Malaya.

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Reference

Keith, A. (1908). *British Medical Journal*, **1**, 1736.

In the 10-year period 1939–48 there were 12 cases of chronic benzene poisoning with 8 deaths, and 20 cases of toxic anaemia due to benzene with 5 deaths, reported to the Chief Inspector of Factories. Over the same period there were 519 gassing accidents with 31 deaths caused by substances in use as industrial solvents. These and other figures were discussed by Dr. A. J. Amor, president of the Association of Industrial Medical Officers, in a paper read at the Chemical Works Safety Conference which was held at Scarborough from October 7 to October 9. Other subjects discussed at the conference were the installation and maintenance of breathing apparatus and training in its use, and the types of electrical apparatus permissible for use in hazardous atmospheres.

Reviews

LIVER DISEASE

Diseases of the Liver, Gallbladder, and Bile Ducts. By S. S. Lichtman, M.D., F.A.C.P. 2nd ed. (Pp. 1,135; 147 illustrations and 2 plates in colour. £4 10s.) London: Henry Kimpton. 1949.

I confess to a weakness for medical monographs, and in this branch of literature the Americans have us beaten. These monographs are invaluable to the teacher of medicine and to the physician who wishes to expand his knowledge and take an intelligent interest in his cases. Samuel Johnson said, "A man may write at any time if he sets himself doggedly to do it," but how many potential authors would have sufficient doggedness to achieve a work of this character?

The first 120 pages of the book are concerned with the anatomy and physiology of the liver, and contain an interesting account of vitamin manufacture and storage in this organ. The author continues with a discussion of the pathogenesis and pathology of jaundice and the symptoms and signs of liver disease. That important and debatable subject, testing the liver function, occupies the next 113 pages. The usual objection put forward to these tests is that the reserve power of the liver is so great that four-fifths of its substance can be destroyed before any impairment of function is detectable. The author counters this and other criticisms, dismisses them, and emphasizes the importance of selecting suitable tests for the clinical problem in hand. In this chapter the reader who is not familiar with the subject will receive a good impression of the help to be obtained from properly selected tests in estimating the type and degree of liver damage, following the course of the disease, and estimating pre-operative risks.

The recent work on infective hepatitis is described in detail, and the mode of action of liver poisons is elucidated by an account of experiments involving nutritional deficiency and protective dietary factors. There is a good chapter on cirrhosis of the liver and the beneficial effects of high protein and high carbohydrate diets with methionine and vitamins A and B. These methods have improved the outlook in cases of cirrhosis accompanied by ascites. The reader will be able to familiarize himself with the various surgical procedures for the relief of portal hypertension and ascites, some of which involve the formation of portacaval venous shunts. In the last 100 pages is a discussion of the gall-bladder and bile ducts.

This book provides answers to most of our questions, although we may not necessarily agree with them. It is interesting to inquire what has happened to our old friends—catarrhal jaundice seems to be dead, although I am reluctant to believe the news; Hanot's cirrhosis still survives, despite the doubts cast on its existence by writers in this country during the last twenty years; xanthopsia is considered to be due to the presence of bile pigment in the ocular fluids when there is a high blood concentration. This does not accord with the clinical experience that xanthopsia very rarely occurs even in cases of intense jaundice, and that it is often transient, lasting only for a few minutes or less.

The book is well produced, the illustrations are of a high standard, and the text is documented by nearly 5,000 references. There is no sting in the tail of this review. I have nothing but praise for this excellent monograph.

G. E. Beaumont.

ALLERGY

Progress in Allergy. Edited by Paul Kallos. Volume 2. (Pp. 356; 50 figures. 36 Swiss francs.) Basle: S. Karger. 1949.

This book is an informative and stimulating symposium of recent work on allergy, and includes articles by many of the leading workers in the subject. Like its predecessor, published in 1939, it is edited by Paul Kallos. Some chapters are concerned with the practical aspects of clinical allergy, but the majority, including some of the best sections, are more academic studies dealing with antigen-antibody mechanisms and the pathogenesis of various allergic manifestations. Most of the articles are in English, but two, concerned with the pharmacology (Meier and Bucher) and the therapeutic value of antihistamine drugs (Kallos and Kallos-Deffner), are in German.

E. A. Kabat gives an excellent review of recent immunochemical work, including a description of the way in which this branch of biochemistry has been employed in the study of human viruses, in establishing the purity and homogeneity of antigens and antibodies, and in measuring antibody formation in response to bacterial and non-bacterial antigens. Professor Haxtausen contributes an illuminating chapter on allergy in diseases of the skin. He faces up to a number of incongruities which make it difficult to assess the importance of allergy in skin diseases. Thus it is well recognized that skin tests are of little value in urticaria, even when food sensitivity is suspected on clinical grounds, and this in spite of the fact that the reaction caused by percutaneous tests is identical with the naturally occurring eruption. It is suggested that this discrepancy may occur because the antigen is a breakdown product of digestion and not the unaltered food itself. Again, in Besnier's prurigo it is odd that percutaneous tests often give positive reactions of urticarial type, whereas patch tests with the same antigen are negative. The author suggests that the initial antigen-antibody reaction causes itching and that the characteristic eczematous lesions are secondary to the effect of scratching. Allergic eczema is fully discussed, including the formation of conjugated antigens, the effective stimulus to antibody formation, the possibility of localized sensitivity, and other aspects of its pathogenesis. Reference is also made to other allergic phenomena in various skin diseases and to the dermatological manifestations of drug-sensitivity. G. L. Waldbott writes on urticaria and F. A. Simon reviews the evidence in favour of sensitivity to human dander as a factor in the causation of infantile eczema.

Foster Kennedy discusses interestingly the subject of allergy in the central nervous system. He considers that localized areas of oedema in the brain may account for migraine, some cases of epilepsy, facial palsy (including ophthalmoplegia), and retrobulbar neuritis. He quotes a number of suggestive case histories, but more definite evidence is required before his views can be accepted. Other chapters are on allergic disease in animals, by F. W. Wittich, who first described hay-fever in dogs; allergy of the middle ear, by Hjalmar Koch; bronchoscopic therapy in asthma, by G. L. Waldbott; and aerosol therapy, by H. A. Abramson.

R. S. Bruce Pearson.

MEDICAL PROBLEMS OF FLYING

Aviation Medicine. By Kenneth G. Bergin, M.D., A.F.R.Ae.S. (Pp. 448; 120 illustrations. £1 15s.) Bristol: John Wright and Sons. 1949.

Aviation medicine covers a diverse and wide field: it ranges over nearly every branch of scientific medicine and draws on the physical and engineering sciences. The ramifications

are wide, and the rapidity with which the specialty has developed during the last decade has made it impossible for one author to deal with the whole subject. Dr. Bergin has, however, produced in readable and compact form a review of the physiological, medical, psychological, and epidemiological problems associated with present-day flying.

The book is a counterpart to the well-known U.S.A. publication by Armstrong and Heim, though this contained a considerable amount of original work, and it is the first of its kind to be published in this country. Its purpose is to provide the medical practitioner with information on the problems encountered in flying, which have become more numerous with developments in aircraft design resulting in increased speed, height, and engine power, and demanding a higher degree of endurance and a greater ability of judgment from aircrews. The author, himself a pilot of no mean attainment, presents his facts with that knowledge of aviation essential to those dealing with flying problems and personnel.

This work is a digest of the vast amount of research which was carried out in this country and in the U.S.A. during the war and contains a considerable amount of valuable information more applicable to Service than to civil flying. The author makes no claim to originality and he pays a handsome acknowledgment to those whose work he has consulted. The ample bibliography at the end of each chapter enhances the value of the book and provides the reader with the opportunity for a detailed study of the original contributions. The appendices contain useful data about medical requirements for licensing civilian pilots and the international health regulations for the prevention of epidemics.

While there is general agreement on the physical standards laid down, there is still some diversity of opinion on visual and hearing requirements: it is claimed that the experience of the individual should compensate for any physical defect. This opinion is not universally accepted, as it is liable to abuse. Furthermore, individual reactions and responses to identical defects are not always the same. Errors and risk of errors should be reduced to a minimum if the confidence of the public in aerial transport is to be maintained. The book should be in the hands of every medical practitioner called upon to express an opinion on the variety of problems encountered in aviation medicine. There are a few errors and omissions which doubtless will be corrected in the next edition.

E. D. Dalziel Dickson.

RENAL FUNCTION TESTS

Clearance Tests in Renal Disorders and Hypertension. By Olle Hogeman. Translated by Erica Odelberg. (Pp. 264. No price.) Sweden, Uppsala: Appelbergs Boktryckeri A.B. 1948.

Van Slyke, it has been said, first used the concept of renal clearance when seeking to dispense with mathematics for the benefit of the medical profession. The concept, whatever its humanitarian origin, gave a notable impetus to the advance in knowledge of renal function, an advance which, using the ingenious methods of modern clearance tests, now enables the investigator to express an opinion on the volume of glomerular filtrate, the permeability of the glomerular membrane, the tone of the afferent and efferent arterioles, the effective renal blood flow, and the maximal secretory and reabsorptive capacity of the tubules.

The bearing of such extensive functional dissections on the problems of normal and pathological renal function is self-evident, and Dr. Hogeman's book, in its details and its broad survey, is an excellent contribution to the subject. The work is based on modern renal clearance tests applied by the author to a large number of normal and pathological cases, the data and methods being given in detail with full statistical analyses. The author's survey of the literature and of his own work brings out effectively the difficulties and differences of opinion, as well as the agreements, in interpreting the results. The effect on these interpretations of the Barclay–Trueta juxtamedullary shunt is considered, and there are interesting discussions about what the urea and creatinine clearances really measure.

Separate chapters are given to the author's findings in normal cases, in glomerulonephritis, in essential hypertension, and in patients with one functioning kidney. In each of these chapters the author's results are integrated with those of other workers, and the book ends with an excellent general discussion and summary.

The author thinks that a simple determination of the filtration rate in acute nephritis is a useful diagnostic aid but that it has little prognostic value. In chronic glomerulonephritis he believes that inulin and diodrast clearances will prove to be a good prognostic guide. In connexion with essential hypertension, he agrees in principle with most other investigators in finding an increase in the filtration fraction, a change which he thinks is best interpreted as the result of increased tone of the efferent glomerular arterioles; but he adds that the Barclay–Trueta shunt may be partly responsible for the change, particularly in older patients and in those whose blood vessels are prematurely aged.

The book contains abundant material of interest to the expert on renal clearance tests. It will be of equal value to the general physician looking for a critical appraisal of the information to be obtained from these tests and of their place in the management of nephritis and hypertension.

J. A. Fisher.

PHARMACY AND PRESCRIBING

A General Survey of the British Pharmacopoeia, 1948. (Pp. 79. 5s. 6d.) London: The Pharmaceutical Press. 1949.

Hints on Prescribing under the National Health Service Act. By J. B. Primmer, M.B., J.P. (Pp. 51. 3s. 6d.) London: Research Books, Ltd. 1949.

Incompatibility in Prescriptions and How to Avoid It. By Thomas Stephenson, D.Sc. Fifth edition, revised by James Burnet, M.D. (Pp. 62. 10s.) Edinburgh: The Prescriber Publishers Ltd. 1949.

What is novel in the new British Pharmacopoeia is the subject of the booklet *A Survey of the British Pharmacopoeia, 1948.* It is a composition annotated from a series of lectures given by several members of the group appointed to prepare the new edition of the *Pharmacopoeia.* The *British Pharmacopoeia* is the standard authority for the control of the purity and constancy of character of medicinal substances. The current edition includes an extensive list of new medicaments as well as revised directions for the standardization of drugs that are not new. Biological therapy and biological methods of standardization of organic products other than pure chemicals form the principal additions. The booklet gives a good description of these changes and affords an illuminative survey of those modern advances in medical treatment that have passed the stage of trial and have attained the status of assured value.

Hints on Prescribing is admittedly designed to effect economy in the administration of the National Health Service. Justification of its purpose need not be questioned, for it is accepted that the patient shall have the most efficient treatment, regardless of cost; but it is obvious

that the earlier the cure the greater the saving, and the guidance here given is the result of approbation derived from experience. This book has a distinct value in that it serves to focus attention on those particular remedies that have upheld their reputation for efficiency in manifold experience over a long period of time, and it may serve usefully to save from oblivion many of the older remedies that tend to become submerged under the increasing numbers of new drugs. The information is conveniently arranged under alphabetically catalogued diseases, and it is in all ways a handy book for prescribers.

Incompatibility in Prescriptions contains the memoranda and the explanations relating to incompatible medicaments. The treatment of the subject of incompatibilities can be generalized only in regard to comparatively few cases, as the one characteristic of incompatibilities is their unexpectedness. Both prescribers and dispensers therefore need a ready-to-hand book of reference for guidance, and this work has been prepared in a useful form for that use The subject-matter is conveniently arranged under an alphabetical system headed by the name of the article to be prescribed, and there is also a good general index.

T. TICKLE

THE HEALING TOUCH

The Healing Touch. By Harley Williams. (Pp. 408; 8 illustrations. 15s.) London: Jonathan Cape. 1949.

Dr. Harley Williams has done it again. In his book *Doctors Differ* he showed that he could make comparatively recent medical history come alive and interesting to lay as well as to medical readers. In *The Healing Touch* he takes such diverse characters as Sir William Knighton, Sir James Clark, and Sir William Jenner—all doctors of royalty; goes on to Chadwick and Southwood Smith and their pioneer work in public health; gives a penetrating analysis of Florence Nightingale; recounts the almost incredible career of Brown-Séquard; and ends with the Mayo family. He has the great gift of dramatizing the people he deals with and makes them live again, and this applies to his many subsidiary characters also. We get sidelights on George IV, Queen Victoria, and many other interesting patients. The final section is not only the story of the Mayo family but that of the rise of modern surgery in the U.S.A., in which Welch, Halsted, and Harvey Cushing are described in a most engaging manner. Billroth and Virchow come in—not dragged in, but as important factors in what was happening in the U.S.A. The book is full of humanity, with wit, humour, and understanding. I congratulate the author on an undoubted success.

ALFRED COX.

The Chemistry of Penicillin, edited by Hans T. Clarke, John R. Johnson, and Sir Robert Robinson (pp. 1,094; illustrated; £9 9s. or $36; London: Geoffrey Cumberlege, 1949), is a very large book of 11 by 8 inches, containing nearly 1,100 pages. It describes a co-operative effort between British and American chemists that was effected during the war by the Medical Research Council in this country and the Office of Scientific Research and Development in the United States. The twenty-nine sections are each on a separate aspect of the chemistry of the drug, and for the most part the authors of each chapter are different. The book therefore describes varied approaches to a single problem, and provides the expert with a fascinating picture of the outlook and resources of his fellows.

Professor Rudolf Thiel's atlas of the diseases of the eye (*Atlas der Augenkrankheiten*; pp 225; M. 60; Stuttgart: Georg Thieme, 1948) is now in its fifth edition. The first edition was a useful students' book, and in the great tradition of German ophthalmology. Subsequent editions appeared during the war. The present volume was published last year, but the additions and expansions are unbalanced and inaccurate, and detract greatly from the value of the original work.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

Length of Life. By L. I. Dublin, Ph.D., and others. (Pp. 379. $7.) New York: Ronald Press. 1949.

The Vitamins in Medical Practice. By J. Shafar, M.D., M.R.C.P. (Pp. 383. 25s.) London: Staples Press. 1949.

Elements of Food Biochemistry. By W. H. Peterson, Ph.D., and others. (Pp. 259. 21s.) London: Staples Press 1949.

The Mammalian Adrenal Gland. By G. H. Bourne. (Pp. 239. 30s.) London: Geoffrey Cumberlege. 1949.

The Medical Annual, 1949. (Pp. 448. 25s.) Bristol: John Wright. 1949.

Frustration. By N. R. F. Maier. (Pp. 264. 21s.) London: McGraw-Hill. 1949.

May and Worth's Diseases of the Eye. By M. L. Hine, M.D., F.R.C.S. 10th ed. (Pp. 548. 22s. 6d.) London: Baillière, Tindall and Cox. 1949.

Russia Puts the Clock Back. By J. Langdon-Davies. Foreword by Sir Henry Dale, O.M., F.R.S. (Pp. 160. 7s. 6d.) London: Gollancz 1949.

Manual of Medical Emergencies. By S. C. Cullen, M.D., and E. G. Gross, M.D. (Pp. 267. 21s.) London: H. K. Lewis. 1949.

The L.C.C. Hospitals—A Retrospect. Foreword by the Rt. Hon. Walter Owen (Pp. 158. 7s. 6d.) London: Staples Press. 1949

What is Man? Evolution's Answer. By A. Machin. (Pp. 209. 10s. 6d.) London: Watts. 1949.

Annual Review of Biochemistry. Edited by J. Murray Luck. Vol. 18. (Pp. 739. 48s., plus 2s. 6d. postage.) London: H. K. Lewis. 1949.

Epilepsy and Convulsive Disorders in Children. By E. M. Bridge, M.D. (Pp. 670. 51s.) New York, Toronto, and London: McGraw-Hill. 1949.

Adolescent Character and Personality. By R. J. Havighurst and H. Taba. (Pp. 315. 24s.) New York: John Wiley. London: Chapman and Hall. 1949.

Practical Spectroscopy. By C. Candler, M.A., F.Inst.P. (Pp. 190. 21s.) London: Hilger and Watts. 1949.

Notions sur l'Analyse des Mouvements Musculaires. By A. Govaerts. (Pp. 151. No price.) Brussels: Office International de Librairie. 1949.

Lehrbuch der Inneren Medizin. By E. Lauda. (Pp. 569. 36s.) Vienna: Springer. 1949.

Iron Metabolism and its Clinical Significance. By A. Vannotti, M.D., and A. Delachaux, M.D. (Pp. 267. 32s.) London: Muller. 1949.

Simple Craft Jewellery Adapted for Occupational Therapy. By C. Geoffroy-Dechaume. (Pp. 63. 6s. 6d.) London: Faber. 1949.

Aids to Fevers for Nurses. By J. M Watson, S.R.N. Foreword by A. M. R. Cann, M.D., D.C.H. 3rd ed. (Pp. 388. 5s.) London: Baillière, Tindall and Cox. 1949.

Haemolytic Disease of the Newborn. By M. M. Pickles. D.M (Pp. 181. 15s.) Oxford: Blackwell Scientific Publications 1949.

Experimental Surgery. By J. Markowitz, M.B.E. 2nd ed. (Pp. 546. 40s.) London: Baillière, Tindall and Cox. 1949.

The Child in Health and Disease. By C. C. Grulee, M.D., and R. Cannon Eley, M.D. (Pp. 1,066. 66s.) London: Baillière, Tindall and Cox. 1948.

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THE TREND OF NATIONAL INTELLIGENCE

For nearly a century it has been known that in most industrialized communities the birth rate is declining far more rapidly among the wealthier classes of society than among the poorer. What has proved more difficult to determine is whether the difference is a good thing or a bad, or indeed whether it has any social importance whatever. At one time many biologists were inclined to argue that the decrease in fertility was "Nature's way of eliminating stocks that had become effete." Galton and the early eugenists, on the other hand, contended that "if birth control is spreading most rapidly among the more successful members of society, then we must be gradually losing the very type of stock which in the past has been responsible for our national efficiency." Finally, Newsholme,[1] reviewing the data then available, noted that the undeniable facts "have given rise to many Cassandra-like utterances," but concluded that they might be safely disregarded.

A new turn was given to the problem with the development of standardized tests for measuring general intelligence. The school surveys organized in 1913 by the psychologist to the London County Council[2] revealed a distinct negative correlation between size of family and amount of intelligence, quite apart from any difference in social or economic status. A simple calculation showed that if there were no further factors to counteract the obvious consequences then during the following generation the intelligence quotient would fall at the rate of one point or more every 20 years, and (what was much more serious) within the same period "the number of pupils of scholarship ability would be approximately halved, and the number of feeble-minded almost doubled." Somewhat similar correlations were subsequently reported by Bradford at Sheffield, Thomson in the Isle of Wight, and Fraser Roberts at Bath; and Professor Cattell, after an elaborate investigation covering over 4,000 children in Leicester and Devon, declared that the nation seemed "heading for a galloping plunge towards intellectual bankruptcy."[3] In London, however, a repetition of the earlier tests, while suggesting the possibility of a small decline, showed nothing like the change predicted by the more pessimistic computers. In fact, as the original report had pointed out, the general observations of the older teachers, scholarship examiners, and education officials appeared quite inconsistent with the view that any large or rapid changes could be taking place either in the average level of intelligence in the school population or in the numbers of supernormal and subnormal pupils. Burt,[4] indeed, in a summary of the existing evidence prepared at the request of the Royal Commission on Population, suggests that here as elsewhere some compensatory mechanism of a genetic kind might conceivably be operating which would tend to counteract the untoward effects of the differential birth rate.

The whole problem naturally attracted the earnest attention of the Population Investigation Committee, and, in view of the urgent need for more direct evidence, its chairman, Sir Alexander Carr-Saunders, suggested to the Scottish Research Council that a survey which they had carried out for another purpose in 1932 might be repeated and that his committee should be responsible for the cost. The earlier survey, the largest of its kind, had covered a complete age group of Scottish children, numbering in all over 87,000 boys and girls. In 1945 a second survey was organized on similar, but not quite identical lines. A brief report was submitted to the Royal Commission, and a fuller analysis of the data collected has now been published.[5]

The figures obtained, taken at their face value, would suggest that the level of intelligence has actually undergone a slight improvement. This result has plainly come as a surprise to the investigators, and they discuss in detail the most plausible explanations to account for this unexpected change. The most obvious explanation is increased familiarity with psychological tests. If this suggestion be accepted it then still remains conceivable, as the authors observe, that the apparent improvement in test performance may mask a genuine decline in innate ability. On the main issue, therefore, the report is admittedly somewhat inconclusive. Certainly anything like a rapid rate of decline seems out of the question. Nevertheless, if there is in fact a slow but steady diminution, that might well have serious effects in the long run, though its influence might hardly be appreciable after so short an interval as fifteen years. We must await the further survey planned for a later period. Meanwhile the study now published should encourage similar attempts by other bodies and is full of admirable suggestions showing how the requirements of a strictly scientific comparison may be secured in actual practice.

[1] *J. R. statist. Soc.*, 1906, 69, 34.
[2] *Annual Report of the Psychologist to the London County Council*, 1916. See also Burt, C., *Mental and Scholastic Tests*, 1921, London.
[3] *The Fight for Our National Intelligence*, 1937, London.
[4] *Intelligence and Fertility*, 1946, London.
[5] *The Trend of Scottish Intelligence* 1949. London: University of London Press.

BRONCHIECTASIS

Most chest physicians and many chest surgeons hold strong, but differing, views on the pathogenesis of bronchiectasis. Because it commonly starts in early life the disease was at one time thought to be congenital. This theory has become progressively less popular, but the occurrence of bronchiectasis in association with congenital abnormalities such as complete situs inversus, originally described by Kartagener[1] and subsequently confirmed by others,[2 3] suggests that in some cases the abnormality is congenital, though this can seldom be proved. At the present time most would agree that atelectasis of the lung is an important factor in the pathogenesis. The association was described by Anspach[4] in 1933 and was made familiar in this country by the clinical and experimental studies of Lee Lander and Davidson.[5 6] They pointed out that in a lobe collapsed by the aspiration of mucus the bronchi proximal to the obstructing plugs are dilated by the negative intrathoracic pressure, which in the absence of the cushioning effect of the normally aerated lung acts directly on the bronchial wall. If the walls remain undamaged, and the lung re-expands, the bronchi may regain their normal calibre[6-8]; but if, owing to infection, the normal elasticity of the bronchus has been lost, the bronchiectasis will be permanent.

The experimental work of Tannenberg and Pinner[9] has shown that when complete bronchial obstruction is induced in rabbits distal bronchiectasis occurs only if infection is also present. The infection causes an outpouring of inflammatory products and mucus which actively distend the bronchi. In man this mechanism may be responsible for some cases of bronchiectasis in which the condition develops beyond a complete bronchial obstruction. It is possible that occasionally dilatation of the bronchus is due to a valvular action, but unless previous disease has made the lung parenchyma undistensible such a mechanism should dilate the alveoli rather than the bronchi. In most specimens removed at operation there are signs of inflammation and fibrosis in the bronchial wall, and often also in the surrounding lung.[10-12] Though fibrosis was once thought to be an important cause of bronchiectasis it is now regarded as merely a relic of the original infected atelectasis. Many earlier writers, and some more recent,[13] consider that infection of the bronchial wall is primarily responsible. If that were so, as Mallory[12] has pointed out, bronchiectasis would be mainly a disease of the later age groups in which bronchitis is common. Though he found inflammation of the bronchial wall in 49 out of 50 specimens removed at lobectomy, atelectasis was present in 43 and bronchial stenosis in three others. Carr and his colleagues[17] have recently described a high incidence of bronchiectasis in workers employed filling shells with mustard gas. Here, presumably, there was damage to the bronchial wall; but the authors did not usually see the patients during the acute phase, and atelectasis may well have been a contributory factor. Bronchiectasis is being increasingly recognized as a concomitant of pulmonary tuberculosis, associated either with bronchial narrowing caused by the glandular element of a primary complex[14] or with fibrocaseous disease.[15 16] When accompanying fibrocaseous disease bronchiectasis may give rise to few symptoms, possibly because the bronchiectatic areas are usually in the upper part of the lung and therefore relatively well drained.

According to published reports the prognosis of bronchiectasis is bad. The overall mortality was 27.5% in 789 cases reported in five studies[18-22] published between 1931 and 1941; these patients were followed up for 2–14 years. It must be remembered that most of these were cases severe enough to be admitted to hospital, and in the earlier days bronchograms were less frequently performed on patients with mild symptoms. Fine and Steinhausen[23] reported that of 36 cases discovered through mass radiography 75% had few or no symptoms when seen two years later. Two further studies on the prognosis in children have recently been published. Ford,[24] in Glasgow, has followed up 65 proved cases for 2 to 19 years. Twenty-nine patients with unilateral disease were operated on, with an operative mortality of 17% (five cases). Two died later from other causes; one could not be traced. When seen at follow-up 14 of the remainder had no cough, though they complained of some dyspnoea, and the other seven were improved but still had significant symptoms. Thus of the patients with unilateral bronchiectasis only about 50% were made relatively symptom-free by operation, and there was an appreciable mortality. At least 10 (38%) of the patients not operated on had died; eight of these were under 6 years of age when diagnosed. Ten could not be followed up, but

[1] *Beitr. klin. Tuberk.*, 1933, 83, 489.
[2] Adams, R., and Churchill, E. D., *J. thorac. Surg.*, 1937, 7, 206.
[3] Olsen, A. M., *Amer. Rev. Tuberc.*, 1943, 47, 435.
[4] *Amer. J. Dis. Child.*, 1934, 47, 1011.
[5] *Brit. J. Radiol.*, 1938, 11, 65.
[6] *British Medical Journal*, 1938, 1, 1047.
[7] Lander, F. P. L., *Thorax*, 1946, 1, 198.
[8] Fleischner, F. G., *Amer. J. Roentgenol.*, 1941, 46, 166.
[9] *J. thorac. Surg.*, 1942, 11, 571.
[10] Robinson, W. L., *Brit. J. Surg.*, 1933, 21, 302.
[11] Ogilvie, A. G., *Arch. intern. Med.*, 1941, 68, 395.
[12] Mallory, T. B., *New Engl. J. Med.*, 1947, 237, 796.
[13] Lisa, J. R., and Rosenblatt, M. B., *Bronchiectasis*, New York, 1943.
[14] Hughes, J. G., and Simpson, W. L., *J. Pediat.*, 1940, 17, 197.
[15] Boyer, L. B., *Amer. Rev. Tuberc.*, 1946, 54, 111.
[16] Dormer, B. A., Friedlander, J., and Wiles, F. J., ibid., 1944, 50, 283, 287; 1945, 51, 455, 519.
[17] *Dis. Chest.*, 1947, 13, 596.
[18] Perry, K. M. A., and King, D. S., *Amer. Rev. Tuberc.*, 1940, 41, 531.
[19] Roles, F. C., and Todd, G. S., *British Medical Journal*, 1933, 2, 639.
[20] Findlay, L., and Graham, S., *Arch. Dis. Childh.*, 1931, 6, 1.
[21] Bradshaw, H. H., Putney, F. J., and Clerf, L. H., *J. Amer. med. Ass.*, 1941, 116, 2561.
[22] Riggins, H. M., *Amer. J. Surg.*, 1941, 54, 50.
[23] *Radiology*, 1946, 46, 237.
[24] *Glasg. med. J.*, 1948, 29, 19.
[25] *Helv. paediat. Acta*, 1948, 3, 475.
[26] *New Engl. J. Med.*, 1948, 238, 109.

of the remaining 16 six had no symptoms at all, and in the other 10 there was only minor disability. When studied in retrospect there seemed to be no way of telling which cases would have the good and which the bad prognosis. Wissler and Holtz,[25] in Switzerland, have followed up 38 children with bronchiectasis for 6 to 15 years: nine (24%) were dead, five (13%) had severe symptoms, and the other 24 (63%) were working and had minor symptoms or none at all. Six of the 12 children who originally had severe symptoms had greatly improved during the follow-up period.

Strieder,[26] in a review of the literature on surgery in bronchiectasis, states that the mortality of lobectomy is 1–8%, but that where the disease is bilateral it rises to 15–30%. Only about 50% of cases are suitable for surgery. Of Perry and King's[18] 400 cases, 68% of those operated on were well and working, compared with 37% of those treated medically. These comparisons are, of course, vitiated by the selection of cases for surgery; patients with severe bilateral disease will not be operated on, nor, usually, will those with only minor lesions. Probably operation should be advised in children with unilateral bronchiectasis which has been shown to be irreversible, and in young adults with severe and uncontrolled secondary infection or troublesome recurrent haemoptysis. In other cases medical treatment will be the first choice, and surgery will be a matter for careful individual consideration.

FEES FOR PRESCRIPTIONS

Mr. Attlee's decision that a patient from now on will have to pay a small token fee up to 1s. for prescriptions issued under the National Health Service, while disliked by his supporters in the House of Commons, will be welcomed by the medical profession. One can only regret that this decision was not made earlier. In February of this year[1] we stated in a leading article on the finances of the National Health Service: "The Government may yet consider it wise to ask the patient to make token payments for a doctor's services and for prescriptions. If this were considered feasible it would deter people from making unwarranted calls upon the doctor's time and unnecessary demands for pills and potions." We reiterated this in commenting upon Sir Stafford Cripps's budget hint that a health tax might have to be considered.[2] In his press conference three weeks ago Mr. Bevan categorically stated that "If by tax is meant payment by the patient at the moment when the patient needs treatment, we set our faces against it." Once more we suggested that sooner or later the Minister of Health would have to "introduce some scheme of payment which will be a greater deterrent than mere exhortation to the public to be careful about spending money provided almost entirely out of the taxpayer's pocket." The Government has now had to take a first step in modification of its policy of a health service free of direct charge. This should deter people from making irresponsible demands on the time of general practitioners in order to get ordinary household remedies at the country's expense. There is much to be said for the suggestion made in the *Supplement* of May 7 that the payment for prescriptions should be made by affixing a stamp to the prescription. If some sections of the public continue to make trivial calls on a doctor's time, then the next step of making a token payment to the doctor may have to be considered.

1 *British Medical Journal*, 1949, 1, 314.
2 Ibid., 1949, 1, 671.

PENICILLIN IN BACTERIAL ENDOCARDITIS

Subacute bacterial endocarditis is one of the diseases in which the prognosis was entirely altered by the introduction of penicillin treatment. During the war encouraging results were reported in the U.S.A., and in 1945, when sufficient supplies of penicillin became available in this country, the Medical Research Council set up fourteen centres to investigate this method of treatment. In 1948 Professor R. V. Christie reported the results of treatment of the first 269 cases in this *Journal*.[1] The conclusion of the investigating committee then was that in 90% of cases the disease could be controlled with a dose of half a million units of penicillin daily, provided that this dosage was maintained for at least a month. The incidence of heart failure after treatment was high. The increase in residual cardiac damage after apparent cure of the infection had already been emphasized by Morgan Jones and his colleagues[2]; these authors also noted that the duration of the disease before the beginning of treatment was the most important factor in prognosis. In the earlier reports there was no conclusive evidence that relapses were due to penicillin resistance of the infecting organisms.

In this issue of the *Journal* Professor Christie summarizes the results of the more recent trials of penicillin treatment in bacterial endocarditis. The original cases have been observed for a further two years, and in addition 189 new cases have been studied. Perhaps the most significant finding in the new report is that the good results obtained with doses of half a million units daily have not been confirmed. Of the patients so treated 20% relapsed or died, as compared with only 7% in the previous report. A second point of interest is that the results of treatment have been directly related to the sensitivity of the infecting organism to penicillin. In the light of this new knowledge it has become necessary to recommend a new system of treatment of bacterial endocarditis, and it is now suggested that the minimal dosage should be two million units daily for a period of four to six weeks. With this dosage cure should be achieved in all cases unless the infecting organism has a coefficient of resistance to penicillin greater than eight. If relapses occur, or if the infection remains uncontrolled, the daily dose should be increased to ten million units. The problem of treating those cases in which the infecting organism is highly resistant remains unsolved. Sometimes an even larger daily dose of penicillin will suffice, and the device of using substances such as caronamide,

1 *British Medical Journal*, 1948, 1, 1.
2 *Brit. Heart J.*, 1947, 9, 38.
3 Stuart-Harris, C. H., Colquhoun, J., and Brown, J. W., *Lancet*, 1949, 1, 99.

which increases the level of penicillin in the blood by suppressing its excretion by the kidneys, is often successful.[3] In some cases other antibiotic drugs should be tried; it remains to be seen how useful aureomycin will prove in these difficult cases.

UPPER LIMB PAIN

The upper limb is subject to a variety of painful conditions from which the lower limb is relatively or completely free. These affections are relatively rare, but even so they are responsible for much pain and disability. In some of the cases there is pressure at the cervico-brachial junction. This condition has recently been the subject of careful study, particularly in this country, and elsewhere in this issue Professor Lambert Rogers reports his findings in thirty patients. It is clear from the evidence that the lowest trunk of the brachial plexus can be pressed against a cervical rib, a rudimentary first thoracic rib, or a tendinous scalenus medius, and that the pain can be abolished by an operation which relieves the pressure. The weakness and muscle wasting, however, may persist for years. The vascular complications are not so easily explained, for Telford and Mottershead[1] have shown that though thrombosis in the main upper-limb artery occurred in 17% of their cases of cervical rib the clot in the majority of these did not extend proximal to the third part of the axillary artery. They found little evidence that the subclavian artery can be compressed and damaged as it leaves the thorax and some support for the view that pressure on the sympathetic fibres in the lowest trunk may play a part in causing the symptoms.[2]

In one important group of cases, usually middle-aged women, acroparaesthesia is characteristic. The symptoms of tingling and numbness in the hand and fingers differ from those of the cervical-rib syndrome in that they are usually bilateral, affect the whole hand and sometimes arm, and are frequently most troublesome at night. Usually no abnormality is found at operation, and scalenotomy and rib resection do not relieve the symptoms, which are in all probability due to traction on the brachial plexus. Professor Rogers is undoubtedly correct in attributing these syndromes to the effects of the upright posture.

A condition which may cause similar symptoms is the "shoulder-hand syndrome," in which there is pain and variable loss of function in the hand and/or shoulder. There is, however, swelling of the hand as a rule, and there may be osteoporosis and other evidence of increased or diminished vascularity. The syndrome may be idiopathic or secondary to peripheral lesions and to lesions of the central nervous system. Steinbocker and his colleagues[3] have studied 42 cases; they consider that the underlying abnormality is a reflex vascular disturbance mediated by an "internuncial pool" of neurones in the grey matter of the spinal cord which spread the stimuli to sympathetic fibres leaving several segments of the cord. This theory is, of course, highly speculative, but it fits in with the finding that sympathetic interruption, by repeated blocks of the stellate ganglion or by sympathectomy, is the most effective treatment.

[1] *British Medical Journal*, 1947, 1, 325
[2] *J. Bone Jt Surg.*, 1948, [illegible] 249.
[3] *Ann. int. Med.*, 1948, 2, [illegible] 22

PSYCHIATRIC TRAUMA AND OBESITY

It has long been known that there was an intimate relation between prevailing mood and the nutritional state of the body. Experiences with neurotic casualties in the last war reminded psychiatrists forcibly of this fact: in many of these patients a loss of two stones or more in weight was combined with neurasthenic, anxious, or depressive symptoms. The relationship could be twofold: on the one hand a severe state of emotional tension might bring about rapid loss of weight despite normal food intake; on the other, a previously stable man might become susceptible to anxieties and fears only after the onset of exhaustion caused by extreme physical exertion and loss of sleep. In the latter case dysfunction of the nervous system could be plausibly attributed to defective cerebral nutrition. The work of Sydenstricker and others had already shown that depletion of vitamin reserves, especially of nicotinic acid, could bring about neurasthenic and even psychotic states. Nevertheless it was rare for physically exhausted neurotic patients to show any clinical sign of avitaminosis. A more complex chain of events seemed probable. Central control of the mechanism of vitamin storage and mobilization was suggested by the finding of Meyer and McLardy[1] that in a proportion of patients dying very soon after a prefrontal leucotomy operation in which an unduly posterior cut had been made there was histological evidence of acute avitaminosis. Clinical findings supported this view, for it had been observed that an acute pellagrous psychosis was specially liable to supervene after subjection to stress, such as childbirth or a major operation, which would be likely to modify central nervous activity, particularly in the hypothalamus.

Elsewhere in this issue Drs. H. J. Shorvon and J. S. Richardson discuss a related problem, but posed in an opposite form. They describe three cases in which sudden, large, and rapid increases of weight occurred soon after psychologically traumatic experiences, such as the death of relatives and bomb incidents. In one case the increase in weight dated from a confinement. All three patients were women, and in two the weight increase was associated with menstrual disturbances, but there was no evidence of endocrine disturbance. Much of the weight increase could be attributed to water retention, which is controlled by the pituitary and the hypothalamus, but there was also accumulation of fat without a specific type of bodily distribution. While the early and rapid increase in weight could be put down to water retention, a gradual deposition of fat is more probably responsible for the persistence of obesity over several years.

The authors scrupulously refrain from speculation, but the possibility must be considered that events which cause fear and grief may, in special and rather unusual circumstances, cause a persistent disturbance of hypothalamic function. It is not clear whether the disturbance should be regarded as inhibitory or excitatory or both. Physiologically some of the findings resemble the results of stimulation of hypothalamic nuclei; others those of a destructive lesion in this region. There is no essential

[1] *J. ment. Sci.*, 1949, 95, 403.
[2] *Arch. Neurol. Psychiat., Chicago*, 1945, 54, 231.
[3] *Cybernetics*, 1948, New York
[4] *Proc. R. Soc. Med.*, 1949, 42, 36.

difference between such a change in hypothalamic activity and the corresponding cortical change that shows itself in a persistent tremor or paralysis after psychological shock. But in the cases reported by Shorvon and Richardson the physical abnormality may be ascribed to a "hysterical" disturbance of vegetative function instead of a disturbance of muscular control.

The reversible nature of the phenomenon is made clear by the results of treatment. All the three patients responded to abreactive psychotherapeutic measures. Two explanations of the value of abreaction have so far been suggested, psycho-analytical and physiological. Sargant and Shorvon[2] proposed the theory, derived from Pavlov's work on conditioned reflexes, that a hysterical conversion symptom could be regarded as the effect of inhibition or of spontaneous and stereotyped activity in a partially isolated functional system in the cortex. This suggestion bears a close resemblance to the concept of the "reverberating circuit" put forward by Wiener[3] as a possibly useful analogy from the field of electronics. The isolation of the cortical system might then be overcome, and more complete central integration be re-established, by bringing about a general cortical excitation and discharge. Sargant[4] has suggested that other methods of physical treatment, such as electrical convulsive therapy, possibly depend for their success on the breaking-down of functional barriers by cortical excitation. Speculations of this kind are open to many objections, but development of the ideas they contain by experimental and clinical research may lead another step on the road towards a solution of the body–mind problem.

B.C.G. VACCINATION

A lively correspondence in the journal of the Danish Medical Association has shown how difficult it is to be absolutely unanimous about anything. The two points under discussion were: Who is to vaccinate with B.C.G., the general practitioner or the tuberculosis specialist? and, How early in life are Danes to be vaccinated with B.C.G.? The first question was raised by Dr. J. Riising,[1] who argued that the general practitioner is quite capable of practising B.C.G. vaccination and that there is something to be said against sending a child a long way to a tuberculosis dispensary where the vaccination may be carried out by a nurse. Dr. U. Gad[2] answered by pointing out that B.C.G. vaccination by general practitioners is liable to interfere with the diagnostic and prophylactic procedures at tuberculosis dispensaries, at which a radiological examination can be made as a preliminary to vaccination. Experienced B.C.G. vaccinators, he argued, see relatively few complications. Furthermore, the interpretation of tuberculin reactions is full of difficulties. In a later letter Dr. Gad[3] remarks that the difference between himself and Dr. Riising may ultimately be settled by putting B.C.G. vaccination in the hands of an ambulant team, similar to those which the Red Cross has organized. As for the second question, the opinion seems to be growing that in principle B.C.G. vaccination should be undertaken as early as possible, even in infancy. Dr. Gad, however, considers that the B.C.G. vaccination of the newborn, as carried out in Sweden on a large scale, may not be necessary in Denmark except in a tuberculous environment, "as the newborn are poor antitoxin producers, and as we have less tuberculosis than in Sweden." Dr. P. Hertz[4] refutes the argument that the newborn are poor antitoxin producers, and he points out that more than 90% of the newborn who have been vaccinated with B.C.G. in Sweden have been rendered tuberculin-positive. In his own experience of 64 newborn infants recently vaccinated in Copenhagen he has found it necessary only in two cases to repeat the operation in order to achieve a positive tuberculin reaction. In a more detailed study Dr. Hertz[5] has reported on his successful vaccination with B.C.G. of 537 infants from 0–12 months old. None of the six deaths among these 537 infants was due to tuberculosis: hence his conclusion that "one ought not to delay too long in proposing the voluntary Calmette vaccination of all infants, and preferably the newborn." Professor H. C. A. Lassen[6] writes in the same sense, and he argues that the forty to fifty deaths from tuberculosis which still occur every year in Denmark among children under the age of 5 years are a standing reproach to those authorities who delay in applying B.C.G. vaccination to children of this age.

[1] *Ugeskr. Laer.*, 1949, 111, 732.
[2] Ibid., 1949, 111, 788.
[3] Ibid., 1949, 111, 857.
[4] Ibid., 1949, 111, 857.
[5] Ibid., 1949, 111, 895.
[6] Ibid., 1949, 111, 963.

FRACTURE OF THE BRONCHUS

Traumatic rupture of the bronchus is a rare injury. In suspected cases the diagnosis should be confirmed by bronchoscopy. Immediate thoracotomy and repair may save life in some cases and prevent serious complications in others. Care must be taken to preserve the bronchial blood vessels. Kinsella and Johnsrud[1] in 1947 published a review of 38 cases, adding two of their own. A crush injury which shears either main bronchus at or near the carina was the usual cause of rupture. In more than half the cases it was fatal. Commonly associated with fracture of the bronchus were haemorrhage—causing haemoptysis, atelectasis, or haemothorax—and leaking of air, causing pneumothorax or mediastinal emphysema. In patients recovering from the injury a bronchial stricture develops, leading to obstructive collapse and mediastinal shift. Artificial pneumothorax to ameliorate the resulting dyspnoea has had good results. In one case secondary infection was successfully treated by pneumonectomy. Endoscopic dilatation was not found of much value. In 1945 Sanger[2] described two cases in which he had sutured tears of the bronchus due to penetrating shell fragments, but the first case to be treated by resection and anastomosis has recently been reported by Griffith.[3] The patient was a woman who was thrown against the steering-wheel in a motor-car accident, injuring her face and crushing her chest, with fracture of ribs on the left side. Dyspnoea was severe for a few days, but recovery was rapid. Later she became dyspnoeic again; her chest was "wheezy," and she had a dry cough. Radiographs two months after the injury showed obstructive emphysema of the left lung in expiration, and on

[1] *J. thorac. Surg.*, 1947, 16, 571.
[2] *Ann. Surg.*, 1945, 122, 147.
[3] *Thorax*, 1949, 4, 105

auscultation a loud rhonchus was heard. At bronchoscopy an elastic stricture of the left main bronchus was seen. It was due to mal-union of a simple fracture, with overriding of the cartilage, and it could not be cured by dilatation. Operation was therefore advised, and was carried out six months after the accident. Through a left thoracotomy the stricture was excised, except for a bridge of posterior wall carrying the bronchial artery, and end-to-end anastomosis was done with interrupted stainless steel sutures. The patient's recovery was uneventful; her symptoms were relieved, and the bronchus healed normally.

BONE LENGTHENING

Inequality of more than two inches (5 cm.) in the length of the lower limbs is a serious handicap. Attempts to equalize the limbs by both lengthening the shorter or shortening the longer have been successful. Codivilla[1] in 1905 first attempted to lengthen a limb by repeated forced pull on a nail transfixing the os calcis after oblique oesteotomy of the femur. Similar operations were carried out in 1912 by Freiberg,[2] and in 1913 by Magnuson[3] and by Ombredanne.[4] In 1921 Putti[5] published a paper on operative lengthening of the femur; he used skeletal traction and countertraction directly on the femur. In 1927 a method of tibial elongation was described by Abbott[6] in which the steps were lengthening the tendo achillis, osteotomy of the fibula, insertion of the drill pins, osteotomy of the tibia, division of the tibial periosteum, division of the interosseus membrane and fibular intermuscular septum, and finally application of the distraction apparatus. The complications of this procedure were forward bowing of the tibial fragments, overstretching, interference with the blood supply of the fragments, and insufficient fixation of the fragments.

Leg lengthening is indicated when the difference between the limbs exceeds one and a half inches (3.8 cm.); less than this can be easily compensated by pelvic tilting and shoe raising. Only young patients are suitable, and the operation should not be undertaken after a recent acute infection or in cases with severe paralysis of the affected limb. A very large difference between the length of the limbs is also a contraindication. Success depends on the use of an apparatus which will confine movement of the fragments to the long axis of the bone, and Allan[7] has been successful in producing an instrument which secures this. He performs an oblique osteotomy of the tibia about four inches (10 cm.) in length, leaving the periosteum intact as far as possible, and a transverse osteotomy of the fibula. Two Kirschner wires are inserted in each fragment and fixed to the distraction apparatus, and a carefully padded plaster is applied from toes to groin. When set, the plaster is divided, so that in effect each section of the limb is in a separate plaster cast. With this method Allan has found it possible to lengthen the bones at the rate of 1/16 in. (0.15 cm.) daily. Femoral lengthening has proved to be less practicable, owing to the difficulty of placing the transfixing wires and the complication of knee stiffness. Allan used leg lengthening in cases of tuberculosis of the hip and knee, in congenital shortening, in pyogenic bone and joint infections which had been quiescent for more than six years, and in patients with infantile paralysis treated by sympathectomy as a prior condition. Most patients were 13 or 14 years of age, but it was found that in adults the bones united just as readily.

Muscles react badly to stretching, and much wasting occurs. Periosteum, membranes, and fascia are not easily stretched, and their lengthening probably causes most of the pain experienced. Blood vessels withstand the procedure well: nerves, however, are more liable to damage, especially the lateral popliteal nerve. Knee stiffness and displacement of the ends of the fibula are additional complications. Skin sloughing over the operation scar was noted when a gain of more than three inches (7.5 cm.) in tibial length was obtained. Allan states, however, that two inches of lengthening may be gained in the femur, and three in the tibia, without any complication. It cannot be denied that bone lengthening is a painful and formidable procedure. White goes so far as to state that in his experience the result seldom justifies the effort employed, since great force is needed to stretch the tissues in an already damaged limb. In many cases shortening of the longer leg has proved to be much the better method, being simpler and less hazardous.

1 *Amer. J. orth. Surg.*, 1905, 2, 353.
2 *Surg. Gynec. Obstet.*, 1912, 14, 614.
3 Ibid., 1913, 17, 63.
4 *Bull. Mém. Soc. Chirurgiens Paris*, 1913, n.s. 39, 1177.
5 *J. Amer. med. Ass.*, 1921, 77, 934.
6 *J. Bone Jt Surg.*, 1927, 9, 128.
7 Ibid., 1948, 30-B, 490.

THE MANUFACTURE OF CORTISONE

In a recent annotation[1] we referred to the discovery that "cortisone" ("compound E") could be prepared from sarmentogenin, a substance which can be isolated from the seeds of the African vine *Strophanthus sarmentosus*. It is now known that the common yam of tropical America, *Dioscorea mexicana*, yields a substance, botogenin, which can be used as a starting-point for the preparation of cortisone,[2] and many more plants may be found to be possible sources of cortical hormones. In the meantime pharmaceutical manufacturers in the U.S.A. are co-operating in order to increase production of cortisone from ox bile. According to a recent report[3] one company is to quadruple its plant for the manufacture of desoxycholic acid from the bile of cattle slaughtered in the stock yards. A spokesman of the company said that desoxycholic acid can be prepared from the cholic acid in bile in much larger amounts than would be obtained by isolation of the natural substance from the same quantity of bile. Nevertheless, the quantity of desoxycholic acid which will be prepared in a year from the bile of 200,000 cattle will yield only about 2,700 g. of cortisone. This represents 27,000 doses of 100 mg.—a very small amount even for limited research purposes.

Mr. V. Zachary Cope, M.S., F.R.C.S., will deliver the Bradshaw Lecture before the Royal College of Surgeons of England (Lincoln's Inn Fields, London, W.C.) on Thursday, November 10, at 5 p.m. His subject is "Visceral Actinomycosis and its Treatment."

1 *British Medical Journal*, 1949, 2, 481.
2 Marker, R. E., *J. Amer. chem. Soc.*, 1949, 71, 2656.
3 *New York Times*, September 19, 1949.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

FAILED FORCEPS

BY

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The term "failed forceps" is applied to the type of obstetric case in which an attempt has been made to deliver with forceps but without success. The causes of failure have been fully discussed in papers in this *Journal* and elsewhere by Phillips, Farquhar Murray, Miller, Fletcher Shaw, Stacey, and Claye, and are chiefly as follows.

Contracted Pelvis and Disproportion

In one-third of Miller's 558 cases of failed forceps this was the cause, either alone or combined with a posterior position of the occiput. The difficulty arises mostly from failure to recognize insuperable disproportion between the foetal head and the pelvis, or because in cases of moderate disproportion the forceps is applied too soon and before sufficient time has been given for the head to mould and to descend far enough into the pelvic cavity. Incredible as it may seem, in over 50% of Miller's cases the head was still free above the brim on admission to hospital after attempts at forceps delivery outside had failed. One of the elementary rules regarding the application of forceps had thus been broken.

The most frequent cause of disproportion is contracted pelvis. Severe degrees of contracted pelvis due to rickets are now rare, but minor degrees of contraction, especially of simple flat and generally contracted pelvis, are common and apt to be overlooked before labour sets in if certain simple rules are neglected.

(1) In a primigravida the foetal head should engage deeply in the pelvis in the last two weeks of pregnancy. If it does not do so a reason must be sought. A common cause is contracted pelvis, and this condition should always be excluded. This may be done by simple clinical methods —measuring the patient's height (under 5 feet (1.5 m.) is always suspect), looking for rickets, and measuring the diagonal conjugate—but the present tendency is to use *x*-ray pelvimetry, which alone can give accurate measurements of the diameters, including the true conjugate, and the interspinous diameter of the outlet. Disproportion, which is rare in the absence of pelvic contraction, can be assessed by Munro Kerr's modification of Muller's method, with or without anaesthesia.

(2) In multigravidae the history of past labours may give warning of possible trouble. For example, in one of the cases of failed forceps recorded by Fletcher Shaw the woman had had four previous confinements, two of which ended in craniotomy and two in caesarean section.

Unrecognized Unrotated Posterior Positions of the Occiput

This occurs mostly in primiparae. In all the series referred to above it was the second most frequent cause of failure. It is necessary to stress once more the importance of a thorough examination of all patients before applying the forceps, first by abdominal palpation and then per vaginam, if necessary with the whole hand in the vagina under deep anaesthesia. It is necessary to make sure of the following points: (1) that the os is fully dilated; (2) that the occiput is anterior; (3) that the head has descended at least to the level of the ischial spines. These can be easily felt on each side and mark the level of the pelvic floor. Application of forceps to a head above the spines is a "mid forceps" application, below this a "low forceps."

Abdominal examination will reveal much. It will show how far the head has descended into the pelvis. If any part of the head is felt on abdominal palpation delivery is likely to be difficult and may even be dangerous for the child. Occipito-posterior positions cannot usually be diagnosed abdominally but only by introduction of the whole hand into the vagina under deep anaesthesia.

There are two ways of diagnosing persistent occipito-posterior cases. The first and most commonly used is to feel the ear—its free border is directed towards the occiput. It should be remembered that the ear may be folded forward, and this may give rise to doubt. Another plan is to feel for the nape of the neck. When this is found—a smooth flat surface—the forefinger can be passed a little farther on to the anterior shoulder and the head and body rotated by the internal hand alone in one single movement, if possible without dislodging the head out of the pelvic cavity. There is only one fallacy that I have found in this method of diagnosis: if the head is much moulded the forehead may be so elongated that it is mistaken for the neck. This error can be avoided by keeping the possibility in mind and pushing the exploring hand a little farther on. If it is the forehead the finger will come to the face instead of the flat back and shoulder. It should be noted that slipping of the forceps is almost always due to its application to an unrotated occipito-posterior. If this happens the blades should be removed and the position reassessed.

Application through an Undilated Cervix

In 50% of Claye's cases this was the cause of failure. As every student is taught that full dilatation is necessary before application of forceps the mistake can only arise through difficulty in diagnosing full dilatation. Claye has a useful word on this. "If," he says, "the cervix is fully dilated the head has come so far through it that its rim is no longer palpable. If the cervix is palpable it is not fully dilated." To this the writer would add that "full dilatation" means full dilatation between pains. Too often the medical attendant examining the patient (as is correct) during a contraction and finding the head descend and no rim of cervix palpable concludes that the os is fully dilated and decides to apply forceps. When the patient is anaesthetized, however, he may find that the os is only three-quarters or less dilated. By that time all preparations have been made for forceps, and if inexperienced the doctor may not have the moral courage to desist and confess his error. It is always wise, therefore, in assessing dilatation of the cervix before application of the forceps, to keep the examining finger in the vagina after the pain has passed off.

Application of forceps through an imperfectly dilated cervix most commonly takes place in primiparae in whom the first stage of labour has been prolonged, and especially

if the membranes have ruptured prematurely. These are always anxious cases. There may be disproportion or an occipito-posterior position, in both of which cases labour tends to be slow and pains poor. But often neither of these is present and the delay is then generally due to primary uterine inertia. If the membranes are unruptured the long first stage does not matter much, though it tries the patience of all concerned. If the membranes have ruptured prematurely, however, the life of the foetus is then endangered, because as liquor trickles away the uterus is allowed to retract excessively and progressively diminish the area of attachment of the placenta and the foetal and maternal circulation through it. If it proceeds far enough this will cause foetal asphyxia and intrauterine death. These cases can be very anxious ones, and little can be done except to give a sedative, keep the bowels and bladder empty (a warm soap-and-water enema often stimulates strong contractions), and avoid fussy and repeated vaginal examinations. The foetal heart sounds should, of course, be examined at intervals. Most of these labours end spontaneously or the patients are easily and safely delivered by low forceps; but in a few cases anxiety arises because the foetal heart sounds indicate foetal distress before the cervix is fully dilated. The best course to adopt then needs both experience and good judgment. It is often possible to complete the dilatation of the cervix manually and apply forceps, but this is always a hazardous procedure for the child, especially as the dilatation is apt to be imperfect. If the cervix is thinned out over the head it may be divided at 5 and 7 o'clock by scissors after applying the forceps and drawing the head gently downwards. But more and more of these cases are now being treated by lower-segment caesarean section, which is usually much safer for both child and mother.

Constriction Ring

This is one of the more infrequent causes of failure. It may be the only cause or it may complicate contracted pelvis or unrotated occipito-posterior cases. Usually the head descends fairly well when forceps traction is made, but it quickly recedes again when traction is stopped. This should make one suspicious, but the condition can only be diagnosed by removing the blades, inserting the finger, and feeling the ring as hard as iron around the neck. In such cases the forceps should be reapplied and one capsule (3 minims: 0.18 ml.) of amyl nitrite crushed on gauze under the patient's nose so that she may inhale it. Relaxation takes place immediately, but is temporary. The forceps should therefore be in place for delivery without unnecessary delay. An alternative method is to inject subcutaneously 7 minims (0.62 ml.) of 1 in 1,000 adrenaline.

Finally, a certain number of failed forceps cases arise through application of the instrument to a hydrocephalic head, an undiagnosed breech, a mento-posterior or brow presentation, or when there is obstruction by a pelvic tumour.

Should the Forceps be Applied or Not?

On each blade of the forceps there should be a large question mark. On taking up the first blade and seeing the question mark the operator should ask himself, "Are the conditions present that make the application of forceps safe—the membranes ruptured, a vertex presentation with the occiput anterior and the sagittal suture in the antero-posterior diameter, the bladder and bowels empty, the lower pole of the head at least at the level of the ischial spines, the os fully dilated?" On taking up the second blade he should ask himself, "What are the indications justifying the application of forceps in this case?" Apart from the case when the head is on the perineum, when application of forceps (preferably preceded by episiotomy in a primipara) is always safe, there are only two real indications for forceps—maternal or foetal distress.

Finally, we should all of us keep in mind the words of our master, Smellie. "Students should never think themselves perfect; for after all the instruction that can possibly be conveyed there are many things in midwifery that can only be learned by practice and observation; and cases will sometimes arise which will puzzle and foil the best practitioners."

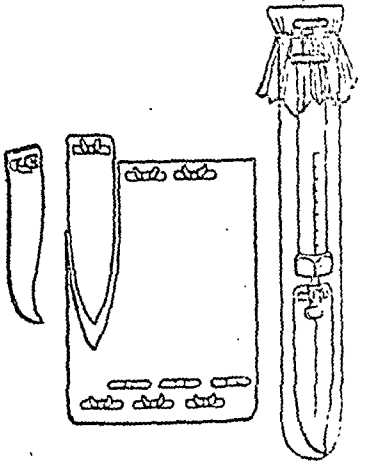
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Preparations and Appliances

HOSPITAL SYRINGE SERVICE

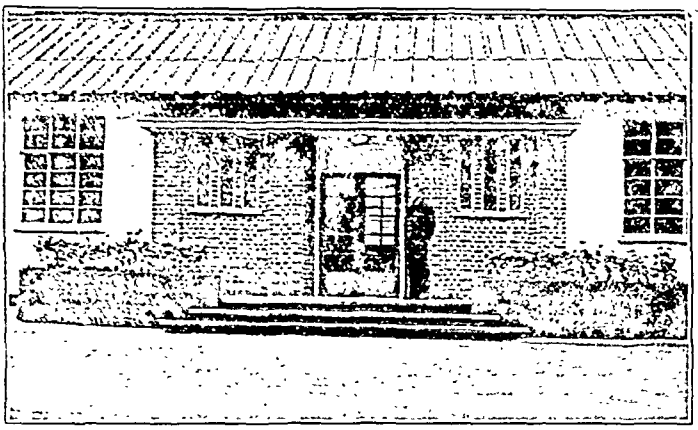
Mr. P. G. MERRETT, theatre technician, St. Thomas's Hospital, writes: In modern anaesthesia the use of 2-ml. syringes both for immediate and for intermittent use during operations seems to have increased with the introduction of curare and its antidotes. I thought, therefore, that a method of packing syringes ready for supply at a moment's notice would be acceptable, and have devised the following contrivance, which has met with the approval of most of the anaesthetists at this hospital. The type of sterilization is by dry heat.



As the accompanying diagram shows, the requirements are heat-resistant syringes, oven-glass tubes, "cellophane," and a small rubber band to seal and secure the end of the tube when ready for sterilizing. Care of the needle-point is important, and for this purpose use is made of a piece of the brass needle-holding tray supplied by most manufacturers with new needles. The unwanted clips are flattened, leaving one for each guard, and cut out as shown. This guard is easily clipped to the needle-butt and hand-shaped so as to be deflected from the point of the needle. The tapered end is curved inwards slightly to fit the bottom of the glass tube, and serves as a protection to the whole. This method has stood up to normal use. If required, an absorbent cotton roll, as used for dental purposes, can be inserted alongside the needle. This provides a swab for cleaning the area of injection, and can be used to protect the needle if the syringe is required for intermittent injection. Most anaesthetic trolleys could carry a small bottle of surgical spirit.

There is no doubt the method could be adapted for other branches of medical, surgical, and laboratory work, and it might be handy in a central supply depot.

A set of pictures for public display has been prepared on "Coughs and Sneezes" by the Central Office of Information. Local authorities may obtain these sets from the C.O.I. (Room 2301), Block 2, Montagu Mansions, Crawford Street, Baker Street, London, W.1.



THE BROMPTON HOSPITAL

INSTITUTE OF DISEASES OF THE CHEST

The opening this week of the new building of the Institute of Diseases of the Chest at the Brompton Hospital carries one stage further a recommendation in the *Report of the Inter-departmental Committee on Medical Schools*, 1944 (the Goodenough Report). At that time the British Postgraduate Medical School provided opportunities for study in medicine, surgery, obstetrics, gynaecology, and pathology, but made no use of the unrivalled facilities available in the special hospitals in London for the study of particular branches of medicine and surgery. The report recommended the reorganization of the British Postgraduate Medical School as a Federation, with clinical institutes not only in general medicine and surgery at Hammersmith but also in association with the principal special hospitals. Accordingly the British Postgraduate Medical Federation was established, and institutes at the special hospitals are now in various stages of development.

At the Brompton Hospital postgraduate instruction has been given for many years, and until 1939 some undergraduate teaching also. The Medical School of the Brompton Hospital was included in the list of institutes having recognized teachers of the University of London, the teaching taking the form of short intensive courses, including informal attendance in wards and out-patient departments of the hospital.

Following publication of the Goodenough Report, efforts were made to improve the academic status of the School in order to conform to the suggested scheme for postgraduate education. Early in 1946 a programme of postgraduate teaching was begun which has been continued since then with very little modification. During university terms courses of study consist of clinical work in the wards and out-patient departments; radiological, pathological, and clinical demonstrations and discussions; and lectures. A less formal type of instruction is continued during the summer vacation. The Medical School of the Brompton Hospital was always financially independent of the Hospital. In May, 1947, its name was changed to "The Institute of Diseases of the Chest." Since 1946 the British Postgraduate Medical Federation has given it financial support. The teaching activities at the Postgraduate Association of the London Chest Hospital, begun in 1924, now come under the umbrella of the Institute.

The new building now formally opened consists of a single-story building adjoining the west side of the main block at the Brompton Hospital. Accommodation includes laboratories, a library, a museum, a lecture theatre, a photographic department, a common room for students, a refectory, and administrative offices. Begun in May, 1948, the building was completed in the summer of 1949.

The Institute provides postgraduate instruction and facilities for research in diseases of the chest. As to the former function, the most important aspect is the training of physicians and surgeons wishing to specialize in diseases of the chest. After courses of study lasting for one or more terms it is intended that a proportion of the students shall obtain graded hospital appointments, the number of which has increased during the past few years to meet the needs of the Institute. The research facilities of the Institute will, it is hoped, play an important part in training the specialists of the future. When circumstances permit, advanced revision courses for established specialists will be conducted. The Institute will also provide, when possible, instruction as part of the training of general physicians. No undergraduate teaching is now given.

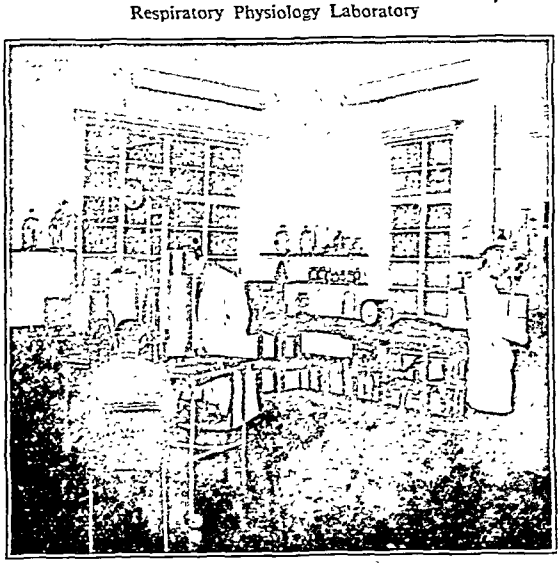
About thirty-five to forty postgraduate students attend each term, of whom 12 are working whole-time. They spend one day a week at the London Chest Hospital and the rest of their time on clinical work in the wards and at clinical demonstrations. Preference is given to those who are specializing in diseases of the chest; the remainder are part-time students studying for the M.R.C.P. and other examinations. The Institute will try to meet the enormous demand for training in thoracic surgery. At present only temporary arrangements have been made, but it is hoped eventually to appoint a surgical subdean who will co-ordinate and expand tuition in thoracic surgery.

Almost half the accommodation of the Institute is devoted to research laboratories, including a laboratory of respiratory physiology. Pathology is not included; though the museum and its preparation room are housed in the Institute the pathological laboratories remain in the hospital.

The Dean is Dr. J. G. Scadding, and Drs. Kenneth Donald, J. W. Crofton, and J. R. Bignall hold appointments on the staff of the Institute. The staff of the Brompton and London Chest Hospitals take part in the teaching at the Institute.

Now that the new building is completed and equipped, it awaits only approval and inspection by the University of London before it acquires the full academic status of an institute of the British Postgraduate Medical Federation and takes its place as the principal training centre in this country for the chest specialists of the future.

Respiratory Physiology Laboratory



THE CARE OF OLD PEOPLE

ADDRESS BY SIR WILLIAM DOUGLAS

Representatives of nearly three hundred voluntary organizations and of nearly as many local authorities assembled at Friends House, London, for the fourth annual conference of the National Old People's Welfare Committee, which works in association with the National Council of Social Service. One subject for discussion, under the chairmanship of Sir Ernest Rock Carling, was the employment of old people, and an open forum was held on matters affecting old people's welfare.

At the opening session Sir William Douglas, Secretary of the Ministry of Health, addressed the conference on what has been planned and achieved by local authorities and voluntary bodies since the passing of the National Assistance Act, 1947. After mentioning that in that year the total number of people of pensionable age was 13.7% of the population, Sir William Douglas discussed methods of encouraging old people to continue to live an independent life for as long as they could, and the importance of ensuring that old people who could not look after themselves would be cared for with kindness and understanding.

The withdrawal of old people from normal community living, he said, should be postponed for as long as possible, and geriatric treatment had helped towards this desirable end. For the most part the 95% of old people living by themselves or with their families did not want to be thought of as segregated from the community, but if they were to continue to lead an independent life some consideration must be given to their special needs—especially in the matter of housing. Too many old people were living at the top of high buildings; others in large houses where they had formerly brought up families. Some local authorities had provided bungalows and flats specially designed for the aged, but much remained to be done in that respect. The Ministry of Health was encouraging local authorities to include in their programmes houses of varying size. The Housing Act, 1949, enabled Exchequer assistance to be given to housing authorities for the provision of hostels for those who no longer required or desired a separate home of their own. He feared that a long time must elapse before an adequate number of old people's dwellings could be built.

To ensure that old people got adequate meals various provisions were made, notably the "Meals on Wheels" service. The Women's Voluntary Service were serving 50% more meals from their centres than was the case a year ago. Civic restaurants would arrange for meals to be taken round their districts. The Ministry of Health would grant sanctions for loans to enable local authorities to buy vehicles and equipment for this service. The movement to establish old people's clubs had been greatly facilitated by grants under Section 31 of the National Assistance Act. Up to last July there were 1,800 such clubs.

There had also been a large extension of the home help service, offering unlimited scope for voluntary effort in helping old people. Many of them, too frail to leave their homes, appreciated help with shopping and certain household work, or just a friendly visit, with any desired advice on their personal difficulties. For old people who could no longer live a wholly independent life some residential homes had been established, at which the weekly minimum charge was 21s. Subsidies were available for the building or acquisition of houses suitable for this purpose.

As for the bedridden, Sir William Douglas said that he looked forward to the day when no old person would be condemned to bed in the casual manner which had obtained in the past. Each such case should be carefully examined and considered from the point of view of the possible restoration of function. Some, of course, must always remain in the care of the hospital service, requiring constant care and supervision. It was very important to give them a sense of security; they should not be removed from one establishment to another except on strong medical grounds. It was difficult to escape the conclusion that some special accommodation for the aged infirm would have to be provided.

Reports of Societies

FATS IN NUTRITION

A conference of the Nutrition Society on "Triglyceride Fats in Human Nutrition" was held in the medical school of Birmingham University on October 15, with Sir Leonard Parsons, F.R.S., presiding.

Professor T. P. Hilditch spoke on the chemical constitution of natural fats, which were all complicated assortments of mixed triglycerides. In the formation of individual glyceride molecules a principle of even distribution of fatty acids between the glycerol molecules usually held good; no fat molecule contained two radicles of any particular acid unless all the other molecules contained at least one radicle of that acid. The compositions of certain animal fats, however, did not appear to obey this rule: Thus beef and mutton fats contained glycerides with more than one radicle of stearic acid in greater amounts than might be anticipated. Human depot fat contained 24% of palmitic acid, 8% of stearic acid, and 3% of myristic acid as its saturated components, with 47% of oleic acid, 5% of palmitoleic, 10% of acids of the linoleic type, and 3% of C_{20-22} acids as its unsaturated components. Liver glycerides differed in composition both from the storage fats of the same animal and from the corresponding liver phosphatides. In some animals the milk fat closely resembled the depot fat, but in others it differed in containing large amounts of short-chain acids. Human milk fat was unique in containing lauric acid and a little capric acid, but no acids of lower molecular weight.

The ability of animals to synthesize fats from carbohydrates had long been recognized. Recently the synthesis of palmitic, stearic, palmitoleic, and oleic acids had been proved, but it remained doubtful whether other acids could also be produced. Dietary fat might be absorbed by the animal, provided that it melted, or at least softened, at body temperature, but it was uncertain whether an animal could utilize fatty acids which did not usually occur in its body even if they were ingested as glycerides of low enough melting point. The inclusion of vegetable fats in the diet might alter the composition of the animal's depot fat, but acids of low molecular weight were not stored. Vegetable fats varied greatly in composition, some being almost saturated and others highly unsaturated. Marine oils were usually characterized by the presence of large amounts of unsaturated C_{20-22} acids. In artificially hardened fats, as used for the manufacture of margarine, only small amounts of doubly unsaturated acids were present, since the hydrogenation process first reduced all the acids to single unsaturated linkages before completely saturating the acids first attacked.

Dr. P. Kraut said that the production of artificial fats from acids formed by the catalytic oxidation of petroleum had been studied in Germany at various times since the first world war. The crude acids so produced differed from those of natural fats in containing equal numbers of odd and even carbon chains, in the absence of unsaturated components, and in the presence of dibasic acids, branched chain acids, alcohols, aldehydes, and various other contaminants. Dibasic acids did not appear to be injurious, but the removal of the other impurities was a tedious procedure. Although by repeated purifications it had been possible to produce tasteless fat which appeared to be innocuous when given in small quantities to experimental animals and man, the high cost involved was only justifiable in time of war. In any case the general use of artificial fats in human nutrition could not be recommended without further extensive feeding trials.

Study of Fat Absorption

Dr. J. M. French outlined methods for the quantitative and qualitative investigation of fat absorption. To find the amount of fat absorbed from the intestines the faecal excretion of fat must be balanced against the dietary intake over a period of at least three to five days. For estimating the efficiency of absorption a standard diet containing 50 g. of fat daily was usually given, but sometimes 100 g. or more was included

Useful information could often be obtained by changing the quality of the dietary fat, particularly by increasing its content either of saturated short-chain acids or of unsaturated fatty acids. To elucidate the nature of defects in fat absorption it was often instructive to compare the qualities of the dietary and faecal fats, and for this purpose estimations of molecular weight and iodine value were useful.

In order to understand changes in the mechanism of fat absorption the intraluminar, cellular, and distributive phases must be considered. During the intraluminar phase fat was prepared for absorption partly by hydrolysis and partly by fine emulsification. In the cellular phase it passed through the intestinal cell, probably undergoing further modifications involving phospholipoid formation. In the distributive phase it left the intestinal cell and was either carried by way of the lymphatic vessels, the thoracic duct, and the systemic blood stream into the fat depots, or alternatively by way of the portal blood stream into the liver. The choice between these two routes depended on the degree of hydrolysis. Short-chain acids, which were readily detached from their glycerides, were mainly absorbed in a non-particulate, molecularly dispersed form in aqueous solution by the portal route; long-chain triglycerides, which formed a large part of the normal diet, were absorbed in particulate, emulsified form by the lymphatic route.

To find whether ingested fat underwent normal intraluminar changes specimens of the intestinal contents of patients could be withdrawn by means of a Miller-Abbot tube; the degree of dispersion and stability of the fat particles could then be examined, and estimations made of amylase, lipase, trypsin, lysozyme, and phosphatase. Tests of the efficiency of particulate absorption could be made by giving a long-chain triglyceride as a test meal, and by examining the resulting systemic lipaemia three hours later by means of the chylomicrograph or by microchemical estimations of fatty acids. When it was suspected that defective particulate absorption was accompanied by an increased absorption of fatty acids by the portal route, decreased gastric acidity and motility should be looked for, and also the possibility of excessive mucus formation in the small intestine should be investigated. In checking the normal functioning of the intestinal cells their power to absorb substances other than fat might be tested; the rate of disappearance of glucose when introduced in small amounts into the intestine often provided useful information. Excessive carbohydrate fermentation could be detected by estimating the increased amounts of volatile acids present in the intestines.

Dr. H. G. SAMMONS then described an ingenious apparatus by which it was possible to estimate the amount of fat present in a few drops of blood.

Types of Defective Fat Absorption

Professor A. C. FRAZER, whose article on "Fat Metabolism and the Sprue Syndrome" appeared in the *Journal* of October 8 (p. 769), discussed normal and abnormal fat absorption in the human subject and its nutritional significance. He said that normal subjects absorbed 95% or more of their dietary fat, but two types of defective absorption could be recognized. First, a deficiency of bile or pancreatic secretion might cause only 10–20% of the ingested fat to be absorbed. The faecal fatty acids were then found to resemble those of the dietary fat in composition, there was no evidence of abnormal gastric secretion or motility, and if the fat content of the diet was raised there was no corresponding increase in the absolute amount of fat absorbed. Secondly, patients who appeared to have a normal biliary and pancreatic secretion were often found to be able to absorb only 50–70% of their dietary fat. The faecal acids were particularly rich in long-chain components, gastric secretion and motility were abnormally low, and an increase in the dietary fat was usually accompanied by a rise in the absolute amount absorbed. In this second type of defect, in which reduced particulate absorption was presumably associated with normal non-particulate absorption, the failure of acid formation in the stomach made the *p*H of the small intestines much less subject to sudden changes. In these circumstances bacteria were able to thrive at abnormally high intestinal levels, which allowed them to hydrolyse fats, ferment carbohydrates, and utilize nutrients such as nicotinic acid, riboflavin, and folic acid in competition with the normal metabolic processes of their host. The whole pattern of intraluminar activity might thus be changed, and minor digestive delays or embarrassments might become of major importance in precipitating secondary nutritional deficiencies.

Intravenous Alimentation

Dr. J. J. ELKES described attempts to prepare fat emulsions suitable for use in intravenous alimentation. Besides being physically and chemically stable such emulsions should be compatible with protein and glucose for simultaneous administration, and should not cause pyrogenic or local reactions Physicochemical experiments indicated that to promote stability the fat particles and the protein of the emulsifying medium should have similar electrical charges. Promising preparations had been obtained with olive oil emulsified with either diluted blood plasma protein or a combination of dextran and soya bean phosphatides.

INTRACRANIAL SUPPURATION

In his presidential address to the Section of Neurology of the Royal Society of Medicine on October 6 Mr. JULIAN TAYLOR chose for his subject "Intracranial Suppuration." He remarked that almost since the advent of antiseptic surgery it had been known that certain varieties of intracranial abscess were amenable to treatment by drainage. Nevertheless, when in 1941 he took part in a discussion on this subject he had to speak of the treatment of abscess of the brain with some pessimism. Since then, thanks to penicillin, the outlook had changed considerably. It was often held that brain tissue had poor powers of resistance in relation to bacterial invasion, but it was doubtful whether that was true. A large proportion of cases of cerebral abscess had been successfully treated by some form of drainage, and it was possible that in many cases this treatment, although successful, was unnecessary, and that the minor procedure of aspiration might have been effective. Of the procedures for dealing with abscess of the brain the least destructive was aspiration of pus and the most destructive was excision, but the only possible deduction from the various results was that the brain itself must inherently have certain powers of resistance to suppurative infection.

In acute suppurative meningo-encephalitis, Mr. Taylor continued, the policy of awaiting localization and the formation of an anatomically thick and therefore palpable wall had many adherents, though it might well be that localization would not be sufficiently complete or rapid and the patient might succumb The discovery of penicillin had solved the problem of treatment when the causative organism was penicillin-sensitive, but it was important to ensure that the drug was so administered as to reach every infected tissue.

Mr. Julian Taylor then passed in review a number of cases of subacute and chronic abscess of the brain which he had treated. Before the war in his experience suppurative meningo-encephalitis had been almost invariably fatal. In 1948 a boy of 13 was brought into his hospital with this condition, and after some vicissitudes made a complete recovery, save for a residual epileptic tendency. No surgeon, he said, could have helped that boy without penicillin. He had many times excised brain abscesses in the past, but with penicillin available he thought this would seldom be necessary. There was now a wave of opinion in favour of excision almost as a routine, but, though he would not say that a cerebral abscess should never be excised, he thought that other methods would avail in most cases. The management of many of these conditions, which was previously a formidable procedure, had become almost simplicity itself. The neurological surgeon should offer humble thanks for the discovery of penicillin.

Sir CHARLES SYMONDS, in proposing a vote of thanks, said that it was tempting to imagine that the shades of great men of the past might be listening. He thought particularly of William Macewen, who 50 years ago announced to his sceptical colleagues that an uncomplicated cerebral abscess, diagnosed early, accurately localized, and operated upon, was one of the most satisfactory of all intracranial lesions.

Correspondence

Migraine

Sir,—May I suggest that Dr. G. S. Graveson's interesting article on retinal arterial occlusion in migraine (October 15, p. 838) may lead to unnecessary anxiety in people who suffer from attacks of migraine? In the first place it suggests that migraine is a disease, and that retinal arterial occlusion is a not very infrequent feature of it. I would strongly emphasize that migraine is not a disease but a *symptomatic syndrome*, as I have described it for many years in my *Diseases of the Eye*. Further, the statement that "there are numerous records of patients who have been left with a permanent homonymous visual-field defect after a migrainous attack" is liable to misinterpretation when one takes into account the very large number of people who suffer or have suffered from migraine. In fact one has to search the literature to find records of such cases.

The complete typical migrainous syndrome is so characteristic that it is unmistakable; but in mild attacks and in adults only parts may occur. In them, speaking from personal experience, the scintillating scotomata are most frequent; but headaches without scotomata can be recognized by intelligent sufferers as probably migrainous. It is very doubtful whether headache in the absence of scotoma or without any history of scotomata should be regarded as "migraine." On this criterion Dr. Graveson's Case 3 was not a case of migraine.

With regard to the vascular theory of migraine, Wolff and his colleagues advanced new confirmatory facts, but surely it has been the accepted theory for many years. The frequent association of other sensory phenomena in bad attacks—tingling and numbness of fingers and tongue, partial aphasia, etc.—shows that the vascular disturbance is not necessarily limited to the occipital cortex. It would not therefore be surprising to find similar arteriomotor changes elsewhere—e.g., in the retinal arteries—though of course the scotomata could not be attributed to them. I remember that many years ago the late Mr. Leslie Paton told me that he had watched the retinal vessels of a surgical colleague during an attack of migraine, but was unable to be certain that there were changes in calibre. Considering the differences of magnification due to optical conditions—refraction of the eye, distance of the ophthalmoscope from the eye, etc.—it would be almost impossible to be certain of any but gross changes.

On the other hand, it is certain that extreme and localized spasm of retinal arteries can occur and that they may precede "embolism" (which is usually thrombosis). I remember one such case under Sir William Lister at Moorfields which showed characteristic signs of "embolism" of a branch of a retinal artery; these disappeared during the course of the morning's observations.

Migraine is a very common complaint, and it implies the presence of a minor form of vasomotor instability. It is therefore not surprising that cases of retinal arterial occlusion and of permanent homonymous hemianopia should occur in migrainous subjects, but there is no doubt that relatively to the incidence of migraine they are rare. They naturally attract special attention owing to the characteristic visual disturbances of migraine. Would a physician pay much attention to a history of migra[illegible] in a case of hemiplegia?—I am, etc.,

J. Herbert Parsons.

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[illegible]ngworm of the Scalp

Treat[illegible]nt

Sir,—We appre[illegible]ense of H. McCaw and endorse the Drs. J. Martin Beare [illegible]ment to of *x*-ray epilation in the emphasis they place upon [illegible]lt to es Our recent contribution treatment of ringworm of [illegible]he ag the article published (September 17, p. 626) was [illegible] which we introduced in the *Journal* of [illegible] scalp ringworm by preliminary *x*-ray epilation. We also stressed the significance of mechanical epilation in the ointment technique. In the paper we concluded that preliminary *x*-ray epilation, even when followed by simple ointment, still affords the quickest prospect of cure. We hoped we had made it clear that we regarded the *x*-ray technique as the 100% standard of cure and that with various fungicides and penetrating bases we have not exceeded a 75% rate of cure; the duration of treatment also is longer than that when *x*-ray epilation is used.

Our researches on the problem were begun during a spate of ringworm infections when some patients were waiting several months for their *x*-ray epilation. We had ample evidence of the ineffectiveness of the old and new fungicides in simple bases, but it was hoped that with the new emulsifying and penetrating agents better results could be obtained, and work on similar lines in the U.S.A. encouraged that hope. Our first results were disappointing, but with the elaboration of the technique described about three-quarters of the unselected patients were cured of their infection in two to three months.

Although the numbers of the successfully treated patients were small the results were sufficiently encouraging in view of our previous experience to justify their publication, and we hoped to stimulate further work on similar lines and in the meantime to offer an alternative method of treatment which could be employed with a fair measure of success when *x*-ray epilation was not available. Naturally the increased penetration of the fungicides, by virtue of the penetrating bases, carries more risk of skin irritation, and, contrary to the criticism expressed by Drs. Beare and McCaw, the reactions were reported. Also the duration of the disease was not given because a parent's fortuitous recognition of an obvious lesion is indefinitely related to the onset of infection. Apart from the spontaneous cure of *Microsporon* infection of the scalp which is usual at puberty we have seen no instances of spontaneous cure in our clinics nor any cures in patients using Whitfield ointment for three to six months while waiting for epilation. Drs. Barlow, Chattaway, and Whewell (October 15, p. 8[illegible] drew attention to several important factors requiring further investigation. While our results with phenylmercuric nitrate and salicylanilide suggested that there was nothing to choose between these two fungicides, it is probable that others with smaller molecules would more readily penetrate the hairs, and we have found that a dilute ammoniacal solution of copper sulphate with Crill No. 6 as a wetting agent gives comparable results. Although *x*-ray epilation alone has undoubtedly cured many cases of scalp ringworm in children, cure cannot be so certain as when followed by the daily use of fungicidal ointments, which also diminishes the risk of spreading infection.—We are, etc.,

R. T. Brain
H. Haber.

London, W.1.

Modern Trends in Radiology

Sir,—It is proper that from time to time we should pause to consider the efficacy of accepted procedures and prevalent tendencies in current practice, and therefore Dr. James F. Brailsford's address in Philadelphia (October 1, p. 724) is, as he says in his opening sentence, a stimulant to thought. It is regrettable that in his critical letter (October 15, p. 870) Dr. Peter Kerley, an official adviser to the Ministry of Health on mass radiography, should conclude his declamation with the remark: "It is unfortunate that such nonsense should be given space in a scientific journal."

Dr. Kerley's standpoint is not unassailable, and there are at least a minority who are thoughtfully concerned in regard to the use made in this country of the miniature radiography instrument. The technique which developed during the war for examining Service men and women is not necessarily the best for tackling the problem of tuberculosis in the civilian population. Hoffstaedt[1] pleaded that M.M.R. units should be used "at health centres, and should concentrate their attention on workers in hazardous industries, on contacts of known cases, and on suspicious cases with symptoms—i.e., the suspected rather than the unsuspected section of the population."



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The present tendency of M.M.R. units is to lead a nomadic life wandering among the factory populations of the more densely populated areas; with the supply of more mobile vans it is to be hoped that directors of these units will extend their peregrinations into less thickly populated areas. Even as a branch of preventive industrial medicine, however, the present use of M.M.R. is defective. (1) The early case of significant tuberculosis is probably off sick when the unit visits his factory. (2) Not all the factory employees are examined at any one visit. (3) It is rare that the unit succeeds in revisiting the factory at the yearly intervals which have been considered desirable. (4) When it does attain anything approaching regular repetitive visiting the value of this is substantially reduced by the diminishing number of employees who volunteer for re-examination on these visits.[**]

Occasionally an M.M.R. unit attempts a survey of the general public somewhere. In such instances the proportion of volunteers coming forward is often less than economically worthwhile; hence perhaps the infrequency of such sallies. If any serious attempt is to be made to mass radiograph a complete population of, say, 50,000 (excluding the unsusceptible age groups) the first requirement of an M.M.R. unit would be a highly trained publicity agent. Secondly, such a survey would necessitate a thorough speeding up of the rate at which examinees passed through the unit, perhaps attainable if a man did not have to strip to the waist and pass a row of formfilling clerks. Thirdly, two units working together would facilitate the sieving of such a general population during the limited time that the publicity management could keep the population keyed up. Fourthly, if successful, such an intensive survey ought completely to overload any existing clinic services, and these would have to be reinforced for the occasion.

The plight of M.M.R. calls for remedy in two opposite directions. Units must become much more mobile and flexible in the sort of work they do. Thus they should be ready to go off at short notice to a rural district devoid of electricity or suitable halls to investigate a relatively small group of people. Such a task need not be restricted to fluorography. As some units are doing at present under the aegis of the Medical Research Council, tuberculin-testing might well be linked with such work—and why not B.C.G. vaccination too? This would transform the unit from a not very efficient diagnostic weapon into the prototype tool for a real prophylactic attack on tuberculosis in this country. On the other hand the M.M.R. instrument, without its ponderous and elaborate equipage, would be a valuable addition to the armamentarium of the chest clinic. Many chest physicians in big towns are working some sort of "general practitioner x-ray service," and with a miniature radiography apparatus permanently installed such work could be vastly extended and contact work improved.

Dr. Kerley argues that the M.M.R. case of tuberculosis requires less time in a sanatorium than the case reporting to a chest clinic. Where is the evidence justifying such an important and dogmatic assertion? How long do the patients in the two groups have to wait before admission? How many of the M.M.R. cases admitted to a sanatorium really needed to go there at all? And what about the cases who ignore the early symptoms of chest disease because they had had a normal result a few months previously?

Perhaps the most important observation that Dr. Brailsford makes on mass radiography is the fact that these surveys have shown that 40 persons per 1,000 appear to have had fairly extensive disease and recovered from it without knowing of its existence. This teaches us that pulmonary tuberculosis is probably a great deal commoner than used to be thought, and also more benign. Yet tuberculosis damages the social and economic life of this country more than any other disease, and such a finding aggravates the difficult and crucial question of which are the cases of tuberculosis really needing treatment—a question which becomes more and more important as our diagnostic tentacles extend further and further into the normal life of the community.—I am, etc.,

Reading. W. H. TATTERSALL.

REFERENCES

1 *Lancet*, 1947, 2, 955.
2 Dick, W. F., *British Medical Journal*, 1948, 1, 689.
Bradbury, F. C. S., *Lancet*, 1948, 2, 293.

SIR,—Now that Drs. Peter Kerley, A. Gordon Evans, and F. Kellerman (October 15, p. 870) have commented on some of the glaringly inaccurate generalizations made in Dr. James F. Brailsford's article (October 1, p. 724), may I be allowed to call the attention of general practitioners and of radiologists in particular to the relationship between mass radiography and Dr. Brailsford's "five omissions"? I know from personal experience that some radiologists hold similar views to his, and a remark recently addressed to me by a radiologist at a medical meeting, "But you know, Doctor, other things than T.B. show up in an *x* ray," summarizes the position of the chest physician in the eyes of some non-clinicians

The unit with which I am associated will continue to encourage the general practitioner to send cases and so to increase the present annual rate of 1,700 cases referred. The few figures given to support my statements are from this unit, being facts available to me, but it must be stressed that this unit is by no means exceptional.

Dr. Brailsford writes, "You may ask what evidence I have of these omissions. I believe you could obtain such evidence from the activities in many hospitals, but the strongest evidence is in the boosting of mass radiography." My comments on his "omissions" are as follows.

(1) His first "omission" is the failure to carry out clinical examination before radiology. This is impossible to rectify, by the nature of the work: but clinical examination is carried out if the history or radiograph indicates it. A history is taken from each person coming to the unit. Here it is advisable to remind practitioners that physicians, in contradistinction to Dr. Brailsford, do not diagnose activity by radiology alone.

(2) No individual can possibly have a better opportunity of learning the "bounds and appearances of the normal" than the physician in charge of a unit. He sees, probably, more normal films in a year than the radiologist who is not associated with a chest hospital sees in his lifetime. More than 43,600 miniature films were read here in 1948.

(3) Serial radiographs with clinical examinations are a routine, though a time-consuming one. Some 350 individuals are under such observation at the time of writing, apart from those referred for treatment.

(4) His next "omission," failure to appreciate that the onset of disease is not associated with immediate radiological change, is also untrue. Cases presenting themselves with a history of recent unexplained pleuritic pain are followed up regardless of negative radiological findings; some have been followed up for more than two years, some have developed disease, and all have been reassured by this evidence of interest in their welfare—a fact ignored by Dr. Brailsford.

(5) It is difficult to take seriously the statement that there is "a failure to realize that, though the disease has ceased its activity, the radiograph may show spectacular appearances even to the end of an apparently normal life." But if we are expected to take it seriously we can only speculate about the truth of some of the other sweeping statements made to the profession in the United States about clinicians in this country.

However much one may disagree with Dr. Brailsford about his "omissions" in relation to mass radiography, he was right when he said, "The best preventive medicine is that aimed at prevention, not that which is aimed at treatment of disease that could have been prevented." But this is, as yet, an ideal. Meanwhile all chest physicians especially will join him in his appeal for better homes, and if this letter does nothing but help to make those responsible for housing realize that tuberculosis is a social disease and that adequate housing is the first priority in its prevention it will have served its purpose.—I am, etc.,

Portsmouth. J. D. LENDRUM.

Sex Hormone Upset in Africans

SIR,—The very interesting article by Dr. J. N. P. Davies entitled "Sex Hormone Upset in Africans" (September 24, p. 676) contains the following passage: "From such cancerous livers [in Africans] carcinogenic substances have been isolated, probably sterols, as they have from non-cancerous African livers but not from the livers of Europeans or American

negroes. Failure of oestrogen inactivation would account for the finding of carcinogens in both cancerous and non-cancerous Bantu livers."

Dr. Davies has unhappily been misinformed. Des Ligneris' reported that in painting experiments tumours were produced on the skin of mice by extracts of Bantu livers but not by extracts of European livers, whether cancerous or non-cancerous. Steiner[2] found that extracts of livers, both from cancerous and non-cancerous negroes and whites in the U.S.A., were carcinogenic for mice. His figures are not very convincing for American negro livers, but he believes that the discrepancy was due to factors other than the potency of the extracts. In some recent papers[3,4] the present writer has shown that a considerable degree of carcinogenic activity can be detected in the sterol fraction obtained from liver, lung, kidney, and muscle of cancerous and non-cancerous Europeans, and from a variety of other biological sources—for example, from cow's milk and from the spinal cord and brain of cattle (i.e., commercial cholesterol).

However, these facts do not lessen the interest of the other evidence that Dr. Davies has collected in favour of the view which has been put forward by earlier investigators, that malnutrition may cause an aberration of liver function which increases the incidence of some forms of cancer.—I am, etc.,

London, S.W.3. I. HIEGER.

REFERENCES

1 *Amer. J. Cancer*, 1940, **39**, 489.
2 *Cancer Res.*, 1943, **3**, 385.
3 Ibid., 1946, **6**, 657.
4 *Brit. J. Cancer*, 1949, **3**, 123.

The Osler Family

SIR,—In view of the fact that this is the centenary year of the birth of Sir William Osler it seems opportune to correct an error which often recurs in medical biographies, that Sir William Osler and Sir Jonathan Hutchinson had common collaterals in Lincolnshire. As Dr. W. W. Francis, librarian of the Osler Library, McGill University, Montreal, pointed out in the Osler commemoration number of the *British Medical Journal* (July 9, p. 45), the connexion, if any, between the two families is between a Lincolnshire Hutchinson family and that of Lady Osler.

Hutchinson-Revere (Osler) Pedigree

John Hutchinson[1] Mayor of Lincoln 1556, 1564; b. Lincoln 1515, d. Lincoln 1564.	*m.*	Anne b. ?, d. Lincoln 1586
Edward *Mercer of Alford*; b. *Lincoln* 1564, d. Alford 1631.	*m.*	Susannah b. England, d. Wells, Maine, U.S.A., 1644.
William b. Alford 1586, d. Newport, R.I., 1642.	*m.*	Ann Marbury[2] b. Lincs. 1591, d. Connecticut 1643.
b. Alford 1613, d. Marboro. Mass., U.S.A., 1656.	*m.*	Katherine Nainby daughter of Councillor Nainby, Ipswich.
Elisha b. 1640, d. 1717.	*m.*	Elizabeth (Clark) widow of John Freak; b. Dorchester 1642, d. Boston, U.S.A., 1713.
Edward b. Boston, U.S.A., 1678, d. Boston 1752.	*m.*	Lydia Foster b. Boston, U.S.A., 1686, d. Boston 1748.
Elizabeth b. Boston, U.S.A., 1731, d. Milton, U.S.A., 1798.	*m.*	Rev. Nathaniel Robbins b. Cambridge 1726, d. Milton 1795.
Edward Hutchinson Robbins b. Milton 1758, d. Boston, U.S.A., 1829.	*m.*	Eliza Murray b. Wilmington 1756, d. Cambridge, U.S.A., 1837.
Mary b. Milton 1794, d. Boston 1879.	*m.*	Joseph Warren Revere[3] b. Boston 1777, d. Canton 1868.
Grace Revere b. Boston 1854, d. Oxford 1928.	*m.*	Sir William Osler b. Canada 1849, d. Oxford 1919.

[1] Hill, J. W. F., "Three Lists of Mayors of Lincoln," *Ass. arch. Soc. Rep.*, p. 30. See also Maddison, A. R., *Lincolnshire Pedigrees*, 1903.
[2] This is Anne (Marbury) Hutchinson, the Preacher (*Dict. Nat. Biog.*), massacred at Hell Gate, N.Y., by Indians in 1643 with all, except the eldest (Edward), of her 19 children.
[3] Grandson of Paul Revere, the American patriot.

For the benefit of future students of medical biography the above pedigree will illustrate the connexion. Any relationship between this Hutchinson family and that of Sir Jonathan Hutchinson, which originated in South Lincolnshire, around Gedney, has not been traced.—I am, etc.,

Burnley, Lancs. A. E. WALES

Myxoedematous Madness

SIR,—Dr. R. Asher's letter (October 8, p. 818) is unexceptionable save for some minor misunderstanding of my views; I am glad to find that he is no longer maintaining his unrestrained opinions, represented, for example, by, "Myxoedema is one of the most important . . . and one of the most frequently missed causes of organic psychoses," and, "The fact that recorded cases of myxoedema psychosis have closely resembled paranoia schizophrenia, melancholia, or other orthodox psychoses does suggest that the common psychoses . . . may turn out to be not diagnoses in themselves but manifestations of underlying organic disease." The main object of my original letter has now therefore been gained.

I regret that my letter (September 24, p. 706) has had another and unwished-for effect; I see from subsequent correspondence that it has caused hurt. I did not realize that it could hurt anyone so much as it has evidently hurt Dr. Martin Roth (October 15, p. 871). For this I must apologize.—I am, etc.,

Sutton, Surrey. E. B. DAVIES

SIR,—I am saddened, but not surprised, that there could be any objection to the saner perspective into which Dr. E. B. Davies's letter (September 24, p. 706) put the paper by Dr. R. Asher entitled "Myxoedematous Madness" (September 10, p. 555). Psychoses commonly occur with major or minor "physical" disorders which contribute to the stresses disintegrating the personality, so that every attention to physical health is rationally part of their treatment.

To suggest, however, that there is an entity "myxoedematous madness" as distinct from, say, rheumatic madness, acute haemorrhagic madness, or pulmonary tuberculous madness, or that it has a more specific response to appropriate treatment requires more evidence than that supplied by Dr. Asher. He presents 14 cases of psychosis. In at least six the mental state was that of clouded consciousness, which is very commonly associated with befuddled and perplexed behaviour, as, for example, in high fever or uraemia. Significantly, two of these were moribund (Nos. 4 and 13), and, of the others, three (Nos. 5, 6, and 10) responded immediately to thyroid as they regained consciousness, while Case 9 responded more slowly as there was an intervening head injury and the dose of thyroid was too small at first to control the myxoedema.

This leaves eight cases with a psychosis amounting to something more than sensorial clouding, and of these three failed to respond to thyroid. This hardly permits the assertion that myxoedema is "one of the most important" causes of organic psychosis. Indeed no other conclusion is legitimate than that like many other generally debilitating illnesses (tuberculosis, cancer, influenza, severe anaemia, and high fever), it may produce clouding of consciousness or contribute decisively to the stresses leading to disintegration of the personality which may or may not be reversible if physical health is restored.—I am, etc.,

Virginia Water, Surrey. H. BOURNE

Treatment of Early Syphilis

SIR,—In order to avoid misconception, it would appear that several of the points raised in the annotation regarding the treatment of early syphilis (September 24, p. 694) require clarification. It must be stressed that our results cannot be described as "appreciably worse," as they are not strictly comparable with those of McElligott, Jefferiss, and Willcox,[1] as the latter reported figures uncorrected by any actuarial method for default, etc. Unfortunately it is impossible for me to check the reference, being overseas, but if memory serves me aright the same applies to the other paper quoted in the annotation

Secondly, it is pointed out that the cumulative relapse rates, as distinct from the treatment-failure rates (sero-resistance), reported by us were the actual calculated cumulative rates of relapse obtained from the crude figures shown by means of an actuarial formula. They were only affected by a "laudable desire to take no chances with patients whose follow-up is likely to be jeopardized by an early return to civil life" in so far as possible reinfections were regarded as being relapses.

The behaviour of the serum reactions in early syphilis and their significance are fully appreciated. However, at the time when the form of treatment discussed in our paper was first commenced (1946) it had been decided to re-treat all sero-positive cases in which the reaction had not become negative at the end of four months as an added safeguard. Further, this can hardly be any more deemed to show "too blind a faith in blood tests" than would have been a hopeful reliance in a falling titre.—I am, etc.,

British Military Hospital, Hamburg. J. W. EAMES.

REFERENCE

1 *Brit. J. vener. Dis.*, 1948, 24, 45.

The Acute Throat

SIR,—I read Dr. T. Anderson's paper on the acute throat (October 15, p. 860) with interest and enjoyment, and I am sure that many practitioners besides myself will be thankful for such a clear summary of the diagnostic problems involved. When, however, the subject of treatment is considered, one cannot help feeling that Dr. Anderson is approaching the subject from the standpoint of the fever hospital and not that of general practice.

Streptococcal tonsillitis is one of the commonest ailments in general practice, and for its treatment we are given the alternatives of parenteral penicillin or therapeutic nihilism concealed by a screen of household remedies. I am entirely in agreement with Dr. Anderson that penicillin lozenges are useless; but four-hourly injections of penicillin are seldom feasible in general practice, and it would not be possible in present-day circumstances to obtain a hospital bed for every case of streptococcal tonsillitis of moderate severity. Why, then, are the sulphonamides mentioned only to be condemned? Dr. Anderson condemns them on two grounds—their supposed inefficacy and their possible toxic effects.

In common with the vast majority of general practitioners I have treated streptococcal tonsillitis with sulphonamides with complete satisfaction to myself and my patients. If, as so frequently happens, one sees a patient with an acutely inflamed sore throat and a high temperature (due to β-haemolytic streptococci), and finds that after 48 hours' treatment with sulphonamides the temperature is normal and the local condition resolving, it is surely not unreasonable to suppose that the use of sulphonamides has had something to do with the result.

I am not in a position to quote my "controls," but those who are old enough to remember the pre-sulphonamide era cannot be uninfluenced by the memory of the more protracted course of tonsillitis in those days and the higher incidence of complications (such as quinsy). Statistics can no doubt be made to prove anything, and fortunately I have none with which to bemuse the minds of your readers. Nevertheless I feel sure that my fellow practitioners will bear me out when I say that the efficacy of sulphonamides in streptococcal tonsillitis is entirely comparable to that in acute pneumococcal pneumonia, a condition in which, so far as I know, nobody doubts their efficacy. One might go even further and say that if a case of acute streptococcal tonsillitis does not rapidly respond to sulphonamides one should suspect some complication or a mistaken diagnosis. Recently I had such a case which did not respond, and further investigation showed that it was in fact a case of glandular fever.

Coming to the other objection to sulphonamides—i.e., their toxicity—one must acknowledge that there are occasional cases where the use of sulphonamides does harm; but if one of the more recent sulphonamides is chosen and adequate precautions are taken with regard to dosage and fluid intake this risk is surely negligible. I write this letter in the hope that younger practitioners will not be deterred by Dr. Anderson's scepticism from treating their cases of streptococcal tonsillitis with such a simple and efficacious remedy.—I am, etc.,

Oxford. A. M. RICHARDS.

SIR,—In his article on the acute throat (October 15, p. 860) Dr. T. Anderson makes the statement that the efficacy of the sulphonamides "has never been convincingly demonstrated." I am quite certain that thousands of practitioners through long clinical experience are convinced of the efficacy of, in particular, the more recent sulphonamides. Any doctor in practice in pre-sulphonamide days will recall the anxiety he felt over many cases of severe streptococcal tonsillitis, and will compare it with his peace of mind over similar cases now dealt with effectively by the sulphonamides.—I am, etc.,

Dagenham, Essex. J. FINER.

Trichostrongylus Infestation in South Persia

SIR,—Conditions are favourable for ankylostomiasis in Abadan; not the reverse as claimed by Dr. Ian S. Stewart (October 1, p. 737). Anaemia is probably still frequent in Abadan. Damp soil suitable for the hatching and larval moults of *Ankylostoma* species is common in the riverine hinterland, and the inhabitants habitually go about near their homes with bare feet.

Strongylus subtilis Looss 1895 was found in 17 persons in Abadan in 1934 (*Ann. Med. Rep. A.I.O.C.*, 1934, p. 61) and in 16 persons in 1933 (*Ann. Med. Rep. A.I.O.C.*, 1933, p. 67). *Strongylus subtilis* is a synonym for *Trichostrongylus colubriformis* Giles 1892 and for *Trichostrongylus orientalis* Jimbo 1914. According to Faust (*Human Helminthology*, 1929, Philadelphia, p. 390) *Trichostrongylus orientalis* is easily cleared from the human system by doses of carbon tetrachloride, as for ankylostomiasis. Human infestation by *Trichostrongylus* is due to raw consumption of plant stems and leaves contaminated with the faeces of infected animals.

Dr. Stewart states that 70% of the inhabitants (of South Persia) carry the "harmless" sheep parasite *Trichostrongylus*, 25% carry the common *Ascaris*, and that other helminthic parasites are rare. This statement is not correct. In the *Annual Medical Report* for 1933 of the Anglo-Iranian Oil Company (pp. 41–3) I described 11 varieties of helminthic parasite, all of which were common among the indigenous human population.

The modern Abadan may be better than the "old town." There was much room for improvement; but Abadan, old or new, is not representative of the rest of South Persia: one may fervently hope it never will be. It is possible that conditions in Abadan have changed, so that the life cycle of *Trichostrongylus* is much facilitated while that of *Ankylostoma* is correspondingly depressed by increasing urbanization together with bad sanitation. However widely the "town" sprawls, animal, vegetable, and human life in the secluded and shady fringes of the Shatt-el-Arab continue under conditions that have changed hardly at all since Alexander's admiral brought part of his India expedition by boat through the Persian Gulf and up the conjoined "three great rivers" of the Old Testament and won the battle of Arbela in 331 B.C.—I am, etc.,

Epping, Essex. FRANK MARSH.

Gangrenous Intussusception

SIR,—The account by Mr. J. A. Kerr (September 10, p. 580) of a successful resection of small intestine for gangrenous intussusception in an infant of 6 months prompts me to record a gangrenous intussusception cured by hemicolectomy (and end-to-end anastomosis), the patient being a boy only 3 months old. In a search of the literature I have been unable to find any record of recovery in so young a patient when it has been necessary to resect the proximal half of the colon. Dennis[1] describes a success in an infant of 39 days, but in this case it was necessary to resect only the small bowel.

The infant was 12 weeks old when transferred to the Royal Salop Infirmary on October 6, 1948. There was a history of

10 days' persistent vomiting. On the day of admission he passed blood per rectum for the first time. On admission the baby was deathly pale and grossly dehydrated, with sunken fontanelles and the skin lying in folds. The pulse was almost imperceptible. A sausage-shaped tumour could be felt lying transversely above the umbilicus.

A continuous intravenous saline was given at the ankle and gastric suction begun. As the child was apparently dying, operation was decided upon without much optimism and begun two hours after admission. The patient still looked palely cyanotic and the pulse had not improved. Procaine (1%) was used as a local analgesic, supplemented by ether and gas-and-oxygen given by Dr. Harker. A gangrenous ileo-colic intussusception was found, the apex being near the splenic flexure, and it was possible to reduce it only as far as the hepatic flexure. In doing this a tear was made in the gangrenous ascending colon, and there was some faecal contamination. A resection was done of the lower ileum, caecum, ascending, and part of the transverse colon, and an end-to-end anastomosis performed, using a single piercing Connell catgut suture. Penicillin (10,000 units) was given four-hourly after the operation.

On the day following the operation the bowels moved twice. Three days later the baby was vomiting all feeds, although there was but little abdominal distension. Intravenous saline was recommended, but vomiting continued for five days. "Eumydrin" was then given before the feeds, and the vomiting ceased. From then on recovery was rapid, and the infant was discharged fit after 31 days. He was seen again on September 23, 1949, and appeared to be normal in every respect.—I am, etc.,

Shrewsbury. D. LINCOLN LEWIS.

REFERENCE

1 *Ann. Surg.*, 1947, **126**, 788.

Cutaneous Horn of the Nose

SIR,—In the *Journal* of September 17 (p. 635) Dr. V. R. Tadros reported a case of cutaneous horn. The following particulars of a cutaneous horn of the nose may be of interest—even in an extremely busy out-patient clinic it is very rare to come across such a case.



A man, aged 61, came to the out-patient department with a horny mass growing from the right side of the nasal septum at the muco-cutaneous junction. The length of the horn was 2¾ in. (6.9 cm.), and its circumference at the base was 1¾ in. (4.4 cm.). The patient had had this growth for the last ten months, and whenever it caused him annoyance he used to cut some of it off. The growth was removed by Mr. F. B. Gilhespy, who has kindly given me permission to publish the case. My thanks are due to Mr. Lee, the photographer, and to the patient for co-operation.

—I am, etc.,

Birmingham W. A. MALIK.

The G.P. and E.C.T.

SIR,—Time and again correspondents who specialize in nervous and mental diseases suggest that in E.C.T. they have a means of treatment which in almost all cases in which it is used is completely satisfactory in short-term and long-term results. Would any large number of general practitioners who have the aftercare of such patients agree that this degree of complacency is justified?

My own experience is that patients are returned to my care wearing, as it were, a brittle mask of cheerfulness. After an interval, which too often is regrettably short, this mask is shattered and once more one starts the dreary business of ringing the changes on the bromides, barbiturates, and chloral hydrate, and the exhausting performance of trying to infuse into the patient some moral force, glibly referred to by our more learned colleagues as "reassurance." I conclude by stating that my patients have been treated at some half-dozen different centres.—I am, etc.,

Launceston, Cornwall. DONALD M. O'CONNOR.

Medical Services of the Armed Forces

SIR,—My article on the above subject (October 1, p. 751) was much abbreviated from the original. I therefore wish to emphasize a few special points.

1. Efficient Regular specialists in curative medicine can be maintained in the future only by markedly increasing the field of clinical work. Owing to the demands of modern medicine curative specialists must be full-time. They should not be looked upon as future administrators outside their particular specialty.

2. In preparation for a future war a strong nucleus of Regulars trained in medical administration is essential. Such work will be much more efficiently performed if these officers have previously had the following professional training: (*a*) a practical apprenticeship in all or nearly all the special departments of a Service hospital, and (*b*) a practical apprenticeship in preventive medicine.

3. Scope for Regulars to train as curative specialists may not (in the opinion of some) be essential to the Services, but without it recruitment will never be satisfactory and the prestige of the Regular doctor will be greatly reduced.—I am, etc.,

E. A. SMYTH,
Major, R.A.M.C

POINTS FROM LETTERS

Rheumatoid Arthritis and Herpes Zoster

Dr. E. SAKOSCHANSKY (Southampton) writes: During the severe winter weather of 1947 a boilermaker aged 55 developed a sharp attack of rheumatoid arthritis. This persisted: he could not close his fingers, he walked like an old man, and he was very tired at the end of the day's work. On June 23, 1949, he suddenly found that his rheumatism was much better, and on June 26 the first crop of herpes-zoster vesicles appeared, on the right side, in the distribution of the ophthalmic branch of the right trigeminal nerve. On July 5 he could close his hands, he walked downstairs two steps at a time, his walk was that of a young man, and he could "dance" on his toes. The only sign of rheumatoid arthritis was some swelling of the third and fourth fingers of the right hand, but there was no pain in those fingers. On July 6 he complained of just a little "kink" in his ankles, which he attributed to the change in the weather, but by August 13 the rheumatism was "not so good." The rheumatoid condition is perhaps at the time of writing not so severe as before the herpetic eruption; he does not look so anaemic, but he is still unable to think of work. His hopes were high during the early days of the herpetic illness; he was very disappointed that the rheumatism had come back. This case emphasizes the important fact that rheumatoid arthritis is a reversible disease, and it is tantalizing to me that I cannot reverse it in my patient. Perhaps it would be possible to devise indirect methods of attacking the disease of rheumatoid arthritis whilst supplies of "cortisone" or cortisone-like bodies are synthesized.

Weight-reducing Diet

Miss C. M. M. ADAMSON (Out-patient Dietitian, St. Bartholomew's Hospital) writes: I have read with interest the article by Dr. H. L. Marriott entitled "A Simple Weight-reducing Diet" (July 2, p. 18) and the letter by Dr. E. Domany (September 24, p. 709). Little can be done without the close co-operation of the patient. What is the best method of securing and preserving this salient feature? The suitably qualified dietitian, with her specialized training, can greatly assist the physician or surgeon to achieve the desired results. Her approach is necessarily rather different from that of the physician, particularly in a busy out-patient department. Experience confirms my opinion that her individual interest and constant encouragement are of vital importance. The planning of the diet in the presence of the patient, giving due consideration to his or her social circumstances, occupation, normal arrangement of meals, etc., is then possible. Complete freedom regarding low calorie foods is permitted normally, and patients are assured that they need never feel "starved" or empty. Monthly visits and interview with the same dietitian are arranged, and patients are advised to weigh themselves weekly. Drastic diets such as those suggested by Dr. Domany are surely unnecessary from a social aspect and contraindicated nutritionally.

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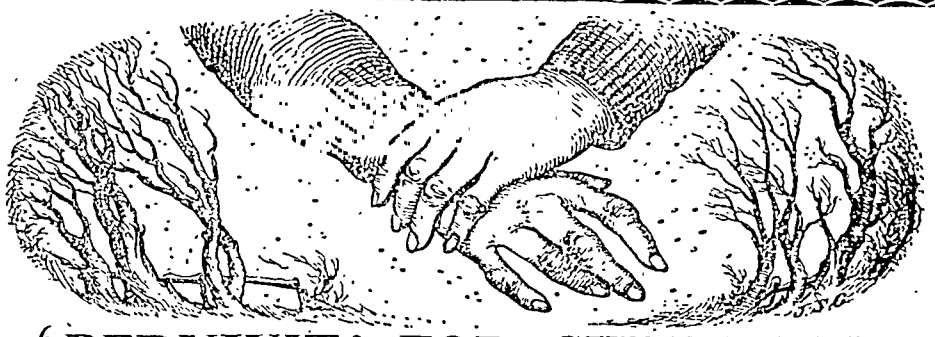
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Obituary

SIR MAURICE CASSIDY, G.C.V.O., C.B., M.D. F.R.C.P.

Sir Maurice Cassidy, who died at his home in London on October 22 at the age of 69, was consulting physician to St. Thomas's Hospital. He had been physician-in-ordinary to the King since 1937 and was one of the outstanding cardiologists in this country.

Maurice Alan Cassidy was the eldest son of the late Dr. D. M. Cassidy, C.B.E., medical superintendent of the Lancaster Mental Hospital. He was born at Lancaster on February 29, 1880, and after leaving school there he went to Clare College, Cambridge, of which he was a scholar. He took a first class in both parts of the Natural Sciences Tripos. At St. Thomas's Hospital he was a student of unusual ability, and one of Dudgeon's earlier pupils as a clerk in the clinical laboratory. He qualified in 1905, graduated M.B., B.Ch., a year later, and proceeded M.D. in 1909. He was a house-physician at St. Thomas's Hospital, resident assistant physician from 1908–10, and later medical registrar. It was at this time that he decided to turn away from the academic life which the offer of a fellowship at Clare afforded and settle in London. He held a Salters' Company research fellowship in 1907, 1912, and 1913. In 1913 he was elected F.R.C.P. and joined the honorary staff of St. Thomas's Hospital. In 1914 he gave the Goulstonian lectures of the Royal College of Physicians.



[Russell & Sons

During the first world war Cassidy spent two years in the Army in this country and in France, acting as physician to No. 2 Anglo-Belgian Fever Hospital at Calais. Then in 1916 he was invalided out with pulmonary tuberculosis, and it was nearly two years before he was fit enough to return to work. His courage in facing this setback roused the admiration of all who knew him. His own experience then may also have had something to do with his remarkable kindness and sympathy in handling sick people. Returning to active practice he rapidly built up a considerable reputation as a consultant and as an authority on disease of the heart. Those were the early days of clinical electrocardiography, and he soon established himself as an expert in the new methods of accurate diagnosis.

It was in 1929 that Cassidy gave up his appointment, which he greatly valued, as chief medical officer to the Metropolitan Police, and on this occasion he was awarded the C.B. Shortly afterwards, in 1932, he received his first appointment at Court as physician to His Majesty's Household, and since then he had served successive monarchs as physician extraordinary, and later became physician-in-ordinary to His Majesty King George VI. He was created K.C.V.O. in 1934, and after attending the King during his illness earlier this year he was promoted G.C.V.O. This promotion was gazetted just after an accident in April when he and Lady Cassidy were both seriously injured. As Sir Maurice Cassidy was too ill to attend the formal investiture, the King paid him the unusual honour of driving to his house in Montagu Square and performing the ceremony there, as recently as October 10.

Sir Maurice Cassidy retired from the active staff of St Thomas's Hospital in 1939, but within a month the outbreak of a new and greater war interrupted his retirement, and he returned to serve the hospital, carrying throughout the war years a burden that few younger men could have borne better. In the wards and the out-patient department he spent many hours each week, and his example was a great source of strength to those who were working with him. Only in the autumn of 1945 did these day-to-day activities come to an end, and only then was full effect given to the resignation from the active staff which ought to have taken place normally in 1939.

Many distinctions came his way. He was president of the Royal Society of Medicine in 1946–8 and of the British Cardiac Society. At the Royal College of Physicians he held the offices of examiner, councillor, and senior censor. He delivered the Harveian oration in 1946, taking as his subject the incidence of coronary disease. He was physician to the Lord Mayor Treloar's Cripples Hospital at Alton, and consulting physician to the King Edward VII Sanatorium, Midhurst, and the Children's Heart Hospital, West Wickham. In July of this year he was elected an honorary fellow of his old college at Cambridge. His writings were almost entirely concerned with cardiology, apart from his co-authorship with Mr. J. E. Adams in 1913 of a book on acute abdominal diseases. He contributed many papers to this and other journals on such subjects as hypertension, coronary disease, the treatment of cardiac cases, and carotid body tumour.

Quiet and unobtrusive, Sir Maurice Cassidy always appeared diffident. He was a man of innate modesty, and had a deep sincerity and sympathy of manner which made him universally beloved. He had a dry, ironical sense of humour, but in later years his natural shyness and diffidence grew more obvious. This and a certain aloofness must have made it difficult for him to realize how strong was the affection felt for him by his colleagues and his students. On all those who worked for him and with him, his was the influence of the good physician.

He married in 1918 Elise, youngest daughter of Frederick Relfe. There were no children of the marriage.

Dr. J. P. Hedley writes: The death of Maurice Cassidy has removed from us a great physician, but it is not as a physician but as a man and a friend that I am writing. Perhaps the most outstanding of his characteristics were his courage, his kindness, and his courtesy. During his professional life he had several prolonged periods of ill health which might have altered his whole future, but he faced all his difficulties with wonderful courage and determination to overcome them. When first it seemed possible that his health might make it unlikely that he would be able to stand the strain of hospital work in London an offer was made to him to return to Cambridge as a Fellow and teacher; but his heart was set on becoming a consulting physician, and he felt himself unable to accept the offer.

His kindness was as great as his courage. If any friend needed his help he was not only willing but anxious to do his utmost for him, even if this added much to an already hard day's work. I know of many cases where he went long distances out of London on several occasions to help in the treatment of some friend or doctor. His charming courtesy endeared him to his patients, the students, and nursing staff at St. Thomas's as well as to his colleagues.

He was considerate in his dealings with everybody, and I do not remember his ever making a harsh remark about anyone. He was firm in his opinions and was a good chairman of the staff committee of the hospital.

I first knew him when he came to St. Thomas's Medical School from Cambridge, where he had had a distinguished career. He was modest and unassuming, and in spite of his great attainments and success in later years he retained his charming modesty and simplicity to the end of his life. After his serious accident in April he suffered a great deal of pain, but retained his sense of humour in spite of all and was most amusing in describing the curious dreams he had, apparently as the result of the drugs he was given, which often seemed real long after he was awake. While still in hospital he was elected to a fellowship at Clare, his old college that he loved so well. Nothing, I am sure, could have given him greater pleasure and satisfaction, and he regarded it as great an honour as any man could receive. He went home after being in hospital for more than three months in high hopes of getting back his health and strength, but he was soon attacked by a disease, unconnected with his accident, which was certain to prove fatal. He received the news of this with his characteristic courage.

To me, like very many others, Maurice Cassidy's death has caused the deepest sense of loss and sorrow.

CHARLES OLIVER HAWTHORNE, M.D., F.R.C.P. LL.D., D.Sc.

A rare figure has passed away in Charles Oliver Hawthorne, who died on October 24 at the age of 91. He was for long the Nestor of the British Medical Association Council, but also the Rupert of debate, if one may so bring together the suggestion of age and youth. Dr. Hawthorne was always reticent about personal matters, and for that reason he was not really well known even to the men with whom he worked in close relationship. Although he had touched many sides of public life and medicine, his speeches rarely or never had an autobiographical tinge. But he did respond some years ago to an entreaty from a former colleague at Headquarters for some material for a biography which it was hoped would remain in the pigeonhole for another generation at least. From this material the surprising fact emerged that he was born as far back as 1858. Few who saw his four-square figure, immaculately dressed in grey frock coat and perfectly creased trousers, and with a grey "silk hat" to match, his face aglow with his own humorous and kindly outlook on life—a brother Cherryble, but far more intellectual, and with a sardonic touch about the bristling eyebrows—would have supposed that he was anywhere near fourscore. His speeches at the age of 80 were as full of wit and wisdom as ever.



[Haines, London

Hawthorne was a Glasgow man, and not until middle life did he set out upon the well-worn track from Scotland to London. He graduated M.B., C.M. from the University of Glasgow in 1884, with first-class honours and the Brunton Memorial Prize as the most distinguished medical graduate of the year. Fifteen years later he took the M.D., again with first-class honours and the gold medal. He had already taken the F.R.F.P.S.Glas. by examination. It must have been a great pride to him to receive, 30 years afterwards, the Hon. LL.D. of his own university, a bestowal followed soon afterwards by the Hon. D.Sc. of Manchester and the honorary fellowship of the Royal Academy of Medicine in Ireland.

For the first ten years of his professional career he was university assistant to the professor of practice of medicine, Glasgow, and clinical tutor in Sir William Gairdner's wards, Western Infirmary. Later he became assistant physician in the same hospital and lecturer on materia medica and therapeutics at Queen Margaret College of the University. Later still he was examiner for the Universities of Aberdeen, Edinburgh, and Glasgow, and for the Scottish Conjoint Board. His early contacts with medical society life were, of course, also in Glasgow, where he held office at one time as honorary secretary and editor of the Royal Medico-Chirurgical Society and as president of the Glasgow Southern Medical Society.

Having gained all the academic prizes that his native city had to offer, Hawthorne became a consulting physician in London. He was also for a time medical director and afterwards chairman of council of the Medical Graduates College and Polyclinic in Chenies Street—an early and gallant effort to provide such postgraduate facilities as are now arranged by the Fellowship of Medicine and the British Postgraduate Medical School at Hammersmith. Among the London hospital appointments which he held were those of physician (later consulting physician) to the Hampstead and North-West London General Hospital, the Royal Waterloo Hospital for Children and Women, the Central London Ophthalmic Hospital, and the Central London Hospital for Diseases of the Nose, Throat, and Ear. He was elected a Fellow of the Royal College of Physicians of London in 1921.

From time to time Hawthorne employed his pen to excellent purpose. Some of his books date back to his Glasgow days. His handbook on *Galenical Preparations of the "British Pharmacopoeia"* was published in 1895; his *Forensic Medicine and Toxicology* ran through two editions in the 'nineties, and was again published, largely rewritten, in 1912. In 1912 also appeared his *Studies in Clinical Medicine*, a volume of nearly 500 pages, and in 1928 came a little work entitled *Short Essays on Medical Topics*, in which, with many shrewd observations, he set out his views on a variety of subjects, often touching his favourite territory of medical ethics. Even apparently trivial subjects he could illuminate with much wisdom. The "topics" included the telephone in medical practice; the teaching value of lectures; the relation (always a very dubious one in his eyes) of doctors to the lay press; the choice of names for diseases and disease phenomena; secret terms in physicians' prescriptions; the sudden greying of the hair. Even the baby-show—"as valueless as it is vulgar"—made a chapter, and there was also included an address he gave from a pulpit on Hospital Sunday. He also made numerous contributions on clinical medicine and medical ophthalmology to the medical journals, and these, like his papers read before scientific societies, and indeed his extempore speeches, were perfectly polished, the outcome of a singularly erudite mind and of a master of language.

Hawthorne's work for the British Medical Association brought him into closer contacts with his profession. None exceeded him in loyalty or in delight in many sides of the Association's work. He was unexcelled in its forum. When he went to the platform the whole tenor of debate was lifted. He never studied brevity in

speech, but his audience, admiring his style, forgot his length, and if the time limit ran out there were always calls to him to continue. His speeches were also of the kind that swayed votes. One noteworthy occasion—though the subject was relatively unimportant—was at the Representative Meeting at Bournemouth, when his eloquence secured rejection of the Council's recommendation for the recognition of chiropodists, and four years later, when the proposal came up again, he attacked it with unabated vigour.

Unlike some orators, he was also a good committee man. At one time or another he was a member of thirty committees or subcommittees of the Association, ranging over such subjects as postgraduate courses, medical ethics, lunacy law, charities, psycho-analysis, the *British Pharmacopoeia*, medical education, osteopathy, and even regulations and standing orders, in which last he found sometimes quite a perverse delight. His work on the Ethical, Science, and Charities Committees was of great importance and value, and his long chairmanship of the Library Subcommittee earned him the gratitude of all who used the Association's Library. One of his achievements on which he himself looked back with special pride was his action in getting established the Sir Charles Hastings Clinical Prize. Another was the part he took in placing the Association Charities Fund in a position, not of rivalry, but of co-operation with the Royal Medical Benevolent Fund and Epsom College. He served as representative of the Association on the committee of management of the R.M.B.F. and often took the chair, and his interest in medical charities went very deep.

Other work of his included membership of the statutory advisory committee under the Therapeutic Substances Act, to which he was nominated by the B.M.A.; he was also its nominee on the advisory committee on international certification of causes of death, and he represented the Royal College of Physicians on the Departmental Committee on the Optical Practitioners Bill. He did much to help in the establishment of the Consultants' Board for London, and was its first chairman. At Annual Meetings of the Association he was vice-president of the Section of Medicine in 1922 at Glasgow and of the Section of Pharmacology and Therapeutics in 1936 at Oxford; on two occasions he was vice-president of the Section of Medical Sociology, and president of that Section at the Dublin Meeting in 1933. Another abiding interest of his was the People's League of Health, where he was—and the phrase is a just one—Miss Olga Nethersole's "right-hand man" for many years.

His membership of the British Medical Association extended back over more than half a century, to 1888. He had been chairman of the Marylebone Division and president of the Metropolitan Counties Branch. He attended every meeting of the Representative Body, save one, from 1915 to 1938, and in 1924 he became a member of Council. He was Chairman of the Representative Body from 1928 to 1931. On laying down the office at the Eastbourne Meeting, he made a speech at the Representatives' dinner which was a fine statement of the position of the Association in relation to the public. To summarize it would do injustice to its English, but readers who possess the second volume of the *Journal* for 1931 might well refresh themselves with that speech.

Hawthorne was a purist alike in language, in mode of thought, and in professional conduct, but he was the kindliest of purists, and no one was ever wounded by his satire. He was a great stickler for principle. Over and over again when debate in Council became confused he would with firmness but urbanity reassert the fundamental principle underlying the subject being discussed. This quality of his was sadly missed when he ceased to be a member of Council. Hawthorne was awarded the Gold Medal of the Association at the Annual Meeting at Aberdeen in 1939. The address presented with the medal concluded thus: "The Council of the Association feels sure that it is expressing the wish of the profession as a whole in thus honouring its 'Grand Old Man,' whom it holds in the highest regard and deepest affection."

JOHN D. LONG, M.D.

Dr. John D. Long, who was internationally famous for his work on bubonic plague, died on September 18 in Guayaquil, Ecuador, at the age of 75. He had been in South America for the last twenty-five years.

On his retirement from the public health service in 1938 Dr. Long continued his career as chief travelling representative of the Pan-American Sanitary Bureau. He was loaned repeatedly by the United States Government to assist in the control of bubonic plague in South American countries, where he was a beloved and honoured figure.

A native of Mount Pleasant, Pennsylvania, Dr. Long graduated M.A. at the Washington and Jefferson College in 1897. The college awarded him the honorary degree of D.Sc. in 1929. He took his M.D degree at the University of Pennsylvania, and after a year as an intern at St. Mary's Hospital, Philadelphia, he was in private practice until his appointment to the United States public health service in 1900. During his nearly forty years with the public health service Dr. Long was in charge of the Plague Suppressive Laboratory in San Francisco in 1912–14, and was in Manila from 1901 to 1906 and again from 1914 to 1918. During this second period he was chief quarantine officer and later director of health for Manila and also professor of hygiene at the University of the Philippines. He was also responsible for the reorganization of the Philippine health services. Dr. Long served as technical adviser to the Minister of Hygiene in Santiago, Chile, in 1925–7 and as chief quarantine officer for the Panama Canal Zone in 1927–8. At other times he worked at the Boston and San Francisco Marine Hospitals and at the Hygienic Laboratory, which was the forerunner of the National Institute of Health, the main research centre of the public health service. It was while working with the Pan-American Sanitary Bureau in 1929 that Dr. Long first went to Guayaquil, considered the most plague-ridden port on South America's west coast. By the following summer, through the efforts directed by him, the city was freed from plague. During the next few years cities in Peru, Chile, Argentina, and Brazil were similarly freed from plague by other campaigns stimulated by his leadership.

Dr. Long was perhaps best known as the co-author of the Pan-American Sanitary Code, the Caracas Declaration on the Health of the Child, and the Sanitary Codes of Panama, Chile, and Ecuador. He was a delegate to numerous Pan-American scientific conferences in South America, and was vice-president of the Far Eastern Association of Tropical Medicine from 1925–7.

Dr. Charles Evans Jenkins, who died on September 15 at the age of 59, was one of the few remaining pathologists in Manchester with some private practice. For the last seven months his colleagues had noticed that his health was failing, but, like many a medical man before him, he kept at his work, and on the day before his sudden relapse performed five post-mortem examinations. Dr. Jenkins was born at Dowlais, South Wales,

anxious to obtain privacy as an additional amenity he might be able to do so. Such amenity beds were being increased. It seemed to him to be reasonable that until perfect conditions for everybody could be provided persons who wished privacy in hospital should be able to obtain it. They got the rest of the service free, but paid for the additional amenity of privacy.

Mr. HOWARD said that in these cases the patients were not likely to have the benefit of the doctor of their choice.

Mr. BEVAN said these patients paid only for the amenity. The hospital staffs were available for them. Most people would discover before long that if they paid for a separate specialist of their choice they would have the same one as they would have had in the free ward. He pointed out that the amendment would increase the cost of the National Health Service.

Cost of Free Choice

Mr. LINSTEAD said that taking the hospital service as a whole medical priority determined whether beds were given to a particular patient or not. Only when that principle had been satisfied did the paying patient have any advantage. One of the principles of the Service was the free choice of doctor by the patient. On the whole that principle operated fairly in the general practitioner service, but it did not operate in relation to hospital specialist services except under a very heavy penalty. The only way to get the specialist of the patient's own choice in hospital was by becoming a Section 5 patient and paying the full cost of the bed with the specialist's fee on top of that.

Dr. HADEN GUEST said that before the Health Service came into operation it had been most uncommon for a patient to know anything about the specialist.

Mr. LINSTEAD said that there had been free choice of specialist in that the general practitioner made his recommendation to the patient by saying "you ought to see so and so." In most cases the patient had accepted that advice. Now when the patient went into hospital he had either to accept the specialist who went with the bed or pay the full cost of a specialist chosen by himself or recommended by a general practitioner. The principle of free choice of doctor was violated by the conditions attached to certain Section 5 beds. Also, each of 1,500 or 2,000 individual hospitals to which Section 5 might apply had to arrive at his own weekly figure for Section 5 charges. Even the hospital management committee could not fix a figure for these beds. It was not satisfactory that in a national scheme patients coming into Section 5 beds should have to pay fees varying from £8 to £16 a week according to the overhead costs of the hospital which they entered.

Mr. BAIRD said that if the Opposition complained about high charges for pay-beds the solution was to develop amenity beds faster. In a hospital in the London area last week not a single amenity bed had been available although there were a large number of private pay-beds. Would it not be right to reduce the number of pay-beds and hand them over for use as amenity beds? He pointed out that Wolverhampton Royal Hospital had no private pay-beds.

Lord HINCHINGBROOKE said the amendment only sought to extend the amenity-bed principle and to provide that where specialists were brought in and extra services were given there should still be subtracted from the charge that part of the cost provided by the general hospital service.

Mr. HARRISON said there were complaints from many parts of the country about the growing cost of private beds in the pay-bed block. In his city (Nottingham) the cost would probably soon be £20 a week, which many of the present occupants of the beds could not pay. He suggested that the accommodation in the pay-beds should be transferred for ordinary hospital purposes.

Sir HUGH LUCAS-TOOTH said that in practice the proposal would not increase the cost of the Service. A large number of patients would prefer to make a reasonable payment for their beds and to pay a reasonable fee for the specialist or consultant. But if they were required to pay a specialist fee on top of 20 guineas a week all they could do was to go to a hospital without making any contribution whatever.

Dr. SEGAL said some on the Government side of the House might feel sympathy with the amendment, but when the resources of the Minister were limited they should be concentrated where the need was greatest.

Mr. BEVAN intervened to say he had asked for an investigation to be made of the number of free patients in pay-bed blocks to check to what extent free patients were not admitted on entirely medical grounds to these blocks. His information was that at least 40% of the pay-bed blocks were occupied by free patients. That was a tribute to the way in which the administration was carrying out the terms of the Act. Mr. Bevan said that some time ago he had sent out an instruction that the patient was to be told by the general practitioner or the specialist whether he was to be treated under the National Health Service or as a fee-paying patient. It was the obligation of the doctor to inform or to ask the patient whether he or she wished to be treated as a free patient or as a fee-paying patient. He would be grateful for examples where this procedure was not followed. It was not proper for a medical practitioner or specialist to promise that a person would get into hospital sooner by becoming a private patient. It was the duty of hospital authorities to admit patients on medical grounds, and the figures he had given showed that in most cases this had been done.

Mr. RICHARD LAW said that if existing tendencies continued and if prices continued to rise the private patient would be driven out of the National Health Service hospitals. All that was asked under the amendment was that the private patient should be treated in exactly the same way as the public patient and have exactly the same privileges.

Dr. MORGAN said there should be no further extension of the pay-bed system by which certain patients could get additional benefits. The subject had been fought out in the medical profession, and the professional men had decided in favour of the Act as it stood.

The Committee then divided, and the amendment was rejected by 256 to 139.

Private Patients at Health Centres

Mr. ANEURIN BEVAN then moved an amendment that: "At the end of paragraph (*a*) of subsection (1) of Section 21 (which requires facilities at health centres to be available for the provision of general medical services), there shall be inserted the words 'and, on such terms and conditions as may be determined by the Minister, for the provision by medical practitioners of such other personal medical services (if any) as may be so determined in the case of a particular health centre.'"

He said the purpose of this amendment was to enable general practitioners to treat private patients in health centres. At one time he had set his face against that proposal, but the number of persons outside the scheme was now so small that no danger could arise to the structure of the Service by allowing general practitioners to take their private patients into the health centres. It would be unreasonable when a health centre was available to expect a general practitioner to maintain a private surgery at which to treat his private patients. When health centres were available the Ministry would make it clear by regulation that there should not be two doors—one for the private patient and one for the public patient. The private patient must take his proper place with the general public in seeking the services of his doctor. The Ministry would also rule that a doctor should have a substantial number of patients in the public scheme before he could avail himself of private facilities at a health centre. A subcommittee of the Central Health Services Council had recommended that it should be possible for a general practitioner to treat private patients in a health centre.

Lord HINCHINGBROOKE said Mr. Bevan was constructing castles in the air. There were no health centres and the Minister's speech was irrelevant. There might be just one experimental centre which had been started before Mr. Bevan had anything to do with the health service. In the last four years during which he had full opportunity to build them he had not done so.

Answering Mr. Orr-Ewing Mr. BEVAN explained that he would determine which doctors were entitled to treat private patients in a health centre under the words of the amendment "on such terms and conditions as might be determined by the

Minister." The proportion of private patients and listed patients would be discussed when the regulations were laid before the House.

The amendment was then agreed to.

Mr. BEVAN then moved a further amendment as follows:

"In Section 46 (which provides for the use of health centres by practitioners) after the words "general medical services" there shall be inserted the words "or other personal medical services or," after the words "subject to regulations" there shall be inserted the words "and to any determination by the Minister under Section 21 of this Act," and after the words "the Executive Council may" there shall be inserted the words "subject to any such determination as aforesaid."

Mr. Bevan said the purpose of these words was to enable the Executive Council when directed by the Minister to make differential charges on general practitioners varying with the amount of use they would make of the health centre for their private patients. It was clear that the general practitioner would have to pay a charge because he would be relieved of the necessity of maintaining his surgery. This was a matter for future discussion with the representatives of the medical profession. He did not think any general practitioner would quarrel with this. The amendment was welcomed by Mr. Elliot and agreed to.

Certificates

Mr. BEVAN then moved a further amendment as follows: "In paragraph (*d*) of subsection (2) of Section 33 (which provides for the issue by medical practitioners providing general medical services of certificates reasonably required under or for the purposes of any enactment) after the word 'of' there shall be inserted the words 'such certificates as may be prescribed being.'" He said that before the Health Service Act came into operation the Secretary of State for Scotland and himself had appointed a committee to try to reduce the number of certificates which doctors had to provide. That committee, known as the Safford Committee, had issued an interim report.

Mr. LINSTEAD said the House welcomed anything that would cut down paper work on the part of medical practitioners, but he suggested that the Minister might be curtailing the freedom of patients to get free of charge some certificates required for statutory purposes.

Mr. BEVAN said that as the free certificates required would be listed in the regulations the matter could be raised when these were debated. The Safford Committee had stated that a list of free certificates should be provided and that the words of the original statute, which were very extensive, should not be applied.

Dr. MORGAN asked whether the report of the Safford Committee would soon be published.

Mr. BEVAN said he did not like to hurry the committee in its work, because it was necessary that the report should receive general acceptance. Parliament would be substantially guided but not bound by what the committee recommended. He did not think it would be necessary to have the list of prescribed certificates ready at the exact moment when the present Bill came into operation.

The House agreed to the amendment. Mr. JOHN WHEATLEY then moved an amendment applying to Scotland the principle of the earlier amendments dealing with the right of doctors to use the health centres for private patients. The House agreed to this amendment, and the schedule as amended was ordered to stand part of the Bill.

REPORT STAGE

The Report stage followed immediately. A new clause (Prohibition of full-time salaried dental practitioner service) was brought up, read a second time, and added to the Bill. The purpose of the clause was to carry out in the case of dentists the same undertakings that had been advanced in the case of general practitioners.

Mr. WHEATLEY moved another new clause under which a child under 16 could be admitted as a voluntary patient in a mental hospital on the application of the parent or guardian. Developments in this branch of medicine were such that it was desirable that children should be able to get full advantage of them as voluntary patients.

The clause was read a second time and added to the Bill.

Dental Ethics

Mr. BAIRD moved a new clause which read: "No dental practitioner who is on the list of a local executive committee and is accepting patients under the National Health Service shall be entitled to accept remuneration from private patients." Mr. Baird, himself a practising dentist, said a number of his constituents suffered because of the unethical practices of a number of dentists in his division (East Wolverhampton). When the National Health Service Act had been discussed he had fought for the liberty of the dental and medical professions to treat both private and public patients, but with reluctance he now moved to withdraw that right from the dental profession. The racket now going on in the dental profession in regard to public patients must be stopped. A patient who was in pain and went to a dentist to have a tooth removed was told that the dentist was fully booked up for six weeks, but if the patient offered to pay the dentist would take the case right away or within an hour. Under the National Health Service Act payments were offered to dentists by means of an itemized scale of fees for every operation. The operation of filling was better paid than that for fitting dentures. A number of dentists were accepting patients who required fillings but refusing those who required dentures. A third abuse was that of "talking down" the National Health Service Act. The dentist said to the patient, "If you come to me under the Act I can only give you second-rate treatment. If you want a good job, come to me privately." Mr. Baird said he had particulars of such cases from all over the country, but there was great difficulty in proving them. The discussion usually occurred between the patient and the receptionist. He estimated that at least 75% of dentists were turning away patients in pain unless they were prepared to pay.

In his opinion the real solution was large-scale health centres with a fully salaried dental service. A temporary solution would be a simplification of the regulations which allowed a patient to make representations to the local executive council. The only other solution was for the profession itself to discipline its members. He had received from one of the dental organizations a letter placing on record its disapproval of the amendment he had sponsored. This letter declared that if the proposed amendment was pursued the association would resist it to the utmost. Even if Mr. Bevan could not accept the amendment Mr. Baird appealed to him to let it be known that the House condemned those dentists who turned away patients in pain unless they were prepared to pay.

Mr. SPARKS seconded the proposed new clause and said the Minister had had a large number of cases brought to his attention by Members.

Sir HUGH LUCAS-TOOTH said the Opposition fundamentally opposed the new clause. To add it to the Bill would be a gross breach of faith with the dentists. The over-riding difficulty of the dental service was that there was more work to do than the dentists could accomplish. A lot of respectable professional men said to themselves that they were prepared to work eight or ten hours a day in the public service and would reserve two or three hours for private practice. There was nothing unethical in that.

Dr. GUEST asked whether it was ethical for dentists to devote one day a week to National Health Service patients and keep the rest of the week for private patients.

Mr. PAGET said the whole point was that the doctors had played the game and the dentists had not.

Sir HUGH LUCAS-TOOTH said that even now the fees paid to dentists for public patients were fully as high as those which were paid for private patients.

Mr. BAIRD said that every penny of the dentist's income received from the State was declared to the income-tax authorities, but there was no way of checking so far as his private patients were concerned. After due consideration he made the charge that in a large number of cases a considerable amount of the dentist's private income was not declared because it was

so difficult for the income-tax authorities to prove what was his real income.

Mr. BEVAN said he had never seen such a complete exposure of general ethics as that made this afternoon from the other side of the House. Sir Hugh Lucas-Tooth had suggested that if a patient went to a dentist's surgery in pain it would be ethical on the part of the dentist to prefer to treat a private patient who would pay more. Members of the Opposition put professional solidarity over the public interest. The dental profession had been guilty of worse conduct than any other profession in the Health Service. It was the duty of the Opposition to deprecate unprofessional conduct and not to try to justify commercial discrimination—the ethics of the jungle—against people in pain. Mr. Bevan said he was satisfied that misconduct was decreasing and that the behaviour of the dentists, generally speaking, was improving. Therefore it was better to allow the disciplinary machinery which had been established under the scheme to operate against the person who was misbehaving. He hoped that before long the good would drive out the bad. If a dentist was overworked, how was it possible for him to do the work privately but not publicly? The trouble at the beginning of the scheme was that there was exploitation of scarcity value by the dental profession as a whole. The largest organization of dentists did not advise its members to join the National Health Service. They had come in as individuals. The National Health Service had been introduced to enable ordinary citizens to have access to medical skill without being blackmailed in doing so. That was the whole point of it. The Ministry had tightened up the situation so that a dentist could not say now that he would extract teeth under the National Health Service and provide dentures privately. He was sure that first-class people in the dental profession would be pained by the belief that the general public did not hold the dental profession in esteem, and he hoped the House could look forward to a general improvement in the Service.

After further discussion Mr. Baird withdrew his proposed clause.

Overseas Visitors

Mr. ELLIOT moved a new clause providing for regulations to prescribe charges for services rendered under the Act to persons not normally resident in the United Kingdom. Mr. Elliot said that it would be easy for visitors to pay a charge. The Minister had said at a Press conference that he had arranged for immigration officers to turn back aliens who were coming to this country to secure the benefits of the Health Service. To place this duty on these officers was asking them to do a thing which they were not competent to do. Surely the proper person to examine a visitor was one with medical skill. The proposed amendment suggested a solution which would meet the difficulty in a practical way. The Minister would allow a person who was seeking attention to pay a sum according to circumstances which the Minister would determine.

Mr. BING said there were about 635,000 visitors to this country in the course of the year who on the average stayed less than a month. They were equivalent to a population of about 50,000 extra people requiring health services. Supposing they made the same demands as the people in this country, the cost would be between £200,000 and £250,000. The machinery required to meet the amendment would involve an administrative cost as great as that.

Mr. BEVAN said it had been sickening during the last fifteen months to witness members of the Opposition going round the country spending most of their time on the platform poking fun at the Health Service and undermining it. The assumption that there was something wrong in treating a stranger who was visiting this country and fell sick was one of the curses of modern nationalism. It was not part of the ethics of mediaeval society. The present attitude was a by-product of the existence of the Conservative Party.

The health services of the whole world were being stimulated by what was happening in Britain, and a constant stream of visitors came from all parts of the world to find out what we were doing. Most of them returned hoping that what we were doing would succeed so that they could imitate it in their own countries. If a person left another country deliberately for the purpose of going to Roehampton to get an expensive artificial limb he would consider that to be an abuse, but if a person came to this country and fell sick it was proper that he should be treated. Some British institutions had always done so. The great Scottish hospitals treated visitors freely, and until recently many of the great London hospitals had followed that tradition. He was not prepared to establish administrative arrangements which would harass the whole population merely to deal with a handful of people who were visiting this country. Unless they were careful they would find themselves denying the health service to many British subjects not normally resident in this country. However, he proposed to take power in the House of Lords to frame regulations to prevent abuse of the health service in this country by overseas visitors where it might be practicable so to do. The House must look at the regulations when they were issued to see how far they went towards meeting the difficulties of certain cases. He must not be understood to agree that it was desirable that any person in this country not being a resident who fell sick ought to pay a charge for the use of all or part of the health service.

Mr. Elliot recommended the Opposition to accept Mr. Bevan's promise of an amendment and to see what the position was when that amendment finally returned from the House of Lords. He then withdrew the proposed new clause.

Too Heavy a Hammer

A new clause was brought forward by Mr. MARLOWE. It ran:

> "Regulations may authorize the Minister, if he thinks fit, to publish particulars of any disciplinary action taken by him in respect of any breach of any regulation under the Act of 1946 or the Act of 1947, including the name and address of any person in respect of whom such action is taken and the name of any executive council recommending such action."

Mr. Marlowe said that recently a practitioner had been dealt with by an executive council and fined the maximum amount of £100 for what was called "infamous or scandalous conduct" under the Act and for deceiving innocent patients. It had not been found practicable to publish the name of this offender in the Press lest the executive council found itself open to an action for libel. Mr. Marlowe said the amendment was designed so that if the name of the offender was published under the direction of the Minister the executive council would be protected against libel action and full publicity would be given. Mr. ELLIOT seconded the proposed clause.

Mr. BEVAN said there was a difficulty at the moment, but the new clause was too heavy a hammer for this nut. In the central tribunal, which was a judicial body, decisions were published with the names and penalties. In the case of the local committees procedure was not so formal and judicial, and it did not seem to him that the name of the offender and his punishment should be published. It could not be said in such instances that the full procedure of the judiciary had given protection to the person involved. As a general rule the name was known to the local population and therefore the utmost deterrence was achieved. To publish the name in the local press might cause hurt to individuals who might have been guilty of thoughtlessness or something of the sort. The existing machinery worked well, and he was content with giving full publicity to the decisions only of the central tribunal.

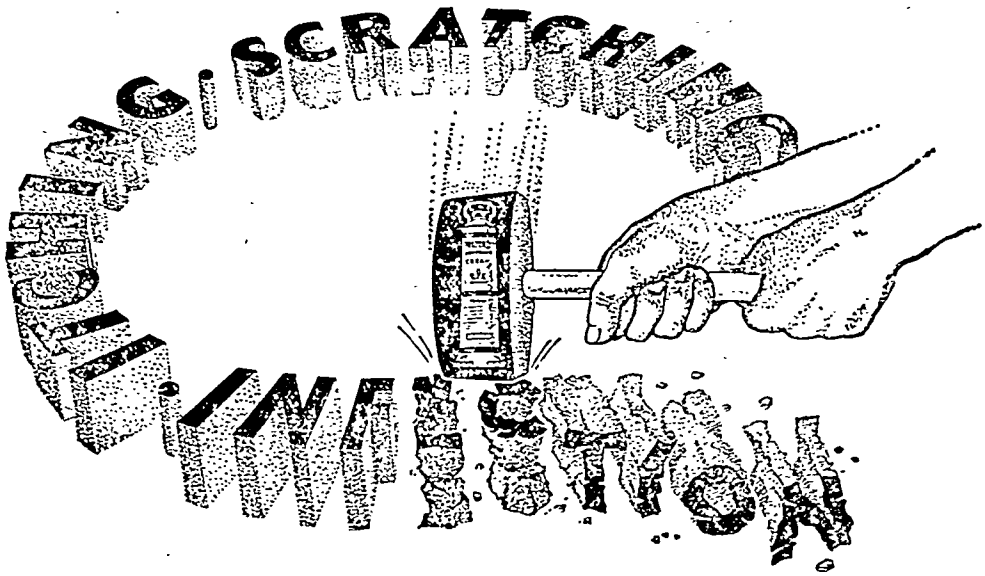
The proposed new clause was negatived.

On Clause 20 Mr. BEVAN moved and the House accepted an amendment providing that medical officers of regional hospital boards or teaching hospitals should not be paid for examinations carried out or certificates given in respect of mental patients when these things were carried out in the ordinary course of their duties.

On Clause 23 drafting amendments were made on the motion of Mr. BEVAN, and the House agreed to them.

General Practitioners' Access to Hospitals

On the Schedule of minor amendments Colonel STODDART-SCOTT moved an amendment. He said that at present anybody



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entering a Section 5 bed of a hospital must be cared for either by one of the honorary staff or one of the resident staff of the hospital. It was impossible for a general practitioner who had been treating the patient or even for an outside specialist to continue looking after that patient should he obtain admission to one of these pay-beds. General practitioners should not be prevented from treating their own cases in hospital. The fact that they could not do so threw an extra burden on the staffs of the hospitals. Hospitals had borne the greatest burden of the National Health Service. *This would be relieved to some extent* by permitting general practitioners who were not members of hospital staffs to care for those of their patients who occupied pay-beds. *In small general hospitals a maternity case, for* example, must be looked after in a pay-bed either by the general surgeon or physician or the resident doctor, who in many cases knew less about maternity than the *general practitioner.* This amendment would enable these patients to be cared for in hospital by their own medical practitioners. It would retain what Mr. Bevan always said he wished to retain, free choice of doctor by the patient.

Sir HUGH LUCAS-TOOTH seconded the amendment, and said there was a feeling in the medical profession that it was being divorced from access to hospitals. Doctors should not be given that impression. If the Government intended to kill private practice that intention should be stated.

Sir HENRY MORRIS-JONES recalled that when the main Act had been in committee Mr. Bevan had held that there should be a strong line of demarcation between the general practitioner and the specialist. *Since then, to his credit,* he had modified his views. A recent circular (*Supplement*, October 15, p. 168) distributed by the Ministry of Health to hospitals had urged that more facilities should be given for general practitioners, particularly in cottage hospitals and smaller provincial hospitals. It would be a pity if facilities were denied for maintaining what Mr. Bevan had assured the medical practitioners to be his intention, that the right of private practice would still be available and that they should have an opportunity of carrying on in that respect within the framework of the Act.

Mr. MESSER said it was generally accepted that if the Service was to succeed the country must have not merely an efficient hospital service but an efficient general practitioner service too. He was not sure that specialization to the extent to which it appeared to be developed in the profession was a good thing. It might be good if specialization had a very good general background. For that reason a high standard of domiciliary service was of immense importance. No barrier should be placed in the way of improving the standard of the general practitioner. If that meant access to hospital beds, it should be organized in a way which would provide the general practitioner with that contact without adversely affecting other aspects of the Service. But, as he read the amendment, it would enable a patient to be admitted to hospital by *jumping the queue.* Once a general practitioner with access to a hospital could get his patient admitted more speedily than another general practitioner, another patient would be disadvantaged. If there was value in a general practitioner having access to hospitals, all general practitioners should have the same opportunity. That was not the case. In Central London no cottage hospital or general practitioner hospital existed.

General Practitioners and Specialists

Mr. BEVAN agreed with Mr. Messer that there had been a tendency to dig too wide a gulf between the general practitioner and the specialist. If that gulf was to be narrowed it was not necessary to do so by legislation. It could be done by agreement between the members of the medical profession. It would be wrong to admit the right of a general practitioner with private patients to have access to hospitals where his colleagues were denied that right. General access of general practitioners to hospitals was an entirely different matter and one for discussion *administratively, not by statute.* What was really envisaged in the amendment was that a specialist not in the public service should be able to treat his private patient in a hospital. *That he considered* to be wholly wrong. If a specialist did not wish to be in the Health Service and therefore had not attached himself to a hospital, Mr. Bevan *did not think that such a man* was entitled to use the Health Service. He would not be much good for long if he were not attached to a hospital. A specialist *ought to live in the climate of the hospital as much* as possible to do his work properly. Mr. Bevan said he was unable to accept the amendment. If the general practitioner was to follow *his patient into the hospital where that patient had been* entrusted to the specialist, there might be a considerable quarrel over the claims of both to have charge of the treatment, and between the quarrels of two members of the profession the patient might succumb.

Mr. QUINTIN HOGG said a public hospital under the scheme *was neither a weapon for the Minister to coerce specialists or* general practitioners into the scheme nor a privilege for the use of specialists or practitioners. It was a convenience for the public and, in particular, a service for the patient. The House was talking about people who were suffering and whether these people were better treated inside a general hospital or should have to stay, as an unprivileged class, in their own homes. If the treatment of a person was better effected in a public hospital that person should be allowed to go there. If Mr. Bevin denied that person the right, within reason, to select his own medical attendant or adviser, he was breaking one of the fundamental agreements in the scheme, which had hitherto not been in dispute.

Mr. BEVAN *asked whether Mr. Hogg suggested that a patient* should have the right in any hospital to be treated by the general practitioner of his choice, whether attached to that hospital or not.

Mr. HOGG said the limitation of the right of the private patient in a hospital to be treated by the medical attendant of his choice should be defined by purely medical considerations and not by political considerations. He included in political considerations Mr. Bevan's argument that one did not wish to encourage specialists who did not belong to hospitals. That was trying to discipline the medical profession.

Mr. BEVAN contended that if a statutory right were given to a general practitioner to enter a hospital and treat a patient there *would immediately* be administrative troubles of the greatest possible kind. What was desirable was that eventually there should be a closer identification between general practitioners and the work which went on in hospitals.

On a division the amendment was rejected by 253 to 103.

Grading of Specialists

Sir HUGH LUCAS-TOOTH moved to insert in the Schedule the words:

"Subsection (2) of Section 14 (which provides for conditions of service and appointment of medical or dental officers employed on the staff of hospitals providing hospital and specialist services) shall have effect as if the following sub-paragraphs were added:

'*(e)* for the establishment of a Central Professional Committee and for the hearing by such committees of appeals from officers engaged in the provision of hospital and specialist services who are dissatisfied with any decision under this subsection of any regional hospital board or board of governors relating to their status;

'*(f)* for the determination by the Minister after consideration of the recommendations of the Central Professional Committee of any such appeal as may be made under the provisions of the last foregoing sub-paragraph.'"

Sir Hugh recalled that before the Act came into operation specialists fell roughly into three groups: the house officers, the registrars, and the fully qualified specialists. About the time of the introduction of the Act the Spens Committee recommended that the specialists should be divided into two main groups, the junior of which was to be the registrar group, with a smaller group of fully qualified specialists. The Minister had introduced a third grading, the senior hospital medical officer. *Sir Hugh did not contest the division of specialists into three* grades.

He was concerned, however, with the grading of individuals. Under the Minister's regulations, specialists had to be placed in appropriate grades by the regional hospital board, or the board of governors in the case of a teaching hospital. That was done through the advice of a reviewing committee. If the specialist was dissatisfied with the grade in which he was placed

his only appeal was to the board whose reviewing committee had in fact appointed him. Whereas in the old days it might not have been a matter of vital importance what the specialist was called, to-day his whole career must depend on the grade in which he was placed. Sir Hugh did not say that the grading had been badly carried out or that there were a great number of mistakes. He contended that a great number of those graded felt they had not been properly judged in this matter. One reason for this sense of injustice was that the grading had been done by the local board of the hospital to which the specialist was attached. The purpose of the amendment was to give a right of appeal to those who had a grievance. It proposed that the Minister should constitute a central committee to deal with the question of status.

Lord HINCHINGBROOKE seconded the amendment. He said the Minister must be conscious of a great tide of complaints from consultants and specialists under the National Health Service relating to harsh treatment at the hands of regional hospital boards in having their status downgraded as the result of the Minister having varied the terms of the Spens Report. He had had a large number of cases brought to his attention from the provinces. In the first place the complaint was against the original assessment being made by men who had been described to him as "superior persons in the medical fraternity who gravitated to the metropolis, men who are cut off by many years now from the knowledge of what kind of work is being done in the provinces." One communication had defined the selecting team of assessors on the Central Hospital Board as "men who suffer from the belief that London in general and Harley Street in particular harbour all but the incompetent nonentities in the specialist branches of medicine." Complaints were not uniform from all parts of the country. That showed that the treatment of the subject by the various regional hospital boards varied considerably. Some had initially graded too high and intended to downgrade in the interest of economy. Other regional hospital boards—he instanced the South-Western Metropolitan Regional Hospital Board—seemed to have downgraded almost everyone, but allowed certain cases on appeal. It was unsatisfactory that the boards should differ so substantially in their methods.

The Opposition contended that the appeal should be instituted by the man who was downgraded and should lie to a different body altogether, but not to the Minister. Lord Hinchingbrooke cited the appeals open to Army officers who felt aggrieved at their standing. He said Mr. Bevan had rushed into a national medical service on military lines, but had not devised the network of safeguards which the Services had been obliged to develop. Mr. Bevan would find a useful precedent in the Services. New machinery was imperative if the National Health Service was not to degenerate through disillusion and cynicism which was growing in the profession, especially among consultants and specialists who had been downgraded. Lord Hinchingbrooke added that the Opposition was not wedded to the actual form of the amendments. If Mr. Bevan would indicate the appropriate machinery that would be introduced into the Bill while it was before the House of Lords, Conservatives would be satisfied.

Mr. BEVAN said the amendment was maladroit. Section 14 of the Act dealt with the appointment of persons who had already been qualified. It had nothing to do with their status. The amendment directed itself to the grading which had recently taken place of persons in the specialist class. People had assumed that because the regional hospital boards made appointments on the staffs of specialists they actually made the classification of specialists. That they did not do. There was no academic qualification in the medical profession which corresponded to a hierarchical arrangement. He did not agree with the hierarchical conception in which the general practitioner was placed at the bottom. The first-class general practitioner was the cream of his profession. To say that any person had been downgraded or upgraded in relation to whether he was further from or nearer to the status of a general practitioner would immediately poison the atmosphere. Since they had to have different scales of remuneration they had to have a classification. The task of ensuring this had been entrusted, on the advice of the medical profession, to a purely professional body. That was one of the defects in the amendment which suggested that after the doctors had been classified by their fellows they should appeal to the Minister. It proposed that a person should be examined first by the local medical professional committee, and, having a grievance against the committee, he should appeal to the Central Professional Committee and then appeal to the Ministry.

Apple of Discord

Mr. BEVAN said his legal advisers told him there could be no other interpretation of the words in the amendment. The Ministry would be the last court of appeal for determination of the professional status of a member of the medical profession. He could not dream of doing that. The medical profession would be horrified if it thought that a lay Minister should be allowed to classify specialists in the profession. They were not dealing with jurisprudence, but with the proper classification of a person in the practice of his profession in the absence of objective data. To do that they had called into existence a local professional committee containing all the specialties about which classification was to be made. As people were being classified on their craftsmanship, the more immediate and precise the knowledge the more just the conclusion was likely to be. Therefore a local committee did the classification. This was done for the first time in medical history and was bound to be empirical. Therefore the Government had decided that a further review should take place—a review, not an appeal. If a person wished to have his case reviewed it could be referred to two persons outside the region who would bring fresh minds to bear. That was in process of taking place and it would be a disaster if Parliament churned it all up again. Members might satisfy the small number of persons who wished to appeal, but would dissatisfy a large number of those who had been established. All those who were fitting themselves into their positions would feel insecure. The whole of the findings of the local committee would be exposed to doubt. Further, the central committee would consist of the same type of people as the local committee, but with less knowledge about the individuals concerned. It was inevitable that a lot of individuals should have a feeling about the sieve through which they had been passed, but a grievance was not necessarily entitlement to appeal. To throw this apple of discord into the arena would be resented by the profession.

Mr. HOGG remarked that Mr. Bevan had talked nonsense for a great part of his speech. He was grateful to Mr. Bevan for having pointed out a drafting defect in the amendment, which had been put in the wrong place, since local hospital boards were concerned with appointments but not with classification. The important practical question was how to exclude from the circle of specialists those with no qualification to call themselves such. The Minister was right to have entrusted the question of classification to a local body, but what the Minister had failed to understand was that it was vital to have a single standard throughout the country, which could not be obtained by the operations of a local man working alone.

Mr. BEVAN intervened to say that the absence of an objective test made uniformity impossible. The professional status of the individual in the conduct of his work constituted his entitlement.

Mr. HOGG agreed that responsibility must lie, in the first place, with the local committee. He thought the conclusion which followed was that a central professional body should supervise the work of the local committees. He did not think it impossible to deal with these matters on appeal. The Central Professional Committee which was suggested would be a co-ordinating body of practical men deciding cases on practical principles and evolving a code of practice which would give the desired uniformity. Mr. Hogg accepted Mr. Bevan's assurance that the Minister's new proposal that there should be a review, with two added persons from outside, was acceptable to those concerned. But the Minister had not persuaded him that it was not desirable for a purely professional body to overlook the work of the local committees.

Dr. MORGAN said he had pleaded for years for a recognized scheme by which specialists and the different grades in the

profession could be recognized. The public was disinterested. People did not care a hoot who called himself a specialist. The Minister had that night been most conciliatory on this most difficult of all problems. He did not see why the Minister should be scared at taking the advice of a Central Professional Committee. There was in the profession and among the most competent specialists a great deal of dissatisfaction at the way things had gone so far. Mr. Messer had remarked that there had previously been no grading. Dr. Morgan said that many a man who failed to get his F.R.C.S. did not fail altogether from lack of learning. When he himself failed in the primary F.R.C.S. examination one of the examiners had pulled him aside and said, "You did not fail because you did not know the subject, but because you are too keen on socialist policy." That might be changed now, because Labour had grown respectable.

Mr. Walter Elliot said the point under discussion was important and no political profit could be made from it by either side. Everyone had pointed out that there was no medical hierarchy, but one was being brought into being. The problem, therefore, was a new one. It would pass, once the hierarchy had been established. To classify persons whose qualifications were craftsmanship, competence, and behaviour was difficult. The responsibility of a layman was admitted in the case of the Home Secretary, who was a final court of appeal, or in that of the Secretary of State for Scotland, who made the final appointment to some of the greatest university chairs in Scotland. From all the arguments brought forward that night he thought that appeals to some body which was not the local body would be of great advantage. Nobody denied that a sense of grievance existed. He did not think Mr. Bevan had dealt fully with the matter.

The amendment was rejected by 241 to 97. Drafting amendments were made to give the local optical committee the same statutory position as the local medical, pharmaceutical, and dental committees.

The Bill was then read a third time without further debate.

Limiting N.H.S. Lists

Sir Ernest Graham-Little inquired on October 18 under what sanctions executive councils subjected medical practitioners in the National Health Service to a heavy tax upon their payments from the Service if they refused to undertake a large panel.

Mr. Bevan replied that the regulations governing the remuneration of general practitioners provided for the adjustment of remuneration in the case of a practitioner who was exempted from the liability of having persons assigned to him and was relieved of obligations for emergency night calls in respect of persons not on his list. There was nothing to stop a practitioner limiting his list without applying for these exemptions.

Appeal to the Minister

Sir Ernest Graham-Little also invited the Minister of Health to review his refusal to modify decisions taken by executive councils, since the composition of these bodies was predominantly lay.

Mr. Bevan answered that any person aggrieved by the decision of an executive council on a case investigated by a Service Committee had a right of appeal to him under Regulation 7 of the National Health Service (Service Committees and Tribunal) Regulations, 1948 (Statutory Instruments, 1948, No. 507). The members of an executive council, excluding the chairman, were half professional and half lay.

Hearings Before Medical Services Committee

On October 20 Sir Ernest Graham-Little asked the Minister of Health why he refused the assistance of the Medical Defence Union to doctors who were accused before the Medical Services Committee of professional negligence.

Mr. Bevan replied that the regulations permitted a party to an investigation by any service committee of an executive council to be assisted in the presentation of his case by some other person, provided that no person should be entitled, in the capacity of counsel, solicitor, or other paid advocate, to conduct the case for any party by addressing the committee or examining witnesses. Mr. Bevan saw no reason to alter these arrangements.

Contraceptives in Slot Machines

Answering Sir Henry Morris-Jones on October 20, Mr. Ede announced he had given instructions for a model by-law to be drafted prohibiting the sale of contraceptives by means of automatic machines. This model by-law would be circulated to all county and borough councils for their consideration, and if adopted would be subject to confirmation by the Home Secretary. He had given most careful consideration to the question, and had come to the conclusion that the social mischiefs involved were so serious as to require immediate action.

Sir Henry Morris-Jones said the whole nation would be relieved by the attitude which the Home Secretary had now adopted. He asked how soon the procedure would be completed, as the exhibition of these machines was extending rapidly all over the United Kingdom.

Mr. Ede said he would see that the procedure was carried through with the utmost expedition. The reception given by the House to the question would show the activity of the public conscience in the matter.

Mr. Eden asked why the Home Secretary preferred procedure by a model by-law and not by legislation.

Mr. Ede said he held that the Government should make arrangement for enforcement by local means and thereby secure the active approval of the local authority to ensure the law would be enforced. Answering another inquiry, Mr. Ede said that there were no special machines for this purpose.

Children's Hospitals.—Replying, on October 18, to Sir Ernest Graham-Little, Mr. Bevan reported that no children's hospital had been closed since the coming into operation of the National Health Service, although two were no longer used exclusively for children. The total number of children's beds available had increased by 1,278. The number of children's beds available in general hospitals was 16,449 and in special hospitals 23,302.

Sickness Benefit Claims.—Mr. James Griffiths, answering Sir Waldron Smithers on October 18, said the steps taken to supervise sickness benefits claims under the National Insurance Acts were broadly the same as those followed by the approved societies under the old National Health Insurance scheme. They included careful scrutiny of claims, sick visiting in selected cases, and the use of the Regional Medical Service of the Health Departments to obtain second medical opinions in cases of doubt.

Priority Milk.—Asked on October 19 what percentage of the milk supply was going to persons with a doctor's priority certificate as compared with a year ago, Mr. Strachey said that last winter the percentage was 6·1. The Ministry of Food had not collected statistics for this winter yet. The minimum milk supply to hospitals was five pints per head per week. A supplier can sell to hospitals extra quantities beyond the minimum if he had any surplus after meeting the needs of domestic consumers.

Spectacles.—Mr. Bevan states that about 3,000,000 pairs of spectacles were on order on September 1, 1949. He reports delays in supply of anything up to six months or so, although by no means all cases take as long as that. Better supplies are improving the position steadily. In the years ended September 1, 1948, and September 1, 1949, 4,500,000 and 9,900,000 spectacles were ordered.

Food-poisoning Outbreaks.—Mr. John Morrison asked on October 20 what was the total number of reported cases of food-poisoning in each of the years 1945 to 1948 as compared with 1935 to 1938. Mr. Bevan said he had no information about the number of persons affected in each of these years. The following figures relate to the number of outbreaks reported. In the years from 1935 to 1938: 137, 82, 94, and 156; and in 1945 to 1948: 422, 598, 765, and 964 respectively.

The Ministry of Health has informed hospitals that posts for pharmacists in the basic grade (assistant pharmacists) may be advertised with the salary scale £425 × £25 – £525. A reduction of £25 will be made for every year below the age of 23. The Pharmaceutical Whitley Council is considering the remuneration of existing staff, and when agreement has been reached the terms will be made retrospective to July 5, 1949.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended October 8. [No. 40

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included) (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	37	4	16	2	1	31	2	13	1	1
Deaths		—	—				—	—		
Diphtheria	84	11	22	4	5	112	13	45	16	1
Deaths	—	—	—	—	—	—	—	2	—	—
Dysentery	290	16	78	—	2	84	5	88	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—	—	—	1	—	—	—	—
Deaths		—					—			
Erysipelas			17	8	3			22	12	3
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				107					46	
Deaths	36	2	7	9	5	25	4	8	2	—
Measles*	926	28	43	75	35	4,061	79	73	85	104
Deaths†			—	—	—			—	—	—
Ophthalmia neonatorum	31	4	3	—	1	63	7	13	—	—
Deaths										
Paratyphoid fever	18	—	1(A) 6(B)	2(B)	—	13	3	1(B)	3(B)	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	312	15	1	—	6	421	27	4	2	—
Deaths (from influenza)‡	7	—	—	—	—	3	—	2	—	1
Pneumonia, primary			133	21				170	17	
Deaths	137	18		7	5	140	22		5	7
Polio-encephalitis, acute	34	4				7	—			
Deaths										
Poliomyelitis, acute	340	49	6	3	2	79	9	2	—	1
Deaths§	17	—				6	1			
Puerperal fever		—	12				—	8		—
Deaths										
Puerperal pyrexia‖	114	19	6	1	1	111	11	4	—	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,624	114	202	99	163	1,273	75	248	174	38
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	18	2	3	1	1	18	1	—	12	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	908	31	47	26	41	2,073	127	64	48	13
Deaths	5	—	—	—	—	5	—	—	1	—
Deaths (0–1 year)	293	23	39	22	16	259	33	38	17	9
Deaths (excluding stillbirths	4,124	567	529	147	112	4,051	638	539	157	106
Annual death rate (per 1,000 persons living)			10·6	9·1				10·9	9·8	
Live births	7,993	1293	976	394	235	8,020	1340	1024	406	252
Annual rate per 1,000 persons living			19·6	24·4				20·7	25·4	
Stillbirths	177	13	28			193	19	42		
Rate per 1,000 total births (including stillborn)			28					39		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

Notifications in the week ended October 15 were: poliomyelitis 418 (340), polio-encephalitis 45 (34). Figures for the previous week are shown in parentheses. There has, therefore, been a substantial rise, and it is clear that the curve is following a different trend from that of 1947.

Multiple cases were reported from the following counties: London 68 (53), Bedford 7 (5), Berkshire 4 (6), Buckingham 2 (2), Chester 7 (5), Cornwall 6 (2), Cumberland 7 (1), Derby 2 (1), Devon 2 (3), Dorset 10 (7), Durham 4 (2), Essex 39 (31), Gloucester 21 (23), Hereford 3 (0), Hertford 11 (4), Huntingdon 5 (0), Kent 33 (22), Lancaster 32 (24), Leicester 10 (4), Lincs. Holland 9 (0), Middlesex 18 (30), Norfolk 8 (4), Northampton 4 (4), Northumberland 3 (0), Nottingham 11 (8), Somerset 9 (6), Southampton 10 (4), Stafford 3 (1), East Suffolk 3 (4), Surrey 14 (8), East Sussex 4 (2), West Sussex 2 (1), Warwick 16 (19), Wiltshire 8 (4), East Yorks 3 (2), North Yorks 3 (3), West York 48 (50), Glamorgan 4 (7).

In the United States 33,144 cases of poliomyelitis had been reported this year up to October 1. The total for 1948 was 27,908. For the first time since July 30 there are now fewer than 2,000 notifications a week.

Discussion of Table

In *England and Wales* there were increases in the notifications of scarlet fever 319, measles 146, and dysentery 127, with a decrease of 48 in the incidence of whooping-cough. Poliomyelitis and polio-encephalitis with increases of 9 and 8, respectively, reached the highest level of the present outbreak.

The rise in the incidence of scarlet fever was chiefly in the northern section of the country; the largest rise was in Yorkshire West Riding 59. The increased incidence of measles was due to a general increase in the northern counties; the only rise in the south was in Dorset 35.

Variations in the notifications of whooping-cough were small the largest being a rise of 39 in Yorkshire West Riding. Five counties accounted for three-quarters of the total notifications of diphtheria: Lancashire 26 (Liverpool C.B. 14), London 11, Warwickshire 8, Cheshire 8, and Durham 8.

Of the 18 cases of typhoid 7 were notified in Bedfordshire Biggleswade R.D. The increase in the notifications of dysentery was due to outbreaks in Lancashire, where 217 cases were notified (Ince in Makerfield U.D. 111, Abram U.D. 58, Hindley U.D. 28). The only other centres of dysentery of any importance were London 16 (Kensington 10) and Bedfordshire, Biggleswade R.D. 10.

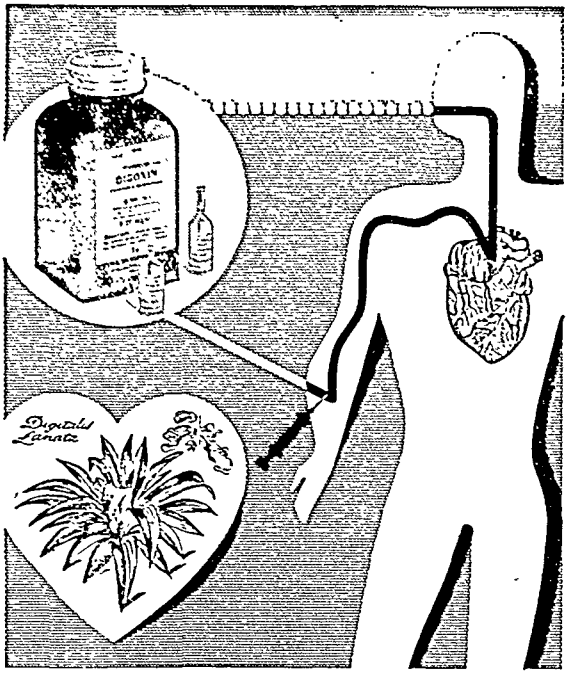
In *Scotland* there were increases in the notifications of measles 16 and dysentery 10. The chief centres of dysentery were Glasgow 41, Dundee 13, and Lanark county 10. In Lanark county, where 9 cases occurred in the preceding week, 4 more cases of paratyphoid B were notified.

In *Eire* decreases were recorded in the notifications of whooping-cough 40 and diarrhoea and enteritis 13, while an increase of 24 was reported for measles. There was a decrease of 25 in the notifications of diarrhoea and enteritis in Dublin C.B., but a rise occurred in the remainder of the country. The rise in the incidence of measles was contributed by Waterford C.B., where the notifications rose from 24 to 42.

In *Northern Ireland* there was a rise of 59 in the notifications of scarlet fever, and there were decreases in the incidence of whooping-cough 24 and measles 10. In Belfast C.B. the notifications of scarlet fever increased by 46.

Week Ending October 15

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,844, whooping-cough 875, diphtheria 85, measles 992, acute pneumonia 354, cerebrospinal fever 29, dysentery 179, paratyphoid fever 13, typhoid fever 14. The notifications of acute poliomyelitis, 418, and acute polio-encephalitis, 45, reached a new high level and were 78 and 11 respectively above the previous highest returns of this year.



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Medical News

Honorary F.A.C.S.

Sir James Learmonth, Professor of Surgery at Edinburgh University, has been made an Honorary Fellow of the American College of Surgeons. The ceremony was performed at the end of the 35th Congress of the College.

British Trust for Social Studies

The purpose of this Trust is to encourage social research of scientific and practical importance by making small grants for particular projects. The recipient of a grant will be expected to produce within an agreed period a paper of 5–7,000 words setting out the results of the research in a way that can be understood by intelligent non-technical readers. The material presented must be original or based on sources not readily accessible to such readers. The papers so produced will be at the disposition of the Trust for publication, but any payment accruing from publication will be remitted to the author of the paper. Importance is attached to the style of presentation, the need for lucidity of expression, and the avoidance of unnecessary technical terms or mathematical refinements. Applicants must submit a specimen of their written work, published or unpublished. Grants will not normally be made to those who can carry out the research in the course of their regular work; they are intended to help the freelance investigator and those who are well placed for social observation but who would have to work up the material in their spare time. Grants will be for not less than £20. Application forms may be obtained (by post only) from Miss Marion Nuttall, Secretary, British Trust for Social Studies, 16, Queen Anne's Gate, London, S.W.1.

Royal College of Obstetricians and Gynaecologists

The Royal College of Obstetricians and Gynaecologists has arranged postgraduate courses of advanced lectures for those studying the special practice of obstetrics and gynaecology to be given in the College House (58, Queen Anne Street, London, W.) on November 4 and 5, and November 18 and 19. The lectures have been arranged as follows: first course, Friday, November 4, 12 noon, Mr. Leslie Williams, "Post-operative Venous Thrombosis"; 3 p.m., Professor J. F. Cunningham, "Secondary Abdominal Pregnancy"; 5 p.m., Mr. John Howkins, "Mayo's Vaginal Hysterectomy in the Treatment of Prolapse"; Saturday, November 5, 9.45 a.m., Dr. Graham M. Bull, "Treatment of Anuria"; 11.30 a.m., Mr. D. H. MacLeod, "Endometriosis." Second course, Friday, November 18, 12 noon, Dr. A. Rae Gilchrist, "Heart Disease in Pregnancy"; 3 p.m., Mr. Hugh C. McLaren, "The Menopause"; 5 p.m., Sir William Gilliatt, Miss Josephine Barnes, and Mr. J. A. Stallworthy, "Any Questions?"; Saturday, November 19, 9.45 a.m., Mr. Stanley A. Way, "Advances in the Treatment of Carcinoma of the Female Genital Tract"; 11.30 a.m., Professor C. H. G. Macafee, "Hydramnios." The fees are: course of ten lectures, £3 3s.; one week-end course, November 4 and 5, or November 18 and 19, £2 2s.; single lecture, 10s. 6d. Tickets, without which there is no admission, are obtainable from the secretary.

International Health Control

The Public Health Committee of the Brussels Treaty Permanent Commission, which includes representatives of Britain, Belgium, France, Holland, and Luxembourg, held its fourth session in Luxembourg on October 11–13. The committee decided on January 1, 1950, as the date by which regulations should be put into force to enable the five countries to be treated as a single territory for the public health control of sea and air traffic.

Correction of Medical Register

Voting papers for the forthcoming election of one member of the General Medical Council to represent the registered medical practitioners resident in England were issued on October 25 to all practitioners having registered addresses in England. The authorities of the Council would be glad if any such practitioner who has not received a voting paper would communicate immediately with the office of the Council (44, Hallam Street, London, W.1), whether or not he proposes to vote in the election, in order to ascertain that his address is correctly entered in the *Medical Register*.

Special Diets for Invalids

The Ministry of Food announces that patients suffering from acute or convalescent steatorrhoea (including coeliac disease and tropical sprue) who are entitled to half-cream National dried milk may, if they wish, take half-cream proprietary infant milk food instead. The maximum allowance remains at one tin a week.

Photographic Exhibition at Bristol

The exhibition of medical photography held by the Medical Group of the Royal Photographic Society in July in London has been transferred to the Royal Infirmary, Bristol, where it will be on view from October 31 to November 12 from 10 a.m. to 5 p.m., and on Saturdays from 10 a.m. to 1 p.m. The exhibition was reviewed in the *Journal* of July 9 (p. 93). The object of the Medical Group, whose chairman is Sir Cecil Wakeley, P.R.C.S., is to promote the use and advancement of photography in all branches of medical science. The exhibition is being held at Bristol under the auspices of Professor Milnes-Walker.

The Osler Club

A meeting of the Osler Club was held on October 21 at the Wellcome Research Institution, London, through the courtesy of Dr. C. H. Kellaway, F.R.S., Director of the Institution. A paper on "Jenner—Author and Letter Writer" was read by Mr. W. R. Le Fanu, librarian of the Royal College of Surgeons. Jenner considered himself a dilatory letter-writer, but Mr. Le Fanu was able to quote from a number of his letters showing how keen were his powers of observation as a naturalist and how delightful his style in describing minutely what he observed. After the publication of the *Inquiry* in 1798 Jenner had written five successive pamphlets recording subsequent experiments and improvements in technique and explaining the apparent failure of vaccination in some cases. Professor G. S. Wilson, of the Public Health Laboratory Service, spoke of the effect of Jenner's work on subsequent developments in preventive medicine. The importance of controlling the spread of infection had been understood long before the causative agent was discovered. Pasteur's realization of the mechanism of vaccination had led him to work on chicken cholera and anthrax and to the establishment of the principle that the pathogenic properties of a virus could be attenuated. Professor Wilson mentioned the doubts which have arisen in recent years about the efficacy of vaccines in certain infectious diseases, and he emphasized the need for full-scale field trials of B.C.G. Vaccination was not something to be accepted in every disease just because it had proved so successful in the case of smallpox. Jenner had been fortunate in having discovered a perfectly attenuated virus. Dr. E. A. Underwood, Director of the Wellcome Historical Medical Museum, pointed out that Jenner's work had a scientific background. He was not the discoverer of vaccination—others had preceded him—but he had started out with the intention of establishing a permanent working principle, based upon experiment. He had appreciated that protection could be passed on from one to another. Dr. Underwood briefly described the Wellcome Historical Medical Library, which was then opened for inspection. Among the books exhibited were a collection of mediaeval manuscripts, books on the Great Plague of 1665, and some early herbals. Harvey's *De Motu Cordis*, 1628, was displayed beside a well-printed Russian translation of the same work published by the Soviet Academy of Science as recently as 1948.

Wills

Dr. Henry Richard Belcher Hickman, for many years lecturer in physiology at Bristol University, left £25,135. Dr. George Edward Walker Henderson, formerly of Scone, Perthshire, left £17,317. Dr. Robert Gordon Strange, of Hampstead, N.W.3, left £24,992.

COMING EVENTS

University College Hospital

The annual meeting of University College Hospital will be held at University College Hospital Medical School, University Street, London, W.C., on Tuesday, November 1, at 5.30 p.m., when the chairman of the board of governors, Major-General Sir Harold Wernher, will present the annual report of the activities of the hospital, including St. Pancras Hospital and the Hospital for Tropical Diseases. Members of the public are invited to attend the meeting.

Royal London Homoeopathic Hospital

A reception to commemorate the centenary of the Royal London Homoeopathic Hospital will be held in the Great Hall, B.M.A. House, Tavistock Square, London, W.C., on Wednesday, November 2, at 8.30 p.m.

Electronic Instruments

A symposium on electronic instruments in research and industry will be held by the Scientific Instrument Manufacturers Association on November 2–4 at the Examination Hall, 8–11, Queen Square, London, W.C.1. Particulars may be obtained from the association at 17, Princes Gate, London, S.W.7.

Maudsley Lecture

The twenty-fourth Maudsley Lecture will be delivered by Dr. W. Grey Walter before the Royal Medico-Psychological Association at the Royal Society of Medicine, Barnes Hall, 1, Wimpole Street, London, W., on Thursday, November 3, at 2.15 p.m. His subject is "The Function of Electric Rhythms in the Brain." Psychiatrists and other medical practitioners, psychologists, and members of the legal profession, teachers, and students, and all interested are invited to attend the lecture. Admission is without ticket.

Welsh Region Consultants and Specialists

The annual meeting of all the consultants and specialists in the Welsh Hospital Region will be held at the Cardiff Royal Infirmary on Sunday, November 6, at 2.30 p.m. The main business of the meeting will be to consider the report of the honorary secretary on the activities of the regional committee for the past year and the report of the representatives of the committee on the Central Consultants and Specialists Committee. The meeting will also re-elect the regional committee for the ensuing year.

Conference on Health Education

The Central Council for Health Education will hold a conference at the Central Hall, Westminster, London, S.W.1, on November 8–9. It will be opened by Lord Woolton, president of the Central Council, and will be on the objects and methods of health education. The conference fee is 21s., and information may be obtained from the Central Council at Tavistock House, Tavistock Square, London, W.C.1.

d of Hospital Librarians

he Guild of Hospital Librarians will hold a conference "The Hospital Librarian in the Children's Ward" at Chaucer House, Malet Place, London, W.C.1, on November 9 at 2.30 p.m. Dr. Letitia Fairfield will be in the chair. Particulars may be obtained from the honorary secretary of the guild at the Central Library, Bexleyheath, Kent.

Lewisham Hospital Group

The Lewisham Group Hospital Management Committee will hold a meeting at Lewisham Hospital on November 11 at 7.30 p.m. to make public the activities of the group. The chairman will describe the group's work during the period July 5 to December 31, 1948, and there will be opportunity for questions and discussion.

S.E. Metropolitan Regional Tuberculosis Society

A general meeting of the South-East Metropolitan Regional Tuberculosis Society will be held at Grove Park Hospital, Marvels Lane, Lee, S.E., on November 12, at 10 for 10.30 a.m., when papers will be read by Dr. M. N. Nagley, Dr. G. Beven, and Mr. Alistair Gunn. There will also be a demonstration of mass miniature radiography films. The clinical meeting will be followed by the annual general meeting at 3 p.m.

Psychological Films

The Scientific Film Association will hold a symposium on "Problems in Making Psychological Films" at the Wellcome Foundation Institute, 183, Euston Road, London, N.W.1, on November 16 at 7 p.m. Colonel B. Ungerson will be in the chair. Admission will be by ticket only, which can be obtained from the association at 4, Great Russell Street, London, W.C.1

Empire Rheumatism Council

The Empire Rheumatism Council has arranged an autumn week-end postgraduate course to be held at the Apothecaries' Hall, Blackfriars Lane, Queen Victoria Street, London, E.C., on Friday, Saturday, and Sunday, November 18, 19, and 20, with the following programme: November 18, 4.30 p.m., Dr. W. S. C. Copeman, "Recent Advances in the Treatment of the Rheumatic Diseases"; 5.30 p.m., Dr. G. D. Kersley, "Gout." November 19, 10 a.m., Dr. F. Dudley Hart, "Spondylitis"; 11.15 a.m., Dr. H. J. Gibson, "Pathology of the Rheumatic Diseases"; 2 p.m., Dr. E. G. L. Bywaters, "Juvenile Rheumatism"; 3 p.m., Dr. W. S. Tegner, "Rheumatoid Arthritis—Recent Developments"; 4.30 p.m., Dr. Oswald Savage, "Non-articular Rheumatism." November 20, 10 a.m., Dr. Hugh Burt, "Physical Methods in the Treatment of the Rheumatic Diseases"; 11.15 a.m., Mr. W. D. Coltart, "Orthopaedic Aspects of the Rheumatic Diseases." The fee for the course is £2 2s., and entries (limited to 100) must reach the general secretary of the council, Tavistock House North, Tavistock Square, London, W.C.1, at least one week before the course opens.

SOCIETIES AND LECTURES

Monday

LONDON UNIVERSITY.—At University College (Chemistry Theatre), Gower Street, London, W.C., October 31, 5.15 p.m., "*The Chemistry of the Transuranics and Other Newly Discovered Elements*," by Professor H. J. Emeleus, F.R.S.

LONDON UNIVERSITY.—At Westminster Medical School (Meyerstein Lecture Theatre), Horseferry Road, London, S.W., October 31, 5.30 p.m., "*The Indispensability of Biologically Labile Methyl Groups in the Diet and Transmethylation*," by Professor V. du Vigneaud (Cornell University Medical College).

UNIVERSITY COLLEGE, Gower Street, London, W.C.—October 31, 4.45 p.m., "*Technique and Applications of Tissue Culture*," by Dr. Charity Waymouth.

Tuesday

DONCASTER MEDICAL SOCIETY.—At Parkinson's Café, Doncaster, November 1, "*Puerperal Fever*," by Dr. W. Lomax, preceded by dinner at 7.45 for 8 p.m. Joint meeting with Doncaster Division of B.M.A.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—November 1, 5 p.m., "*Arsenic and the Skin*," by Dr. W. J. O'Donovan.

INSTITUTE OF LARYNGOLOGY AND OTOLOGY, 330, Gray's Inn Road, London, W.C.—November 1, 2.15 p.m., "*The Respiratory Tract in Infectious Diseases*," by Dr. E. H. R. Harries.

Wednesday

LONDON COUNTY MEDICAL SOCIETY.—At Whittington Hospital, Highgate Hill, N., November 2, 3 p.m., clinical meeting.

LONDON UNIVERSITY.—At Westminster Medical School (Meyerstein Lecture Theatre), Horseferry Road, London, S.W., November 2, 5.30 p.m., "*The Indispensability of Biologically Labile Methyl Groups in the Diet and Transmethylation*," by Professor V. du Vigneaud (Cornell University Medical College).

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, London, W.—November 2, 3.30 p.m., "*The Preparation of Food for Human Consumption*," by Dr. A. G. G. Thompson.

ROYAL MICROSCOPICAL SOCIETY, B.M.A. House, Tavistock Square, London, W.C.—November 2, 6 p.m., meeting of Biological Section, "*Inexpensive Phase Microscopy*," by Dr. G. A. Harrison and Mr. M. G. L. Curties.

SOCIAL PSYCHOTHERAPY CENTRE, 7, Fellows Road, London, N.W.—November 2, 5 p.m., "*Instructional Group Psychotherapy, I*," by Dr. E. N. Snowden.

SOCIETY OF PUBLIC ANALYSTS.—At Chemical Society, Burlington House, Piccadilly, London, W., November 2, 6.45 p.m., ordinary meeting. "*Some Recent Advances in Water Examination*," short contributions on this subject by Messrs. J. H. Hamence, C. B. Taylor, Roy C. Hoather, G. U. Houghton, and J. E. Houlihan. A discussion will follow.

Thursday

Faculty of Homoeopathy.—At Royal London Homoeopathic Hospital, Great Ormond Street, London, W.C., November 3, 5 p.m., *"Homoeopathic Experiences at Home and Abroad,"* by Dr. Q. Muriel F. Adams.

Honyman Gillespie Lecture.—At Anatomy Theatre, University New Buildings, Teviot Place, Edinburgh, November 3, 5 p.m., *"G.P.I.: Its Juvenile and Senile Types,"* by Dr. R. M. Stewart.

Institute of Dermatology, 5, Lisle Street, Leicester Square, London, W.C.—November 3, 5 p.m., *"Nutritional Disorders of the Skin,"* by Dr. B. Russell.

Institute of Laryngology and Otology, 330, Gray's Inn Road, London, W.C.—November 3, 2.15 p.m., *"The Surgical Treatment of Otosclerosis,"* by Dr. I. Simson Hall.

London University.—At Royal Society of Medicine, 1, Wimpole Street, London, W., November 3, 5 p.m., *"Tonsillar Function: A Review of the Evidence,"* Semon Lecture by Mr. A. J. Wright (University of Bristol).

Royal [illegible]n.—At Royal Society of Medic[illegible] London, W., November 3, 2.1[illegible] *Rhythms in the Brain,"* 24th Maudsley Lecture by Dr. W. Grey Walter.

Society for Cultural Relations with the U.S.S.R.—At University of London Institute of Education, Malet Street, W.C., November 3, 7.30 p.m., *"Pavlov, Scientist and Man: His Place in the History of Civilization,"* by Mr. J. G. Crowther.

St George's Hospital Medical School, Hyde Park Corner, London, S.W.—November 3, 4.30 p.m., lecture-demonstration: *"Neurology,"* by Dr. A. Feiling.

Wrexham and District Clinical Society.—At Wynnstay Hotel, Wrexham, November 3, *"Some Reflections from an Allergy Clinic,"* by Dr. Cyril Clarke. Preceded by dinner at 7.30 p.m.

Friday

Maida Vale Hospital for Nervous Diseases Medical School. Maida Vale, London, W.—November 4, 5 p.m., clinical demonstration by Dr. Russell Brain.

Royal Institution, 21, Albemarle Street, London, W.—November 4, 9 p.m., *"The Dimensions of Animals and their Muscular Dynamics,"* by Professor A. V. Hill, F.R.S.

Royal Institute of Philosophy, 14, Gordon Square, London, W.C.—November 4, 5.15 p.m., *"Neutral Monism and the Philosophy of Nature,"* by Professor H. H. Price.

Royal Medical Society, 7, Melbourne Place, Edinburgh.—November 4, 8 p.m., *"The Aetiology and Treatment of Ulcerative Colitis,"* by Mr. C. W. Mercer.

Society of Anaesthetists of South Wales.—At Park Hotel, Cardiff, November 4, 7 p.m., dinner-meeting. Address by Dr. John Gillies.

University College, Gower Street, London, W.C.—November 4, 5.15 p.m., *"Transmission of Excitation in Nerve and Muscle,"* by Dr. Bernhard Katz.

Saturday

Institute of Laryngology and Otology, 330, Gray's Inn Road, London, W.C.—November 5, 11.15 a.m., *"Examination and Treatment of Children, particularly those of School Age,"* by Mr. Henry Forster.

Institute of Obstetrics and Gynaecology.—At Postgraduate Medical School of London, Ducane Road, W., November 5, 11 a.m., *"Puerperal Infection,"* by Dr. A. M. Ramsay.

York Medical Society.—At 17, Stonegate, York, November 5, 8.30 p.m., *"Some Diseases of the Skin of Interest to General Practitioners,"* by Dr. H. W. Barber.

APPOINTMENTS

Lord Nathan of Churt has been appointed a Crown Representative on the General Medical Council.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Anderson.—On October 13, 1949, to Doris (née Twiddy, S.R.N., S.C.M.), wife of Dr G. Anderson, 192, Hawthorn Road, Birmingham, 22C., a son

Blench.—On October 8, 1949, at the Queen Elizabeth Hospital, Birmingham, to Dr Pearl Blench (née Evans) and Dr. Athelstan Blench a daughter

Burchill.—On October 19, 1949, to Mrs. K. Burchill (née Birkhead), wife of Dr K. Burchill, 132, Moorside Road, Davyhulme, Manchester, a daughter.

Clements.—On October 14, 1949, to Megan, wife of Dr M. W. L. Clements, 149 Warwick Road, Kenilworth, a son.

Geddie.—On October 9, 1949, at Rubislaw Nursing Home, Aberdeen, to Margaret (née Cook), wife of Dr. John M. Geddie, a daughter.

Markowe.—On October 15, 1949, at Garrett Anderson Maternity Home, to Helen (née Tell), wife of Morris Markowe, M.D., a daughter—Lesley.

MARRIAGE

Scott—Wilson.—On October 1, 1949, at All Saints Church, Gosforth, Newcastle-upon-Tyne, Cedric Mathieson Scott M.B., B.S., of Hartlepool, to Gwendoline Doxford Wilson of Fawdon Park, Newcastle-upon-Tyne.

DEATHS

Cassidy.—On October 22, 1949, at 42, Montagu Square, London, W., Sir Maurice Alan Cassidy, G.C.V.O., C.B., M.D., F.R.C.P.

Hawthorne.—On October 24, 1949, at 113, New Church Road Hove, Charles Oliver Hawthorne, M.D., D.Sc., LL.D., F.R.C.P., late of 63, Harley Street, London, W.

Woods.—On October 23, 1949, at 5, Albert Terrace, Douglas, Isle of Man, Lionel Dudley Woods, O.B.E., L.R.C.P.&S.I., aged 63.

Any Questions ?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Amphetamine Sulphate

Q.—(*a*) *What are the toxic effects of amphetamine sulphate? Can these arise with normal dosage? Are any risks associated with long-continued use of moderate doses?* (*b*) *Is amphetamine sulphate desirable as a slimming agent? Is it better or safer than thyroid? Should not all slimming be done by the control of intake of food alone?*

A.—(*a*) The common toxic effects of amphetamine sulphate are: restlessness, insomnia, and irritability; palpitation, extrasystoles, and rarely a persistent rise in blood pressure; dryness of the mouth, anorexia, and flatulence. These symptoms may be experienced to a mild extent, even with moderate dosage, by some individuals who are peculiarly sensitive to the drug, but subside as soon as it is withdrawn. There is little risk associated with long-continued administration of moderate doses. The danger of inducing or aggravating hypertension by its use is very slight, though the drug should probably be avoided by hypertensive subjects and by those suffering from coronary disease and cardiac arrhythmias. A very few unstable individuals who have experienced the euphoria which amphetamine induces may be tempted to increase the dose and thus develop an addiction with chronic hyperexcitability alternating with melancholia. As tolerance and severe craving are not features of the addiction, withdrawal is easy. The usual dose in the treatment of obesity is 5 mg. three times a day before meals, but if the last dose is taken later than 4 p.m. sleeplessness may result.

(*b*) Amphetamine and thyroid act quite differently in assisting weight-reduction: the former diminishes the desire for food and so helps a patient to avoid eating more than has been prescribed; the latter stimulates metabolism and thus increases the rate of combustion of food. Neither is dangerous if it is properly prescribed and the patient is supervised while taking it. The evil effects of overdosage with thyroid are more serious than those produced by overdosage with amphetamine, and last longer after withdrawal of the drug. The majority of people lose weight satisfactorily on a sub-caloric diet alone without the need to prescribe either drug, which should never be used as a substitute but only as an adjuvant to dieting. Properly employed, however, both drugs may be valuable in certain cases. Amphetamine may be useful, particularly in the early stages of treatment, for patients who complain of extreme hunger and depression as the result of a low-calorie diet; whereas thyroid is more valuable in the later stages of treatment, when the weight loss due to careful dieting may become unduly slow owing to the reduction in metabolic rate which invariably occurs on low-calorie intakes, and which is shown in its greatest degree in the completely fasting individual.

Chemical Sympathectomy

Q.—*What exactly is "chemical sympathectomy"? To what extent and in what kind of cases can it replace surgical sympathectomy? Does it ever provide a form of therapeutic test which would indicate the need for sympathectomy?*

A.—Sympathetic nerve impulses may be temporarily interrupted, either locally by procaine injection of the ganglia and nerve trunks or, generally, by systemic administration of autonomic ganglion blocking agents such as tetraethylammonium bromide. In peripheral vascular thrombosis or embolus, sympathetic nerve block, by releasing vascular tone in the collateral circulation, may prove a valuable adjunct in conservative treatment. By similar vasodilator action, procaine block gives an indication of the benefit to be expected from surgical sympathectomy in such diseases as thrombo-angiitis obliterans, the

response being poor when the obstruction is largely organic and involves the whole vascular tree. In the sympathetic dystrophies, such as causalgia and painful phantom limb, dramatic relief of pain may follow procaine block, the beneficial effect long outlasting the period of chemical action. For details of injection technique the larger works must be consulted, and it is advisable to practise first on the cadaver, using coloured injection solutions, since sympathetic trunks lie in contact with several vital structures.

In assessing the probable response of the hypertensive patient to sympathectomy, the "sodium amytal" sedation test is preferable to any measure more directly aimed at interference with sympathetic activity. When the aim of treatment is interruption of the renal shunt mechanism as in the management of some cases of anuria, spinal analgesia is probably the easiest method of producing temporary bilateral sympathetic denervation of the kidneys. Tetraethylammonium bromide can be given intramuscularly to bed patients only and blocks all autonomic ganglia. It produces, amongst other effects, postural hypotension. Good results are claimed for its use in Buerger's disease and causalgia, and it has been used with some success in the treatment of pre-eclamptic toxaemia of pregnancy. Work in this field, however, must still be regarded as being in the experimental phase.

Breathing through a Closed-circuit Apparatus

Q.—*The use of the closed circuit and absorption of carbon dioxide entails gross interference with the normal mixture of gases in the pulmonary alveoli. Is this harmful? What are the subjective sensations when the closed-circuit atmosphere without any anaesthetic agent is breathed for, say, an hour?*

A.—So long as the patient breathes spontaneously, the use of an efficient closed-circuit apparatus entails no "gross interference with the normal mixture of gases" in the alveoli. In fact, this method reproduces conditions of normal respiration more faithfully than any other form of administration. Since practically all the exhaled carbon dioxide is removed, the inspiration contains only the minutest quantity of this gas, as is the case in normal life. Resistance to breathing in a well-designed apparatus should be so small as to have no observable effect.

In order to answer the last part of the question the writer himself breathed from a Coxeter–Mushin absorber for an hour. A colleague made frequent observations of the pulse rate, the character of respiration, and the colour and condition of the skin. The only subjective symptoms were the discomfort of the mask pressure on the face (necessary to obviate leakage), the initially unpleasant smell of rubber, a slight but not uncomfortable sense of warmth, and a sense of great boredom during the proceedings. The pulse remained steady at 60, and the respirations were rather shallow with an occasional deep breath. At the end of the experiment no after-effects whatever were observed, normal activities being immediately resumed.

Progesterone Treatment of Rheumatoid Arthritis

Q.—*Has progesterone proved effective in rheumatoid arthritis? What is the usual dosage, and what is the rationale of this treatment?*

A.—Progesterone has been used experimentally in the treatment of rheumatoid arthritis, but conflicting reports have been received regarding its efficacy. Probably it is capable of producing some improvement in certain cases. No standard dosage has been laid down. The rationale is based on the observed fact that sufferers from this disease are often much benefited if they become pregnant. Progesterone is the chief ovarian secretion in the latter part of pregnancy.

Clonorchiasis

Q.—*What is the treatment of clonorchiasis?*

A.—Treatment of clonorchiasis is often unsatisfactory. Gentian violet and sodium antimony tartrate are the drugs of choice; chrysotherapy is of very doubtful value. In resistant cases it might be worth while trying the effect of emetine in view of this drug's action against other trematodes.

Cord Round the Neck

Q.—*A woman aged 29 was delivered of a stillborn child at full term. Death was apparently due to the cord being looped three times round the neck. The patient is now pregnant again. Is there a greater liability than in other cases of the same complication occurring?*

A.—Cord round the neck which, as the head descends, tightens to such an extent as to interfere with foetal circulation can certainly cause stillbirth. It is, however, a rare cause of foetal death and a chance occurrence which is not specially liable to recur in any one case. If other causes for the stillbirth have been excluded the patient can be reassured.

Pruritus

Q.—*Is there any treatment for severe pruritus of the scalp? The itching is worst after the patient has been in bed half an hour and on rising in the morning. The scalp is clean and free from rash or parasites, nits, or swollen glands.*

A.—In the absence of general vascular or metabolic disease, pruritus capitis, like pruritus ani, is generally nervous in origin. Perchloride of mercury (1 in 1,000) in spirit and water with fractional doses of *x* rays locally, and phenobarbitone ¼ to ½ gr. (16 to 32 mg.) internally, are suggested. Rubbing and scratching and vigorous treatments are to be avoided. Gentle washing once or twice a week should be sufficient to keep the scalp clean.

NOTES AND COMMENTS

Glasses in Myopia.—Dr. D. PRIESTLEY SMITH (Birmingham) writes: I am glad to see what Mr. A. Seymour Philps says (October 8, p. 824). After many years of ophthalmic practice I am satisfied that in myopes of moderate degree glasses are needed only for the definition which they give at the time: that is to say, glasses do not prevent myopia from increasing, and there is no need, on that score, for them to be worn all the time. Many boys and girls only need them in the class-room so as to read the blackboard. Others choose to keep them on all day so as not to miss the details of the world around them. But, as regards the welfare of the eyes, it does not matter which they do. In high myopia the question does not arise, for the patient cannot do anything without his glasses.

Threadworms in Infants.—Dr. W. R. COLE (Bristol) writes: Your answer in "Any Questions?" (September 17, p. 661) on treatment of threadworms, wherein you advise even hospital admission in order to administer the gentian violet capsules, would hardly be well received by those responsible for allotting hospital beds. Treating this condition in my own critical household, I successfully deceived the young patient (who had already bitten one, and so tasted and seen the rather frightening result) by concealing the capsule in a soft-centred sweet. I have often advised this since, but unfortunately the older child usually discovers this after a few times. Surprisingly you did not mention "diphenan" 7½-gr. (0.5-g.) tablets (one-quarter tablet t.d.s. for ages under 2 years), which are quite tasteless and crushed with sugar will deceive all, the only snag being the castor oil recommended at the end of the week's course.

Corrections

Dr. STUART LAIDLAW (Glasgow) writes: In your issue of October 8 (p. 808) you state in the paragraph of the second column commencing "Dr. Stuart Laidlaw (Glasgow)" that the waiting-list for sanatorium beds is 16,000 in Glasgow. This should have read 1,600.

A printer's error caused the name of the new president of the Medical Defence Union, Mr. Ivor Back, to be printed as Mr. Ivor Black in the *Journal* of October 1 (p. 752).

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY OCTOBER 29 1949

THE SECRETARY REPORTS

INEXCUSABLE DELAY

The two most significant items in the week's news are the intimation by the Ministry that it will not be able to reply before the Conference of Local Medical Committees to the representations made to it on behalf of the general practitioners in the Service and, secondly, the Prime Minister's announcement that except in the case of old-age pensioners a charge of up to 1s. will be made to the patient for each prescription under the National Health Service.

No doubt much will have been said on the first point in the Conference of Local Medical Committees, which will meet before these words appear. While it is recognized that the criticisms of the representatives of the General Medical Services Committee rendered inevitable the rewriting of a formidable statistical document, this cannot explain or excuse the long delay in replying to a case put forward more than six months ago. After all, the essence of the first part of our claim was that the calculations made at the inception of the Act were inaccurate and that the size of the medical pool should be adjusted to meet those inaccuracies. The General Medical Services Committee is holding a special meeting on the afternoon before the conference to consider the position created by this reply.

Prescription Charge

On the point of the prescription charge I have, by the nature of things, to write immediately after the Prime Minister's speech without knowing the detailed method of the application of the charge. His actual words are worth studying.

"We propose to make a charge of not more than 1s. for each prescription under the National Health Service. (Some Ministerial cries of "Shame!") The purpose is to reduce excessive, and in some cases unnecessary, resort to doctors and chemists of which there is evidence which has for some time troubled the Minister of Health and the Secretary of State for Scotland. (Ironical Opposition laughter.) The resultant saving will contribute about £10,000,000, although this is not the primary purpose of the charge. Arrangements will be made to relieve old-age pensioners of this charge for prescriptions."

Generally speaking, this development will probably be welcomed by general practitioners, not necessarily because of any merit it may or may not possess, but because it may lead to a lessening of the very heavy burden of work. This lessening, it will be widely felt, is something which had to be achieved somehow or other. But that is not to pass comment on the method, which involves a fundamental departure from a system which has been in operation since 1913. A good deal depends on the details, yet unrevealed, of the administrative steps to be taken to collect the money and on the possibilities of exemption, not only for old-age pensioners, but for poorer or larger families where genuine hardship may result. Presumably the collection will be made by the chemist and not by the doctor, except where the doctor undertakes his own Service dispensing. Clearly the position of the dispensing doctor will need to be carefully watched. It is not clear whether the charge is to be made in respect of prescriptions or scrips. It would appear at first sight to relate to all prescriptions given, whether by the general practitioner or by the specialist in the hospital service. Will the charge be the same for the 6- as for the 24-oz. bottle, for 12 tablets as for 48 tablets? We understand the Ministry of Health is not yet ready with any detailed scheme.

High Costs

This development is an interesting commentary on the attempt which has been made in some quarters to saddle the medical profession with a responsibility for the high cost of drugs and appliances since the introduction of the Service. After all, the declared object was to ensure that medical care should be available to all, and people were urged by the promoters of the Act to make the fullest use of what they called a free Service. The profession urged that the Service should be introduced by stages, beginning with its hospital part. In practice, there has been gross under-estimating both of the psychology of the people and of the financial costs involved. Much of the present difficulty would have been avoided if the Service had been limited to those who needed it and had been brought into being in stages as part of a long-term programme.

SUPERANNUATION FOR PART-TIME SPECIALISTS

OPTING OUT

Details of the conditions under which part-time specialists in contract with hospital boards may opt out of the N.H.S. Superannuation scheme were published in the *Supplement* of August 20 (p. 93). One of the conditions is that those part-time specialists who wish to contract out must do so before November 1, 1949, by giving written notice to the Ministry of Health, Health Services Superannuation Division, Honeypot Lane, Stanmore, Middlesex, on Form S.D. 28A, which is obtainable from regional hospital boards or boards of governors of teaching hospitals.

Some part-time specialists have expressed a wish to defer their decision whether to exercise the option until they receive their permanent contracts. As a safeguard, they should apply to the Ministry of Health before November 1 explaining their position and asking that the application be not confirmed until they are able to inform the Ministry that the permanent contracts have been settled.

COMMITTEE ON PRESCRIBING

RESTRICTIONS TO BE CONSIDERED

The Central and Scottish Health Services Councils, constituted under the National Health Service Acts, have jointly appointed a committee

"to consider and report from time to time whether it is desirable and practicable to restrict or to discourage the prescribing by practitioners giving general medical services under the National Health Service Acts of 1946 and 1947 of

(i) drugs and medicines of doubtful value or of unethical character;

(ii) unnecessarily expensive brands of standard drugs."

The Joint Committee consists of members suggested by the Standing Medical and Pharmaceutical Committees of England and Wales; the Scottish Medical, Pharmaceutical, and General Practitioner Services Advisory Committees; the three Royal Colleges; the Scottish Royal Medical Corporations; the British Medical Association; the British Pharmacopoeia Commission; the Society of Apothecaries.

The names of the members are as follows: Dr. Janet Aitken; Professor Stanley Alstead; Dr. J. A. Brown; Sir Henry Cohen; Professor E. C. Dodds; Professor D. M. Dunlop; Dr. F. Gray; Dr. P. Hamill; Mr. J. C. Hanbury, F.R.I.C.; Dr. G. MacFeat; Professor Chassar Moir; Dr. A. Smith Pool; Mr. J. H. Ramsay, Ph.C.; Dr. W. D. D. Small; Sir Henry Souttar; Mr. D. E. Sparshott, M.P.S.; Dr. J. G. Thwaites; Alderman W. J. Tristram, M.P.S.

At its first meeting the committee elected Sir Henry Cohen as chairman and Professor Dunlop as vice-chairman.

EXTRAVAGANT DEMANDS

Mr. H. Lesser, president of the Executive Councils Association (England), said that he could not condone any extravagant demands on the new Service by the public or any section of it when he addressed the second annual meeting at Bournemouth on October 21. But he was not sure to what extent the case was proved. "If drugs and appliances—including the harmless necessary wig—are being provided in excessive quantities, is it not the doctor who prescribes them?"

Of course they knew that practitioners had their own difficulties. The practitioners' first and proper concern was to establish confidence between themselves and their patients. He considered that only by more co-operation between practitioners and patients could a truly efficient public service be attained. Considerable tact and good will were demanded from executive councils and their staffs in bringing pressure to bear to prevent or remedy weaknesses in the scheme by disciplinary action.

Dr. N. E. Waterfield was elected president in succession to Mr. Lesser.

GENERAL PRACTITIONER REMUNERATION

MEETING DELAYED

The Ministry of Health was unable to meet representatives of the General Medical Services Committee before the Conference of Local Medical Committees was held on October 27.

When a deputation from the G.M.S. Committee visited the Ministry on September 23 to present its case for the increased remuneration of general practitioners the Ministry agreed that the Ministry's statement of the facts on what general practitioners have been paid would need to be rewritten.

A number of false assumptions had been pointed out by the G.M.S. Committee's representatives, and it was agreed that discussions on the inadequacy of the Central Pool could not start until they had been corrected. The Ministry undertook to look into the various points raised, and it was hoped it would have completed the task before the conference was held, but it has been unable to do so. The Ministry has stated that a redraft of its statement will be sent to the committee as soon as possible.

GENERAL PRACTITIONERS IN HOSPITALS

EAST SUFFOLK DISPUTE

At a meeting on October 9 the East Suffolk Local Medical Committee unanimously agreed to the following resolutions:

Maternity Beds.—The East Suffolk L.M.C. is of the opinion that the policy of excluding general practitioners from attending their maternity cases in maternity homes annexed to, or part of, general hospitals is contrary to the best interests of the expectant mothers and in conflict with their entitlement to free choice of doctor.

General Practitioners in Hospitals.—The East Suffolk L.M.C. is dissatisfied with the exclusion of general practitioners from reappointment to general-hospital posts which they have held for many years with complete satisfaction.

The Brook Street Maternity Home at Ipswich is reported (*East Anglian Daily Times*, October 13) to have been redesignated by the regional board as a general hospital, with the result that it will be staffed by the regional board and serve as a maternity annexe to the maternity department of the local general hospital. The effect of this will be that expectant mothers in the maternity home will be denied the services of their general practitioners.

MINISTRY OF SUPPLY

INCREASED FEE FOR EXAMINATIONS

Recently the attention of the Association was drawn to the fact that a fee of only 5s. was being paid for the examination and report on prospective employees of the Ministry of Supply.

Representations have been made to the Ministry concerning the inadequacy of this fee, and the Ministry has now increased the fee to 10s. 6d. where the medical examination is carried out at the doctor's surgery, and 12s. 6d. for such examinations carried out at a Ministry of Supply Establishment, with the addition of travelling allowance at 1s. per mile beyond two miles. The revised fees will be paid for all examinations that have taken place since August 1, 1949.

FEE FOR REPORT

PERSONS OF UNSOUND MIND

As the outcome of representations made to the Prison Commissioners, they have informed the Association that they will pay a fee of £2 2s. for the examination and report on persons remanded in custody where it appears that the person on remand is of unsound mind and a proper person to be detained. The report is required by courts under Sections 24 and 26 of the Criminal Justice Act, 1948.

Mileage allowances at the rate of 1s. a mile after the first two miles will also be paid.

HEARD AT HEADQUARTERS

Lancashire and Cheshire

A process of division and multiplication has been proceeding in the Lancashire and Cheshire Branch. The Branch has been dissolved, and three new ones take its place. The Lancashire and Cheshire Branch for more than a century has been one of the most flourishing in the Association. It has given many outstanding figures to our central affairs, although, strangely enough, it has never produced a chief officer, except one Chairman of Council nearly eighty years ago. The Branch was formed ten days after Queen Victoria came to the throne. Its origin was at Newton, half-way between Manchester and Liverpool, and it was for a time known as the Newton Medical and Surgical Association. It was strictly in alliance with the Provincial Medical and Surgical Association (the earlier name of the B.M.A.), but with true Lancashire independence it refused any pecuniary assistance from the latter body. At first its meetings were held only at Newton, except for one or two at Warrington, apparently from a disinclination to give a

preference to either of the two great cities it included. Its name "Lancashire and Cheshire" was adopted just a hundred years ago, and after that it met at Liverpool and Manchester, but not until 1857 did it spread northwards, for a meeting at Preston. A hundred years ago the Branch had 90 members; fifty years ago it had over 1,000; at the date of its dissolution it had well over 4,000.

Branch Areas

When regional hospital areas were formed there was some suggestion that the Association's organization should be recast in a regional mould. In fact the new Merseyside Branch does cover substantially the Liverpool Hospital Region. Otherwise there does not appear to be any intention to modify the areas of local B.M.A. units to make them conform with regional hospital areas. On the contrary, the present tendency is to modify areas to make them conform with the natural meeting areas of the local profession. This is a sound development, and its effect must be in due course to strengthen the position of the Divisions and Branches.

Treating Oneself

A correspondent complains that doctors in the Health Service are not allowed to be on their own lists. As he points out, the ruling conflicts with the principle that everyone may choose his own doctor. The Ministry refuses to allow it because the General Medical and Pharmaceutical Services Regulations, 1948, say: "A practitioner is required to render to his patients all proper and necessary treatment." Since a doctor could not give himself a general anaesthetic while his appendix is taken out, or treat himself if he were in a coma, he is debarred from being on his list. Logical arrangements are easier to administer than humane ones, but there is a strong case for letting doctors join their own lists. The relationship between doctor and doctor is quite different from that between patient and doctor, and a doctor who has some small infirmity that he could easily treat himself should not be compelled to bother a colleague, whether that colleague is a friend or a competitor.

Questions Answered

Dentistry by General Practitioners

Q.—*Since the beginning of the National Health scheme I find that I sometimes have to undertake emergency dental extractions, the waiting-list for dental treatment being so long and there being no resident dentist in this town. Can any special fee be claimed for these cases?*

A.—The regulations do not permit any special fee for dental treatment carried out by a general practitioner. If the patient is not on the practitioner's list, or that of his partner or assistant, a fee for emergency treatment would be payable.

Fees for Examining Emigrants

Q.—*I have examined an N.H.S. patient, who is on my list, to complete a form for emigration to South Africa. I am informed that the laboratory fee for the required report on the Wassermann test is £1 1s. Is the laboratory entitled to charge the patient a fee? Am I also entitled to charge a fee?*

A.—The work of examining and reporting upon prospective emigrants (including *x*-ray examinations and blood tests) does not come within the scope of the hospital and specialist services provided under Section 3 of the N.H.S. Act. Therefore a member of a hospital medical staff (e.g., radiologist or pathologist) who is asked to furnish a special report in this connexion is entitled to a fee, one-third of which is payable to the hospital if the hospital laboratory or radiological facilities are used.

A general practitioner carrying out the medical examination of an intending emigrant is not debarred from charging the patient a fee for his report by reason of the fact that the person is on his list as a public patient.

Resigned from Health Service

Q.—*Is a doctor who has resigned from the National Health Service and drawn his compensation permitted to engage in private practice only?*

A.—A doctor in these circumstances is permitted to engage in private practice.

Work Outside Full-time Contract

Q.—*I am a full-time orthopaedic consultant under contract with a regional board. I have also been performing a weekly session as orthopaedic consultant to the Ministry of Pensions locally. Am I entitled to a sessional fee for this work?*

A.—Normally, a consultant who has a full-time contract with a regional hospital board is not entitled to perform work other than for his hospital board. If outside work, such as with the Ministry of Pensions, is required, it would be by arrangement between the two authorities

PUBLIC HEALTH COMMITTEE

At the first meeting of the new session of the Public Health Committee of the Association on October 21 a letter was read from Dr. James Fenton intimating that, having retired from the service of the Kensington Borough Council and accepted an appointment as temporary officer at the Ministry of Health, he felt himself compelled to withdraw from the membership of committees which undertook negotiations on salary questions and also not to stand for re-election as chairman of the Public Health Committee, although he wished to remain a member of that committee. The Chairman of Council (Dr. Gregg), who temporarily occupied the chair, spoke of Dr. Fenton's extremely valuable work for the Association, and particularly for that committee, and Dr. R. H. H. Joll, and Dr. J. A. Ireland spoke in similar vein. The committee expressed its gratification that, even though no longer chairman, Dr. Fenton would continue his membership.

Dr. C. Metcalfe Brown, of Manchester, was unanimously elected chairman.

Whitley Machinery

The present position with regard to Whitley machinery was the subject of an oral report by the Secretary (Dr. Charles H. L. He said that a revised draft of the scheme dealing in particular with the membership of the three main committees had gone to the local authority associations, though it might still be some time before the matter was completed. Progress was very slow indeed. The Secretary also discussed with the committee matters which had arisen concerning the representation of the medical profession in the Whitley machinery, and appropriate action was taken.

On the question of the delay it was agreed that the Chairman of Council and the chairmen of the three committees concerned—the Central Consultants and Specialists, the General Medical Services, and the Public Health—should be asked to interview the Secretary of the Ministry as a matter of urgency.

It was agreed to recommend the Council to send to the *Lancet*, the *Medical Officer*, *Public Health*, and the *Medical World* a letter of appreciation of the full co-operation which they had extended, with no small loss of revenue to themselves, during the period of the recent advertisement ban which had obtained until the local authority associations intimated their willingness to participate in the Whitley machinery.

The committee appointed its representatives on the Public Health Subcommittee of the Medical Functional Council for 1949–50. The membership of 13 (including three Scottish representatives) remains the same, except that Dr. F. Hall and Dr. Struthers take the place of Dr. Fenton and Dr. George Buchan, who had intimated that they were no longer available to serve.

Whole-time Officers

The general question of the position and remuneration of whole-time officers whose duties fall partly under a local

will, yet I do suggest that there is no compulsion of any firm to present such an agreement. Surely neither the Medical Practices Committee nor any executive council has any legal power to invalidate such an agreement or to prevent any practitioners on the list of an executive council entering into a formal partnership agreement if they so desire. Surely the only document that it is necessary to make a partnership "officially valid and operative" is a form of partnership agreement duly executed and stamped.

It is imperative that these *ad hoc* bodies that are springing up in the medical world should not be credited with powers or a wider range of activity than they do in fact possess.—I am, etc.,

London, N.W.2. A. N. MATHIAS.

*** The writer is quite correct, but if official sanction is desired to an agreement then the answer given was correct. The word "officially" has caused some confusion.—ED., *B.M.J.*

Payments to Chemists

SIR,—Your correspondent, Dr. K. V. Deakin (*Supplement*, October 1, p. 156), is using a faulty yardstick in his comparison of earnings of chemists for pharmaceutical services provided under the N.H.S. Act with those of the medical profession. He apparently fails to realize that the payments made to chemists include the net cost payments for drugs, medicines, dressings, and appliances and the containers. Taking that factor into account, the gross figures, as quoted by your correspondent, must be reduced by at least 45% and on the average by 50%. Out of the residue the chemist has to meet that part of his establishment and staffing costs which is attributable to the dispensing department. These costs, already high, are continually increasing.

The *net* income of the chemist from N.H.S. pharmaceutical services is manifestly very different from what your correspondent's figures suggest. With his basic contention that the remuneration of the medical profession is inadequate I for one certainly would not quarrel. Probably more than any other section of the community chemists realize the tremendous burden of additional work which the advent of the N.H.S. scheme has thrust on the medical profession, and they have every sympathy with the profession in its difficulties.—I am, etc.,

London, W.C.1. H. NOBLE,
Secretary, The National Pharmaceutical Union.

Status of General Practice

SIR,—Dr. Ian D. Grant (*Supplement*, October 1, p. 155) has very ably shown that the National Health Service gives reward in general practice not for quality but for quantity. He also asserts that the biggest numbers gravitate to the "yes man" who freely acquiesces in the general exploitation by issuing certificates and prescriptions *ad lib.* or according to the dictates of the patient. To a certain extent this is true. Inevitably the system lowers the status of the G.P. to that prevailing in the least attractive industrial practice of the old days.

Pari passu with the deterioration of general practice there is an overall increase of costs. The Minister of Health blames the general practitioner, but the practitioner is pretty helpless, as he is too often forced to acquiesce in the dictates of the patient.

In hospital practice the picture appears no less gloomy. Out-patient departments are overcrowded by patients referred chiefly by the long-list practices, and the waiting-lists of the teaching hospitals are bloated by the names of patients of whom many are not suitable for treatment at such hospitals.

Surely the answer is to make general practice respected enough to attract doctors with higher qualifications and suitable experience to take up general practice as a career—e.g., M.R.C.P., M.D., or F.R.C.S.

Hospital staffs are graded according to qualifications and experience. Why not general practitioners? In Scotland at any rate there are many satellite hospitals where such doctors could play an increasingly important role, and even where such a hospital is not readily accessible general practice should provide adequate scope.

When a vacancy occurs in a suitable practice a higher qualification plus suitable experience could be deemed an additional qualification for the vacancy. It should not be overlooked that, however much medicine advances, the benefit to the public remains meagre until the G.P. is encouraged to practise the "airt" in the home. Unless the status of the family practitioner is raised and adequate inducements are given to attract the best type of doctor to take up general practice as a career, the whole N.H.S. is doomed to failure.

The present system has converted the G.P. into a multiple signboard destined to frustrate every attempt at raising the standard and prestige of British medicine.—I am, etc.,

Fraserburgh, Aberdeen. J. MACLEOD.

Pay of Army Specialists

SIR,—Recruiting for Regular commissions in the Royal Army Medical Corps is non-existent and the shortage of specialists is acute. This will remain so until either better rates of pay are conceded or doctors find themselves unable to obtain satisfactory employment in the National Health Service. Recent events indicate that the authorities are relying on the latter event to stave off a crisis.

By advertising for civilian specialists at rates of pay higher than the Regular, and by refusing to allow the latter to resign, they evidently hope to keep going until most of the National Health specialist appointments are filled and junior specialists come cap in hand to the R.A.M.C. This will presumably happen in about eighteen months' time.

Meanwhile Regular specialists are prevented from seeking their fortune in other spheres but must serve on with an increasing sense of frustration as they see post after post for which they are qualified being filled by their civilian colleagues.

Surely the time has come for the *British Medical Journal* to refuse advertisements for civilian specialists in the Army until either higher rates of pay are conceded for the Regular or he is free to find his own level in the open market.—I am, etc.,

ARMY SPECIALIST.

The Wrong Way to Look at it

SIR,—In the *Supplement* of October 8 (p. 161), under the heading "The Wrong Way to Look at it," there are some completely unfounded suggestions. In reply to someone who has been grumbling, perhaps foolishly, against the N.H.S., the writer says: "Is it not worth while to pay something to have a healthier community at one's doors?" Yes, if it is so, but what evidence is there that the N.H.S. has made or is making such a change? It is the sort of statement that might come from a politician, not that of a man with some sort of scientific outlook such as a writer in this *Journal* should have.

One might think, if there was no evidence one way or another, that it was too soon to judge. One might have opinions, and I think I am right in saying that there is a large body of informed opinion which holds that the N.H.S. is producing, and will produce, a lower standard of medical practice, and that a lower standard of health will result. There is doubtless a contrary opinion.

The only evidence I have seen is a quotation from the *Monthly Digest of Statistics* from the Government Central Statistical Office stating that the deaths quarter by quarter in the twelve months before July 5, 1948, were lower in each quarter than in each corresponding quarter following that date, the figures for each twelve months being 461,000 and 508,600 respectively. I do not presume to comment on the significance of the figures, but they certainly do not support the writer's suggestion.

When doctors' surgeries are so crowded owing to the addition of a number of people who do not really need a doctor, it becomes impossible to make proper examinations, and cases of serious, but not obvious, illness must be more often missed. That is, those who need careful attention do not get it, for there is a limit to the capacity of the most conscientious. This, though not universal, is true of many practices.

As to the suggestion that the "daily help" would be less often absent sick—well, it seems unlikely that the N.H.S. will

be able to forestall a housemaid's knee, and, whereas in the bad old days when self-reliance was encouraged the "help" with some trivial ailment would carry on, she will now go and queue at the doctor's for a certificate and go off work with all ceremony.—I am, etc.,

E. W. SHEAF.

Guildford Surrey

National Insurance: Correction

SIR,—In the *Supplement* of October 1 (p. 149) under "Questions Answered" you reply that a wife assisting her husband as a nurse-receptionist may contribute to National Insurance in Class 2 or Class 3. I am afraid this is not correct.

The provision you quote in S.I.1948 No. 1425 refers to a partnership or similar association with the husband, and would therefore apply only to the wife who was herself a qualified practitioner. It would not apply to the wife employed by or assisting her husband as receptionist or secretary, etc., who falls into the class of non-employed persons.

A married woman who is in the non-employed persons class is under no obligation to pay National Insurance contributions and is, in fact, only entitled to do so if she has qualified by a substantial period of employment or self-employment.

Leaflet N.I.1, which sets out a married woman's rights in National Insurance, can be obtained from any local National Insurance office.—I am, etc.,

R. G. S. HOARE,
Chief Information Officer.

Ministry of National Insurance

POINTS FROM LETTERS

Discipline in Prescribing

Dr. J. E. M. BARNES (Eye, Suffolk) writes: Abuse of the National Health Service and its exorbitant cost to the nation are both points exercising the minds of all concerned very much at present. Much has been said about the "something for nothing" category of patient. I feel, however, that the profession must put its own house in order and exact some sort of discipline in prescribing before an overbearing bureaucracy exerts its stifling influence on the individual doctor's freedom of action. I happen to know that some doctors are quite casual about prescribing multiples of hundreds of vitamin and similar preparations, all without much clinical foundation . . .

Too Ill

Dr. W. M. L. HORNER (Osgathorpe, Leicester) writes: To-day I was given a message by 'phone that a patient required a visit. Not being able to manage it on my first morning round, I went first thing in the afternoon, only to be informed that the patient had gone to the dentist. Presumably the patient was not ill enough to prevent her from going to the dentist, but too ill to prevent her from going to see her doctor. Does it make sense?

Doctors and Dentists

Dr. J. McL. LEES (Walsall) writes: I have no wish to become involved in a doctor-v.-dentist quarrel. Like Mr. Ferguson Mackenzie (*Supplement*, October 8, p. 163) I think we, the medicals, provided poor opposition in the dispute with the Minister. But he could not use the Minister's tactics of figures to prove anything. I seem to remember that I had to purchase equipment.

Payment of Locums

Dr. D. G. SMITH (Cambuslang, Lanarkshire) writes: "Principal" (*Supplement*, October 8, p. 163) writes of giving partnerships away. The statement reveals a common belief which I think is wrong. It suggests that the number of patients on his list is there by some divine right and not—as far as "Principal" is concerned—as the result of a happy accident. On July 5, 1948, "Principal" sold the financial interests of his practice to the State. Whether or no it was a good business deal is irrelevant. The State actually owned his patients, but instead of paying him a salary to look after a certain number of them it allowed him to continue treating the total and, incidentally, a certain amount of money *per caput* for his trouble—not a bad arrangement provided you are a principal. It is as if in a hundred-yards sprint he was given a start of anything from fifty to ninety yards, not because he was a poor runner but because he happened to begin that part of the track—and running no less—when the race began. Is it reasonable to complain if some of the misguided individualists who began at scratch request a rearrangement of handicaps? . . .

B.M.A. LIBRARY

The following books have been added to the Library:

Abely, A. M. P.: Introduction à l'Etude de l'Endocrino-psychiatrie 1949.
Advances in Biological and Medical Physics. Volume 1. 1948
Aimes, H., and Betoulières, P.: L'Ultra-violet, la Lumière Solaire e Artificielle, l'Infra-rouge. 1949.
Allen, C.: Modern Discoveries in Medical Psychology. Second edition. 1949.
American Academy of Pediatrics: Child Health Services and Pediatric Education. 1949.
Apffel, C. A.: Diagnostic et Traitement des Maladies de l'Enfance 1948.
Arnulf, G.: L'Infiltration Stellaire: technique indications, résultats 1947.
Ayman, D.: Arterial Hypertension 1948.
Bachmeyer, A. C., and Hartman, G. (Editors): Hospital Trends and Developments, 1940-1946. 1948.
Baumgartner, J. G.: Canned Foods. Third edition 1949
Beliak, L.: Dementia Praecox 1948
Bertwistle, A. P.: Descriptive Atlas of Radiographs. Seventh edition. 1949.
Caldwell, J. W.: Understand Your Diabetes: a guide-book for the diabetic patient. 1949.
Cambray, P. G., and Briggs, G. G. B.: Red Cross and St. John the official record of the humanitarian services of the War Organization of the British Red Cross Society and Order of St. John of Jerusalem, 1939-1947 1949.
Carrington, H.: The Invisible World. 1949
Clark, M.: Medicine on the March: a progress report. 1949
Cohen, I. B.: Science, Servant of Man: a layman's primer for the age of science. 1949.
Colloques Internationaux du Centre National de la Recherche Scientifique. VIII. Unités Biologiques Douées de Continuité Génétique, Paris, juin-juillet, 1948. 1949
Colloques Internationaux du Centre National de la Recherche Scientifique. XI. Les Lipides. Paris, 5 au 12 janvier, 1948. 1949
Congresso XX°, Roma, 24-26 Ottobre, 1947: Atti della Società Italiana di Urologia 1948.
Curtis-Bennett, Sir N.: Food of the People: being the history of industrial feeding. 1949.
Dack, G. M.: Food Poisoning. Revised edition 1949
Dubois, A., and Van den Berghe, L.: Diseases of the Warm Climates 1948.
Durel, P.: Les Métrites du Col. 1948.
English, O. S., and Pearson, G. H. J.: Emotional Problems of Living. 1947.
Fox, G.: "Book of Miracles." Edited with an introduction and notes by Henry J. Cadbury. 1948
Friedlander, K.: Psycho-analytical Approach to Juvenile Delinquency. 1947.
Fulton, J. F.: Functional Localization in the Frontal Lobes and Cerebellum. 1949.
Geckeler, E. O.: Fractures and Dislocations: for practitioners. Fourth edition. 1948.
van Gelderen, C.: Funktionelle Pathologie in der Chirurgie Zweite Auflage. 1949.
Gissel, H., and Schmidt, P. G.: Die Lungentuberkulose Zweite Auflage. 1949.
Grinker, R. R., and Bucy, P. C.: Neurology. Fourth edition 1949
Guy, W.: Mostly Memories—Some Digressions 1948
Hamburger, J., and Ryckewaert, A.: Nouveaux Procédés d'Exploration Fonctionnelle du Rein. 1949.
Harms, E. (Editor): Handbook of Child Guidance. 1947
Henry, T. A.: The Plant Alkaloids Fourth edition 1949
Hill, H., and Dodsworth, E.: Food Inspection Notes Third edition 1949.
Hoff, F.: Behandlung innerer Krankheiten: Richtlinien und Ratschläge für Studierende und Ärzte. Vierte Auflage 1949
Jones, D. C.: Social Surveys. 1949
Kanert, W., and Koelsch, K. A.: Gemeinsame Erkrankungen aus der inneren Medizin und Chirurgie. 1949.
Kemble, J.: Surgery for Nurses: a textbook for the surgical nurse 1949.
Kemp, W. N.: The Value of Hormones in General Practice 1949
Khoury, C.: Hallux Valgus. 1947
Kiely, P.: Text book of Surgery. 1949
Kumer, L.: Dermatologische Kosmetik. 1949.
Lambie, C. G., and Armytage, J. E.: Clinical Diagnostic Methods Two volumes. 1947-8.
Lief, A. (Editor): The Commonsense Psychiatry of Dr. Adolf Meyer 1948.
London County Council: The L.C.C. Hospitals: a retrospect 1949
Macaulay, M.: Understanding Ourselves 1949.
MacNalty, Sir A. S.: The Three Churchills. 1949
Menninger, W. C.: Psychiatry: its evolution and present status 1948.
Modern Practice in Anaesthesia, 1949. Edited by Frankis T. Evans. 1949.
Orr, H. W.: On the Contributions of Hugh Owen Thomas of Liverpool, Sir Robert Jones of Liverpool and London, John Ridlon, M.D., of New York and Chicago to Modern Orthopaedic Surgery. 1948.
Pelton, W. J., and Wisan, J. M. (Editors): Dentistry in Public Health 1949.

Psychiatric Research: By Cecil K. Drinker, *et al.* 1947.
Puxon, M.: Handbook of Midwifery. 1949.
Ribeiro, E. B.: Estudos Chirúrgicos. 5a Série. 1949.
Rowbotham, G. F.: Acute Injuries of the Head. Third edition. 1949.
Seltzer, A. P.: Plastic Surgery of the Nose. 1949.
Seward, C. M.: Bedside Diagnosis. 1949.
Shepard, W. P.: Essentials of Public Health. 1948.
Sparger, C.: Anatomy and Ballet: a handbook for teachers of ballet. 1949.
Speer, E.: Der Arzt der Persönlichkeit. 1949.
Sprott, W. J. H.: Sociology. 1949.
Thiel, R.: Atlas der Augenkrankheiten. Fünfte Auflage. 1948.
Thomsen, W.: Lehrbuch der Massage und manuellen Gymnastik. Zweite Auflage. 1949.
Thorek, M.: A Surgeon's World: an autobiography. 1949.
Torpin, R.: A Treatise on Obstetric Labor. 1948.
Trapozzano, V. R. (Editor): A Comprehensive Review of Dentistry. 1949.
Trueta, J.: An Atlas of Traumatic Surgery. 1949.
Vasconcelos, E.: Ulcers of the Stomach and Duodenum: technique of surgical treatment. 1947.
Weiss, E., and English, O. S.: Psychosomatic Medicine. Second edition. 1949.
Zweig, W.: Die Erkrankungen des Darmes. 1949.

H.M. Forces Appointments

ROYAL NAVY

Surgeon Commander C. H. Birt has been placed on the Retired List.

ROYAL ARMY MEDICAL CORPS

Short Service Commission.—Captain H. T. Chiswell, O.B.E., to be Major.

REGULAR ARMY RESERVE OF OFFICERS

ROYAL ARMY MEDICAL CORPS

Major (Honorary Lieutenant-Colonel) J. H. Walters, I.M.S. retired, to be Major.

Association Notices

TUBERCULOSIS AND DISEASES OF THE CHEST GROUP

Members of the Association interested in chest diseases are reminded that a Group has been formed of members whose work is primarily concerned with tuberculosis and diseases of the chest. Forms of application for membership of this Group may be obtained from the Secretary.

MEETING OF REGISTRARS

The National Committee of the Registrars' Association of Great Britain has petitioned the Council of the Association to form a Group of Registrars. This petition will be considered by the Council at its meeting on November 16, 1949.

The Central Consultants and Specialists Committee has agreed to the principle that registrars should be represented on its various regional committees, and that there should be a place on the Central Committee for one registrar elected from among those who are serving on the regional committees.

In order that no time may be lost in framing the constitution of a Registrar Group and in electing a Group Committee, it is proposed, pending the Council's approval of the formation of a Group, to call a mass meeting of registrars at B.M.A. House on Saturday, November 26, at 10 a.m. It is important that the meeting should be as large and representative as possible, and every practitioner holding a registrar appointment is cordially invited to attend.

CHARLES HILL,
Secretary.

Diary of Central Meetings

OCTOBER

31 Mon. Armed Forces Committee, 2 p.m.

NOVEMBER

2 Wed. Finance Committee, 2 p.m.
2 Wed. (At Lion Hotel, Shrewsbury) Welsh Committee, 2.15 p.m.
3 Thurs. Joint meeting with Chemists on Doctors' Stock Orders, 10 a.m.
3 Thurs. Central Consultants and Specialists Committee, 2 p.m.
3 Thurs. Committee on Industrial Health Services in relation to the National Health Service, 2 p.m.
4 Fri. Committee *re* Salaries of Medical Teachers, etc., 2 p.m.
8 Tues. Arrangements Committee, 2 p.m.
9 Wed Committee on the Postgraduate Education of General Practitioners, 11 a.m.
10 Thurs. General Medical Services Committee, 11 a.m.
11 Fri. Evidence oCmmittee (Royal Commission on Capital Punishment), 11.30 a.m.
16 Wed. **Council**, 10 a.m.
17 Thurs. Radiologists Group Conference, 1.30 p.m.
17 Thurs. Radiologists Group Committee (at termination of Group Conference).
25 Fri. Committee on Psychiatry and the Law, 2 p.m.

DECEMBER

22 Thurs. Occupational Health Committee, 2 p.m.

Branch and Division Meetings to be Held

BATH, BRISTOL, AND SOMERSET BRANCH.—At Physics Lecture Theatre, The Royal Fort, Bristol University, Wednesday, November 2, 8.30 p.m., annual general meeting. Presidential address: "The Forgotten Inventor."

BLACKPOOL AND FYLDE DIVISION.—Joint meeting with Blackpool and Fylde District Law Society at Clifton Hotel, Talbot Square, Blackpool, Wednesday, November 2, 7.15 p.m., reception; 7.30 p.m., dinner, followed by lecture by Mr. J. D. Cantley: "The Doctor in Litigation."

DONCASTER DIVISION.—Joint meeting with Doncaster Medical Society at Parkinson's Café, Doncaster, Tuesday, November 1, 7.45 for 8 p.m., dinner, followed by an address by Dr. W. Lomax: "Puerperal Fever."

EAST HERTS DIVISION.—At County Hospital, Hertford, Wednesday, November 2, 8.45 p.m., address by Mr. Kenneth Walker: "A Wider Approach to Genito-urinary Problems."

EAST NORFOLK DIVISION.—At Norfolk and Norwich Hospital, Wednesday, November 2, 2.30 p.m., Dr. A. V. Kelynack (Assistant Secretary, B.M.A.): "Present Policy."

GOOLE AND SELBY DIVISION.—At Lodge, Snaith, Thursday, November 3, 8.15 p.m., paper by Mr. A. J. C. Latchmore: "Recent Advances in General Surgery."

GUILDFORD DIVISION.—At Royal Surrey oCunty Hospital, Guildford, Thursday, November 3, 8.30 p.m., address by Mr. Price Thomas: "Surigcal Treatment of Carcinoma of the Lung."

MID-ESSEX DIVISION.—At St. John's Hospital, Chelmsford, Sunday, November 6, 10 a.m., Dr. I. Gordon: "Treatment of Heart Failure."

PADDINGTON DIVISION.—At Wright-Fleming Institute, St. Mary's Hospital, Praed Street, London, W., Thursday, November 3, 8.30 p.m., lecture-demonstration by Professor R. Cruickshank: "The Laboratory's Part in the Diagnosis and Treatment of Disease." Members of neighbouring Divisions are invited.

ROCHDALE DIVISION.—At Providence School, High Street, Rochdale, Friday, October 28, 8.30 p.m., clinical meeting. Dr. L. D. Walker, Medical Director of No. 4 Mass Radiography Unit, will demonstrate the working of the Unit.

SWANSEA DIVISION.—At Swansea General Hospital, Thur: November 3, 7.30 p.m., clinical meeting.

WEST HERTS DIVISION.—At Peace Memorial Hospital, Rickmansworth Road, Friday, November 4, 8.30 p.m., joint meeting with West Herts and Watford Medical Society. Dr. Robert Forbes: "Legal Hazards in Medical Practice."

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Denton, Drovlsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY NOVEMBER 5 1949

LIVER DAMAGE PRODUCED BY FEEDING ALCOHOL OR SUGAR AND ITS PREVENTION BY CHOLINE*

BY

C. H. BEST, M.D., F.R.S. W. STANLEY HARTROFT, M.D.
C. C. LUCAS, Ph.D. AND JESSIE H. RIDOUT, Ph.D.

(From the Banting and Best Department of Medical Research, University of Toronto)

[WITH PHOTOGRAVURE PLATE]

One of the first suggestions that over-indulgence in alcoholic beverages may damage the liver was made by Thomas Addison, physician to Guy's Hospital, London (Addison, 1836). He wrote: "With respect to the causes of this fatty degeneration of the liver, very little, or absolutely nothing, is known. In most of the cases which I have met with, there has been either positive or strong presumptive evidence that the individual had indulged in spirit-drinking; and indeed the most exquisite case I ever saw in a young subject occurred in a female who had for some time subsisted almost exclusively on ardent spirits. On the other hand, the extreme frequency of the degeneration in France, where the people are but little given to such indulgence, throws considerable doubt upon such an origin of the complaint."

A few years later Rokitansky (1849), pathologist to the Imperial Royal General Hospital in Vienna, reached a similar conclusion concerning the responsibility of alcohol for at least one type of fatty liver. Rokitansky noted the frequent occurrence of cirrhosis of the liver in drunkards. He was possibly the first to suggest that cirrhosis follows fatty changes in the liver.

The earliest references to experimental studies of the effects of alcohol were concerned with its effect on the brain (Dahlström, mentioned by Magnus Huss, 1852; Duchek, 1853). Kremiansky (1868), in the course of similar investigations, noted that one of four dogs receiving increasing doses of alcohol up to 6 oz. (170 ml.) daily for three months developed fatty changes of the liver and heart and a catarrhal condition of the kidneys. Ruge (1870), however, seems to have been the first to show clearly that an accumulation of fat occurs in the livers of dogs given increasing daily doses of alcohol by stomach-tube. He noted incidentally that the nature of the diet influenced the amount of fat found in the liver.

Moon (1934), in his comprehensive and critical review of the experimental work on alcoholic cirrhosis, concluded that none of the experimental procedures had been successful in producing cirrhosis in animals, other than rabbits, by alcohol alone. He pointed out that many of the so-called "positive" results with rabbits must be discounted owing to the presence of intercurrent liver infections (coccidiosis, etc.) or to a chronic periportal inflammation which is common among adult untreated rabbits. Moon concluded: "Without minimizing the contributory or predisposing influence which alcohol may exert, it must be concluded that experimental evidence has not substantiated the belief that alcohol is a direct cause of cirrhosis."

Experimental evidence that long-continued presence of abnormal amounts of fat in the liver does give rise to cirrhosis was supplied by Chaikoff, Connor, and Biskind (1938) using depancreatized dogs which had been maintained with insulin for periods up to five years. Production of cirrhosis in normal dogs by feeding alcohol to animals in which a fatty liver had previously been established by dietary means was reported by Connor and Chaikoff (1938), but the relationship of the alcohol to the cirrhosis became questionable when Chaikoff and Connor (1940) produced cirrhosis in normal dogs by dietary means alone (high fat and low protein). A series of papers from the National Institute of Health, Bethesda, Maryland, reported that the consumption of alcohol by rats increased the severity of dietary cirrhosis and that supplements of choline chloride or of methionine (or an increase in the dietary casein) prevented the development of cirrhosis and were beneficial in its treatment (Daft, Sebrell, and Lillie, 1941; Lillie, Daft, and Sebrell, 1941; Lowry, Daft, Sebrell, Ashburn, and Lillie, 1941; Lowry, Ashburn, Daft, and Sebrell, 1942; Lillie, Ashburn, Sebrell, Daft, and Lowry, 1942).

More recently, however, Ashworth (1947) concluded that alcohol exerts a toxic effect even when the diet is adequate. Rats on high-casein diets and others on low-casein diets were given 1.5 ml. of 25% alcohol per 100 g. body weight by stomach-tube daily for two months, and 10% alcohol was supplied in place of drinking-water: control groups without alcohol were "pair-fed" the same basal diets. Since all the rats lost weight, whether alcohol was present or not, it is questionable whether the basal diets were adequate. Interpretation of the data is therefore difficult (see "Discussion").

Although Ashworth (1947) pair-fed his rats, the calorie intake of those consuming alcohol was considerably in excess of those drinking water. To determine what effect calorie imbalance might have upon the results, we have performed experiments in which, for the first time in a

*A very brief account of this work was presented at the Detroit Meeting of the American Physiological Society, 1949.

study of the effects of alcohol, isocaloric pair-feeding has been used. Groups of rats not receiving alcohol were isocalorically pair-fed with those ingesting alcohol. The extra calories (equivalent to those supplied by the alcohol) were provided as finely powdered sucrose.

The effects of various lipotropic supplements added to the diets of the rats consuming alcohol were studied. The pathological changes in the liver produced in these experiments are attributed to an imbalance of calories and vitamins, particularly to an induced inadequacy of lipotropic factors consequent upon the increased calorie intake. Adequate amounts of choline chloride, methionine, or casein always protected the liver. Under these particular experimental conditions there is no more evidence of a toxic effect of pure ethyl alcohol upon the liver cells than there is of a poisonous action of an amount of sucrose which supplies the same calorie intake. In fact, there is no suggestion that either alcohol or sucrose exerts a direct hepatotoxic effect. The fatty and fibrotic changes are due to a deficiency of the lipotropic factors.

Experimental

A total of 188 male rats (150 to 200 g.) were divided among 12 groups unequal in numbers but with comparable weight distribution (see Table I). The animals were housed

TABLE I.—*Liver Lipids and Fibrosis*

Supplement	Diet Alone *ad lib.*	Diet *ad lib.* + Alcohol	Diet Alone (Pair-fed)	Diet Pair-fed + Sugar (Isocaloric)
None	**0** (10) 10% 0/6	**2** (20) 18% 7/15	**3** (32) 10% 2/28	**4** (12) 26% 7/9
Choline chloride 0·5%	**1** (6) 6% 0/6	**5** (20) 7% 0/18		**6** (12) 6% 0/12
Methionine 0·5%		**8** (20) 7% 0/18		**7** (12) 7% 0/10
Casein 17%	**9** (12) 7% 0/10	**10** (20) 8% 0/18		**11** (12) 7% 0/11

Average daily food consumption (without alcohol), 14 to 15 g.
Average daily food consumption (with alcohol), 11 g.
Alcohol supplied 18% total calories in Groups 2, 5, 8, and 10.
Group numbers in bold face type and original number of rats per group in parentheses. Average total liver lipids as percentage of fresh liver weight is shown below group number; number of livers showing fibrosis is given as numerator of a fraction in which denominator is the number of livers carefully examined after rats had eaten diets for 6 months.

in individual all-metal cages provided with a false bottom of coarse wire screen. A 15% (by volume) aqueous solution of purified ethyl alcohol was given in place of drinking-water to four groups of rats throughout the whole experimental period, which lasted 177 days. These groups (2, 5, 8, and 10) were offered their respective diets and the alcoholic solution *ad libitum*, and the amounts of each consumed were recorded daily. Four other groups of rats (4, 6, 7, and 11) started four days later were fed the same amount and kind of diet consumed by Groups 2, 5, 8, and 10, respectively. An attempt to achieve calorie equivalence was made by adding enough powdered sucrose to each of the former diets to supply the calories provided by the alcohol consumed by the corresponding group. These groups of rats and the remaining ones were given tap-water *ad libitum*. To assess the effects of the extra calories provided by the alcohol (or sucrose supplement) it is necessary to know the effects of the amount of basal diet consumed by the rats of Groups 2 and 4. The rats of Group 3 (started four days later than those of Group 2) were therefore "group pair-fed" on a diet-weight basis with those of Group 2. Only 12 rats were available for this group when the main experiment was started (June 24, 1948); 20 rats (referred to as Group 3A) were started one month later under identical dietary conditions. The rats of Group 0 were included to observe the effects of the basal diet alone when offered *ad libitum*, and those of Groups 1 and 9 were used to study the effects of the lipotropic supplements (choline and protein, respectively) when added to the basal diet and fed *ad libitum*. Further experimental conditions will be described in detail in the following paragraphs.

The Diet

A basal ration was desired which would be as nearly adequate as possible in all its dietary components except the lipotropic factors. However, it was considered inadvisable to permit an excessive accumulation of liver fat, since any effect attributable to alcohol alone would be difficult to assess if superimposed on a liver made excessively fatty by the basal diet. The small amount of choline chloride (0.05%) added to the basal ration was determined by preliminary experiments to be just sufficient to maintain the total liver lipids at about 10%, which was arbitrarily considered to be a satisfactory basal level for these particular studies.

The basal diet had the following composition, in percentages: casein 10, gelatin 5, zein 3, cystine 0.3, salts (Beveridge and Lucas, 1945) 5, celluflour 2, sucrose 41.7, starch 10, dextrin 10, beef fat 10, corn oil 2, "vitamin powder" 1, cod-liver-oil concentrate* 0.015, α-tocopherol acetate 0.01, choline chloride 0.05. The "vitamin powder" contained thiamin hydrochloride 0.5 g., riboflavin 0.25 g., pyridoxin hydrochloride 0.2 g., calcium pantothenate 1 g., nicotinic acid 1 g., folic acid 0.05 g., 2-methyl-1-4-naphthoquinone 0.1 g., para-amino benzoic acid 10 g., and inositol 50 g., made up with finely powdered sucrose to 1,000 g. Rats consuming 10 g. of diet daily received 50 μg. of thiamin hydrochloride and corresponding amounts of the other vitamins.

The methionine content of the diet was estimated to be 420 mg. and the cystine content (with the supplement) was 380 mg. per 100 g. Using calorie values per g. of 4 for protein, 4 for carbohydrate, and 9.3 for fat, the energy content of the basal diet was calculated to be 4.35 calories per g., of which 58% was contributed by the carbohydrate. The diets were freshly prepared at least once a week. The major dry ingredients for 5 kg. of diet were thoroughly mixed in a Hobart food-mixer, and a small portion (about 500 g.) was spread in a thin layer on a large tray. The minor ingredients (vitamin powder, cystine, or methionine) were ground individually in a mortar with small portions of the dry mixture, and this was then sifted (40-mesh sieve) over the surface of the material in the tray. The choline chloride was ground separately until uniform with about 10 g. of the dry mixture, and then more of the dry mixture was added to the mortar until about 40 g. was present. This mixture was sprinkled over the surface of the material in the tray. The cod-liver-oil concentrate and α-tocopherol acetate were dissolved in petroleum ether and sprayed over the same mixture. The contents of the tray were mixed by hand and then returned to the Hobart mixer and blended thoroughly. The beef fat was melted and brought to a temperature of 130° to 140° C., the corn oil was added, and the hot fat was poured all at once into the mixer and blended until uniform. The diets were kept in tightly closed tinned cans in a refrigerator at about 4° C. until required for use.

Alcoholic beverages and commercial ethyl alcohol contain compounds other than ethanol. To what extent the other components (in some cases unknown) contribute to the effects of alcohol upon the liver cannot be stated. Since

*This concentrate (Ayerst, McKenna, and Harrison, Ltd., Montreal, Canada) contained 200,000 i.u. vitamin A and 50,000 i.u. vitamin D per g.

the effects of ingesting alcohol may be due to the contaminants, the ethanol, or the ratio of dietary calories to the adequacy of other nutriments, it was considered important to eliminate the contaminants as completely as possible. Freshly prepared silver oxide (about 10 g. per litre) was added to so-called pure 95% ethyl alcohol. The mixture, shaken frequently, was left at room temperature for at least 24 hours. The alcohol was then decanted, made just alkaline with sodium hydroxide, and distilled through a packed fractionating column running at a reflux ratio of about 10 to 1. The first 20% of distillate was rejected, about 50% was collected, and the remainder was discarded. A 15% (by volume) aqueous solution of this material replaced the drinking-water of four groups (2, 5, 8, and 10) of rats. Fresh liquid was supplied twice a week. It was dispensed to the rats from 6-oz. (170-ml.) medicine bottles through a short piece of curved glass tubing with a tip slightly constricted in the flame so that liquid would not run out unless the rat lapped it. Sudden movements of the cage door were avoided to minimize leakage, since it was found that jarring the bottle permitted loss of a few drops of liquid. Losses due to evaporation were shown to be negligible (less than 0.3 ml. per day). Whenever, for any reason, abnormally large amounts of liquid seemed to have been consumed, leakage was suspected; the average consumption of alcohol during the previous week was then used to calculate the calories thus obtained by the rat.

Technique of Feeding

The animals in Groups 2 and 4 were paid-fed on an isocaloric basis. The technique used in this isocaloric pair-feeding (which applies also to Groups 5 and 6, 8 and 7, 10 and 11) will be described in detail. The rats of Group 2 consumed the basal diet *ad libitum*, with 15% alcohol to drink; the total calorie intake was determined from the average consumption of food and alcohol over three-day periods. The rats in Group 4 (started four days later) were offered the basal diet in an amount equal to the average value noted for those in Group 2, and enough finely powdered sucrose was added to this food (with thorough mixing) to supply the calories contained in the average amount of alcohol consumed by the rats of Group 2. The calculation of the amount of sucrose required was made on a somewhat arbitrary basis. Mitchell and Curzon (1940), in a review dealing with the food value of ethyl alcohol, stated that "for reasons at present unknown the energy of alcohol is not as well utilized in metabolism as is the energy of glucose." Mitchell (1935) estimated that the energy of alcohol is only about three-fourths as available for physiological purposes as that of sucrose. He stated that its growth-promoting power is definitely less than that produced by a sucrose supplement. In the absence of more specific information we assumed that calories from alcohol were only three-quarters as effective in causing gains in weight as were those of the sucrose supplements. Since 1 ml. of absolute ethyl alcohol weighs 0.79 g. and the calorie value is given as 7.1 cal. per g., then 1 ml. contains 5.6 cal., or 1 ml. of 95% alcohol corresponds to 5.3 cal. One ml. of a 15% by volume dilution of the 95% alcohol would supply 0.8 cal.: finally, if only three-quarters of this is available for promoting gains in weight, then 1 ml. is equivalent to 0.6 cal., or approximately to 0.15 g. of sucrose.

The rats were maintained on these dietary regimens for 177 days. Pairs of rats chosen at random from Groups 0, 2, 4, 5, 7, 8, 9, and 10 were killed at three weeks to determine to what extent deposition of liver lipids was taking place; again after 12 weeks pairs of rats from Groups 2 and 3 were sacrificed. All rats were anaesthetized with sodium amytal (90 mg. per kg. body weight, intraperitoneally). The animals were exsanguinated and the livers were removed and weighed immediately. Portions of right and left lobes were taken for histological examination; the remainder was re-weighed and the total liver lipids were determined (Best, Lucas, Patterson, and Ridout, 1946). Blocks of liver, kidney, and certain other tissues were fixed in Heidenhain's SUSA mixture for 24 to 48 hours. Paraffin sections were stained with haematoxylin and eosin, and, to demonstrate connective tissue, with azocarmine, aniline blue, and orange G. The degree of fatty vacuolation of the liver cells was recorded as 0, +, + +, + + +, or + + + +. These histological data were in agreement with the results of chemical determinations, and therefore only the latter are included in the Table. Numerous sections from each liver were examined carefully for signs of fibrous-tissue proliferation.

Results

No abnormalities were detected on gross, microscopical, or chemical examination of the livers of any of the animals receiving the diets containing the lipotropic supplements, whether or not alcohol (or extra sugar, isocaloric with the alcohol) had been consumed. The rats maintained on the basal diet alone (Group 0) grew well and (with the exception of one rat which showed some pancreatic disease) the total liver lipids ranged from 7.7% to 12.8%, with an average of 9.3%, and no liver fibrosis was observed. The average daily food consumption of the rats allowed to eat this diet *ad libitum* was reasonably constant at about 14 to 15 g., as was that of the other rats not consuming alcohol and eating *ad libitum* (Groups 1 and 9). All the rats consuming alcohol (Groups 2, 5, 8, and 10) ate less—only about 11 g. daily. The rats in the pair-fed groups (3, 4, 6, 7, and 11) were therefore offered 11 g. of the corresponding diets daily. The rats of Group 3 gained less weight because of this restricted food intake, but their livers showed essentially the same chemical and histological picture as those of the rats of Group 0.

The rats consuming alcohol without adequate lipotropic factors in the diet (Group 2) developed fatty livers with an average total lipid content (20%) about double that of the rats consuming the same amount of diet without alcohol (Group 3). One-half of the surviving rats drinking alcohol and eating the basal diet (Group 2) exhibited hepatic fibrosis, while in those without alcohol (Group 3) fibrosis could be detected in only two out of 28 survivors, and in one of these the fibrosis was minimal. The rats fed sugar isocalorically—i.e., those of Group 4—had on the average more fat (26%) in their livers and a somewhat higher incidence of fibrosis (7 out of 9 survivors) than those receiving the alcohol (Group 2). However, in none of the livers of either Group 2 or Group 4 had the fibrosis advanced sufficiently to be considered frank cirrhosis. The greater production of fibrosis in the rats of Group 4 (sucrose) than in those of Group 2 (alcohol) probably may be explained by our failure to achieve an exact equivalence in calories between the rats of these two groups. Some evidence for this is apparent in Chart I, in which it will be noted that the average final weight of the rats receiving the sugar supplement exceeded by about 16 g. that of the rats consuming alcohol. This is a rather small discrepancy in weight at the end of a test period of six months, but the difference it represents in calorie intake may be sufficient to account for the slightly greater liver damage. Chart II indicates a more successful attempt at pair-feeding in the [illegible]rmation receiving choline. The curves require no further [illegible]nt except that the dips seen in all of

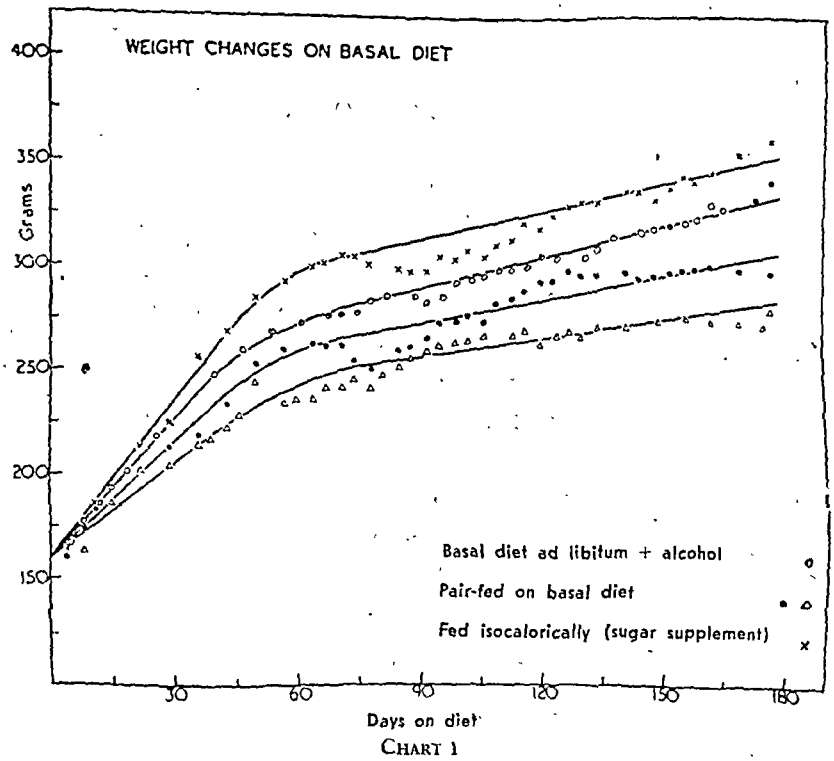


CHART I

them at about 80 to 90 days are related to a period of exceedingly hot weather, during which the air-conditioning equipment failed to function properly. Since the growth curves of the animals given supplements of methionine or casein (Groups 7, 8, 10, and 11) are essentially the same as those in Chart II, they will not be presented. The rats of Group 0 (basal diet *ad libitum*) grew most rapidly, those of Groups 1 and 9 only slightly less well. The rats of Group 0 consuming 14.9 g. of food per day (65 calories) gained on the average 262 g. Those of Group 3 consuming 11.2 g. (49 calories) of the same diet gained only 137 g. Rats of Group 2 eating essentially the same amount (11.4 g.) of diet but obtaining also 11 calories from alcohol—i.e., a total of 61 calories per day, 18% of which came from alcohol—gained 182 g. Rats of Group 4 ate 11.2 g. of diet daily and were given an average sugar supplement of 2.7 g. (total calories 60, of which 18% was supplied by the sucrose supplement); they gained 198 g. Thus rats of Group 0 eating 3.5 g. more food per day than those of Group 2

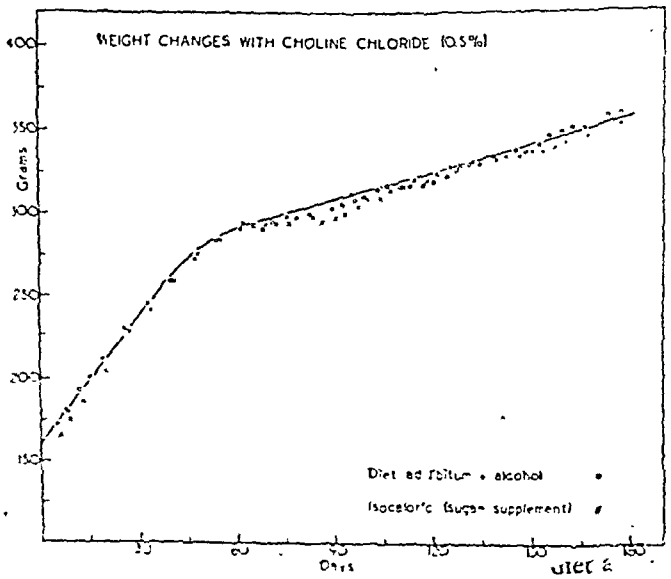


CHART II

gained 80 g. more than did the latter; in spite of the calories obtained by the rats of Group 2 from the alcohol, they were still getting from 4 to 5 calories per day less than those eating the basal diet *ad libitum*. The stunting of growth frequently attributed to the toxic action of alcohol is in these experiments due mainly to decreased food intake, unless one is willing to make the highly improbable assumption that sucrose exerts the same toxic effect as alcohol.

Fig. 1 (Plate) shows the typical histological picture seen in fatty livers (without fibrosis) of the rats consuming the basal diet with alcohol; Fig. 2 shows the same for rats on the basal diet with sugar fed isocalorically; Figs. 3 and 4 illustrate the distribution of fibrous tissue (when present) in the livers of the two groups. After careful study of many sections from all the livers these two examples were selected as representative of the two groups. The similarity in fat deposition and in the nature and extent of the fibrosis in the livers of the two groups is remarkable. Equally striking is the absence of abnormalities in the livers of the animals receiving adequate lipotropic supplements, as has already been mentioned.

Discussion

Clinicians in North America and Europe have tended for many years to associate chronic alcoholism and cirrhosis. In parts of Asia and Africa, however, cirrhosis is common although alcoholism is rare. In these regions it has been noted that cirrhosis occurs most often in persons subsisting on deficient diets. Thus a consideration of the incidence of cirrhosis throughout the world reveals a correlation with malnutrition. This situation may be obscured in some areas by a high incidence of cirrhotic changes following various forms of hepatitis. Within recent years it has been recognized that the chronic alcoholic, like other malnourished individuals, often shows signs of various dietary deficiencies: the intakes of good proteins and of vitamins of the B complex are generally low.

We are not considering in this paper the effects of alcohol on tissues other than the liver. Whether or not alcoholic beverages *per se* directly injure the liver has been a subject of controversy. Even if it could be proved that these beverages do exert a toxic effect upon the liver it would still have to be shown whether the effects were due to pure ethanol, to associated toxic contaminants, to a general malnutrition, or to one or more specific dietary deficiencies.

The present series of experiments does not supply any information whatever on the possible effects of toxic agents which may occur as natural contaminants of alcoholic beverages available in commerce. However, fatty infiltration and consequent fibrosis, which closely resemble the lesions in the chronic alcoholic, have been seen in these experimental animals consuming a purified alcohol. One is therefore tempted to assume that the hypothetical toxic contaminants may be of minor importance in causing the liver lesions seen in the human alcoholic.

The above experiments show that a carefully purified sample of ethanol can cause an excessive accumulation of fat in the liver and subsequent development of fibrosis when the diet lacks adequate amounts of the lipotropic factors. Since, however, pure sugar caused lesions of a similar nature and extent, and since these, as well as those due to alcohol, were entirely prevented by dietary choline or its

C. H. BEST, W. STANLEY HARTROFT, C. C. LUCAS, AND JESSIE H. RIDOUT: LIVER DAMAGE PRODUCED BY FEEDING ALCOHOL OR SUGAR, AND ITS PREVENTION BY CHOLINE

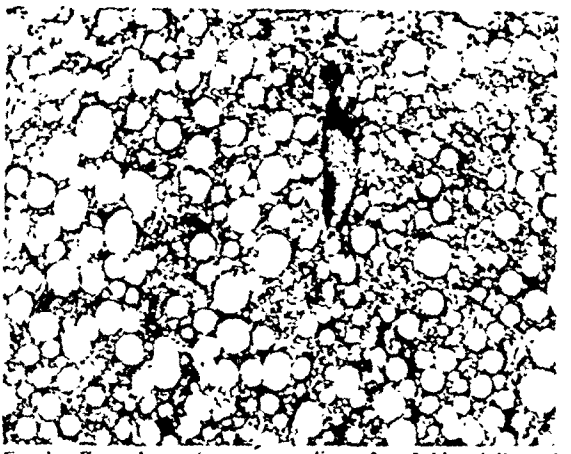


FIG. 1.—Fatty change (— — —) in liver of rat fed basal diet and given 15% alcohol in place of drinking-water. Paraffin section; azocarmine, aniline blue, and orange G. (× 80.)

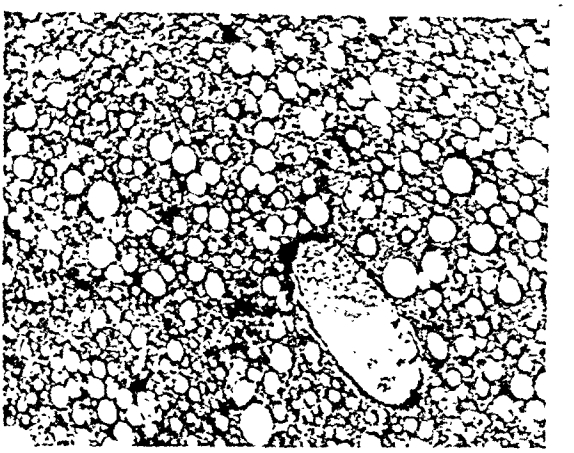


FIG. 2.—Fatty change (— — —) in liver of rat fed basal diet and sugar. Paraffin section; stain as in Fig. 1. (× 80.)



FIG. 3.—*Well-defined fibrosis* in liver of rat fed basal diet and given 15% alcohol in place of drinking-water. Paraffin section; stain as in Fig. 1. (× 80.)



FIG. 4.—Well-defined fibrosis in liver of rat fed basal diet and sugar. Paraffin section; stain as in Fig. 1. (× 80.)

J. F. CURR: SYNOVIAL OSTEOCHONDROMATOSIS



FIG. 1.—Case 1. Right shoulder: large numbers of osteochondromata.



FIG. 2.—Case 1. New bone formation. (× 60.)



FIG. 3.—Case 2. Left ankle: osteochondromata posterior to joint.

Problems connected with the proposal to supplement alcoholic beverages and saccharine aerated water ("soft drinks") with choline or its precursors are mentioned.

Our findings are, of course, not necessarily applicable to alcoholism in human subjects. If they should prove to be so, it is increasingly obvious that individuals who habitually consume large amounts of alcohol or sugar lack adequate amounts of the lipotropic agents as well as of other dietary essentials.

The classical hepatic lesions (fatty changes and fibrosis) associated with alcoholism in human subjects, the first descriptions of which are mentioned in our introduction, may prove to be due specifically to a lack of the lipotropic agents.

This work has been supported by the Nutrition Foundation of New York and the Banting Research Foundation, Toronto. We are indebted to our colleague Dr. Jean Patterson for her invaluable help. The photomicrographs were prepared by one of the authors (W.S.H.) with the technical assistance of Mrs. K. M. Robertson.

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THE PRE-ERYTHROCYTIC STAGE OF PLASMODIUM FALCIPARUM

A PRELIMINARY NOTE

BY

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The demonstration of a pre-erythrocytic cycle in mammalian malaria as it exists in the monkey malaria parasite, *Plasmodium cynomolgi* (Shortt and Garnham, 1948), led to the deduction that a similar cycle would be found in the case of human malaria caused by the parasite *P. vivax*. This followed from the close similarity of the two parasites, and the assumption was quickly proved experimentally by the discovery of the pre-erythrocytic cycle in a human volunteer (Shortt, Garnham, Covell, and Shute, 1948). In both cases the pre-erythrocytic cycle was shown to take place in the parenchyma cells of the liver.

It was subsequently demonstrated that this cycle persisted in the liver after the establishment of the infection in the peripheral blood and that it was the probable cause of relapses in benign tertian malaria, since it could exist in the absence of the erythrocytic cycle.

The work of Fairley (1945, 1947) showed conclusively that in both vivax and falciparum malaria there was a cryptic phase in infections caused by mosquito bites during which pre-erythrocytic development must have been proceeding in some situation other than the blood stream. No other conclusion could be drawn from the results of his experiments, and he established the approximate duration of this cryptic phase as eight days in the case of vivax malaria and six days in the case of falciparum malaria.

As already stated above, the truth of this assumption had been established in the case of vivax malaria, but similar proof was still lacking in the case of falciparum malaria, and it was to obtain this that the experiment which is the subject of this paper was carried out.

Unlike the case in vivax malaria, we were unable to argue from monkey to man, since no suitable monkey parasite closely similar to *P. falciparum* was available for study, and a human experiment was necessary without any preliminary comparative work.

The fact that *P. falciparum* shows considerable differences in its morphology and life cycle from *P. vivax* at least raised the possibility that there might be certain differences in the nature of the cryptic stage as compared with those of *P. vivax* and *P. cynomolgi*, as well as in the site in the body where it occurred. It seemed probable, also, if we accept the persisting exo-erythrocytic cycle as the source of relapses in vivax malaria, that, although there would be a pre-erythrocytic cycle in falciparum malaria, it would be short-lived and end with establishment of the erythrocytic infection. This is a natural deduction from the well-known fact, so conclusively proved by Fairley's experiments alluded to above, that complete eradication of the erythrocytic infection in falciparum malaria ends the disease and relapses do not occur. This made the problem of choosing the correct day for the biopsy on the volunteer of great importance, as will be seen when the details of the experiment are described.

Description of Experiment

Anopheline mosquitoes of the species *A. maculipennis atroparvus* and *A. quadrimaculatus* were infected by feeding on two occasions on a subject carrying in his blood large numbers of gametocytes of a Rumanian strain of *P. falciparum*. These were maintained on blood meals for fourteen days, and mosquitoes were dissected and examined daily to follow the progress of the infection. These dissections revealed an infection rate of 93%. After ten days the dissections showed that the salivary glands had been invaded, and it was considered that four days afterwards would be the optimum time to feed them on the volunteer.

This operation was carried out on three days as follows, a total of 770 bites by the mosquitoes being recorded.

On October 10, 1949, 350 mosquitoes fed; on October 11, 95 fed, these being the mosquitoes that had failed to feed on the first day. On October 12, 325 fed: the majority of these were the mosquitoes of the first day of feeding having a second blood meal on the volunteer.

The dissections referred to had shown that 93% of the mosquitoes were infected and that the infections in the salivary glands were extremely heavy, so that the dosage of sporozoites injected by the 770 bites must have been enormous.

After a full consideration of all the factors involved, and influenced chiefly by the duration of the incubation period

in falciparum malaria after infection by mosquitoes as exemplified in Fairley's work already alluded to, we decided to perform a biopsy and remove a piece of liver from the volunteer by open operation 140 hours after the initial feed of the mosquitoes. This implied the assumption, later proved to be correct, that the exo-erythrocytic stages would be found in the liver as in the cases of *P. cynomolgi* and *P. vivax*. As the mosquitoes had fed on three successive days, it will be evident that the hypothetical pre-erythrocytic forms at the time of the biopsy would be at three different stages of development separated by approximately 24-hour intervals. At the operation, performed by Mr. C. Naunton Morgan, a wedge-shaped piece of liver measuring about 1 in. by $\frac{1}{4}$ in. by $\frac{1}{2}$ in. (2.5 by 1.9 by 1.25 cm.) was removed. This was divided into pieces of appropriate size and fixed in Carnoy's fluid. Sections cut from this material were stained by the colophonium–Giemsa method (Shortt and Cooper, 1948).

Microscopical Examination of the Sections

In the liver sections were found pre-erythrocytic schizogony forms of *P. falciparum* very similar to those of *P. cynomolgi* and *P. vivax* but with differences noted below.

As expected, three stages have been found. The most advanced forms probably correspond to those initiated on the first day of infection by the mosquitoes, and were approximately 140 hours old; the second correspond to the second day of infection, and were approximately 116 hours old; while the least-advanced correspond to the third day of infection, and were approximately 92 hours old.

It must not be supposed that the examples of these three stages were all sharply differentiated in their degree of development, since there were two infection periods, separated by several hours, on each of the days in which the infecting mosquitoes fed, and this was responsible for some grading in the degree of development of the schizonts without materially affecting the differentiation of the schizonts found in the three stages corresponding to the three "infection" days. All appeared to be contained in the parenchyma cells of the liver.

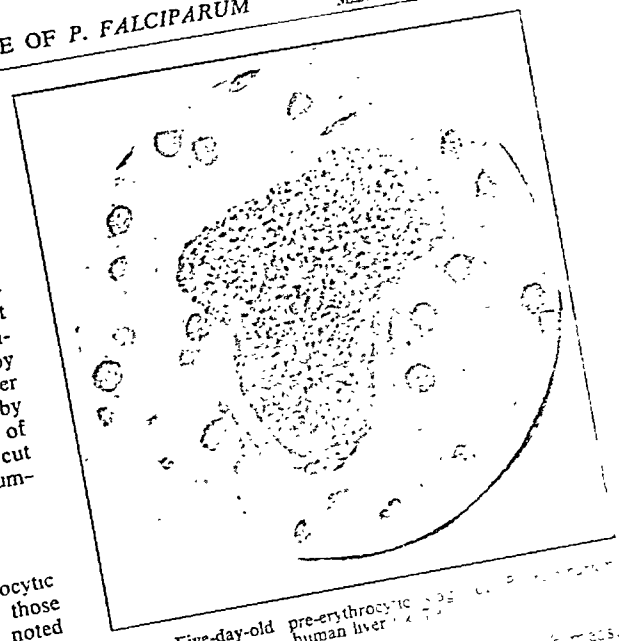


FIG. 2.—Five-day-old pre-erythrocytic [illegible] human liver [illegible]

Forms 140 Hours Old.—In these forms [illegible] up to 60 μ or more in length [illegible] merozoites were already formed [illegible] rupture or already in process of [illegible] merozoites into the surrounding [illegible] of the schizonts stained a blue or [illegible] the nuclei or chromatin masses [illegible] shape of the schizonts varied [illegible] some cases, however, an apparent [illegible] the source of which seems obscure. The [illegible] very small, measuring about [illegible] numerous.

Forms 116 Hours Old.—Until [illegible] detailed examination of our material has been [illegible]

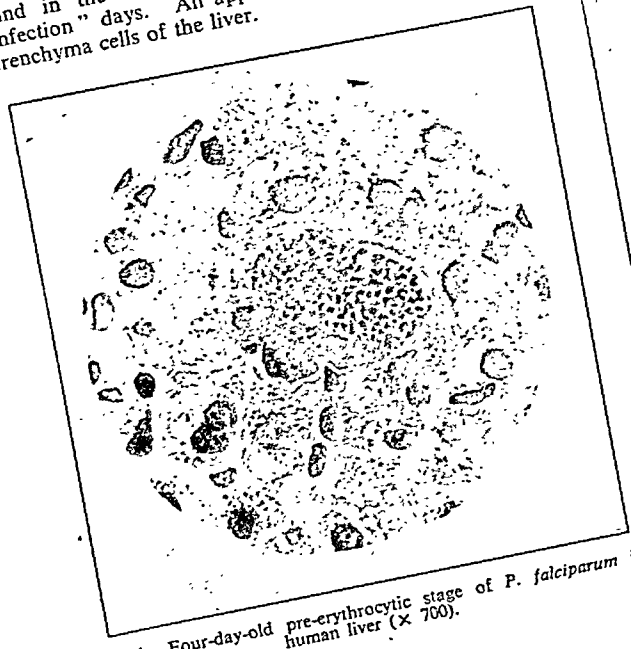


FIG. 1.—Four-day-old pre-erythrocytic stage of *P. falciparum* in human liver (× 700).

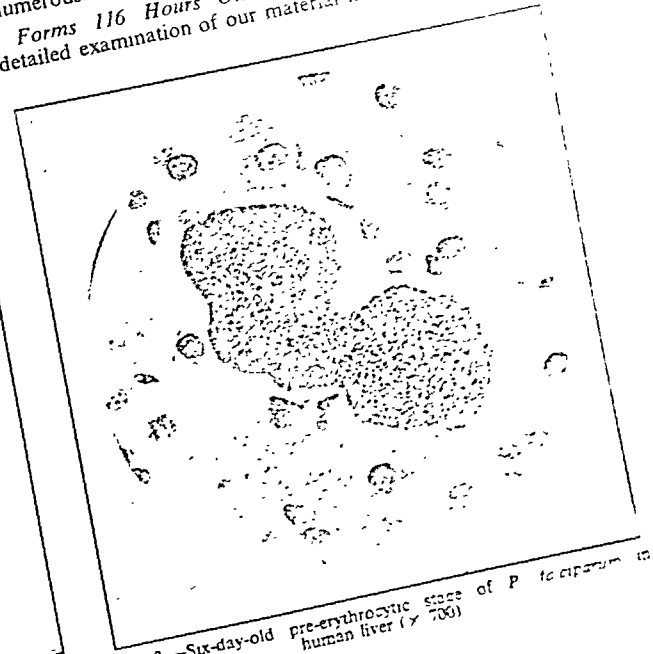


FIG. 3.—Six-day-old pre-erythrocytic stage of *P. falciparum* in human liver (× 700).

not be possible accurately to date the forms younger than the fully developed schizonts ready to rupture. In all the younger forms the nuclei were larger but much less numerous and the cytoplasm more abundant, the staining reactions remaining the same. The schizonts, which were ovoid or bluntly lobose in shape, were not quite so large as in the previous stage, but a large example would measure about 50 μ by 36 μ in the long and short diameters. This would probably represent a late fifth-day form.

Forms 92 Hours Old.—The schizonts were considerably smaller than the previous form, measuring about 31 μ by 26 μ in their longer and shorter diameters. They tended to be ovoid in shape, but lobose forms or forms constricted in the middle were already appearing. The blue cytoplasm was coarsely granular and the nuclei were much less numerous than in the previous stage. As in the cases of *P. cynomolgi* and *P. vivax*, there was no cellular reaction to the presence of the parasitic bodies in the liver tissue in any of the three stages described.

Comment

In comparing the various stages described with those found in *P. cynomolgi* and *P. vivax* it will be evident that the pre-erythrocytic forms of all three species are closely similar. Points of difference are the larger size of the mature schizont of *P. falciparum*, the smaller size of the merozoites, and the much greater number of these in the schizonts. The full maturity of the schizonts in less than six days proves that schizogony in the pre-erythrocytic forms of *P. falciparum* proceeds much more rapidly than in either *P. cynomolgi* or *P. vivax*.

The general impression gained, however, is that the three species must be considered closely related and that the genus *Plasmodium*, as exemplified in these three species whose essentially complete life cycles are now known, is a compactly knit entity the members of which conform closely to the generic pattern.

Summary

For the first time the existence of a pre-erythrocytic stage in the life cycle of *P. falciparum* has been demonstrated and the forms at three stages of development are briefly described.

We express our great indebtedness to many helpers who have assisted at various stages in the carrying out of this successful experiment. Our special thanks are due to Mr. C. Naunton Morgan, who performed the open operation on the liver with remarkable skill and celerity, to Dr. C. Langton Hewer, who gave up valuable time to administer the anaesthetic to the [illegible] and to the staff of the Hospital for Tropical Diseases [illegible] assistance and care throughout the experiment. Dr. W. D. Scott, physician superintendent of Horton Hospital, has earned our gratitude by granting the most ample facilities for the artificial infection of the mosquitoes at Epsom and their subsequent use on the human volunteer. Mr. W. Cooper, chief technician, Miss Maryon, and Mrs. P. Lee gave invaluable and skilled assistance and spared neither time nor trouble in many laborious technical operations. The one indispensable actor in the experiment was the human volunteer, Mr. C. H. Howard, who not only offered himself, but on his own initiative, offered himself for [illegible] and thereby helped greatly to advance scientific knowledge on an important aspect of malariology.

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REHABILITATION AND RESETTLEMENT OF THE TUBERCULOUS*

BY

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In all matters concerning the resettlement and rehabilitation of the tuberculous three factors are of paramount importance. The first is that it is impossible to be sure that a tuberculous person has completely recovered from his disability; the second is that there are no means of assessing a tuberculous person's capacity for work except by trial and error; and the third is that when the disease is active it is usually infectious. These three factors differentiate the problem of other disabled persons from that of the tuberculous and make it necessary to have special schemes to meet the requirements of the latter group. I propose to examine in more detail the three factors with special reference to resettlement and rehabilitation.

1. Uncertainty about Recovery

It is not easy to find reliable statistics on the relapse rate of those who have been treated in sanatoria. There are many reports on the post-sanatorium mortality rate which are helpful, but these do not indicate the amount of chronic invalidism amongst the tuberculous population. Here are some conclusions taken from studies of after-histories of patients.

Bashford and Scott (1936) in their report on the health of 3,755 Post Office workers state: "Of those who incur pulmonary tuberculosis not more than 50% are able to return to work even after prolonged periods of treatment, and of those who return there has been a further wastage of about 48% as a result of recurrent pulmonary tuberculosis, or other form of ill-health, by the end of ten years, the heaviest wastage having occurred in the first six years."

Tattersall (1949), in a five-year follow-up of sputum-positive cases, found that 10% of the "recovered" cases deteriorated after an average period of six years as "recovered." He suggests that a patient whose working capacity is reduced by phthisis is not always a short-term social liability, and that it is doubtful if there is any justification in discharging from supervision any tuberculous person who has had a positive sputum.

Such information, although emphasizing the need for special measures for rehabilitating the tuberculous, is not particularly encouraging, and it would be as well at this point to inquire why the tuberculous relapse and die. A satisfactory answer to this query cannot be given; all that can be said is that certain conditions predispose to activity of the disease. Which of these conditions is the most important varies from individual to individual. Undernutrition, overstrain, anxiety, acute respiratory infections, insufficient rest, and certain occupational conditions are factors that influence the state of the lesion, and the facts may be summarized in a brief but vague way by saying that anything that lowers the resistance of the body to infection will increase the possibility of a breakdown from tuberculosis. This is really begging the question, as resistance is a term which cannot be defined. The inability of the body to rid itself of the tubercle bacillus is well known, and he would be a bold man who said that in any arrested

*Read in the Section of Occupational Health at the Annual Meeting of the British Medical Association, Harrogate, 1949.

case of tuberculosis no live tubercle bacilli were to be found in the body. Careful examination of even calcified lesions often reveals the presence of living bacilli, and so long as they are there it is possible for activity to develop.

The experience of two great wars and studies of the mortality figures of tuberculosis in relation to environment have shown that when the standard of living falls tuberculosis rises. Thus the first principle in the resettlement of the tuberculous is that the standard of living of tuberculous persons must be kept high. The mortality rates during the last ten years in countries like Denmark, Sweden, and the U.S.A., where the tuberculosis death rates actually fell during the war years, show clearly the relationship of the national standard of nutrition to tuberculosis mortality rates, and recent figures published in *Tubercle* (1948) reveal a close connexion between protein intake and tuberculosis mortality. It is therefore essential in any tuberculosis resettlement scheme to be sure that a good standard of nutrition is maintained. Housing, food, and clothing are items that must take a prominent part in aftercare, and it is possible that in the effort to provide suitable work insufficient attention has been paid to these equally important items.

It is not difficult to appreciate the advantages which the village settlement affords with regard to post-sanatorium medical supervision and provision of the most favourable environment for tuberculous persons, but there are many who cannot or will not be admitted to these institutions. For these it is proposed that the necessary medical supervision and the opportunity for rest, nourishment, and regulated life shall be provided by the night sanatorium. This institution should accommodate from 30 to 50 tuberculous persons who have completed or nearly completed their sanatorium treatment and are fit for three or more hours' industrial employment, preferably in special factories under the Disabled Persons Employment Corporation.

Priority of admission will be given to positive cases, and particularly to those who have unsatisfactory homes or no homes at all. It is anticipated that night sanatoria will enable patients to be discharged from institutional treatment at an earlier date than if they had to return home, and they will permit the discharge of patients who are now retained in sanatoria owing to home conditions. In this way they will relieve the bed situation without increasing the nursing shortage.

For the patient the night sanatorium provides a safe means of returning to industrial work by lessening the break between the rural environment of the sanatorium and the crowded conditions of the city dwelling. It also enables the patient to continue treatment in an environment that he appreciates and is generally longing to return to whilst under treatment in the country.

Rehabilitation is not merely a matter of providing suitable work for the disabled. The unstable condition of many tuberculous workers demands routine medical examination, including radiography and a careful search for the tubercle bacillus. This is particularly necessary after catarrhal colds or influenzal symptoms. Even in long-term arrested cases a yearly check is most desirable. This means close co-operation between resettlement schemes and the chest clinics of the regional hospital boards, or rehabilitation centres will need to have their own clinics attached to the industries. Careful record-keeping at chest clinics will be necessary if the value of rehabilitation schemes is to be judged, for at present there is no statistical evidence that persons at village settlements do any better in the long run than clinically comparable cases under good domiciliary conditions, particularly if an equal amount of money and care is spent on them.

2. Assessment of Capacity for Work

That overstrain can cause a quiescent lesion to become active has been recognized for many years, and if such activity is not treated a serious breakdown in health will occur. At present only by giving a man a certain job is it possible to determine if he is capable of working. The practice, therefore, is to begin with short hours on light work, and, if the man remains healthy and shows no signs or symptoms of active disease, to increase the amount of work periodically. This method is unscientific, and, although some valuable pioneer work has been done by Brieger at Papworth, we are still a long way from solving this important problem of rehabilitation. It is necessary for the physiologist, the biochemist, and the psychologist to pool their services for research into this matter.

It can be stated that certain occupations are unsuitable for tuberculous persons, and on this point I would like to emphasize that practically all outdoor jobs are unsatisfactory for the tuberculous on account of the fatigue and exposure they involve. Other occupations that are contraindicated are the dusty trades and those involving irritating fumes, and especially those harmful dusts containing silica, as well as trades demanding work in conditions of high relative humidity or extremes of temperature. Heavy muscular work and high-pressure team-work are also undesirable These restrictions, based on observation of the behaviour of tuberculous persons who have tried working under such conditions, limit the range of employment to be recommended in a rehabilitation scheme At Papworth and Preston Hall the following industries and occupations have been carried on with successful results: printing, woodwork, clerical work, leather work, fancy goods manufacture, light engineering, and tuberculosis nursing.

Of course a condition other than the man's physical fitness has to be considered, and that is his technical ability to do the work. Where a man has to change his occupation it is usually necessary to give him a long course of instruction before he can be of any economic value. At Preston Hall a scheme has been developed by which the man can not only be trained to do a particular job but can, if he wishes, be fully apprenticed to a trade, so that eventually he becomes a skilled workman with a comprehensive knowledge of his subject. Such training is essential for young men, but it is not usually acceptable to the more elderly. The incidence of tuberculosis is steadily rising in the older age groups in males. This will probably complicate resettlement schemes, as these elderly persons do not take kindly to village settlement life and are not keen on training for a new job, although their previous occupation is often not very suitable. It is probable that the Remploy factories of the Disabled Persons Employment Corporation will be a great help to these people in the future.

The amount of work tuberculous persons can do even when their disease is arrested is usually less than that done by normal persons, and the rate at which they work is often slower. If they are employed on sanatorium staffs three tuberculous persons are needed to do the work that could be done by two normal persons. The only way to speed up production by tuberculous persons is to put them in charge of machines that do the work almost automatically and require the minimum of energy expenditure. Large amounts of capital are required to carry this out successfully and establish a productive industry. Failing this, the employment of the tuberculous is apt to develop into the nature of handicraft work which has little or no prospect

of providing a livelihood. In fact, over-concentration on handicraft work is one of the great obstacles to successful rehabilitation schemes. Unless the handicraft work is directly related to the type of work in which the patient will ultimately be trained, it is largely a waste of time and may easily create the invalid complex which prevents the man having the confidence to accept training in a trade by which he can be eventually self-supporting.

3. Danger of Infection when Disease is Active

There are two schools of thought on the infectivity of tuberculosis. One school believes that the development of active disease is determined mainly by the degree of inherent or native resistance, other important factors being the age at which primary infection occurs and the magnitude of the dose of the primary infection. If the primary infection is overcome it is thought that small reinfections tend to raise the general resistance to the disease so that active disease can occur only if the reinfecting dose is very large, and, as this is unlikely except under very close contact, it is argued that exogenous infection, other than the primary infection, plays only a small part in causing active disease in those already infected. Relapses are considered to be due to lowering of the resistance, which allows a spread of the lesion sometimes from a sudden bacillaemia arising from rupture of a tubercle into a blood vessel.

The other school puts much greater stress on the importance of exogenous infection and regards exposure even to small doses of the bacilli as dangerous. Although the evidence is by no means complete, it is probable that inherent resistance is the most important factor and that after the primary infection has been overcome only large and often-repeated exogenous infections are of any danger. If this is true it has a considerable bearing on the planning of rehabilitation schemes. It means that the tuberculous and non-tuberculous can be employed together without undue risk, provided the non-tuberculous have overcome their primary infection, are adequately nourished, have a good standard of living, and work under hygienic conditions. Tuberculosis will spread among them if any of these conditions are neglected. In other words, the soil is of more importance than the seed in preventing the spread of infection.

Even if such conclusions are correct it will be extremely difficult to apply them; for the general public have a great fear of tuberculosis, and we have to accept the fact that tuberculous persons are usually resented by their fellow workers, who always blame the known case for the development of the disease in any contact, whereas the fresh case may be entirely due to exacerbation of an old focus and have nothing to do with contact at all. Therefore, until more is known of the incidence of infection among the population and a less fearful attitude towards tuberculosis is established, it is wise not to have open positive cases in normal industry except in special circumstances that will satisfy the demands and calm the fears of the management and other employees.

Another difficulty that arises from the infectious nature of the disease is the possibility of products of the industry carrying the infection. Here again the danger is more imaginary than real, except where children are concerned, but there is evidence that woollens, furs, and books can retain the bacillus for a number of days. It is therefore unwise to teach tuberculous persons to make woollen or fur toys and children's play-mats, for, although these can be adequately sterilized when made under supervision, there is no such safeguard when the goods are made at the patient's home and sold privately. No fear of spreading the infection by polished wood or metal goods need be entertained, and there is no need to sterilize the usual products of printing, leather, or wood. But it is not good policy to employ tuberculous persons on any work connected with the preparation of food, and this includes the picking of fruits and gathering salad plants, although here again the risk has been exaggerated through repetition of unproved statements on the danger of infection.

Some day, when we have the courage to act on our convictions, this bogy of infection will be dispelled by making people realize that it is the inherent resistance to the disease that really matters once the primary infection has been overcome. If the public is to be educated along these lines we must begin by scrapping most of the pamphlets on the danger of infection and publish new ones based on recent advances in the pathogenesis of the disease.

Finance

The greatest difficulty of all in rehabilitation and resettlement is that of finance. It is best to be frank and recognize at the outset that the average tuberculous worker is a poor financial proposition to the employer unless there is capital to provide the special conditions under which he can work with safety and efficiency. In the Spero works in London, where an average of 62 mostly sputum-positive tuberculous persons are employed under sheltered conditions, there was a loss of 1,980 working days owing to sickness during 1947

Although some of the persons employed in this special factory are severely disabled, the figures give an indication of the high liability involved in employing tuberculous persons without attention to living conditions. Nevertheless it is worth while providing sheltered employment for these people, who would otherwise lounge about the streets and their homes, living under the degenerating influence of enforced idleness. But in order to employ such precarious labour heavy financial assistance is needed to maintain a sufficiently high standard of living.

To enable him to live, a disabled tuberculous person can obtain the necessary financial assistance from various sources, depending on his clinical status. Whilst he is a patient his treatment will be free and he will be entitled to national health insurance benefit and a grant up to 20s. a week for any productive work. During post-sanatorium training and rehabilitation he may receive board and lodging, national health insurance benefit, and the grant up to 20s. per week for his productive effort. The Ministry of Labour and National Service has authority to contribute to the cost of the person's rehabilitation, and approved persons in training centres get a grant of 28s. per week for a maximum period of three years; they also receive free board and lodging if residing in a hostel in the village settlement.

Some of the larger local authorities have accepted financial liability for the maintenance of persons undergoing rehabilitation at industrial settlements as part of their obligations under Section 28 (3) of the National Health Service Act. It is possible, therefore, in such circumstances to assure the training and resettlement of a tuberculous person provided the contributions from the authorities mentioned continue. Where such assistance is not forthcoming it is difficult to arrange for adequate rehabilitation. A serious obstacle may arise in the development of rehabilitation schemes if local authorities take advantage of the permissive clause in Section 28 (2) whereby they may recover charges from a person receiving aftercare services, which it is presumed includes rehabilitation, having regard to the person's means.

Any suggestion of a means test at the stage when a subject is about to begin a course of rehabilitation will cause many to refuse to accept such services. Many chest physicians believe that rehabilitation is a part of treatment, and if this is free then rehabilitation should also be free. It is hoped that those responsible will realize that the harm that will be done by application of a means test and the collection of small sums from the disabled can never be compensated by the financial gain to public funds.

Summary

Three difficulties complicate the rehabilitation of the tuberculous: (1) it is impossible to be sure that a tuberculous person has completely recovered from his infection; (2) there are no means of assessing the tuberculous person's capacity for work, except by trial and error; and (3) persons with active tuberculosis are usually infectious.

Each of these difficulties is discussed, and suggestions are made for overcoming them. The financial problem is perhaps the most difficult to solve.

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PROSTATIC OBSTRUCTION*

BY

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Over a period of eight years 2,192 patients were admitted to my wards with symptoms due to non-malignant disease of the prostate, and of these 1,960 were submitted to prostatectomy, with an overall mortality from all causes, whether attributable to the operation or not, of 3.01%. In private cases the mortality was 1.96%. The following Table gives a detailed report on these results.

Results of Treatment of 2,192 Cases of Prostatic Obstruction (Non-malignant). 1,960 Cases Submitted to Prostatectomy, With a Mortality from All Causes of 3.01%; 44.9% Admitted with Acute Retention

	No. of Patients	Percentage of Total	No. with Acute Retention in Each Group	Mortality
Perurethral prostatectomy ..	1,347	61·4%	510 (37·8%)	41 (3·04%)
Suprapubic prostatectomy ..	613	27·9%	291 (47·5%)	18 (2·93%)
One-stage	363		143	12
Two-stage	250		148	6
Suprapubic cystostomy† ..	183	8·3%	135 (73·8%)	13%
No operation	49	2·2%	—	—

A patient aged 90 had a perurethral prostatectomy successfully performed There was a consecutive series of 150 prostatectomies without a death.

† A number of these cases will be suitable for prostatectomy later.

Causes of Death following Prostatectomy

Cardiac failure ..		Malignant endocarditis	1
Coronary thrombosis	25	Cerebral abscess	1
Pulmonary embolism		Haematemesis	1
Uraemia	8	Cerebral tumour	1
Clot retention	5	Tetanus	1
Cerebral thrombosis	4	No records available	5
Shock and collapse	7		

During this period it was evident that doctors tended to send their good-risk cases to the voluntary hospital and their poor-risk cases to the municipal hospital. A surgeon working only at a voluntary hospital has therefore an unfair advantage so far as results are concerned. In the series here recorded the cases were admitted to both voluntary and municipal hospitals and to a nursing-home, and it is thus possible to judge the results of prostatic surgery carried out on a cross-section of the community.

The operations were performed by various routes—the perurethral, transvesical, and retropubic.

Acute Retention as a Result of Prostatic Obstruction

A man apparently in good health may suddenly and painfully be made aware that he suffers from a prostatic obstruction by the development of an acute retention, for which the doctor may be asked to see him for the first time. This apparent misfortune may be a blessing in disguise by directing attention to the need for radical treatment. The doctor's decision regarding the immediate treatment may profoundly influence the subsequent course of the illness. He has the choice of several methods of procedure, and I give the three best in order of preference: (A) Injection of morphine ¼ gr. (11 mg.) and immediate transportation of the case to hospital; (B) catheterization; (C) suprapubic aspiration.

(A) There is no doubt in my mind that this is the best course to adopt. The patient is immediately placed under the best conditions, and any procedure can be carried out with strict asepsis.

(B) If the patient is living in the country far from a hospital or is unfit for removal for any reason, then catheterization is permissible. The passage of a catheter should be regarded as of the same importance as a major operation. The dangers of catheterization are: (i) Trauma of the mucous membrane of the urethra, with the risk of opening venous sinuses; this may be followed by rigors and sepsis. (ii) Introduction of infection. (iii) Rapid decompression of the bladder with its attendant risks of suppression of urine and haemorrhage, particularly when an acute retention is superimposed upon a pre-existing chronic retention. (iv) Failure of catheterization.

The avoidance of trauma is of paramount importance. In the ordinary way the beak of the catheter loses its lubricant in the first part of the urethra and passes along the remainder unlubricated, and is apt to cause trauma. This difficulty can be overcome if the technique described below is carried out, and, moreover, failure of catheterization will be very rare indeed.

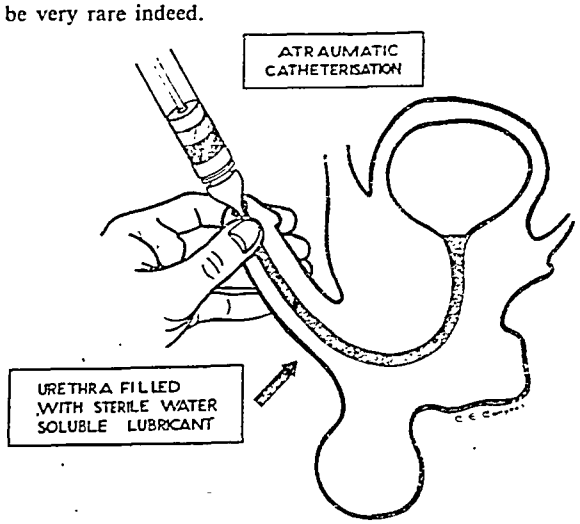


FIG. 1

*Read in opening a discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Harrogate, 1949.

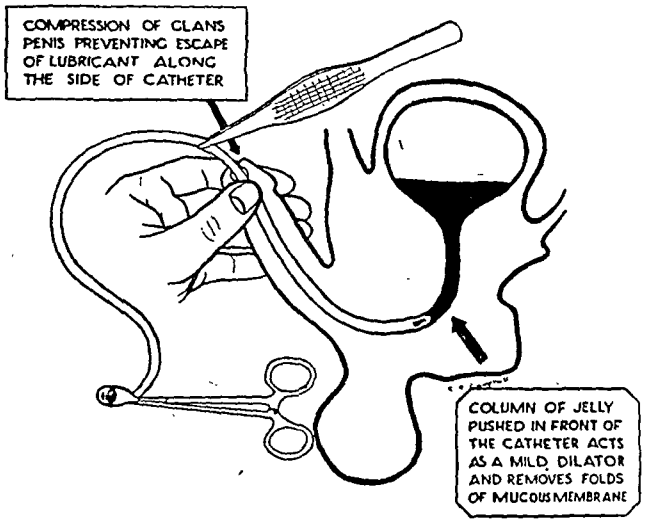


FIG. 2

About 10 ml. of sterile water-soluble lubricant is injected slowly into the urethra by means of a "record" syringe to which a rubber nozzle has been fitted (Fig. 1). The glans penis is compressed to prevent the jelly escaping. The beak of the catheter, the open end of which has been closed with artery forceps, is now introduced into the meatus and digital compression of the glans penis immediately reapplied (Fig. 2). The catheter is now advanced along the urethra, and, as an air-lock is present in the catheter as a result of closure of the end, a column of lubricant is pushed in front of the catheter. This acts as a dilator of the mucous membrane, removing any folds or light obstructions which may impede the passage of the catheter.

Repeated catheterization in these cases of retention in the hope that the patient will eventually pass urine should, except in special cases, have no place in modern treatment. Even though the congestion of the enlarged prostate should settle and the patient pass urine again, some degree of bladder-neck obstruction will persist. In due course a further retention will occur, or, if the patient is unlucky, he will live on in failing health until severe renal damage has occurred, with associated secondary cardiovascular changes. The doctor has thus merely postponed the evil day, and in the end the patient will face the operation in a poor state of health.

(C) The doctor should assure himself by percussion that the distended bladder is not intraperitoneal. After injection of a local analgesic with a fine needle into the midline of the abdominal wall a larger needle is inserted obliquely into the bladder, as illustrated in Fig. 3, and the urine from the bladder aspirated.

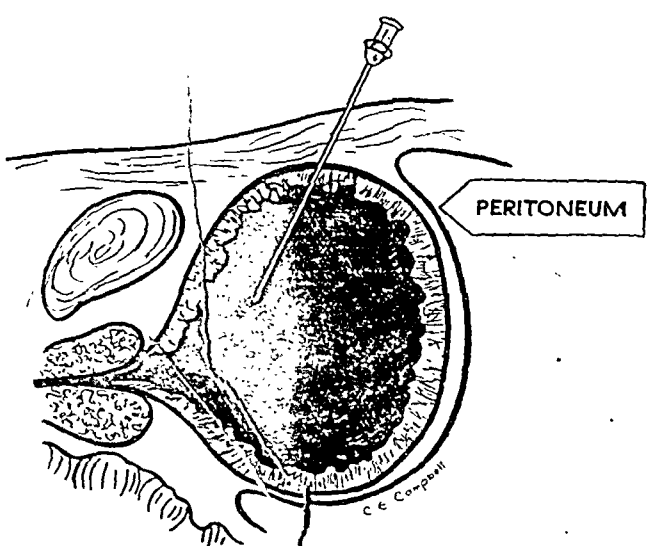


FIG. 3

The patient should then be admitted to hospital without delay.

Treatment of Acute Retention in Hospital

Three methods have been used in this series of cases (i) After calibration of the urethra an indwelling Foley's catheter (18 Charrière gauge) was inserted by the technique described. The bladder was then decompressed. In this way an emergency operation subject to difficulties which could not always be foreseen, such as cancer of the bladder complicating the obstruction, was avoided, and time was allowed for a thorough investigation of the case and an improvement of the patient's renal function. (ii) Immediate prostatectomy was performed when the retention was complicated by the existence of a tight phimosis or other conditions which made the passage of a catheter inadvisable, and when the blood urea was not raised above 100 mg. per 100 ml. (iii) Suprapubic cystostomy and decompression of the bladder was performed under local analgesia on those patients unsuited for catheterization, who were in poor general condition, or who were gravely uraemic, and any further operative treatment was delayed.

The Non-Emergency Case

Symptoms and Physical Signs

When prostatic obstruction causes retention of urine the diagnosis is easy. When it causes sufficient trouble with micturition to bring the patient to the doctor the diagnosis is generally easy. There are some cases, however, in which urinary phenomena are so slight and their onset so gradual that the patients are unaware of anything wrong with the working of the bladder. These patients seek advice because of general symptoms, such as dyspepsia or loss of appetite, lack of power of concentration, lassitude, cardiovascular disease, abdominal discomfort, backache, haematuria, etc., and the condition of the bladder-neck obstruction is discovered on routine examination. Comparatively young patients with prostatic bars of fibrous or congenital origin come into this class.

These cases of silent obstruction can very easily be missed. On abdominal examination palpation or percussion may reveal a distended bladder, but on the other hand the bladder dome may be intraperitoneal and intestine may lie in front of it. The diagnosis in several such cases has been suspected by their medical attendants only by observing displacement upwards of the pelvic colon in the radiographs taken for suspected gastric disorders. These cases will not be missed if the physician or surgeon will examine the bladder bimanually by ballottement when making a routine rectal examination.

The ordinary symptoms of prostatic obstruction are well known, and I shall not enlarge upon them. It is important, however, that the doctor should be able to tell whether the condition is a straightforward one of prostatic obstruction or is complicated by other urological lesions. Suspicion should be aroused if terminal dysuria is a symptom. Some coexisting condition, such as infection, new growth, or stones, should then be expected. Again, haematuria is not, in my experience, a common symptom of prostatic enlargement, and when occurring in a case of obstructing prostate should not be assumed to be of prostatic origin. These cases require full investigation.

The presence of pus in the urine, whether sterile or not, should always arouse suspicion. Sterile pus may be present

in the urine in a case of uncomplicated prostatic obstruction. This may be due to trauma of the mucosa from overstretching or to compression of the mucous membrane as the result of gross hypertrophy of the bladder musculature. It may, however, indicate, and often does, associated lesions such as a stone, growths, tuberculosis, etc. An infected urine in a patient who has never been catheterized should also arouse suspicion.

Examination of the Prostate

The patient should be asked to pass urine before the examination.

Left Lateral Position.—The rectum is examined. The enlargement of the prostate into the rectum is recorded (0 to 4+) and its consistence noted. Any irregularities on its surface are discovered by light palpation or, if in the substance of the gland, by deep palpation. Any adhesions to or tethering of the rectal mucous membrane are observed. The presence or absence of the median groove and lateral fornices is noted. Can the upper notch be palpated? If so, is there any perivesicular infiltration? If the finger in the rectum is now rotated so that the pulp of the finger faces upwards it is often possible to examine the base of the bladder with the side of the finger. The middle finger of the hand lies in the fold between the buttocks, and as a result the finger can be introduced a greater distance. An infiltrating carcinoma of the bladder base may be recognized in this way.

Knee–chest Position.—The lumbar curve is exaggerated. The deep palpation of the prostate is repeated, and any crepitation noted which may indicate the presence of prostatic calculi. The seminal vesicles are examined and any perivesicular infiltration, whether neo-plastic or inflammatory, observed.

Supine Position.—The legs are flexed and abducted slightly, and a bimanual examination is then made as described below.

Clinical Determination of the Amount of Residual Urine and the Size of the Prostate Gland without Cysto-urethroscopy

The dangers of catheterization and cysto-urethroscopic examinations in cases of prostatic obstruction are at last being recognized. The passage of a catheter in order to discover the amount of residual urine should be unnecessary except in very stout patients or in one who refuses to co-operate, and even then the desired information will be given by the post-evacuation cystograms. If a coexisting stricture is suspected, then diagnostic catheterization is permissible.

There is a clinical method of determining the amount of residual urine which I have found of extreme value, as it enables a decision to be made in cases of doubt, without the passage of a catheter, whether operation is advisable or not. The ability to use it requires practice and experience. The method is as follows:

The patient lies supine, with the legs flexed and slightly abducted. He should then be told that a delicate examination is to be made, which necessitates relaxation of the abdominal wall, and that he must not resist when the surgeon's fingers dip into the abdomen. The right index finger in the rectum is put as high up as possible and the tip of the finger placed in contact with the prostate or bladder base, if this can be reached. The fingers of the left hand palpate the abdomen. The upper limit of the bladder can now be determined by ballottement, the impulse being transmitted to the finger in the rectum (Fig. 4). The amount of residual urine (if present) can be assessed with a high degree of accuracy.

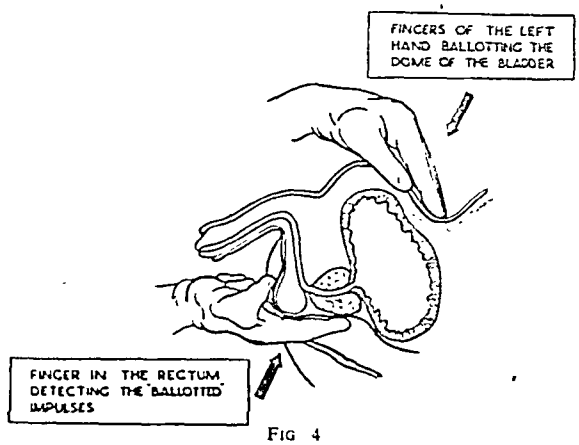


FIG 4

The fingers of the left hand now sink into the pelvis and the prostate gland is examined bimanually. The degree of intravesical enlargement of the prostate can be fairly accurately determined in the majority of cases if the patient is not too stout or the residual urine or hypertrophy of the bladder musculature is not too excessive. The size of the gland is recorded—intravesical 0 to 4+, rectal 0 to 4+

The information on the size of the prostate is of extreme value when deciding whether a perurethral prostatectomy should be performed.

The Role of Radiography

This subject is too extensive to be covered in a short paper such as this, but I should like to emphasize that the last radiographs of the series should be taken after micturition and the amount of residual urine can then be assessed

Indications for Operation

I believe that prostatectomy should be performed as soon as the diagnosis of prostatic obstruction is established, unless coexisting diseases make the expectation of life short. To delay operation until renal damage has occurred or secondary cardiovascular disease has developed is not in harmony with modern views on preventive medicine. The beneficial effect of prostatectomy upon the cardiovascular system is often most striking. Angina of effort often becomes less troublesome. In cases of hyperpiesia the blood pressure often falls, adding considerably to the patient's comfort. I wonder how many patients would have been spared a cardiovascular catastrophe, such as a coronary thrombosis, if the prostate had been removed when it first gave obstructive symptoms.

In cases of slight obstruction without marked frequency or residual urine the patient may be kept under observation It may be argued, however, that many of these cases will require operation in the end, and thus why not operate upon them early and avoid the risk of secondary changes in the kidneys and cardiovascular system? There is no doubt that many patients suffering from prostatic obstruction still come for treatment too late in the progress of the disease.

Surgical Treatment of Prostatic Obstruction: General Considerations

Care of the Indwelling Foley Catheter

The glands in the urethral mucous membrane secrete mucus, and adequate provision must be made for this to escape externally. A severe urethritis, with its serious sequelae, will follow within 48 hours of the introduction of the catheter if the meatus fits too tightly round the

any real doubt exists it may be permissible to try the effect of urethral drainage, and if the mental condition clears up completely then a prostatectomy is justifiable.

Prostatectomy

It is in my opinion a mistake to use one method to the exclusion of others. Each individual case should be judged on its own merits. Surgeons will vary in their views on choice of operation, depending to a great extent on their relative skill and experience of results with each, and also on whether they have the time, patience, inclination, and nursing staff to persevere with the difficult technique necessary for the perurethral method. Since the advent of the modern open one-stage operations, with their good results, the incentive for the younger surgeon to learn the difficult technique is not so great as it was ten years ago.

Perurethral Prostatectomy

This operation was performed in 1,347 of this series of non-malignant cases, with a mortality of 3.04%. In the nursing-home 74.3% of prostatectomies were performed by this method, with a mortality of 2.1%. The Thompson punch was used in all cases. The great majority of the really bad-risk cases, including the derelicts admitted to the municipal hospital, were operated upon by this method. It also included the bad-risk cases referred from other centres.

It would appear to be not generally known among doctors that if this operation is properly performed the obstructing gland is removed as thoroughly as by enucleation and the risk of recurrence is no greater. "Resection" of prostatic tissue with the purpose of leaving a channel through which urine can pass should be the aim only in malignant cases.

The advantages of this method are immense. The patient has no wound and he is able, if he suffers from a bad chest, to cough without pain. Adiposity does not make the operation more difficult. Patients with poor cardiovascular systems, especially those with low blood pressure in association with hardened arteries, and those with a history of thrombosis, are more safely operated upon by this method. Urinary obstructions due to fibrous and malignant prostates are also indications for its use. The patient is allowed up twenty-four hours after the operation, and the catheter is removed on the first to the third post-operative day, and in the ordinary run of cases he is discharged home eight to ten days after the operation. The operative risk is less than by open operation, and many cases considered unsuited for the latter procedure can be operated upon by this method without undue risk.

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Open Prostatectomy

Transvesical procedures of various types in one or two stages and also retropubic operations were performed in 613 cases of this series (27.9%), with a mortality from all causes of 2.93%. The majority of the really bad-risk cases, however, were operated upon by the perurethral method.

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catheter or if the catheter is too large and prevents free escape of this mucous discharge. I feel that failure to observe this principle is one of the reasons for pre- and post-operative sepsis and the development of urethral strictures, whatever type of operation is used.

After the catheter has been introduced a light dressing soaked in a water-soluble lubricant containing sulphacetamide is applied around the end of the penis and catheter and lightly bandaged or strapped in position. This lubricant prevents the mucus from drying and forming a crust which will impede further drainage of the mucus. Each day and sometimes twice a day the dressing is changed. The penis is retracted along the catheter and any dried mucus removed with "cetavlon" or weak "dettol" solution. The penis is then allowed to return to its original position and the dressing is reapplied. The patient in the pre-operative period should have daily baths.

Urethral Stricture and Congenitally Narrow Urethra

A strictured or congenitally narrow meatus can be enlarged successfully by a meatotomy. It is therefore important that the surgeon should know the calibre of the urethra behind a narrow meatus. In my clinics the urethra in the perineal and peno-scrotal regions and at the meatus is calibrated as a routine procedure. The present small Thompson punch has a size of 27 Ch., and if the measurement of the urethra is not satisfactory an open operation is preferred. If an open operation is definitely contra-indicated the instrument is inserted through an opening made in the bulb of the urethra and a perineal perurethral operation performed.

Knowledge of the size of the urethra is also of value in open operations, because the catheters are passed retrograde as recommended by Wilson Hey. The maximum size of catheter which can be comfortably taken by the urethra is known and the risk of trauma with possible stricture formation diminished.

It is often wise in these cases of a narrow urethra, after a transvesical prostatectomy has been performed, to insert a suprapubic catheter at the end of the operation as an additional safeguard instead of closing the bladder.

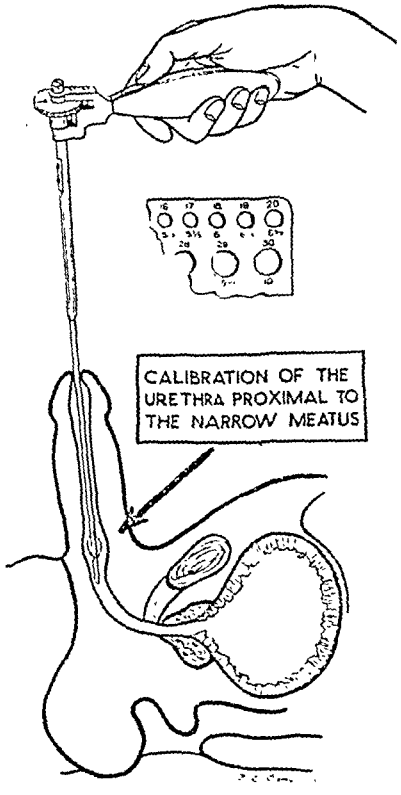


FIG. 5

Calibration of the Anterior Urethra (Fig. 5).—Sterile water-soluble lubricant is injected into the anterior urethra. The penis is held so that the penile and perineal urethrae are in line. The calibrator is passed with the blades closed. By means of the graduated wheel the blades are opened until the patient experiences a faint discomfort in the perineum. The blades are then slightly closed until all discomfort has disappeared and then reopened slowly until the patient again experiences discomfort. The reading on the graduated wheel is now noted. The instrument is then withdrawn slowly, and if the passage of the blades is impeded they are closed slightly until they can be withdrawn with ease. Absolute gentleness is necessary and the procedure must be atraumatic. In order to obtain the calibration of the various parts of the urethra in Charrière gauge the blades of the instrument are passed, after the examination, through the appropriate foramina in the metal gauge, starting with the smallest number noted on the graduated wheel. It is advisable to know roughly before the examination the number on the graduated wheel which corresponds to 27 Ch. The instrument is made for me by Messrs. Chas. Thackray, of Leeds.

The avoidance of pre-operative catheterization *of the bladder* has the disadvantage that a coexisting stricture in the bulb of the urethra may not be recognized until the time of operation.

If a surgeon over-dilates a stricture or stretches a congenitally narrow urethra in order to introduce a large-bore catheter or punch he will most certainly find that the stricture will become more troublesome in the future, and he will have transformed a congenitally narrow urethra into a strictured one.

History of a Gonorrhoeal Infection

Filmy strictures may be present, and, although an instrument or catheter may be passed without encountering any definite obstruction, blood may be noticed on the instrument. Relatively innocuous strictures may be changed into strictures that require treatment. It is advisable to perform an open operation in these cases, and a narrow urethral catheter should be used.

Prostatic Obstruction Complicated by Lesions of the Upper Urinary Tract

Severe sepsis or other urgent conditions in the upper urinary tract complicating a case of prostatic obstruction may necessitate a preliminary suprapubic drainage, followed by treatment of the renal or ureteric lesion. The prostate is removed later.

Cardiovascular Disease

Cases with cardiac decompensation usually improve rapidly once the chronic uraemia has been relieved by urethral drainage. Many cases which would appear hopeless at first become quite good operative risks after a few weeks. If fibrillation is present they are given digitalis. The use of mersalyl or "neptal" has proved a life-saving measure in some of these cases.

The cases which cause anxiety are those with gross hyperpiesia and those with a history of coronary thrombosis. These are preferably operated upon by the perurethral route. It is essential than no shock be permitted to occur during the operation and that the loss of blood be minimal. Once the blood pressure has been allowed to fall it may be difficult to get it back to normal limits, and, although the renal function may be excellent, secondary renal failure develops as a result of failure of the circulation. Intravenous saline is given by drip and also pressor substances are used irrespective of hyperpiesia.

Senility

In patients who are suffering from cerebral softening, even in an early stage, a prostatectomy, however successful as regards the urinary condition, is apt to cause further mental deterioration. They may become more confused and incontinent of urine and often also of faeces. Of all cases these have the worst prognosis, and if a patient shows signs of cerebral softening, even though these be only early, I now refuse to operate unless an acute retention is imminent. In some patients who are uraemic it may be difficult to decide how much of the mental change is due to renal failure and how much to cerebral degeneration. When

any real doubt exists it may be permissible to try the effect of urethral drainage, and if the mental condition clears up completely then a prostatectomy is justifiable.

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at two-monthly intervals. If residual urine was considerable or renal impairment evident the cases were observed weekly, and if rapid improvement did not occur a perurethral resection was carried out. Cases suffering from acute retention were as a rule submitted to perurethral resection after preliminary catheter drainage if necessary, and oestrogen given by the mouth subsequently. If microscopical examination revealed an undifferentiated carcinoma, deep *x*-ray therapy was often given in addition to synthetic oestrogen by the mouth, as my experience had suggested that this form of cancer was less likely to be kept in check by oestrogen therapy alone.

Results in a Series of 176 Malignant Cases Admitted to Hospital

145 (82%) submitted to operation:
- 101 (70%) .. Perurethral resection .. .. Deaths 3 (2·8%)
- 30 (20%) .. Suprapubic prostatectomy .. Deaths 2 (6·6%)
- 14 (10%) .. Suprapubic cystostomy

31 (18%) not submitted to operation:
- 25 (14% of total) .. .. .. Dienoestrol alone
- 7 .. .. Died in hospital

Summary

A clinical method of diagnosis to prevent cases of prostatic obstruction being missed is described. The treatment of the acute cases and the indications for the various types of operations are discussed.

The paper is based upon a series of 2,192 consecutive cases of bladder-neck obstruction due to non-malignant disease of the prostate, of which 1,960 cases were submitted to prostatectomy, with a mortality from all causes of 3.01%. The perurethral method was used in 68.73% of cases (74.3% in private cases).

The perurethral method is considered the method of choice in the majority of cases.

The treatment of cancer of the prostate is discussed.

Prostatic obstruction should be relieved as early as possible before secondary changes occur in the renal and cardiovascular systems: too many cases still come for treatment late in the progress of the disease.

I wish to thank Sisters Deacon, Meek, and Walker, without whose care, organization, and enthusiasm these results could not have been obtained. My grateful thanks are also due to Mr. Hadda, past registrar, and to Messrs. Breckenridge and Harrison, present registrars, for operating upon many of the cases, and also to Mr. Harrison for compiling the results. Last, but not least, I thank the many house-surgeons who have helped me.

When Sir William Marshall delivered his presidential address at the annual conference of the Scottish Association of Executive Councils on September 30 he said that they heard from all sides about the heavy demands on the services of the doctors, and it was clear that these demands were excessive and sometimes even unreasonable (*Scotsman*, October 1). Doubtless when the novelty of the scheme had worn off the rush to the doctor's surgery might lessen, but every consideration should be given to methods of reducing claims on the doctor's time for non-medical purposes. The call for certificates was using up much time which should properly be devoted to clinical work. Waste and extravagance must be checked. Some rearrangements might be necessary to bring home to the people the need for limiting their demands to what was in actual fact necessary. Claims for repairs, both to dentures and spectacles, were increasing month by month. Executive councils had a right in cases of negligence to refuse replacements or to make the applicant pay part of the cost, but this implied inquiry, which was both difficult and distasteful. As the State had already met the primary cost, it might well be left to the individual to meet the charge for repairs, with perhaps some power of the executive council to waive this in cases of real need. Whether it would be possible to make any charge in the case of drugs was more doubtful, but with regard to appliances there might be some provision to entitle the executive council to insist on payment of at least part of the cost.

MULTIPLE MYELOMA

A NOTE ON EIGHT CASES

BY

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[WITH PHOTOGRAVURE PLATE]

Until recently multiple myeloma was considered a comparatively rare disease. Its incidence was given as 0.03% of all malignant growths (Brewer, 1948), and the post-mortem incidence of three large hospitals was 16 in 19,000 (0.084%) Since the introduction of marrow biopsy as a means of diagnosis more cases have been recognized, and in the last few years larger series have been published.

We were struck by the frequency of the disease at this hospital. Eight cases were diagnosed during 1948, five of them coming to necropsy during that year and two since then. This gives a post-mortem incidence for 1948 of 5 in 442 (1.13%). This high figure may, however, be to a certain extent due to selection. It represents 2% of all deaths from malignant disease occurring in the hospital—a substantially higher proportion than previous figures would suggest.

There have been very full reports in the recent literature by Atkinson (1937), Snapper (1943), Harwood Stevenson (1948), and others. We are therefore confining our remarks to some points in these eight cases which appear to be of special interest.

Symptoms and Signs

First, the way in which these patients presented. Most of them complained of pain in the lower part of the back, general weakness, and vomiting. The last-named symptom has not been mentioned much by other writers. It occurred with normal blood-urea levels and was not caused by treatment. Anaemia was also prominent, and was normocytic or microcytic. Collapsed vertebra was one of the presenting signs in two patients, but the incidence and distribution of backache had no relation to the location of this lesion

We confirm the well-recognized fact that the E.S.R is very rapid, reaching 80–120 (Westergren) in the first hour One of our patients, however, had an E.S.R. of only 15 and 25 in the first and second hours respectively. She was one of the most rapidly progressive diffuse cases, but her plasma proteins were normal. In another case extremely rapid agglutination prevented readings.

Albuminuria was present in every case, and Bence-Jones proteins were found in seven patients, though their presence varied from week to week. Most writers give figures of from 50 to 75% for the occurrence of Bence-Jones proteins, but Magnus-Levy (1932), giving a figure of 80%, points out the difficulty of their demonstration at times, especially in the presence of albumin.

A finding that has not often been reported is the presence of a raised C.S.F. protein, which was seen in the three cases which had lumbar punctures. Cabot (1934) found a raised C.S.F. protein in one patient, who, however, had tumours growing into the subarachnoid space. Only one writer—Magnus-Levy (1933)—reports the undoubted presence of Bence-Jones proteins in the C.S.F. We tried to demonstrate this, but were unable to do so in any of the three cases examined.

Blood Chemistry and Cytology

The blood chemistry may be of help in the diagnosis, although the findings are not always characteristic. According to Magnus-Levy (1933), 50 to 60% have raised plasma proteins, due to a raised globulin and sometimes to increased fibrinogen (Reimann, 1932). About the same number have a raised serum calcium with a normal or even increased phosphorus. This helps to distinguish them from cases of osteitis fibrosa cystica, in which the phosphorus is usually lowered. The increased calcium is probably due not only to the mere increase of calcium bound to globulin but also to the destruction of bone by neoplasm (Gutman and Gutman, 1936). This is borne out in one of our patients, who had a raised calcium with normal plasma proteins (Case 8).

In this series also there was a great variation in the appearance of the cells, but in all cases the cells were easily recognized as myeloma-plasma cells (Plate, Figs. 1 and 2). While in a normal marrow there may be 1 to 2% of plasma cells, the percentage of these cells varies from 20 to 90% of the cells in the marrow of these patients. It is interesting to note that in one of the patients the diagnosis was made only after the second marrow biopsy, the first one containing only 3% of plasma cells. The cells varied from typical plasma cells to much larger cells with less densely staining nuclei, not always eccentric and showing nucleoli (Fig. 1). The general features of the cells were, however, the abundant basophilic cytoplasm with frequent degenerative changes such as vacuolization. Sometimes a perinuclear clear area, or "Hof," was seen, and usually the nucleus was eccentrically placed. Multinucleated cells were frequent.

Table giving Details of Cases. (W.R. and Kahn negative in all cases. Alkaline phosphatase expressed as King–Armstrong units. Serum phosphorus expressed as inorganic PO_4.) Albumin was present in urine in every case

No.	Sex and Age	Presenting Symptoms	Urine (Bence-Jones Protein)	Blood	Marrow % of Plasma Cells	Blood Chemistry	E.S.R.	C.S.F.	X-ray Findings	Course	Post-mortem Findings
1	F 54	Abdominal pains; vomiting; low backache; swellings skull and ribs	+	Hb 52% R.B.C., 2·58 m. W.B.C., 4,300 No plasma cells	Biopsy of rib +	Total proteins 9 g.% (alb. 6·4 g.%, glob. 2·6 g.%) Cal. 12·9 mg./100 ml. Alk. phos. 8·5 u. Urea 206 mg./100 ml.	—	—	Lesions in skull and ribs	Died within 5 months of onset of symptoms	Tumours of skull, ribs, and lumbar vertebrae
2	F 65	Low backache and weakness	+ intermittently	Hb 44% R.B.C., 2·5 m. W.B.C., 4,000 No plasma cells	27%	Total proteins 13·5 g.% (alb. 2·6 g.%, glob. 10·9 g.%) Cal. 10·8 mg./100 ml. Alk. phos. 8 u. Urea 41 mg./100 ml.	Very high	Prot. 125 Glob. + Cells 1	Generalized decalcification pelvis and femora	Relief from stilbamidine Still alive	
3	F 74	Nausea and vomiting; swelling of sternum	+	Hb 96% R.B.C., 4·68 m. W.B.C., 7,400 No plasma cells	Not examined	—	—	—	Lesions skull, ribs, and sternum	Died within 5 months of onset of symptoms	Tumours of skull, ribs sternum and femur
4	F 65	Low backache radiating down right leg; pelvic mass; vomiting	—	Hb 50% R.B.C., 2·62 m. W.B.C., 5,200 No plasma cells	25%	Total proteins 7·5 g.% (alb. 1·3 g.%, glob. 5·7 g.%) Cal. 12·8 mg./100 ml. Alk. phos. 4 u. Urea 55 mg./100 ml.	135	Prot. 160 Glob. + Cells 3	Lesions in skull	Died 10½ months after onset of symptoms. No response to stilbamidine	Tumours of spine, skull, and pelvis
5	M 66	Heart failure; anaemia	—	Hb 53% R.B.C., 1·4 m. W.B.C., 1,150 No plasma cells	55%	—	—	—	—	Died very soon	No macroscopic tumours; diffuse infiltration
6	F 62	Nausea; vomiting; hoarseness; weakness	+	Hb 49% R.B.C., 1·35 m. W.B.C., 38,800 Plasma cells 16%	50%	Total proteins 10·5 g.% (alb. 3·6 g.%, glob. 6·9 g.%) Cal. 10·6 mg./100 ml.	160	—	Lesions in skull	Died within 5 months of onset of symptoms No response to stilbamidine	Tumours of skull, ribs and sternum
7	M 63	Backache	+ intermittently	Hb 71% R.B.C., 3·3 m. W.B.C., 17,300 Plasma cells 3%	22/10/48 3% 22/11/48 22%	Total proteins 10 g.% (alb. 2·6 g.%, glob. 7·4 g.%) Cal. 10·7 mg./100 ml. Alk. phos. 5·7 u. Urea 30 to 170 mg./100 ml.	70	Prot. 100 Glob. + Cells 3	Lesions in skull and cervical vertebrae	Died 6 months after onset of symptoms Some relief of pain with stilbamidine	Tumours of skull, ribs, spine, and femur
8	F 66	Low backache; fracture of sternum; vomiting	+	Hb 72% R.B.C., 3·06 m. W.B.C., 7,000 No plasma cells	75%	Total proteins 6·5 g.% (alb. 4·8 g.%, glob. 1·7 g.%) Cal. 13·1 mg./100 ml.	15	—	Lesions in spine, ilium, and skull	Died 5 months after onset of symptoms Some relief of pain with stilbamidine	No macroscopic tumours; diffuse infiltration

The diagnosis rests, of course, on the demonstration of myeloma cells in bone marrow, usually obtained by sternal puncture, but in one of our cases obtained by puncture of the iliac crest, as the sternum was too tender (Case 8). Since the introduction of marrow biopsy and the staining of smears by the Romanowsky method it seems to be fairly generally agreed that the myeloma cell is related to the plasma cell and probably derived from the reticulum cell (Boyd, 1944; Bayrd, 1948). The pleomorphism, not only from case to case but also in individual cases, probably accounts for the previous reports of such varieties as lymphoblastic and erythroblastic myeloma.

Two of the cases were of the diffuse type described by Ulrich (1939), Churg and Gordon (1942), and others, which even at necropsy may be difficult to recognize without marrow studies. In one of these, in spite of typical punched-out translucent areas in the radiographs, a fractured sternum, and two collapsed vertebrae, there was at necropsy no evidence of the usual whitish gelatinous tumours, but the whole marrow was dark red. Microscopically, it contained a very high percentage of plasma cells (Case 8). Case 5 had a macroscopically normal marrow. Some of these

cases may show little or no abnormality in the radiographs, except perhaps some general decalcification (Snapper, 1943).

The kidneys show typical changes, which are now thought to be primarily due to a blockage of the renal tubules with Bence-Jones proteins (Ehrich, 1932; Bell, 1933; Snapper, 1943). Other writers (Thannhauser and Krauss, 1920; Perla and Hunter, 1930) think the changes are due to a nephrosis akin to amyloid disease. These changes, consisting of an accumulation of eosinophil material in the collecting tubules, which are distended, and an increase in interstitial tissue, were well seen in four of these cases (see Fig. 3).

In seven cases the course of the illness was under 12 months, and treatment with stilbamidine or pentamidine had no effect, though relieving pain in three cases.

ADDENDUM

Since this paper was written three further cases have been studied. All had a raised C.S.F. protein. In one (Case 11) the C.S.F. protein was raised while the plasma proteins were still normal. In these cases the C.S.F. may be a more sensitive index of raised proteins than the plasma. In cases presenting with neurological signs the finding of a raised protein in the C.S.F. may be misinterpreted and the widespread nature of

Table giving Details of Three Further Cases

No.	Sex and Age	Presenting Symptoms	Urine (Bence-Jones Protein)	Blood	Marrow % of Plasma Cells	Blood Chemistry	E.S.R.	C.S.F.	X-ray Findings	Course	Post-mortem Findings
9	F 54	Backache; cough; weakness of legs	+	Hb 44% R.B.C., 2·2 m. W.B.C., 3,900 Plasma cells 1%	70%	Total proteins 12·6 g.% (alb. 1·88 g.%, glob. 10·72 g.%) Cal. 10·4 mg./100 ml.	163	Prot. 340 Lange 5555554310 W.R. negative Glob. + Cells 1	Lesions in skull, spine, and long bones; collapse L3	Died about 6 months from onset of symptoms	Tumours of skull, sternum, and spine
10	M 47	Backache radiating down right leg	+ intermittent	Hb 77% R.B.C., 3·5 m. W.B.C., 12,300 No plasma cells	6%	Total proteins 8·15 g.% (alb. 3 g.%, glob. 5·15 g.%) Cal. 16·8 mg./100 ml. Alk. phos. 36 u. Urea 96 mg./100 ml.	60	Prot. 93 Lange 3344300000 W.R. negative Glob. + Cells 1	Diffuse involvement of skull spine, and long bones	Relief of pain with stilbamidine	
11	F 68	Backache; epigastric pain; girdle pain progressing to compression; paraplegia	+	Hb 83% R.B.C., 3·9 m. W.B.C., 9,200 No plasma cells	27%	Total proteins 7·05 g.% (alb. 3·6 g.%, glob. 3·43 g.%) Later: total 7 g.% (alb. 2·52 g.%, glob. 4·48 g.%) Urea 17 mg./100 ml.	7 later 27	Prot. 390 W.R. negative Lange negative Glob. + Cells 2	Spine; N.A.D. skull: a single punched out myeloma	Complete compression; paraplegia D9-L1. ?Relief of girdle pain following pentamidine	

Treatment

Treatment is still very unsatisfactory. Geschickter and Copeland (1928) report the average duration of the disease as two years in 425 cases, the longest recorded being five and a half years. Remissions were sometimes seen. In this series the duration was much shorter, being five to twelve months in all except one patient, who has now lived for sixteen months since the onset of symptoms. Recently stilbamidine and pentamidine have been tried, and varying reports on their efficiency have been published. Snapper (1946) was responsible for introducing them. Recent reports by Brewer (1948) and Propp *et al.* (1949) of cases treated with stilbamidine were not very favourable, and certainly did not indicate remission or arrest of the disease, though pain was relieved in some cases. Some of the patients in our series were so treated, with indifferent results. Pain was relieved in three out of five cases, but the treatment did not appear to influence the course of the disease.

Summary

Eight cases of multiple myeloma were seen in the course of 12 months, five of them coming to necropsy, giving a post-mortem incidence of 1.13%.

The method of presentation was by backache, weakness, vomiting, collapsed vertebra, anaemia, and albuminuria.

Seven out of eight cases had Bence-Jones proteins, and all had albumin in the urine.

Three cases in which the C.S.F. was examined had a raised protein.

The cytology of the bone marrow is discussed, with special reference to two diffuse cases.

Four cases showed typical changes in the kidneys.

the lesion overlooked. Laminectomy proves technically difficult, and, we understand, such patients do badly. Laminectomy is probably contraindicated.

We wish to record our thanks to Dr. N. F. Coghill for help and encouragement in the preparation of this paper and for making Cases 2, 4, and 6 available to us. The other cases were made available through the kindness of Dr. Marjorie Warren (Cases 1 and 3), Dr. J. A. Torrens (Case 7), and Dr. M. M. Deane (Cases 5 and 8). We also wish to thank Dr. A. C. Spence for the marrow studies, Dr. A. C. Counsell for the pathological investigations, Dr. M. Lubran for the biochemical investigations, and Mr. D. A. Vinten for the photomicrographs.

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FATAL POISONING OF AN INFANT BY ANTI-ANAEMIC PILLS CONTAINING IRON, MANGANESE, AND COPPER

BY

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[WITH PHOTOGRAVURE PLATE]

The use of iron in therapy dates back to Celsus, who treated splenomegalic anaemia by the administration of the water in which smiths had drenched their red-hot irons. It was not until 1746, however, that Menghinis discovered the presence of iron in the blood and so gave a reason for a form of therapy which has come into active use only within the last two generations. The benefits of vigorous ferro-therapy in special instances are so striking that iron is now too often used as treatment for any anaemic condition. More recently it has been found that traces of copper and manganese are necessary adjuvants in iron therapy, and the three metals are now available in the form of pills which are stable, effective, and elegant. There is little doubt that these pills are prescribed very frequently, as is shown by the fact that in this region, with a population of approximately 400,000, the five main hospitals issued approximately 500,000 of these pills in a period of six months. Unfortunately, the figures of the quantity prescribed by the practitioners are not available.

That ingested iron is not without danger is seen in Kachin Beck disease (Hiyeda, 1939), a disease occurring among children in Manchukuo and North Korea, due to continuous chronic overdosage with iron in the drinking-water. Acute overdosage by ingestion of pills containing iron, manganese, and copper has been recorded as causing death in three infants (Forbes, 1947; Thomson, 1947). The present case is presented because it allowed the investigation of certain points not available for study in the earlier cases, and its occurrence emphasizes again the need for every doctor and pharmacist, when supplying such pills (e.g., fersolate), to warn the mother of the extreme danger to infants.

Case Report

At approximately 7.30 p.m. on February 8, 1948, a girl aged 1 months swallowed some pills with which she had been play- ?. Each of the pills contained ferrous sulph. exsic. 3 gr. 2 g.), copper sulphate 1/25 gr. (2.6 mg.), and manganese phate 1/25 gr. (2.6 mg.). The exact number swallowed is fortunately not known, as the mother seized the remainder threw them in the fire. The child became very drowsy vomited. The vomit was at first green and later became wn. She was admitted to Dundee Royal Infirmary at 0 p.m.—i.e., two hours after ingestion of the pills.

On admission she was pale and drowsy, but not cyanosed; she made no resistance to examination. The pulse was rapid but regular, the respiratory system seemed normal, the abdomen was soft and nowhere tender, the pupils reacted normally, and there was no evidence of neck rigidity.

Shortly after admission she vomited, the vomitus being brown in colour and streaked with bright-red blood, but there was no further vomiting after 10 o'clock that evening. She was treated immediately on admission with chalk mixture and sodium bicarbonate.

The next day she seemed to be much better, sitting up in her cot, taking notice of her surroundings, and playing with her toys. Two dark tarry stools were passed during the day, but there was no diarrhoea. On the morning of the 10th she was found to be much worse, with cyanosis of the lips and moist accompaniments to the breath sounds at both bases. Sulphadimidine ("sulphamezathine") and penicillin were given, but her condition deteriorated rapidly and she died at 1.10 p.m., 39 hours after ingestion of the pills.

Post-mortem Examination Report (21 hours after death).—"The body is that of an adequately nourished infant with slight cyanosis of the lips but no jaundice in skin or conjunctivae. The *stomach* shows an area of extreme congestion, containing numerous small haemorrhagic points with some oedema, and closer study reveals that in this area mucosal damage of varied degree is present. This area is situated in the middle third of the stomach, nearer the greater curvature, and extending upwards on the anterior and posterior walls. From this central area of intense change a lessening degree of reaction spreads over the remainder of the stomach. The stomach contains approximately 15 ml. of dark-brown coffee-ground material. In the *small intestine* there are a few areas of congestion and swelling, but this is not so marked as in the stomach; the three main areas of reaction are situated on the anterior wall of the third part of the duodenum, in the proximal jejunum, and as a diffuse slightly affected area in the proximal ileum It is noted that the Peyer's patches are not affected. The ileum contains dark tarry faecal material. The *liver* (2 lb., or 0.9 kg.) is pale, flabby, and greasy to touch. The *spleen*, which is normal in size, weight, and consistence, presents a mottled appearance, light spots flecking the cut surface.

"The *lungs* show a considerable degree of congestion, and in the right upper lobe a small area of haemorrhage is present on the anterior border. The *heart* shows dilatation of the right auricle and ventricle, and the myocardium is generally soft and flabby. The valves are competent. The *pericardium* and *thymus* seem normal, as do the *gall-bladder*, *pancreas*, and *suprarenals*. The *kidneys* are pale, but apart from this appear healthy, with normal ureters; the bladder, which is also normal, contains 18 ml. of clear urine. The *reproductive organs* are normal, as are the *brain* and *meninges*."

Special Examinations.—Analysis of the urine, gastric and caecal contents, and the bile for iron, copper, and manganese resulted as follows:

	Gastric Contents	Caecal Contents	Bile	Urine
Fe	0·455%	0·529%	0·0158%	0·0037%
Cu	0·0099%	0·00235%	0·00452%	0·00044%
Mn	Present	0·0024%	0·0057%	None

That the high gastric and caecal iron content is not entirely the result of the haemorrhage from the mucosal damage is shown by the presence of copper and manganese in the same samples. The "metabolic route" of the manganese is indicated by its obvious presence in the bile and its absence from the urine; the copper content of both bile and urine agrees with its recognized route of excretion. Since these estimations were made on isolated specimens obtained at necropsy it is unwise to compare them with normal excretion values, but they are much higher than those considered normal.

Histology.—The main lesions occur in the gastro-intestinal tract. In the stomach, the area of acute gastritis described above is seen to consist of localized areas of severe necrosis (Plate, Fig. 1) of the gastric mucosa with a striking impregnation of the adjacent reticulum by iron (Fig. 2), recalling the impregnation described in the pulmonary reticulum in haemosiderosis (Scott Park *et al.*, 1947). There is also oedema of the submucosa, and under the areas of necrosis the veins show thrombosis with iron impregnation of their walls (Fig. 3). Deeper still, the as yet not thrombosed vessels show thickened endothelium which contains masses of iron granules. The liver (Fig. 4) shows a widespread and surprisingly uniform fatty change and some iron is present, but in no great amount—much less than used to be seen in the typical case of pernicious anaemia. The presence of copper and manganese in the liver can perhaps be deduced from the fact that the reaction with sulphide shows more metal in the hepatic cells than is revealed

by Perls's reaction for iron. The tubules of the kidney show cloudy swelling but no other lesion, and iron could not be demonstrated. The only other significant finding in the viscera was necrosis of the Malpighian corpuscles of the spleen.

Discussion

Although previous reports have dealt with the toxicology of this condition, this new case raises some points in the clinico-pathological synthesis that are of interest.

It appears from the microscopical examination that once the gastric mucosa is damaged the iron escapes from the lumen into the tissues and leads to thrombosis of the submucosal veins; this thrombosis would seem to act as a block, in that comparatively little iron has been found in the liver. None the less, it is difficult to escape the conclusion that the gross fatty change in the liver is due to absorption of substances from the lumen through the areas denuded of mucosa, or possibly from the breakdown products of the mucosa itself. The extent and degree of the change in the liver seem scarcely sufficient to explain the fatal issue, but in view of the failure to find any other cause of death one might assume that the damaged liver, although capable of sustaining life for some time, was not capable of maintaining its detoxicating process in the continued presence of this absorption. The final collapse of the liver, by allowing access of the absorbed substances to the rest of the body, led to the sudden exitus. The necrosis of the Malpighian corpuscles is probably associated with that generalized toxaemia.

The present case emphasizes again two important clinical points. First, it is of the utmost importance to begin treatment urgently for the sake of the gastric mucosa, as it seems probable that the gastric mucosa is the first and main line of defence of the liver. In this respect it is of interest to note that a recent paper described a case of recovery after the ingestion of similar pills in which treatment was started at once by the patient himself, and little evidence of liver damage could be found (Roxburgh, 1949). The histological findings in the present case fail to provide any suggestions for specific therapy, and one can merely repeat the probable value of early administration of alkali to form insoluble hydroxides. It would seem that dimercaptopropanol (BAL) is unlikely to be of help (McCance and Widdowson, 1946) in such cases; it was used by Roxburgh, who makes no claim, however, for its value.

The second point of clinical importance is the occurrence of a misleading period of improvement and apparent well-being before a rapidly fatal termination. A similar false recovery occurred in one of Forbes's cases, and the fact should perhaps be stressed that in treatment of such cases this period of betterment neither lessens the gravity of the prognosis nor permits any relaxation of therapeutic activity.

Summary

A case is described of fatal poisoning of an infant by pills containing iron, copper, and manganese.

The clinical course showed a period of apparent recovery followed by sudden death: this misleading sequence occurred also in one of the previously reported cases.

The histological findings suggest that the destruction of the gastric mucosa leads to lethal hepatic damage.

It is the duty of doctors and pharmacists to warn parents of the grave risk to infants presented by these visually attractive pills.

I wish to thank Professor A. C. Lendrum for his help and advice in the preparation of this paper and Mr. A. Dargie, Dundee City Analyst, for the analysis of the specimens of gastric and caecal content, bile, and urine. I am also grateful to Dr. J. Thomson, Royal Infirmary, Dundee, for the clinical details, and to Mr. J. W Corkhill for the photomicrography.

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SYNOVIAL OSTEOCHONDROMATOSIS

TWO UNCOMMON EXAMPLES

BY

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[WITH PHOTOGRAVURE PLATE]

Synovial osteochondromatosis is a well-recognized condition, but the two cases reported here presented some unusual features.

Case 1

The patient, a man aged 23, had a history of stiffness of the right shoulder for about six months, associated with occasional slight pain, but with no obvious cause beyond some trivial injuries in the past. On examination there was a complete absence of any movement in the right shoulder-joint.

Radiological examination disclosed enormous numbers of opaque loose bodies, of varying size and density, occupying the entire shoulder-joint and extending into the subscapular bursa and the synovial sheath of the long head of the biceps. Synovial osteochondromatosis was diagnosed (Plate, Fig. 1). There was no abnormality elsewhere.

At operation the right shoulder-joint was exposed through a long anterior incision. On opening the bulging synovial membrane loose bodies were scooped out by the dozen, but many

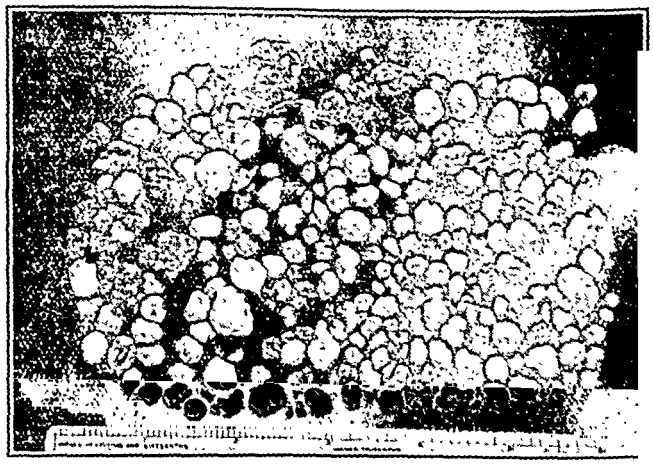


FIG. A.—Case 1. Photograph of loose bodies after removal.

still attached to it had to be avulsed or dissected out. An attempt at synovectomy was abandoned owing to tough adhesions and haemorrhage, but the whole of the synovial sheath of the long head of the biceps was excised and also as much as possible at the site of the reflection of the synovial membrane on the humerus. All loose bodies were removed after a complete exploration.

Pathological Condition.—The entire synovial membrane was ed, rough, and oedematous. The earliest lesions were tiny odules and small sessile excrescences, and were most pro- ounced at the reflection of the synovial membrane and in he bicipital groove. Larger bodies were hanging in clusters, nd other solitary bodies possessed a mere hairlike pedicle. The largest bodies, up to 2 cm. in diameter, were lying com- letely detached and mobile within the joint. Those with any legree of pedicle were red and still retained a blood supply, ut the actual loose bodies were yellow and more polished; ll were somewhat rounded, with a pitted irregular surface. There were more than 350 osteochondromata, including several lusters not yet independent (Fig. A); very tiny ones still mbedded in the synovial membrane were difficult to count ccurately. Their total weight was 67.5 g. There was marked steoarthritic lipping at the edge of the articular cartilage of the umerus, together with an erosion of the cartilage in the centre of the head where a loose body had been impacted.

Histological examination of a portion of the synovial nembrane with the earliest changes demonstrated well-marked ancellous bone formation, as well as fibrous tissue and carti- age; there was extensive proliferation of the synovial tissue (Fig. 2).

Several of the loose bodies were examined radiologically after emoval and showed a central opaque nucleus, surrounded by nore dense peripheral laminae of calcification.

Progress.—Healing was uninterrupted, and no remaining loose odies were found on subsequent radiological examination. Two months after operation a moderate degree of all move- ments had been restored, but further follow-up proved impossible. The formation of the osteochondromata appeared so active that it is almost certain that they will develop again, necessitating a second operation. A stiff shoulder is the prob- able final result, especially as osteoarthritis is already established.

Case 2

This patient, a man aged 55, sustained a trivial injury to the left ankle, and two weeks later was seen on account of swelling and moderate disability. Radiological examination revealed several opaque loose bodies, posterior to the ankle-joint, which were typical of synovial osteochondromata (Fig. 3). There were also early changes of osteoarthritis in the ankle-joint.

At operation a postero-medial incision was made and the loose bodies were found lying in a large bursa communicating with the synovial tendon sheath of flexor hallucis longus. Some were quite loose and others were attached in clusters to the synovial lining, which was otherwise healthy. All the osteo- chondromata were removed and the entire bursa was excised. A good recovery followed.

Comments on the Condition

e of Origin.—Henderson and Jones (1923) observed the site of reflection of the synovial membrane is the nmon site of origin of osteochondromata within a joint; is is the region of differentiation in the foetus, and is the most favourable situation for disarrangement of cells which in later life may take on properties not normally possessed. The findings in Case 1 are thus clearly in confirmation.

Nature of the Condition.—Osteochondromatosis is now generally accepted as being a benign neoplasm, developing from embryonic rests or from a metaplasia of connective-tissue cells. Although malignant synovial tumours are well known, it is seldom appreciated that malignant change may supervene on osteochondromatosis on very rare occasions; Geschickter and Copeland (1936) and Brailsford (1948) refer to cases in which a sarcoma developed. Bennett (1947) showed the necessity for following up all benign neoplasms or other tumour-like lesions of synovial tissue because of the risk of subsequent malignancy and also because there may be difficulty at first in distinguishing histologically between benign and malignant conditions. In Case 1 recurrence seems almost certain owing to the activity of the growth of osteochondromata, and it is interesting to speculate on the possibility of ultimate malignant change.

Growth of Bone.—The growth of bone and the increase in size of the osteochondromata are in keeping with the opinions of Greig (1931). He maintained that bone forms before a loose body becomes detached, for the reason that bone formation requires an adequate blood supply, not available after the loose body is once free. Any increase in size after detachment is then due to increase in the amount of cartilage, which can derive nutrition from synovial fluid. Calcification, as distinct from ossification, may occur there- after in the periphery of the loose body.

Involvement of Shoulder-joint.—This is a very rare site, coming in order of frequency after knee, elbow, ankle, and hip joints. Albee (1927) removed 64 loose bodies, and Henderson and Jones reported another case, both being followed by recurrence. The condition was also demon- strated by de Lorimier (1943), Behrens (1947), and Brailsford.

Involvement of Bursae and Tendon Sheaths.—Being closely related to joints embryologically, these are subject to the same pathological conditions and may become the site of loose bodies. Osteochondromatosis is not common in them and may occur independently or in association with a similar joint lesion. References have been made, among others, by Henderson and Jones, Geschickter and Cope- land, Buxton (1923), Janik (1927), and Shepherd (1943).

Numbers of Loose Bodies.—A solitary osteochondroma may occur. Very large numbers, however, have been recorded, such as 700 by Timbrell-Fisher (1927), 1,047 by Berry (quoted by Timbrell-Fisher), and 415 by Boyd (1947) all in the knee, and 1,000 by Brailsford in the hip. As a rule the number is much smaller, and the figure of at least 350 in Case 1 is well above the average.

Treatment

Operation is required if there is to be any hope of recovery of function of the joint or prevention of osteo- arthritis. According to Timbrell-Fisher, the process of loose-body formation may end as suddenly and mysteriously as it began, and the results of operation are good provided the condition is not then progressive; otherwise there is recurrence and a second operation becomes necessary. Henderson and Jones extracted ten loose bodies from a shoulder-joint through a very small posterior incision, but, though possibly effective in certain instances, this limited type of exposure does not seem applicable in the presence of large numbers, especially if still attached to or involving synovial extensions of a joint. Wilmoth (1941) performed a partial synovectomy, with removal of loose bodies, in most of his cases, but was uncertain regarding the prevention of recurrence. A total synovectomy is the best method of ensuring against recurrence in a case with extensive involve- ment, but it is not attainable in all joints nor under such conditions as in Case 1.

Involvement of a bursa is easily treated by its complete excision. In a tendon sheath, simple removal of loose bodies is the usual treatment, but occasionally total excision of the synovial lining is possible.

Summary

Two uncommon examples of synovial osteochondromatosis are reported. In one case the shoulder-joint was involved most extensively, over 350 loose bodies being removed. In the other the loose bodies were in a bursa in direct communication with

a tendon sheath at the ankle; recovery followed removal of the osteochondromata and excision of the bursa.

I wish to acknowledge my indebtedness to Messrs. A. H. Baird, who carried out the photography.

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A STUDY IN VISUAL DEFECTS IN YOUNG CHILDREN

BY

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It is evident from the annual returns of the school health service that amblyopia and strabismus form a large proportion of cases of defective vision. It is the purpose of this paper to describe a simple method whereby gross errors of refraction in children under the age of 5 can be ascertained. We demonstrate that this method is accurate enough to be used on a wide scale, that a large number of children in the age group discussed suffer from gross errors of refraction, and that it is important from a preventive aspect that they should be detected and treated as early as possible in order to achieve good results and prevent deterioration and the development of other conditions. Except in cases of suspected strabismus, hypermetropia under 2D and astigmatism under 0.75D was not corrected; in all other cases correction was made, the conditions being referred to as gross errors of refraction.

We are not concerned here with the finer analysis of the degrees of the errors of refraction and their age distribution, this is of secondary importance to this investigation.

The sight of children is usually examined when they are 7 to 8 years old by the Snellen type test in the course of routine medical inspections. Before this age treatment may be sought only when attention is drawn to the child's eyes by the occurrence of squint or because defective vision is thought to exist. A squint of the ordinary concomitant type associated with hypermetropia is usually manifest between the ages of 18 months and 5 years. At the age of 12 months a child should have acquired the power of fixation. Now, if something prevents that being acquired, nystagmus will occur, but during the next few years the full visual acuity will have to be developed. In cases of a high degree of astigmatism a distinct image is not formed on the retina and full visual acuity cannot be developed. Also with anisometropia the child will not focus the ametropic eye and the same will follow.

It is therefore of great importance that such conditions should be recognized as soon as possible, since by correcting such errors at the earliest opportunity the final result will be much better. After the age of 8, if no correction has been carried out, there will be in these cases a considerable degree of amblyopia, which may be difficult or impossible to overcome. Furthermore, by correcting high degrees of hypermetropia many cases of potential squint may be forestalled. Experience has also shown that if one child in a family has a gross error of refraction it is likely that some of the other children will also have errors requiring correction, and it is the custom of one of us (T.W.L.) to inquire into family histories and to examine all the children of a family in which one child is found to have a gross error of refraction.

The number of cases of amblyopia discovered in school entrants indicates that a far more intensive investigation should be made of the eyesight of the pre-school child. Some special test, easily applied and quickly performed, is required to ascertain those children who are suffering from grosser errors of refraction. One of us (P.A.T.) undertook the retinoscopy examination of all children present in the day nurseries, nursery schools, and classes in the borough.*

Method and Scope of Eye Investigation

Retinoscopy was performed with a plane mirror without using a mydriatic. The children were examined in a darkened room seated on a chair at arm's length. First the movement of the red reflex was noted in vertical and horizontal meridians. Movement against the mirror in any meridian in either eye was noted as "myopia" and referred to one of us (T.W.L.) for further examination. If movement occurred with the mirror then the procedure was repeated using a +2D lens held in turn immediately in front of the child's eyes, movement in any meridian in either eye being noted as "hypermetropia" and referred for further examination. It was found that having the children attend in batches of ten alleviated anxiety and that it was possible to examine 60 children in the course of an hour.

The upper age limit was taken as the age of 5 in January, 1949. Accommodation for 567 children exists in the day nurseries, nursery schools, and classes. Owing to illness and other reasons 87 were absent at the time of the survey and 10 became too emotionally disturbed to be examined. Of the 470 children examined, 10 were excluded from the final results, eight being over the age of 5 and two who were ascertained to have defects failing to keep several appointments for further examination. The results of the remaining 460 examinations are considered here.

Results

Table I shows the analysis by sex and age of the examinations made. The numbers in the age groups are considered too small for further analysis. The 460 children comprised 247 boys and 213 girls, and in each case 19

*We wish to acknowledge our indebtedness to Dr. G. Hamilton Hogben, to the borough education officer, and to the head teachers and matrons of the nursery schools and classes and day nurseries in Tottenham for their invaluable assistance.

TABLE I.—*Analysis of Results by Age and Sex*

Age Groups (Years and Months)	Boys							Girls							Totals for Both Sexes							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	No. with No Defects by Retinoscopy	No. with Uncorrected Defects by Retinoscopy	No. Confirmed by Specialist as Having Uncorrected Defects	No. with Refractions Corrected at Time of Survey	Total with Defects (Columns 3 + 4)	Total with No Defects	Total No. Examined	No. with No Defects by Retinoscopy	No. with Uncorrected Defects by Retinoscopy	No. Confirmed by Specialist as Having Uncorrected Defects	No. with Refractions Corrected at Time of Survey	Total with Defects (Columns 10 + 11)	Total with No Defects	Total No. Examined	Total with No Defects by Retinoscopy	Total with Uncorrected Defects by Retinoscopy	Total Confirmed by Specialist as Having Uncorrected Defects	Total with Refractions Corrected at Time of Survey	Total with Defects (Columns 17 + 18)	Total with No Defects	Total Examined	Percentage in Each Age Group with Defects
18 m.–2 0	18	1	1	0	1	18	19	7	1	1	0	1	7	8	25	2	2	0	2	25	27	7·4
2·1–2·6	19	0	0	1	1	19	20	12	1	1	0	1	12	13	31	1	1	1	2	31	33	6·0
2·7–3·0	12	1	1	0	1	12	13	10	2	2	0	2	10	12	22	3	3	0	3	22	25	12·0
3·1–3·6	23	1	1	0	1	23	24	37	2	2	1	3	37	40	60	3	3	1	4	60	64	6·25
3·7–4·0	31	1	1	1	2	31	33	33	3	1	2	3	35	38	64	4	2	3	5	66	71	7·0
4·1–4·6	58	5	4	2	6	59	65	43	5	4	2	6	44	50	101	10	8	4	12	103	115	10·4
4·7–5·0	64	8	6	1	7	66	73	49	2	2	1	3	49	52	113	10	8	2	10	115	125	8·0
Totals	225	17	14	5	19	228	247	191	16	13	6	19	194	213	416	33	27	11	38	422	460	8·26

visual defects were discovered—i.e., 7.7% and 8.9% respectively, with an overall percentage of 8.26. The number of children who were already receiving treatment for defective vision at the time of the investigation was 11 (five boys and six girls), or 2.39%. A further 33 cases were revealed by the survey; of these, 27 were later confirmed—i.e., 5.87%.

Table II provides an analysis of the defects found.

TABLE II.—*Analysis of Defects*

Conditions	No. of Uncorrected Cases	No. of Corrected Cases
Compound hypermetropic astigmatism ..	13	4
Convergent strabismus; compound hypermetropic astigmatism	4	7
Low hypermetropia	5	0
Myopia	2	0
Mixed astigmatism	2	0
Simple hypermetropia	1	0
No significant error	6	0
Totals	33	11

Conclusion

The results of this investigation are to be regarded as a "pilot" survey. Children attending nurseries may not be representative of the whole child population in the age groups examined. Further, a retinoscopy examination without the use of a mydriatic cannot give entirely accurate information about the state of the ocular mechanism. The method employed was devised and used as a simple and speedy technique to discover grosser errors of refraction. Despite its limitations it is contended that the method is justified and suitable for use on a wide scale in the annual examination of children of pre-school age.

Dr. Leonard Scheele, Surgeon-General of the U.S. Public Health Service, is reported to have stated recently that 1949 will be the worst year for infantile paralysis in the history of the United States, with cases reaching a total of 40,000 to 45,000. This will be a 50% increase over the infantile paralysis cases reported last year, and he feared that figures may be even higher next year and in the years to come. In the 10 years before 1943 there was only a moderate incidence of infantile paralysis in the U.S.A., but since then there has been a marked upward trend.

ACUTE ADRENAL INSUFFICIENCY AFTER ADRENALECTOMY FOR PRE-PUBERTAL VIRILISM

BY

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The following case is reported because it must represent closely the results of total extirpation of the adrenals in man.

Case Report

A girl aged 6 was found to be suffering from typical pre-pubertal virilism when first seen on November 8, 1944. The urinary 17-ketosteroid excretion was 12.3 mg. a day. Laparotomy was performed; this confirmed her sex and showed both adrenals to be much enlarged. Left adrenalectomy was carried out and the ketosteroids fell to 8.3 mg. a day. Her physical condition, however, did not improve, and her psychological condition became so difficult that her parents found it impossible to manage her. She was therefore readmitted at the age of 9¼ for further treatment.

Although her general appearance was that of a normal girl of this age there was marked enlargement of the clitoris and the vagina was rudimentary. A heavy growth of pubic hair was present. Her mental ability was only that of a child two years younger, and she behaved in an excessively rowdy way. Her voice was unusually deep. The urinary 17-ketosteroids were now 26 mg. a day.

The right adrenal gland was explored on February 20, 1945, and found to be about five times the normal size. A portion 1½ by 1 in. (3.75 by 2.5 cm.), representing just under half the gland, was resected with the diathermy needle and the cut edge of the remainder of the gland oversewn with catgut. The wound was closed without drainage. A small wound was accidentally made in the pleura; it was immediately closed. An intravenous glucose-saline drip was started.

Ten hours after operation her condition was quite satisfactory and the intravenous drip was discontinued. But the pulse and respiration rates began to rise during that night, and by 24 hours after operation the blood pressure had fallen to 75/45. Her pulse was weak and rapid, and she was drowsy but rational. She was sweating slightly and her skin felt warm. It was now noticed that generalized pigmentation of the skin was developing. As the day went on she became noisy and restless, and her temperature rose to 103° F. (39.4° C.). A right-sided

pneumothorax was present. Two 10-ml. doses of "eucortone" were given during this day, but had little noticeable effect. During the night her condition became steadily worse. The blood pressure remained at 75/45, and her pulse became irregular and at times uncountable at a rate of about 180 a minute. The respiration rate rose to 60 a minute. She was delirious and incontinent of urine.

On the morning of the second day after operation her condition was so grave that the ward sister thought she was not likely to live for more than an hour. The pulse was uncountable and the respiration rate still 60; the blood pressure was now only 50/20. A deep generalized pigmentation of the skin was present; it was of café-au-lait colour and evenly distributed over the whole body. Nevertheless, her ears and lips remained a good pink colour and the pale grey-blue cyanosis seen in cases of severe shock—e.g., after severe burns—did not develop. The haemoglobin was 55%, so it was evident that the haemoconcentration of shock was not developing.

She was given 10 ml. of eucortone intravenously, and one hour later her general condition was noticeably better. A further 15 ml. was therefore given immediately, and further improvement followed. An intravenous glucose-saline drip was started again and eucortone, 30-ml., was introduced with it four-hourly. During the day she vomited several times, but the total amount brought up in the post-operative period could not have been more than 1 pint (568 ml.). She passed no urine, and by the evening oedema of the face, particularly about the eyelids, was beginning to develop. She was catheterized, but only about

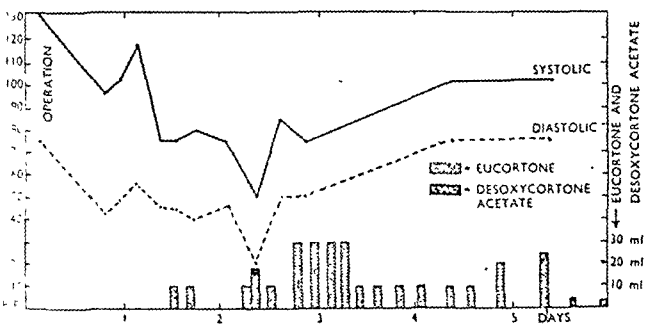


Chart showing blood pressure and the course of adrenal cortex replacement treatment.

50 ml. of urine was obtained. This was of average concentration and contained albumin but no sugar or ketone bodies. The urinary chlorides were 3 g. per 100 ml., and a blood sample taken at the same time contained only 292 mg. of sodium per 100 ml. (normal 325 mg.).

Her condition continued to improve during the night, though she was noisy and delirious and required heavy sedation. By the next day, the third after the operation, the blood pressure was rising and the pulse and respiration rates were falling. There was marked oedema of the face but none of the limbs or sacral area. She began to take fluids by mouth and passed 30 oz. (950 ml.) of urine. On the fourth day she was rational and sleepy, and her general condition had very much improved. She was taking food by mouth, and the blood pressure had risen to 102/75. The oedema was subsiding, but the pigmentation still remained.

From then onwards she made rapid progress. The eucortone was reduced to 10 ml. four-hourly on the third day after operation, and she was given 20 ml. on the fourth; it was stopped altogether on the fifth day, and desoxycortone acetate, 2 ml. (10 mg.) was given thrice daily for five days followed by 2 ml. daily for two days. Common salt, 6 g. daily, was given while she received desoxycortone acetate. The oedema had disappeared by the sixth day. The pigmentation gradually faded; it had become faint by the eighth day and had disappeared by the sixteenth, by which time she was afebrile and in excellent health. The total amount of eucortone given was 275 ml. The urinary ketosteroids on March 16 were 8.4 mg. a day.

Discussion

It will be seen that, three years after one adrenal had been removed, resection of about half of the remaining gland was followed by a crisis similar to those which occur in Addison's disease. It did not occur immediately after the operation, but began within 12 hours of it. It is presumed to have been due to defunctioning of the remaining part of the gland by oedema, with the added possibility of thrombosis of the adrenal vein by the diathermy used in the excision.

Pigmentation occurred within 24 hours of the operation and was maximal within 48 hours of it; it was generalized and even, and in colour and depth closely resembled that of known cases of Addison's disease which were in the ward at the time. It had almost disappeared eight days after the operation. This was the most striking feature of the crisis.

The pigmentation of Addison's disease has been accounted for as follows. Adrenaline is normally prepared in the adrenal medulla from tyrosine, which is stored in the skin. If the adrenal medulla is destroyed and no adrenaline is formed the tyrosine is not used up and accumulates in the skin, where a tyrosinase converts it into melanin (Wright, 1945). The fact that pigmentation occurred so rapidly in this case seems to support the theory that adrenaline is secreted continuously in man.

The patient's condition during the crisis was rather like that in surgical shock, but the extremities remained warm and pink instead of cyanosed, and there was marked hyperventilation. The whole clinical picture resembled the Waterhouse-Friderichsen syndrome closely, but no petechiae were present, livid cyanosis did not occur, and she responded well to treatment with adrenal cortex extract (Martland, 1944). The pigmentation seen in this case has not been described in either of the above-mentioned conditions.

Summary

A case of pre-pubertal virilism is described; it was treated by adrenalectomy, followed later by removal of part of the remaining adrenal gland.

A crisis resembling those of Addison's disease occurred during the first few days after the second operation; it responded well to treatment with eucortone, desoxycortone acetate, and intravenous glucose-saline. Recovery followed.

I wish to thank Mr. L. R. Broster for permission to publish this case and for his help in preparing the paper.

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In future national insurance cards will not be stamped by patients in mental institutions or by the staff of the institutions on the patients' behalf. The Ministry of National Insurance will not ordinarily examine liability for contributions until after a patient's release, unless the next of kin wishes to pay or an application for benefit is made. These arrangements have been agreed by the Ministries of Health and National Insurance, and are conveyed to mental institutions in Circular 95/49. The insurance cards should be returned to the local national insurance office, which will issue to the institution a form for each patient instead of a card. If the patient is transferred to another institution the form should accompany the patient, and on the patient's discharge or death it should be returned to the local office named on the form. The next of kin of the patient or the person to whom correspondence about the patient is sent will have an opportunity of paying national insurance contributions on the patient's behalf if he wishes to do so.

Medical Memoranda

An Operation for Femoral Hernia

The discussion on femoral hernia in the *British Medical Journal* of October 23 and November 6 and 13, 1948, has prompted me to describe, before I intended doing so, a method of closing the femoral canal which I have been using and which I think fulfils all the requirements of an operation for femoral hernia. In it no foreign unabsorbable material is used, with the occasional disappointment which this sometimes engenders. (Patients seem more disgruntled at having a chronic sinus from foreign material than if they had had a recurrence.) The canal is closed at the inlet by a living membrane that is always at hand. Very large openings are easily closed by this means.

The method puts no strain on the external oblique muscle. Any method that pulls down the inguinal ligament to Cooper's ligament in the high operation, or to the pectineal fascia in the low-type operation, produces a strain on the external oblique tendon and is often followed by rupture of the fibres here and a weakening of the inguinal canal. Hence the tendency to inguinal hernia after high or low operations in which the inguinal ligament is pulled down to one of these structures. When I have used the method here described there has been no subsequent discomfort.

Technique

I recommend the method for trial as I feel that no individual surgeon sees a sufficient number of femoral herniae in a limited time to appraise a method fully. The operation can be done with comfort for the patient and surgeon under local analgesia. A point in the simplification of the operation is the use of the Trendelenburg position.

The most satisfactory skin incision is one over the inguinal canal and curving down over the femoral sac at its inner end. This allows a good vision of the inguinal canal area and of the sac and the pectineus muscle with its coverings.

The sac is accurately freed from the surrounding fat and fascia; if large, the redundant part of the sac should be excised to facilitate the sac's being drawn up through the canal. The external oblique muscle over the inguinal canal is then incised as in inguinal hernia. The cord or round ligament is drawn up, the transversalis fascia is incised, and the extraperitoneal fat is exposed. The neck of the sac entering the femoral canal is gently pulled on, and by careful teasing the whole sac is pulled up from the femoral canal. The bladder is carefully separated from the sac on the inner side and a high closure of the sac made. The ligated portion and peritoneum are now pushed upward and the ileopectineal line, with Cooper's ligament, is exposed. A good exposure is obtained with the Trendelenburg position.

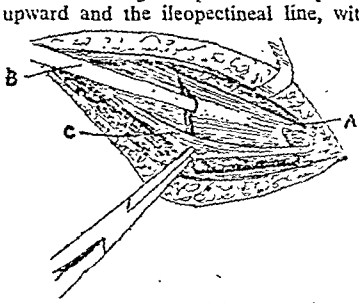


FIG. 1.—The pectineal fascia has been separated from the underlying pectineus muscle and is ready to be drawn upwards above the inguinal ligament. A=Superior ramus of pubes with Cooper's ligament. B=Blunt dissector raising fascial flap. C=Inguinal ligament.

Cooper's ligament extends down over the pectineus, where it blends with the pectineal fascia. The fascia is exposed from the ileopectineal line above to below the inguinal ligament by gentle wiping with a gauze swab. The medial border of the iliac and femoral veins is noted. This gives the outer border of the fascial leaf to be utilized and defines the breadth of fascia to cover the opening of the femoral ring. The fascia is incised along this line from Cooper's ligament to below the inguinal ligament, and the fascia is separated from the bone and underlying pectineus muscle by blunt dissection.

The fascia is cut across about ¾ in. (1.9 cm.) below the inguinal ligament. It can now be pulled upwards so that it hangs freely above except where it is hinged at Cooper's ligament (*Fig. 1*). This flap, which is naturally strong, is then laid without tension along the upper concave edge of the inguinal ligament and fixed here with two or three interrupted 40-day catgut sutures (Fig. 2). This effectively blocks the upper opening of the canal. The transversalis fascia is sutured accurately back in position and the external oblique muscle incision closed (Fig. 3).

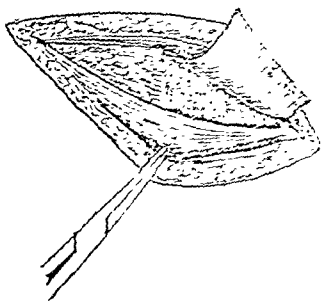


FIG. 2.—The flap of fascia has been pulled up and is ready to be laid upon the upper surface of the inguinal ligament.

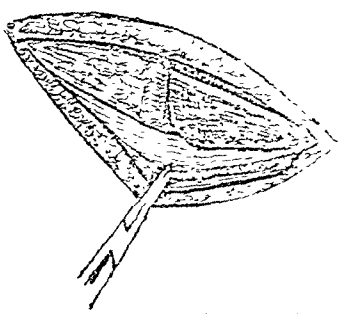


FIG. 3.—The flap of fascia has been sutched to the upper concave edge of the inguinal ligament.

Comment

Since writing this short description of an operation for femoral hernia I have read A. K. Henry's article (*Lancet*, 1936, 1, 531) where he suggests an operation in which he uses the pectineal fascia in much the same way for the closure of the upper orifice of the femoral canal. Unfortunately, his unusual mode of approach has evidently overshadowed the suggested method of closure of the canal, for it has not been mentioned in any of the recent articles on the subject, and this short description is published with a view to popularizing this method of closing the canal. Henry's method of approach does not give a good view of the pectineal fascia and renders the operation difficult. The most satisfactory incision is the one I have described.

G. D. F. McFADDEN, M.Ch., F.R.C.S.

Branchial Fistulae

Proximally blind lateral cervical fistulae opening in the vicinity of the anterior border of the sterno-mastoid, and extending a variable distance up the neck, are not uncommon. Apart from their persistence and occasional discharge, they cause little disability, and where excision is indicated the procedure is simple provided their origin lies external to the carotid sheath. Consideration of the development of the visceral arches confirms the view that these branchial fistulae are probably derived from the cervical sinus, which in the embryo is normally shut off from the pharynx by a septum of tissue, the cleft membrane. Consequently the presence of a complete fistula communicating internally with the pharynx and presenting an external opening in the neck may be considered a rare condition.

CASE REPORT

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On examination a barely noticeable papule was present over the anterior border of the left sterno-mastoid and situated about 2 in. (5 cm.) above the suprasternal notch (Fig. 1). There was no discharge at the time, and it was found impossible to get a very fine probe into what was apparently a closed punctum. However, extending upwards from this towards the angle of the jaw was a slight but just visible cord-like thickening comparable in diameter to an ordinary lead pencil. On asking the patient to open her mouth and upon milking this thickening upwards, a good teaspoonful of whitish fluid was seen to exude from the region of the supratonsillar fossa.



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FIG. 2.—Lateral view of fistula after injection of lipiodol.

COMMENT

Surgical ablation of such a fistula entails a moderate-sized incision and a careful dissection in the region of the internal carotid artery, due respect being given to the proximity of both the glosso-pharyngeal and the facial nerves. Access to the pharyngeal closure of such a fistula is best aided by lateral displacement of the tonsil by means of a finger in the mouth. The mere presence of a branchial fistula is in my opinion no indication for surgical intervention, and certainly before the latter is contemplated the extent of the tract at least should be investigated.

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On the eighth day after admission a convulsion occurred, together with vomiting, pin-point pupils, and the passage of faeces. The skin felt extremely hot, and on taking the temperature in the rectum the mercury reached the end of the thermometer. Repetition with a second thermometer produced the same result. Both were subsequently tested, and the temperature required to bring the mercury to the end of the thermometers was found to be 110° F. (43.3° C.). Tepid sponging was started immediately, and the temperature was plotted every fifteen minutes. After half an hour the temperature was 106° F. (41.1° C.), and after one hour 104.8° F. (40.45° C.). Consciousness was regained four hours from the onset of the convulsion. The temperature was then 100° F. (37.8° C.).

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Hyperpyrexia is a possible and dangerous complication of infantile eczema in which a large proportion of the body surface is involved. In this case the combination of hyperpyrexia, pin-point pupils, convulsions, and unconsciousness also raises the possibility of a pontine lesion. Vasomotor spasm in the pons offers a reasonable explanation of the transitory nature of the signs.

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R. R. MACINTOSH.

A TEXTBOOK OF ORTHOPAEDICS

Essentials of Orthopaedics. By Philip Wiles, M.S., F.R.C.S. (Pp. 486; 7 coloured plates and 365 text-figures. £2 2s.) London: J. and A. Churchill. 1949.

Mr. Wiles has tackled the difficult task of telling undergraduates, junior residents, and general practitioners what is essential in orthopaedics—probably with the knowledge that not one of his colleagues in the same field would wholly endorse his choice of material. But there can be no doubt that he has been unusually successful and has produced a book that will prove popular because it so nearly achieves its object.

The arrangement of the chapters is unconventional. The author begins with a superb essay on the difficult and neglected subject of postural defects, and passes without any loss of continuity to another good chapter on pain in the back. This is followed by articles on disorders of the spine and the other joints. Here the trouble begins, for a regional approach inevitably leads to repetition in descriptions of conditions that may affect almost any joint, such as osteo-arthritis and tuberculosis. Even then the author finds it necessary to discuss these diseases in later chapters, in which he ties up the loose ends and is again repetitive. In writing a book of this kind the dilemma is perhaps insoluble, but it is probably best to stick to the old-fashioned plan of placing the general chapters before those concerned with regional topics.

The book contains a happy mixture of the author's own views with those of others. Mr. Wiles reveals himself as a good teacher; he speaks with authority from personal experience and at the same time shows his intimate knowledge of all that is significant in the world of orthopaedics. It is therefore unfortunate that his book is unadorned with detailed references to the many excellent papers from which he has chosen so wisely.

The book is pleasant to read; the reader finds himself carried along by language of engaging simplicity, so much so that it seems captious to criticize details. But a few examples must be mentioned—neuresthenia, haemophylia, aneurism, fusilade, and champfer are indications of lax proof-reading. Paget's quiet necrosis is not a synonym for osteochondritis dissecans, and the semilunar cartilages cannot be described as concentric. Most of the illustrations are excellent, though some of the radiographs and a few of the other pictures could have been better. The general quality of production is a great credit to the publishers.

The demand for the book is likely to be considerable. A second edition may soon be called for and the author will then have the chance of making his book unquestionably the best of its kind. If a reviewer may presume to give advice in an undertaking that is beyond his own capacity, I would suggest attention to the following points: rearrangement of the chapters; elimination of textual errors; verification of some techniques and opinions ascribed to other authorities; more references; and raising all the illustrations to the high standard the author has set himself.

H. J. SEDDON.

CARDIAC CATHETERIZATION

Cardiac Catheterization in Congenital Heart Disease. By A. Cournand, M.D., Janet S. Baldwin, M.D., and A. Himmelstein, M.D. (Pp. 108; illustrated. $4.00 or £1 2s.) New York: The Commonwealth Fund. London: Geoffrey Cumberlege. 1949.

It was a pleasure and a privilege to read this excellent atlas illustrating the value of cardiac catheterization in congenital heart disease. Part I, which is concerned with technique, describes the equipment required, the procedure, and the complications. Most of the possible positions of the catheter are shown, with graphs recording direct measurements of systolic and diastolic pressures within the various chambers of the heart. Formulae for working out the various shunts are given. Part II describes in detail 17 interesting examples of congenital heart disease investigated by catheterization.

It is fitting that the first book on the subject should be written by Cournand and his colleagues, who have been primarily responsible for developing the technique in the United States. The data offered should prove valuable to all workers in this field. A minor criticism is the lack of adequate electrocardiograms, only standard leads being shown. It is hard to believe that the catheter has passed through the tricuspid valve and through a ventricular septal defect in Fig. 12, the appearances being indistinguishable from those seen when the catheter has penetrated an atrial septal defect or foramen ovale and mitral valve. Again, it is odd that Case 2, said to be an example of idiopathic dilatation of the pulmonary artery, should have right bundle-branch block. More might have been written about the many technical difficulties it is possible to encounter during passage of the catheter, and how they may be overcome.

The illustrations are good, the diagrams are exceptionally clear, and the text is simple and concise. The authors are to be congratulated on an opportune and most helpful contribution to cardiology.

PAUL WOOD.

PRACTICAL PHYSIOLOGY

Human Physiology. By C. G. Douglas, D.M., F.R.S., and the late J. G. Priestley, D.M. Third edition. (Pp. 258. 18s.) Oxford: At the Clarendon Press. London: Geoffrey Cumberlege. 1948.

The first edition of this book appeared in 1927; owing to Dr. Priestley's death in 1941 Professor Douglas alone has been responsible for the present edition. As is well known, the work is based on the practical course in human physiology given in the Final Honour School of Physiology in Oxford. The exercises described deal with respiration, respiratory exchange and energy production, blood cells, plasma constituents, blood gases, certain aspects of the circulation, secretion of urine, and the examination of the alimentary canal in man. The instructions for carrying out the experiments are clear and detailed, and where necessary the calculation of arithmetical results is illustrated by examples. The new edition has been subjected to a careful revision, based partly on teaching experience and partly on the introduction of improved methods of investigation. Some interesting new experiments have been added.

The book is a model of its kind. It fulfils Professor Douglas's hope that "it will encourage the student in careful observation and accurate experimental work and afford him an introduction to the methods by which our knowledge of human physiology is being steadily increased." In many of the exercises the student is repeating the classical experiments by which the Oxford School of Haldane, Douglas, and Priestley established the fundamental facts about the control of many bodily functions in man.

The significance of the experiments is discussed at length. There is often a danger that a student might regard his practical work as a set of complicated parlour tricks which he must master to please his teachers and satisfy his examiners, but any student working conscientiously through this book will soon see that he is demonstrating for himself the truth of the principal affirmations made in his

textbooks, and that "theoretical" physiology is based on observation, experiment, and careful reasoning. Professor Pickering recently emphasized in the *Journal* the central place of physiology in the medical curriculum and the value of good practical courses on man in teaching the scientific method and outlook. Professor Douglas's book has for a generation been a major factor in helping to produce men capable of doing sound research; the new edition will be widely welcomed by teachers of physiology who have long recognized their indebtedness to this volume in planning their practical courses for medical and science students.

SAMSON WRIGHT.

A FRENCH MONOGRAPH

Physiologie du Système Nerveux Central. By G. Morin, Professeur de Physiologie à la Faculté de Medecine d'Aix-Marseille. (Pp. 270; 69 figures. 950 francs.) Paris: Masson.

This little book on the physiology of the central nervous system is attractive and useful. The subject has been treated in a novel manner which represents a physiological standpoint. The work starts with a consideration of the spinal roots and an outline of the autonomic system. The spinal cord is discussed as an organ of conduction and as a reflex centre: in the latter section the Sherringtonian principles of reflex action are introduced. The next chapters deal with muscular tonus and equilibration, the cerebellum, the cerebral cortex, the thalamus, the hypothalamus and the basal ganglia.

The diagrams are clear and the subject matter is up-to-date and logical. Such topics as the suppressor strips, the extrapyramidal tracts, and electroencephalography are described in reasonable proportion to the older matter. The author is non-committal regarding the location of the cortical area for taste, but inclines to the recent view that it is situated in the somatic face area. Two minor misprints may be pointed out: in Fig. 11 (p. 27) the indications of the crossed and direct pyramidal tracts have been transposed, and on p. 226 the words "shame rage" are given for "sham rage," possibly on account of the statement that this is "tantôt de type sexuel."

C. LOVATT EVANS.

Dr. Thomas Bedford's *Basic Principles of Ventilation and Heating* (pp. 401; 123 illustrations; 25s.; London: H. K. Lewis, 1948) is to a considerable extent based on the investigations made during the last thirty years by the author and his colleagues on behalf of the Industrial Health Research Board. Two of the earlier chapters describe the methods and apparatus used for measuring thermal environment. The chapter on warmth and comfort describes the opinions of 2,000 industrial workers employed under different atmospheric conditions, and the sections on ventilation describe in detail the measurement of natural air flow in dwellings and factories. There are several chapters describing the methods employed for warming houses and factories, and an excellent article on work at high temperatures. The book is well illustrated and has a good bibliography and index.

In *Sex in Social Life* (edited by Sybil Neville-Rolfe, O.B.E.; foreword by Sir Cyril Norwood; pp. 506; illustrated; £1 1s.; London: George Allen and Unwin, 1949), Drs. Waddington and Marshall have contributed chapters on the biology of sex and the physiology of reproduction, Professor A. E. Heath writes on psychology and sex, and Dr. Forbes on sex and the family in primitive society. These four provide an admirable scientific introduction. The sociologists who follow are on less established ground, and much of what they write is open to legitimate criticism. The reader will find sensible discussions on topics including sex education, family planning, sex in middle age, and prostitution. This book contains wisdom and practical guidance for dealing with many of the sexual problems in the life of the community.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

An Epitome of the Laboratory Diagnosis and Treatment of Tropical Diseases. By H. M. Shelley, M.R.C.P., D.T.M.&H. 2nd ed. (Pp. 147. 10s. 6d.) London: Staples Press. 1949.

The Group Approach to Leadership-Testing. By H. Harris, M.D. Foreword by General Sir Ronald Adam, Bt., G.C.B., D.S.O. (Pp. 288. 21s.) London: Routledge and Kegan Paul. 1949.

A Textbook of Bacteriology. By R. W Fairbrother, M.D., F.R.C.P. 6th ed. (Pp. 484. 20s.) London: William Heinemann. 1949.

Diets for Sick Children. (Pp. 14. 1s.) London: The Hospital for Sick Children. 1949.

Practical Anatomy. By W. E. Le Gros Clark, F.R.C.S., F.R.S. 2nd ed.) (Pp. 493. 30s.) London: Edward Arnold. 1949.

Tuberculosis Nursing. By J. G. Eyre, S.R.N (Pp 291. 21s.) London: H. K. Lewis. 1949.

Short Manual of Regional Anatomy. By J. A. Keen, F.R.C.S. 2nd ed. (Pp. 164. 10s. 6d.) London: Longmans, Green. 1949.

Fitness for Games. By F. A. Hornibrook. (Pp. 39. 2s. 6d.) London: Research Books. 1949.

Bacteriology and Pathology for Nurses. By E. I. Clark, M.B., B.S. 2nd ed. (Pp. 320. 18s.) London: Faber. 1949.

A Life of John Keats. By D. Hewlett. 2nd ed. (Pp. 403. 25s.) London: Hurst and Blackett. 1949.

The Essentials of Chiropody. By C. A. Pratt. 2nd ed. (Pp. 177. 10s. 6d.) London: H. K. Lewis. 1949.

Dental Practice Management. By S. L. Drummond-Jackson. 2nd ed. (Pp. 370. 30s.) London: Staples Press. 1949.

Gray's Anatomy. Edited by T. B. Johnston, C.B.E., M.D., and J. Whillis, M.D., M.S. 30th ed. (Pp. 1,533. 84s.) London, New York, and Toronto: Longmans, Green. 1949.

Medical Clinics on Bone Diseases — A Text and Atlas. By I. Snapper, M.D. 2nd ed. (Pp. 308. 120s.) London and New York: Interscience Publishers. 1949.

Allergie 48. By E. Bernard, P. Blamoutier, and others. (Pp. 192. No price.) Paris: L'Expansion Scientifique Française. 1949.

Notions Pratiques d'Electrocardiographie. By P. Bardin and G. Mayonade. Preface by E. Donzelot. (Pp. 189. No price.) Paris: L'Expansion Scientifique Française. 1949.

Précis de Physiologie Pathologique Appliquee. Published under the direction of L. Heilmeyer. 5th ed. (Pp. 573. No price.) Paris: Vigot. 1949.

La Maladie de Bouillaud. By H. Grenet. (Pp. 176. No price.) Paris: Vigot. 1949.

La Ponction-Biopsie du Foie. By P. Cazal. (Pp. 106. No price.) Paris: Vigot. 1949.

Les Entretiens de Bichat, 1949. Chirurgie—Specialites. Under the direction of surgeons and specialists of Bichat Hospital. (Pp. 436. No price.) Paris: L'Expansion Scientifique Française. 1949.

Les Entretiens de Bichat, 1949. Médecine. Under the direction of G. Laroche and L. Justin-Besançon. (Pp. 412. No price.) Paris: L'Expansion Scientifique Française. 1949.

Die künstliche Radioaktivität in Biologie und Medizin. By T. Bernet. (Pp. 83. 9s.) Vienna: Springer. 1949.

Die Therapie an den Berliner Universitäts-Kliniken. Edited by J. Brugsch. (Pp. 664. M. 24.) Berlin: Urban and Schwarzenberg. 1949.

Psychiatrie. By K. Kolle. (Pp. 443. M. 18.) Berlin: Urban and Schwarzenberg. 1949.

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ALCOHOL AND CIRRHOSIS OF THE LIVER

The theory, first suggested in this country by Addison[1] *in 1836, that hepatic cirrhosis and alcoholism are aetiologically* associated has for over one hundred years defied all attempts at proof or complete refutation. That alcohol is not the sole cause of cirrhosis was readily established by the occurrence of the condition in life-time teetotallers and in peoples and races who abstain from alcohol on religious or other grounds. Nevertheless many studies in Europe and America have pointed to an undoubted relationship between alcoholism and cirrhosis. Some animal experiments in the past have failed to reveal any unequivocal toxic effect of alcohol on the liver, though Opie's experiments indicated that the effect of combining bacterial infection with toxic agents was greatly to enhance toxicity. In the majority of experiments in which alcohol appeared to have a hepatotoxic action the result was not necrosis or fibrosis but only a fatty infiltration. In human cases, too, acute alcoholism was recognized as a cause of severe fatty infiltration, and as long ago as 1870 Trousseau[2] drew attention to fatty infiltration as a precursor of Laennec's cirrhosis and as a frequent finding in the early stages of cirrhosis itself. It is only in the last few years, however, that the significance of fatty infiltration in the genesis of cirrhosis has been appreciated. Moreover, although in well-nourished animals the liver fat can be increased by administering a variety of toxic substances, the degree of infiltration, with the exception of that caused by phosphorus, is comparatively slight and can rarely be made to exceed 15% of the wet weight. On the other hand, fatty infiltration causing gains in weight approaching 50% of the wet weight can be readily induced in animals by maintaining them on suitable diets.

The relation of diet to the fat content of the liver has been closely studied by Best and his collaborators[3] in Toronto and Channon in Liverpool. As a result of their work and that of others it became possible to classify dietary factors into lipotropic and alipotropic, the latter enhancing the deposition of fat in the liver and the former preventing it or facilitating its removal when present. Most important of the lipotropic agents is choline, the trimethylhydroxy derivative of ethanolamine. Methionine, one of the "essential" amino-acids, is also actively lipotropic by virtue of possessing a labile methyl group which can be utilized in the body for the synthesis of choline. The activity of choline is apparently due to its being required for the synthesis of the phospholipid lecithin, of which it is a part. Of the alipotropic agents cystine is the best known; it owes its activity, at least in part, to its stimulating effect on the growth of animals on low-protein diets. Both carbohydrate and fat are also alipotropic in that the greater the intake of these substances the more lipotropic factors are required to prevent an increase in the liver fat.

Connor,[4] who also drew attention once again to the stage of fatty infiltration in acute alcoholism, was the first to attribute aetiological importance to the fat in the subsequent development of fibrosis, his contention being that the distension of the liver cells caused interference with their blood supply and nutrition, with consequent injury and fibrosis. That fatty infiltration quite apart from alcoholism may lead to fibrosis, a necessary corollary of Connor's theory, was soon demonstrated, first in dogs submitted to pancreatectomy and maintained on insulin and later in otherwise normal dogs with livers made fatty by high fat diets. Meanwhile the discovery by Györgi and Goldblatt[5] that extensive necrosis of liver tissue could be a consequence of nutritional defects had tended to obscure the precise relationship between fatty infiltration and hepatic cirrhosis. This became clarified, however, when Himsworth and Glynn[6] were able to show that nutritional deficiency could cause two quite distinct hepatic lesions in the rat—namely, massive necrosis and its sequel, post-necrotic scarring with nodular hyperplasia, resulting from the amino-acid deficiency; and fatty infiltration with its sequel—diffuse fibrosis (Laennec's cirrhosis) resulting from deficiency of lipotropic factors.

Animal experiments had therefore indicated that fatty infiltration was a stage in the development of cirrhosis, and that both alcoholism and nutritional deficiency caused fatty infiltration and were both to that extent cirrhogenic. The problem that remained to be answered was whether the fatty infiltration due to alcoholism was a result of a direct toxic action or merely the result of an associated nutritional deficiency which itself was the consequence of loss of appetite, gastritis, and poverty—common accompaniments of alcoholism. That the latter is the case is now shown by Best and

[1] *Guy's Hosp. Rep.*, 1836, 1, 476.
[2] *Lectures in Clinical Medicine*, 1870, New Sydenham Society, London.
[3] *Vitamins and Hormones*, 1943, 1, 1.
[4] *Amer. J. Path.*, 1938, 14, 347.
[5] *J. exp. Med.*, 1942, 75, 355.
[6] *Clin. Sci.*, 1944, 5, 93.
[7] *Brit. J. exp. Path.*, 1948, 29, 1.
[8] Waterlow, J. C., *Spec. Rep. Ser. med. Res. Coun.*, No. 263, 1948, H.M.S.O., London.

his colleagues, who describe the results of their experiments in the opening pages of this issue. Rats were maintained on a synthetic diet "as nearly adequate as possible with respect to all dietary components except the lipotropic factors." The latter were restricted to an extent which allowed the fat content of the liver to rise on average to 10%. Feeding alcohol to rats maintained on such a diet caused a reduction in appetite and hence a fall in calorie intake; this was partly compensated for by the calorie value of the alcohol itself. The average fat content in the livers of these animals rose to 20%, and in half of the animals fibrosis indicative of commencing cirrhosis was apparent. In "pair-fed" animals whose diets provided no additional calories comparable to those obtained from the alcohol no increase in fat or fibrous tissue was observed. When, however, the additional calories provided in the experimental group by the alcohol were provided in the control group by a supplement of sucrose, the results in the two groups were indistinguishable. Moreover in both groups the lesions were entirely prevented by increasing the intake of lipotropic agents either as choline, methionine, or casein. Thus so far as the liver is concerned alcohol is no more toxic than sugar, the deleterious effect of both resulting from an increased need for lipotropic agents in the diet. This well-conceived experiment thus answers the old question, Is alcohol toxic to the liver? The answer is, No; but a qualified affirmative could be given if it is explained that alcohol is only as toxic as a quantity of cane sugar of the same calorie value.

The implications of this not unexpected answer are important. It is imperative to ascertain whether the is typical of mammals in general in the response of liver to alcohol and whether human beings behave in similar fashion. It is also important to determine how much fat the liver can tolerate and for how long a core fibrosis supervenes. Glynn, Himsworth, and Sandan[1] have recently shown that the critical stage is reached when the fat in the liver amounts to 15%; above this the rate at which fibrosis appears is proportional to the fat content. If the human liver behaves like that of the rat—and the indications are that it does[2]—the supplementation of all alcoholic liquors with a lipotropic agent such as choline should prevent that fatty infiltration which is apparently the indispensable precursor of so-called alcoholic cirrhosis. As Best suggests, this raises "scientific, moral, financial, and gustatory problems." Nevertheless the incidence of alcoholism in the United States may well warrant such an experiment there. In this country, at least for some years to come, our livers are more likely to suffer from primary dietetic deficiency of lipotropic agents than from deficiency due to an excess of saccharine or spirituous liquors.

GENERAL PRACTITIONERS AND HOSPITALS

State schemes are often justified by their supporters on the grounds that they co-ordinate services and thereby make them more efficient, yet in this respect the Health Service has failed, creating divisions where none existed before. The Minister of Health has recently shown that he is aware of the unfortunate inclination of some regional boards to expand the hospital service at the expense of the general practitioner service by excluding general practitioners from hospitals at which they treated their patients and staffing these hospitals with whole-time specialists. He has made it plain in a recent circular[1] that regional boards are not to dispossess general practitioners, and their patients, of "cottage" hospitals, to which, in the words of the circular, "general practitioners of the neighbourhood can admit patients who require treatment within the scope of a general practitioner but who, for various good reasons, cannot be treated at home." There is probably a good case for expanding the consultant services; there is none for impeding the general practitioner from ready access to hospital work. At the Annual Representative Meeting this year representatives drew attention to the problem and protested[2] against the steady exclusion of general practitioners from work in hospitals, and the Conference of Local Medical Committees, as we report in the *Supplement* this week, returned to the subject on October 27.

While regarding as sound the Minister's advice on the importance of maintaining cottage hospitals, the Conference agreed that local medical committees must watch vigilantly to ensure that his intentions are carried out. The powers delegated to regional boards give them an independence, an ability to respond to local needs, which is essential if the day-to-day administration of the Service is not to become a crossword puzzle to be solved in Whitehall. But the Minister is ultimately responsible for their activities; indeed, under Section 6 (4) of the Act he is bound in using hospitals transferred to him by the Act "so far as practicable" to "secure that the objects for which they were used immediately before the appointed day are not prejudiced by the transfer." If evidence is brought to his notice that a regional board proposes to deprive general practitioners of access to a cottage hospital he will no doubt see that his policy is enforced.

Many speakers at the recent assembly of the WMA commented on the diminishing status of the general practitioner. Yet, as Dr. Fishbein pointed out, advances in therapeutics have greatly extended the general practitioner's opportunities to treat patients at home or in

[1] *British Medical Journal Supplement*, October 15, p. 168.
[2] Ibid., July 2, p. 1.

a cottage hospital. Refinement of therapy has brought new problems in diagnosis, and special tests that can be carried out only in a hospital or laboratory are often necessary to solve them. If the general practitioner is to make full use of modern drugs he must have access to the departments, particularly pathology and *x*-ray departments, where these investigations can be carried out. There are many occasions when reference to a consultant is unnecessary and time-wasting. Provided the facilities exist they should be available equally to consultants and general practitioners, and direct access is being granted to an increasing number of pathology departments. Consultants would probably welcome such an arrangement, for it should leave them free to play their proper part—that is, as consultants on difficult cases—and relieve them of work for which their special knowledge is not required.

If the great majority of labours are to be conducted by general practitioners and midwives, as they should be, hospital beds must be available to which women can be admitted and there delivered by the general practitioners themselves. This is more necessary now that many women are confined at hospital merely for social or economic reasons. In some places regional boards are said to have taken over a small hospital at which general practitioners formerly delivered their own patients, staffed it with whole-time obstetricians, and denied the general practitioners entry. Such fragmentation of the Health Service is to be deplored, for not only is it upsetting to the patient but it removes from the practitioner's care cases well within his ability.

With the knowledge that most medical students will become general practitioners the schools train them in clinical medicine, and it is a reasonable assumption that a general practitioner ought to be first and foremost a good clinician. When he finds that the trend in general practice is to impede him from exercising his clinical abilities the doctor is apt to be disconcerted, on complaining of this, to be told that general practice offers unrivalled opportunities for the prevention of neurosis or the practice of social medicine. Yet if general practitioners are to remain clinicians they must be closely linked with hospitals, enjoy ready access to their departments, and communication with their staff. There must be opportunity for the keen man to have charge of hospital beds as well as home beds, and he should be welcomed as a colleague who can supply useful information at the out-patient or *x*-ray department rather than looked at askance as an intruder. The Association has two committees studying the problem—one on general-practitioner specialists and the other on general practitioners as such in charge of hospital beds. They will have an important contribution to make to the smooth running of the Health Service and the maintenance of general practice as an interesting and honoured branch of medicine. Meanwhile it is up to general practitioners and their local representatives to ensure that the ground is not cut away from them by regional hospital boards in opposition to the Minister's intentions.

REHABILITATION OF THE TUBERCULOUS

During the war the prevention and limitation of illness and disability were matters of urgent national importance. Two ministries were active in helping persons out of work through physical disablement—the Ministry of Health, responsible through the hospitals for medical treatment and medical rehabilitation: and the Ministry of Labour, responsible for resettlement in suitable work and for vocational guidance and training. Rehabilitation and resettlement of the tuberculous should be an important part of the national effort to prevent the spread of tuberculosis and to help individuals to make a more lasting recovery as well as some contribution to production. But three factors at the present time hinder progress. The morbidity rate in England and Wales is slightly on the increase, and more so in Scotland, though indeed mass *x*-ray surveys and other improvements in diagnosis and case-finding may be partly responsible for this; hospital and sanatorium beds are far short of the number required for institutional treatment, which for most patients is the necessary first stage of rehabilitation; and there are too few houses available for tuberculous families. In spite, therefore, of the declared aim of the National Health Service Act to improve the speed at which patients are brought back to health and thereafter to work and of the opportunities provided by the Disabled Persons (Employment) Act, 1944, the number of tuberculous persons needing treatment and rehabilitation (believed to be some 30,000) tends to grow larger year by year. Elsewhere in this issue Dr. Frederick Heaf, writing from first-hand experience, discusses this problem and brings out four points of primary importance. First, it is impossible to be sure that a tuberculous person has completely recovered from his disability; secondly, there are no means of assessing a tuberculous person's capacity for work except by trial and error; thirdly, when the disease is active it is usually infective; and fourthly, the problems of financing rehabilitation and resettlement have not been effectively solved.

Patients notified as suffering from pulmonary tuberculosis fall into two groups: those who remain under observation for active disease, and those who are eventually classed as "recovered"—i.e., the disease has remained "quiescent" for two years and "arrested" for a further three years. An investigation in Lancashire[1]

[1] *Prevention and Treatment of Tuberculosis in the Administrative County of Lancaster*, 1945, T. Snape & Co., Preston.
[2] *Tubercle*, 1949, 30, 74.
[3] *Lancet*, 1949, 1, 563.

showed that out of all the patients diagnosed during any one year as suffering from pulmonary tuberculosis—with sputum positive, negative, or absent—70% receive institutional treatment, and some 60% will have died from tuberculosis during the following five years. Disquieting facts have also come to light about the patients classed as "recovered." Tattersall[2] found from a five-year follow-up of sputum-positive recovered cases that 10% of the patients deteriorated after an average period of six years as "recovered." It is such facts that have made many appreciate the advantages of the village settlement, with its post-sanatorium medical supervision and favourable living and working conditions. But only a very small number of places are available, and unfortunately there are many who cannot or who will not be admitted to these institutions. Perhaps in the future the rest, nourishment, regulated life, and medical supervision which these individuals require may be provided by the night sanatorium, with its 30–50 tuberculous persons fit for some industrial employment in special "Remploy" factories of the Disabled Persons Employment Corporation. In the assessment of a tuberculous person's capacity for work Grenville-Mathers[3] has recently devised a modification of the method which Brieger developed at Papworth. He uses a simple physical-efficiency index, but points out that it is mainly a guide for the non-medical officers of the Ministry of Labour. In fact he agrees with Heaf that "fitness for any occupation cannot be defined by physiological measurements alone."

The danger of infection from patients with active disease is of great consequence in industry. Heaf suggests that inherent resistance is the most important factor and that "after the primary infection has been overcome only large and repeated exogenous infections are of any danger." This, if true, has very important implications. It means that the tuberculous and non-tuberculous can be employed together—as is done successfully in some village settlements—provided the non-tuberculous have overcome their primary infection, are adequately nourished, and work under good hygienic conditions. But the difficulty of applying such conclusions, even if correct, is obvious. There is a great and increasing fear of tuberculosis among the general public, due on the one hand to propaganda about infection and on the other to the serious nature of the disease. Even if it is inherent resistance and not exogenous infection that matters after the primary infection has been overcome, fear of infection will long remain. The public should now be given information based on the most recent knowledge about the pathogenesis of the disease. According to Heaf the greatest difficulty of all in rehabilitation and resettlement is that of finance. No advances can be made if the tuberculous are employed without regard to their living conditions, but the maintenance of a high standard of living is expensive. Financial assistance is available, but the methods of obtaining it are confusing, for it is of one kind when the tuberculous person is a patient and another when he is being trained and prepared for re-employment. Only a few of the larger local authorities have so far accepted liability to maintain persons undergoing rehabilitation at industrial settlements as part of their obligations under Section 28 (2) of the National Health Service Act. Local authorities have here an opportunity to give a lead to the rest of the country, and it is to be hoped that they will not only be generous in giving financial help but will take active steps in other directions, such as by providing houses, to refit the tuberculous patient for life in the community.

BURNS AND BONFIRES

Each year the season of bonfires and fireworks brings to surgeries and hospitals patients with burns of all degrees and severities. Most of these accidents could be prevented if common-sense precautions were taken, but, however unnecessary the injuries may be, the doctor is presented with the problem of treating them. The three principles of the modern treatment of burns are fluid replacement, the prevention of sepsis, and skin grafting if the injury extends through the full thickness of the skin. Intravenous plasma or its equivalent is usually required for patients with burns of 15% or more of the body surface. The amount to be given varies with the individual case and should be regulated in the light of repeated haematocrit or haemoglobin readings.[1,2] The fresh burn is usually free from pathogenic infection; it is also an excellent culture medium, so that great care has to be taken to prevent access of organisms. The best first-aid treatment is therefore to apply a sterile or freshly laundered cloth. At the surgery full sterile precautions should be the rule, and operating theatre standards are required in hospital. Large burns are particularly vulnerable to air-borne infection, and therefore to give the patient the best chance dressings should be done in virtually bacteria-free air such as can be provided by air-conditioning. A good local application should be soothing and assist in the prevention and control of infection: a cream of penicillin in a "lanette wax" base, as recommended by Colebrook,[3] fulfils these requirements. It can be covered with gauze, outside which a liberal layer of cotton-wool provides a bacterial filter, equalizes pressure, and protects from further trauma. The pressure is best applied over the wool with crepe bandages, and the whole dressing should extend well above and below the injury. Such a dressing can usually remain in place up to 10 days. Should it become soaked with exudate it will cease to be an effective barrier against infection, and the dressing must be renewed.[4] Within seven to fourteen days

[1] Gibson, T., and Brown, A., *Spec. Rep. Ser. med. Res. Coun., Lond.*, 1944 No. 249. London: H.M.S.O.
[2] Cope, O., and Moore, F. D., *Ann. Surg.*, 1947, 126, 1010.
[3] Colebrook, L., Duncan, J. M., Ross, W. P. D., *Lancet*, 1948, 1, 893.
[4] —— Hood, A. M., ibid., 1948, 2, 682.
[5] Cope, O., *et al.*, *Ann. Surg.*, 1947, 125, 1.
[6] *Lancet*, 1949, 2, 181.

superficial burns will be healed, and those a little deeper but with surviving epidermal cells will show islets of new epithelium. Burns extending through the full thickness of the skin, on the other hand, will never heal satisfactorily from below, and once diagnosed should be grafted as soon as possible.[5] Split skin grafts suffice for most burns treated early, and late secondary repair should be required only exceptionally.

The burns which occur on Guy Fawkes night are notable because they should be easily avoided, but study of the far more numerous everyday burns and scalds discloses the same story. In their recent analysis of 1,000 consecutive admissions to hospital for the treatment of burns the Colebrooks[6] point out that most of these injuries were preventable, and that in particular more attention should be paid to the disastrous results of clothes catching fire. The medical profession, since it is aware of these facts, has a responsibility to make them known and so to prevent these injuries occurring.

EARLY DETECTION OF CANCER

The only hope at present of improving results in the treatment of malignant disease lies in earlier diagnosis. The problem is a difficult one, being largely a matter of educating the public to report the early symptoms. In order to make it easier for patients some hospitals have established cancer diagnosis clinics during the past few years, and in fact over five hundred such clinics already exist in the U.S.A. Haagenson[1] has recently pointed out that what the patient needs is more courage and less fear; he makes the important observation that the propagation of information by cancer societies tends to alarm the patient so much that he is afraid to seek advice.

There is as yet no simple test for establishing the presence of a malignant tumour, and radiological and histological methods must suffice in the majority of cases. Haagenson reviews the diagnostic problem for each of the most common types of cancer. His general conclusion is that cancer can be divided into two classes: accessible and inaccessible. Accessible neoplasms include those of the breast, cervix uteri, skin, prostate, rectum, lip, and mouth, while neoplasms of the stomach, colon, lung, pancreas, and ovary are in the inaccessible group. The importance of this differentiation, in Haagenson's view, is that any trained physician should be able to make the diagnosis in the first or accessible group with no more equipment than would be expected in the general practitioner's consulting-room. Diagnosis of the inaccessible types is a different matter, since elaborate apparatus and complex procedures may be required. This differentiation into accessible and inaccessible types is further considered in relation to the question of establishing universally available cancer detection clinics. Reports from existing American clinics do not indicate that they have had great success in the detection of the inaccessible types of cancer; this is partly because routine *x*-ray examinations, such as would be necessary for the early diagnosis of cancer of the stomach and colon, are too expensive to be practicable. Haagenson's conclusion is that responsibility for the early diagnosis of all disease, including cancer, must remain with the general practitioner, and that it is he who must put the patient on to the right road for investigation and treatment. Haagenson is against the formation of special cancer detection clinics; in his opinion the important thing is to concentrate on improving postgraduate education in the latest methods of diagnosis of cancer.

There are many who will not agree with Haagenson's views. Although the general practitioner is not likely to miss the most obvious of the accessible cancers, those of the female genital tract present a separate problem. Specialized gynaecological knowledge is needed for their early diagnosis, and certain of the recent diagnostic methods, such as the vaginal smear, require great experience of a difficult technique. Maliphant has discussed the incidence of cancer of the cervix in a paper published recently in this *Journal* (June 4, p. 978), and in his opinion the routine examination of the apparently healthy is the only method by which cases of the disease could be discovered at a very early stage. But according to his estimate only one cervical cancer would be found annually in every 1,500 women examined, even if these came only from the more vulnerable section of the community—parous women aged 35–64. MacFarlane, Sturgis, and Fetterman[2] have reported the results they obtained over a 10-year period in a clinic designed to provide regular pelvic examination of presumably well women with a view to detecting cancer of the uterus. In this period eight cases of pelvic cancer, four of them growths of the cervix, were discovered and treated. A large number of benign pelvic lesions were diagnosed, many of them being inflammatory lesions of the cervix, the treatment of which, the authors believe, may be of great importance in preventing the subsequent development of cancer. They conclude that the greatest value of this work has been educational, in that a thousand women and their relatives and friends have been taught the value of periodic pelvic examination, and they suggest that every woman over the age of 30 who has borne a child should be examined once or twice a year if inflammatory lesions of the cervix are present.

POISONING BY FERROUS SULPHATE

The corrosive action of ferrous sulphate is largely dependent on its acidity. This may be countered by mixing with alkali in the proportion to form ferrous carbonate, or mineral acid may be avoided by the use of ferrous ammonium citrate. However, the absorption of iron from these two preparations leaves something to be desired, and it is a common practice at present to give iron as ferrous sulphate mixed with a small proportion of copper sulphate and manganous sulphate: the pill is coated with sugar and dyed green. This pill, which commonly contains ferrous sulphate gr. 3 (200 mg.), copper sulphate gr. 1/25 (2.5 mg.), manganese sulphate gr. 1/25, is widely used and causes no ill-effects in the majority of adults. It is not surprising, however, that young children should be attracted by such pills and take them in quantity when they have the opportunity. In this issue Dr. J. H. Prain (p. 1019) describes yet another case of fatal poisoning by these iron pills and refers to previous publications in this *Journal* by Thomson[1] and Forbes.[2]

[1] *Bull. N.Y. Acad. Med.*, 1948, 24, 651.
[2] *J. Amer. med. Ass.*, 1948, 138, 943.

[1] *British Medical Journal*, 1947, 1, 640.
[2] Ibid., 1947, 1, 367.
[3] Ibid., 1947, 2, 201.

Five cases of poisoning have so far been recorded; in only one of these, that of a boy of 2 years who retained eight tablets, was there recovery. All these cases occurred in Scotland and the northern half of England, and it is likely that there have been other cases in this country which have not been reported. In the fatal cases the number of tablets taken was about thirty, and the ages of the children ranged from 11 months to 3 years and 3 months. Corrosive action on the stomach was observed in all the cases, the duodenum and small intestine being less affected. Prain found definite necrosis and fatty changes in the liver in his case and suggests that absorption of the iron may have taken place largely through the damaged stomach wall. Forbes demonstrated on animals that the toxic agent is ferrous sulphate and that the copper sulphate is present in too small a proportion to have appreciable toxic effect. Somers[3] has demonstrated that the acidity of the ferrous sulphate is important, and he found that Blaud's pill was far less toxic in rabbits than the same dose of iron as ferrous sulphate. Both Prain and Forbes quite rightly suggest that more care should be taken in warning the patient that this preparation is dangerous to young children. Possibly accidents might be prevented if the pills were made in a form less attractive to the eye, but a child who will suck matches headed with red phosphorus would scarcely be deterred from taking the pills because they did not look attractive or taste evil at first.

THE PRE-ERYTHROCYTIC STAGES OF PLASMODIUM FALCIPARUM

Pre-erythrocytic cycles have for some time been recognized as occurring in the various species of plasmodia infecting birds. In 1948 Shortt and Garnham[1] showed conclusively that a pre-erythrocytic cycle existed also in the case of the monkey malaria parasite *Plasmodium cynomolgi*, which resembles very closely the human parasite of benign tertian malaria *P. vivax*. Shortly afterwards, in a paper which appeared in this *Journal*, Shortt, Garnham, Covell, and Shute[2] demonstrated the pre-erythrocytic stage of *P. vivax* in the liver of a human volunteer. In a third paper Shortt and Garnham[3] described further experiments with monkey malaria and gave their reasons for the assumption that after establishment of the blood infection the exo-erythrocytic cycle is responsible for the production of relapses. The persistence of these exo-erythrocytic forms in the human liver is presumably the cause of the relapses which occur in *P. vivax* infections. *P. falciparum*, the causal agent of malignant tertian malaria in man, differs in certain ways from *P. vivax*, and there is no known monkey plasmodium which can be used as a working model. For this reason an experiment in man was absolutely essential if the pre-erythrocytic cycle of *P. falciparum* was to be demonstrated. In the preliminary communication which we publish on page 1006 Colonel H. E. Shortt, Professor N. Hamilton Fairley, Sir Gordon Covell, Mr. P. G. Shute, and Dr P. C. C. Garnham have clearly demonstrated with the aid of a human volunteer, to whom they pay just tribute, the existence of a pre-erythrocytic stage of *P. falciparum* in the liver. The development of this previously unobserved form has been followed from 92 to 140 hours after infection. Although there are certain small differences in the appearance of the pre-erythrocytic stages of *P. falciparum*, *P. vivax*, and *P. cynomolgi*, all three parasites are closely related. It remains to be determined why *P. vivax* is so much more difficult to eradicate from the tissues than *P. falciparum*.

1 *Nature, Lond.*, 1948, 161, 126; *British Medical Journal*, 1948, 1, 192.
2 *British Medical Journal*, 1948, 1, 547.
3 Ibid., 1948, 1, 1225.

VITAMIN B_1 AND THE HEART

Cardiac irregularities associated with vitamin B_1 deficiency have been observed by several workers. In 1929 Carter and Drury[1] showed that the heart block occurring in pigeons fed on a diet of rice disappeared when atropine was injected or when the vagus nerves were cut. They concluded that the heart block was due to over-action of the vagal centres and not to any change in the heart itself. Wintrobe's[2] experiments in pigs had similar results. In eight out of nine pigs with thiamine deficiency the P-R interval was prolonged; two developed second-degree block and one complete heart block. Atropine caused the second-degree block to disappear in one pig and shortened the P-R interval in another. Thus in these pigs there was again evidence of excessive vagal activity. Other workers, however, have reported abnormalities in the heart itself: King and Sebrell[3] observed lesions, chiefly in the auricles, in 14 out of 24 rats. In pigs fed on a thiamine-deficient diet Follis and his colleagues[4] found dilatation of the heart and focal or diffuse necrosis of the myocardial fibres; again the early lesions were in the auricles. Pantridge,[5] who was led to the investigation after observing heart block in cases of beri-beri in British prisoners of war, has also demonstrated lesions of the auricle in pigs. Four animals deprived of thiamine developed heart block, and in two this was complete. Changes could be detected histologically in the auricular muscle and in the conducting system in the ventricles. Pantridge suggests that the metabolism of the auricular and ventricular myocardium must differ in some respects, and this is supported by the finding of Davies and Francis[6] that the distribution of glycogen, phosphocreatine, and adenosine compounds is very different in the two parts of the heart. Since gross deficiency of vitamin B_1 leads to pathological changes in the heart, possibly mild degrees of deficiency persisting over years may be a cause of similar abnormalities.

1 *J. Physiol.*, 1929, 68, P. I.
2 *Bull. Johns Hopk. Hosp.*, 1942, 71, 141.
3 *Pub. Hlth Rep., Wash.*, 1946, 61, 410.

The Nobel Prize for Physiology and Medicine has been awarded jointly to Dr. Walter Rudolf Hess and Professor Antonio Egas Moniz. Dr. Hess has been Director of the Institute of Physiology at Zurich University for the past thirty years. Professor Egas Moniz, of Lisbon University, is a distinguished neurosurgeon and was at one time Portuguese Minister of Foreign Affairs. He introduced cerebral angiography in 1927 and the operation of prefrontal leucotomy in 1936.

Dr. J. G. Scadding, F.R.C.P., will deliver the Bradshaw Lecture before the Royal College of Physicians of London (Pall Mall East, S.W.) on Thursday, November 10, at 5 p.m. His subject is "Sarcoidosis, with Special Reference to Lung Changes."

REFRESHER COURSE FOR GENERAL PRACTITIONERS

THE USE AND ABUSE OF VITAMINS

BY

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During the past 40 years discoveries in medicine and related sciences have led to an immense improvement in the health, happiness, and efficiency of millions of human beings throughout the world. In no branch of science have more important advances been made than in nutrition. The fascinating story of the discovery of the vitamins, the dramatic changes produced by their deficiency, and the remarkable therapeutic effects which result when they are supplied to individuals who have been eating an inadequate diet have received great publicity in both lay and medical press. The imagination of all who have heard or read about these discoveries has been stimulated and captivated. It is not surprising therefore that there has arisen a demand for vitamin preparations which has led to their manufacture and distribution on an enormous scale. But there is little doubt that at present large quantities of these preparations are consumed by individuals who can expect to receive no benefit whatsoever from them, since they are not suffering from nutritional deficiencies. The medical schools of Great Britain must shoulder their share of responsibility for the continuation of this unsatisfactory state of affairs, since it indicates that many members of the medical profession must have received insufficient training as undergraduates or postgraduates in the science of nutrition. Better instruction is essential to enable doctors to assess properly the validity of the claims made for vitamin preparations in the advertisements with which they are daily bombarded, and to investigate adequately the dietetic history of patients they suspect of suffering from nutritional deficiency.

Confronted with a patient complaining of such symptoms as fatigue, lassitude, loss of appetite, irritability, or insomnia, which are repeatedly stressed in advertisements of vitamin preparations as being the stigmata of subclinical states of nutritional deficiency, there is danger of the doctor prescribing a vitamin preparation without first fully investigating the physical, social, and environmental factors that so commonly lead to similar subjective features.

General Considerations

(1) It should constantly be remembered that in Great Britain fully developed states of vitamin deficiency such as beriberi, scurvy, and pellagra are very rarely encountered. When they do occur they usually appear in individuals of a certain type—elderly persons, frequently males who live alone, and in people with abnormal mental states who are either unable or unwilling to eat a normal diet. They also arise as "conditioned" states of vitamin deficiency—as a result of gastro-intestinal disorders which lead to a failure in digestion and absorption, or from the increased demands which occur during pregnancy and lactation, rapid growth, or markedly increased metabolism.

(2) Food supplies at present available from rationed and unrationed sources in Great Britain are capable of supplying all nutritional demands, provided the individual has some knowledge of what constitutes a reasonably well balanced diet. This has been clearly established from our knowledge of the total supplies of food available for distribution, from studies of the consumption of food by large numbers of working-class families, and from public health statistics. The general practitioner, if adequately trained in the science of nutrition, is the proper person to give advice to the family on how to eat, when to eat, and what to eat.

(3) It is a well-established fact that, if an individual is eating a sufficiency of any vitamin, supplementation of the diet by a vitamin preparation will effect no benefit and is therefore wasteful and uneconomic.

(4) Although the dominant clinical features may suggest a deficiency of one particular vitamin, experience has shown that deficiency of a single nutritional factor is seldom present alone. Almost invariably the diet will be found to be lacking in several factors. The administration of a single or multiple vitamin preparation without correction of the diet as a whole will lead to little or no benefit. This finding has been noted by many observers, including myself. I found no beneficial effects from supplying a preparation of vitamin A and D to school-children whose diet was defective in several factors, including protein, minerals, and vitamins. The children were drawn from the poorer classes and were investigated during the years of depression between the two world wars. At about the same time in another region of Scotland, excellent effects on the health and growth of a similar group of children resulted from supplying them with a pint of milk daily. The psychological effects of giving vitamin preparations were clearly demonstrated in the former experiment, since many of the school teachers concerned in the experiment reported dramatic benefits in children whom they believed to be taking vitamins A and D but who were in fact being given an innocuous preparation of arachis oil in capsules identical with those containing the vitamins. This clearly indicates the need for caution on the part of a doctor in accepting subjective improvement after the administration of a vitamin preparation as being necessarily due to the correction of a state of pre-existing nutritional deficiency.

(5) Recent advances in knowledge call for a reconsideration of the generally accepted standards of vitamin requirements for the maintenance of health. The proof that many vitamins are manufactured in the alimentary tract by bacterial syntheses is a discovery of the greatest interest and importance which largely explains the variable incidence of vitamin-deficiency diseases in individuals ingesting a similar diet. This fact also explains the difficulty in deciding what values should be accepted as desirable for the maintenance of health.

Information derived from studies of human volunteers living on a diet almost completely devoid of vitamins A and C (see references to Table) clearly shows that many months must elapse before symptoms or signs develop, and that clinical features will disappear completely on supplementing the diet with amounts of vitamins considerably lower than those formerly accepted as necessary. These investigations strengthen the view that the food supply

TABLE

Vitamin	Recommended Daily Allowance	Therapeutic Dose	Foods of Special Value
Aneurin (vitamin B)	1–2 mg.	10–50 mg.	85% extraction wheat flour, oatmeal, peas and beans, eggs, meat and offal
Nicotinic acid	10–20 mg.	200–500 mg.	
Riboflavin	1–2 mg.	5–50 mg.	As above, and milk and cheese
Ascorbic acid (vitamin C)	30 mg.*	200–500 mg.	Fruits, esp. citrus, currants and berries; green vegetables, tomatoes, potatoes
Vitamin A	2,500 I.U.†	25,000–50,000 I.U.	Eggs, cheese, milk, butter, vitaminized margarine, liver, fatty fishes, green and yellow vegetables
Vitamin D	Adults: (?) 100 I.U.; infants, pre-school children, pregnant and lactating women: 400–800 I.U.	1,500 I.U. up to 100,000 I.U. in special cases	Eggs, milk, butter, vitaminized margarine, fatty fishes (Note the importance of sunshine in promoting the synthesis of vitamin D in the skin)

The following vitamins are not included in the Table because their place in human nutrition is not clearly established or because they are only used for the treatment of certain pathological states: Pyridoxin, pantothenic acid, biotin, para-aminobenzoic acid, folic acid, vitamin B_{12}, vitamin E, and vitamin K.

* A preliminary report by Vitamin C Subcommittee of the M.R.C. (*Lancet*, 1948, 1, 853).

† M.R.C. Special Report Series No. 264, 1949.

available to the people in Great Britain are more than adequate to meet the vitamin requirements of the population without supplementing them with vitamin preparations, provided a reasonably intelligent selection of the available foods is made.

Prescription of Vitamins

Vitamin preparations have been prescribed for:

(1) Supplementing the diet to make it optimal for growth and the maintenance of health.

(2) Treating so-called "subclinical" states of vitamin deficiency.

(3) Treating fully established "frank" vitamin-deficiency diseases.

Bearing in mind the general considerations discussed above, the practitioner should make the following investigations before prescribing vitamin supplements:

(1) Take a careful history and make a full physical examination to determine the presence or absence of subjective phenomena or objective signs indicating vitamin-deficiency states.

(2) Consider whether any clinical features discovered are due to emotional states or organic diseases which can produce symptoms and signs simulating closely those of subclinical and "frank" vitamin-deficiency states.

(3) Take a careful dietetic history to determine whether there is evidence to show that the patient has in fact been eating inadequate quantities of essential nutritional factors.

(4) If the clinical features are in keeping with the existence of a state of vitamin deficiency and yet the dietary history does not suggest it, a search should be made for causes which are known to enhance the requirements for vitamins—malabsorption from the intestinal tract, pregnancy and lactation, rapid growth, infections, and states of increased metabolism. If no positive evidence can be obtained that a direct or conditioned state of nutritional deficiency has preceded the onset of the clinical features under investigation, it is extremely unlikely that they are nutritional in origin and it is illogical to treat them with vitamin supplements. The case should be carefully reviewed with particular reference to the possibility of hidden organic disease and to the factors operating in the home and at work which lead to psychological symptoms simulating those of subclinical states of vitamin deficiency.

Vitamin Supplements

Vitamin supplements should therefore only be prescribed as follows.

(1) *For the Maintenance of Health.*—Since all the factors required for the maintenance of health can be obtained from the food supplies and the extra supplements available in Great Britain at the present time, there would appear to be no adequate reason for the widespread prescription of additional vitamin supplements. Common-sense instruction on what foods to eat regularly is all that is required. The Table indicates foods which are the main sources of the most important vitamins in human nutrition.

It should be remembered that the concentration of a vitamin in any article of food is not necessarily the main consideration. For example, watercress has a high content of ascorbic acid compared with potatoes, but, as most people eat no watercress or only a very small amount occasionally, the humble potato is a far more important source of the vitamin. Another point to remember is in connexion with the method and rate of extraction of flour from wheat now in operation in Great Britain. The present process has so greatly increased the consumption of the B vitamins as to have largely solved this particular nutritional problem which was of such great importance in pre-war days, when 70% extraction white flour was the main source of carbohydrate. During the war the importation of fats, fruits, and vegetables had to be greatly restricted, with the result that nutritional experts were gravely concerned about the possible development of disorders due to a deficiency of vitamins A and C. Fortunately no such development occurred. Since the end of the war, fruits, particularly citrus fruits, and green and yellow vegetables have been imported in large quantities. These foodstuffs are available to augment the intake of ascorbic acid and carotene during the winter and spring months when the home production of fruit and vegetables is at its lowest.

Feeding experiments in human volunteers suggest that the requirements of vitamins A and C for adequate nutrition have been overestimated in the past. Even the figure of 2,500 I.U. of vitamin A given in the Table is about twice the suggested minimum protective dose required by the average individual. Hence there is little doubt that all vitamin requirements can be adequately met at the present time from food supplies readily available.

If an individual is taking the following helpings of food it is difficult to believe that he could suffer from any vitamin deficiency.

(1) An average helping of meat, poultry, rabbit, offal, or fish daily.

(2) 1 to 1½ oz. (42.4 g.) of fat daily (butter, vitaminized margarine, or cooking fat).

(3) 1 egg or ½ oz. (14.1 g.) of cheese daily.

(4) ½–2 pints (0.28–1.1 litres) of milk daily (according to such factors as age or pregnancy).

(5) 1 large or 2 moderate helpings of green or yellow vegetables daily.

(6) 1 large or 2 moderate helpings of potatoes daily.

(7) 1 helping of fresh fruit twice or thrice weekly.

(8) As much bread, scones, and cakes made from 85% extraction flour as desired.

When an individual is submitted to nutritional stress vitamin preparations may justifiably be prescribed. Special provision has been made for these purposes in Great

Britain by the Food Rationing (Special Diets) Advisory Committee of the Medical Research Council. Supplements of cod-liver oil and orange-juice and additional quantities of milk are provided for pregnant and lactating women, for infants, and for children too young for school. It is undoubtedly wise to give these supplements to children up to the age of 5, particularly in winter time, and to school-children who are growing too quickly or who have had severe febrile illnesses. For adults, vitamin supplements should be very rarely prescribed for the maintenance of health except when there exist the additional strains and stresses already mentioned which enhance the need for vitamins.

(2) *For the Treatment of Subclinical Vitamin Disorders.*—The diagnosis of states of subclinical deficiency of vitamins is based not on objective signs but on subjective features. Even with the help of laboratory tests which are not readily available to general practitioners (e.g., plasma determinations of vitamins and saturation tests), it is far from easy to be sure that the symptoms complained of are nutritional in origin. While some physicians think that subclinical deficiency states are extremely common in Great Britain at the present time, others hold there is little satisfactory evidence to justify this view. I believe that the frequency of such states has been much exaggerated. Monotony of the diet and the frustrations and restrictions accompanying post-war life in Great Britain probably account for most of the subjective features attributed to states of vitamin deficiency. If, however, after making the requisite investigations discussed above, the doctor concludes that there is a state of subclinical nutritional deficiency present, he should treat the deficiency by ensuring that the patient takes a properly balanced diet. If this is done there will be no need or justification for prescribing vitamin preparations except when there is clear evidence of the patient being submitted to one or more of the above nutritional stresses.

(3) *The Treatment of Established Vitamin-deficiency Diseases.*—As already mentioned, frank deficiency diseases such as scurvy, pellagra, and beriberi are rarely encountered in Great Britain at the present time. Careful investigation of any such case that may be encountered will almost invariably reveal multiple deficiencies of protein, minerals, and vitamins. Correct treatment accordingly demands that the diet as a whole should be carefully reviewed and made adequate in all respects. In addition, vitamin supplements should be given in the therapeutic doses shown in the Table until all symptoms and signs of deficiency have disappeared.

Conclusions

If the views expressed above are accepted, it follows that vitamin preparations should not be prescribed routinely for the maintenance of health or the treatment of subclinical states of vitamin deficiency; the best way of treating these conditions is by instructing the patient how to choose and prepare a well-balanced diet adequate in all nutritional factors. Supplements of vitamins are indicated only when causes are found to be operating which greatly increase nutritional requirements. Frank vitamin-deficiency diseases are rare in Great Britain; their treatment consists in correcting the diet in all respects and supplementing it with appropriate doses of vitamin preparations. Accordingly it is suggested that if more attention were given to the proper diagnosis of nutritional deficiency, to the taking of a careful dietetic history, and to the principles governing the prescription of vitamin preparations discussed above much unnecessary expenditure would be avoided. The discovery and elimination of social and environmental factors which lead to symptoms simulating those of subclinical states of vitamin deficiency will produce better and more permanent results than will be achieved psychologically by the administration of vitamin supplements to individuals who are not suffering from a nutritional deficiency.

A MEDICAL VIEW OF THE SOVIET UNION

BY

M. T. GILLIES, M.B., B.Chir.

A year's stay in Russia is small qualification for anyone to express views on the country, but the experience for a medical man is sufficiently unusual these days for a few brief and entirely superficial impressions to be worth recording. It should be added that these observations are the outcome of an Embassy appointment in Moscow and are made with a knowledge of the limitations of outlook and opportunity that such a post entails.

No remarks on Soviet standards of medicine can possibly be made without a thorough knowledge of, and free access to, their institutions and hospitals. Under existing conditions this was denied me. Hospitals could be visited in connexion with foreign patients, but such opportunities were infrequent and their scope limited. Persistent efforts were, in fact, made to visit officially one particular Russian medical man of eminence, all of which, however, were deftly parried by VOKS, the Soviet organization for promoting cultural relations with foreign countries. In view of the recent disappearance and strongly rumoured arrest of a Russian surgeon of international repute it would not have been prudent to pursue the matter or the man further.

As the home of the first system of socialized medicine, Russia has obvious interest for us while our own National H[ealth] Service is being established. There are certain differ[ences] A fundamental one is the absence in their system of the [general] practitioner. The smallest unit is the polyclinic, roughly [equiva]lent to a health centre, which has a regional or occ[upational] basis—that is to say, its clientele belong to a certai[n trade] or to a particular class of workers. Individual priva[te] tioners do exist, but their activities are limited by lack [of] to hospital accommodation and by strict limitation [of] power of certification. A recent change of poli[cy] organization of polyclinics is evident from the [following] paragraph from *Pravda* for January 6, 1949.

"By a decision of the Government, the Ministry of P[ublic] is now carrying out an important reform of medical se[rvice] population. The existing polyclinics and dispensari[es] merged with the hospitals and clinics. As a result of th[is] dispensary physicians have begun to work in the hosp[itals] and for their part tens of thousands of specialists in [the] have come to the reception rooms. This system i[s] improving the quality of medical services to the populati[on]

Thus it seems that the present Soviet trend [is] centralization or affiliation of all medical servic[es] sort of parent hospital, whereas we envisage with [the] up of health centres what will be to some extent th[e] tendency. Two other small points may be noted. [Spec]tacles and spectacles, let alone wigs, are not issued free, bu[t] charged is not high. Secondly, it is significant that [private] practice among dentists is very flourishing and, so far as one can tell from casual acquaintances, their services are widely used. Incidentally the inauguration of the Health Service in Britain was the occasion for a violent article in *Meditsinsky Rabotnik* under the heading "A new law, a fresh burden on the shoulders of the workers of Britain." The provisions of the Bill were completely ignored and the author, a doctor, expatiated instead on the inadequacy of the medical services in England and the low standard of living of the masses—quoting freely from the correspondence columns of the *B.M.J.*

On the purely domestic side of Embassy practice specialist opinions and hospital treatment were arranged through a special diplomatic polyclinic, designed exclusively for the use of the foreign community. This was the one place where consultations could be held and opinions on medical and other matters

...ially exchanged. The building was equipped with *x*-ray ... physiotherapeutic plant and was lavishly furnished with ...pets and brightly coloured awnings. Everybody there was ...ays most helpful and co-operative. A quaint feature of the ...em was the payment of a not inconsiderable fee, cash down ...dvance, on entering the establishment.

Moscow itself has a fleet of fast "emergency aid" cars which can be summoned by dialling a simple number on the telephone. They carry stretchers and attendants under the charge of a doctor and provide a prompt means of admission to hospital. Smaller cars, labelled "House Aid," are often to be seen on the streets and provide treatment at home for those too ill to visit the polyclinics.

The Aptecka, or State pharmacy, is a characteristic feature of the Soviet system. These are usually rather large shops, open all night, with a big dispensary and sometimes with a department where toilet preparations and drugs requiring no prescription can be bought. Sulphonamides in small quantities can be obtained in this section, as for instance in a popular official remedy for influenza compounded of hexamine and sulphanilamide (0.3 g.). Vitamin preparations such as rose hip syrup and cod-liver oil can also be obtained. The range of drugs available is naturally very much more limited than in this country and there are frequent shortages—for example, santonin, sulphadiazine, and nitroglycerin did not appear to be generally available, although santonin was being regularly prescribed for the large number of cases of roundworm infestation.

The normal procedure for a patient obtaining a medicine from one of these pharmacies is for him to queue up at the receiving counter where the girl in charge checks the prescription and assesses the price. He then joins the queue at the cash desk and pays the small sum required before proceeding ...other counter where he either receives the medicine or is Vit... what time to return for it. Drugs are dispensed in small (1) ...ies and prescriptions need to be repeated frequently, and the general, as a system of supplying physic to a large (2) Th...f people cheaply and quickly it seems to work quite deficienc...e principal shortcoming is that recorded by *Pravda* ...icle already quoted. "In certain chemists' shops one (3) Tre...tain even the simplest medicines and prescriptions in diseases, ...and by the population, although our industry has Bearing ...ortunity for satisfying the need for medicines."

above, the aspects of the public health system are of interest. res...gations be... and other intestinal infections are common in the mal... d the pharmacies display posters describing the part (1) Take...lies and dirt in the causation of these diseases and appe...examinations for their control. In some parts of Moscow Shut...ective phe...summer of 1948 there was a free house-to-house in th...deficiency ...of "phage" in tablet form to be taken as a prophy- and (2) Consi...h how frequently or systematically this was adminis- mal...due to em...not possible to say. The Russians have, of course, afte...produce sy...l studies of the commercial preparation of various cyti...subclinical... the dysenteries.

Th... (3) Tak...ortance of seeking prompt treatment for venereal hi... there is ... widely advertised in Russia as in many other been eat... These exhortations are reinforced by the law factors ... a criminal offence "wilfully" to transmit venereal ... to another person. The law also relieves casualty ...ficers of their traditional Saturday night trials with acute alcoholics. In Moscow the police provide "*veetresveetele punkts*," or "sobering institutions," where any clients found incapable or unconscious on the streets may be accommodated for the night and perhaps afforded suitable treatment. They are discharged next morning and charged 25 roubles (a fifth of an average week's wage) for their night's lodging. This would appear to be a useful amenity in a climate where the frost could speedily dispatch anyone who was drunk and sleeping in the open.

During the course of the year the Lysenko controversy came to a head. The main battle was, naturally, fought out by the biologists, but there were minor skirmishes in the medical world. The whole issue is quite incomprehensible without some conception of the general feeling of optimistic expectation about the future which is widespread in Russia to-day and not always so apparent in England. In an article in *Meditsinsky Rabotnik* on September 15 last a writer stated, "By common effort we must cleanse the field of Soviet Medicine of all idealistic and metaphysical weeds, so that we can move forward in seven-league boots and quickly solve the problem put before us by the great Stalin—not only to overtake but to surpass in the near future the scientific achievements abroad."

A young scientific worker would perhaps feel that he must temporarily suppress his doubts and critical faculties with regard to genetics as the price for belonging to and working for what he believes to be a greater movement. In other words, the material advancement of the people of Russia, and indirectly of the world, as he believes it, is more important than scientific truth. On the popular side there is no doubt that Lysenko has been most successfully "sold" to the Russian public. I attended a cinema performance once in which a news-reel depicting several public figures was being shown. No interest was evinced by the audience until Lysenko appeared on the screen. He was immediately recognized, and his name could be heard in approving whispers all over the hall.

The emphasis on patriotism has been most marked in Soviet films recently. The central theme of *Court of Honour* was the trial of a misguided Russian scientist who gave away the results of his work to a visiting American scientist, later unmasked as a secret service agent in disguise. During the course of this film someone remarks, "These Americans! Why, they even sell us a single dose of streptomycin for the same price as it takes to build a house!" (Streptomycin is presumably available for sale to the Soviet Union at the same rate as to other European countries.)

Academician Ivan Pavlov was another recent film, giving the story of his life and work and emphasizing that he placed his country above his work and his patriotism above world science. This film contains one amusing non-political scene at Cambridge as Pavlov receives an honorary degree from the chancellor. In the middle of this impressive spectacle a little woolly toy dog descends suspended on a string amidst shouts of "Hullo" from the playful undergraduates in the gallery. The great man grabs the dog good-humouredly and continues the ceremony with it tucked tightly under his arm.

In contrast to the lack of personal contact permitted one could, as a scientific worker, have access to one or two libraries and museums, notably the big Lenin Library in Moscow. This is a fine modern building embellished on the outside with busts commemorating, for example, Newton and Darwin. Quite a wide range of Russian and foreign literature, especially German, appeared to be available and could be consulted without difficulty. But this free use of a Russian institution was notable as an exception to the general restrictions, as the scantiness of this account shows.

INSTITUTE OF DISEASES OF THE CHEST

OPENING BY SIR JOHN ANDERSON

The opening of the new premises of the Institute of Diseases of the Chest (British Postgraduate Medical Federation), in the grounds of Brompton Hospital, Fulham Road, took place on October 26. Sir John Anderson, M.P., chairman of the Governing Body of the Federation, who performed the opening ceremony, said that no observant layman could fail to be profoundly impressed by the progress made in medicine during the past half-century. Medicine, a profession which had been carried on for hundreds of years on traditional and mainly practical lines, could now claim as never before the attributes of an exact science. If the public were to have, as it was entitled to have through the National Health Service, the full benefit of all the developments of scientific medicine, a great extension of facilities for higher medical education and research was clearly essential, and that was the significance of the new Institute.

Sir John Anderson went on to remind his audience that this was one of a number of specialist institutes in process of being

established under the aegis of the Federation. There was no room for doubt about the justification for including this kind of institute in its framework. Despite what had been done during the past 35 years, there was still a need for concentrated effort in the sphere of chest diseases, and the contribution which the Institute could make to the public good would be commensurate with that need. He added that the tradition firmly rooted at Brompton would provide a most favourable atmosphere for successful work.

Sir Robert Young explained that the Institute would serve two hospitals—namely, Brompton and the London Chest Hospital, institutions very similar in their aims and objects. It would promote collaboration, and would serve to make London with its wonderful material a focal point of teaching and research in diseases of the chest. He himself joined the staff of Brompton Hospital 54 years ago, and he recalled the pioneer work of the staff in those far-off days. Since the hospital opened in 1849 many methods of treatment had been examined and tried out, and knowledge had advanced by strides. Perhaps it was in the department of surgery that he had seen the greatest change. Now the staffs of the two hospitals were doing their utmost to train young surgeons in this branch of surgery. The Institute was yet another new venture which he felt to be full of promise.

Dr. A. Roodhouse Gloyne, consulting pathologist to the London Chest Hospital, said that these two hospitals came into existence a century ago very closely together—the London Chest Hospital in 1848 and Brompton in 1849, the latter founded by Thomas Bevill Peacock, who wrote a standard textbook on congenital heart disease and also investigated a form of silicosis in workers on millstones for grinding flour. A tribute was due to other physicians in those early days who came to a right conclusion on what would now be considered very inadequate data. The hospital was also interested in cardiology, and some great men in this field had been numbered among its physicians. As a medical school the London Chest Hospital, until the end of the first world war, was a rather fortuitous institution, graduates coming and going without very much organization.

In the development of the new Institute he hoped that the humanities would not be forgotten. As the staff grew alongside each other, co-operation would improve until the Institute became a complete unit. One of the things the Institute would do would be to advance the study of industrial lung disease; he hoped the heart would not be forgotten, and that in investigating disease in the periphery of the chest the pericardium would also receive attention. The Institute would also study carcinoma of the lung, the incidence of which seemed to be advancing.

Plans for the Institute

Sir Francis Fraser, director of the British Postgraduate Medical Federation, said that the first step in an exciting venture had now been completed. For many years the large general hospitals were used for undergraduate education, but the special hospitals which offered almost unrivalled opportunities for the advancement of knowledge and for postgraduate and advanced education were hardly used at all. Committees had discussed the various possibilities, and as a result the Postgraduate Medical School was established at Hammersmith, with university departments in general medicine, surgery, obstetrics, and pathology; but it was agreed that no attempt should be made to set up university departments in the special branches at Hammersmith, and that these should be based on special hospitals. The new Institute represented a further milestone in this progress. It would be some time before the staff was completed to the extent which would fulfil the hopes and aspirations of the previous speakers, but it was already being gathered together. Under the National Health Service the London Chest Hospital was joined with the Brompton Hospital for the purposes of providing clinical material and staff, and it was with every confidence they looked forward to the development of the Institute.

The Institute will be able to provide whole-time courses for three months for 12 students and part-time courses for twice as many. When it is fully equipped—which will probably not be for some time—it is expected that there will be facilities for up to 50 students at once. The accommodation, which is all on one floor, includes laboratories, a lecture theatre, *x*-ray and photographic departments, a library and reading-room, and a refectory. It is hoped to carry out "pure" research as well as the routine research work of the associated hospitals.

Reports of Societies

CORTISONE IN RHEUMATOID ARTHRITIS

A meeting of the Section of Physical Medicine of the Royal Society of Medicine was held on October 12, when Dr. OSWALD SAVAGE discussed the effects of cortisone in rheumatoid arthritis, and gave an account of his recent visit to the Mayo Clinic.

Dr. Savage said that with some 50 other physicians from various parts of the world he was privileged to see the work on cortisone which was being done on the other side of the Atlantic. He saw two cases before and after treatment, and he had no doubt about the remarkable changes effected by this drug in rheumatoid arthritis. As was to be expected with research teams headed by Dr. Philip Hench and Dr. Kendall, the work was most carefully checked and controlled. The patients were suffering from severe active rheumatoid arthritis, and the changes which were brought about almost within a matter of hours were astonishing. One woman aged 55 had suffered from rheumatoid arthritis for three years; she could hardly walk, and was so crippled that it took her more than two hours to do her hair in the morning, yet within two and a half days of the first administration she was completely free from pain and walked normally. She declared that she felt a sudden improvement nine hours after the first injection; it was as if a load had been taken off her limbs.

The history of the work which led up to this discovery was fascinating. During the war it was rumoured that German pilots were given injections of suprarenal extract to increase their fighting morale, and there was a good deal of support for the theory that such an extract might be of value in battle fatigue. The rumour added momentum to the work already proceeding in the States, where Hench had been studying the reversibility of rheumatoid arthritis, and, turning to biochemical considerations, had concluded that what he had called the anti-rheumatic substance *x* might be the suprarenal hormone.

To understand the work on cortisone the adrenal steroids must be studied. Work on adrenalectomized animals had resulted so far in the isolation of 28 adrenal steroids, but only six of these, which could be divided into three groups, were active. The group which was oxygenated at the eleventh position and called 11-oxysteroid was the one with which this work was particularly concerned. As the work progressed a number of compounds were evolved, of which the one called compound E was by far the most active in its effect on carbohydrate metabolism. Dr. Savage also touched on the work done on the adrenocorticotropic hormone (ACTH) and its effects.

Clinical Results

Clinical improvement after the injection of cortisone might begin within four hours and was usually sudden. The patients felt as if something had been "unlocked" and lost their stiffness. Joints which had been tender on pressure were no longer painful when pressure was applied, and the swelling also disappeared, though not as quickly as the pain. They experienced a remarkable euphoria, and afterwards usually fell into a sleep of exhaustion. They acquired enormous appetites and sometimes had to be dieted to prevent obesity. The dose, given intramuscularly, was 300 mg. on the first day and 100 mg. on the second. The dosage of the adrenocorticotropic hormone was 50 mg. three times a day on the first day and 25 mg. on the second day.

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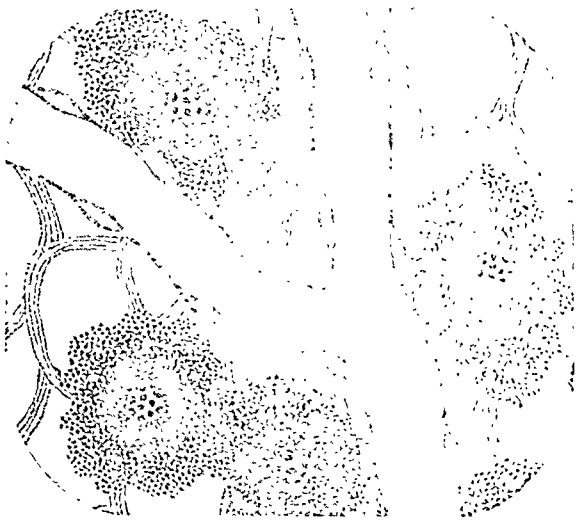
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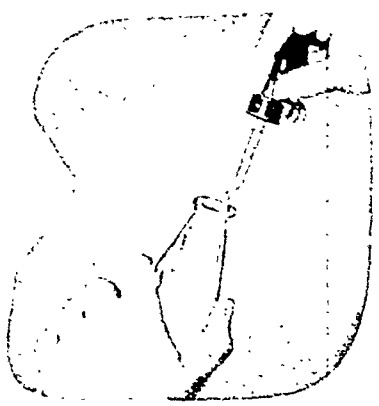
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when this drug became available, it was used only under the most carefully controlled conditions in hospital. Much study remained to be done on these effects, some of which were due to pituitary upset and electrolyte imbalance. Severe vomiting was followed the use of adrenocorticotropic hormone.

Unfortunately, directly cortisone was stopped the symptoms returned and the sedimentation rate again rose. In the severe cases so far treated it looked as if treatment would have to be continued indefinitely. The number of cases treated at the Mayo Clinic up to June of this year was only 17, but some of them had been under treatment and control for as long as six months. The difficulties of the production of the substance were immense; 39 long and difficult chemical steps had to be taken before even a minute yield was obtained. There had been accounts of other substances which might yield cortisone, but these related at present only to the theoretical stage. But two main points of progress were demonstrated even before the drugs were available for general use. In the first place it had been shown for the first time that the progress of rheumatoid arthritis was reversible rapidly by a drug; it had been known to be reversible in pregnancy, in jaundice, and after operations, but here was a drug which brought about the same effect. In the second place, a yardstick had been furnished with which to evaluate treatment. There had been many forms of treatment which improved the patient up to a point, but here a dramatic and rapid improvement was effected. Those who had seen the cases were impressed by the effect as compared with anything they had seen before, and thus a criterion was afforded for the treatment of rheumatoid arthritis in general.

Work in this Country

Dr. RAYMOND GREENE said that the relation of the adrenal cortex to rheumatoid arthritis had been studied by a number of workers. His own interest in the subject began some 12 years ago, and, while Hench and his colleagues reached their fortunate guess by way of a study of reversibility in pregnancy and jaundice, he approached the problem by seeking the common factor in a number of distinct conditions often associated with the onset of the disease. The hypothalamic endocrine system appeared to be a connecting link, and within this system the adrenal cortex seemed the most likely element to explore. He at first concentrated his attention on the operation of whole adrenal extracts and of desoxycorticosterone acetate, all of which were found to be ineffective. These were now being studied exhaustively in the United States.

In November, 1946, the worst case of rheumatoid arthritis he had ever seen was admitted to the Metropolitan Hospital, apparently in a moribund condition. The patient was a man aged 28 who had developed a classical rheumatoid arthritis at the end of June of that year, and the infection had spread rapidly until all the joints were involved; there was a low intermittent fever. He was treated with massive doses of acetylsalicylic acid and penicillin without effect, and a course of gold treatment was also valueless. A rash, afterwards found to be pemphigus, gradually spread over his body. His condition rapidly deteriorated; and he became so emaciated that his appearance resembled that of the prisoners at Belsen. General methods for restoration were begun, and in addition an intravenous procaine drip was set up. A certain amount of improvement took place, the joints became less painful, and the pemphigus ceased to spread. Later, however, deterioration took place. By that time the speaker had obtained some corticotropic hormone, and intramuscular injections were given over a period of 18 days in March, 1947. Each dose was of only 2 or 3 mg., much less than the American dosage, and, presumably because of the smallness of the dose, the improvement was not as rapid as that obtained by the Mayo Clinic workers. The improvement was not maintained, and the procaine injections were restarted. From that time (May, 1947) improvement again took place and continued, though slowly. The skin condition was obstinate, but eventually disappeared. A urinary condition was investigated and found to be due to stones in the pelvis of the right kidney, but as there was infection in the left kidney it was decided to leave it alone, and the infection had since disappeared. The patient was discharged from hospital in December, 1947, and had remained well ever since.

This patient was demonstrated to the Section, and was able to run up to the platform. His hands were still badly deformed, but his joints were painless and he was earning his living as a weaver. He had had no treatment for nearly two years. The most likely explanation, said Dr. Raymond Greene, was that a spontaneous remission was due during 1947, but those who saw him on admission were convinced that he would not have lived to enjoy that remission had it not been for the treatment he had received. Dr. Greene also described a second case treated with anterior pituitary corticotropic hormone, with a successful result. During the last three years he had concentrated his attention on other methods of producing increased adrenocortical activity, using substances which had an inhibitory effect on histamine release, but he was not yet ready to make a statement. He said also that there was a *prima facie* case for the further investigation of the role of the spleen in rheumatic diseases; this was likely to be the organ through which cortisone and corticotropin possibly produced their effects.

Dr. MAX REISS said that Hempel and he were probably the first to use corticotropic hormone in the treatment of rheumatoid arthritis when, in 1942, experiments were carried out on a group of patients suffering from involutional melancholia. The most interesting effect was the skin change: from being dry and parchment-like, the skin felt softer and thicker; the hair regained its lustre, losing its dry, brittle quality. A considerably smaller dose was given to achieve these and other effects than was used by the American workers, and it was important to emphasize this because, assuming that the hormone could not be prepared synthetically, the American dose of 25 mg. could hardly be the treatment of the future, for all the pig pituitaries in the world would not be sufficient to treat a thousand patients regularly. The continuous use of such a high dose was likely to discourage treatment, and as the dose was higher than the quantity produced physiologically in the body it could not be called a physiological dose. The reactions were such that responsible physicians would have to consider whether they were to embark on a treatment which could produce diabetic changes, alterations in blood pressure, and so on.

In some further discussion the point was emphasized that Hench had not claimed cortisone as a cure but had reported his work only as an "investigative therapy."

INTEGRATION OF PREVENTIVE HEALTH SERVICES

A meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on October 21 was devoted to a discussion of the preventive health services. Dr. W. H. BRADLEY, the president, said he believed this was the first time in the history of the Section that the subject of discussion had been purely administrative.

N.H.S. in Northern Ireland

Dr. A. T. ELDER described the National Health Service arrangements in Northern Ireland, though he pointed out that what might be successful in such a relatively small community might not have the same success in a much larger population. He instanced a number of respects in which the Service had been integrated. The first was the operation of the school medical service by the Ministry of Health and Local Government instead of the Ministry of Education. The services transferred to the health authority included the ascertainment of physically handicapped children, the provision of medical inspection and treatment, and the cleanliness and disinfestation services. A consultant paediatric service was awaited. The administration of the school meals and milk service remained with the education authority. There was close liaison between medical officers of health and directors of education. The scheme had been expanding during the last two years, and so far there had been a happy and efficient service. At the

beginning of this year rheumatic fever was made a notifiable disease; this involved consultative clinics, follow-up, and aftercare. So far 103 notifications had been received.

Before 1948 the care of tuberculous persons was vested in local authorities. It was now the function of an autonomous body called the tuberculosis board. The appointment of tuberculosis specialists rested, after consultation with the board, with the hospitals authority. Deaths from tuberculosis had declined in recent years, though ascertainment figures had gone up—an indication of the efficiency of the new system. Northern Ireland had a system of intimation of cases of suspected tuberculosis; this meant no worry for the practitioner, who simply said to the patient, "You might have something wrong with your chest. Do you mind just having a check-up?" and referred him for examination. Four out of five cases intimated proved to have no tuberculosis at all, but those which were proved were far more than had been suspected before the scheme began.

Other examples of integration were the fusion of all central Government medical services in the one Health Ministry; the medical supervision of industrial health by the Ministry of Health and Local Government instead of by the Ministry of Labour; the supervision of mental health services by a special committee of the hospitals authority; and the unification of preventive medicine with general practitioner services through the general health services board.

Dr. Elder added that vaccination against smallpox was compulsory in Northern Ireland; there was no conscience clause. From 1920, when the Government of Northern Ireland was set up, to 1947 only two cases of smallpox had been notified, both of them imported, one from Canada in 1924, and the other from Scotland in 1942. The percentage vaccinated ranged in recent years from 69 to 80%. Prosecutions were occasionally instituted, and these were followed by a new spate of vaccinations. During the past 20 years there had been only one confirmed case of encephalitis following vaccination, and in that case the patient had been vaccinated with lymph which had not come from the usual source.

Midwifery Services

Dr. M. W. GEFFEN referred to the arrangements for midwifery services in England and Wales. It was the duty of the local health authority to ensure that an adequate number of midwives were practising in the area. Domiciliary and institutional midwifery could not be separated; many confinements started at home and ended in hospital, but the domiciliary midwives were under the local health authority while obstetric specialists were employed by the hospitals authority. He thought that the midwifery service of the future, if it was to be integrated, must be placed under the regional hospital boards and eventually in the hands of management committees.

One of the most interesting parts of the work of the medical officer of health was the care of the school-children within his district, but to-day specialists were appointed by the regional hospitals boards, and although the divisional medical officer did some ascertainment the case afterwards passed from his hands to county headquarters and he heard no more about it. That was not a good example of integrated health services. Much was heard also about decentralization and the utilization of the services of the district medical officer as an assistant county medical officer, but his experience was that the district medical officer was very much of an assistant and had, practically speaking, no free hand at all. There had been in this respect a levelling down rather than a levelling up.

Dr. Geffen also questioned whether it was really necessary to have set up hospital management committees throughout the country. Was there not some existing machinery whereby hospitals in small groups could have done the work without a new organization? In his view there was no reason why the public health committees of local authorities should not have been the hospital management committees. It would have been a fine piece of integration if the public health committee of the local authority could have been made responsible for a group of hospitals, with the medical officer of health as chief officer. The setting up of additional committees with additional officers, while all the time there were standing committees democratically appointed, with officers of experience ready to hand to integrate the hospitals with the environmental health services, seemed a wasteful policy.

The M.O.H. and General Practitioners

Dr. E. D. IRVINE (Dewsbury) said that the present phase was one of expansion; consolidation would come later. He disagreed with those who complained so bitterly about the division of responsibility between hospital boards and health authorities. Any integration of service depended much more upon good will than upon a tidy machine. Even the environmental health services were not administered in a tidy and simple fashion. His experience was that the greatest possible value attached to meetings between medical officers of health and general practitioners and consultants. As it was, the medical officer of health had no place on regional board committees: on hospital management committees he might or might not have a place. His membership of the local medical committee was most valuable. In his area the general practitioners had a most friendly and co-operative attitude to other branches of the Service, but he wished that local medical committees could be established in smaller areas than counties so that other medical officers of health besides those of counties and county boroughs might take a useful place on them. He believed in an all-purposes local health authority of moderate size in which social work could be linked up with environmental control.

Dr. BRADLEY, from the chair, said that he thought Dr. Irvine might take it for granted that it was the generally accepted principle of those concerned in central administration that plenty of flexibility at the periphery was desirable, and if people at the periphery looked for opportunities to employ that flexibility nobody was going to get in their way. They were now watching a great new Service developing. They did not expect it to move smoothly at once, but they did expect it to move in the right direction. He asked whether in Northern Ireland the intimations of suspected tuberculosis were compulsory and whether any provision was made for payment of the notifying practitioner.

Dr. ELDER replied that in Northern Ireland the intimation of cases of tuberculosis by practitioners was not paid for. By Act of Parliament practitioners were required to report to the authority any suspected case; there was a penalty under the Act, but it was not rigidly enforced, and indeed in practice the arrangement worked better than had been expected. Where they had expected 3,000 or 4,000 intimations they had had 10,000. In general in Northern Ireland they believed in as much devolution of responsibility as possible. A question had arisen about general practitioners acting as obstetricians in smaller hospitals. Eventually it had been agreed that certain hospitals of the cottage hospital type, set apart for normal midwifery, should continue to be served by general practitioners, subject, however, to two provisos: one, that the advice of a consultant obstetrician must be available for any complication, and the other, that the obstetrician should have the right to advise upon the competence of any general practitioner to do midwifery in these hospitals.

MANAGEMENT OF RHEUMATIC FEVER

A meeting of the Section of Medicine of the Royal Society of Medicine on October 25, Sir ADOLPHE ABRAHAMS presiding, was devoted to a symposium on the management of rheumatic fever and its early complications.

Dr. PAUL WOOD, like ensuing speakers, based his remarks on observations made at the Canadian Red Cross Memorial Hospital (Rheumatic Fever Unit) at Taplow. It was important, he said, in the management of rheumatic fever to detect the presence or absence of carditis. According to the literature the average proportion of cases in which carditis was present was 50%; in the cases at Taplow it was 72%, but these were selected cases. Eight main signs of carditis were: (1) significant mitral systolic murmur; (2) Carey Coombs sign; (3) new or transient aortic diastolic murmur; (4) cardiac enlargement; (5) pericarditis; (6) signs of heart failure; and two electro-

cardiographic signs: (7) prolongation of the P–R interval; and (8) the Q–Tc sign.

The mitral murmur was commonly long and loud. About 45% of cases with loud murmurs developed mitral stenosis as against 9% of those with soft murmurs. The Carey Coombs sign had been found in 58 of the 75 cases with myocarditis. The murmur was permanent in the majority of cases. It went on or was recurrent until mitral stenosis developed. Carey Coombs had been right in supposing it to be due to organic mitral changes. An aortic murmur was heard in 44 of the cases. In the ordinary case little evidence of cardiac enlargement was seen radiologically, though a spurious enlargement was often noted. The heart enlarged with fever at any time and became smaller as the fever disappeared. Enlargement when due to heart failure was, of course, reversible; if the patient's condition improved the heart would become quite small.

Pericarditis had been a source of great trouble. It was not known how to diagnose it with certainty. Only 25% of the cases had shown this condition. As for heart failure, they had been pleased, and perhaps surprised, to find that patients with right heart failure did not die suddenly, and thus it was permissible to make investigations, of which at first they were very chary. He did not want to stress the electrocardiographic signs too much. The prolongation of the P–R interval occurred only in about 10% of the group, but the Q–Tc sign was useful. Dr. Wood concluded with a reference to rest and exercise. Before the principle of rest was given up, it was for the people who pleaded for exercise to prove that it did no harm.

Home or Hospital

Dr. E. G. L. BYWATERS reproduced an American estimate of the relative costs of care of the rheumatic case:

Home care	$ 30–35 per month
Foster-home care	$ 45–50 per month
Convalescent home care ..	$120 per month
Hospital care	$400 per month

If the home was well-to-do and the family physician available, home care might be preferable, but in the majority of cases the patient was better in hospital, preferably with a school attached. It was desirable that only one hospital should take care of the child. The first thing was to make sure that the case was really one of acute rheumatism. In a case of early osteomyelitis of the knee or hip it was better to start treatment with large doses of penicillin, even if the case proved eventually not to be one of rheumatic fever.

Rheumatic fever was a self-limiting disease, and if the cardiac sequelae could be prevented it would be of no more importance than mumps. It was the general opinion that the heart would be damaged less if the demands made on it were cut down to basal requirements. The Taplow cases afforded no evidence in favour of early rising, but in Chicago the active life, including boating and swimming, had been advocated, the only criterion being that the E.S.R. should begin to show a definite fall. Accepting rest as the most important measure in the treatment of cardiac rheumatism, for how long should the rest continue? The speaker showed a complicated chart, including temperature, pulse, and many other records, from the study of which, he said, they might feel capable of arriving at a true judgment of the stage which the condition had reached and of the point at which the child should be allowed up. The sedimentation rate was one of the most useful criteria; at Taplow it was estimated weekly. Salicylates produced a fall in the rate, but this was capricious, and it was felt that attention should not be paid to the actual level of the sedimentation rate while the patient was being given salicylates. Weight changes, although slow, were reliable guides. Bed rest must be maintained, and then the patient should be got up gradually, a close watch being kept on all phases of his activity.

Salicylates, although they had been in use for three-quarters of a century, still provoked a great deal of argument. They were able to do little more than relieve symptoms. They depressed the sedimentation rate not only in rheumatic but in non-rheumatic subjects. He did not think they actually cured the disease.

Penicillin in Prophylaxis

Dr. J. A. PITT EVANS said that workers in America and Australia had found that small doses of sulphonamides had some prophylactic value, but sulphonamides given over a long period might have a deleterious effect. Penicillin, on the other hand, was practically devoid of toxicity. In the experiment he reported one daily dose of 100,000 units of penicillin in 5% glucose was given before breakfast. This study had been carried out from November, 1946, to September, 1948, and concerned 165 children, with a control group of 145. The details of the study will be published, but Dr. Pitt Evans said that the evidence appeared to show that penicillin was of considerable value in preventing streptococcal infections—and consequently rheumatic relapses—among children in a convalescent home.

Professor ROBERT CRUICKSHANK said that records of the previous five years had shown something like a 50% relapse rate, but in this experiment the control cases did not show the incidence one would expect. The fact was that when a prophylactic measure affecting half a community was introduced the load of infection was considerably reduced, and therefore the rate of clinical infection expected from previous records might not be attained. Nevertheless, even the statistician would be satisfied that the penicillin was of value, and he was sure it was a method of prophylaxis to be followed up.

In some further discussion Dr. T. F. COTTON said that the Government should be praised for what it had done in building up the national institution at Taplow. As for treatment, his experience led him to the conclusion that rest alone availed. Dr. JENNER HOSKIN said it had been interesting to learn of the importance of the loud systolic murmur which was often heard in elderly patients and to which not much attention was paid. The pulse rate was not entirely reliable, as it varied with the excitability of the child.

Social Factors

Dr. GERALD SLOT mentioned the change in the type of rheumatism seen to-day as compared with that seen not many years ago. In the early 'thirties and even later a common case of rheumatism seen at supervisory centres was the child with swollen joints, but this type of rheumatism did not seem to be as common as formerly. Dr. Slot also made some observations on the social class from which the majority of rheumatic children came. A social survey in West London showed a large number of patients coming, not from the poorest class, but from the lower middle classes. He had been in touch with the medical officers of some of the largest public schools, and they declared that this was not a problem which affected them at all, yet in the rheumatism supervisory centres organized by the L.C.C. there was an overflow of cases. A theory which he thought he could disprove was that rheumatism was associated with dampness. Among children living in poor houses in riverside districts in London, where there was a lot of damp, he had not found any unusual incidence of rheumatic cases, although, of course, the damp house also suggested general poverty and perhaps lack of supervision. He had also noticed that when the pains were only in the leg it was likely to be an orthopaedic problem, and when they were in both legs and arms there was more likely to be a rheumatic factor concerned. He did not find much help in the electrocardiogram; when help was most needed it was least helpful. The sedimentation rate was of value, though he thought that in their eagerness to get hold of any method of assessment they tended to rely on it rather too much. It was a non-specific test. He did not think that salicylates did any good beyond relieving pain.

The Third Congress of the International Scientific Film Association, which was recently held at Brussels, included fourteen delegates from Britain. The Royal Society of Medicine was among the bodies represented. The inaugural presentation of scientific films was attended by Her Majesty the Queen Mother of the Belgians, who later commented on the excellent quality of the British films shown. Information about the work of the Scientific Film Association of Great Britain may be obtained from its secretary at 4, Great Russell Street, London, W.C.1.

Correspondence

R.M.B.F. Christmas Appeal

SIR,—Extra comforts at Christmas time are a great help in time of need—the little extra coal, the urgently needed warm clothing, the wherewithal to provide a real Christmas dinner. I appeal to members of the medical profession to bring these comforts to their less fortunate professional brethren, or to their widows and children who are beneficiaries of the Royal Medical Benevolent Fund. Not only will gifts bring them comfort and cheer, but their hearts will be warmed by the kind thought for them.

I hope that all, whether subscribers to the fund or not, will send donations to provide this little extra cheer, and that those who are not subscribers will become regular supporters of the medical profession's own Benevolent Fund. Donations and subscriptions, marked "Christmas Gifts," should be sent to the Secretary of the Royal Medical Benevolent Fund, 1, Balliol House, Manor Fields, Putney, London, S.W.15, and will be gratefully acknowledged.—I am, etc.,

WEBB-JOHNSON,
President,
Royal Medical Benevolent Fund.

Malignant Tertian Malaria

SIR,—Your correspondent, Dr. P. Ross (October 22, p. 930), makes some sweeping statements about the clinical manifestations of malignant tertian malaria. It would appear to me that the clinical descriptions of well-known and generally accepted *accès pernicieux* of this infection are thereby impugned.

Most practitioners, I think, with an extensive experience of the vagaries of this type of malaria will agree with Sir Gordon Covell (October 8, p. 773). His statements regarding the protean manifestations exhibited by *Plasmodium falciparum* tally with my own in European soldiers exposed to mass infection under war conditions. I am certain that some exceptions have to be made in tropical natives, who may exhibit various degrees of immunity to subtertian malaria. That such immunity exists is hardly open to doubt, but numerous observers have drawn attention to the fact that they, too, may succumb to cerebral or abdominal malaria on being exposed to a foreign strain of *P. falciparum*.

It has been my misfortune to witness errors of diagnosis on more than one occasion, and to have seen laparotomy performed on what Dr. Ross terms "typical cases" of subtertian malaria. It would ill become me were I not conscious that acute appendicitis may occur during the course of malaria, or that acute cholecystitis may be a sequel to it—not that surgical intervention may be indicated in these cases—whether malaria parasites are present in the blood or not. But to advise young practitioners going out to the Tropics to ignore the teaching of textbooks which are based upon long and hard-won experience of subtertian malaria in many lands and under many diverse conditions would be a betrayal of the truth. I would remind your correspondent that the chapter on malaria in *Manson's Tropical Diseases* was not composed in a day or even after a flitting wartime experience.—I am, etc.,

London, W 1. PHILIP MANSON-BAHR.

Infant Vaccination

SIR,—Dr. C. Killick Millard (October 22, p. 929) takes me to task for "begging the question" of infant vaccination in the concluding paragraph of an article I contributed to the *Monthly Bulletin of the Ministry of Health* (1949, 8, 204). Dr. Millard's dislike of infant vaccination is well known. Unfortunately the evidence on which his views are based, and also those of many who disagree with him, is frequently distorted by less critical persons who seek to discredit not only infant vaccination but all vaccination against smallpox and, incidentally, immunization against diphtheria as well. This accounts, I think, for much of the reticence which at first sight might appear to be "question begging" in the references to this subject in official and other publications.

In the article in question I did not attempt to discuss the pros and cons of infant vaccination, and most certainly did not intend to minimize its difficulties and dangers, of which I am well aware, as may be seen from an article on post-vaccinal encephalomyelitis to be found in an earlier number (1948, 7, 72) of the same journal.

During the last 18 months I have been able to meet doctors concerned with the control of smallpox in Holland, France, and other European countries as well as in the United States and Canada. All of them I found to be aiming, though with varying success, at a well-vaccinated child population as an important part of their own national defences against smallpox. I was therefore concerned in my recent article to set out in some detail the current position of infant vaccination in this country and to point out that by our apparent neglect of this procedure we were giving the impression abroad that we were not regarding protection against smallpox as a serious matter at the present time. I submit that the paragraph quoted from my article can and should be read in that sense.—I am, etc.,

E. T. CONYBEARE.

Post-operative Thrombosis

SIR,—In these days when there is a more widespread awareness of venous thrombosis many clinicians, feeling that the early signs of calf thrombosis are sometimes slight and equivocal, are anxious to find some simple laboratory test which will give them courage in diagnosis and guidance in treatment. I was greatly interested by Mr. G. W. Vause Greig's article (October 15, p. 845), because I feel sure that the paper of Cummine and Lyons[1] to which he refers has given rise to unjustifiable hopes of a simple diagnostic test for thrombosis.

While there is commonly a fall in the coagulation time during or immediately after operation, most investigators have found that at a later stage there are rarely any significant changes. This observation is valid whatever method is used for estimation of the clotting time. I recorded clotting times daily in the majority of cases in two general surgical wards for a period of three months in 1948, and I have never found this investigation of the slightest help in diagnosing post-operative thrombosis. In the several cases of undoubted thrombosis which occurred during this period the coagulation graph did not show any significant change. In the present state of our knowledge it would seem that it is only by careful observation of the temperature chart and meticulous examination of the patient's legs that an early diagnosis of thrombosis can be made; it is perhaps remarkable that this essential practice is not even mentioned in Cummine and Lyons's paper.

Our experience with the fibrinogen-B test has been similar to that of Mr. Vause Greig, but positive results were obtained in a smaller proportion of cases. The finding of fibrinogen-B has borne no consistent relationship to the occurrence of thrombosis, and it has also been noted that not all samples of β-naphthol are suitable for this test. My colleague, Dr. W. G. Dangerfield, has prepared his solution by the method of Lyons and has commonly found that it does not turn brown on exposure to oxygen. Under these circumstances gel formation does not occur. We cannot satisfactorily explain these results, although it may be that some preservative in the β-naphthol accounted for the failure of the test in many of our cases, since it was more often positive when older solutions were used.

The fibrinogen-B test, like the coagulation graph, is in my experience of no help to the clinician. There is as yet no test which will surely tell us which cases of thrombosis will advance and which will be spontaneously arrested. No test will relieve the clinician of the responsibility for careful daily observation of his patients, and in this he can be greatly assisted by residents, nurses, and physiotherapists who are constantly alert for the early signs of thrombosis.



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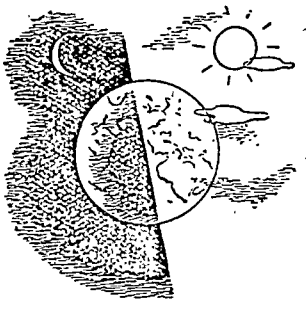
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M.47

It would be most interesting to hear from others who have attempted to confirm Cummine and Lyons's original work.—I am, etc.,

Radlett, Herts. R. S. MURLEY.

REFERENCE

1 *Brit. J. Surg.*, 1948, 35, 337.

SIR,—In his article on post-operative thrombosis Mr. G. W. Vause Greig (October 15, p. 845) suggests that a positive fibrinogen-B test in the post-operative period does not always predict that thrombosis will occur. Soon after operation I think this is true, and appreciation of this fact may prevent the indiscriminate prescribing of anticoagulant therapy based on a laboratory finding only.

In assessing whether a patient is a candidate for thrombosis one should always take into consideration age, previous history, and the results of careful clinical observation and examination. The use of anticoagulants in the post-operative period should not be undertaken lightly. When they are used too early there is the danger of severe wound haematomata. When used prophylactically they should not be administered before the third day following operation and the danger of wound haematomata should always be borne in mind.

Fibrinogen-B depends on the modification of fibrinogen by recently circulating thrombin in the blood stream. During and for some time after a surgical operation there must be some thromboplastin, liberated from tissue damage, which reacts with the prothrombin and calcium of the blood to produce thrombin. Therefore it is not surprising that following a surgical operation the plasma of the patient often gives a positive fibrinogen-B test. Since only a very small proportion of the patients develop a post-operative thrombosis, a positive fibrinogen-B test alone, soon after operation, is not sufficient evidence on which to predict whether a patient will develop a thrombosis.

Mr. Greig appears to have used the fibrinogen-B test described by Cummine and Lyons.[1] I had the pleasure of discussing with Dr. Lyons at Oxford last year the difficulties we were encountering with this test. He agreed with me that the original test did require some modifications. Since that time I have used with some slight modifications the test which he outlined as follows:

Nine parts of blood are mixed with one part of sodium oxalate solution (1.34%) and centrifugalized at about 3,500 r.p.m. for 10 minutes. The plasma is then removed and 0.5-ml. portions pipetted into each of three small tubes of 8 mm. internal diameter. To one tube seven drops, to the second six drops, and to the third five drops of the β-naphthol reagent are added from a Pasteur pipette. The tubes are gently shaken and allowed to stand at room temperature for 10 minutes, after which they are tilted and examined for gel formation. A positive result shows definite gel formation in one or more of the tubes. In the case of negative results the contents of the tubes are milky, but there is no sign of gel. If the tubes are centrifuged for one minute at about 2,500 r.p.m. and then reshaken the positive tubes show a definite coagulum, whereas the negative tubes show none or practically none, when tilted horizontally and viewed from above.

With regard to the value of the capillary-tube method for estimating whole blood coagulation time, it is now accepted as the least accurate of such methods.[2] Mr. Greig does not state at what temperature the clotting times were estimated. The variations in the temperature of the operating theatre and the wards at different times of the day could account for great variations in clotting time. There are of course other variables which affect this crude test. I therefore doubt whether the suggestion that "thrombosis, if it does occur, probably starts during or immediately after operation" can be confirmed by means of this test.—I am, etc.,

Manchester. H. LEMPERT.

REFERENCES

1 *Brit. J. Surg.*, 1948, 35, 337.
2 Biggs and Macmillan, *J. clin. Path.*, 1948, 1, 269.

SIR,—Although I am aware of the many difficulties inherent in conducting an investigation of intravascular thrombosis I feel that certain statements in Mr. G. W. Vause Greig's paper (October 15, p. 845) should not pass unchallenged. With regard to the method, Cummine and Lyons[1] estimated the coagulation time daily, and twice daily if there was pyrexia, and they stress the considerable group variation that may occur from day to day, and, contrasting it with the less common individual variation, they emphasize that it is only the persistently low or persistently falling clotting time that is of prognostic import.

When I had the opportunity a few months ago of discussing these tests with Lyons he again emphasized the importance of demonstrating this persistence, and pointed out that in his paper it was recommended that when the clotting time is below four minutes estimations should be made hourly during the following two hours; only if during these three consecutive hourly readings the clotting time remains persistently low should heparin be given.

Mr. Greig divides his results into four groups as suggested by Cummine and Lyons, but he is wrong in attributing to these authors the statement that it is only in Group 4 that there is danger of thrombosis. On the contrary, it is only Group 1 that is free from the danger. Patients in Group 2 are liable to thrombosis if they suffer from venous stasis or have had a previous thrombosis which can serve as a nucleus for further spread. Those in Group 3 have free thrombin in the circulation, and this has been seen as a primary phenomenon only after operation or parturition in the early stages before fibrinogen-B has had time to develop. It occurs usually as a secondary phenomenon following thrombosis and may then herald disaster, especially if the primary thrombosis has occurred in the pulmonary circulation. Patients in Groups 2 and 3 therefore require very careful observation both clinically and by laboratory investigation if thrombosis is to be prevented or diagnosed at its inception.

The one case in Mr. Greig's series which developed thrombosis would appear, in the absence of amplifying detail, to support the theory of Cummine and Lyons. The sequence of events shown on the chart suggests to me that this patient had, during her whole post-operative course, a tendency to thrombosis, that she, in fact, had a minimal thrombosis on the sixth day, and that the fall in clotting time which began on the tenth day was a warning signal to test again for fibrinogen-B. Whatever interpretation be placed on the events in this case it is clear that factors other than the clotting time in the presence of fibrinogen-B must be taken into account when considering, for example, intravascular thrombosis, venous stasis, tenderness in the calf, or pain on forced dorsiflexion of the foot.

One would have liked to see stated in Mr. Greig's paper the criteria on which he would base a diagnosis of thrombosis. His confirmation of the fall in clotting time occurring in most patients during and immediately after operation is in accord with the theory that the accelerated rate of clotting is due to circulating thrombin—an event which might reasonably be expected to occur following the trauma of operation.

There is, I think, general agreement nowadays that venous stasis and pressure on the calf veins during operation in association with circulatory thrombosis do cause minimal thrombosis in the small veins of the calf and that subsequent massive thrombosis is an extension of the process, and it behoves us therefore to seek carefully for this extension with all the means at our disposal. While I am sure that Mr. Greig's observations are correct, I think that they do not go far enough and afford no justification for his conclusions, and for the reasons given I would deprecate their acceptance at the present time when post-operative thrombosis is still a major factor in otherwise successful surgery.—I am, etc.,

London, E.1. R. D. POPHAM.

REFERENCE

1 *Brit. J. Surg.*, 1948, 35, 337.

Toxoplasmosis

SIR,—The report by Mr. A. B. Nutt and others of the second case of toxoplasmosis in England (October 22, p. 905) prompts me to record the probable diagnosis of a third. I have not previously reported this case, since there was no confirmation by serum tests or histology. Most clinicians are now aware of the possibility of toxoplasmosis in considering the diagnosis of infantile encephalopathies. A tentative diagnosis has indeed

become rather fashionable, but the paucity of case reports suggests that the disease is rare. Serum tests, however, seem often to give inconclusive results, and prolonged search may be required to show the parasite in sections of fatal cases. It is probably as well, therefore, to put on record cases in which there is a high probability of a correct clinical diagnosis, even in the absence of biological confirmation.

The diagnosis in the case now reported rests upon the development in an infant of intermittent jaundice with steatorrhoea and acholic stools, enlargement of liver and spleen, progressive mental defect with blindness due to choroido-retinopathy, possibly deafness, and extreme hypotonia. No cerebral calcification was detected and there was no gross hydrocephalus. Dysplasia of the skull bones was a feature, but no pathological abnormality was detected in cartilage bone. The infant died of bronchopneumonia. There was rhesus incompatibility with the mother's blood, but no kernicterus or other evidence of erythroblastosis. Syphilis, pancreatic and parathyroid disease, and the storage diseases were excluded so far as possible. The parents were unrelated.

The child, the third in the family, was a girl born in March, 1947. She was first seen at the age of 3 months. Birth weight was 3.3 kg. Delivery was spontaneous after a slow labour with uterine inertia. It is not certain whether normal meconium was passed. At the eighth or ninth day jaundice developed, with pale stools: the jaundice disappeared after some days, but the stools remained very pale and only showed an approach to normal colour towards the end of her life. Jaundice reappeared at intervals and was present at the first examination in June, 1947, when she appeared as a small but vigorous infant, with widely open skull sutures and open, large conjointed fontanelles. The skull circumference was 15 in. (38 cm.). The liver was moderately enlarged. She was admitted to hospital for study, and was found to have a severe steatorrhoea with normal lipase activity; trypsin was demonstrated by duodenal aspiration, which also showed some bile pigment. Radiographs of the skull showed no distinctive lesion and were later scrutinized for cerebral calcification without result. No diagnosis was made. She left hospital and was seen in September, aged 6 months. There was now obvious regression in activity: she could not raise her head, would grasp, but not reach out. The liver seemed larger. Bright blood had been seen in the stools on several occasions. Head circumference was 16 in. (40.5 cm.). She was examined again in November and now failed to follow a light: the pupils gave normal reactions and there was no opacity in the media. A diffuse retinopathy was present, with much pigment gathered around atrophic patches. She gave no reaction to loud noises. The sutures and fontanelles were still widely open.

In February, 1948, she was reported nearly to have died during an attack of pneumonia. She was examined again in March, now aged [illegible] months, when the only new facts noted were a palpable spleen and the development of an extreme hypotonia. She died at home shortly afterwards. An autopsy revealed no light on the diagnosis. There was no gross hydrocephalus: the liver was large (555 g.) and pale, the thymus large, and the suprarenals very small. Sections showed no evidence of storage disease nor of fibrocystic pancreas.

The possibility of toxoplasmosis was not considered in this case until Jacobi and Segorin's report appeared (*Lancet*, 1948, 2, 926). Professor Beattie kindly examined the mother's serum in February, 1949, with negative result, and on his advice further specimens were sent to Dr. Sven Gard at Stockholm. A positive test was found to a titre of 1:10 with freeze-dried serum, but a second examination with untreated serum gave no result. Sections from many organs were retrospectively examined for parasites without any being identified.—I am, etc.,

Farnborough, Kent. DUNCAN LEYS.

Operative Treatment of Varicose Veins

SIR,—Mr. J. B. Oldham (September 10, p. 597) quotes me as carrying out the retrograde injection of varicose veins at the operation of ligature of the saphena magna. I wish to confirm this and also state my present evaluation of this practice.

I have just finished a three-year period, October, 1946, to September, 1949, during which most of the gross varicose veins under my care have been treated by the procedure of ligature at the groin or popliteal space and ankle, then internal mechanical abrasion of the saphena trunk, alternated by the fractional insertion of P25G solution (phenol crystals 2½%, glucose 25%, glycerin 25%, gelatin 0.25%); 1–2 ml. are inserted at a time, 7 ml. being injected at the groin through the long needle, starting at the knee and withdrawing, and 5 ml. are similarly inserted at the ankle from the knee downwards. I am much indebted to Mr. Riddoch, of Birmingham, for demonstrating to me the internal abrasion and telling me of his phenol (2%) and glycerin (30%) sclerosing fluid.

I have seen most patients since their operation at increasing intervals of one to six months, when visible and palpable varices have been injected as necessary with P25G solution. I am now examining them one to three years after this treatment. The results are excellent, and I am enthusiastic about the method. It is a compromise between effectively destroying the superficial varicose condition on the one hand and the danger of deep thrombophlebitis and a propagatory clot with embolism on the other.

During these three years my assistants and I have dealt with over a thousand patients. There have been no fatalities, and so far as I am aware only two instances of mild deep thrombophlebitis (both completely recovered) and one of pulmonary embolus. The latter is approximately the expectation of embolism after any surgical operation. I have made a point of inspecting all old patients. This method is effective and safe. Elsewhere I shall record an experimental variation which proved not to be safe nor so simple, and which demonstrated by contrast the effectiveness and innocuousness of the above technique.

With regard to chronic ulcers of the leg, may I say that no matter what the cause, and they are numerous, the treatment is almost the same. A bandage (not "elastoplast"; "lestreflex," or diachylon are less irritant and as effective) applied after the principles and practice laid down by Dr. Baynton in 1797 and by Mr. Dickson Wright from 1929 onwards by a trained and careful medical man will achieve what patients consistently describe as a "miracle of healing." Ointments, "sulpha" drugs, and penicillin creams, generally used and often ineffective, can be finally abandoned.—I am, etc.,

London, W.1. HAROLD DODD.

Modern Trends in Radiology

SIR,—It is now time for someone to write in support of Dr. James F. Brailsford and his views (October 1, p. 724), for he is not wholly wrong; indeed, he may well be largely right. As a specialist who tries to place his specialty in perspective and to prevent its abuse he deserves commendation and not castigation. His reward, however, is denunciation; and the tone of some letters in your issues of October 15 and October 22 suggests that their authors would feel much more at ease if Dr. Brailsford's views were suppressed. If so, then these views merit increased attention.

It seems futile to deny or ignore the truth of one main contention—namely, that radiography is being used extravagantly. For years a progressive increase in requests for *x*-ray examination has been apparent; truly the period of idolization is well under way. It would be reassuring to believe that such requests were based on sound clinical judgment and showed no taint of desire to drop the substance for the shadow. The evidence is to the contrary. Some doctors, moreover, nursing their *bête noire* of the insidious or atypical case and determined not to be caught out thereby, make requests for *x*-ray examination on the flimsiest pretexts, and while this determination is unquestionably laudable it would be more convincing if it showed a wider range and more discriminate selection of special examinations—e.g., the less convenient and less glamorous bacteriological examination of human excreta which may be even more important. Again, the unenlightened demands of patients themselves play some part; groundless fears can often be allayed in this way, so a radiograph is prescribed with or without medicinal adjuncts but certainly with more therapeutic effect.

The growing subservience to an instrument which has received medical acclaim, Government approval, and legal recognition is shown by the numbers and variety of cases now sent for *x*-ray examination in which radiography is unlikely to be of any value and therefore wasted. Many patients with clinically average and recognizable conditions,

such as bronchitis, mitral stenosis, congenital hydrocephalus, are sent for plain radiography "just in case." In case of what? Is there, then, no pattern of disease? The same attitude is manifest in cases with definite lung disease: the repeated routine radiography of firmly calcified lesions, of inert fibrosis, of established bronchiectasis; the anxious scanning of the shadow of a tuberculous lesion for activity in an effort to read what may not be written. Why this monotonous and melancholy admission of the mastery of matter over mind? Obviously the complete diagnosis is expected. Precise analogy is difficult, but there is some similarity in this to the diagnosis of a weighing-machine, which, by showing a person's weight on one side of a card, demonstrates thereby its competence to reveal his character on the other.

The proper function of radiography is to serve medicine and not to usurp its place. Nevertheless it is a powerful instrument, worthy of a high place. It is, however, unusually open to abuse, from which it must have protection. It will not be protected by passive silence, nor by adopting the oblique suggestion made to you, Sir, that Dr. Brailsford might be "muzzled" by denying him "space in a scientific journal." I hope you will be able to give him as much space as he needs. —I am, etc.,

Glasgow. J. S. GEMMILL.

Tuberculosis: Certain Unexplained Mortality Figures

SIR,—I should be very much obliged if you would permit me to reply briefly to Dr. Ian Sutherland's letter (October 15, p. 869) in order to correct certain misconceptions and inaccuracies. Dr. Sutherland's views on the mortality due to respiratory tuberculosis in Scotland and England and Wales are, as far as they refer to my letter (September 24, p. 706), utterly beside the point. I was not concerned, as he erroneously assumes, with deciding whether the mortality due to respiratory tuberculosis in Scotland in young adults was or was not worse than it is in England and Wales. Nor was Mr. Walter Elliot's address (August 6, p. 297) concerned with this question, for the simple reason that the north-south gradient of mortality due to tuberculosis is a long-established fact. Mr. Elliot's problem, and mine, was the deterioration of the *crude* death rate in Scotland since 1939, for which I have suggested the ageing of the population as a possible cause, operating, maybe, in conjunction with other causes.

I have not, as Dr. Sutherland inaccurately states, claimed to explain most of the changes in the death rate for tuberculosis since 1939. On the contrary, I have emphasized that the statistical explanation for the deterioration of the crude death rate did by no means exclude a concomitant rise in the age-specific death rate of young persons.

The third inaccuracy in Dr. Sutherland's letter is the statement that I had failed to make a full examination of the mortality at specific age groups, and this misstatement seems to recoil upon the critic himself. For not only has he overlooked the table in which mortality due to respiratory tuberculosis for the sexes and females in the relevant four age groups is given from 1939 to 1946, and from which certain conclusions were estimated, but he has failed himself to look at his own figures as according to which the mortality of males in Scotland per thousand living has changed (by age groups) as follows:

	15–24	25–34	35–44	45–54
1939–41 ..	80	105	105	115
1945–7 ..	82	104	100	113

The rate has thus dropped in three age groups and not risen significantly in the fourth. All this is contrary to his conclusions and confirms mine.

Apart from this, it is even misleading to declare that "these mortality rates are unaffected by changes in the age distribution of the population." Since each of the age groups comprises 10 years of age, these rates are really crude death rates for each of the four decades in question. Comparisons on the basis of such rates between different countries or different periods are therefore valid only under the assumption that the two age distributions within the 10-year age groups are identical. It goes without saying that such an assumption is not always justified, and the greater the difference between the overall age distributions of the two countries or in the two periods the less justifiable becomes the assumption. This must be kept in mind when considering the rise in the death rate for older people, males (55 and up), in Scotland.

The comparison with England and Wales in my own letter was not intended to show, as Dr. Sutherland seems to imply, that there was no difference in the mortality due to tuberculosis in the two countries, England and Wales and Scotland, but, on the contrary, to explain why the movement of the death rates in the two countries was different. As regards his conclusions about the female age group between 15–34, he has overlooked that I have already drawn attention to the fact that for this female age group we must assume a physical cause responsible for the deterioration in the death rate and that the statistical explanation was not to be adopted there.—I am, etc.,

Bristol. G. HERDAN.

Chloramphenicol in Typhoid Fever

SIR,—I was very interested in the article by Dr. J. C. Patel and his colleagues on chloramphenicol in typhoid fever (October 22, p. 908). It appears to me that there may be some significance—from a therapeutic point of view—in the fact that of six typhoid cases treated three died—all within 48 hours of treatment being commenced (at 48 hours, 26 hours, and 40 hours). It appears that the mode of death in the 48-hour case was circulatory failure; the authors write, "Whether this was due to the drug or the disease is difficult to say." As regards the 40-hour case, there was hyperpyrexia and circulatory failure, and the authors say that "it could well have been hyperpyrexial reaction during the course of the disease, or it may have been due to rapid lysis of a large number of organisms."

I take it that a hyperpyrexial reaction in the course of the disease is likely in itself to be due to an additional release of endotoxin from lysis of organisms, and if this is so the problem is whether the body unaided would have induced the lysis at that particular time anyhow or whether it is more likely to have been a genuine combined operation of body plus drug In the 26-hour case the authors say, "Probably chloramphenicol did not get a chance to act." Is it quite certain that this is so? According to the pamphlet issued with the drug, maximum blood levels can apparently be quickly achieved, at any rate in normal health, and, given adequate absorption, I think it unproved that 26 hours is too short a time in which to achieve appreciable action. I think it is therefore not impossible that chloramphenicol given in maximum dosage to a hypertoxic patient may be capable, by causing a sudden additional release of endotoxin, of precipitating a grave situation. Dr. F. Murgatroyd, in a description of a case of typhoid fever treated with chloramphenicol (May 14, p. 851), says, "In the first 24 hours the patient's general condition became markedly worse, and this gradually improved." It is true that two recent cases of paratyphoid fever successfully treated with chloramphenicol at this hospital did not demonstrate a clinically perceptible initial deterioration, but they were of favourable age groups (4½ years and 19 years) and though poorly were not hypertoxic.

If there is a danger of this effect it would be nothing new in medicine. It is true that in our use of sulphonamides and penicillin bold tactics in early dosage are advised and are both safe and rewarding. It does not follow, however, that in severe cases the first grand onslaught of the drug may not increase discomfort from toxaemia, though not to a dangerous degree. I have, however, no proof that this does occur in the treatment of coccal and bacillary infections with these drugs.

The matter is otherwise in antisyphilitic therapy, where in certain types of tertiary lesions it is well known that a dangerous Jarisch-Herxheimer reaction can be set in motion by unduly comprehensive early therapy. The danger here is not from toxaemia but from a too extensive clash of drug and organism. The parallel is perhaps closer in malaria, where "the sudden destruction of such a large number of parasites as is effected by intravenous quinine may liberate a dangerous or even fatal amount of toxin into the blood stream" (Lipscomb, F. E., in Conybeare's *Textbook of Medicine*, 1945, p. 179).

Finally, in the treatment of human brucellosis due to *Br. melitensis* in Mexico with "aureomycin," Spink and his

colleagues (*J. Amer. med. Ass.*, 1948, **138**, 145) speak of a sharp reactive rise of temperature on beginning treatment and mention the occurrence in some cases of an alarming temporary fall of blood pressure. They recommend a smaller initial dose of aureomycin (in the first two days) to overcome this effect. Possibly in the treatment of the more severe cases of typhoid fever with chloramphenicol a similar strategy might be the safer course.—I am, etc.,

Coventry. J. F. GALPINE.

The Acute Throat

SIR,—It is good to find more space in the *Journal* being devoted to subjects of particular interest to general practitioners, and I am sure most of us will have derived benefit from Dr. T. Anderson's article on "The Acute Throat" (October 15, p. 860). Nevertheless I feel that one statement made by Dr. Anderson should not go unchallenged. Of sulphonamides he writes, "The efficacy of these drugs has never been convincingly demonstrated in such conditions. Since they are undoubtedly toxic materials, carrying appreciable risks of sensitization, their administration is inadvisable, and in certain conditions may even be dangerous."

Probably everyone will agree with Dr. Anderson that the complaint of sore throat is one of the commonest made to the doctor, and further that outbreaks of acute tonsillitis are most frequently streptococcal in origin. I was taught, and my very limited experience has confirmed, that sulphonamides are of very great benefit in streptococcal infections. It is hard, therefore, to understand Dr. Anderson's first sentence in the paragraph quoted above. Surely the effect of sulphonamides in streptococcal infections is not doubted.

The alternative is penicillin. I agree that local therapy with lozenges is completely inadequate, and therefore intramuscular injections are necessary. Their efficacy is not doubted, but to suggest to a busy G.P. that he administer four-hourly injections of penicillin to all but the mild throat infections (for which aspirin, etc., are effective) is to suggest the impossible. He would not get through his day's work in 24 hours. Alternatively, to suggest that he give two or three injections of procaine penicillin for the first day and then carry on injections for seven days also demands very considerable time, and is in my opinion unnecessary in the great majority of cases if sulphonamides are used.

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SIR,—In the article by Dr. Thomas Anderson on the acute throat (October 15, p. 860) the use of bismuth in the treatment of acute non-specific infections of the throat and upper respiratory tract is not mentioned. I feel this method of treatment merits wider recognition than it has received in this country.

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Following the reports of successful results in many papers, a trial was undertaken in 1947 in the Queen Elizabeth Hospital in Birmingham, but as the salt used by Stovin was not available my colleague, Professor K. D. Wilkinson, suggested the use of bismuth et sodii tartras (*B.P. Add. 1*), 1 gr. (65 mg.) of the salt in 15 gr. (1 g.) of cocoa butter used as a rectal suppository. This was described by us in articles published in the *Birmingham Medical Review* (1947, **15**, 170).

Our conclusions at that time were favourable, and experience during the past two years has supported this view. In my department in the Queen Elizabeth Hospital some 65 cases have now been treated by this method. They fall into two groups. The first were cases of continued pyrexia following tonsillectomy and other surgical procedures, and in these we found in four out of five cases the temperature became normal within 24 hours of the use of the bismuth suppository. The second, a smaller group, were members of the staff of the hospital suffering from acute tonsillitis, and although failures have occurred successful cases have been in the majority. The high proportion of successful results in this small series of cases suggests that bismuth therapy should be the primary treatment in acute tonsillitis, and encourages us to hope that with its use both the period of disability and the incidence of complications will be much reduced.—I am, etc.,

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or object of the experiment; (4) recovery of the animal from the anaesthetic and observation for prolonged periods if killing the animal would frustrate the object of the experiment; (5) the use of cats, dogs, horses, asses, or mules if the particular animal can be shown to be necessary to the success of the experiment. In each case, it should be clearly understood, the certificate must state that the particular dispensation required is necessary; thereafter the granting of the certificate by the Home Office follows as a matter of course—at any rate I have never heard of an instance in all the 73 years of the Act in which it has been refused. Is it suggested that the eminent signatories refuse to countenance scientific investigation of value, or that types of experiment not deemed necessary to such investigation should still be performed at the whim of the research worker? May we be informed to which restrictions under the Act objection is taken?

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A Long Gestation

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"So, as the tale tells, the queen soon knew that she was big with child, but a long time wore or ever she might give birth to the child: so it befell that the king must needs go to the wars, after the custom of kings, that he may keep his own land in peace: and in this journey it came to pass that Rerir fell sick and got his death, being minded to go home to Odin, a thing much desired of many folk in those days. Now no otherwise it goes with the queen's sickness than heretofore, nor may she be lighter of her child, and six winters wore away with the sickness still heavy on her; so that at the last she feels that she may not live long; wherefore now she bade cut the child from out of her; and it was done even as she bade; a man-child was it, and great of growth from his birth, as might well be; and they say that the youngling kissed his mother or ever she died; but to him is a name given, and he is called Volsung." (William Morris's translation.)

I know little or nothing of anthropology, but it has always seemed to me that the story of the six-year gestation period may have arisen from a custom, mentioned in the Old Testament, of heirs being produced for a man who died without issue by impregnation of the widow by the dead man's brother or other near relative; and that in the case of Volsung the widow of Rerir did not become pregnant for six years after his death.—I am, etc.,

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Congenital Pyloric Stenosis

SIR,—The following report of three cases of congenital hypertrophic pyloric stenosis in one family may be of interest in view of Dr. J. L. Adlington's report (October 1, p. 740). The incidence in three brothers is rare. The children here described were the first, second, and third children; the fourth—a girl—was completely unaffected.

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Case 2.—The second child was born on January 12, 1940, and admitted to hospital on February 2, 1940, at the age of 3 weeks. The history was that three days before admission the boy, who was well apart from mild icterus which dated from birth, started vomiting about half an hour after feeds. The vomit was not projectile but was copious. Constipation had been troublesome for a week. In hospital he was found to be moderately dehydrated and the abdomen was distended. Some jaundice was present. Visible peristalsis occurred and vomiting of a forcible character persisted after every feed. After correction of dehydration Rammstedt's operation was performed on February 5, and a typical pyloric tumour was incised. The condition after operation was good. Gastric lavage on one occasion showed a small amount of fresh blood, but all feeds were taken well and retained. Progress was satisfactory, and he was *discharged 10 days after operation. Follow-up, four, eight, and* 16 weeks later, showed that he was a keen, bright child, and was well nourished. Development was normal.

Case 3.—The third male child of the family was born on January 3, 1943, and was breast-fed for three weeks. Feeding was then changed to dried milk because of repeated small vomits after feeds. The baby was constipated. By the age of 8 weeks the feeding had been changed three times without any improvement in the vomiting or constipation, and it is remarkable that the condition was not suspected by the parents. When the infant was brought to hospital the vomiting was projectile, peristalsis was visible, and a pyloric tumour palpable. Two days after admission the boy was operated on and the thickened pyloric muscle incised down to the mucosa. After operation there was slight sickness, which was controlled for three days with "eumydrin." The child was discharged 13 days after operation, taking full feeds and gaining weight steadily.

In the later history of the two surviving brothers it is perhaps worthy of note that both boys had infantile eczema during the first year and both required removal of tonsils and adenoids at the same time in December, 1945. Subsequently, in May, 1947, both boys were in hospital at the same time for appendicectomy—in each case a history of acute severe abdominal pain with vomiting being given. The appendix of both children was inflamed and infected, that of the younger showing pus and incipient abscess formation. Inquiry into the family history has not revealed any other known relative in whom pyloric stenosis has occurred. The parents are not consanguineous. Both boys are at present in excellent health. The cases were admitted to the Royal Aberdeen Hospital for Sick Children under the care of Professor John Craig, who has kindly given permission for the publication of this report. My thanks are due to him for his help and advice.

—I am, etc.,

Aberdeen. JOAN M. BURRELL.

Dysentery in Monkeys

SIR,—With reference to the letter by Dr. R. E. Rewell and Colonel R. F. Bridges (October 15, p. 876), at the Central Research Institute, Kasauli, India, in 1940, in the search for a suitable antigen to be used in the event of epidemic dysentery in war, monkeys were used by me as experimental animals. These were immunized with a Flexner strain of antigen isolated from a suffering monkey and closely related in antigenic content —shown by feciprocal absorption tests—though not exactly similar, to one of the commoner Flexner human types. It was found that these animals could be immunized by doses of a detoxicated vaccine, details of the preparation of which can be seen in a paper published in 1942 (*Ind. J. med. Res.*, 1942, 30, 213). The result of this research in the monkey as the experimental animal, using its own infective bacterium as antigen, added much to my belief in the efficiency of parallel methods of preventive T.A.B. immunization in man.—I am, etc.,

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Case 3.—The third male child of the family was born on January 3, 1943, and was breast-fed for three weeks. Feeding was then changed to dried milk because of repeated small vomits after feeds. The baby was constipated. By the age of 8 weeks the feeding had been changed three times without any improvement in the vomiting or constipation, and it is remarkable that the condition was not suspected by the parents. When the infant was brought to hospital the vomiting was projectile, peristalsis was visible, and a pyloric tumour palpable. Two days after admission the boy was operated on and the thickened pyloric muscle incised down to the mucosa. After operation there was slight sickness, which was controlled for three days with "eumydrin." The child was discharged 13 days after operation, taking full feeds and gaining weight steadily.

In the later history of the two surviving brothers it is perhaps worthy of note that both boys had infantile eczema during the first year and both required removal of tonsils and adenoids at the same time in December, 1945. Subsequently, in May, 1947, both boys were in hospital at the same time for appendicectomy—in each case a history of acute severe abdominal pain with vomiting being given. The appendix of both children was inflamed and infected, that of the younger showing pus and incipient abscess formation. Inquiry into the family history has not revealed any other known relative in whom pyloric stenosis has occurred. The parents are not consanguineous. Both boys are at present in excellent health. The cases were admitted to the Royal Aberdeen Hospital for Sick Children under the care of Professor John Craig, who has kindly given permission for the publication of this report. My thanks are due to him for his help and advice.

—I am, etc.,

Aberdeen. JOAN M. BURRELL.

Dysentery in Monkeys

SIR,—With reference to the letter by Dr. R. E. Rewell and Colonel R. F. Bridges (October 15, p. 876), at the Central Research Institute, Kasauli, India, in 1940, in the search for a suitable antigen to be used in the event of epidemic dysentery in war, monkeys were used by me as experimental animals. These were immunized with a Flexner strain of antigen isolated from a suffering monkey and closely related in antigenic content—shown by reciprocal absorption tests—though not exactly similar, to one of the commoner Flexner human types. It was found that these animals could be immunized by doses of a detoxicated vaccine, details of the preparation of which can be seen in a paper published in 1942 (*Ind. J. med. Res.*, 1942, 30, 213). The result of this research in the monkey as the experimental animal, using its own infective bacterium as antigen, added much to my belief in the efficiency of parallel methods of preventive T.A.B. immunization in man.—I am, etc.,

Glasgow. W. LEONARD FORSYTH.

Antiseptics for Minor Dressings

SIR,—May I comment on Dr. I. B. Sneddon's letter (October 1, p. 759), which rightly criticizes the local use of sulphonamides? Dr. Sneddon states that "penicillin powder is 99% sulphathiazole." This statement is liable to misinterpretation; the preparation which he presumably has in mind is a mixture of penicillin and sulphathiazole used for local application. The use of this mixture does incur, as Dr. Sneddon points out, the risk of a sulphonamide dermatitis.

In this hospital, however, we have found that a useful alternative is a mixture of penicillin and lactose. The lactose is sterilized by heating in a hot-air oven for eight hours at a temperature of 140° C., and when cool is mixed with calcium penicillin to give a final strength of 5,000 units per gramme of finished product. We have used this preparation for several years and have found it a convenient method for applying penicillin locally.—I am, etc.,

Hertford County Hospital. JOHN C. H. HANSON, Chief Pharmacist.

Conceptions of Right and Wrong

SIR,—Dr. Frederick Dillon (August 27, p. 485) asked for an authoritative meaning of the word "wrong" as it is used in the M'Naghten rules, and is resentful when Dr. J. E. Wilson, in replying (September 24, p. 711), seeks to give him his answer together with an authority for it, although he does so, somewhat unhappily in my view, by quoting at length the answers of the judges. If Dr. Dillon merely wished for an answer in terms of yes and no, as he states in his more recent letter (October 8, p. 818), he could have had it by reference to any good standard work—for example, those of Glaister or of Kenny. The latter, indeed, in his *Outlines of Criminal Law* has added the word "morally" in summarizing the judges' answers.

That morally wrong and not legally wrong is the meaning was finally established by the Court of Criminal Appeal in 1916, when the question was considered by that court in the case of Rex *v.* Codere, but morally wrong not by the standard of the accused, as Dr. Dillon would apparently construe it, but by "the ordinary standard adopted by reasonable men" with reference to the particular act. Further, if the prisoner knew in actual fact that the act was contrary to law it must be presumed, at least in the case of serious crimes, that he knew it to be wrong by that ordinary moral standard.

It will follow from this, therefore, that if prosecuting counsel can prove, as the Attorney-General sought to do in the Haigh case, that the prisoner knew the act to be wrong legally, then he must be taken to have known it to be wrong morally, as required by the rule. Even before Rex *v.* Codere a prisoner such as Haigh who knew his act to be legally wrong would have been held responsible on the authority of the first of the answers of the judges, already quoted by Dr. Wilson.

Much righteous indignation and sympathy for the criminal appears to be wasted by medical men on account of the supposed inadequacy of the M'Naghten rules. The function of the law is to protect the community, and, while with a better understanding of insanity there has been a gradual widening in the application of these rules, it must rest with medicine to throw more light on mental disease and so make possible a revision of the law, unless, indeed, the probable abolition of capital punishment reduces their importance.—I am, etc.,

Aberdeen. DOUGLAS MCBAIN.

Distinction Awards for Consultants

SIR,—The history of the dispute on this subject is discussed at some length in your leading article (October 1, p. 745). The writer gives the impression that there was no criticism of the report of the Spens Committee on remuneration of specialists at the time of its publication (June, 1948). That this was not in fact the case is shown by consideration of my letter in the *Journal* of July 3, 1948 (p. 48), quoted in your leading article in the same issue (p. 31). Although my letter expressed warning and criticism of the proposed method of making distinction awards and was, I believe, the first one published in your journal at that time, I made it quite clear that my views, though personal, did in fact represent the views of other specialists, if not indeed the majority of consultants.

It is necessary to remind ourselves that most specialists are far too busily engaged in medical work to find time to express their opinions through your columns on the multitudinous weaknesses of the health services; more especially is this the case when these opinions are in agreement with previous correspondence. Such was the position in July, 1948, and it is unfair to suggest that voices were silent until that of Dr. F. M. R Walshe was heard on August 13 (p. 383). I am the first to acknowledge precedence to the letter of Dr. Walshe in weight and authority, but I do claim that my letter had precedence in time to the extent of over one year and anticipated with a warning the troubles to come.

I range myself whole-heartedly behind Dr. Walshe in his utterances on this subject, and view with horror the threatening statement of Dr. H. E. A. Boldero (September 10, p. 594) that "money for these awards will not be available for any other purpose." If Dr. Boldero seriously believes that the specialists of this country want to grab as much money from the taxpayers as they can for distinction awards at the expense of the harmonious unity of the profession I cannot imagine what he takes us for unless he likens us to a hungry flock of vultures each struggling for the greatest part of the prey. Far more would we prefer to see the money handed back to the taxpayers on whose shoulders the exorbitant expense of the Health Scheme depends.

The one sensible suggestion for the distribution of the fund is made in your article—that it should be made available for posts in the higher grades of the Service. Although these would probably be whole-time posts, as a part-time consultant I would far prefer that the fund should be distributed evenly for all full-time consultants in compensation for their less pleasant terms of employment and their inability to pursue private practice, which the Minister has unsuccessfully strived to destroy. In this way we should at least avoid the demoralization of the present set-up, in which specialists are empowered to assess the merits of their colleagues in secret communications. Rather than by using public funds to disrupt the harmonious co-operation of specialists which has been a feature and a legacy of the past, surely we should strive to preserve the spiritual and moral qualities of our calling—qualities which are of far greater worth than extra financial remuneration.—I am, etc.,

Windsor. PHILIP H. WILLCOX.

Acknowledgments to Authors

SIR,—It is good that Sir Stewart Duke-Elder in his review of *Modern Practice in Ophthalmology, 1949* (October 22, p. 913) should remark upon the undesirability of using illustrations without acknowledgment to the authors of them—"an omission which, it is hoped, will not become a practice in British medical literature."

An author who uses an illustration without acknowledging its source cannot well escape the implication that it is his own. In a book just published are two illustrations: one is taken from a presidential address of the Ophthalmological Society, the other, a particularly good coloured plate, is taken from another book. Not only are these used without acknowledgment of any kind, but in the case of the latter the author has taken upon himself to alter the caption.—I am, etc.,

Salisbury. R. FOSTER MOORE.

Encouraging the Blood Donor

SIR,—The excellent work of blood depots and hospital transfusion departments has ensured against grave shortage of supplies of blood, but few hospitals can claim to have optimum stocks of blood all the year round. There are occasions, especially in holiday time, when stocks are low, even lamentably so, and on such occasions the admittance of a severe case of bleeding peptic ulcer or a severe pregnancy haemorrhage may be frightening. The necessity for giving Rh-compatible blood has increased the seriousness of low blood reserves, and the

advent of our new medical service is, of itself, unlikely to stimulate voluntary donation, rather the reverse. It behoves us, therefore, to consider the factors influencing the supply of blood to a hospital. These fall into two overlapping groups—factors affecting the enlistment of donors and factors concerned with the maintenance of established donor panels.

There is a strong tendency for the average individual to avoid thinking of personal responsibility in blood donation. Much more could be done to increase supplies by well-planned information in the Press, the cinema, the church, and even the radio to increase the feeling of personal responsibility. Comparatively few realize the sometimes enormous expenditure of blood in a modern hospital. The public would, I am confident, be more inclined to offer their services if they were impressed by more facts and given facilities for seeing for themselves what is done and what is required. Our present panels of unselfish citizens are proof that no monetary inducement is essential, though by way of compensation the French system of allowing additional food rations might be adopted.

Many would-be donors are deterred by a strong fear of blood-letting. Fear can be largely dispelled by allowing people to see for themselves how blood is withdrawn painlessly and by emphasizing the vital role of the blood donor in the recovery of so many hospital patients. Satisfied donors are themselves excellent agents for dispelling fears amongst their friends and acquaintances. A few energetic, public-spirited doctors have addressed groups of young adults (e.g., in youth clubs), thereby winning their interest and services in transfusion work. Such efforts could well be emulated by doctors, young and old, who are sufficiently interested in the welfare of their hospital.

In certain parts of the world, notably the U.S.A., blood expended on a patient has to be replaced in kind by a member of the family, where circumstances permit. Blood donors are paid for their blood in cash. The enlistment of healthy relatives, especially young adult relatives, as blood donors might be considered as a possibility in this country. Tactful inquiry and gentle persuasion on the part of the doctor could enlist the services of many helpers from this family source.

The blood donor is such a precious unit that particular care should be exercised in all our dealings with him or her. This implies, amongst other considerations, a courteous welcome, painless blood-letting, and appropriate refreshment in pleasant surroundings. The dissatisfied donor is unlikely to return. He may be dissatisfied with the abrupt wording of the letter from the hospital reminding him of his appointment, which perhaps reminds him more of income-tax returns than a mission of mercy. Or he may be displeased with the cold reception at the hospital or the clumsy and painful technique of doctor or nurse. He is unlikely to overlook lack of gratitude for his services. All donors deserve appreciation, especially those who have given many pints of blood or who have answered emergency calls. A personal letter from a senior hospital doctor would be a fitting expression of gratitude in these instances.

A donor panel can be adequately maintained only by constant vigilance and attention to detail. Many donors quietly drop their services either because they leave the neighbourhood or because they no longer wish to donate blood. In either case it frequently happens that the hospital is not informed of the termination of their services in good time. A blood donor panel, like clothing, requires constant repair and replacement.—I am, etc.,

London, S.W.17. A. WYNN WILLIAMS.

Co-ordination of Tuberculosis Schemes

SIR,—The figures quoted by Sir Andrew Davidson in a recent address, reported in the *Journal* of October 8 (p. 806), give convincing proof of the seriousness of the tuberculosis problem in Scotland. Sir Andrew states that the reasons for the continuing high incidence and mortality have not been elucidated. Doubtless there were, and are, many factors outwith control, but have there not also been administrative mistakes that could have been avoided?

For example, even when it became apparent that the servicing of sanatorium beds would be difficult for some time to come no country-wide move was made to make good the deficiency, in part at least, and temporarily, by the fullest possible use of the fever hospitals, where beds and staff were available. Had this been done our waiting-lists would not be so large to-day. Instead, cases in all stages of the disease, many of them highly infective, have been allowed to drift into the medical wards of general hospitals, where other patients, staff, and visitors provide contacts that may number hundreds every week and where adequate preventive measures are impossible. This surely violates every principle governing the treatment of infectious disease. If such cases are to be accommodated in general hospitals it must be in special wards, where conditions can be made to approximate sanatorium ideals.

Later in his address Sir Andrew Davidson advised that "the best possible use should be made of all hospital accommodation irrespective of the functions for which it was originally provided." I trust that in so saying he had in mind the use of special accommodation in general hospitals, and the valuable contribution that the infectious diseases hospitals could make to the solution of this problem.

Further, should not priority be given to all measures aimed at erasing this black spot from Scotland's health record? Any outbreak, however small, of enteric fever or infantile paralysis calls for and obtains immediate mobilization of all the forces at the command of the health authorities, and rightly so, but a similar sense of urgency has been lacking in the official attitude to the tuberculosis problem. Nor is it discernible to the degree that one could wish in the new hospital service, though efforts are being made to find more beds.

One might have expected in the recent grading of specialists some recognition of the magnitude and importance of the task facing workers in this field. But it would appear that the establishment of consultants in tuberculosis is likely to compare very unfavourably with that of other specialties. How, then, is the best type of recruit to be attracted to this vitally important service?—I am, etc.,

Dundee. G. RANKINE.

Fat Absorption

SIR,—A friend has suggested to me that a sentence I used in my Sharpey-Schafer Memorial Lecture (*Journal*, October 1, p. 719), when not considered in relation to its context, might give the impression that there may be no danger in the unrestricted use of mineral oils, either medicinally or as fat substitutes in food.

I must therefore correct that impression if it exists. Referring to the experiments of Frazer and his colleagues on the absorption of extremely fine emulsions of paraffin, I said: "Some alarm has been expressed on this account at the use of medicinal paraffin as a medicament and in cooking." In saying this I was solely concerned with the question of evidence that *dangerous amounts* of paraffin are actually *absorbed* from the intestine when it is taken by mouth in the ordinary way. This does not mean that there are not other dangers. Students of nutrition know them well, and they were referred to in a leading article in the *Journal* (June 12, 1948, p. 1141). With these, however, the lecture was not concerned.—I am, etc.,

Manchester. H. S. RAPER.

POINTS FROM LETTERS

Transmission of Syphilis

Dr. JESSIE M. CRAWFORD (Dartford) writes: Dr. Philip Simon's letter (October 8, p. 815) shows how very important is the taking of a blood test in every pregnant woman regardless of social standing or anything else. It is not necessary to take a case history from the syphilitic point of view till after a positive finding. Even then tact can elicit the necessary facts, and if the husband can be got to take treatment *pari passu* with the wife no apportioning of blame or breaking up of family relationships need ensue. So many people seem to sheer away from the question of syphilis because of the moral issues involved, particularly when an unexpected positive is found. It seems to me, especially now in the aftermath of war, that no one can afford to shirk his or her responsibility to the future generation in this respect. The modern child has a hard enough way to hoe without having the disadvantages of inherited disease thrown in.

Obituary

SIR RICHARD NEEDHAM, C.I.E., D.S.O., M.D. F.R.C.P.Ed., F.R.C.S.

Sir Richard Needham, who died at his home in London on October 24 at the age of 71, was for six years Deputy Director-General of the Indian Medical Service. He had done valuable work as an inspector of medical studies in India, and visited many medical schools in both Asia and Africa on behalf of the General Medical Council and also of the Colonial Office. He had been a member of the Council of the British Medical Association for six years. One of the most distinguished members of the Indian Medical Service, Needham was a man who combined eminence in his profession—in hygiene, administration, and education—with a most lovable personality.

Richard Arthur Needham was born in 1877 and educated at Owens College, Manchester, where he graduated M.B., B.Ch. in 1899 at the early age of 22. He was a house-physician at the Manchester Royal Infirmary and later a demonstrator in anatomy at the University. He joined the I.M.S. in 1903. The Service was then at its zenith; competition was keen and the successful entrants were of notably high quality. Nevertheless Needham early attracted attention by his keenness, initiative, and capacity for hard work. He saw service in North China from 1905 to 1908, and his observations and experiences there turned his interests towards preventive medicine. As soon as he could—in 1910—he obtained his D.P.H. Returning to India, he was selected to accompany a special mission to Tibet in connexion with the repatriation of Chinese troops from that country. Here his duties were largely preventive in character and were performed with great ability.

On the outbreak of the first world war Needham was appointed D.A.D.M.S. (Hygiene) at the base at Marseilles, and was responsible for the medical organization of the many transit camps which were established there and for the care and well-being of thousands of British and Indian troops who passed through that port. It was his conspicuous success in this difficult task which first brought to general notice his outstanding organizing ability, earned him his D.S.O., and dictated his next appointment as Officer on Special Duty in connexion with medical supplies to Mesopotamia after the breakdown of 1916. Equally successful in this assignment, for which he was awarded the C.I.E., his selection as Deputy Director-General in 1918 followed almost as a matter of course. This exacting appointment gave full play to Needham's great capabilities. It brought him into contact with almost every officer in the Service. He was faced with medical and health problems, involving those of medical education, over the whole of the revision subcontinent, which he toured extensively. Widely consulted on all matters of medical administration, his capital decisions commanded universal respect.

Towards the end of his tenure as D.D.G., Needham was appointed inspector of medical studies in India on behalf of the General Medical Council, an activity that continued for the remainder of his service. Medical education in the new Dominions owes much to this day to the high standards on which he insisted and persistently refused to compromise. On his return from Deputy Director-General he was invited to work out the constitution of a new Indian State Railways. The organization and criticism of the proposals in operation with the efficiency which stamped all his work. He proceeded to the degree of M.D. in 1920 and was elected F.R.C.P.Ed. in 1924. In 1923 and again in 1927 Needham represented India at the international sanitary conferences held in Paris. He retired from the I.M.S. in 1930 and was knighted in 1932. After his retirement Needham continued his work for the G.M.C. as its visitor to medical colleges abroad. He went to India again, and he reported on the state of medical education there and in Rangoon, Ceylon, Singapore, and Hong Kong. In 1939–40 he also visited for the Colonial Office the medical schools of Nigeria and Uganda. In the recent war, though over 60, he accepted the invitation of the Indian Red Cross Society to serve as their Commissioner in Egypt, a position he held until the disbanding of the Commission at the end of the war. Here he gave of himself as unsparingly as ever but at a cost he did not realize at the time; permanently impaired health was the price he paid for his strenuous exertions in Egypt.

Needham's clear, lucid mind, his quick grasp of essentials, and his power of succinct expression made him a remarkably fast worker; the amount of work he crammed into a day was prodigious. Yet he never appeared hurried, and always found time to listen to, and generally to help with, the problems of others. Genial and generous to a fault, he was intolerant only of slackness or subterfuge; these he hated and exposed ruthlessly. On the other hand there was no limit to the trouble he would take to help and promote the interests of men of his Service who he thought were "doing their stuff." Many of his juniors, among them the writer, will cherish the memory of his spontaneous kindness, his sound advice and warm championship, and his generous and delightful hospitality. India and the I.M.S. owed much to Dick Needham. Now India has lost a devoted and disinterested servant, the Service one of its most distinguished sons, and we a comrade and friend whose like we shall not see again. The sympathy of all who knew him will go out to Lady Needham. —J.B.H.

A colleague writes: The most notable years of Needham's service in India were those in which he was Deputy Director-General of the I.M.S. During this period he was one of the most prominent and popular figures in the official and social circles of Simla and Delhi. Both of the distinguished chiefs under whom he served relied on him to such an extent that he was generally looked on as the power behind the throne. It is no secret that, when the post of Director-General was about to become vacant through the retirement of Sir Charles MacWatt, Needham was regarded by his administrative colleagues in the Government of India as the most suitable officer to fill the vacancy. Indeed, he was exceptionally well qualified for the appointment in every respect, save only that he lacked the degree of seniority considered essential for the post. In the circumstances it was necessary to find another appointment for him, but owing to the long period during which he had been engaged in purely administrative work he came to the conclusion that he could not fill with satisfaction to himself the appointment to which he was gazetted or any other likely to be available for several years. Accordingly he felt compelled to take long leave preparatory to retirement, and his career in the Service was thus ended prematurely for no other reason than that he had achieved outstanding success at too early a stage.

In spite of his natural disappointment Needham did not yield to a feeling of frustration; he soon found an opportunity for undertaking a very important task for which he had unique qualifications. This was to serve on the Council of the British Medical Association and act as

SIR,—The writer gives the report of the Spec at some length in the same issue (p. 31). in fact the case is shorter *Journal* of July 3, 1948 (p. 31). Indian State Railways. The organ- awards and was, I believe, t Aberdeen

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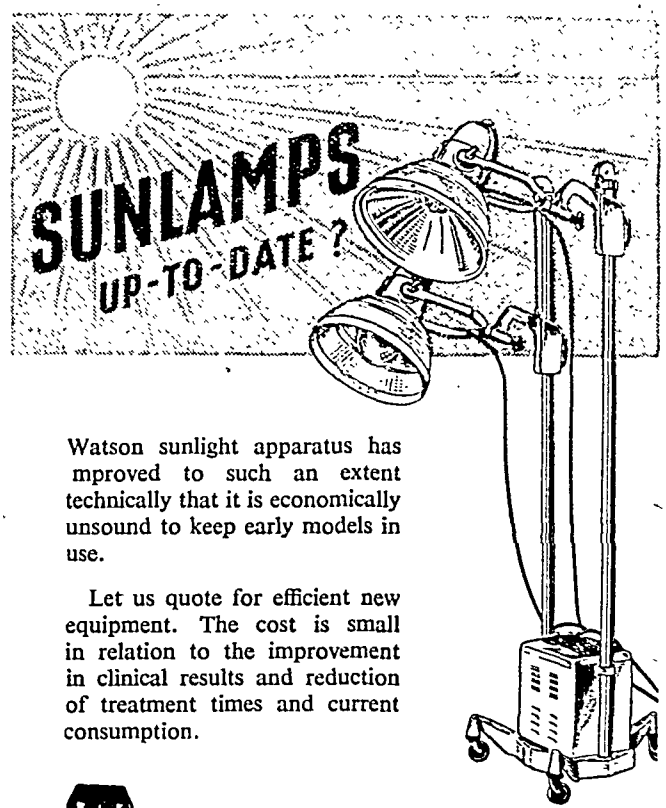
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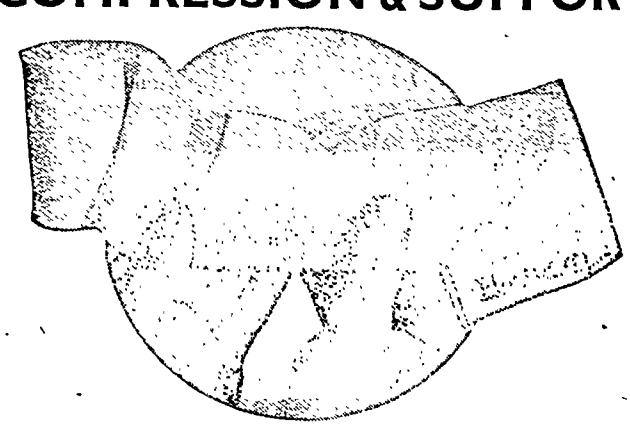
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honorary adviser to the B.M.A. in its conduct of a campaign for the defence of I.M.S. officers against a concerted attempt to deprive them of the rights and prospects which had been held out as inducements to persuade suitable candidates to enter the Service. His unrivalled knowledge of Service matters was of the greatest help to the Association in the long struggle that followed, and the I.M.S. was indeed fortunate in having so able an advocate, especially as its members, serving mostly in isolated posts all over India and Burma, had no organization for the defence of their interests. Needham had the satisfaction of knowing that his voluntary efforts earned for him the high esteem of his fellow officers, but only those associated with him in the negotiations were able to realize the full extent of the debt of gratitude owed to him by every member of the I.M.S.

Wing-Commander H. M. Stanley Turner writes: It was a shock, not only to me but to my family, when we heard of the death of Dick Needham. We saw a lot of him in the days when he was on the Council of the B.M.A. and the Naval and Military Committee—in the days when we were trying to improve conditions of service for the Medical Services of the fighting forces. I have a lively recollection of innumerable informal committee meetings in my bedroom at all hours of the day and night during the annual meeting at Bournemouth, when wheels were busily working within wheels. Goodbody was chairman of the Naval and Military Committee at the time. Needham had a great sense of humour, but he never lost sight of the matter under consideration, although one could see by the twinkle in his eye that he never missed the funny side. He had a very clear and logical mind, which with his great Service experience and tact made him a tower of strength in our deliberations. He quickly grasped points under consideration which might easily become "sticky" with non-Service members of the committee. Both he and I were but recently out of the Service and had not had time to lose our knowledge of the probable reaction of the official mind to matters put forward by the B.M.A. I think this was of assistance both on the Council and in committee. His wide travels and outstanding work in connexion with medical education in our overseas possessions are too well known to require any word from me; but I have always regretted just missing him in Ceylon when he was there in that connexion. I always remember during the Bournemouth meeting in 1934, after a long period with our noses to the grindstone, he and I decided to give a miss to one of the many social functions and have a night out with my wife and young daughter in a sort of fun fair. He was just like a schoolboy let loose, and we had a most hilarious time sampling all the sideshows. We still speak of it. Needham will be badly missed.

J. E. BARNARD, F.R.S.

Mr. Joseph Edwin Barnard, who was well known for his work on ultra-violet microscopy, died at his home at Addiscombe, Surrey, on October 25 at the age of 80.

At a very early age, although still engaged in his father's business, he began to spend most of his spare time at the Lister Institute, taking a special interest in microscopy, and particularly in photomicrography. He soon became expert in this field, and his book *Practical Photomicrography*, written in collaboration with Mr. F. Welsh, was regarded as the standard work on this subject. Mr. Barnard was well known to many members of the medical profession, and his work at the National Institute for Medical Research on the study of applied optics gained for him his F.R.S. He worked in close collaboration with Dr. W. E. Gye for many years.

Dr. W. J. Purdy writes: With the passing of Mr. J. E. Barnard we have lost from our midst one who was perhaps the most eminent microscopist of the recent past, and in those who knew him there must arise a feeling of personal sorrow. To many of us it seemed that the outstanding characteristic of the last years of Mr. Barnard's scientific life was his singleness of purpose, his consecration to the development of the ultra-violet microscope. He early recognized the advantages to be gained by the use of wavelengths shorter than those of visible light if only the technical problems involved could be solved. He already possessed a simple ultra-violet apparatus of German origin, and, setting himself the task of improving on this model, he entered a field of research which for long remained his own. As the work progressed Mr. Barnard became more and more able to throw valuable light on various current biological problems, but in spite of considerable success in this direction he forced himself to keep such interests under control. The surveying of fields which the ultra-violet microscope began to open up could be left to others; his own special task must be the devising of ever better means of doing such work.

Mr. Barnard maintained that for him there were two associated lines of inquiry. These were the improvement of the ultra-violet microscope itself and the improvement of methods of preparing material intended for examination. He held that neither line could be pursued very far without helpful advances in the other. He did pioneer work on the internal structure of bacteria and on the nature of "inclusion bodies." He also brought forward evidence that the larger viruses at least—the larger filter-passers—were only micro-organisms which happened to be too small to be seen under existing microscopes of ordinary type—a quite artificial standard, he maintained. But still, one suspects, all this biological work had its main value for him in that it provided useful exercises in the development of the ultra-violet microscope and the methods of using it in biological studies. Indeed, he remarked on the splendid biological test objects these tiny living particles provided for him.

Mr. Barnard's singleness of purpose led to some charges of lack of co-operation with colleagues who themselves had problems demanding investigation along lines which at that time only Mr. Barnard could have followed. But it was seldom realized how much subsidiary investigation of the material itself might be necessary before microscopical investigation proper could begin, and that the evolution of his microscope might be correspondingly delayed. Though director of the Department of Applied Optics in the National Institute for Medical Research, Hampstead, Mr. Barnard preferred to remain a voluntary and part-time worker, earning his living by part-time attention to his business. He seems to have preferred to remain relatively independent in his scientific activities and thus so much the more free to direct his own course. The result is that the world now has the wonderfully efficient ultra-violet microscope he left when failing health overtook him. This microscope has now been copied in its main features and made commercially available, and its potential value is being appreciated more and more. Notwithstanding the recent introduction of the electron microscope with its surpassingly high resolving powers, the ultra-violet microscope still has a sphere of usefulness all its own. With it cells and micro-organisms can be examined in the living condition and in various wave-lengths of the ultra-violet range. Recently indeed differential absorption in the ultra-violet

range has been much used for the identification of certain organic substances whilst these are still *in situ* in the living cell.

Mr. Barnard early showed signs of his dominant interest, and he retained a vivid memory of the scene which occurred when his father discovered that leave of absence during business hours—leave which had been reluctantly granted for the study of languages conceivably useful in business—had been secretly used to attend classes in optics. He early became an active Fellow of the Royal Microscopical Society, a body whose welfare was ever afterwards very near to his heart. It fell to him to give the presidential address at the society's centenary. In this he reviewed the previous fifty years of the history of the society, a period which coincided exactly with his own period of membership. To some of us it seemed a pity that in that address he refrained from giving the inner history of the many exciting periods of the early days. Now there is no one who can do this from personal knowledge. He was an able and fascinating lecturer on his own favourite subject, but he seemed not to enjoy writing scientific papers. Towards the end of his scientific career he collected much material for a book he contemplated on the ultra-violet microscope, its structural details, and the technique of preparing objects to be examined. Unhappily this book was never actually written. Had it been ready for publication about the time of Mr. Barnard's retirement from active work it would have been of great help to those who were following on. By now much of what he discovered and taught has passed into the general body of knowledge. There remains, however, no clear summary of all that he did for the science he loved.

It is perhaps in relation to details that Mr. Barnard's genius shone most brightly, and indeed it was his technical ingenuity that proved so valuable in the development of his microscope. One seldom visited his laboratory without experiencing a fresh thrill of admiration on discovering some new simple device for overcoming some new difficulty that had been encountered in the course of his work. At one time Mr. Barnard was a keen amateur photographer, and in his laboratory at Hampstead there used to hang a photograph which had won him an "Alpine Prize." This interest in photography, of course, helped to fit him for his studies of ultra-violet light. After the first world war he played an important part in stimulating improvement in English standards of microscope design and manufacture. His mechanical and optical knowledge fitted him particularly well to act both as a destructive and as a constructive critic. The microscope he designed about this time had many valuable qualities.

Mr. Barnard was one of the last survivors of that band of kindred spirits, all amateurs, who years ago used to meet in the rooms of the Royal Microscopical Society, and he remained a true amateur to the end. Often he would recall how in those days meetings generally lasted to a very late hour, discussions being carried on with a zest and candour rarely encountered now. In the direction of the society's affairs his business knowledge and ability were invaluable, while his unassuming nature and his personal integrity, in scientific thought as in private life, were not the least of his admirable qualities.

C. O. HAWTHORNE, M.D., F.R.C.P.

Dr. Alfred Cox writes: "Men must endure their going hence even as their coming hither: ripeness is all." If ever a man of my acquaintance could claim a ripe old age it was Hawthorne. Over 91 at the end, though his physical faculties had declined, his intellect and judgment seemed to me to ripen. He was one of the finest ornaments of our Association, which has had many great figures. His achievements are well known and his departure is mourned by all who ever worked with him. Our Association gladly gave him every honour in its disposal, and Hawthorne greatly enjoyed them, but even more, I think, the real affection which he knew he had inspired. Full and successful as his career was, I have good reason to know that he felt that he had missed the position for which he was peculiarly fitted. He was a born teacher, but except for his early days in Glasgow, where his classes are still gratefully remembered by men, now old, who were his pupils, he never had the opportunity for which he longed. He told me that his greatest professional regret was that he never had a teaching-hospital appointment. He looked longingly back on his close association with Gairdner, for whom he had the greatest respect. But our Association has every reason to be grateful that he devoted his gifts to its service—his learning, his wide reading, his sagacity, his wit and humour. I should rank him very high among the many able chairmen I have known. His command of the Representative Body was masterly. The dignity and authority of the chair were never in doubt when he was in it, but he ruled quite as much by the affection all felt for him as by his authority. For many years he was the ideal chairman of one of the most difficult committees of the Association—the Central Ethical Committee. His work on the Library Subcommittee, though it never reached the limelight, was invaluable. And it should not be forgotten that he was a very active member of the original Building Committee, as is commemorated in the inscription (now almost unreadable) on the stone near the entrance gate at B.M.A. House.

I must not try to enumerate all that he did, or describe all that he was in and to the Association. Space forbids. Nor am I the right person to assess his professional status. But I know many practitioners who had great comfort and support from him as a consultant. I well remember that, being asked by an important firm to recommend "a good general physician who could be relied on for an honest opinion on the capacity for work of our higher officials," I had no hesitation in nominating C.O.H., and was not surprised when some years later I was thanked by one of the directors for helping them to secure a man in whom they had felt complete confidence.

His outside activities should not be forgotten. He did good work on the People's League of Health, especially in its pioneer work for "Safe Milk." Hawthorne would have nothing to do with less aggressive terms like "clean" or "pure" milk. We should be content with nothing less than "*Safe* Milk." He took an almost lifelong interest in the Royal Medical Benevolent Fund, and was, until he left London, the sagacious and humane chairman of its case committee. Nor should his work at the polyclinic in Chenies Street be forgotten, as I am almost afraid it is. This was real pioneer work in postgraduate medical teaching which he shared with Sir Jonathan Hutchinson and a few kindred spirits.

It was my privilege to be in close contact with him until the day of his death—personal contact when he was in London, by weekly correspondence afterwards. On the day preceding his death he dictated a letter to me which characteristically was an attempt to put me right about the proper way of dealing with that tricky term "our mutual friend." His letters were a joy. There was scarcely one which did not contain some epigram or a well-balanced sentence well worth remembering. His reading was very wide and deep. I think his favourites were the Bible, from

which he would often quote, Dr. Johnson, and Sydney Smith. In his measured sentences it was easy to trace the Johnsonian influence, and he was not displeased when one told him so. His remarkable memory enabled him at any time to produce the apt quotation or anecdote, and his *ex cathedra* speeches were eagerly anticipated and joyfully received by his audiences. He more than once delivered addresses of a popular medical character in churches—once at least in St. Martin's Church.

I was never able to draw him out on the medico-political subject which has engrossed our attention lately. He was always eager to know what was going on in Tavistock Square, and I did my best to keep him *au courant*. But he declared that he was now "out of the combat" and it was not seemly for people "on the shelf" to intervene; but no man I have ever known was a more determined upholder of professional freedom. He had his sturdy prejudices and was always ready to defend them. One of them, at one time the cause of a good deal of amusement in our Council, was his objection to any special franchise for medical women. "The qualification for election to this body," he said, "should be good honest work in the Divisions and R.B. There is no more justification for special representation of women practitioners than for practitioners endowed with the glory of red hair."

We are unlikely soon to see his like again. In spite of his age he retained active sympathy for his younger successors, and nobody was more pleased than he when he saw an opportunity to send an encouraging or congratulatory letter to an old friend. Dr. Hawthorne's wife died some years ago, but he was tended with loving care by his sister and by a faithful housekeeper who served him for twenty-four years, both of whom were with him at the end. In one of his latest letters he spoke very feelingly of the attention given to him by Dr. J. M. Anderson, of Hove.

Dr. A. G. Newell writes: I wonder how many of the students who took some of Dr. Hawthorne's classes at Glasgow remain. He had classes for each year of the medical curriculum—chemistry for first-year students, physiology for the second-year, materia medica for the third, and medicine, the eye, and medical jurisprudence for the final-year students. I took each of these, and each was "run after" and well attended. He was a born teacher, and all students appreciated his patience. Since he became a consultant I have frequently sought his excellent services, his kindly manner, and the meticulous care he took. To show his kindly and generous character, he has come from Harley Street late at night to see a case without a fee. He was a great physician and a friend of the general practitioner. Those who knew him miss his magnanimous character.

Miss Lina M. Potter writes: The death of Dr. Hawthorne will be regretted by the older generation of doctors. It is forty years since I listened to his lectures on medical jurisprudence. There has hardly ever been a year since in which I have not been grateful to him for some bit of wisdom. Looking through my notes I find this as typical of his clarity and caution: "In giving evidence—speak audibly. Don't use technical terms. Speak the truth wisely and not too well." He tried to instil into us what he described as "a medical atmosphere," which included medical etiquette and many other things besides. Subsequently when I sat under his presidency at meetings of the Representative Body I was able to appreciate other qualities. He was always strict, always fair, and never got "across the meeting." He made us laugh at ourselves sometimes but never at one another.

Dr. ALEXANDER MACINNES died at his home in Skye on October 9 after a very short illness. A native of Kylerhea, Skye, he served with the Cameron Highlanders during the 1914–18 war, and graduated M.B., Ch.B. from the University of Glasgow in 1928. For two years he acted as assistant medical officer to St. Mary's Hospital, Portsmouth, where he met his wife, then Sister Alice Boyd. He was subsequently appointed as parish medical officer to Sleat, Skye, under the Highlands and Islands Medical Service Scheme of the Scottish Department of Health. In August, 1935, he received a similar appointment as medical officer for the parish of Strath, Skye, moving then to Cairn Villa, Broadford. Dr. MacInnes had always been interested in surgery. Since he settled in Skye he had been associated with the MacKinnon Memorial Hospital, Broadford, and he was soon recognized as a surgeon of considerable ability and one on whom his island colleagues could rely. As recently as January of this year he was presented with a cheque for over £500 and his wife with a gold wrist-watch as marks of the esteem and affection of the people of Skye. Tributes were paid to their long and faithful service to the community.

W. D. M. writes: Alexander MacInnes never spared himself. He was always willing and eager to help under the most difficult and adverse conditions. An example from my own area was that of an old lady, aged 79, residing on an island. She had an acute abdomen, and the weather was stormy and the steamer unlikely to call at the pier. I phoned "Sandy" MacInnes to see what could be done. Two hours later he arrived by motor-boat, at risk to his life, with the matron from Broadford Hospital and some operating kit. On the kitchen table he performed a reduction of a volvulus safely and satisfactorily. The lady died five years later from other causes. His last 16 years' work included some notable cases: caesarean section successfully performed on a cow; a horse gored in the flank by a bull; broken spine of a dog plastered; 17-inch resection of colon; multiple duodenal perforations; and at least eight urgent mastoidectomies. Hard work and worry had of late told their tale, yet his death came as a shock to us all. I heard his cheery laugh a week before I saw him dying. He is mourned all over the island, and his funeral was one of the largest on record. About 800 people attended the service in Strath Parish Church, and over 300 people, including 14 of his colleagues, followed the cortège to Kilmore Churchyard in Sleat. A benefactor to hundreds, he was a man much loved by the people and beloved by his colleagues. We shall miss him, and to his widow and four children all extend their heartfelt sympathy.

Dr. C. Killick Millard writes: In your interesting and appreciative obituary of the late MAJOR GREENWOOD (October 15, p. 877) many aspects of his work and character are dealt with, but no reference is made to the fact that he was a firm believer in and advocate of the legalization of voluntary euthanasia. May I mention, therefore, that for many years he had been a member of the Consultative Medical Council of the Voluntary Euthanasia Legalization Society, and he was selected to put the case in favour of voluntary euthanasia in the broadcast debate arranged by the B.B.C. early this year.

Dr. H. C. Maurice Williams, in concluding his presidential address to the Society of Medical Officers of Health on October 20, said that there were still many unexplored fields for the medical officer of health in his work of acquiring an accurate knowledge of the influences, social, environmental, and industrial, which might operate prejudicially to health in his area. A closer link with industrial medicine, and investigations into the increased incidence of psychosomatic diseases, which played such a big part in present-day sickness, were necessary. An extension of the mental health services, a reduction in the accidents that occurred in the home, and the care of the aged were but a few of the many conditions that required attention. The promise of information from the Ministry of National Insurance relative to morbidity statistics should help them in assessing the local influences causing sickness.

Medico-Legal

MORPHINE FOR MOUNTAINEERS

Surgeon Fined

On October 26 proceedings were taken under the Dangerous Drugs Act against Mr. Wilson Harold Hey, a well-known Manchester surgeon.[1] Mr. Wilson Hey pleaded guilty to a charge of failing to furnish information about his supplies of morphine to a Home Office inspector. Another summons alleging obstruction of the inspector was withdrawn by the prosecution.

Mr. M. J. Jardine, who appeared for the Director of Public Prosecutions, said that on August 15 the Home Office received a letter from Mr. Wilson Hey headed "Mountain Rescue Committee." It recalled that in 1934 he had asked permission from the Home Office to include morphine in the equipment which was left at first-aid stations which had been set up by the Mountaineering Club. In this letter Mr. Wilson Hey said he understood that morphine was being used in similar circumstances in mines and on airfields. His letter concluded: "I would be extremely obliged if you could give permission; or, if you cannot do this, will you take legal proceedings against me?"

Mr. A. D. Gerrard, K.C., described how Mr. Wilson Hey had himself been a keen mountaineer for many years. He and others had been pressing for some form of rescue service in the mountains. In 1934 he came to the conclusion that morphine should be included in the first-aid equipment to be left at certain depots in mountainous districts, and he felt that "public need overrode departmental inertia." When he wrote to the Home Office in August he thought that the official attitude might have changed, as it was proposed that morphine should be used in pit accidents. Mr. Gerrard added that it was generally accepted in the medical profession that it was most important to give morphine on the spot in the case of fractures sustained while mountain climbing. Strict supervision had been exercised over the supply of morphine at the 27 first-aid stations. In the fifteen years since Mr. Wilson Hey had initiated this supply only 1½ gr. of morphine had been unaccounted for—and some part of that was known to have been used in a particular fracture case. Mr. Wilson Hey had "paid for it himself, issued it himself, and kept a record, so he knew exactly what was going on."

The stipendiary magistrate, Mr. J. Wellesley Orr, said that Mr. Wilson Hey was a pioneer of this idea, and one honoured him for it. There was no doubt that he was acting on the highest motives, but he had flouted the law. He thought it would have been better if Mr. Hey had used the very powerful influence of himself and his colleagues to approach the Home Office in a body. He was struck by the fact that nothing had apparently been done by some recognized authority to bring about a change in the law. But Mr. Hey was not entitled to defy the law.

The defendant was fined £10, with 10 guineas costs.

OVERDOSE OF NITROUS OXIDE

At an inquest held in Dublin on May 31 the jury found that the death of a woman of 38 was due to anoxaemia and cardiac failure following an overdose of nitrous oxide (*Journal*, August 27, p. 490). Subsequently the anaesthetist in this case had to appear at the Dublin District Court (October 22, p. 934). A civil action brought by the husband has now been settled.[2] The husband sued on his own behalf and on behalf of his four children the doctor concerned and the Adelaide Hospital, Dublin. It was stated for the defendants that a payment of £1,000 would be made *ex gratia* and without admission of liability. In accepting this settlement Mr. Justice Dixon allocated the money as to £700 in varying amounts to the children and £300 to the father.

[1] *Daily Telegraph*, October 27, 1949.
[2] *Dublin Evening Herald*, October 28, 1949, p. 3

Medical Notes in Parliament

NURSES BILL

Mr. BLENKINSOP in the House of Commons on October 21 moved the second reading of the Nurses Bill. This Bill had already passed the House of Lords.

Mr. Blenkinsop expressed the regret of Mr. Bevan in being unable to introduce the Bill in the House. He said that recruitment of nurses was steadily improving and the number of both full-time and part-time nurses was increasing. The total nursing and midwifery staffs of all grades working full-time in hospitals in June, 1947, was 116,500. By June, 1948, it had risen to 118,700, and by June this year to 137,000. Part-times nurses had increased from 10,700 in June, 1947, to 17,400 in June, 1948, and 22,800 in June, 1949. There had been a gratifying increase in the number of staffed beds, but empty beds in the hospitals still showed the urgent need for more nurses.

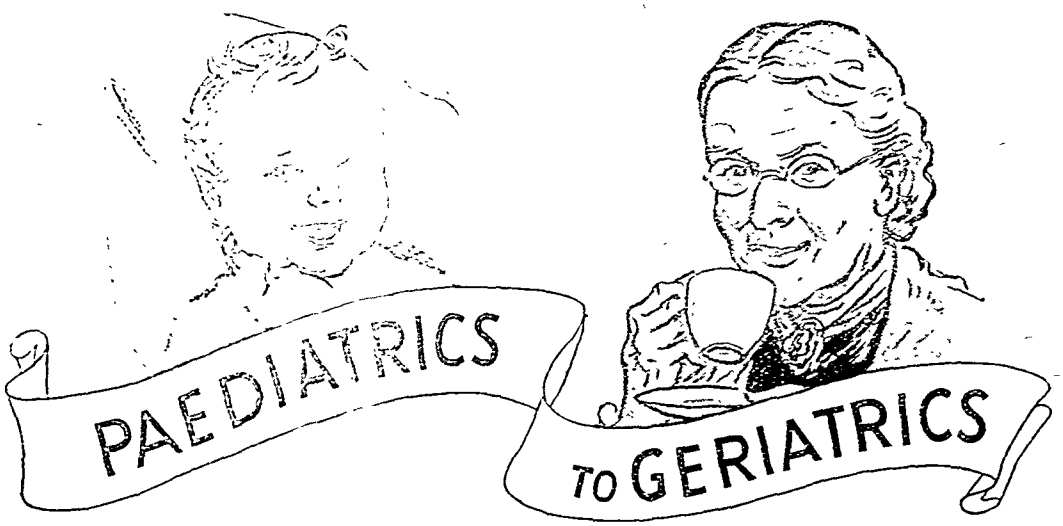
The General Nursing Council during these difficult years had done much to improve the high standards of nursing in this country. Part of the difficulty in recruiting nurses and of the problem of those nurses who left during training was due to a conflict between the needs of training and those of staffing in the hospitals. Too often training had to take second place to staffing needs. The object of the Bill was to see that attention was given to the training of nurses. The Bill gave new responsibilities to the nursing profession through the General Nursing Council to develop the best forms of training and provide for new experiments in training where these were felt to be desirable. The Bill would also give the General Nursing Council more intimate contact with the training hospitals through the institution of regional committees. Election of nurses to the General Nursing Council, as proposed in the Bill, would give nurses a greater interest in their profession and in the Health Service as a whole. All these things in the Bill would encourage recruiting and help to stay the wastage. The strengthened Council would be supported by fourteen Standing Nurse Training Committees including representatives of regional hospital boards and teaching hospitals as well as of the General Nursing Council, the Central Midwives Board, local authorities, and educational interests. There would always be a majority representation of nurses on each regional committee.

Funds for training would be provided by the Exchequer separately and would be distributed by the General Nursing Council to regional committees. There would be a new finance committee of the General Nursing Council to watch over budgets submitted from the regions, to co-ordinate them, and to present them to the Minister. The Bill also provided for a mental nurses committee, and the training of mental nurses would now be within the ambit of the General Nursing Council.

The opportunity was also taken to provide for amalgamation of the supplementary part of the *Register* for male nurses with the general part as soon as the General Nursing Council amended its rules to admit male nurses. This recognized the fact that an increasing part was played in nursing to-day by male nurses. Last year some 20% of the nursing staffs in the hospitals of the country were male nurses. Another amendment to the 1909 Act opened the *Register* to nurses in any part of the world subject to the General Nursing Council being satisfied that training was up to British standards. The Bill did not propose that the form and contents of training should be laid down in any way by the Ministry. The Bill was a skeleton to which the professional body itself would give life. It had the approval of practically the whole of the nursing and medical professions.

Marriages and Resignations

Mr. WALTER ELLIOT said that the nursing profession contained the pick of the young women of the country, and it was not astonishing that one of the reasons for the high turnover in this industry was marriage. He objected to describing this turnover as wastage. It amounted to 15% in the voluntary hospitals, where the ratio was 15% marriage and 25% resigna-



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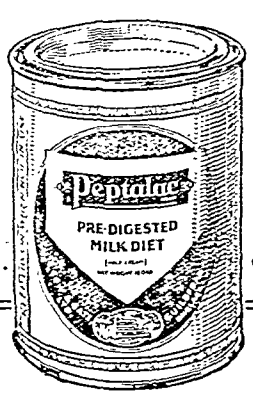
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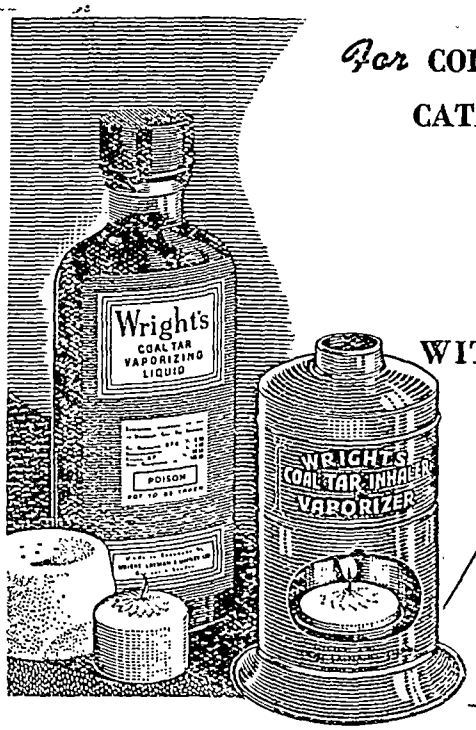
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tions. That was more healthy than the ratio in the sanatoria, which was 8% from marriage and 48% from resignations, or in mental institutions, where the ratio was 11% from marriage and 51% from resignations. The Bill was designed to improve the conditions to which various commissions had drawn attention and to diminish this great rate of turnover. The nursing problem still remained acute. His information was that beds staffed and occupied amounted to 398,000 and beds staffed but unoccupied to 56,000. The beds unstaffed were 52,000. The beds staffed but unoccupied were not beds out of commission. That 52,000 beds out of some 450,000 in all should be unstaffed was a weakness in the national attack upon disease. It was a sector where no assault was going forward although all the technical equipment was there for the assault to be made.

It was a grievous thing to see whole wards empty when the problem of tuberculosis was aggravated during every month in which an infectious case remained in contact with the community. The great teaching hospitals had waiting-lists of girls wishing to enrol. In addition to the prestige the interesting nature of the work was also a factor in increasing the number of girls who desired to enrol in these hospitals. He hoped the Government would indicate how the intake figures in England were moving. In Scotland these figures showed a fall in the nurses entering the profession. The entrance for the preliminary examination in Scotland was 706 in 1947 and 667 in 1948 and for the final examination 1,374 in 1947 and 1,217 in 1948. The increase in the numbers of part-time nurses was a useful development, but he did not look forward to the day when hospital nurses would pour into the gates each morning like typists into one of the great Government hospitals. He did not think that would be to the best advantage of the profession or of the patients. There was an atmosphere about nursing which induced many of those concerned in it to wish to live on the job. That of course brought in the danger of discipline degenerating into petty tyranny and the stereotyping of out-of-date conditions.

The wastage among nurses was much less in voluntary hospitals than in the local hospitals. Voluntary hospitals had solved the problems of human relationships more satisfactorily than had the local authorities. The flexibility of the private decentralized institution was an advantage compared with the more rigid rules of the State or local government institution. He thought the solution in the Bill of financial questions was a great advantage, the more so because the finances of the General Nursing Council were disordered and a deficit of £33,000 was anticipated this year.

Training at Voluntary Hospitals

Mr. MESSER, referring to the attraction of the voluntary hospital, said it was interesting in the teaching hospitals to find the pride which nurses and sisters had in their training schools. Parliament must ensure that the nurse could always take pride in the hospital where she trained. No nurse would ever say "I am proud of having been trained by the North-West Metropolitan Regional Hospital Board." An efficient ward sister was probably the most important officer in the hospital, and he hoped to see the time when their value would be recognized and they would be offered the attractions that at the moment were offered to take them away from their jobs.

For a long time he had criticized the syllabus issued for nurses by the General Nursing Council. It contained a great deal more than the practical nurse needed to learn. There was no reason why the nurse should not obtain additional qualifications in the same way as a doctor did. Was it not possible that after she was trained she could be able to get a tuberculosis certificate and other certificates dealing with children and so on?

Brigadier PETO said it would be a mistake if the teaching hospital was put on the same footing as other hospitals for nurse training and the receipt of grants. To remove the responsibility for training from the board of governors of a teaching hospital would be like removing the responsibility for the training of his men from a commanding officer. It was erroneous to imagine that by pooling the resources of all types of hospital more nurses would be available. It seemed to him that the views of the boards of governors of teaching hospitals had been overlooked by the Minister.

Mr. DIAMOND said he had been struck recently on going round a children's hospital to see the way in which the children waved and said, "Hello, Matron." When he himself had been a patient twenty-five years ago a deadly hush fell over the ward as the matron was about to approach.

Mr. HOWARD said that to suggest that the working party's report was generally accepted by the nursing profession would be entirely false.

Mrs. MANNING said so far the nursing profession had mainly looked for recruits among girls leaving secondary grammar schools. Its attention must be called to girls leaving the modern schools. Every year 82,900 girls left modern schools against 35,000 who left secondary grammar schools. Of the latter the teaching profession required 11,000. If the great teaching hospitals were brought under regional boards many difficulties would disappear.

Retaining Student Nurses

Mr. SOMERVILLE HASTINGS felt that the teaching hospitals would be better able to make their contribution in medicine and in nursing as members of the Standing Nurse Training Committee rather than as isolated from it. Much had been said in the debate about the need to obtain more student nurses, but there was a greater need for retaining them. In few schools of nursing in this country was the proportion of those who did not finish less than 40%. Nursing must be taught at the bedside, but the curriculum should be determined by the needs of the nurse rather than by the needs of the hospital. While most hospitals had 30% of trained nurses, the other 70% were nurses who had not completed their training. The sister of a ward should equal in rank the physician or surgeon in charge of the ward. The knowledge which house-physicians and house-surgeons acquired was to a large extent due to the sister of the ward, who was able to keep them on the right lines. If the training of a nurse was made more practical and intensive it could be carried out in a much shorter time. Two years' training ought to suffice for a nurse who did not want training of a degree that would fit her to become a sister or matron. He thought that nursing staffs could be diluted much more. It seemed absurd to see two trained nurses making one bed.

Mr. LINSTEAD said the difficulty in making better use of trained nurses was that in London at any rate it was as difficult to get domestic staff as to get nursing staff. There was a danger of the nursing army becoming all officers. He urged fuller recognition for the assistant nurse.

Dr. H. B. MORGAN said that when nurses went into their hospitals they should have not only a workshop but also a home. Many hospitals required modernization. Sanitation and culinary arrangements were often bad. The diet was bad and the relationship between the supervisors of the nurses and the nurses was bad. He asked that the mental side of nursing should have greater representation on the General Nursing Council. Although midwives had been long dissociated from the nursing profession they should be included in the General Nursing Council.

Government Reply

Mr. BLENKINSOP, replying for the Government, said the Bill had received a great welcome from all parts of the House. Many of the points made in the discussion should be debated in committee. At the moment more nurses were in training than ever before. In fact they had some 48,000 nurses in training to-day. In 1938, 6,700 were admitted to the *Register*, 7,900 in 1947, and 7,560 in 1948. The number of those who sat for the preliminary examination was 9,500 in 1948, 11,000 in 1947, and 13,000 in 1948. In 1948, 11,000 passed, which seemed a higher proportion than before the war. They could be satisfied that they were getting a steady though slow recruitment into the nursing profession. Teaching hospitals trained only a small proportion of nurses.

The Government felt that they needed the experience and advice of the teaching hospitals on the regional committees. Any difference between the teaching hospital and the regional committee could be referred to the General Nursing Council. The teaching hospitals could be sure they need not fear any

reduction of their standards in consequence of this Bill. In the House of Lords it had been agreed that the proposals in the Bill safeguarded the position of the teaching hospital. In considering the training needs of its area the standing committee would obviously take into consideration the needs of the training hospital.

The Ministry of Health was examining the avenues of recruitment to the nursing profession which had been mentioned by Mrs. Manning. He was prepared to consider whether legal experience would be helpful to the General Nursing Council in considering removals from the *Register*. The House would have to ensure that the statutory finance committee was a strong one and properly representative. He emphasized that the Bill was no more than an opportunity for the profession itself to take action which was urgently needed.

The Bill was then read a second time without a division and the accompanying Money Resolution was carried after Mr. Blenkinsop had explained that under it the Exchequer would have full power to grant 100% of the expenses incurred by the General Nursing Council.

NURSES (SCOTLAND) BILL

Mr. WOODBURN on October 20 moved the second reading of the Nurses (Scotland) Bill. This Bill had already passed the House of Lords (*Journal*, August 6, p. 337). He said the Bill was designed primarily to improve the training of nurses in the light of the majority report of the Working Party on Nurses of 1947. No one wished to disturb the arrangement under the 1919 Act by which direction of training and registration of nurses had been entrusted to the General Nursing Council of Scotland. The Bill proposed changes in the constitution of the Council to permit developments agreed to be desirable. It was proposed to increase the Council to 26 members—13 elected by the nurses, 11 by the Secretary of State, and two by the Privy Council. It was proposed to add a further statutory committee to the General Council to be called the Mental Nurses Committee.

The working party had reported a tendency in some hospitals to subordinate training to staffing requirements. It was considered necessary to provide special machinery for training purposes at the regional level, and nurse-training committees would be established under the Bill. The functions of these training committees would include approval of institutions for the purposes of training, and the committees were empowered to prepare schemes to improve facilities for training in their areas. Any representations they made would be considered by the General Nursing Council before the scheme was approved. the training committees would also have power to promote research and investigation into matters relating to nurse training.

The finance of training was to be separated from hospital finance generally. He believed that these improvements in the training of nurses would lead to a lower rate of wastage in training and make the profession more attractive. Clause 8 gave the General Nursing Council wide powers to admit and register nurses trained abroad. Nursing organizations in Scotland had no objection in principle to any part of the Bill.

Mr. WALTER ELLIOT and Dr. H. B. MORGAN opened the debate that followed. Mr. JOHN WHEATLEY, replying for the Government, said that he thought the Bill would improve the intake of nurses and prevent a decline of numbers. He paid tribute to the part-time nurses who had made it possible for many hospitals to carry on their work. He agreed that nothing shall be done to diminish the status and prestige of hospitals such as the Royal Infirmary, Glasgow, the Royal Infirmary, Edinburgh, the Victoria Infirmary, Glasgow, or the Royal Infirmary, Aberdeen. They should build up the status and prestige of the other hospitals.

The Bill was then read a second time without a division and the money resolution associated with it was approved.

Absenteeism in Ordnance Factories

Mr. STRAUSS on October 24 said the paid sick leave arrangements operating in the Royal Ordnance factories for industrial employees were those laid down in the scheme which applied to all Government industrial employees. The scheme, which was due for review in September, 1950, provided that after a qualifying period of six months employees might in any period of one year be granted sick leave with full pay, up to a maximum of 13 weeks, less the amount of any National Insurance benefit. Paid sick leave was conditional on production of medical certificates of unfitness obtained from a medical practitioner, who was normally the National Health Service doctor The cost of the scheme in Royal Ordnance factories for the 12 months from its introduction in September, 1948, was £296,959. The following table showed the percentage of working days lost by industrial employees in the factories on account of absence covered by medical certificates in the 12 months preceding and following its introduction:

Month	1947-8	1948-9
September	2.5	3.5
October	2.8	5.1
November	2.9	6.0
December	2.7	6.1
January	3.2	7.6
February	3.1	8.1
March	2.7	9.0
April	2.4	7.1
May	2.5	5.8
June	2.1	4.9
July	1.8	3.9
August	2.2	3.9

Mr. Strauss said he was concerned by the increase shown in these figures. This was being thoroughly investigated Appropriate disciplinary action was taken by the Ministry of Supply in cases of abuse.

Vitamin E for Heart Disease

Mr. DUMPLETON on October 24 asked what research was being carried out by the Medical Research Council into the claims made as to the effectiveness of α-tocopherol therapy for heart diseases.

Mr. HERBERT MORRISON replied that a trial of vitamin E in the treatment of angina pectoris had been carried out with financial support from the Medical Research Council. The results did not bear out the suggestion that vitamin E should be used in the routine treatment of this condition. If there was any change in the evidence, the Medical Research Council would be willing to consider it again.

Sir HENRY MORRIS-JONES said that results differing from those of the Medical Research Council had been obtained by highly reputable investigators in a clinic in Canada. Beneficial effects had been obtained from the vitamin in this country. Sir Henry urged Mr. Morrison to influence the Minister of Health to give a licence so that the product could be imported into the United Kingdom in sufficient quantities to give proper results.

Mr. MORRISON said the investigators of the Medical Research Council had taken full account of the investigations in Canada Carefully controlled attempts to repeat Dr. Shute's observations in this country and America had mostly given negative results.

Cases Referred to R.M.O.—The number of cases in which claimants to sickness benefit were referred to Regional Medical Officers for second medical opinions in the twelve months ended September 30, 1949, was 202,188. The number for the previous twelve months was 75,189.

Spectacles and Prescriptions.—Pairs of spectacles supplied for the years ended September 1, 1948 and 1949, respectively, were 4,400,000 pairs and 6,900,000 pairs. Mr. BEVAN suggested on October 27 that the supply in the following year would be at least 9,000,000 pairs. In England and Wales in the quarter ended June 30, 1949, there were about 46,000,000 prescriptions dispensed.

The Services

The Efficiency Decoration and 1st Clasp of the Territorial Army has been conferred upon Major F. V. Allen, O.B.E., R.A.M.C., T.A

The Efficiency Decoration of the Territorial Army has been conferred upon Lieutenant-Colonel H. D. Chalke, O.B.E., and Major A. D. Stoker, R.A.M.C., T.A.

Universities and Colleges

UNIVERSITY OF OXFORD

An examination will be held at Worcester College on Tuesday, January 3, 1950, for the purpose of awarding a Nuffield Medical Scholarship of the value of £100 a year, and tenable for three years. Application for entry forms should be made to the Provost of Worcester College not earlier than November 19 and not later than December 3, 1949, and the forms should be returned by December 10.

In a Congregation held on October 13 the following medical degrees were conferred:

M.D.—J. G. Widdicombe, E. A. D W. Simpson, W. W Torrance, *Nina A. Cohen.

*In absence

UNIVERSITY OF LONDON

Professor H. L. Sheehan will deliver a lecture on "Post-partum Necrosis of the Anterior Pituitary Gland" at the Westminster Medical School (Meyerstein Lecture Theatre), Horseferry Road, Westminster, London, S.W., on Wednesday, November 9, at 5 p.m. The lecture is addressed to students of the University and to others interested in the subject. Admission is free, without ticket.

Forrest Fulton, D.M., has been appointed to the University Readership in Bacteriology and Immunology tenable at the London School of Hygiene and Tropical Medicine from October 1.

The title of Professor Emeritus of Physiology in the University has been conferred on C. A. Lovatt Evans, D.Sc., LL.D., F.R.C.P., F.R.S., on his retirement from the Jodrell Chair of Physiology at University College which he has held since 1926.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At the annual meeting of the College held on October 19, the following officers were elected for the ensuing year: *President*, Mr. W. Quarry Wood; *Vice-president*, Mr. Frank E. Jardine; *Secretary and Treasurer*, Mr. J. J. Mason Brown; *Representative on the General Medical Council*, Sir Henry Wade; *Conservator of Museum*, Mr. James Norman Jackson Hartley; *Convener of Museum Committee*, Mr. John Bruce; *Librarian*, Dr. Douglas Guthrie.

The following candidates having passed the requisite examinations were admitted Fellows: S. J. Barr, A. El H. Bayoumi, C. F. A. Cummins, G. A. Fraser, S. Govindan, N. N. S. Grewal, K. S. Jones, T. Lawrie, H. A. Maslowski, M. L. Mason, W. Mathews, J. F. O. Mitchell, C. M. C. Potter, W. Recht, C. Remington-Hobbs, T. A. Sale, A. M. Shohdy, M. J. Smyth, A. Tomney, T. M. Welsh, T. W. Winchester, S. Witt.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At the annual meeting of the College held on October 18, the following officers were elected: *President*, Dr. Leonard Abrahamson; *Vice-president*, Dr. P. T. O'Farrell; *Censors*, Drs. E. B. McEntee, J. Duffy, and J. G. Gallagher.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a meeting of the Council held at the College House on October 13, with the President, Sir William Gilliatt, in the chair, the following were admitted to the Membership of the College: A. B. Backus, Jessie E. C. Baird, T. E. C. Barns, Anusya Bhagat, D. H. Blakey, V. Y. Bockner, S. C. Bose, M. B. Bruce, R. C. Cummin, Mona M. Davin-Power, R. G. Denniss, H. Doberman, T. Dougray, L. W. D. Drabble, C. T. F. Ealand, G. K. Emsley, G. M. Evans, J. J. Foley, P. S. Gardner, G. W. Garland, H. K. B. Geiser, Elizabeth Gilbertson, Marie P. S. Grant, G. T. Hammond, J. C. Harvey, J. Henderson, J. A. Henderson, D. W. Hendry, R. W. Hutchinson, E. W. Ilangantileke, E. P. Jones, F. G. E. King, J. M. King, E. W. Kirk, Joan E. M. Lambert, D. Latto, J. G. Lawson, F H. Leckie, E. M. Leyland, J. W. F. Lumsden, J. M. McCracken, I. MacGillivray, H. N. Mansfield, S. M. Medine, W. G. Millar, R. Moolan-Feroze, Ll. O. Morgan, M. R. Neely, F. C. R. Picton, J. G. Reynolds, N. A. Richards, S. Riterband, T. W. Roddie, C. A. Samad, E. M. Sandler, Olive C. Sandys, J. W. F. Scrimegeour, Sita Sen, J. G. Shelton, Norah P. Sherlock, J. A. McC. Smith, Doreen M. J. Stracey, A. B. Swarbreck, J. L. Taylor, S. D. Tewary, J. Watson, G. F. J. Williams.

The address of Nursing Services Branch of the Ministry of Labour and National Service has been changed to: 3, St. James's Square, London, S.W.1 (Telephone: WHItehall 5484).

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended October 15. [No. 41

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	29	3	12	1	1	36	5	10	—	1
Deaths		1	—				1	1		
Diphtheria	85	9	32	1	1	141	8	43	17	3
Deaths	1	—	—	—	—	1	—	—	—	—
Dysentery	179	10	75	2	3	114	9	70	—	1
Deaths			—	—						—
Encephalitis lethargica, acute	—	—	—	—	—	1	—	—	—	—
Deaths		—					—			
Erysipelas			31	10	2			23	11	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				100					51	
Deaths	40	1	12	9	4	22	1	4	4	3
Measles*	992	44	42	108	42	4,536	78	74	49	66
Deaths†			—	—	—			1	—	—
Ophthalmia neonatorum	43	2	8	—	—	55	6	7	—	—
Deaths										
Paratyphoid fever	13	—	3 (B)	3 (B)	—	9	4	4 (B)	—	—
Deaths	1	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	354	23	2	2	4	479	25	1	3	—
Deaths (from influenza)‡	6	2	1	—	—	7	1	1	—	1
Pneumonia, primary			164	25				163	16	
Deaths	135	23		9	7	171	23		3	6
Polio-encephalitis, acute	45	5				7	1			
Deaths										
Poliomyelitis, acute	418	63	3	4	—	81	5	5	4	—
Deaths§	20	3				8	1			
Puerperal fever		—	13		-		—	9		—
Deaths										
Puerperal pyrexia‖	108	7	8	1	—	100	11	6	—	1
Deaths		—					—			
Relapsing fever	1	1			—	—	—			—
Deaths										
Scarlet fever	1,844	155	243	85	144	1,519	103	324	206	36
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	14	1	1	4	1	12	1	2	1	—
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	875	51	68	31	32	1,949	146	83	22	10
Deaths	3	—	—	1	—	4	—	1	—	—
Deaths (0–1 year)	258	32	32	25	13	258	27	33	19	6
Deaths (excluding stillbirths)	4,079	635	530	144	100	4,336	718	562	139	118
Annual death rate (per 1,000 persons living)			10·6	8·9				11·3	8·7	
Live births	7,442	1163	858	395	264	7,491	1220	929	338	237
Annual rate per 1,000 persons living			17·2	24·5				18·7	21·1	
Stillbirths	192	25	11			197	21	28		
Rate per 1,000 total births (including stillborn)			13					29		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ *The number of deaths from* poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

Notifications in the week ended October 22 were: poliomyelitis 385 (418), polio-encephalitis 29 (45). Figures for the previous week are in parentheses. It is hoped that the decline will be maintained, but it is to be expected that the figures will remain higher than usual at least until the end of the year.

Multiple cases (poliomyelitis and polio-encephalitis together) occurred in the following counties: London 66 (68), Bedford 3 (7), Berkshire 6 (4), Chester 8 (7), Cornwall 4 (6), Cumberland 2 (7), Derby 5 (2), Dorset 3 (10), Durham 3 (4), Essex 32 (39), Gloucester 12 (21), Hertford 6 (11), Kent 26 (33), Lancaster 25 (32), Leicester 13 (10), Lincoln, Lindsey 7 (0), Middlesex 19 (18), Norfolk 8 (8), Northampton 2 (4), Northumberland 9 (3), Nottingham 9 (11), Somerset 10 (9), Southampton 13 (10), Stafford 12 (3), Surrey 16 (14), East Sussex 2 (4), West Sussex 2 (2), Warwick 9 (16), Westmorland 2 (0), Wiltshire 4 (8), Worcester 2 (1), East Yorks 3 (3), North Yorks 3 (3), West Yorks 47 (48), Glamorgan 6 (4), Monmouth 4 (1).

Discussion of Table

In *England and Wales* there were increases in the notifications of scarlet fever 220, acute poliomyelitis 78, measles 66, and acute pneumonia 42, with decreases in the incidence of dysentery 111 and whooping-cough 33.

A slight increase in the incidence of scarlet fever was recorded in most regions; the only notable increase was 79 in Lancashire. The chief centres of scarlet fever in this county were Liverpool C.B. 63 and Manchester C.B. 61.

The local returns for measles showed little change; the largest rises in incidence were Durham 44 and Norfolk 30. Notifications of diphtheria were fairly constant, and the chief centres of infection were Liverpool C.B. 16 and Birmingham 11. In the incidence of whooping-cough, the largest changes were a decrease in Yorkshire West Riding 37 and increases in Lancashire 25 and London 20.

Of the 13 cases of paratyphoid fever 8 were notified in Lancashire. Notifications of dysentery fell from 217 to 108 in Lancashire; the largest returns during the week were Ince in Makerfield U.D. 31, Abram U.D. 20, Hindley U.D. 20, and Liverpool C.B. 18. Other large returns for dysentery were Durham 11 (Hetton U.D. 9) and London 10. Of the 29 cases of cerebrospinal fever 9 were notified in Birmingham C.B.

In *Scotland* there were increases in the notifications of scarlet fever 41, acute primary pneumonia 31, whooping-cough 21, and diphtheria 10. A rise of 13 in the notifications of diphtheria occurred in Glasgow. The increased incidence of scarlet fever was confined to the western area; in the remainder of the country there was a slight fall in incidence.

In *Eire* an increase of 33 in the notifications of measles and a decrease of 14 for scarlet fever were recorded. In Waterford C.B. there was an increase of 21 in the notifications of measles. For the fourth consecutive week a slight decrease was reported in the incidence of diarrhoea and enteritis.

In *Northern Ireland* a decrease of 19 in the notifications of scarlet fever was the chief feature of the returns. This fall was contributed by Belfast C.B.

Quarterly Returns for England and Wales

During the June quarter the birth rate was 17.7 per 1,000, compared with 18.8 for the second quarter of 1948. The infant mortality was 30 per 1,000 live births and was the lowest ever recorded for any second quarter, being 1 below the rate for the June quarter of 1948 and 17 below the average for the second quarters of the ten years 1938–47. The death rate was 11.1 compared with 10.2 for the preceding second quarter and an average of 10.7 for the second quarters of 1943–7. Deaths attributed to acute poliomyelitis and polio-encephalitis numbered 28. There were 20 cases of smallpox notified, with 5 deaths.

Quarterly Returns for Northern Ireland

The birth rate during the second quarter was 22.9 per 1,000, 1.3 below the average of the five preceding second quarters. Infant mortality was 38 per 1,000 registered births and was 17 below the average of the corresponding quarters of the five preceding years. The death rate was 11.2 per 1,000, being 0.8 below the average of the five preceding second quarters. Deaths due to the principal epidemic diseases numbered 68, and included 29 from influenza, 21 from diarrhoea and enteritis, 10 from whooping-cough, and 4 from diphtheria. Deaths from pulmonary tuberculosis numbered 169 and from other forms of tuberculosis 48; these figures were 36 and 29, respectively, below the average of the second quarters of 1944–8.

Vital Statistics

In reply to a question in the House of Commons on October 27 the following table was circulated.

	Death Rate per 1,000 Total Population	Birth Rate per 1,000 Total Population	Infant Mortality Rate per 1,000 Related Live Births
1933	12·3	14·4	63
1938	11·6	15·1	53
1948*	10·8	17·9	34
1949			
March quarter*	15·0	17·4	40
June quarter* ..	11·1	17·7	30
Sept. quarter* ..	9·2	16·7	26

* Provisional

The expectation of life at birth in 1938 was 61.40 years for males and 65.84 for females. In 1945 it was 62.56 for males and 68.58 for females.

Week Ending October 22

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,909, whooping-cough 834, diphtheria 92, measles 1,052, acute pneumonia 317, cerebrospinal fever 24, acute poliomyelitis 385, acute polio-encephalitis 29, dysentery 154, paratyphoid fever 18, typhoid fever 6, food-poisoning 88.

Medical News

Commonwealth Fund Fellowships

Fellowships tenable in the United States are offered to British subjects by the Commonwealth Fund of New York. The fellowships, which are not only medical, are in four categories: (1) 20 ordinary fellowships are open to candidates who (*a*) are over 23 and under 35 years old on September 1 of the year of award, and (*b*) have not worked or studied in any educational or research institution in the United States for one or more academic years. Candidates in the United Kingdom and Northern Ireland must be university graduates. (2) Five home Civil Service fellowships are open to candidates holding permanent appointments in the higher ranks of the Civil Service in Britain (three for administrative grades and two for technical and professional grades). (3) Five Dominion Civil Service fellowships are open to candidates who hold appointments under the Governments of Australia, New Zealand, and South Africa. (4) Two Colonial Civil Service fellowships are open to candidates who hold appointments under the Governments of the British Colonies, protectorates, and trust territories. Particulars may be obtained from the secretary of the Committee of Award, 35 Portland Square, London, W.1.

B.M.S.A. Report

The British Medical Students Association has issued its annual report for the year 1948–9, which gives a summary of the association's many activities at headquarters and in the regions. Copies may be seen in the medical school libraries, and are held also by B.M.S.A. representatives in the medical schools.

French Award

The Médaille de la Reconnaissance Française has been presented to Mr. Arthur Miller.

Eric Guttman Memorial Trust

A trust in memory of the late Eric Guttman was founded recently by his widow, Dr. Elizabeth Rosenberg. Its purpose is: (*a*) To further the development of the Guttman-Maclay collection of pictures and books related to art and psychiatry; (*b*) to help the medical staff of the Bethlem Royal and Maudsley Hospitals (other than staff of consultant status) to attend scientific meetings and conferences, and (*c*) to furnish loans to young psychiatrists to further their psychiatric training. Further particulars may be obtained from: The Trustees, Eric Guttman Memorial Trust Maudsley Hospital, Denmark Hill, London, S.E.5

New School of Occupational Therapy

The Derby School of Occupational Therapy was opened on October 27 by Dr. H. Balme of the Ministry of Health Rehabilitation and Resettlement Department. The school is the seventh of its kind in the country and the first which forms part of the National Health Service. Miss I. Fretwell, M.A.O.T., formerly head occupational therapist to the United Sheffield Hospitals, is the principal. The course lasts three years, and will be carried out in connection with the Derby School of Arts and Crafts. Practical experience will be provided in the general, orthopædic and mental hospitals in the area. There will be at least [illegible] when the school is in full operation. The scheme for the formation of this school was first submitted to the Derby County Mental Health Committee in 1946. A meeting of representatives of the Derby Corporation and Derbyshire County Council Hospitals and Education Committees, the local authorities' hospitals, and the medical profession endorsed the proposals and advice was obtained from the Association of Occupational Therapists. In view of the imminence of the "Appointed Day" (Health Act) the scheme was referred to the Sheffield Regional Hospital Board and approved. After July 5 [illegible] subcommittee consisting of representatives from each of the four Derby Area Hospital Management Committees, the local authorities' education committees, and the medical profession was appointed to administer the school.

Wessex Rahere Club

The second annual dinner of the Wessex Rahere Club was held at the Spa Hotel, Bath, on October 15. Sir James Paterson Ross was the guest of honour and the chairman was Mr. C. E. Kindersley. The secretary reported that membership of the club, which was open without subscription to all Bart's men in the South-west, was now well over 100 and increasing steadily. Professor R. A. Brocklehurst was unanimously elected chairman for 1949–50. It was agreed that the third annual dinner would be held in Bristol on October 21, 1950. The toast of the hospital was proposed by Mr. C. E. Kindersley and linked with the name of Sir James Paterson Ross. In reply, Sir James outlined the present plans for the reconstruction and development of St. Bartholomew's Hospital, and mentioned particularly the progress which was being made at the Charterhouse site and in the provision of a residential hostel. He emphasized that the quality of the students entering the hospital was as high as ever. It is hoped that any Bart's men who are interested, and are not yet in touch with the club, will notify their whereabouts to the honorary secretary, Mr. A. Daunt Bateman, 3, The Circus, Bath.

The Sherrington Society

A new society named after Sir Charles Sherrington has been formed at Liverpool by a group of students who have taken an honours degree in physiology and are continuing their studies in clinical medicine and dentistry. The aim of the society is to bring together clinicians and those who study the basic medical sciences. The first meeting was held on October 19, when Sir Henry Cohen addressed an audience of about 300 people on "Some Aspects of Pain." The next meeting will be held on November 9 at 7.30 p.m. in the physiology lecture theatre of the University and will be addressed by Professor A. C. Frazer, of Birmingham, on "Studies of Normal and Abnormal Fat Absorption in the Human Subject."

American Scholars

Five American scholars have recently arrived in this country under the auspices of the United States Educational Commission to study various aspects of medicine for about nine months. It is the wish of the Commission that they should have opportunities of meeting as many British men and women as possible of similar interests. Their names and where they are working are as follows: Dr. R. W. Russell, Institute of Psychiatry, London University; Dr. E. Sachs, Jun., National Hospital, Queen Square, London; Dr. J. E. Thompson, Nuffield Institute for Medical Research, Oxford University; Dr. R. Driver, Edinburgh University; and Miss J. L. Brand, London School of Economics.

Ministry of Food Model By-laws

The Ministry of Food has just issued to local authorities a series of model by-laws intended to supplement measures already in force under the Food and Drugs Act, 1938. They replace the series prepared by the Ministry of Health in 1939 and should help to secure the observance of sanitary and cleanly conditions in the handling, wrapping, and delivering of food. Local authorities and trade associations were consulted in the preparation of these model by-laws, and their provisions cover personal hygiene, cleanliness and good order of equipment, cleanliness of wrapping materials, and the deposit and removal of refuse.

Medical Golfing Society

The following prizes were won at the autumn meeting of the Medical Golfing Society at Sandwich: Canny Ryall Cup, by Dr. H. McCann; Rolf Creasy Salver, by Mr. E. B. Whittingham; Lindsay-Rea Cup, by Mr. T. A. Torrance; Veterans Cup, by Mr. W. McK. H. McCullagh; Milsom Rees Cup, by Dr. M. B. Stungo.

Paediatrician in Portugal

Professor Alan Moncrieff, Nuffield Professor of Child Health in the University of London, is lecturing in Portugal under the auspices of the British Council. He returns on November 10.

Prospective Conservative Candidate

Dr. A. Genevieve Rewcastle has been chosen prospective Conservative candidate for West Willesden. This is Dr. Rewcastle's first Parliamentary candidature. During the war she served in the W.R.N.S., being the only woman to attain the rank of surgeon lieut.-commander.

COMING EVENTS

Adlerian Society

A meeting of the medical section of the Adlerian Society of Great Britain will be held at 11, Chandos Street, Cavendish Square, London, W., on Thursday, November 10, at 8 p.m., when Dr. Morris Robb will lecture on "Psychotherapy of Psychotics." The discussion will be opened by Dr. R. Dennistoun Scott.

Scientific Films

The London Optical Practitioners' Branch of the Association of Scientific Workers is holding an evening of scientific films of special interest to optical and medical practitioners at Friends' House, Euston Road, London, N.W., on Thursday, November 10, at 7.30 p.m. The admission charge is 2s.

The Victor Horsley Memorial Lecture

The Victor Horsley Memorial Fund, which was raised in 1920 to commemorate the services of Sir Victor Horsley to science and the Empire, is devoted to the giving of a lecture triennially in London entitled the "Victor Horsley Memorial Lecture." By invitation of the trustees (the Presidents for the time being of the Royal Society, the Royal College of Surgeons of England, and the British Medical Association, the Senior Physician of the National Hospital, Queen Square, and Mr. Stanley G. Robinson, son-in-law of Sir Victor Horsley) the eighth lecture will be delivered by Sir Hugh Cairns, Nuffield Professor of Surgery, University of Oxford, in No. 1 Lecture Room, University College Hospital Medical School, University

Street, Gower Street, London, W.C.1, on Thursday, December 8, at 5 p.m. The title of the lecture is "Disturbances of Consciousness with Disorders of the Brain Stem," and the chair will be taken by Dr. F. M. R. Walshe, F.R.S. Admission to the lecture is free on presentation of visiting-card.

Manchester Royal Infirmary Old Residents' Club

Members are asked to note that it is proposed to hold the next reunion of old residents on Saturday, March 25, 1950, at Belle Vue, Manchester. Further details will be notified later. Members should notify any recent change of address to the Honorary Secretary, Old Residents' Club, Manchester Royal Infirmary.

SOCIETIES AND LECTURES

Monday

LONDON UNIVERSITY.—At University College (Chemistry Theatre), Gower Street, London, W.C., November 7, 5.15 p.m., "*The Chemistry of the Transuranics and Other Newly Discovered Elements*," by Professor H. J. Emeléus, F.R.S.

UNIVERSITY COLLEGE, Gower Street, London, W.C.—November 7, 4.45 p.m., "*Bacterial Toxins*," by Dr. W. E. Van Heyningen.

Tuesday

CHELSEA CLINICAL SOCIETY.—At South Kensington Hotel, 47, Queens Gate Terrace, London, S.W., November 8, 7 for 7.30 p.m., "*A Stipendiary Magistrate*," discussion to be opened by Mr. W. B. Frampton.

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At University New Buildings (Anatomy Lecture Theatre), Edinburgh, November 8, 5 p.m., "*The Costoclavicular Syndrome*," by Professor F. A. R. Stammers.

ILLUMINATING ENGINEERING SOCIETY.—At the Lighting Service Bureau, 2, Savoy Hill, London, W.C., November 8, 6 p.m., *Specialized and General Lighting in Hospitals*," by Messrs. M. W. Peirce and D. J. Reed. A discussion will follow.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—November 8, 5 p.m., "*Histopathology of the Skin*," by Dr. I. Muende.

INSTITUTE OF OBSTETRICS AND GYNAECOLOGY.—At Postgraduate Medical School of London, Ducane Road, W., November 8, 3 p.m., "*Kidney Function*," by Professor K. J. Franklin.

Wednesday

CAMBRIDGE UNIVERSITY.—At Addenbrooke's Hospital, Cambridge. November 9, 2.30 p.m., "*The Teaching Hospital and the General Practitioner*," by Dr. L. B. Cole.

LONDON UNIVERSITY.—At Westminster Medical School (Meyerstein Lecture Theatre), Horseferry Road, Westminster, London, S.W., November 9, 5 p.m., "*Post-partum Necrosis of the Anterior Pituitary Gland*," by Professor H. L. Sheehan.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW, 242, St. Vincent Street, Glasgow.—November 9, 5 p.m., "*The Relation of Hypertension to Renal Circulation*," Dr. John Burns Lecture by Professor J. Trueta.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, London, W.—November 9, 3.30 p.m., "*Skin Ailments and the Public Health*," by Dr. W. J. O'Donovan.

SOCIAL PSYCHOTHERAPY CENTRE, 7, Fellows Road, London, N.W.—November 9, 5 p.m., "*Instructional Group Psychotherapy, II*," by Dr. E. N. Snowden.

SOCIETY OF CHEMICAL INDUSTRY: FOOD GROUP.—At Imperial Institute, South Kensington, London, S.W., November 9, conversazione. 6 p.m. Informal reception by Sir Harry and Lady Lindsay and Mr. A. L. Bacharach (chairman of the society) and Mrs. Bacharach; 6.45 p.m., film of Food Group on tour in France, June, 1949. Admission by ticket only.

SOUTH WEST LONDON MEDICAL SOCIETY.—At Bolingbroke Hospital, London, S.W., November 9, 8.30 p.m., "*Hoarseness as a Symptom*," by Mr. W. I. Daggett.

Thursday

HONYMAN GILLESPIE LECTURE.—At Anatomy Theatre, University New Buildings, Teviot Place, Edinburgh, November 10, 5 p.m., "*Amputations, with Special Reference to the 'Phantom Limb' Phenomena*," by Mr. G. H. Stevenson.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—November 10, 5 p.m., "*Leukoplakia: Lichen Sclerosus of the Ano-genital Region*," by Dr. H. J. Wallace.

INSTITUTE OF PHYSICS: MANCHESTER AND DISTRICT BRANCH.—At College of Technology, Manchester, November 10, 6 p.m., "*Recent Advances in the Physiology of Colour Vision*," by Professor H. Hartridge, F.R.S. Joint meeting with the Illuminating Engineering Society.

LIVERPOOL MEDICAL INSTITUTION.—November 10, 3 p.m., "*Physiological Reactions of Bone and the Problem of Non-union Fractures*." Hugh Owen Thomas Memorial Lecture by Sir Reginald Watson-Jones.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN, 17, Bloomsbury Square, London, W.C.—November 10, 7.30 p.m., "*The British Pharmaceutical Codex, 1949*," by T. C. Denston, B.Pharm., Ph.C., F.R.I.C.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—November 10, 5 p.m., "*Sarcoidosis, with Special Reference to the Lung Changes*," Bradshaw Lecture by Dr. J. G. Scadding.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—November 10, 5 p.m., "*Visceral Actinomycosis and its Treatment*," Bradshaw Lecture by Mr. V. Zachary Cope.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—November 10, 4.30 p.m., lecture-demonstration: "*Psychiatry*," by Dr. D. Curran.

TORQUAY AND DISTRICT MEDICAL SOCIETY.—November 10, 8.30 p.m., clinical discussion.

Friday

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES MEDICAL SCHOOL, Maida Vale, London, W.—November 11, 5 p.m., clinical demonstration by Dr. Blake Pritchard.

ROYAL INSTITUTE OF PHILOSOPHY, 14, Gordon Square, London, W.C.—November 11, 5.15 p.m., "*Scientific Concepts and Synthetic Philosophy*," by Mr. S. E. Toulmin.

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh.—November 11, 8 p.m., "*Unorthodox Healing—An Assessment*," by Mr. R. C. Tyldesley.

ROYAL SANITARY INSTITUTE.—At Huddersfield Technical College, November 11, 10 a.m., "*Recent Regulations Relating to Milk*," by Dr. John M. Gibson.

SOCIETY OF CHEMICAL INDUSTRY: FINE CHEMICALS GROUP.—At *King's College (Chemistry Lecture Theatre), Strand, London*, W.C., November 11, 7 p.m., "*The Chemistry of Antihistamine and Related Drugs*," by Dr. D. W. Adamson, M.Sc. A discussion will follow.

UNIVERSITY COLLEGE, Gower Street, London, W.C.—November 11, 5.15 p.m., "*Transmission of Excitation in Nerve and Muscle*," by Dr. Bernhard Katz.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—At Miller Hospital, Greenwich High Road, London, S.E., November 11, 8.30 p.m., "*Some Conditions Affecting the Parotid Gland*," by Dr. R. S. Bruce Pearson.

Saturday

BIOCHEMICAL SOCIETY.—At London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C., November 12, 11 a.m., 281st meeting. Symposium: "*The Biological Oxidation of Aromatic Rings*."

APPOINTMENTS

Lieutenant-Colonel F. M. Lipscomb, F.R.C.P., has been appointed Physician and Surgeon to the Royal Hospital, Chelsea.

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.—*House-physicians (Junior Registrar Grade)*, T. J. Rendle-Short, M.B., B.Ch., M.R.C.P., D.C.H., E. H. Back, M.B., B.Ch., M.R.C.P., R. G. Mitchell, M.B., Ch.B., M.R.C.P., D.C.H. *House-surgeon (Junior Registrar Grade)*, R. J. Alcock, M.B., B.Ch. *Resident Medical Officer, Tadworth Court (Registrar Grade)*, Joan P. D'Arcy, M.B., B.Ch., B.A.O. *Assistant Resident Medical Officer, Tadworth Court (Junior Registrar Grade)*, Gwendoline Hewitt, M.B., B.S., D.G.O., D.C.H.

BARREN, G. F., M.D., Consultant Chest Physician in the King's Lynn and West Norfolk Area, East Anglian Regional Hospital Board.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Clift.—On October 21, 1949, at Croydon, to Dr. Dorothy (née Newell), wife of A. F. Clift, F.R.C.S., a sister for Priscilla and Theo—Mary Elizabeth.

Crittenden.—On October 26, 1949, to Stella (née Jolly), wife of Dr. Kenneth Crittenden, The Woodlands, Kings Bromley, a daughter—Rosemary Jean.

MARRIAGES

Affleck—Barrow.—On October 17, 1949, in London, Ian Affleck, O.B.E., M.R.C.S., L.R.C.P., of Kearsley, Farnworth, Lancs, to Yolande Barrow, of Cogny, Rhône, France.

Green—White.—On October 21, 1949, at St. Bodfan's Church, Aber, Caernarvonshire, David Mitchell Green, M.B., Ch.B., of 16, Ancrum Road, Dundee, to Elizabeth White, M.B., Ch.B., of Aber, Caernarvonshire, and 6, South Oswald Road, Edinburgh.

Pearse Williams—Wright.—On October 15, 1949, at Epsom, Thomas Pearse Williams, M.D., F.R.C.P., of 50, Harley Street, London, W., to Joyce Christina Wright, C.S.M.M.G., younger daughter of the late J. J. Muir Wright and of Mrs. Muir Wright, of Bucklands, Kingswood.

DEATHS

Bateman.—On October 21, 1949, at 199, Shooters Hill, London, S.E., James Alexander Bateman, M.B., Ch.B.

Crichton.—On October 21, 1949, at 31, Hillhead Street, Glasgow, W., David Macquorn Rankine Crichton, M.B., C.M., J.P., of Burgh House, Maryhill, Glasgow.

Harrowell.—On October 27, 1949, at 113, Tadcaster Road, York, Francis William Harrowell, M.B., Ch.B., formerly of Beeston Hill, Leeds, and late of Great Haywood, Staffs.

Harvey.—On October 25, 1949, at Chircheby House, Kirkby Malzeard, Ripon, Yorks, Robert George Mills Harvey, L.R.C.P.&S.I., aged 85.

Heasman.—On October 17 1949, at 18, Sea Road, Boscombe, Bournemouth, Frank Heasman M.R.C.S., L.R.C.P., aged 84.

Herriot.—On October 20, 1949, at 8, Castle Terrace, Berwick-on-Tweed, Thomas Pearson Herriot, M.D., D.P.H.

Moritz.—On October 18, 1949, at Stoney Hill, Walkerburn, Scotland, Arnold Moritz, M.B., B.Ch., late of Melbury Court, Kensington, London, W., aged 77.

Mallam.—*On October 23, 1949, at Danetree, Compton, Berks, Dalton Mallam*, M.R.C.S., L.R.C.P., of Irstead, Neatishead, Norfolk.

Morton.—On October 16, 1949, at 15, Fothringham Road, Ayr, John Kerr Morton, M.B., C.M., J.P., aged 84.

Needham.—On October 24, 1949, in London, Sir Richard Arthur Needham, C.I.E., D.S.O., M.D., F.R.C.S., Colonel I.M.S., Ret., aged 71.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Hard Water

Q.—*Is there any evidence that excessively hard water has a deleterious effect on the human body? Apart from increasing the hardness of a soap solution, would the fact that it contains soluble salts have any effect?*

A.—The relative merits of hard and soft water is an old one. Consumers are aware of the hardness of water by reason of its soap-destroying properties and where bicarbonates are present to any extent by the deposition of scale in kettles. It may well be that such effects have drawn attention to the harder waters, whereas soft waters have been associated with the various [illegible] from time to time been ascribed to their low mineral calcium, and a predisposition to dyspepsia [illegible] is attributed to hard water. Some workers [illegible] that the nature of the substances giving hardness influences the effects upon consumers [illegible] magnesium salts are more harmful than [illegible] daily requirement of calcium by the human [illegible] of a gramme, while that of magnesium [illegible] salt a gramme. The normal daily consumption [illegible] hard water would not supply these quantities [illegible] no question of the body's receiving a surfeit of [illegible] through a hard water supply.

Investigations have been made to determine the relative states of health of large communities receiving hard as distinct from soft waters, but no evidence has been found that the general health has been affected one way or the other. Very soft waters may be plumbo-solvent, very hard waters are domestically inconvenient, and the consensus of opinion is that the ideal hardness for a public supply is about 100 parts per million. It may be added from experience that, except where a supply is unmistakably very soft, consumers often do not know whether their water supply is hard or not. In more than one area people have complained of the hardness of the supply when in fact it has been softened.

Underground supplies near the coast are sometimes subject to infiltration of sea-water. The susceptibility of individuals to salt in water varies somewhat, but a concentration of 700 parts per million is just detectable by most people. In some parts of Essex there is as much as 1,400 parts per million, but the local population apparently do not notice it or, if they do, have become accustomed to it.

Softened Water

Q.—*Are there any dangers in the use of artificially softened water for drinking purposes during pregnancy and for young children? Should the diet be supplemented in any way?*

A.—When water is softened, calcium is removed. Hard water used for drinking and cooking may supply 0.2 g. of calcium per day. The loss of this amount of calcium is unimportant unless the amount supplied by the rest of the diet is very low; a pint of milk supplies 0.7 g. Softening of water has no other action that might affect health.

Ultra-violet Lamp in the Home

Q.—*Is it possible, by an ultra-violet lamp used in the home, to retain a summer tan through the winter? Is it worth while doing, and would it confer any immunity to colds, influenza, and other winter infections?*

A.—The ultra-violet lamps used in the home have mercury-vapour emitters. The pigmentation caused by this spectrum is of a greyish tinge and is not the same as the tan caused by the solar spectrum or the carbon arc. Thus it is not possible to retain a true tan by the winter use of a lamp in the home. There is no scientific evidence that exposure to ultra-violet irradiation will confer immunity to colds, influenza, or other winter infections. A thorough investigation into this was carried out by the Industrial Health Research Board, whose report (No. 89) was published in 1946. This report was summarized in the *Journal*, and was the subject of a leading article on June 8, 1946 (p. 882).

Neostigmine in Myasthenia Gravis

Q.—*Where does neostigmine exert its action? What dosage is given for an early case of myasthenia gravis, and should administration be discontinued during remissions? Are any toxic or other undesirable effects likely to follow a long-continued course of treatment?*

A.—Neostigmine, like eserine, of which it is a synthetic analogue, acts at the neuromuscular junctions by inhibiting cholinesterase, which inactivates acetylcholine in the body. It thus increases the effect of acetylcholine liberated at the nerve endings. The exact cause of myasthenia gravis is unknown. The disease may be due to a deficiency of acetylcholine, to an excess of cholinesterase, or to the liberation of some curare-like poison. The dosage of neostigmine in myasthenia depends on the severity of the condition at the moment, and not on whether the case is in the early stages or long-standing. The drug is usually given by the mouth in 15-mg. tablets. Mild symptoms may be controlled by as little as two or three tablets a day, while severe symptoms may demand as much as 12 tablets in the 24 hours. In emergencies 1 to 2 mg. should be given by subcutaneous injection. There is no point in continuing the medication during a complete remission. Toxic effects—which are relieved by atropine—are intestinal colic, bradycardia, collapse, sweating, salivation, and miosis. They are due to overdosage or to unusual sensitivity to the drug and not to long-continued administration, as the effects of neostigmine are not cumulative.

Interpreting Laboratory Reports

Q.—*The result of a serum test is reported as follows: "Salmonella typhi (O and H), negative 1 in 25; Proteus OX19, OX2, and OX K., negative 1 in 50." What does this imply?*

A.—The absence from the blood of demonstrable antibody to the H and O antigens of *Salmonella typhi* suggests that the individual has not recently (say within the past two to three years) been inoculated against typhoid or suffered from a clinical attack of the disease. He might, of course, be in the early stages of infection, since antibody does not usually develop in the first week. A negative finding, however, does not necessarily mean that the individual is susceptible to typhoid fever. Some patients do not develop any demonstrable agglutinin during an attack, and in a proportion of inoculated persons the antibody titre may drop quickly to a low level; but this need not imply that the individual has not developed, or has lost, resistance to typhoid. Indeed, the function of humoral antibody as a protection against enteric infection is not easily defined. It is known that antiserum containing O or O+Vi antibody is protective against experimental infection in mice, but why does the patient with demonstrable antibody in the blood develop a relapse, and why do recently inoculated and reinoculated troops sometimes succumb to infection? On the other hand, among a susceptible civilian community exposed to the risk of infection, as by drinking contaminated water, only a proportion get a clinical attack. The serum of a chronic typhoid carrier may give negative reactions to the H and O antigens, but usually reacts positively (in a titre of 1 in 10 or higher) to the Vi antigen.

As much, or more, caution must be observed in interpreting a negative response to *Proteus OX19, OX2,* and *OX* K. in relation to rickettsial infection. In some severe cases of typhus, as well as in mild cases, the Weil-Felix test may show a very low titre to the *Proteus* antigen; in other patients this antibody quickly falls below demonstrable level. Yet all these patients are likely to have a high degree of resistance to further

infection by typhus, although not to other rickettsial infections, such as scrub typhus or Q fever. It should also be noted that, in a variable proportion of sera from normal persons with no history of infection or inoculation, antibodies to the *Salm. typhi* and *Proteus* antigens may be demonstrated in titres ranging from 1 in 20 to 1 in 100.

Vasomotor Rhinorrhoea

Q.—*What investigations should be undertaken in a case of persistent vasomotor rhinorrhoea? For three years a patient has suffered from a practically continuous severe vasomotor rhinorrhoea. There is a profuse discharge of mucus, and the need for continuous nose-blowing interferes with work and is a social handicap, besides being extremely fatiguing. He underwent an operation for deflected septum at the age of 17. The nares are patent during remissions; the sinuses are not infected; there is no seasonal incidence, and no evidence of sensitivity to a specific allergen. Causes of exacerbation are mechanical, neurogenic, and psychogenic. Complete but temporary relief is given by antihistamine agents applied locally and also by vigorous outdoor exercise. Is there any prospect of a cure?*

A.—The prospect of cure depends on finding the cause, which is often difficult. The appearance of the mucous membrane of the nose might give a guide to the cause. The nasal discharge should be examined on several occasions, during exacerbations and if possible during remissions, for eosinophil and polymorphonuclear leucocytes. If eosinophils only are found, the condition is allergic and the allergens are of the extrinsic type—for example, inhalants such as house dust, feathers, foods, and drugs. If eosinophils and polymorphs occur together, the condition is due either to a superadded infection of a basic allergic oedema (extrinsic in type) or to an allergic reaction to an infection. If only polymorphonuclear leucocytes are found, the condition is infective in origin, although it has been suggested that some of these apparently primary infective cases are really secondary infections on a boggy mucous membrane produced psychogenically.

In the allergic cases inhalants are the common allergens, and skin tests are thus often helpful. They are best carried out and their significance assessed by a competent worker in this field. Foods and drugs account for only a small proportion of cases of allergic rhinitis. In the absence of a personal or family history of allergy, with no eosinophils or pus cells in the nasal discharge, and with negative intracutaneous skin tests, a psychogenic cause should certainly be sought.

Fowls and Cantharides

Q.—*Has it ever been established that fowls which have ingested cantharides and have subsequently been killed and eaten have caused fatal effects in man?*

A.—No. We can find no reference to evidence that fowls which have eaten cantharides, and have subsequently been killed and eaten, have caused fatal accidents in man.

Frequent Attacks of Petit Mal

Q.—*What is the best treatment for a girl of 8 who has 20 to 50 attacks of petit mal daily? Attacks can be brought on by "over-breathing." While bathing she has no attacks and rarely when carrying out vigorous exercise. Does this type of case require any treatment other than the usual anti-epilepsy drugs?*

A.—Electroencephalography should be carried out, if this has not already been done, in order to ascertain the type of dysrhythmia present. An abnormal rhythm of the wave-and-spike variety would be an indication to try "tridione," but no other type of rhythm is likely to respond to this drug. In addition to the ordinary anticonvulsant drugs, it would be worth while trying belladonna in doses of 5 to 10 minims (0.3 to 0.6 ml.) of the tincture three times a day, and also amphetamine sulphate in doses of 2.5 mg. two or three times a day, the last dose being taken not later than tea-time. A ketogenic diet is sometimes successful, but it is probably impracticable outside a hospital to-day. Petit-mal attacks of such frequency are often described as pyknolepsy. There is doubt whether this is a nosological entity, but in some such cases, although the attacks respond little, if at all, to treatment, they cease spontaneously.

Washing out the Stomach

Q.—*In a case of non-corrosive poisoning, what advantage has gastric lavage over apomorphine plus plenty of salt and water?*

A.—When gastric lavage is used it is possible to be certain that the stomach has been thoroughly washed out by looking at the washing. Plenty of salt and water plus a dose of apomorphine would sometimes be just as efficient, but it might not always be so.

NOTES AND COMMENTS

Jealousy in a Child.—Colonel N. J. C. RUTHERFORD (Farnham, Surrey) writes: With reference to the question and answer on the above subject ("Any Questions?" August 27, p. 495), I have recently observed the same situation. A sturdy little boy aged 4 showed almost virulent dislike of his sister aged 2 years. It got so bad that neighbours grew alarmed and warned an anxious young mother. The boy would deliberately charge into his sister and knock her over; and when he thought himself unobserved he would make violent attacks on the little girl, who, incidentally, was a particularly gentle and shy child. There was no question of disability in the mother, but the father, being a Regular officer, was much away from home. The mother was firm in a way, but never used any form of corporal punishment to control the boy. Then the father came home for a longish spell of leave, and the situation changed rapidly. The boy was not smacked, but was shown plainly that ill-treatment of his sister meant isolation from the other members of the family and a marked air of general displeasure (somewhat spoilt by the little girl victim, who invariably made up to the naughty one during such sessions). Going to children's parties was beneficial, as sometimes the family spirit was aroused and the boy had to stand up for his sister against comparative strangers, which he did in no uncertain fashion, and acquired a protective spirit. In this case there is no doubt that a grandfather displayed like characteristics in his youth. I cannot see psychotherapy having much influence in this case. The boy is essentially masculine, full of pluck, has a mind of his own, is no fool, and will one day be a natural leader. It is just a phase and will pass away as the years grow.

Hunterian Society.—Dr. CLEMENT FRANCIS writes: The president and council of the Hunterian Society much appreciate the notice of the Hunterian party (October 15, p. 868). But there is one error in the opening sentence which I should be grateful if you could perhaps correct. The annual party is in *addition* to, and not *instead* of, the annual dinner which is to be held at Grosvenor House on February 16, 1950. The mistake has probably arisen from the fact that two years ago we were unable, because of rationing problems, to hold our usual annual dinner.

Treatment of Stings.—Captain J. F. GOW, I.A.M.C., writes from Kankinara, West Bengal: I have read correspondence off and on regarding bee stings and jelly-fish stings and I do not remember ever having seen vinegar and salt mentioned as a treatment. The treatment consists in taking about one teaspoonful of common salt and adding to it an equal quantity of vinegar and rubbing in the mixture well at the point of the sting. The relief is instantaneous, and no inflammation results. This treatment should be carried out as soon as possible after the individual has been stung.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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SUPPLEMENT TO THE
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LONDON SATURDAY NOVEMBER 5 1949

THE SECRETARY REPORTS

CONFERENCE OF LOCAL MEDICAL COMMITTEES

The Conference of Representatives of Local Medical Committees managed in one day to dispose of a relatively formidable agenda and to escape the criticism voiced at some recent Representative Meetings that the time factor has prevented adequate discussion. Last week's Conference was no exception, possibly because the representatives were unanimous in reaching some of the more important decisions. The representations on behalf of general practitioners in the Service made to the Ministry as long ago as March 3 this year remained unanswered when the Conference met, and the chairman of the General Medical Services Committee was speaking for representatives from all parts of the country in his strong condemnation of the Ministry's "go slow" tactics.

The Ministry undertook to complete certain investigations "reasonably soon" after the G.M.S. Committee submitted its case some seven months ago. The next step was the receipt from the Ministry in mid-August of a formidable document of some 240 pages of statistics of general practitioner income, which the committee on examination criticized as unreliable and inaccurate in parts. This involved substantial revision of the document, and it can be understood that this takes time. What could not be understood by the Conference was the apparent inability of the Ministry to correct the inaccurate calculations made at the inception of the Service in determining such factors as the size of the Central Pool. One incontrovertible fact is that the number of general practitioners entering the Service proved to be higher than the number which had been estimated for the purpose of this calculation.

The Conference unanimously deplored the delay on the part of the Ministry in dealing with the matter and passed a second resolution, again unanimously, that, as the proper calculation of the amount of the Central Pool, including an adjustment for any increase in the number of doctors, can be undertaken without awaiting the redraft of the Ministry's document on general practitioner remuneration, it be demanded of the Ministry that this step be taken now in agreement with representatives of general practitioners.

Health Centres

It was reported to the Conference that a vigilant watch was being maintained on the development of plans for health centres. Local medical committees have been asked to use their influence to prevent the hasty establishment of undesirable types of health centre.

After consideration of the implications of the clause in the N.H.S. Amending Bill to enable general practitioners associated with health centres to attend private as well as public patients there, the Conference endorsed the decision of the G.M.S. Committee not to oppose this proposal. At the same time it proposed certain measures to protect the position of the doctor who transfers his practice to a health centre. The view was expressed that, during the experimental period, in any area in which a health centre is to be opened an essential preliminary is that no doctor should be allowed to open a surgery (including a surgery at his residence) within an agreed area surrounding the health centre for a specified period before and after the opening of the centre. This rule is not intended to apply to principals practising in the health centre or to a doctor who at the commencement of the specified period had premises in the area from which he practised and was on the executive council list.

Certificates of Unregistered Practitioners

In moving a resolution on this subject a representative stated that in his town the Ministry of National Insurance office had undertaken to consider "on their merits" certificates of incapacity given by unregistered practitioners. A few days ago a statement in more positive terms was issued by the British Health Freedom Society informing its members that "the Ministers of Health and National Insurance had issued a directive that certificates of *bona-fide* unorthodox practitioners shall be accepted for payment of sick benefit." The Conference is informing the Minister that it strongly disapproves of any certificate of incapacity given by an unregistered practitioner being considered by the Ministry of National Insurance —even "on its merits."

The Prescription Charge

There are still no details available of the proposed method of giving effect to the Government's decision to make a charge of not more than 1s. (except in the case of old-age pensioners) for each prescription under the National Health Service. The Conference recorded its opinion that in no circumstances whatever should a doctor be required to become an agent to collect a Government charge on prescriptions.

General Practitioners and Hospital Work

Three weeks ago certain important passages in a Ministry circular were commended in this column. In that circular—R.H.B.(49)132, which appeared in the *Supplement* of October 15 (p. 168)—the Minister advises regional hospital boards in reviewing plans for the change of use of cottage hospitals to consider the continued provision of beds in the charge of general practitioners, including maternity beds in the charge of general-practitioner obstetricians. The Conference regards this as sound and acceptable advice and is suggesting to local medical committees that they should take every opportunity of securing its implementation in their areas by regional hospital boards and hospital management committees. A number of other resolutions were passed with the object of bringing the general practitioner into closer association with hospital work.

A Busy Year

This selection of some of the more important decisions of the Conference overlooks the vast amount of steady spade-work which the G.M.S. Committee has undertaken during the first 15 months of the Service. Some indication of its continued "plugging away" to remove anomalies and to secure improved terms and conditions of service is reflected in the committee's Annual and Supplementary Reports published in the *Supplement* of August 27 (p. 99) and of October 1 (p. 150). The subjects dealt with, to take a few examples, include mileage, temporary residents, basic salary, inflation of doctors' lists, vaccination and immunization, the filling of practice vacancies, certification, various dispensing and prescribing points, maternity services (including fees for miscarriages), superannuation, assistants, treatment of seamen, emergency treatment following dental operations, partnership shares, refresher courses, income tax, and the Special Inducement Fund.

That the Conference was sensible of the vigilant work being carried on was evidenced by the warm vote of confidence which it accorded to the G.M.S. Committee and by its great appreciation of the work already done by the committee.

SPECIAL INDUCEMENT FUND

The Ministry of Health has been asked to arrange for the balance of the Special Inducement Fund to be distributed among general practitioners who are able to substantiate claims on hardship grounds as a result of the introduction of the National Health Service. The Ministry has agreed on principle, and the details will shortly be under discussion.

AUSTRALIAN HEALTH SERVICE

The Australian Minister for Health, Senator McKenna, has stated that, in view of the recent High Court judgment that Section 7a of the Pharmaceutical Benefits Act is invalid, the free-medicine scheme will be on a voluntary basis (*The Times*, October 26).

This Act required doctors to use a Government prescription form when prescribing free medicine. The action had been brought in the High Court by the Federal Council of the B.M.A. in Australia.

PAYMENT OF REGISTRARS IN TEACHING HOSPITALS

Representations have been made to the Minister that certain medical schools would prefer to contribute towards the salaries of registrars employed in teaching hospitals. This matter has been discussed with the University Grants Committee, which has confirmed the following resolution by the Medical Advisory Committee:

That the committee do not regard it as generally essential, on educational grounds, that universities should contribute to the salaries of registrars employed in teaching hospitals. They would, however, consider it appropriate that any university which desired to make such a contribution up to 50% of the registrars' salaries should be permitted to do so if its financial circumstances allow.

The Minister will make whatever arrangements may be preferred by a particular university or medical school for contributions towards registrars' salaries. It is not suggested that any initiative should be taken by a board of governors to obtain contributions. But, should a university or medical school intimate to the board that it desires to contribute an amount of up to 50% of the salaries of registrars employed in a teaching hospital, the board should agree. The precise proportion should be a matter of arrangement between the board of governors and the medical school or university concerned.

REGISTRATION OF OPTICIANS

EVIDENCE INVITED

The Intra-departmental Committee on the Statutory Registration of Opticians (*Supplement*, October 1, p. 149) will consider evidence relevant to its inquiries from interested bodies or persons. It has already invited evidence from some; others wishing to put their views before the committee should submit written memoranda to the secretary of the committee, Ministry of Health, Whitehall, London, S.W.1.

FRIENDLY SOCIETY CERTIFICATES

The General Medical Services and Private Practice Committees have considered the request of a deputation of the National Conference of Friendly Societies that practitioners should not charge for medical certificates of incapacity requested by aged members of Friendly Societies who are not entitled to sickness benefit under the National Insurance Act and therefore do not ask for National Insurance certificates.

Both committees are sympathetically inclined to the view that in these circumstances practitioners should not charge for such certificates provided the society supplies a form for the doctor's signature.

CENTRAL CONSULTANTS AND SPECIALISTS COMMITTEE (SCOTLAND)

The Central Consultants and Specialists Committee (Scotland) held its first meeting of the new Session on October 20. Mr. I. Simson Hall was re-elected chairman of the committee with Dr. T. Murray Newton as deputy chairman.

The following members were appointed to represent the committee on the Central Consultants and Specialists Committee for the coming year: Professor L. J. Davis, Dr. I. D. Easton, Dr. J. G. M. Hamilton, Mr. I. Simson Hall, Dr. J. B. King, Mr. N. J. Logie, Mr. W. S. Mack, Dr. T. Murray Newton, Dr. A. R. Wilson, and Dr. J. H. Wright.

General Practitioners and Hospitals

The committee discussed the proposal to form a joint subcommittee with the General Medical Services Subcommittee (Scotland) to consider problems affecting general practitioners in relation to hospitals under the National Health Service. Many members expressed the view that the new administrative arrangements, far from leading to the desirable integration of the profession, were resulting in a growing separation of the interests of specialists and practitioners. In the interests of medicine as a whole it was essential that this tendency should be checked. The committee therefore agreed to the immediate formation of a subcommittee capable of co-ordinating the views of both specialists and general practitioners.

Distinction Awards

The committee was unanimously against the suggestion that consultants and specialists should be required to apply for distinction awards, but considered that the proposed regional committees should remain in being and review regularly (probably annually) the qualifications of all consultants in the region from the point of view of special distinction awards.

Any new holder of an appropriate hospital appointment should be asked to complete a statement of his qualifications. No new entrant to the specialist service would then have reason to suppose that any claim he might have to a distinction award had been ignored by the regional committee through lack of information.

Part-time Appointments

Attention was drawn to the action of certain regional hospital boards in appointing or proposing to appoint whole-time officers in charge of hospital departments where these posts had hitherto been held by senior consultants on a part-time basis. In specific cases quoted by one member of the committee, the regional hospital boards in question had declined to reconsider their decision to make the posts whole-time, no option being given to the senior consultant in the area to accept the appointment on a part-time basis.

The chairman pointed out that this policy of the regional hospital boards, if pursued, would nullify the provisions of the Amending Bill designed to give effect to the Government's declared intention not to require all specialists to be employed whole-time. The committee felt very strongly that immediate action should be taken, and referred the matter to the Joint Committee for Consultants and Specialists (Scotland) with a request that it be taken up with the Department of Health for Scotland as one of urgency.

Other Business

The committee gave general approval to the proposals submitted by the Executive Committee of the Central Consultants and Specialists Committee for the establishment of an independent fighting fund for consultants.

The committee then considered a protest from consultants in the Western Region regarding the wording in the contracts offered to clinical teachers. The consultants thought that the phrase "so long as you continue to hold your appointment as clinical teacher from the university" was tantamount to granting an outside body the power to dismiss a consultant from employment with the regional hospital board. The chairman reported that, having anticipated similar difficulties, the South-Eastern Regional Board had, with the approval of the

Department of Health, altered the offending phrase to read "in association with your teaching appointment with the university."

Attention was drawn to a document which had been issued to certain clinical teachers in conjunction with their contracts, in which it was stated that, in the event of the termination of a teaching appointment, the regional hospital board would issue a new contract to the consultant concerned. While it was doubtful if an undertaking in this form would be legally enforceable, it was felt that it did go some way to safeguard the position of the affected individual. The secretary was therefore instructed to request the Department to invite all regional hospital boards to issue the document to all clinical teachers in contract with them. The representatives of the Western Region were advised to approach their regional hospital board once more with a request that the phraseology of the contracts to clinical teachers be altered as had been done in the South-Eastern Region.

It was reported that the report prepared by the special subcommittee which had been appointed to investigate the position of medical superintendents in Scotland under the N.H.S. had been the subject of a discussion between the Scottish Joint Committee and officials of the Department of Health. A further discussion is to be held when the Department has prepared a revised scale of remuneration for the medical superintendents in Scotland.

HEARD AT HEADQUARTERS

Flank Attacks

After reading in the papers the other day that regional hospital boards are being "packed with Socialists" we were not surprised to see a report the following day that "belted earls and whissy magnates" have crept on to the boards. The former opinion was attributed to the Conservative Party's *Weekly News Letter*, the latter to Dr. Ian Gilliland, chairman of the executive of the Socialist Medical Association. These views were apparently expressed independently and not in repartee, which seems to suggest that the boards are a fairly representative spectrum of political colour. That is as it should be in a country which prefers to take its politics in mixtures rather than by injections of pure synthetic products. The vocabularies of political allegation still seem to favour the Socialist. Belted earls, as we all know, are regarded with suspicion the whole world over, except perhaps in the House of Lords, whereas the hiss of "Socialist" has lost much of the arresting thrust that it had 50 years ago. Incidentally, a fortune undoubtedly awaits the first man to invent a whisky magnate.

Good Chairmanship

Headquarters has seen some excellent chairmen—a task demanding physical as well as mental energy—and Dr. Walter Jope, presiding over the Conference of Representatives of Local Medical Committees, started the day with some sound advice: "Can you hear me? Now, if any representative intends to speak let him take his place in the queue at the back of the platform. If while waiting there he finds that his point has been made by speakers in front of him, let him go back to his place without putting it again; but if there is really a point which he thinks should be put and has not been put by others, let him make it succinctly, with due regard to the time limit. But I must warn him against the dreadful fate which overtakes anyone who comes too frequently to the microphone—they make him chairman of the Conference."

Questions Answered

Purchase Tax

Q.—*I propose to buy an electric floor-polisher for use on the surgery and waiting-room floors, and also a refrigerator, which will be used partly for storing drugs and sometimes blood. Am I entitled to exemption from purchase tax?*

A.—There is no exemption from purchase tax for either of these articles even when used for the purposes stated.

LOCAL MEDICAL COMMITTEES' CONFERENCE

ACTION ON REMUNERATION SETTLEMENT DELAY

The Annual Conference of Representatives of Local Medical Committees was held in the Great Hall of B.M.A. House, London, on Thursday, October 27. Dr. W. Jope (Blantyre, Lanarkshire) presided. Almost every committee in Great Britain was represented. The principal discussions took place on matters arising in the annual and supplementary reports of the General Medical Services Committee, published in the *Supplements* of August 27 (p. 99) and October 1 (p. 150), which were introduced by Dr. S. Wand (Birmingham), chairman of the committee.

Some discussion took place on a proposed change in the date of the Annual Conference, the committee holding that if it were held in June it would facilitate the work of the committee in the early autumn, and also, the date being nearer that of the Annual Representative Meeting, it would make for better co-ordination between the two conferences. Representatives from Worcester, Buckinghamshire, Gateshead, and other constituencies, however, desired that the date of the Conference should remain in October, and this proved to be the view of the majority of the Conference (86 to 72).

The First Year of the Committee

Dr. Wand, who was cordially received, introduced the reports of the General Medical Services Committee. The committee, he said, had had a strenuous year. The agenda of its monthly meetings rarely contained fewer than 60 items, and sometimes as many as 100. As general practitioners they had lost no ground in their discussions with the Ministry, and they had made some gains, but none were easily won. The Minister at the beginning, when urging them to come into the Service, had said that if there were unresolved difficulties the sharp edges would be smoothed over by subsequent discussion. In almost every case, however, when they had made a gain they had had to fight hard.

In the field of midwifery a certain number of improvements, relating to attendance at miscarriages, emergency midwifery, and so on, had been obtained. At an earlier conference the position of the rural practitioner had been strongly brought forward, and they had now obtained for the rural practitioner an extra half million of new money and £200,000 from the Special Inducement Fund, making the total sum in the mileage pool £2 million. There could be no doubt that the man in the easy rural area got too much in comparison with his colleague in the more difficult rural area, and it was evident that men in what had been called the "mountain and lighthouse" cases would require special treatment. The committee had set up a Health Centre Subcommittee, which had been considering in particular the protection of the doctor who wished to take his practice in such a centre. The interminable delay in the discussions with the Ministry over remuneration would be the subject of resolutions to come before the Conference. It was most difficult to overcome the "go slow" movement in a Government department.

A very noticeable feature of the first year's experience was the changed attitude of the patient—the demanding attitude, the attitude which required the doctor to do certain things. Lay people in high places who should know better often seemed most unwilling to recognize the difficulties under which doctors were working. In Birmingham there had been published in the press what took place at a recent meeting of the executive council when a doctor had the temerity to say that their waiting-rooms were so congested with trivial cases that it was difficult to find time to attend adequately to the others, and he was thereupon "pulled to pieces" by the lay members. If the lay members of executive councils would not understand their problems, it was only to be expected that the public generally would not understand them or make doctors' lives any easier. They were suffering in this respect from the success of the Government's propaganda before the inception of the Act.

"We are fighting for more than money," said Dr. Wand; "we are fighting for status. The downgrading of the general practitioner during the last twelve months has been a most disturbing thing. The receipts in general practice compared with those of other professional sections in the Service have made the position of the general practitioner almost a laughing-stock. The exclusion of practitioners from midwifery work in hospitals has helped to push us down the ladder. The Government has now issued a document to regional hospital boards (*Supplement*, October 15, p. 168) which indicates a somewhat changed tone in Government and higher circles, and if this is acted upon there will be an improvement in this respect. The grading of general-practitioner specialists has been regrettable in many areas, where the type of hospital has determined the grade rather than the ability and qualifications of the man himself."

Dr. Wand concluded his opening speech with remarks in high appreciation of Dr. E. A. Gregg's long service as chairman of the old Insurance Acts Committee.

The Remuneration Issue

Dr. Wand went on to make a statement on the delay on the part of the Ministry in replying to the representations made to it as long ago as March 3 on the determination of the amount of the general practitioners' central pool. He said that on first approaching the Ministry on this subject they were told that it was necessary to make certain investigations, which would be completed "reasonably soon." Not until August was the document received—an immense document entitled "Doctors' Remuneration Tables," running to 240 pages. The committee was immediately called together, and after examining the document an interview with the Ministry took place within a week or two of its receipt. The document on close examination was found to be entirely unreliable and misleading. It showed the amounts of money which had been paid to doctors, but it disregarded such things as deflation of lists and also the effect of partnerships in which the money paid to one of the partners might be out of all proportion to his share of the profits of the practice. The Ministry had desired to publish the findings of that document. The committee took no exception to the publication of an accurate document, but they had been able to pull this document to pieces in a manner in which probably no Government document had ever been dealt with before. The Ministry then promised to look into the matter further, and on October 19 a letter was received from Sir William Douglas, Secretary to the Ministry, stating:

"We are looking carefully into the points raised at our last meeting. This has involved a good deal of research, and I am afraid, to my regret, it will not be possible to arrange for a further meeting before your Annual Conference."

"We are tired of this delay," Dr. Wand continued, "this 'go slow' method, which can be regarded as an unfair weapon in the light of the knowledge they must have; and, although we are faced at the moment with an embarrassing position occasioned by the financial crisis, I for one see no reason why we should not be able to determine as from July 5, 1948, what was the proper amount in the 'kitty' having regard to the Spens report." ("Hear, hear.")

He proceeded to move the following resolutions, which were formulated at a special meeting of the General Medical Services Committee the previous day:

That this Conference deplores the delay on the part of the Ministry of Health in replying to the representations made to it as long ago as March 3, on the determination of the amount of the practitioners' central pool which should have been made available from the inception of the National Health Service.

This was carried unanimously.

The second resolution was:

That as the proper calculation of the amount of the central pool, including an adjustment for any increase in the number of doctors, can be undertaken without awaiting the redraft of the Ministry's document on general practitioner remuneration it be demanded of the Ministry that this step be now taken in agreement with representatives of general practitioners.

Dr. P. Y. Lyle (Southport) said that his was called an "over-doctored" area, and it might be supposed that the doctors retained considerable income from private practice; but that was not so, for 93% of the population were on the lists, and the position for doctors who had been in receipt of fair incomes was very serious.

Dr. W. D. Anderson (Glasgow) said that in the suburban areas of his city, where doctors had very much smaller lists than in the industrial sections, unless something was done immediately to relieve the situation the smouldering resentment amongst practitioners would endanger the success of the scheme.

Dr. Harriette Woodhouse (Middlesex) said that the general practitioners in her area were "absolutely tired of waiting." It had been said that doctors in industrial areas, who were reasonably well off under the scheme, would not support any decisive action. It was for the rest of them to see that their colleagues in industrial areas stood by them in getting proper conditions for doctors in suburban and country districts. The remuneration of general practitioners suffered greatly in comparison with that of dentists and opticians. Why should general practitioners be the cheapjacks of medicine? Was it not time they used the only weapon the Minister understood and themselves faced the sacrifice involved? The situation was in their hands if they stood together. She called upon the assembly for united action.

Dr. A. H. Weston (Middlesex) wished to see a little real leadership in the General Medical Services Committee. There was an old saying in the Army, "Whatever you do you will probably be wrong." But here, if they did nothing, the, would certainly be wrong.

Dr. Wand pointed out that one word in his resolution was stronger than had been used before—the word "demanded."

The resolution was carried unanimously.

Dr. Noy Scott (Devon and Exeter) had an amendment which was taken as a rider to Dr. Wand's motion. It introduced the words "at the earliest possible date, when the financial state of the country permits." He said that, however just their claim might be, they had no right to place themselves above every other section of the community. The effect of his rider was to demand full recognition forthwith, but to delay the financial implementation of it in the immediate future. He put this forward as a practical resolution as opposed to a pious resolution which carried them nowhere.

Dr. J. A. Ireland (Shrewsbury) said that this rider assumed a position which did not exist. The question of an increase of pay in other walks of life was on the basis of an increase rate of pay in the past. In this case there had never been an agreed rate of pay between the profession and the Ministry. The rider had no relevance.

Dr. H. H. Goodman (Newcastle) said that nobody would accuse the doctors of being non-cooperative in a state of national emergency, but something must be done to help the position of doctors who had relied on private practice in the past, and he believed it was the intention to use the £16.5 million or part of it to help doctors with very small lists—people who could not wait until the national economy had been adjusted. The profession was not asking for an increase of remuneration, but that the pool established at the inception of the Service should be properly composed.

Dr. Noy Scott's rider was, in the words of the chairman, "lost almost unanimously."

Dr. D. Saklatvala (West Bromwich) moved to instruct the committee to report on the probable effect on the distribution of general practitioners' incomes (and their relationship to the Spens recommendations) of the apparent decision of the Ministry to reduce the number of patients per doctor in all areas where the average exceeds 3,000, and in view of the expressed opinion of the Medical Practices Committee that the number of doctors in an area was not adequate if the average list per principal was substantially in excess of 1,600.

Dr. J. E. Darlow (Holland, Lincolnshire) supported this motion on the experience of his own area.

Dr. J. A. Pridham, a member of the Medical Practices Committee, said that Dr. Saklatvala had seemed to convey an insinuation that the Medical Practices Committee was an

instrument of the Ministry to reduce the numbers on doctors' lists. That was not so. The committee was not an instrument of policy. It was not for it to say what was a desirable area. It simply made it known in what areas the number of patients to the doctor was high and in what areas low.

Dr. Saklatvala said that he was quite clear that the Medical Practices Committee was not responsible for policy.

His motion was carried.

Rural Practitioners and Mileage

Dr. A. G. Holman (Norfolk) asked the Conference to express the opinion that the proposed mileage adjustment scheme was unjust in that several essentially rural practices were classified as semi-rural, and inasmuch as total mileage was ignored and only mileage over two miles taken into consideration. When, owing to housing considerations, a doctor had to live on the periphery of his area of practice, he got a much greater number of mileage units than he did if he lived in the centre, but the actual number of miles he covered in a year remained the same. This seemed rather unjust to the doctor who lived in the centre of the area.

Dr. J. C. Pearce (chairman, Rural Practitioners Subcommittee) pointed out that the principle of the mileage scheme was not to cover the expense of running a car, but was intended as a yardstick in order to measure the necessity of the rural practitioner with a view to assuring him an average income comparable with his colleague in the town. He did not think it feasible to argue from individual cases, but the present method was, in his view, reasonably effective.

Dr. H. J. Browne (Staffordshire) maintained that the total mileage fund was still not adequate. A good practice in the country with a list of 2,500 should be equal in income to a first-rate industrial practice.

Dr. Wand thought that rural practitioners should await the publication of the Doctors' Remuneration Tables before comparing rural and urban remuneration. Those tables were in some ways extraordinarily revealing. The whole purpose of the adjustment had been to make a fair comparison between practitioners, not in order that they might take money out of a bottomless pit, but so that they could divide the money available fairly amongst themselves. The Rural Practitioners Subcommittee was *satisfied in the light of present evidence*—and would revise its opinion in the light of future evidence—that the money was now being divided as justly as human endeavour could ensure it.

The Norfolk motion was lost.

Temporary Residents

Dr. J. T. Baldwin (Lothians and Peebles) moved to amend para. 44 of the Annual Report on the question of temporary resident credits, which he desired should be given only in those cases "in which medical *advice and/or* treatment has been given" (his motion being to insert the words which are italicized). There was no definition of the word "treatment" in the terms of service. It should be made clear that advice was a form of treatment.

Dr. Wand said that the word "treatment" obviously included "advice," but the purpose of the paragraph in the report was to deal with a situation such as arose when a mother on holiday with her children had occasion to see the doctor about one member of the family and brought along all the other members. There was nothing at present to stop the doctor signing temporary resident forms for each member of the family. If the word "advice" were included it would be an encouragement to doctors who contemplated such action.

The motion was lost.

The Isle of Wight suggested that the submission of Forms E.C.7 and 8 to a patient's own doctor served no useful purpose, whereas a detachable slip on Form E.C.19, bearing a diagnosis, which the patient could hand to his doctor, would be of clinical value. Dr. F. E. Gould asked whether there were not enough forms to fill up already, and whether this could not be left to ordinary common sense as between doctors. An Isle of Wight motion on the subject was lost.

Basic Salary

Dr. A. Owen (Lancashire) moved to instruct the committee to consider the question of basic salaries in all its aspects with a view to reopening discussion of the subject with the Minister. Basic salary was paid out of the local pool and administered by the executive council, but any man who was refused basic salary had a right of appeal to the Ministry. He mentioned an instance of a doctor who had retired and gone to live at the seaside, and then undertook practice in the N.H.S., making a claim for basic salary which was turned down but allowed on appeal to the Minister. In Lancashire they felt that if they were to pay the piper they should call the tune, or if the Minister insisted on calling the tune the Government, and not the practitioners' pool, should pay.

Dr. A. T. Lowden (Hampshire) said that executive councils were being overridden by the Minister, who compelled basic salary to be paid.

Dr. Wand accepted the motion for consideration by his committee.

Filling of Vacancies

A motion by the Isle of Wight, which was accepted, called for closer contact between the Medical Practices Committee and local executive councils, together with local medical committees, before the filling of vacancies. This was accepted.

Dr. G. D. Thompson (Lancashire) moved:

That the appointment of a successor to a practice declared vacant should be made by the local executive council in consultation with the local medical committee without submission to the Medical Practices Committee.

Too much centralization was a bad thing. The present system gave rise to so many unavoidable delays that it was the more important to eliminate any avoidable ones. It took a minimum of six weeks to fill a vacancy. He had personal knowledge of a practice in which a death vacancy occurred, and as it happened, owing to special circumstances, the successor was in the practice within a fortnight, yet within that fortnight half the practice disappeared among other doctors or because people were left untraced. If that could happen in a fortnight, what could happen in six weeks?

Dr. J. H. Francis (Nottingham) said that the delay was nearer three months than six weeks. There were cases within his knowledge in which the Medical Practices Committee had overruled the local executive council and appointed another practitioner altogether, thereby causing local resentment.

Dr. J. A. Pridham said that the Lancashire motion would require an amendment of the Act. The Act had placed on the Medical Practices Committee the task of selecting doctors for vacancies. But any amendment was unnecessary. Delay need not occur owing to any action of the Medical Practices Committee. There were certain delays at the executive council end. The Medical Practices Committee had addressed a letter to executive councils pointing out the best way in which vacancies could be filled—namely, by the local executive council, in consultation with the local medical committee, interviewing the applicants and sending up a short list. If the job was done properly the Medical Practices Committee within a very few days endorsed the local recommendation and the vacancy was filled, but the job was not always done properly at the local level.

Dr. A. Campbell (Lancashire) said that unless they were careful they would become completely centralized, and all doctors would be chosen by the Medical Practices Committee. Dr. A. V. Russell (Wolverhampton) said that in his area two death vacancies occurred, and there was a delay of three months before appointment. Dr. Harriette Woodhouse (Middlesex) said that it was obvious that the Minister was out to get all the power into his own hands; the Medical Practices Committee was his creation and responsible to him. Was it not time to keep control in the hands of local bodies?

Dr. Frank Gray (London) said that the present position was that when the local executive council and the local medical committee had made a recommendation it went to the Medical Practices Committee, and then there might be an appeal to the Minister. If they merely cut out the Medical Practices

Committee they threw the whole power into the Minister's hands. When the profession put up its representatives for the Medical Practices Committee everyone was aware that they were liable to be shot at, but the General Medical Services Committee was satisfied that Dr. Pridham and his colleagues had done their difficult job well.

Dr. I. D. Grant (Glasgow) said that a recent conference of interested bodies in Scotland had expressed the view that it was desirable that the actual appointment to vacancies should be made by the local executive councils, after consultation with local medical committees, and that the Medical Practices Committee should be an appeal committee instead of the Minister. Dr. Wand said that the words "in consultation with the local medical committee" would mean a great deal in some areas and nothing at all in others. He believed that the Medical Practices Committee was doing as fair a job as it was possible to do. One point of great importance which was secured from the beginning was that if a doctor took a partner, proper notice having been given, that partner, on the other leaving the practice, came automatically into succession. He was sure that that method of entering into practice had not been sufficiently carried out. If it were, a number of these delays and difficulties would be avoided.

Dr. Thompson, in reply, said that he had made no accusations against the Medical Practices Committee, but he thought its position rather futile at the moment. In most cases it acted merely as a rubber stamp.

The Lancashire motion was lost.

On the motion of Dr. J. A. Ireland (Shrewsbury), seconded by Dr. W. Woolley (Bristol), the Conference expressed the opinion that the Medical Practices Committee, when considering appointments to practices, should invite a representative of the local medical committee to be present for consultation.

Dr. Grant said that in Scotland, in the event of disagreement, the Medical Practices Committee would be very happy to invite a representative of the local executive council—which he thought was the appropriate local body, rather than the local medical committee—to an interview.

A motion by Derby asking the committee to take steps to ensure that all medical appointments made on behalf of various Ministries be made through the local medical committee or by advertisement was carried.

Dr. D. F. Whitaker (Surrey) moved, and it was agreed, that in the filling of vacancies caused by death or retirement, when the Medical Practices Committee departed from the recommendation of the executive council the committee should inform the executive council of its reasons for so doing. Dr. J. F. Murphy, a member of the Medical Practices Committee, gave an outline of the procedure which the committee adopted.

Dr. R. C. Burton (Sheffield) asked for an amendment of the regulations so that notice of the successor to a practice might be given to the patients a month before the new practitioner took over the list. Dr. A. Beauchamp said that this would mean another month's delay, and there were enough delays already. Dr. Burton explained that what he had in mind was not a death vacancy but a vacancy on retirement, the practitioner giving normally three months' notice, so that the last of these months might be taken for the notice of the successor and there need be no delay. His motion on the subject was, however, lost.

Various Practice Matters

Dr. A. B. Davies (Walsall) asked that the committee be instructed to take up with the Ministry at an early date the burden of work falling upon practitioners. Owing to the wide range of the Act, there were more matters on which people consulted the doctor and more benefits which they could receive. This resulted in longer surgeries and an increased number of visits.

Dr. Wand said that the committee was by no means unmindful of the additional burden, but its immediate task was to rectify the pool. The volume of work had no relationship to the total amount of money in the pool, but it had a relationship to the permissible maximum list, and this might in turn affect the way in which the pool was dealt with. He hoped the Conference would leave it to the committee to use its common sense to make the right decision at the right time. On this understanding he accepted the instruction.

Dr. Wand said that the position with regard to fees for vaccination and immunization remained most unsatisfactory. It had been hoped to have a further conference with the Ministry during September, but nothing had happened. A motion of protest at the delay was carried, and the Conference endorsed the action of the committee in informing the Ministry that it would take no steps to discourage the refusal of the return of reports of vaccination and immunization pending the satisfactory conclusion of negotiations.

Dr. Kennedy (Isle of Wight) protested that the proposed mileage payment in respect of maternity services was inadequate, and that payment should come from the same source as payments for maternity services. Dr. Wand pointed out that when the Ministry's offer of an extra half million for the mileage fund was accepted it was understood that the maternity mileage payment would come out of it. He begged that the matter be left for at least a year to see how it worked, and it could then be seen whether modification was needed.

After a short discussion the Isle of Wight motion was lost, and the same fate attended a motion by Buckinghamshire calling for a reinvestigation of the method of payment.

Medical Services Committee Procedure

Dr. A. G. Holman (Norfolk) asked the Conference to express the view that an independent chairman with legal qualifications should be appointed to preside at Medical Services Committee inquiries. The chairman was elected by the lay members of executive councils and sometimes looked upon himself as prosecuting counsel. Dr. C. M. Stevenson (Cambridge) said that, from his experience of Medical Services Subcommittees in the old days, they often had a more sympathetic hearing with a non-legal chairman than with a legal chairman whose mind was bound up with the technicalities of the law. Dr. F. Gray (London) said that if the motion were carried they might very well get rid of a fair-minded non-legal chairman and have one with legal qualifications but with bias. He begged them not to pass any hasty or dangerous resolution.

The Norfolk motion was lost.

Dr. Kennedy (Isle of Wight) proposed that the Minister be pressed to provide machinery for complaints against patients, as under the old N.H.I. regulations. Dr. J. C. Arthur (Gateshead) supported this, pointing out that a large number of patients coming under their care were in no way familiar with the old insurance or club rules.

Dr. Wand said that the mild way in which the Isle of Wight and Gateshead had put the case for rules of conduct for patients with appropriate disciplinary machinery compared unfavourably with the forcefulness with which his committee had itself presented this question to the Ministry. It was intolerable that the action of some small number of their patients should pass completely unchallenged.

The Isle of Wight motion was carried.

General Practitioners and Hospital Work

Dr. Talbot Rogers (Kent and Canterbury) proposed:

That this Conference, having given attention to the circular letter "Changes in the Use of Hospitals: General Practitioner Hospitals" (published in the *Supplement*, October 15, p. 168), considers that the advice given therein by the Minister of Health to regional hospital boards with regard to proposals for the change of function of cottage hospitals, the continued provision of beds which shall be in the charge of general practitioners (including maternity beds in the charge of general-practitioner obstetricians), and the suggested establishment in district general hospitals of posts as clinical assistants available to general practitioners, is sound and acceptable. The Conference suggests to local medical committees that they shall take every opportunity to press in their areas for action to be taken by regional hospital boards and hospital management committees in accordance with the advice given in this circular letter.

He considered that the circular letter was one of the most important documents issuing from the Ministry during the last few years. Most of the regional boards had been working steadily during the last eighteen months on rearrangements.

and were now in the process of deciding on the future function of the hospitals. During the course of this examination of the work of their hospitals they had in many cases brought forward plans for changing the function, and often this had meant in practice the displacement of the general practitioner from the hospital. This related particularly to cottage hospitals and small hospitals undertaking maternity work. It was therefore with pleasure that they found this circular letter going out to regional boards. This was almost a charter for the general practitioner. The Ministry was urging here the necessity of maintaining a type of hospital they all hoped to see in which the general practitioner had charge of beds. He suggested that local medical committees should use this in their approach to hospital management committees.

Dr. F. Gray, seconded by Dr. H. H. D. Sutherland, moved to omit the words "and the suggested establishment in district general hospitals of posts as clinical assistants available to general practitioners." Dr. Gray considered that these were dangerous words in view of the relative status of general practitioner and consultant. Any consultant by the age of 40 could earn more than any general practitioner who had managed to get a full list. If they accepted the relation of general practitioner to consultant as that of clinical assistant it might have unfortunate implications on respective remuneration.

Dr. Talbot Rogers accepted the amendment, not because he thought the position was quite as dangerous as Dr. Gray suggested, but in order to get unanimous agreement.

Dr. D. F. Hutchinson (Middlesex) mentioned the different attitude of regional boards towards the general practitioner position as a result of the circular. Dr. W. D. Steel (Worcester) referred to the phrase in the circular "treatment within the scope of a general practitioner." This was satisfactory as far as it went, but it did not take into account the general practitioner who in the past had been in the habit of performing certain specialist operations in the hospital continuing that type of work. He hoped they would be able to establish the position of the general-practitioner specialist. It appeared also that it was not anticipated that in maternity departments there should be a general practitioner wing. If in a general hospital there was a general practitioner wing, there should be a similar provision in maternity departments.

Dr. N. G. Thomson (Hertfordshire) said that in his area they had lost their general practitioner hospital, and in its place they had been offered 12 beds in a hospital in which they were given no other facilities such as a theatre, and they had also been offered six clinical assistantships in a big hospital, but these six were all of a different nature, so that a general practitioner working in one clinical assistantship would have no chance of meeting consultants in other branches. The board would be likely to expect the clinical assistantship to have priority over the claims of general practice.

Dr. Talbot Rogers's resolution, with the deletion of the words which Dr. Gray had proposed should be left out, was carried unanimously.

A resolution by Cambridgeshire protesting against the exclusion of general practitioners from the clinical assistant type of post was carried. The mover explained that he had principally in mind teaching hospitals. A further motion by Hastings protested against the regulations whereby a practitioner not in contract with a regional hospital board was not allowed to attend his private patients in the private wards of a hospital, and this also after some slight discussion was carried.

A motion by the Isle of Wight deprecating the exclusion of large numbers of general-practitioner specialists from hospital work was carried. On a further motion Dr. Howie Wood asked the Conference to express the opinion that £25 per occupied bed was totally inadequate as remuneration for general practitioners on staffs of cottage hospitals, unless such items as anaesthetics and assistance at operations carried additional payment. Dr. K. J. T. Wilson (Dorset) also complained of the inadequacy of the payment.

Dr. Wand hoped this would be referred to the committee without too much expression of opinion at the moment because the anaesthetics position was still in process of being cleared up.

The motion was referred to the committee.

Assistants

Dr. D. C. Wilson (Inverness) was anxious that the Medical Practices Committee should not agree to the application of an assistant to begin practice as a principal in his own right in the same area as his principal without the latter's consent. Dr. I. D. Grant said that the ethical position was not within the sphere of the Medical Practices Committee. The obvious protection for the principal was to ask the assistant to sign a bond.

Grants for training assistants led to a sharp discussion. Dr. A. Winstanley (Lancashire) moved:

That this Conference is opposed to the payment of grants for trainee assistants.

Of the many unsatisfactory features of the Service his committee believed this to be one of the most undesirable. It subsidized a successful practitioner at the expense of his colleagues. It set practitioner against practitioner. It was said to implement a recommendation of the Spens Committee, but in fact it did not give effect to the Spens recommendation. Dr. P. A. T. Lowden (Hampshire) supported this contention.

Dr. Wand hoped the Conference would not come to a decision at the moment. The committee intended to look at the problem again when the scheme had been in operation for about a year.

Dr. Winstanley was willing to have it referred to the committee on the understanding that it was reconsidered at the end of a year.

Dr. A. N. Matthias (Middlesex) said that his committee considered it should be obligatory for a formal contract to be entered into between the trainee assistant and the doctor undertaking the training. As a medical assessor to a tribunal his experience was that doctors were bad business men, entering into all sorts of obligations without any proper form of contract.

Dr. Wand asked if this meant that even if the principal did not wish to enter into a contract he must do so. Did it mean that the form of contract should be legally watertight? The model form of contract put before them was overthrown in the courts of law.

A motion to make it obligatory for a formal contract was negatived.

Health Centres

Dr. Wand moved approval of the action of the committee in not opposing the clause in the amending Bill which would make it possible for general practitioners associated with a health centre to attend private patients at the centre. The clause was permissive. It would still be possible for practitioners in an area to make representations against the carrying out of private practice in a particular health centre if they so desired.

The motion was carried, and Dr. Wand then proceeded to move:

That it be regarded as an essential preliminary during the experimental period that, in every area in which a health centre is to be opened, no doctor (other than one of the principals in the health centre, or a doctor who, at the commencement of a specified period, had premises in the area from which he practised and was at that time on the executive council list) should be allowed to open a surgery (including a surgery at his residence) within an agreed area around the health centre, for a specified period before and after the opening of such centre.

The Health Centre Subcommittee had been considering the protection of a doctor who wished to go into a health centre. He had in mind the case of a doctor practising midway between two health centres a mile and a half apart. On deciding to go into one of them, he might find himself cut off from half his practice, which was inevitable, but in addition he would know that anybody, if it was an open area, could come in and take consulting-rooms next door to his own previous rooms. If the health centre experiment was to be carried out as they all desired, it was essential that the best doctors should not be discouraged from going into the health centre. Therefore he hoped that this proposal, if the Conference approved, might be included in the amending Bill.

The motion was carried unanimously.

Maternity Medical Services

Dr. J. C. Arthur (Gateshead) moved that, where maternity hospitals do not fully implement their responsibilities to their booked patients during pregnancy, the general practitioner who was called upon to undertake such responsibilities should be entitled to some portion of the maternity fee. This motion was agreed to.

Dr. W. H. Hayes (Bristol) moved a long resolution deploring the tone of members of the Royal College of Obstetricians and Gynaecologists in their ill-considered criticism of general practitioners, and instructing the General Medical Services Committee to seek the help of the Central Consultants and Specialists Committee in considering means of preventing the publication of such criticisms without the members attacked being given the opportunity of stating their case. The resolution went on to call for consideration whether there was any justification for such statements: if the statements proved to be mainly true, then immediate means should be found for correcting weaknesses in the teaching system, and if mainly untrue then the fact should be published, including an apology from the Royal College responsible.

The resolution was carried unanimously without discussion.

Autonomy of the Committee

Dr. Hayes further moved that, in view of statements that the General Medical Services Committee was a B.M.A. Committee, the Conference should emphasize that it was a committee responsible to the Conference only and in no way responsible to the Representative Body. At the same time he felt sure that the Conference would do its utmost to support the B.M.A.

Dr. Frank Gray reminded the Conference that it had been stated that a gentleman never claimed to be one, but simply took it for granted. The committee, like the Insurance Acts Committee before it, had not claimed to be an autonomous body; it had assumed it, and the arrangement, without too much probing amongst constitutional definitions, had worked well. If such a motion as this were carried it might lead to similar claims on behalf of other sections of the profession and have a divisive effect. They had increased strength in going to the Minister by standing all together.

Dr. W. Woolley said that autonomy had been thrust upon them by the Association. They were recognized at Harrogate as an autonomous body. This motion was merely a public statement that the committee was responsible to the Conference.

Dr. Wand said that the committee was the executive of the Conference, and as such completely autonomous, and yet it had an association with the B.M.A., which was greatly to its advantage. He hoped the meeting would not find it necessary to attempt to define something which was indefinable, but which worked admirably.

It was agreed to proceed to the next business.

Change of Doctor

Dr. O. Williams (Carmarthenshire) moved to recommend to the Ministry that the practice under the old N.H.I. should be reverted to, whereby, except in the case of consent by the two doctors concerned, a patient might change his doctor only at the end of a quarter, and then only after due notice.

The chairman (Dr. Jope) said that during the negotiations it was obvious that the Ministry desired the freest possible change of doctor in order that State practice might resemble private practice, where the patient could change his doctor immediately.

The Carmarthenshire motion was carried by 62 to 47.

Dr. H. Vickers (Middlesex) moved a resolution strongly deprecating the practice of admitting practitioners from an adjoining area to an executive council's list irrespective of the distance from the applicant's surgery to the area of practice, and instructing the committee to discuss the matter with the Medical Practices Committee so that a reasonable limit of distance might be set. He gave instances occurring in Middlesex of practitioners who had come on to the list when their surgeries were many miles away in adjoining counties.

Dr. Grant pointed out that it was of very little use to discuss the matter with the Medical Practices Committee; it was a matter for the Ministry.

Dr. Wand said that as he understood it the executive council had the power to refuse doctors the right to practise in an area where they could not give a satisfactory service. He suggested that the General Medical Services Committee should go through these cases and consider what action, if any, should be taken.

This course was agreed to.

The Shilling Levy on Prescriptions

The last matter to come before the Conference was the announcement made by the Prime Minister three days previously of the shilling levy on prescriptions. Dr. J. A. Pridham moved:

That this Conference place on record its opinion that under no circumstances whatever shall the dispensing doctor be required to be an agent to collect a Government charge on prescriptions.

Dr. J. C. Pearce (chairman, Rural Practitioners Subcommittee), in seconding, further pointed out that when the National Health Service was started there was a definite promise that no financial barrier should be placed between doctor and patient, but here a financial barrier was interposed. He also thought the scheme would be impracticable in rural areas.

Dr. H. H. D. Sutherland proposed and Dr. Frank Gray seconded an amendment to omit the word "dispensing," and this was agreed to.

The secretary read a notice which was being sent out to the Press indicating generally the reaction of the profession, and this received the general assent of the Conference.

Dr. Talbot Rogers (Kent) suggested that in addition to old-age pensioners there were other groups of patients who might well be relieved of this impost. He had in mind poor patients who needed medical care over a long period. The effect of illness on the family budget became increasingly heavy as the illness dragged on.

The resolution, with the word "dispensing" omitted, was carried unanimously.

Other Motions

During the day various motions were carried or referred to the committee without discussion. On the motion of Gateshead the committee was instructed to continue to press for a payment from the Dental Estimates Board to practitioners called upon to deal with dental haemorrhage.

Dr. H. W. Bowyer (Bolton) moved to refer back the paragraph of the Annual Report dealing with treatment of H.M. Forces on leave. His committee thought they should be accepted as temporary residents. The General Medical Services Committee's view was that there should be no change in the existing arrangements. The Bolton motion was lost.

Dr. Kennedy (Isle of Wight) asked that immediate steps should be taken to ensure that the names of Service patients were restored to the list of their previous doctor on demobilization, as was done prior to July 5, 1948. This was agreed to.

Dr. D. L. S. Johnson (Halifax) had a motion expressing strong disapproval of any certificate of incapacity given by an unregistered practitioner being considered by the Ministry of National Insurance, and urged the committee to bring this to the notice of the Minister. He said that in August last an osteopath applied to the local executive council to be put on the list for the purpose of certifying people who were under his care as incapacitated and therefore entitled to draw benefit under the National Insurance scheme. The clerk of the council wrote to the Ministry asking for guidance, and was told that unregistered practitioners could not be included in the Service without amending the Act, but the reply went on to say that certificates of incapacity given by unregistered practitioners were considered by the Ministry of National Insurance "on their merits." This seemed to raise a fundamental issue which the committee should take up. The Halifax motion was carried.

On the question of the Special Inducement Fund Dr. Wand said that the Ministry of Health had been approached in order to secure a widening of the scope of the Fund so as to include

definite cases of hardship irrespective of the type of area in which the doctor was practising. He read a statement from the Ministry which in his view represented a very marked improvement in dealing with hardship cases.

The Inverness Committee called for the setting up of a commission to go into the nomenclature of drugs and the standardization of bulk in packages with a view to eliminating waste and extravagant prescribing. The mover pointed out that there were a great many varieties of aspirin under different trade names. The proposed commission should consist of doctors, pharmacists, and manufacturing chemists. Dr. Wand accepted the reference of this motion to his committee, but said that it might prove to be a matter for the Science Committee of the B.M.A.

A motion by the Isle of Wight expressing the view that practitioners should have free choice of venue for refresher courses was referred to the committee

A report of the trustees of the National Insurance Defence Trust was received and approved. It was stated that an appeal for the continuation of contributions to the new Trust would be sent out to local medical committees within a week or two.

Chairman Re-elected

Dr. Jope was unanimously re-elected chairman of the Conference, and the six retiring members of the General Medical Services Committee were re-elected—namely, Drs. A. Beauchamp, S. A. Forbes, I. G. Innes, J. A. Ireland, J. A. Pridham, and F. M. Rose.

Dr. R. W McConnel (Buckinghamshire) moved:

That the Conference wishes to express during the first year of work of the Service its confidence in the General Medical Services Committee, and its extreme satisfaction with the work done by the committee.

This was carried unanimously and with acclamation.

A vote of thanks to the chairman closed the proceedings.

CONFERENCE DINNER

At the close of the Conference the representatives entertained the members of the General Medical Services Committee at dinner at the Dorchester Hotel under the chairmanship of Dr. Walter Jope. Dr. S. Noy Scott, in proposing the committee's health, suitably expressed the thanks of the Conference and of general practitioners all over the country for their ungrudging and self-sacrificing labours. Dr. Wand, chairman of the committee, said that he felt very humble when he recalled the chairmen of the old Insurance Acts Committee—Brackenbury, with his incisive mind and kindly heart; Dain, a leader of great courage and one who evoked much affection, and Gregg, of whom more would be said later in the evening. The new committee had a great tradition to maintain, but it was a most knowledgeable body of men (with one woman), and very hard-working and conscientious. He referred especially to the Scottish contingent. From them had arisen one of the ablest medical politicians they had had in recent years in the person of the chairman of the Conference, who had been a great help in their deliberations. They thanked also his wife, Dr. Christina Jope, without whose aid in his Lanarkshire practice he would never have been able to accomplish his work at Headquarters. Dr. Jope's health was then proposed by a fellow Scot, Dr. A. C. Hendry, of Aberdeen.

The presentation of a handsome grandfather clock was made to Dr. E. A. Gregg by those who had served under him during his chairmanship of the Insurance Acts Committee. In making the presentation Dr. Wand said that they rejoiced that after his long service in the chair of the committee he was now carrying his wisdom and understanding into the wider sphere of the chairmanship of Council. Dr. Gregg said that the chimes of the clock would remind him of many friends, some of them gone, and many happy and laborious days. The I.A.C. was "the best committee of the British Medical Association," and now it had handed on its traditions to a successor with the same spirit and much the same membership. The Conference had shown that some people were bothered about the word "autonomous" and the relation of the committee to the B.M.A. One of the finest pieces of work ever done in the B.M.A. was the creation, on the introduction of the National Health Insurance Act, of a special organization for the discharge of this part of its task. "Don't have any doubt about your relationship. You are part and parcel of one of the finest organizations in the world. The Association is not a building nor even a staff, it is a united body of medical men and women expressing itself to the Government and to the public at large."

The Dain Fund

After the usual compliments to the staff, medical and lay, which were responded to by Dr. Hill and also by Dr. D. P. Stevenson, secretary of the committee, the last word of the evening was with Dr. Dain, who spoke about the Dain Fund, established a few years ago for the assistance of the sons and daughters of medical men whose fathers, owing to early death or other misfortune, had been unable to complete their children's education. The fund had had some useful additions, notably a handsome donation of £150 from the Metropolitan Counties Branch. The trustees had decided that half the money coming in each year should be invested to increase the capital and half should be spent on the assistance of needy cases. Responsibilities had been undertaken which ran into nearly £1,000 a year. He hoped that local medical committees would follow the example of the old panel committees in making generous donations to this fund.

The chairman endorsed the appeal, and a collection was taken at the tables, resulting in a sum of £122.

THE DAIN FUND

REPORT OF THE TRUSTEES, 1948–9

This report covers the year ended August 31, 1949, a period during which many requests for advice and assistance have been received, considered, and whenever possible dealt with either by the Fund or by obtaining assistance from other bodies.

It will be remembered that last year an unusually large number of new cases (nine) were accepted by the Trustees. It was appreciated that many of these would require continued assistance, but under the present policy of the Trustees it has been agreed that to accept a long-term responsibility for the education of a child is the wisest way of using available funds rather than giving a large number of smaller sums, which, though providing temporary relief, would inevitably mean further help and probably transference to other funds or associations for final assistance.

Nevertheless it has been possible to take on two new applications, involving help to three children, details of which are given.

Case 1.—The widow of a general practitioner made application for assistance towards the fees of her youngest son while at the College of Estate Management. The applicant's three other children live at home and are able to contribute to the maintenance of the house, but there were no available funds for fees and maintenance of this boy. The training is for a period of three years and the Trustees agreed to allow £50 per annum subject to satisfactory reports on progress.

Case 2.—The widow of a practitioner whose death occurred in 1947 has struggled to support her family of three children by running a small shop. Her two elder children, a girl aged 20 and a boy aged 18, have both started their medical training; the third child aged 15 is at school. Application was made for financial help for all three children. The help required for the youngest child was promptly and most generously given by the Royal Medical Benevolent Fund, and the Trustees of the Dain Fund, having received good reports on both medical students, decided to assist by a grant of £75 per annum for each, making a total of £150 per annum.

This is an example of the type of case which the Trustees feel particularly they should assist, and, subject to satisfactory reports from the dean of the medical school, the Trustees plan to continue this grant to enable these two promising students to complete their training for a medical career.

It was with great regret that the Trustees, owing to lack of funds early in the financial year, had to refuse financial

help to three other children who were particularly suitable. Arrangements were made, however, for help to be forthcoming from other sources.

Of the thirteen remaining cases which have been helped this year, in three the periods of education for which the Trustees undertook responsibility have now been completed. The first, a boy doing his dental course, has had consistently good reports and is taking the last part of the final examination in the autumn. The second, a girl, has done well at school, gaining the School Certificate with six credits, and has now been accepted for training as a physiotherapist. The third case is that of a boy who is sitting for a classical scholarship at Oxford. It is a matter of great satisfaction to the Trustees that these children have been successful and have fully justified the hopes of all interested in them and their future.

In the other ten cases grants have varied in amount from £30 to £105 per annum. In five cases additional assistance has been given by local medical committees, a fact which is greatly appreciated both by the Trustees and by the recipient of the grant.

All inquiries are dealt with as expeditiously as possible and advice is given by the secretary on many matters other than actual finance. The Trustees would like to express their thanks to the Royal Medical Benevolent Fund and the Royal Medical Foundation of Epsom College for their co-operation, help, and advice in many cases. By sharing responsibility with other bodies it is often possible to assist a large number of cases for longer periods of time.

It will be evident that if the work of the Dain Fund is to continue more money is required. As has been stressed in previous reports, the annual income of the Fund is small, though the capital is slowly being built up under the Trustees' policy of investing one-half of all moneys received. Income from investments was under £150, but owing to the generosity of donors a sum of £1,641 was received, which made it possible to distribute £960 during the year.

The Trustees, in appealing to the profession for monetary pport, wish to suggest that all doctors who are interested in and desire to help the Dain Fund should complete a form of covenant for a seven-year period. Such a covenant in the hands of the Trustees means that the Trustees will be in a position to know that a definite income is assured, and indeed by giving a donation in this manner the actual sum available to the Trust is considerably increased. In the same way it is hoped that local medical committees, who have been most generous in the past, will consider the possibility of this form of donation.

The Trustees wish to express warm appreciation to the council of the Metropolitan Counties Branch of the British Medical Association for the most generous gift of £150 from the proceeds of the Charities Ball held in May. It should also be reported that £1,000 paid by the *Daily Mirror* to the British Medical Association was given by the Council to the Dain Fund.

In presenting this report the Trustees feel that every effort has been made to use available funds to the greatest advantage to individual cases. In order to help these children of professional colleagues, the Trustees appeal most sincerely for the generous support of all doctors.

All donations and inquiries should be addressed to the secretary to the Trustees of the Dain Fund at B.M.A. House.

H. GUY DAIN,
Chairman of the Trustees.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

Correspondence

Representation of Consultants

SIR,—I have read with some disquiet the letter from the members of the South-West Metropolitan Regional Committee (*Supplement*, October 22, p. 185) and regret that they have come to the unfortunate decision "that if the Central Committee of Consultants and Specialists continues to be subordinated to a Joint Committee it will consider withdrawing its representatives from the Central Committee and relying on representation of its members by other means."

This presents an entirely misleading picture. The Central Consultants Committee is no more subordinate to the Joint Committee than are the Royal Colleges. Each constituent body has the right to present its case to the Ministry direct, if there be any disagreement amongst them.

During the year that the Joint Committee has been working there has not been the slightest suggestion of any such action being contemplated. Indeed, such has been the unanimity of the Joint Committee that it has been able to obtain many concessions from the Ministry towards improving the terms and conditions of service.

It is begging the question to say that it acted without authority in agreeing with the Ministry to recommend the terms for the permanent contracts for hospital staffs. The facts are these: The Central Committee recommended to the Joint Committee that certain changes should be made before such action could be taken. It was with this reference that the representatives of the Central Consultants and Specialists Committee, with representatives of the other constituent bodies, met the Ministry. The Ministry gave certain assurances, details of which were published in full in the *Supplement* of July 23 (p. 53). After considering those assurances, the Joint Committee announced on July 22 that it was "now able to advise hospital staffs to enter into permanent contracts." The Joint Committee also decided, with the assent of the Ministry, to continue negotiations on a number of outstanding points. These decisions of the Joint Committee were endorsed by the Central Consultants and Specialists Committee.

At the last meeting of the Central Consultants Committee we had before us a letter from the Ministry asking which body they should consult with reference to the medical membership of the Whitley Council. It is desirable that these Councils should be set up at an early date, and, as the Joint Committee had established its position with the Ministry as the one body representing the consultants, it seemed that the Joint Committee was the right and proper body to be consulted by the Ministry for this purpose.

This decision, of course, must be communicated to the other constituent bodies of the Joint Committee before further action can be taken.

In my view the work of the Joint Committee has fully justified its existence, and it has established good relations with the Ministry and can now go to it with great authority.

If the South-West Regional Committee persists in its demand it will mean that instead of one body representing the consultants there will be several having little authority, which I consider would be an impossible and dangerous situation.—I am, etc.,

Manchester. R. L. NEWELL,
Chairman, Central Consultants and Specialists Committee.

Status of General Practice

SIR,—Whilst agreeing heartily with both Dr. Grant (*Supplement*, October 1, p. 155) and Dr. Duff (October 22, p. 184) that the status of general practice is a fundamental matter, I cannot feel that either of them has dealt adequately with the subject or fairly with their colleagues. The first question in status is, What do you think of yourself? (If you do not think much of yourself it is unlikely that anyone else will think much of you.) Now, both Dr. Grant and Dr. Duff, with their constant

references to trivial complaints and certificates, are implying that good work cannot be done under the N.H.S. Indeed, Dr. Grant—quite naturally in view of his present position—can only think of a good general practitioner in terms of private practice, and Dr. Duff is not quite sure whether he is a rubber-stamp or a finger-post.

Now where does the fallacy lie? For fallacy there surely is. Is it not in this same "trivial complaint" and the G.P.'s attitude towards it? Does not the word "trivial" imply that it is beneath the doctor's notice? Yet do not these trivial complaints include on the one hand all the beginnings of serious illness, and on the other just those cases which can be most easily and quickly cured—by anyone who knows how?

It is usually implied that trivial cases are uninteresting. Well, Sir, interesting work is work in which we take an interest—just that, no more and no less. It is also implied that they are not so difficult to diagnose as advanced cases. Which is easier to see—a large object or a small one? Which is easier to discern—a large deviation from the normal or a small one?

Is not the real reason for all this disgruntlement quite different? As medical students we were all trained by consultants who, however, eminent in their own sphere, showed neither willingness nor aptitude to treat minor ailments. What they did not possess they could not impart, and the G.P. has been left to pick up this knowledge for himself or go without it. We may suspect that those who are always trying to get back into hospital in some form or other (incidentally a regressive attitude) want to get away from general practice not because it is too easy but because it is too hard for them.

Fortunately these are only a small minority. There are many in general practice to-day who have built up large lists, not by either of the methods mentioned by Dr. Grant, but by concentrating on the real needs of their patients, even when these are masked by "trivial" complaints; sorting out those who merely need a word of reassurance, those who need a talk about their domestic troubles, and those whose symptoms suggest the beginning of some serious physical illness and require a careful overhaul. In this way they not only retain the confidence of their patients but also run their practices in an efficient and self-sparing manner. It is inexcusable in Dr. Grant that he should have failed to mention this method, as he is personally acquainted with many of those who practise it.

I am aware, of course, although I am no longer in general practice myself, that the greatly increased resort to the doctor makes things more difficult for all general practitioners, but I still find, from talking to my colleagues, that the efficient practitioners who use this last method find their lives much less burdensome than their neighbours who do not. Perhaps one day we shall realize that general practice has its art and science worth cultivating for their own sake alone.—I am, etc.,

East Hoathly, Sussex. F. GRAY.

Bureau for Assistants

SIR,—The matter of "principal and assistant" has recently become an interesting topic in the *Journal*. This subject has now become very important, as throughout the country assistants are being installed some with and some without hope.

The recent "groans" of the assistant and now the "moan" of the principal (*Supplement*, October 8, p. 163) have prompted me to voice my opinions and suggestions. Both sides have legitimate grumbles, and yet both sides are at fault. The assistant of to-day expects a share in a practice, sometimes in a short space of time, without having earned the right. Does he realize how serious a step a partnership can be? A partnership in medicine is almost a marriage—it is practically made for life—and a "divorce" becomes so complicated financially that the lawyers eventually end up most successfully. Hence the hesitancy of the principals.

When the right man comes along and the practice benefits from his work and knowledge, the principal would be a fool to let him go. Surely six months or one year is not a fair test. There should be a period of two years at least.

Now, what about the right type of assistant? Here I would like to make a suggestion. It is high time that a bureau was set up to protect him or her. This office should be sponsored by the B.M.A. It should have the names of the principals and assistants. All assistants should seek posts through this one and only bureau; references should be exchanged through it; terms of service should be set up in contract form and witnessed. Principals failing to comply with their undertakings should be black-listed, and assistants found to be failing should be black-listed too. Hence we can at least safeguard both sides. Unless this method is adopted, mistrust, fear, and anxiety will always exist.

I look to the B.M.A. to take this step now and sponsor such a scheme. It will give the assistant a fair chance and avoid exploitation; it will give the principal the right assistant. It will also promote trust and restore faith in the profession, which is now sadly lacking, and in this way we will become a happy unit and the standard of medicine will improve. The young assistant will have a future, the principal will find his work shared, and both will profit from each other's knowledge and experience.—I am, etc.,

London, N.13. V. M. SEIFERT.

*** Anticipating these problems, the Association established the Medical Practices Advisory Bureau at the end of 1948. The Bureau is under the personal direction of a member of the Association's Medical Secretariat and has an experienced staff. It has had considerable success in the work suggested by our correspondent.—ED., *B.M.J.*

Private Practice for M.Os.H.

SIR,—It is remarkable how persistent in their silence regarding the progress made—if any—are those responsible for the talks which are supposed to have started on the matter of increasing our salaries. Several months elapsed since the ban on advertisements of vacancies from local authorities in the professional press was imposed as one of the useful forms of pressure to force the issue; again, some three months have passed since that ban has been lifted as the result of a given undertaking that talks will presently start. But nothing of any significance has been reported so far.

This delay—the matter has been lagging behind ever since the appointed day of July 5, 1948—is perhaps due to the heavy burden which lies on the shoulders of the representatives of the "bigger brother" within the profession—namely, the general practitioner, who has just recently been fulfilling the great task of presenting an appropriate demand for additional capitation funds to the amount of £16½ million. It should be borne in mind that there is a marked discrepancy between the length of time which is necessary to bring about a satisfactory solution of the problem and the actual *materia ad disputandum*: for even the conclusion of the peace treaty at Versailles after the first world war was accomplished within three months, and the amputation of our sterling was performed in the record time of a very few days.

It is at this juncture that the most useful recent work of Dr. K. V. Deakin comes in. Indeed, for the benefit of both the general practitioner and his "little brother" within the profession, Dr. K. V. Deakin would be well advised to quote, in his authoritative statistics and analysis of conditions of pay of the medical profession, not the incomes of doctors in Bolton (*Supplement*, October 1, p. 156) and Manchester (*Supplement*, August 27, p. 117) (£1,301 p.a. and £1,280 p.a., respectively), but instead the average salary paid to medical officers of health by local authorities: £750 p.a. That pay compares indeed strikingly with average incomes as quoted from the Bolton and Manchester area, of £2,760 for the dentist, £2,085 earned by the optician, or £1,720 paid to the chemist.

It is not in the interest of the general practitioner and the profession as a whole to witness the disruption of the Public Health Service so far as the work of the medical officer is involved. The exodus of the dental officer from the Public Health Service, which has reached a sub-chronic stage, was and still is certainly advantageous for both—the dental practitioner and the dental officer as well. But our exodus, the exodus of

the "little brother" within the profession, would result in a considerable increase of work, and paper work as well, in the surgeries of the already overworked general practitioner without additional remuneration. Indeed, it must not be forgotten that the bulk of work carried out by the medical officer in the Public Health Service—child-welfare clinics, ante- and post-natal clinics, minor-ailment clinics, etc.—is already financially covered under the National Health Service, and therefore capitated.

It is a pity that we are presenting our demands late in the day so that they unfortunately coincide with the Cripps devaluation wage freeze, which can hardly be regarded as a temporary measure in terms of one or two years, as any Government which may follow on will be pledged rather to decreasing than to increasing expenditure from public funds.

An alternative solution to our problem must therefore be sought and found, and the only alternative proposal, I believe, consists in a change of conditions of service which, if agreed to, will satisfy all concerned parties and evade the inevitable collision with the said Cripps devaluation wage freeze. The prohibition of private practice for the medical officer in public health can no longer be maintained; it belongs to the past and must be lifted. This should be our alternative demand, for it is at present our most precious and only asset. A new appointed day must therefore come into being. The medical officer serving under the local authority within the scope of public health must be free to engage in private practice and subsequently to work under the National Health Service scheme after having completed the duties of his primary employ.

Many ancient nations with a highly efficient public health service have all adopted that system, which has also led to an increase of efficiency of the medical officer, who, while maintaining his original status of medical practitioner, never lost touch with real medicine.—I am, etc.,

Accrington, Lancs. J. KATZ.

Administrative Units

SIR,—I have been very much disturbed to read in the Press the account of the protests made at Shaftesbury by old people who have been forcibly taken from the institution there to Salisbury 20 miles away.

Like all other country doctors, I know a large number of people of the type who made the protest, and I know that nothing short of very severe provocation and deep feeling would have caused them to act as they did. Twenty miles does not seem far in a car, but it is enough to cut these people off from their friends and relatives almost completely, not for a short time as in an acute illness, but for life. Long bus journeys are too exhausting and expensive for old people, and the times are often inconvenient for young ones who are working or have young children to look after.

I should imagine that a number of these patients did not come from Shaftesbury itself, but from the surrounding villages, and the difficulty of the journey would thus be greater.

These Dorset men and women have shown that the spirit of the Tolpuddle martyrs still survives in the South-west, and anyone who believes in the individual as something more than an administrative unit must respect and admire them.—I am, etc.,

Peterborough. MAUREEN PRESTON.

Dispensing and the Chronic Sick

SIR,—Dr. W. A. Hyslop's letter (*Supplement*, October 15, p. 172) prompts me to point out another gross inadequacy in payment to dispensing practitioners—namely, drug requirements of the chronic sick. These would include patients suffering from chronic rheumatism in all its forms, chronic cardiovascular disease, carcinoma of the prostate, as well as the incurables and neurotics. A chronic rheumatic patient alone will easily take 2,000 tab. codeine co. a year at an approximate cost of 30s. per 1,000. Other chronics will require £3–£4 worth of drugs per year in the ordinary course of events, without allowing for extra dispensing for the ordinary common ailments. Six-and-sixpence a year does not go very far towards keeping a chronic rheumatic supplied with drugs, and, as Dr. Hyslop points out, the capitation fee for dispensing patients should be reviewed in the light of experience.

To help prescribing for these "chronics" the executive council will not allow one to remove them from one's dispensing list even though one arranges to keep the patient adequately supplied with medicines. We are politely told that the extra cost of dispensing for the chronic sick is compensated for by the people who require no dispensing during the year. I am certain it could be shown, if one had the time to spend, how utterly ridiculous such reasoning is. But the Ministry's word is final, and one must take a "chronic" on to one's dispensing list knowing full well it will mean a net loss of several pounds a year.

The faulty ruling here is that a dispensing practitioner has only two ways of claiming for his drugs. The easiest is by the inadequate capitation fee, and the other entails a great deal of irritating and unnecessary clerical work. This latter method turns out to be more costly to the Ministry as well as more exacting to the doctor.

My suggestion is for a review of the drug allowance, and for the doctor to have a free choice of the patients for whom he will dispense and not to be domineered by the local executive councils to be told what he must or must not do.—I am, etc.,

Garforth, Yorks. J. F. ROBINSON.

Association Notices

TITLE OF BIRMINGHAM BRANCH

Notice is hereby given by the Council to all concerned that as from the date of this notice the title of the Birmingham Branch will be altered to "Midland Branch."

CHARLES HILL,
Secretary.

Diary of Central Meetings

NOVEMBER

8	Tues.	Arrangements Committee, 2 p.m.
9	Wed.	Committee on the Postgraduate Education of General Practitioners, 11 a.m.
9	Wed.	Health Centres Subcommittee of the General Medical Services Committee, 11 a.m.
9	Wed.	Film Committee, 4 p.m.
10	Thurs.	General Medical Services Committee, 11 a.m.
11	Fri.	Evidence Committee (Royal Commission on Capital Punishment), 11.30 a.m.
16	Wed.	**Council**, 10 a.m.
17	Thurs.	*Publishing Subcommittee*, 11 a.m.
17	Thurs.	Radiologists Group Conference, 1.30 p.m.
17	Thurs.	Radiologists Group Committee (at termination of Group Conference).
25	Fri.	Committee on Psychiatry and the Law, 2 p.m.

Branch and Division Meetings to be Held

CLEVELAND DIVISION.—At North Ormesby Hospital, Middlesbrough, Wednesday, November 9, 2.30 p.m., clinical meeting with demonstration of cases.

HENDON DIVISION.—At Hendon Hall Hotel, Tuesday, November 8, 8.15 p.m., Mr. A. M. A. Moore: "The Foot."

LEIGH DIVISION.—At Boar's Head Hotel, Leigh, Tuesday, November 8, 8.30 p.m., annual general meeting. Address by Dr. M. Schwartzberg: "The D.P.s of Leigh."

LEWISHAM DIVISION.—At Lewisham Hospital, High Street, London, S.E., Friday, November 4, 8.30 p.m., Dr. G. J. W. Ollerenshaw: "H 11."

NORTH MIDDLESEX DIVISION.—At North Middlesex Hospital, Silver Street, Edmonton, N., Tuesday, November 8, 2.30 p.m., clinical meeting.

NUNEATON AND TAMWORTH DIVISION.—At the Red Lion Hotel, Atherstone, Tuesday, November 8, 8.45 p.m., B.M.A. Lecture by Professor Wilfrid Gaisford: "Chemotherapy in Paediatrics."

RICHMOND DIVISION.—At *Kingston County Hospital*, Wolverton Avenue, Tuesday, November 8, 8.30 p.m., clinical meeting; cases at 7.30 p.m.

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BRITISH MEDICAL JOURNAL

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TUBERCULOSIS IN EUROPE DURING AND AFTER THE SECOND WORLD WAR

BY

MARC DANIELS, M.R.C.P., D.P.H.

Member of the Scientific Staff of the Medical Research Council

Among the suggestions made by Dr. Milroy for the lectures on State medicine and public health which he established over 60 years ago is the following :

"XVIII . . . that more diligent and continued attention may be paid than has yet been attempted in this country to the study of the accurate *Geography of Diseases*, (and to) the exact date of each epidemic prevalence . . . of the ordinary endemic maladies in different countries and localities, together with a brief notice of any exceptional feature . . . characteristic of each aggravated manifestation of the malady in question, so that some record of its varying natural history may be preserved for the benefit of future times. The want of thoroughly trustworthy information on this department of professional investigation has had much to do with causing the numerous errors and fluctuations of opinion which have hitherto retarded the real progress of sound knowledge on various questions. An accurate geography of many diseases is often essential to the complete determination of their true natural history."

It is a sobering thought that these words, written in days when the epidemiological study of infectious diseases was still in its infancy, are as true of tuberculosis to-day as they were then. The amount of work that has been done on tuberculosis, and particularly the amount that has been published in the past 50 years, defies calculation ; but the number of sound epidemiological studies of the disease can easily be enumerated, and our knowledge of its natural history is still rudimentary. In fact, though there has been a progressive and striking reduction in tuberculosis mortality since the time of Dr. Milroy, it is still the main killing disease at the most productive ages of man. Dr. Stocks (1944) has estimated on the basis of a combination of morbidity and mortality statistics that in 1938 there must have been at any one time in England and Wales about 100,000 persons with clinically active pulmonary tuberculosis and about 650,000 in a quiescent state ; and of this total about 60,000 were expected to die eventually of the disease. Its effect on the productive capacity of the population is demonstrated by the fact that the mortality from the disease in England and Wales in 1945 represented a loss of 565,000 person-years of future lifetime between the ages of 15 and 65 (Stocks, 1949).

The nineteen-thirties and the early years of the war saw discoveries of so great importance in the treatment of acute infections and in the prevention of such diseases as typhus that they reduced to relatively low proportions the toll usually taken by war in disease. It had become a commonplace to compare the numbers who died in past wars from casualties in battle with those dying from diseases such as typhus, dysentery, and typhoid. But for the second world war this does not apply ; though there were some epidemics of these diseases they did not reach anything like their former gravity and distribution. Tuberculosis rates, however, rose in every European country seriously affected by the war, and there is now a growing realization in Europe that tuberculosis is our main public health problem. A study of the trends of the disease during the war years may be of some value in contemplating future action.

With these considerations information is presented here on wartime and post-war tuberculosis trends, and on the development of tuberculosis services in different European countries since the end of the war. Much of the information was collected during service with Unrra ; the disturbing scenes one saw then aroused and focused interest on some of the problems to be discussed here.

DEATH RATES AND PREVALENCE*

Tuberculosis Mortality

When one presents statistics of tuberculosis in Europe it is with a feeling that they are better than no information at all, but not much better. There are countries in which as many as 50% of the deaths are not medically certified, and where 15 to 20% are registered as being due to unknown causes. Even in France as many as 10% of deaths are registered as of cause unknown. Most regional statistics within the European countries are unreliable ; in most cases the deaths are registered at the place where they occur and are not referred to the residential population. The fear of tuberculosis in backward populations is responsible for much evasion of tuberculosis certification. In addition to all this, one must take into account the many factors operating during war and the German occupation, conditions to make statistics of any kind many times less reliable than before. The drafting of men into military service or into forced labour for the Nazis, the Jews deported, the numbers taken prisoner of war or thrown into concentration camps ; the people who died away from their homeland by violence on the battlefield, in air raids, or in gas chambers, or of untreated diseases in camp or elsewhere ; the migration of millions during and after the liberation, including the return to their homes of prisoners of war many of whom had a high incidence of pulmonary tuberculosis : these factors combine to modify all statistics

*The first of two Milroy Lectures (abridged) delivered at the Royal College of Physicians on February 15 and 17, 1949.

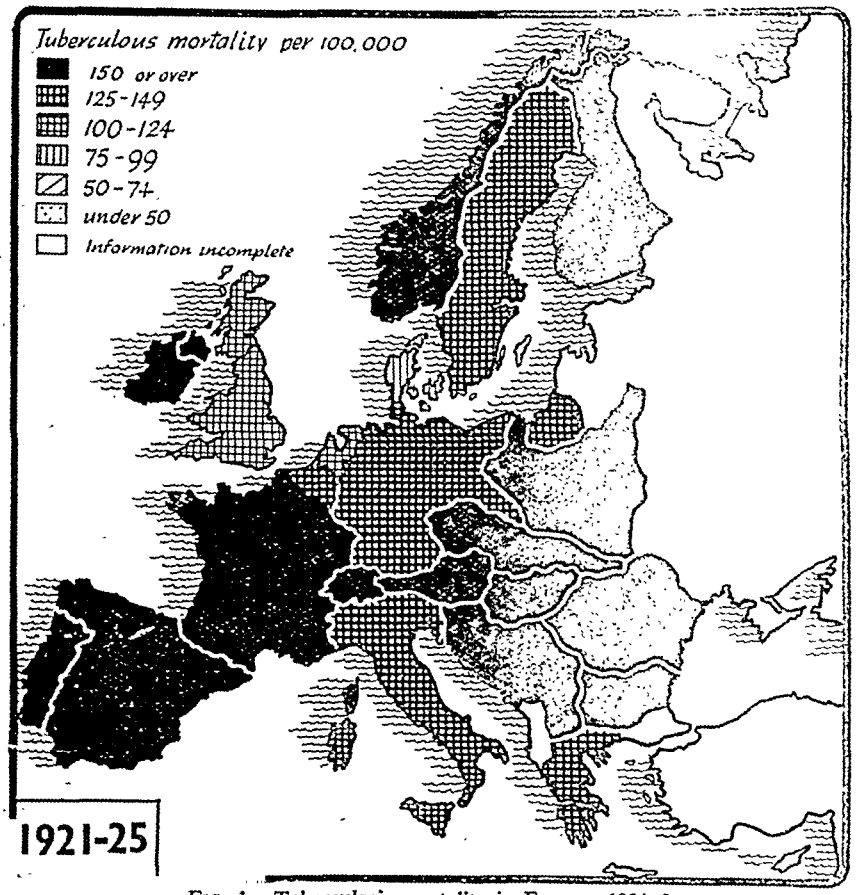


FIG. 1.—Tuberculosis mortality in Europe, 1921–5.

obtained. So all the figures to be given here bear this reservation : they are the statistics that were obtainable in the circumstances, the circumstances of war and post-war.

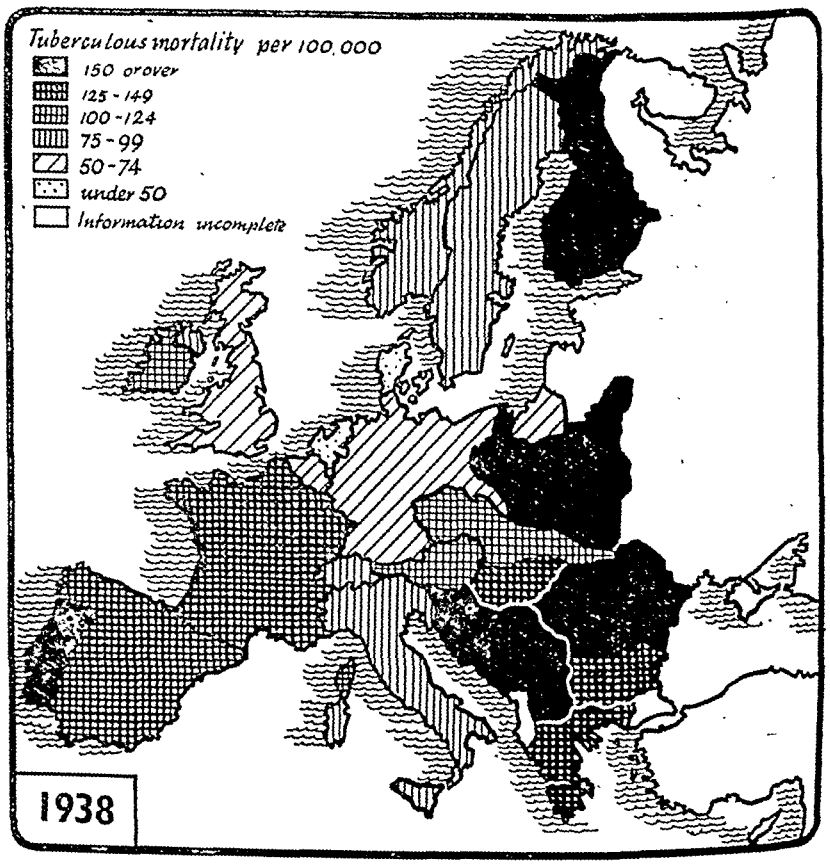
Before looking at the trends of tuberculosis mortality during and after the second world war we can rapidly view the remarkable fall in the rates over the past 50 years. The tuberculosis death rates fell in several European countries from above 200 per 100,000 in 1885 to below 100 in 1935. The most striking fall was in Denmark ; the rate there was one of the highest recorded in Europe in 1885, with a mortality of nearly 300, and in 1935 it was below 50. In most European countries, and particularly in Germany, Austria, and Belgium, there was a sharp rise between 1914 and 1918. A striking feature of the trends is that shortly after the end of that war the rate had declined to a level which it would normally have reached if the pre-war trends had continued uninterrupted.

The changes in the period between the two wars and during the recent war are demonstrated in the maps (Figs. 1–3). In Fig. 1 are charted the tuberculosis mortality rates in the countries of Europe in the period 1921 to 1925. It is obvious from this map that tuberculosis death rates in European countries were in the nineteen-twenties still very high according to present standards in all countries except Denmark ; the mortality was highest in Eastern Europe, France, Spain, Norway, and Ireland.

The second map (Fig. 2) demonstrates the striking change which had taken place by 1938. In England and Wales, Scotland, Belgium, Holland, Denmark, and Germany the tuberculosis mortality had fallen below 75 per 100,000, and in Norway, Sweden, Switzerland, and Italy it was below 100. In France, Spain, Portugal, and practically the whole of Eastern Europe the rates were still very high, though in Czechoslovakia and in Austria there had been some improvement. It is this particular picture that we must bear in mind in considering to what extent the tuberculosis situation was affected in the different countries by the conditions of war.

In Fig. 3 are charted the tuberculosis death rates for 1946. Statistics for some countries are as yet so incomplete that it has been necessary to leave them blank, but an outstanding feature is the relatively low rates in the whole of the mid-continent of Europe : in France and in Norway and Sweden the mortality was lower than in 1938, in Germany and Scotland somewhat higher. We have figures as shown for Poland, Rumania, Hungary, and Bulgaria, and it is justifiable to assume that the tuberculosis mortality in the other Eastern European countries is as high as in these. Before the war the rates in these countries were among the highest in Europe.

FIG. 2.—Tuberculosis mortality in Europe, 1938.



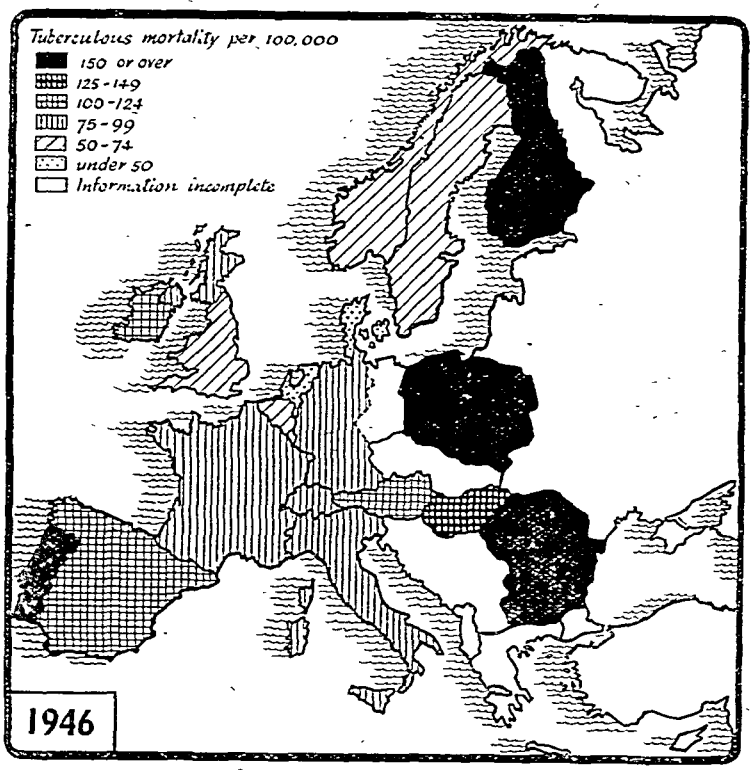
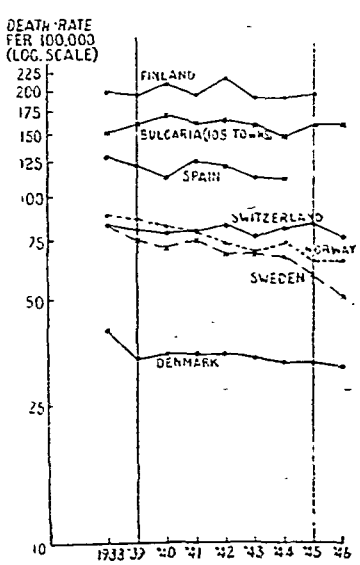


FIG. 3.—Tuberculosis mortality in Europe, 1946.

Coming now to a study of what happened in each country during and after the war, we can consider three main groups of countries: one in which there was little or no wartime rise in tuberculosis mortality, a second group in which there was a rise in the early years of the war and then a continuous fall, and a third group in which there was a rise in the latter part of the war.

FIG. 4.—Tuberculosis mortality in European countries having little or no wartime rise, 1938–46.



I. Countries in Which there was Little or No Wartime Rise (Fig. 4)

In Denmark the rate was low in 1939 (rate 34) and slightly lower in 1945 (rate 33). It has the lowest tuberculosis mortality in Europe. At the beginning of the century the rate was as high as in most other countries. In the past 50 years there has been a very notable rise in living standards in this small country, and during the period between the two wars public social care was developed considerably. In this war Denmark fared better than most countries; certain food supplies were limited, but there was never an acute shortage. In a number of other countries with particularly high tuberculosis rates before the war the rates remained high but there was no significant change, and Spain, Bulgaria, and Finland are typical of these. Switzerland had a medium rate, and, though there was an arrest in the decline of the pre-war years, there was no serious rise. Finally, in two countries, Norway and Sweden, there was a definite fall during the war years—in Sweden from 82 in 1938 to 51 in 1946, and in Norway from 88 to 65. There was a rise in 1943 and early 1944 in Oslo, attributed to a deterioration in the food supply.

II. Countries in Which the Rate Rose in the First Years and Fell in the Later Years of the War (Fig. 5)

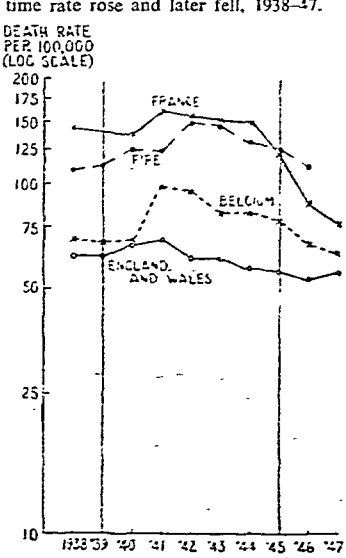
The principal countries showing this trend are England and Wales, Belgium, Eire, and France.

In Belgium the rate rose from 69 to 98 in 1941 and fell subsequently to a level in 1946 just below that of 1938, and there was a further slight decline in 1947. There is enough in the chaos of the first two years of the war to explain the rise to a peak in 1941: the destruction and occupation of sanatoria, the discharge of patients to their homes, the breakdown of food distribution, the overcrowding and lack of hygiene. However, the central tuberculosis organization was re-established rapidly, after some opposition from the occupying authority, and by 1942 there were almost as many sanatorium beds available as before the war. Double rations were accorded by the dispensaries not only to patients with acute tuberculosis but also to those whose lesions had been active within the past five years. All things considered, there is enough to explain the rapid recovery after 1941, though it is important to note that the pre-war level had only just been reached in 1947.

In Eire there was a continuing rise until 1942–3; apparently Eire was the only neutral country in Europe to suffer from wartime conditions to this extent.

The death rates for France show an interesting phenomenon. The curve for the whole of France shows a rise in 1941 and a subsequent decline, at first gradual and then quite steep. The rate now is little more than half that for 1938. These trends were not the same throughout France. The curve for Paris shows the

FIG. 5.—Tuberculosis mortality in European countries in which the wartime rate rose and later fell, 1938–47.



general trend in an exaggerated form, with an acute rise from 155 in 1938 to 215 in 1941 and subsequently a very rapid fall to a level far below that of 1938 (72 in 1947). But other regions showed quite different tendencies. In Normandy, Brittany, and Eastern France there was an ample supply of animal food and milk, and in these regions, where there had always been a high mortality from tuberculosis, the rate declined throughout the war. In the South, on the contrary, in Bouches du Rhône, in Vaucluse, and in Var, the tuberculosis problem continued to be acute up to 1943, and this can be related to the very severe food shortages in these districts.

For France one must make reservations on the absolute value of mortality figures, but comparisons between years are valid. Apart from the striking feature of the differing reactions in various parts of France, the most outstanding is the very rapid decline of the death rate in France after the preliminary rise. This fall in the tuberculosis death rate is greater than for any other country in Europe. During the first years of the war the tuberculosis and the general death rates followed a similar course. But since 1943 the general death rate has remained higher than before the war; so the proportionate tuberculosis mortality in the department of Seine, for instance, went down from 13.5% in 1938 to 9.1% in 1945. For the whole of France it is now 6%, and this means in fact that it is approaching the level of relative importance that tuberculosis has in England as a public health problem. If we consider the pulmonary tuberculosis mortality separately we find an even more acute decline; the death rate from non-pulmonary tuberculosis was unchanged. It is important to note that this steep decline in the death rates from tuberculosis has been observed in most parts of the country; this is obvious in the most recent figures for separate large cities of France.

In England and Wales, as in Belgium and France, there was a rise in the first two years of the war, though less acute than in those countries. Obviously our experiences were less severe from many standpoints than those of the occupied countries, but in 1940 the air raids and the anticipated invasion, with evacuation of sanatoria from the danger areas and of hospitals to make room for air-raid casualties, combined to produce a situation highly favourable for the tubercle bacillus. The increase was 13% in the first two years. In this increase anxiety and overwork must have played an important part; there is evidence also that increased opportunities for infection were a major factor. The evacuation of hospitals and sanatoria, the black-out conditions, the overcrowding in homes because of air raids and billeting, the numbers of tuberculous patients drawn into industry, and the coming in contact with them of numbers of people who previously had led a relatively isolated life, must all have combined to increase infections greatly over the pre-war rates. There was in fact a marked increase among children under 5: between 1938 and 1941 deaths from respiratory tuberculosis went up 55% in boys and 105% in girls.

For meningitis in children up to 10 years there was an increase of 50%, and there is evidence that the majority of these infections were caused by the human bacillus. In mental hospitals in England and Wales, which already before the war had an alarmingly high tuberculosis mortality—nearly 1925. The rate increased by 140% to 901. Here [illegible] tuberculosis must have been low nutrition [illegible] 377 [illegible] with overcrowding. Since 1[illegible] the dominant factor in England and Wales [illegible] infection [illegible] have not reached the Denmark [illegible] death rates [illegible] pre-war trends had continued uninterrupted. In children under 5 the death rate has remained above the level reached before the war.

III. Countries in Which the Death Rates Rose Through the War Years to a Peak at the End of the War

In Fig. 6 are shown the trends in several countries; the rates are those for large cities, as with the exception of Holland the overall national rates are not known. All show

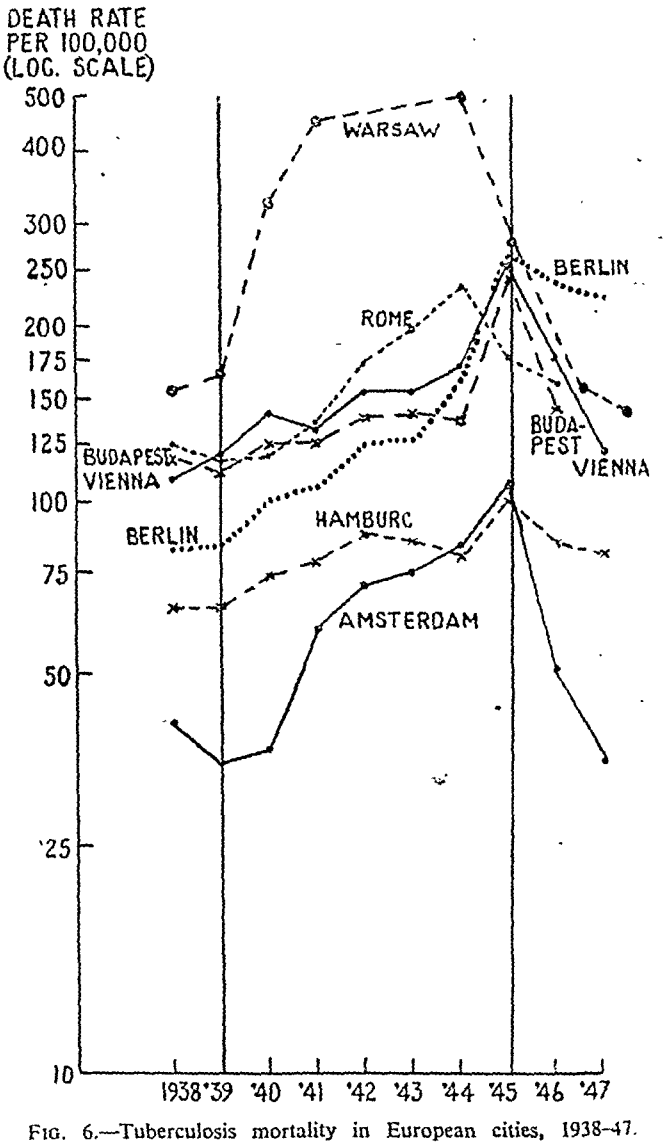


FIG. 6.—Tuberculosis mortality in European cities, 1938–47.

the same type of curve with an acute drop at the end. All are countries which were most severely affected in the final years of the war.

In Holland the rise was greater in Amsterdam than in the rest of the country—this is the more important as between the wars the rate in Amsterdam had declined to a lower figure. Between 1939 and 1945 it rose 208%, compared with the rise of 111% for the whole country. There is no doubt that the worst suffering in Holland was during the fighting in the final year. In Amsterdam many died of starvation. The deaths from all causes in the first half-year, which in 1939 numbered 3,736, totalled 9,701 in 1945. Deaths from infantile diarrhoea were 4 in 1939, 38 in 1944, and 255 in 1945.

In both Hungary and Austria there was a very acute rise at the end of the war. In Budapest the food situation

was not bad during the war, but there was chaos during the final year, and inflation with an acute food shortage. A very similar situation developed in Vienna. The highest mortality in Vienna was in the working-class boroughs; in one of the boroughs where there were the worst housing conditions the death rate was 322 in 1945. In both cities there was a sharp drop after 1945.

For Rome the peak of mortality was in 1944, and the death rate subsequently fell steeply. A study of the mortality in different parts of Italy reveals some interesting factors, reflecting here as in France the differences in conditions. The trends up to 1942 are very similar; by then there was an increase in tuberculosis deaths of 36–41% for respiratory tuberculosis, 21% for other tuberculosis. For cities of Southern Italy the mortality then went down gradually; we can recall that this part of the country was little affected by the fighting after the invasion. In Northern Italy there was a fall in 1943 and 1944 and another rise in 1945 corresponding with the campaign at the end of the war. But in Central Italy, where the most severe war conditions prevailed and for the longest period of time, the death rate rose steeply in 1943 and 1944 to a rate 130% above that of 1939. Subsequently there has been a drop, but in 1946 the rate (83 for the whole of Italy) was still above the pre-war figure: if the rate of decline in pre-war years had continued, mortality in 1946 would have been about 50.

In Germany also conditions were worst in the final years of the war; the aerial bombing, the disruption of public health activities, and the breakdown in food supplies must have contributed to produce the acute rise in 1945 after a moderate rise in the preceding war years. In all areas there has been a fall in mortality since 1945. The situation is much graver in Berlin than elsewhere. Among reasons given for the greater mortality in Berlin are: during the war, the effects of continual as opposed to sporadic raids, and since the war the food difficulties—much more serious than in the British and United States Zones—and particularly the fact that Berlin has been cut off from use of its sanatorium beds, most of which were outside the city. In this respect the Zones were relatively well placed; Berlin was left with a little over 5,500 beds, or 0.7 bed per death, compared with over 2 beds per death in the British Zone. The exceptional opportunities for hospital treatment of cases in the Zones may well be responsible for at least a part of the post-war decline in mortality. The tuberculosis mortality in the Western Zones of Germany is well below that of many other European countries, including Scotland and Ireland. The most recent figures for 1948 show a continuing fall in all areas, including Berlin, where the rate for the first half-year was 30% below that for the first half of 1947.

Poland is one of the countries which already before the war had a high death rate from tuberculosis. Figures for the whole country are not available, but we know that in the cities with one exception the rate was over 150 per 100,000. Despite wholesale destruction by the Germans, some records were preserved, and it has been possible to trace the course of the disease through the grim years of the occupation. Already by 1941 the mortality from tuberculosis in Warsaw had increased by nearly 200% over 1938, and in Lodz the increase was 80%. These are the worst recorded tuberculosis death rates that we found anywhere; there is sufficient in the conditions of the occupation to explain the magnitude of the rise. The rate persisted at a very high level, increasing further until the end of the war, since when there has been a rapid fall, and in all towns the rate is now well below the pre-war level. For combined figures of six main towns the most recent rate—for the year from mid-1947 to mid-1948—is 28% below the 1938 figure. In Katowice, a flourishing mining and industrial centre, the rate is now 63 compared with 101 pre-war.

There is less information on the mortality trends in Yugoslavia, but in the city of Ljubljana, which before the war had a particularly active tuberculosis control department, the death rate rose from 70 in 1940 to 263 in 1944.

Among the millions who died in concentration camps tuberculosis was only one of many causes contributing to death; but it was found in a very high proportion when the conditions in the camps were revealed at the liberation: 40% of necropsies at Dachau showed advanced tuberculosis. Of 64 cases of starvation studied in Belsen Hospital 27 had definite tuberculosis. At Buchenwald, Dachau, Nordhausen, and other camps, hundreds of tuberculous patients were taken out when the camps were liberated, many of them so ill that they died within a few days.

Tuberculosis trends in Scotland merit particular study, as this is the one country which, after having been seriously affected by the war, has shown no improvement in rates since the end of the war: there has even been a rise to a rate higher than the peak during wartime. Fig. 7 shows the death rates from respiratory tuberculosis between 1932 and 1946. The curve for the whole country shows the slow decline between 1932 and 1939 and the rise in the first year of the war; this level was maintained to 1945, since when there has been a further rise to a rate higher than in 1932. The combined rate for the large burghs shows a marked rise, and maintenance at a level well above 1932. The rate for the counties (excluding large burghs) showed a steeper decline in the pre-war years, a less marked but sustained increase during the war years, and in 1946 a rate still below the 1932 rate. The main part of the rise in Scotland is due to the rates in the cities, and it is interesting to look at a few of these specifically. Fig. 8 shows the death rates from respiratory tuberculosis from 1920 to 1947. In Aberdeen there was a fairly consistent fall through out the nineteen-twenties and nineteen-thirties, a rise during the

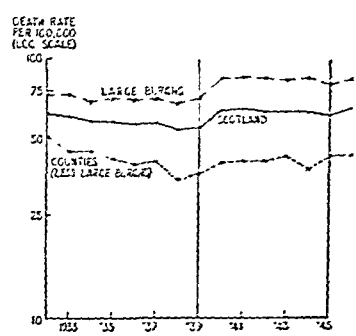


FIG. 7.—Death rates from respiratory tuberculosis, Scotland, 1932–46.

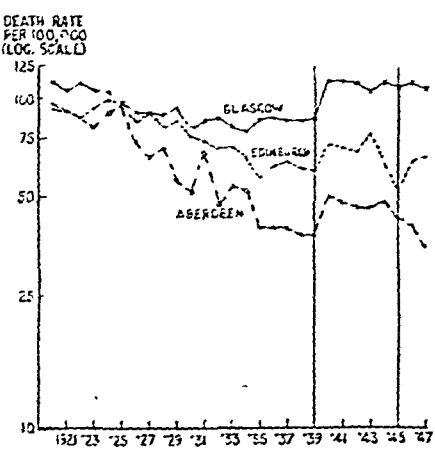


FIG. 8.—Death rates from respiratory tuberculosis, Scottish towns, 1920–47.

war, and a fall since then to a level below that for 1939; this is similar to what is happening in England. In Edinburgh there was a slower decline in the pre-war years, a fall at the end of the war, then a rise. It is Glasgow which presents the main problem: with its population of one million—i.e., one-fifth that of the whole of Scotland—it plays a large part in determining the overall trends. The first striking fact is that the decline in tuberculosis rates was arrested during the nineteen-thirties. Secondly, the wartime rise was steep and has been maintained at a level as high as the 1921 rate. There is at present a commission studying the causes of these trends, and one can only underline the differences between the trends in Scotland and those in the rest of the continent of Europe.

Age and Sex Analysis of Death Rates

An interesting phenomenon in the wartime rise in tuberculosis has been the predominance of the rise in men, except in Scotland (Fig. 9). In some countries, in fact, the rise was confined to males. Even in Denmark, where the overall rate from pulmonary tuberculosis had remained stationary at the low rate of 29 throughout the war, analysis shows that this rate was composed of a rate in males rising from 28 to 33, and in females falling from 30 to 25. Similar trends were observed in Holland.

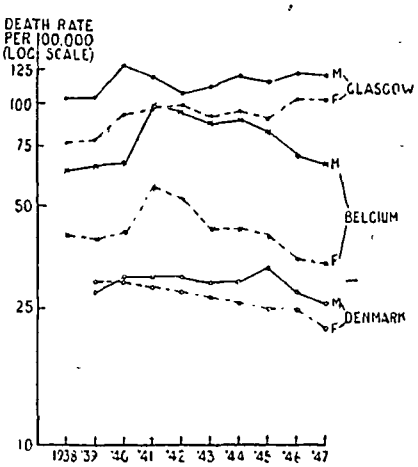


FIG. 9.—Respiratory tuberculosis death rates (male and female); showing predominance of the rise in men in Belgium and Denmark, compared with the trend in Glasgow.

In Belgium, where as in most other countries the rate in males was already higher before the war, the phenomenon is more striking. In 1941, at the peak of mortality, the increase over the 1938 rate was 49% in males and 36% in females. The subsequent decline was much slower in males: in 1944 the female rate had returned to the pre-war level, and by 1947 was 20% below; the male rate in 1944 was still 32% above the pre-war level, and did not reach it till 1947. There is much less difference between the sexes in the rates for non-pulmonary tuberculosis. In Italy there was a similar rise; whereas in 1939 the male death rate was 2% higher than in females, in 1946 it was 27% higher.

In France there was very little rise in the female rate in the years 1939–41, and a considerable drop subsequently at all ages. In males there was a very great increase at all ages, and a subsequent drop much below the 1935 rates. It is particularly marked in the 30–50 age group. The overall rise in the first two years of the war was 16% in females and 57% in males. A noteworthy feature of the remarkable fall in tuberculosis mortality in France is that it occurred in all age groups except young children and old people.

In Berlin, where as we have seen there was an alarming increase in tuberculosis, the increase was greater in men than in women, and occurred at all adult age groups. In Hamburg, if one compares the 1946 rate with that for 1939, in females there was no increase, whereas in males the rate was nearly 50% higher in 1946 than in 1939.

In Scotland, on the contrary, there has been a greater increase in females than in males (in 1946–7 the respiratory tuberculosis death rate was 19% higher in males, 32% higher in females, than at the outbreak of war). In fact, the exceptional rise of rate in women is the main feature of the persisting high rate in Scotland when compared with the rest of Europe. An analysis of the data in age groups shows that in females the increase was predominantly in young women. In men the increase was wholly in the older age groups.

Many possible causes have been suggested for the excessive rise of mortality in males in countries other than Scotland. Certainly in part it may be due to the selection by the Services of healthy non-tuberculous members of the young adult population. But where rates are calculated on the whole population this does not apply; and, moreover, we have seen that the older age groups showed a greater rise than those affected by military service. Deterioration in working conditions and participation in outside work in civil defence duties in this country or in resistance movements in other countries may have played a part. In this respect, however, it is interesting to note that in the mental hospitals in England and Wales the increase was greater in males than in females and that it has persisted in males at a level 60% above 1939, whereas in females it is now back at the 1939 level. There, either added exposure to infection or undernutrition, or both, must be responsible. It has been suggested elsewhere that reaction to malnutrition is more severe in males than in females, but definite proof of this is lacking.

It is interesting to look in rather more detail at the age-group trends in each of the sexes. In Fig. 10 for England and Wales, where the rates are adjusted to include non-civilians, one sees first that in females a peak at ages 20–24 is maintained, and that there is a fall in all age groups, whereas in males the rates are lower in 1947 than in 1939 at all ages except young children and the over-fifties. This is part of a phenomenon which is being increasingly noted in other countries—namely, the maintenance of the acutely peaked curve in females with a maximum at ages 15–24, though with falling rates, and in males the rounded curve with high rates at all adult ages but a peak gradually shifting towards the older age groups. This phenomenon of the

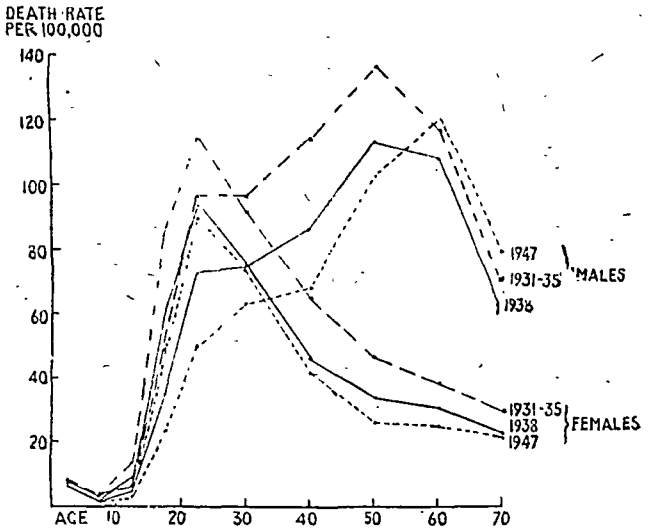


FIG. 10.—Tuberculosis mortality in England and Wales at various ages (male and female, and including non-civilians), in 1931–5, 1938, and 1947. Respiratory tuberculosis only.

shift of the peak to the older age groups in males has given rise to various hypotheses. A most interesting one is based on a statistical analysis of tuberculosis mortality in successive generations: the mortality in different age groups plotted on a generation basis shows little change in the type of curve through successive decades (Springett, personal communication).

Tuberculosis Morbidity

I have taken the tuberculosis death rate as the main index of tuberculosis trends. At present it is the most reliable index. Statistics regarding new cases diagnosed in dispensaries each year, or new notifications, or total cases known to the dispensaries at any one time are not lacking. But in the conditions of war these are practically valueless for comparative purposes, either for comparison between successive years in the same country or between different countries. Fig. 11 is characteristic. It shows for Belgium the dispensary case rate going up to a very high figure at a time when the death rate was well on the way down. Had that rise represented a true rise in morbidity there would have been a delay in the decline of the death rate or at least another rise later on. But it is clear from the accounts by the Belgian authorities themselves that, with the granting of double rations for the tuberculous at a time when rationing was very severe, the dispensaries were beset with people more or less asking to be diagnosed as tuberculous—and in the conditions of the occupation there was little reason why doctors should refuse. In France, too, the notification rate continued to rise at a time when the death rate was falling: in 1945 the total of new cases on the register was 45% above the 1938 figure, but the death rate was 20% below, and subsequently it continued to fall steeply.

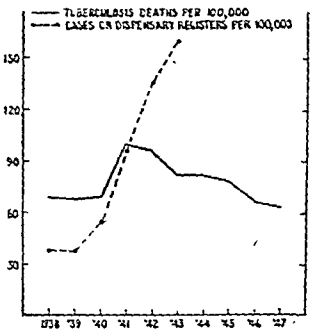


FIG. 11.—Morbidity and mortality statistics, Belgium, 1938–47.

The problem of assessment of tuberculosis prevalence by the morbidity rates has arisen again in the past two years in Germany. Alarming reports were issued pointing to a very acute rise in the numbers of notifications. It was said that, though the death rate was declining slightly, another rise would certainly occur. However, the death rate has continued to fall.

Thus even in the few countries in Europe where notification of tuberculosis is compulsory there may be very serious causes of error. The morbidity statistics may be of value in a country where tuberculosis is notifiable, where there is a well-defined and constant basis of notification, where the economic situation is not such as to influence the diagnosis, and at a time when new methods of examination are not being introduced. It is possible that much information may be derived from them in the future.

Results of mass radiography could conceivably provide more valid information concerning the prevalence of tuberculosis. No comparison can be made with pre-war prevalence, but comparison should be possible between different European countries, since, when properly employed, results should indicate what proportion of a community at any single time have lesions of pulmonary tuberculosis significant enough to require observation or treatment. The method is being extensively used now for the early detection of tuberculosis, and it is tempting, despite variations in diagnostic interpretation, to compare in detail the results obtained in different countries. There are some gross differences that one cannot ignore—between on the one hand the Scandinavian countries, France, Germany, and this country, with an incidence of about 3 to 5 per 1,000 of active tuberculosis requiring treatment, and, on the other hand, countries like Greece and Poland, with an incidence of corresponding lesions in 10 to 50 per 1,000 of the populations examined. Mass-radiography examination of Frenchmen returning from Germany in 1945 revealed pulmonary lesions in 1.5% of prisoners of war, 2.5% of men coming from labour camps, and 4.4% of men from concentration camps. There can be no doubt from present-day surveys that there is a very high prevalence of tuberculosis in Eastern European countries. At the present stage of development of this method, however, it is probably not justifiable to make more detailed comparisons.

Statistical Analysis. Conclusions

Looking back over this collection of statistics, there are at least three outstanding features about which there can be little doubt, despite the reservations regarding the absolute validity of some figures. One is that the wartime rise was closely related to the severity of war conditions; the second that the rise predominated in men; and the third that in nearly all European countries there has been an important fall in tuberculosis mortality since the end of the war.

The study of trends in different countries has shown that the increase in tuberculosis was related to deterioration in conditions so closely, in time and in gravity, as to constitute a remarkable index of the wartime tribulations of those countries. That tuberculosis prevalence is closely related to living conditions and nutrition is no new conception and has been shown in several studies of under-privileged communities. The incidence of tuberculosis discovered by mass radiography in Polish university students is on the same level as the incidence of lesions discovered in homeless destitutes of New York City (Edwards, 1940).

In some ways the disaster was not as great as in previous wars; this applies particularly to the countries where public health services had developed to a high degree between the two wars. In former years the health and social services in peacetime were barely adequate to maintain a perilous state of equilibrium, and the disaster of war would so upset the balance as to produce chaos. This time, in countries such as our own, after the first crisis with the evacuation of hospitals the health and social services were rapidly re-established, and measures designed to protect the people's health were extended well beyond those of peacetime. It is to the credit of those responsible for planning the health and food services of the country during and after the war that the wartime attack on health was relatively well resisted. On the other hand, where the social and health services were relatively undeveloped before the war, where already before the war there were very high tuberculosis rates—and this applies to many of the Eastern European countries—the wartime reaction was nothing less than catastrophic, and was made even more so by the conditions of the German occupation.

There has been much conjecture regarding the nature of the wartime rise. The additional deaths could be of patients who under normal conditions would have lived a little longer; they could be of those patients who would normally have overcome their disease and survived. In both events the main factor responsible would be the

deterioration of living conditions and of nutrition aggravating the prognosis of established disease. Or, thirdly, the deaths could be of persons who were being infected for the first time in greater numbers than normally because of increased exposure. No doubt in most countries there was a combination of all three factors.

In this respect the post-war fall, and in particular the rate of fall, is worth studying. Were the wartime rise due solely to the premature death of patients suffering from the disease we would expect a steep rise followed by a deeper fall, and it is possible that this may occur where conditions are severe enough to precipitate the death of patients with a bad prognosis, but not to provoke any great extension of the disease. This may partly explain the remarkable fall in France, but other factors must intervene also.* In nearly all other countries, where the pre-war decline was resumed at the same level or a higher level than would have been observed normally, it is obvious from the plotted rates for both world wars that there were many thousands of deaths from tuberculosis which would not have occurred but for the war. To what extent these were due in the main to aggravation of disease from which the patient normally would have recovered, and to what extent to new infections, must remain an open question.

We are far from a complete understanding of the nature of the wartime and post-war trends in tuberculosis. The uncertainty of our conclusions regarding widely differing trends, in for instance France, England, and Scotland, underlines the need for sounder and more detailed epidemiological study of tuberculosis in the future. Such study is at any time indispensable to a rational programme for eradication of the disease; it is particularly so at a time when our resources are limited, and action must be directed towards those groups of the community revealed in this way as being most susceptible to the disease. It will certainly be indispensable in the future when improvement in social services reaches the limit of reduction of tuberculosis by such means and we are left with the need for a real understanding of the disease if any further progress is to be made.

[The second lecture, with a list of references, will appear in our next issue.]

*One possible factor is the fall in consumption of alcohol since the introduction of rationing of wines and spirits in France during the war. This was followed by a marked fall in morbidity and mortality from diseases attributable to alcoholism, a fall not paralleled in any disease other than tuberculosis.

A residential college—the Midwife Teachers Training College—has been opened for midwives training for the Midwife Teachers Diploma awarded by the Central Midwives Board. The college is at High Coombe, Kingston Hill, Surrey, and will accommodate 16 students at a time for courses lasting six months. The first course is expected to begin in January, 1950. Intending candidates, who must satisfy the requirements laid down by the Rules (Section C) framed by the Central Midwives Board under the Midwives Acts, should apply for places to Mr. G. Thomas, Secretary, Midwife Teachers Training College Council, 72, Great Peter Street, London, S.W.1. Selected applicants will be required to give the council of the college a written undertaking that if they qualify they will serve as midwife teachers within the National Health Service for at least two years. The Minister of Health hopes that hospital boards and committees will encourage midwives likely to make good teachers to take advantage of these facilities. Suitable intending students should not be dissuaded from taking the course on the grounds that the hospital in which they are employed has no prospective vacancies for midwife teachers, since the scheme is intended to benefit the midwifery services as a whole.

RISK OF NEUROLOGICAL COMPLICATIONS IN PERNICIOUS ANAEMIA TREATED WITH FOLIC ACID

BY

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AND

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The identification and synthesis of pteroyl-γ-glutamic acid (folic acid*) by Angier *et al.* (1945, 1946) led to the early recognition of its quite unexpected and remarkable effects in the treatment of pernicious anaemia (Moore *et al.*, 1945) and of nutritional macrocytic anaemia (Spies *et al.*, 1945).

The results in pernicious anaemia were very striking at first, as many workers reported, including ourselves (Wilkinson, Israëls, and Fletcher, 1946). It soon became evident, however, that even when the blood counts were restored to normal levels relapses were occurring, and signs of involvement of the peripheral nerves, such as paraesthesiae and numbness in the limbs, and of the spinal cord tracts, like ataxia and loss of vibration sense, might not be improved or might become worse.

Even more important, however, was the fact that some patients who had not previously shown signs of nervous system disturbances developed such signs, often very acutely, after being treated with folic acid for variable periods. Since 1946 several groups of workers have become aware of this disquieting fact, and in consequence the widespread enthusiasm for folic acid, at least for the treatment of pernicious anaemia, has been rapidly waning.

TABLE I.—*Summary of Cases Reported as Developing Neurological Changes*

Authors	No. of Patients Treated	No. Developing Neurological Symptoms and Signs	Neurological Symptoms Made Worse
Schwartz, Armstrong (1947)	69	4	—
Heinle, Welch (1947); Heinle *et al.* (1947); Spies *et al.* (1948); Spies, Stone (1947); Vilter, Vilter, Spies (1947); Vilter, Vilter, Hawkins (1947)	47	3	—
	38	28	7 (out of 19)
Ross, Belding, Paegel (1948)	22	9	4
Israëls, Wilkinson (1949); Wilkinson (1948, 1949)	20	13	3
Keil (1947)	19	1	—
Davidson, Girdwood (1947)	16	1	—
Hall, Watkins (1947); Hall, Watkins, Hargraves (1946)	14	"A significant proportion"	—
Wagley (1948)	10	8	—
Castle, Berk (quoted Wagley, 1948)	10	1	—
Bethell, Sturgis (1948); Bethell *et al.* (1946)	6	1	—
Jacobson *et al.* (1948)	—	2	—

In Table I we have included all the available references to the development of subacute combined degeneration of the spinal cord in patients with pernicious anaemia, or the worsening of neurological symptoms already present, after treatment with pteroyl-γ-glutamic acid.

From a careful study of the various reports it was obvious that many of them referred to the same groups of cases, since some authors have published their results and cases in several journals, often without cross-references, and in some reports no details are given at all, other than

*In this paper folic acid is used synonymously with and refers to the synthetic pteroyl-γ-glutamic acid.

the bare statement relating to the occurrence of neurological complications in a group of patients. We have therefore inserted in the table the latest figures of each group of workers, omitting their earlier ones in other papers.

These reports suggest that, though folic acid treatment for patients with pernicious anaemia will lead in most cases to a satisfactory remission of the anaemia temporarily, there is a risk that damage to the spinal-cord tracts may continue and may show itself even after the blood counts have been restored to normal (Wilkinson, 1948, 1949). It is quite clear that pteroyl-γ-glutamic acid will not control disease of the central nervous system already present when treatment is begun. Previous estimates of the risk of the development of nervous system disturbance have varied in the larger groups from three out of 47 (Heinle and Welch, 1947; Heinle *et al.*, 1947) to 28 out of 38 (Spies *et al.*, 1948). Except for the later groups few of these patients have been observed for more than 12 months; most of them were under control for shorter periods. The pernicious-anaemia-posterolateral-sclerosis syndrome is notoriously slow to develop, so in order to obtain a better estimate of the risk involved in the use of synthetic pteroylglutamic acid we have since early in 1946 been observing closely a group of 20 pernicious-anaemia patients, either in relapse or having had no previous treatment, only three of whom had initial evidence of subacute combined degeneration of the spinal cord. We treated these patients with pteroyl-γ-glutamic acid alone until signs and symptoms of central nervous system disease appeared, or until there were signs of exacerbation of the disease initially present, and we have observed them all at frequent intervals: our intermediate results have been reported elsewhere (Wilkinson, Israëls, and Fletcher, 1946; Wilkinson, 1948, 1949). Our results after three years' observation of the group show that at the time of writing (May, 1949) only four of these patients are still well on folic acid treatment.

Illustrative Cases

The patients are divided into four groups: (1) Four patients with signs of disease of the nervous system developing acutely during treatment; (2) nine patients with signs of disease of the nervous system developing gradually during treatment; (3) three patients who had disease of the nervous system initially; and (4) four patients who had not developed signs of disease of the nervous system at the time of writing.

Details of groups 1, 2, and 3 are given in Table II, and of group 4 in Table III. Illustrative case records of patients in groups 1, 2, and 3 are given below. The patients in group 4 had the usual features of pernicious anaemia without neurological disturbance.

TABLE III.—*Group 4 Cases (No Signs of Disease of Nervous System)*

Case No.	Age	Sex	Initial Count		Period of Treatment (Months)	Final Count		Continuing Dose Folic Acid (mg. daily)
			R.B.C. 10^6/c.mm.	Hb g./100 ml.		R.B.C. 10^6/c.mm.	Hb g./100 ml.	
17	76	M	1·42	5·0	25	4·96	14·8	10
18	71	F	2·03	5·5	27	4·70	14·6	2·5
19	67	F	1·54	4·4	29	4·00	11·3	10
20	47	M	1·47	5·0	37	4·93	14·8	10

Group 1: Case 1

A married woman aged 63 was seen for the first time in May, 1946, complaining of dyspnoea, loss of weight, and increasing fatigue. She was pale and jaundiced, there was no enlargement of liver or spleen, and little abnormal was found in the heart and lungs. The arm and leg reflexes were normally active, plantar responses were flexor, and there were no subjective or objective sensory changes. A blood count showed: red cells, 1,640,000 per c.mm.; haemoglobin, 5.2 g. per 100 ml. The bone marrow was typically megaloblastic. There was complete achlorhydria gastrica.

She was admitted to hospital and given synthetic pteroyl-γ-glutamic acid, 20 mg. daily, by mouth. Her clinical condition and the anaemia improved steadily. After four weeks her red cells numbered 3,460,000 per c.mm. and the haemoglobin was 10.7 g. per 100 ml. Folic acid was reduced to 10 mg. daily, and after five months' treatment, when the haemoglobin was 14.2 g. per 100 ml., it was reduced to 2.5 mg. daily. This seemed to be too little, because after nine months the haemoglobin had fallen to 13.4 g. per 100 ml. and the red cells to 4,200,000 per c.mm. It was after nine months that she complained that her legs felt "as if she had wet stockings on," and examination showed that vibration sense was absent. The dose of folic acid was raised to 5 mg. daily. The nervous symptoms remained stationary until the 15th month, when within seven days she lost the use of her legs and became unable to walk. The blood count was then: red cells, 4,070,000 per c.mm.; haemoglobin, 11.8 g. per 100 ml.

Examination showed exaggerated reflexes, extensor plantar responses, absent vibration sense, and much-impaired position sense.

Folic acid treatment was immediately discontinued, and she was given liver extract intramuscularly and 30 g. of desiccated stomach daily by mouth. After one month her walking was improved, but the right plantar response was still extensor; after two months she was ambulant again and both plantar responses were flexor; after eight months all symptoms had disappeared and she has remained well since.

TABLE II.—*Cases in Groups 1, 2, and 3. Patients Developing Neurological Changes on Folic Acid Treatment*

Case No	Age	Sex	Initial Count		Initial Neurolog. Signs	Period of Treatment (Months)	Final Hb Level g./100 ml.	Increasing Anaemia Present	Final Dose of Folic Acid mg. Daily	Signs of Disease of Nervous System							Recovery on Liver or Stomach (Months)
			R B.C. 10^6/c.mm.	Hb g./100 ml.						Plantar Response	Knee-jerks	Ankle-jerks	Romberg's Sign	Paraesthesia Numbness	Vibration Sense	Joint Sense	
1	63	F	1·64	5·2	None	15	11·8	Yes	5	Extensor	+++	+++	+	+++	Absent	Impaired	2
2	63	F	1·15	3·6	None	18	14·6	No	5	Flexor	Dim.	—	+++	++	"	Absent	8
3	50	F	0·95	3·3	None	22½	10·5	Yes	30	"	Dim.	—	+++	++	"	Impaired	3
4	73	M	2·20	7·4	None	3	10·5	No	20	Doubtful	+++	+++	—	+++	"	Absent	—
5	51	F	1·82	5·8	None	12	11·8	Yes	20	Flexor	+	++	—	++	"	"	3
6	55	M	2·15	7·7	None	13	12·5	Yes	10	"	Dim.	Dim.	—	+++	"	Impaired	3
7	45	M	1·53	5·0	*a*	5	11·8	Yes	15	"	+	+	—	+++	"	Present	3
8	56	F	2·06	7·2	None	6	13·8	No	20	"	+	+	+	+++	"	"	6
9	58	M	1·21	3·9	None	23	8·8	Yes	10	"	++	++	+	+++	Absent	Impaired	2
10	48	M	1·80	6·6	*b*	3	13·0	No	20	"	+	++	+++	+++	"	Absent	2
11	64	F	2·00	8·3	None	19	13·3	No	40	"	Dim.	Dim.	—	+++	"	"	2
12	56	F	1·31	5·2	Paraesth.	2	8·6	No	20	Extensor	++	—	—	+++	"	"	—
13	31	F	1·31	4·8	None	35	14·4	No	10	Flexor	++	++	++	++	"	Impaired	3
14	53	M	2·92	7·2	*c*	2½	14·6	No	20	"	++	++	+	+++	"	Absent	1
15	46	M	3·83	13·3	*d*	1	13·3	No	20	"	++	++	—	+++	"	Present	1
16	70	F	2·13	8·8	Paraesth.	6	13·8	No	20	"	+	—	—	+++	"	Impaired	3

a = Stiffness and deformity of right arm present for 29 years, due to extrapyramidal lesion. *b* = Joint sense absent. *c* = Numbness of legs, absent vibration sense. *d* = Numbness and stiffness of fingers. Note: All patients had megaloblastic marrows initially and achlorhydria.

Group 2: Case 9

A joiner aged 58 was diagnosed as having pernicious anaemia some years before, but he had neglected treatment and when first seen his red cells had fallen to 1,210,000 per c.mm. and his haemoglobin to 3.9 g. per 100 ml. He was very pale and dyspnoeic, and had oedema of the feet and scrotum. The heart was not enlarged, but there was a generalized systolic murmur and occasional extrasystoles. His liver and spleen were slightly enlarged. In the central nervous system reflexes were normally active and plantar responses flexor; in spite of the oedema, sensation in the legs was normally appreciated. The bone marrow was megaloblastic, and achlorhydria was confirmed. He was given folic acid parenterally—at first 150 mg. intravenously, followed by 15 mg. intramuscularly on alternate days for 10 days; he was then given 20 mg. daily by mouth. He made a good recovery, and after two months, when his red cells numbered 4,200,000 per c.mm. and the haemoglobin was 11.6 g. per 100 ml., the folic acid was reduced to 10 mg. daily. After 4½ months' treatment the haemoglobin was 12.7 g. per 100 ml., and the dose was reduced to 5 mg. daily, and at nine months it was further reduced to 1.75 mg. daily, when his red cells numbered 5,060,000 per c.mm. and the haemoglobin was 13.8 g. per 100 ml. This latter dose was too small for maintenance: at 12 months the haemoglobin was only 13 g. per 100 ml., so the dose was raised to 2.5 mg. daily, and one month later to 10 mg. daily, when his red cells numbered 3,880,000 per c.mm. and the haemoglobin was 11.3 g. per 100 ml. At 14 months the red cells numbered 5,020,000 per c.mm. and the haemoglobin was 14.2 g. per 100 ml.; however, the first sign of disease of the nervous system appeared at this time—the patient complained of aching legs, but examination of the central nervous system revealed no objective abnormality.

The patient kept reasonably well until the 23rd month, when the blood count relapsed (red cells 2,930,000 per c.mm. and haemoglobin 8.8 g. per 100 ml.) and he had numbness and paraesthesiae in the arms and legs, and felt as if he were walking on cotton-wool.

Examination showed that his reflexes were still brisk and his plantar responses flexor, but vibration sense was now absent up to the knees and joint sense was impaired; Romberg's sign was present. He was given 30 g. of desiccated stomach daily, and he improved rapidly. Two months later his red cells were 4,920,000 per c.mm. and the haemoglobin was 13 g. per 100 ml. The only remaining neurological symptoms were slight paraesthesiae in the fingers.

Group 3: Case 15

A male cotton-spinner aged 46 had noticed that for the past five months his hands and fingers were becoming increasingly numb so that he could no longer handle the cotton threads; he also had some stiffness of the legs. He was not pale, and was well nourished; all tendon reflexes were brisk and equal on the two sides; the left plantar response was flexor, but the right was doubtful; cranial nerves were normal; vibration and joint sense were definitely present and normal. Other systems were normal. The blood count showed: red cells, 3,830,000 per c.mm.; haemoglobin, 13.3 g. per 100 ml. There was a definite megaloblastic marrow and an achlorhydria. The cerebrospinal fluid was not under pressure, proteins were 45 mg. per 100 ml., and there was slight globulin opalescence.

He was given folic acid, 20 mg. daily, but the blood count did not improve; after four weeks the red cells numbered 3,880,000 per c.mm. and the haemoglobin was still 13.3 g. per 100 ml.

Five weeks after starting folic acid treatment he complained that the numbness and paraesthesiae in the hands were much worse. Examination showed that vibration sense had now disappeared, but the reflexes were as before. Treatment with folic acid was therefore replaced with 30 g. of desiccated stomach. After one month of this he was much better, and his red cells numbered 4,740,000 per c.mm. and the haemoglobin was 14.2 g. per 100 ml. Ten months later he was back at work, but it was 16 months before all paraesthesiae had ceased and vibration sense had returned.

Discussion

We are not concerned here with the haematological and clinical effects of folic acid, which have been fully discussed elsewhere (Wilkinson, 1948, 1949), but only with its influence on the development of peripheral neuritis and subacute combined degeneration of the spinal cord in pernicious anaemia.

The accompanying Chart gives a graphic representation of the length of time during which treatment with pteroyl-γ-glutamic acid (folic acid) was given before the appearance of symptoms of subacute combined degeneration of the spinal cord. It is seen that the time of onset of neurological signs and symptoms of central nervous system disease is spread over a three-year period; apparently there is no time of special danger, nor is there any time after which the patient can be considered safe.

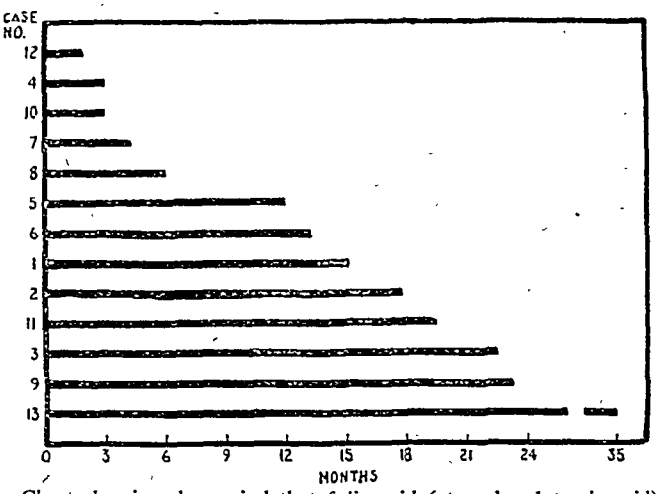


Chart showing the period that folic acid (pteroyl-γ-glutamic acid) treatment was given before the appearance of neurological signs made a change necessary.

The relevant information about these patients in Table II shows, disappointingly, that none of these observations make it possible to predict the likely onset of neurological complications. Of the four patients in group 1 the periods of treatment varied from 3 to 22½ months. Of the 13 patients in groups 1 and 2 six showed a falling haemoglobin level, and seven did not, while the haemoglobin levels varied from 8.8 to 14.6 g. per 100 ml.

The results therefore show that in a three-year period 80% of the patients who were being treated with folic acid had developed or had increased signs and symptoms of nervous system disease that could be quite quickly controlled in the early stages by treatment with intramuscular liver extracts or oral desiccated stomach preparations. Thus there is obviously serious risk that patients with pernicious anaemia treated solely with folic acid may develop signs of disturbance of the central nervous system, or that any initial cord involvement or peripheral neuritis may get worse.

Nevertheless, four patients have been well maintained on folic acid alone for up to three years without any apparent disadvantage. Is there, therefore, any place for folic acid in the treatment of pernicious anaemia? The facts reported here and by others emphasize in a new way the dissociation between the haematological and neurological parts of the pernicious anaemia syndrome. It is well known that the neurological syndrome can occur in the absence of anaemia. We can now see that a minority (20%) of patients with pernicious anaemia do not develop (at least after three years) disease of the nervous system when an agent (folic

acid) that corrects only the haematological disorder is used for treatment. But there seems to be no way of picking out this fortunate minority; certainly, initial absence of signs of nervous disease is no help. Consequently, it is our considered opinion that folic acid ordinarily should not be used in the treatment of pernicious anaemia, and never in subacute combined degeneration of the spinal cord. Very rarely it may be of temporary use in the treatment of a pernicious-anaemia patient who cannot take stomach preparations and is hypersensitive to parenteral liver extracts, until the patient has been desensitized, although oral liver extracts will usually get over this problem.

While the acute neurological syndrome described here and by others is rarely seen in the natural course of postero-lateral sclerosis with pernicious anaemia, nevertheless its apparent direct association with folic acid therapy raises the possibility of a folic-acid/anti-folic-acid mechanism in the maintenance of the integrity of the central nervous system; but we have as yet no definite evidence that folic acid causes organic lesions in the cord. At any rate, the action of folic acid on the neurological system is not the same as that of the liver principle, although its initial effect on the bone marrow and blood appears to be very similar. We have also yet to see a patient with pernicious anaemia who would not respond to haemopoietically active liver extracts but would respond to folic acid; it turns out that such patients always have some other disease, such as idiopathic steatorrhoea.

Therefore, whatever the circumstances, folic acid, if used at all, should be replaced by liver or stomach as soon as possible, and those patients having folic acid should be seen at frequent and regular intervals so that the onset of neurological complications can be corrected without delay.

It has been our view that, while folic acid must not be used in the treatment of the pernicious anaemia syndrome on account of the risk of producing postero-lateral sclerosis in patients otherwise free from neurological symptoms, its use was allowable in the treatment of other megaloblastic anaemias that do not develop cord lesions, like those occurring in sprue, steatorrhoea, and pregnancy. This must now be reconsidered carefully in view of the recent observation by Meyer (1948) that combined system disease occurred in a patient with macrocytic anaemia secondary to ulcerative colitis of long standing. After treatment with folic acid for 18 months he quite quickly developed ataxia, loss of vibration and position sense in the legs, and positive pyramidal signs. These neurological complications appeared when the patient's haemoglobin level was normal and his weight satisfactory. Davidson and Girdwood (1948) have also reported the onset of neurological signs in two patients with idiopathic steatorrhoea who were having folic acid treatment; the signs in these patients could have been due to peripheral neuritis, and no pyramidal lesion was detected. It is only reasonable to point out that this neurological complication of non-Addisonian types of anaemia is extremely rare.

Summary

A group of 20 patients with pernicious anaemia, either untreated cases or relapsed cases, have been treated with synthetic pteroyl-γ-glutamic acid (folic acid) alone; three had initial signs of subacute combined degeneration of the spinal cord.

In a three-year period 13 patients without initial neurological involvement developed signs and symptoms of subacute combined degeneration of the spinal cord which were relieved by changing the treatment to liver extracts or desiccated stomach preparations.

Three patients with initial neurological symptoms and signs became worse neurologically after folic acid therapy.

There was no specially dangerous point during folic acid treatment, for the times at which nervous-system complications became serious were evenly distributed over three years.

Neither the presence or absence of increasing anaemia nor the haemoglobin levels could be used to predict the likelihood of neurological complications.

Four patients are quite well after two to three years on doses of 5–20 mg. of folic acid daily, given orally.

The use of folic acid for the treatment of pernicious anaemia should be strictly limited to the rare cases of special difficulty.

Folic acid should never be given to patients with subacute combined degeneration of the spinal cord.

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Delivering the chairman's address at the meeting of the Dental Board on May 11, Dr. Fish said that for the past year there had been a record decline in the total number of names on the *Dentists Register*. The figure was below that reached in 1939. About 90% of the dentists in active general practice in England and Wales, and a higher percentage of those in Scotland, were working in the National Health Service. When faced with more patients than he could comfortably treat, a dentist must do one of three things—add to his hours of work, refuse to see some patients, or speed up his work. He might even do all three. Probably most were now working longer hours than those recommended by the Spens Committee. Whether that added to their efficiency or to their enjoyment of life must remain an open question. Most dentists were in the dilemma that they must either refuse patients in need or hurry through the treatment of each in an effort to extend their services to all. The question was not whether they would condescend to work the Service but whether as individuals and as a profession they had the capacity for self-discipline, the ethical training, and the philosophy to rise to those heights of altruism which the Service demanded of them. For many there was no possibility of choice. The Service was their only means of livelihood. The success of the Service and the future of dentistry depended upon their willingness and capacity to sacrifice what might be legitimate personal gain for the salvation of their self-respect and the honour of their calling. Referring to the formation of dental companies under the influence of laymen, he said he did not think that any member of the profession should accept service under such conditions without the most careful consideration of what they implied.

AUREOMYCIN: A NEW TREATMENT FOR SYPHILIS?

BY

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Aureomycin, a yellowish crystalline substance prepared from *Streptomyces aureofaciens*, is dispensed in capsules containing 250 mg. of aureomycin hydrochloride and is administered by mouth. It has already been shown to be effective in rickettsial diseases such as Rocky Mountain fever (Ross *et al.*, 1948), in atypical pneumonia, in brucellosis (Spink *et al.*, 1948), and in certain eye conditions and urinary infections, as those due to *Aerobacter aerogenes* and *Streptococcus faecalis*, for which some consider that aureomycin is to be preferred to streptomycin and the sulphonamide group of drugs. It has considerable application to venereal disease. Finland *et al.* (1948) used it in 66 cases of gonorrhoea, with 49 definite and 11 doubtful successes and six failures Improvement was noted in two cases of penicillin- and sulphonamide-resistant non-specific urethritis. It is also of value in granuloma inguinale (Greenblatt *et al.*, 1948). In addition, Wright *et al.* (1948a, 1948b) have shown that it is effective in the virus disease of lymphogranuloma venereum.

The following case reports indicate that this antibiotic also has a powerful action upon the organism of syphilis. The patients were Bantu negroes with early syphilis, in Southern Rhodesia, and in all of them *Treponema pallidum* was demonstrable before treatment. As the supplies of aureomycin available were scanty and the prospects of an adequate follow-up problematical, it was considered expedient to treat a number with small, probably subcurative doses and to observe the effect by subsequent dark-field examination.

Case Reports

Case 1 (Seronegative Primary Syphilis).—A native from Portuguese East Africa had a typical indurated penile primary chancre with firm rubbery non-tender inguinal glands. The Wassermann and Kahn blood reactions were negative, but a dark-field examination of material taken from the sore showed *T. pallidum*. On May 18, 1949, he was given three 250-mg. capsules of aureomycin (Lederle) at intervals during 24 hours. Twenty-four hours after the starting of treatment the dark field still showed *T. pallidum*, although with greater difficulty. At 48 and 72 hours, however, none were recovered: at this stage he was given a course of penicillin.

Case 2 (Seropositive Primary Syphilis).—A male negro from Portuguese East Africa presented an indurated fraenal ulcer with a developing left inguinal bubo. Clinically the case resembled a mixed infection of syphilis and chancroid, and, although the dmelcos and Frei skin tests were negative, Ducrey's bacillus was seen in smears from the sore. The dark field, however, showed *T. pallidum*, and the Wassermann and Kahn blood reactions were positive. He was given five capsules of aureomycin orally over 29 hours (total 1,250 mg.). Twenty-four hours after the onset of treatment *T. pallidum* was still isolated by dark field, but dark-field examinations performed daily for the next 16 days were all negative. By the end of this time the sore had healed and the bubo resolved without additional treatment.

Case 3 (Seropositive Primary Syphilis).—A male negro from Portuguese East Africa was admitted with a paraphimosis and an indurated fraenal sore with typical syphilitic inguinal adenitis. *T. pallidum* was seen without difficulty in the dark field, and the Wassermann and Kahn blood reactions were positive. He was given three capsules of aureomycin daily for two days (total 1,500 mg.), and although the sore was still unhealed after 17 days no *T. pallidum* was observed at daily dark-field examinations during this time. A week later the sore had healed and the patient was discharged for surveillance.

Case 4 (Secondary Syphilis).—A Nyasaland negro attended with multiple perianal and peno-scrotal condylomata lata with enlarged non-painful inguinal glands. The dark field from the condylomata showed an abundance of *T. pallidum*, and the Wassermann and Kahn blood reactions were strongly positive. He was given one capsule of aureomycin orally three times a day for two days (total 1,500 mg.). The response was dramatic, and the lesions had healed completely by the fourth day. Daily dark-field examinations had been repeatedly negative.

Case 5 (Secondary Syphilis).—A female native of Southern Rhodesia was admitted with an indurated primary sore of the left labium majus, which was also oedematous. Secondary vulvar mucous patches and vulvar and perianal condylomata lata were also present, the whole being secondarily infected and evil-smelling. *T. pallidum* was seen without difficulty, and the Wassermann and Kahn blood reactions were markedly positive. She was given one capsule of aureomycin three times a day for two days (total 1,500 mg.), response being immediate. The daily dark-field examinations were negative for the ensuing four days, by which time the lesions had healed. She was kept under observation for a further three days; she was then discharged from hospital with instructions to attend as an out-patient. She returned, however, on the twelfth day with a relapse of the condylomata, and was then treated with penicillin.

Case 6 (Secondary Syphilis).—A female native of Southern Rhodesia was admitted with perivulvar and perianal condylomata lata, from which *T. pallidum* was obtained without difficulty. The blood Wassermann reaction was positive. She was given four capsules of aureomycin orally (total 1,000 mg.), and the lesions healed rapidly. Daily dark-field examinations were negative for the ensuing three days, and on the fourth the lesions had healed.

Case 7 (Secondary Syphilis).—A male South Rhodesian negro had a preputial sore from which *T. pallidum* was recovered and secondary condylomata lata on the scrotum. The blood Wassermann reaction was strongly positive. He was given three capsules of aureomycin orally on the first day and two on the second (total 1,250 mg.). Healing was rapid, being complete in four days, during which time daily dark-field examinations were negative.

Case 8 (Seronegative Primary Syphilis).—A male native of Southern Rhodesia had a giant fraenal chancre with typical syphilitic glands. The dark-field examination for *T. pallidum* was positive and the blood Wassermann reaction was negative. He was given six capsules of aureomycin orally in 48 hours (total 1,500 mg.). Daily dark-field examinations were negative during the next three days and the sore had nearly healed by the fourteenth day.

Case 9 (Secondary Syphilis).—A male South Rhodesian negro had an ulcerated prepuce with massive condylomata lata of the scrotum and inner thighs. *T. pallidum* was found on dark-field examination, and the blood Wassermann reaction was positive. He was given six capsules of aureomycin orally (1,500 mg.) over 48 hours. Although the dark field showed scanty *T. pallidum* at 24 hours, none was observed at two and three days. At two weeks, information was available to the effect that the condylomata had not disappeared but were quite dry.

Summary and Conclusions

Nine negro patients with early syphilis (two with seronegative primary syphilis, two with seropositive primary syphilis, and five with secondary syphilis) have been treated orally with aureomycin in doses of 750–1,500 mg. over 24–48 hours.

In six no *T. pallidum* was recovered at 24 hours, but in three the dark fields were positive at that time. In all, however, the dark fields were negative at 48 hours, and remained so daily for the periods over which observation was possible (3–17 days). Circumstances unfortunately prevented further observation.

Healing was most pronounced in the lesions of secondary syphilis, and in these the response was as dramatic as that obtained with penicillin, perhaps even more so. One case is known to have relapsed.

It is very unlikely that the small doses given were curative, although 250 mg. given four times a day for a week might well be.

It is concluded that aureomycin has a marked action upon human syphilis and opens up a new field of therapeutic investigation.

The above work was carried out during the course of a venereal-disease investigation conducted for the Health Department of the Government of Southern Rhodesia, to whom acknowledgments are due. I would also like to thank Dr A. J. V. Wilkins, Medical Officer of Health, Salisbury, Mr. Stephen Kennedy, and the staff of the lazaretto of that city for so freely offering facilities, and Mr. E. A. Boulter for his technical assistance.

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COMMON DIFFICULTIES IN INFANT FEEDING*

BY

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One of the effects of civilization is the fact that a large proportion of human infants have become parasites on the cow. The extent to which American infants rely on cow's milk for nutriment was recently shown by Bain (1948), who states that in the North-Eastern region of the United States only 23% of all babies are fully breast-fed on discharge from maternity units. In this country the Population Investigation Committee (1948) revealed interesting geographical variations in the incidence of breast-feeding. While 24% of women in Southport were fully breast-feeding their infants at two months, 85% in Lewisham were: the corresponding figures for Cornwall and West Sussex were 45% and 80% respectively.

According to the Ministry of Health Report (1944) 80% of all babies born in hospitals in this country are discharged fully breast-fed, but 95% of those born at home are fully breast-fed at the same age. Read (1949) claims that 98% of 516 women treated by him with Waller's methods were fully breast-feeding their infants on discharge, and Waller (1946) found that 79.3% of 300 consecutive primiparae in a South London district were fully breast-feeding their babies at the age of 6 months. Kao (1948) found that 95% of 26,647 Chinese out-patients were fully breast-feeding their infants.

The most probable explanation of these wide variations lies in differences in the technique of management of lactation. The figures suggest that in some places difficulties in breast-feeding are either prevented or successfully overcome, while in others they lead to artificial feeding. Artificial feeding itself leads to other difficulties, which in turn are preventable.

The theme of this paper is the suggestion that a high proportion of the difficulties in infant feeding are man-made and preventable, and that the cause of them lies in the medical attendant rather than in an inherent defect in mother or baby.

*Read in opening a discussion in the Section of Child Health at the Annual Meeting of the British Medical Association, Harrogate, 1949.

Difficulties in Mutual Adaptation of Mother and Baby

The difficulties which arise in the mutual adaptation of mother and child in the first few days are basically due to the nature of the child, but birth injury may lead to irritability or inertia in the baby and so to difficulties in adaptation. The irritable baby (who has not had a birth injury) who screams when brought to the breast, or who approaches the breast normally and then immediately withdraws his head and kicks and cries, is made worse by attempts to discipline him.

Rigid rules about the duration and frequency of feeds which do not allow adaptation to the needs of the individual, or attempts to force the child to take food when he does not want it, serve only to increase the difficulty. The baby particularly resents efforts to hold his head or to keep the limbs at his side with the aid of tight clothes or a blanket. The irritability is still further aggravated by the unnatural system, which still has its advocates, of keeping the baby in a nursery away from his mother, of not allowing her to cuddle her baby, and of bringing the baby to the mother only at that time which is considered the right one for his feed. The mother's fondling and cuddling before a feed may go a long way towards soothing him and enabling him to take his feed more easily. These difficulties of the first few days have been ably described by Middlemore (1941).

Difficulties in the Mother

Many of the difficulties in breast-feeding arise from inadequate preparation of the mother during pregnancy. Some obstetricians take little interest in the preparation of the mother for breast-feeding, and few paediatricians are given access to the mother before her baby is born. It is the paediatrician, however, who has to help the mother to surmount the difficulties in the puerperium which may result from this neglect.

Some failures of lactation are due to the mother's lack of desire to feed her baby. This may arise from ignorance of the value of breast-feeding to the baby, from a mistaken idea of the greater convenience of bottle-feeding, or from a desire for greater freedom to visit friends and places of entertainment. She may be afraid of the recurrence of a sore nipple or mastitis experienced in a previous pregnancy. She may have been told that lactation will take a great deal out of her. She may fear that breast-feeding will spoil her figure or her clothes. She may have failed to breast-feed previous children and be convinced that she will fail again. Most of these doubts and misunderstandings can be removed by discussing them with the mother during pregnancy, explaining to her the advantages of breast-feeding to the baby and to herself, and impressing her with the pleasure and satisfaction she will derive from it.

Inadequate or improper preparation of the breast during pregnancy may be another factor of importance in causing failure of lactation. Waller (1946) advocates that the mother should be taught to express a few drops of colostrum once a day for the last two or three months of pregnancy. He has shown in carefully controlled experiments

that this practice reduces the incidence of sore nipple, overdistension, and other feeding difficulties in the puerperium. Attention to a depressed nipple during pregnancy may prevent difficulties later. The Woolwich plastic nipple shield* advocated by Waller will help to elevate such a nipple. Inadequate attention to the mother's diet and failure to treat her anaemia may also be factors in causing failure of lactation.

Social factors, which are also man-made, play their part in causing failure of breast-feeding. Overcrowding, lack of privacy, the necessity of living with relations, overwork in the home due to lack of domestic help, the necessity of return to work in industry, queueing for food, all have a deleterious effect on breast-feeding. A woman who lives in lodgings is often compelled to give her baby a bottle to quieten it. The grandmother is frequently the cause of the baby being taken off the breast.

Worry

Worry is an important factor in the failure of lactation. Delay in the coming in of the milk, or ignorance of the normal time of the coming in, may worry the mother. Careless conversation between doctor and nurse about the baby is a common source of worry to her. Routine test feeds and frequent weighings almost inevitably cause the mother to worry about her ability to feed the baby. They are very apt to mislead the doctors and nurses and cause them to give complementary feeds—which go far to convince the mother that she will not have enough milk for the baby. Even though the mother is not told the result of the test feed by the nurse, she may obtain the information she wants by other means. The frequent weighings and the obvious concern of the doctor whether there is enough milk for the baby suggest to her the likelihood of a deficiency of milk. Test feeds should be used only for specific indications, when a feeding difficulty arises which suggests that the baby is not receiving enough milk, and in these circumstances they are essential.

Mothers are worried by the practice still found in some hospitals of keeping the baby in the nursery instead of at her bedside. Fields and Rose (1948) and others have shown that a mother has a much better chance of breast-feeding her baby if he is kept at her bedside night and day and not in a nursery. When the mother hears crying at the other end of the corridor she fears that it is her baby and that he is not receiving the attention he demands. She wants to cuddle, kiss, and admire her baby, for whom she has been waiting so long, but she is not allowed even to see him except at feeding time, five or six times a day. She is not given a chance to get used to handling him—to change the napkin and bath him—and she worries about her ability to manage him when she gets home.

The early discharge from hospital, necessitated by shortage of beds and nursing staff, means that she is discharged before lactation is established, and when she gets home there is often a gap of several days before the midwife or health visitor comes to help her in her difficulties. The paediatric registrar from the maternity hospital ought to be able to visit her in her home and give her the advice which she needs.

Insufficiency of Milk

By far the commonest cause of failure of lactation is insufficiency of milk. In a considerable proportion of cases, however, insufficiency is wrongly diagnosed or results from mismanagement. Those doctors and nurses who wrongly rely on scales to provide the only guide to the progress of the infant are often misled into giving complementary feeds when they are totally unnecessary. Many are ignorant of the normal rate at which milk comes in, and expect every baby to receive 2½ oz. per lb. (19.4 ml. per kg.) from the first day, whereas frequently the mother can give only the equivalent of ¼ oz. per lb. (5.7 ml. per kg.) on the fourth day, 1¼ oz. (13.5 ml. per kg.) by the seventh day, and it is not till the tenth day or later that she can give the full 2½ oz. per lb. required to give most babies a normal weight gain. Routine test feeds are done in some hospitals at every feed. They waste a great deal of the nurse's time and take her away from important nursing duties. In the home they waste the mother's time and inevitably lead to worry. I recently saw a child who had been given a test weighing at every feed every day for nine months.

Insistence on a rapid recovery of the physiological weight loss in the newborn period and on a rapid gain in weight is another potent cause of complementary feeding. Complementary feeds, if given unnecessarily, are apt to reduce the baby's desire for the breast and so to reduce the emptying of the breast, which in turn leads to failure of milk production. Some advise that a complementary feed in the newborn period should always be given by a spoon rather than a bottle because some babies may prefer a bottle to the breast. Certainly in the first week complementary feeding should be so exceptional that no nurse in a hospital unless specially trained should be allowed to give one without the permission of the paediatrician. Nurses and doctors worry unduly about the harm which will befall the baby if it does not gain weight normally in the first few days of its life. They pay too little attention to other signs of well-being in the baby—the appearance, tone, and contentment of the baby—and too much to the weight.

The commonest time for lactation to fail is about the tenth day, when the mother first returns to work in the home. The normal falling off of milk production at this time is only temporary, and if the baby is tided over this period and, if really necessary, given judicious and never excessive complementary feeds, milk production usually returns to normal in two or three days.

A common omission in the treatment of slight insufficiency of milk is failure to empty the breast by expression after feeds. The milk so expressed may be enough to make up for the deficiency in the baby, and the complete emptying of the breast stimulates it to greater milk production.

The stimulus to milk production is lost by two other bad practices: the giving of supplementary feeds, and the use of only one breast at each feed. In either case the effect is the same—incomplete emptying of the breast for long periods, with consequent decreased milk production.

Another potent cause of the failure of breast-feeding is the ready availability of artificial feeds. Much could be achieved for positive health by all the time and money which is spent by nursing, voluntary, clerical, accountant, and transport staff in supplying tins of milk. There would be much more breast-feeding of infants if artificial feeds were not so readily obtainable. I recall the story of a midwife who, when almost at term, was seen to collect twelve tins of dried milk from the clinic.

Care of the Breast

Mismanagement of overdistension of the breast is said by Waller (1946, 1947) to be one of the principal causes of the failure of lactation. Severe overdistension leads to involution of the breast and so to artificial feeding. It

*Made by Allen and Hanburys, Ltd.

causes severe pain to the mother, and this alone adversely affects the milk supply. The baby is unable to obtain the milk partly because he cannot get his jaws behind the nipple, and he will damage the nipple by sucking it. It predisposes to infection, and so to mastitis and abscess. The condition tends to be neglected in maternity units; stilboestrol is withheld until too late, and manual expression of milk to relieve the distension is often half-hearted and performed only once or twice, so that the breast is not emptied. Stilboestrol should be given promptly in cases of unduly rapid filling which causes overdistension. The dosage in the moderate case should be 5 mg. four-hourly. It is unusual to require more than three or four doses, and if the drug is continued longer than is necessary it will stop milk production entirely.

Soreness and cracking of the nipple is another difficulty in infant feeding which is usually preventable. They may be caused by the application of hardening agents to the nipple, such as spirit, and by scrubbing the nipple with a brush. Attempts to pull off dried secretions, instead of soaking them off with saline, may cause abrasions. They may be caused by leaving the baby to suck too long on the breast in the first day or two, before the milk comes in, or later by leaving the baby too long on the breast so that he sucks long after he has emptied the breast of milk. They are caused by allowing the baby to suck on a severely overdistended breast. They may be due to faulty hygiene.

A mature baby may approximate his jaws so tightly round the areola that he creates a vacuum, and if he is pulled off without first breaking the vacuum by insertion of the finger into the angle of his mouth he may damage the nipple. All too often the sore nipple is neglected and treatment is not given. If the slightest abrasion can be detected with the hand lens the baby should be taken off the affected breast and given the milk which is expressed at the ordinary feed times. Penicillin cream should be applied to the nipple, and the baby returned to the breast when in about forty-eight hours it is healed. Neglect of a sore nipple causes a great deal of pain and worry to the mother, and may lead to mastitis and abscess formation.

A breast abscess should be regarded as a disgrace in any maternity unit, and it will not be discussed here.

Difficulties in the Baby

Excessive Crying

This is usually considered to be a sign that the baby is not getting enough milk. That diagnosis is often correct, but it is more often wrong. Doctors and nurses are far too ready to diagnose insufficiency without any proof of the correctness of the diagnosis. It is a thoroughly bad practice to take the baby off the breast without confirming the diagnosis by test feeds.

Many other babies are taken off the breast on the grounds that the milk is not suiting him, is too rich, or is watery and not strong enough. These diagnoses are always wrong and should therefore never be made. I have recently seen seven babies who were put on to the bottle because it was thought that the mothers' milk looked watery.

The many other causes of excessive crying are often overlooked. One of the commonest is a rigid feeding schedule which takes no note of the needs of the individual. It is irrational to feed the baby strictly by the alarm clock. Such a method presupposes that babies are not individuals but are all alike. It presupposes that they have the same stomach-emptying time, the same degree of gastric acidity, the same temperament, and the same degree of activity. It ignores the wide changes of temperature characteristic of the British climate. It ignores the fact that babies have rest periods and periods of activity, and that activity causes hunger and thirst.

Gesell and Ilg (1937) and Aldrich and Hewitt (1947) have done many babies a great service by advocating the self-demand schedule, a rational method of infant feeding now widely practised throughout the United States. I have never yet seen any difficulties arising from it, but I have seen it solve very many feeding difficulties which arose from rigidity of method. Even if one does not go all the way in allowing complete freedom for the baby to choose its feed time, one should certainly advise the mother to use considerable elasticity in the feeding schedule and adjust it so far as she possibly can to the needs of her child. She should not waken the child for a feed. She must realize that the smaller the baby the more often it is likely to want to be fed. She should not give fluids between feeds because it is crying for food; instead she should adjust the frequency of the feeds to the baby's requirements. She should certainly be advised to feed the baby in the night in the first month or two when he wants it. Refusal to feed the baby in the night is a potent cause of excessive crying and of loss of sleep to mother and father.

Other causes of excessive crying are overclothing, neglect, loneliness, and lack of cuddling. The worst case of prickly heat which I have seen in this country was that of a baby who was brought to me on a particularly cold winter's day for excessive crying. The child was grossly overclothed and sweating profusely. Tight clothes which prevent free movements of the limbs may cause a baby to cry. Failure to change the napkin when it is wet is an obvious cause of unhappiness. A very common cause of excessive crying is loneliness and boredom.

Many mothers have the entirely erroneous belief that they will spoil a baby if they pick him up when he cries. Some have learnt a little about what psychologists call "overstimulation." They certainly will not spoil him unless they carry it out to excess. In the older baby the crying is frequently due to nothing but boredom, the baby being left outside in the pram for many hours a day, often without any toys, when he has learnt new skills—manipulation, sitting, or standing, which he is not given the opportunity of practising.

Rigidity in the duration of the feed is another cause of excessive crying. Those who advocate a fixed time on the breast for all babies presuppose that all babies suck at the same speed and that all breasts are the same. The duration of the feed is an individual matter. It is wrong to instruct all mothers to feed their babies exactly ten minutes at each breast. After the first two or three weeks most babies obtain all the milk they want in about five minutes at each breast. A very common cause of wind and colic is leaving the baby to suck too long on a breast. When the breast is empty sucking inevitably causes air swallowing.

Still another manifestation of wrongful rigidity of ideas concerns the quantity of milk the baby should take. Many doctors ascribe excessive crying and other feeding difficulties in the breast-fed baby to overfeeding. If they do a test feed and find that it is getting more than 2½ oz. per lb. (19.4 ml. per kg.) they feel that their diagnosis is confirmed. This diagnosis is almost always wrong. I have yet to see a baby whose symptoms are due to its taking too much from the breast. Not all babies are satisfied with the normal 2½ oz. per lb., and not all babies will show a satisfactory weekly gain in weight on that amount. The baby knows how much he needs.

Further Difficulties

Inadequate Weight Gain.—This is by no means always due to insufficiency of milk. It may be due to dehydration from excessive clothing. I was recently asked to see a baby who would not gain weight in spite of the fact that he was receiving an adequate supply of milk and that no organic disease could be found. The temperature of his room was about 80° F. (26.7° C.). The baby was covered with fifteen layers of clothes, including four layers of blankets. When the baby was suitably clothed the weight gain was normal. Defective weight gain may be due to a low-grade infection of the umbilicus, skin, finger, or nose. It may be due to separation from the mother in hospital and consequent loneliness and excessive crying. It is hoped that all children's units of the future will cater for the admission of the mother to the same room as her baby. Just when the baby most needs his mother, when he is ill or in pain, he is deprived of her love and cuddling, and he is left alone more than he has ever been left before.

Diarrhoea.—I have recently seen six babies who were taken off the breast on account of diarrhoea. In each case the diarrhoea was due to the mother taking certain purgatives which affect the breast milk—senna, aloes, cascara, or rhubarb. Many babies are thought to have gastro-enteritis or some form of protein or carbohydrate dyspepsia because of loose green stools which in fact are due to constipation arising from severe underfeeding. Many other babies are thought to have diarrhoea when in fact their stools are the normal loose stools of the fully breast-fed infant. Gastro-enteritis is an extremely rare cause of diarrhoea in the breast-fed baby.

Constipation.—True constipation in a fully breast-fed infant is usually due to insufficiency of milk. In a large proportion of babies brought up for this complaint, however, the motions are normal, but the mother is worried about their infrequency. It is perfectly normal for some breast-fed babies to have a motion only every four to five days. If the child is well and gaining weight normally and the motions are not hard, no treatment of any kind is necessary. I saw an infant 24 hours old who had been given an enema by the doctor for constipation.

Vomiting.—Many babies are thought to be vomiting, whereas they are merely posseting or bringing a little milk up with wind. Many babies are taken off the breast on account of vomiting. This is always a wrong thing to do, unless the vomiting is due to severe flatulence arising from insufficiency of milk. I have recently seen seven cases of congenital pyloric stenosis in which the baby had been put on to artificial foods because of vomiting, it being thought that the breast milk was "not suiting" the baby. In every case the vomiting persisted.

Flatulence.—More often than not flatulence is thought to be the cause of the baby's excessive crying and other symptoms, and very often the diagnosis is incorrect. Flatulence may, however, be caused by leaving the baby to suck on the breast too long or by insufficiency of milk. The latter diagnosis should be confirmed by test feeds.

Other Man-made Difficulties in the Breast-fed Baby.—Soreness of the mouth and thrush may be caused by cleaning the mouth of the newborn with swabs or by giving the baby a "dummy." A variety of infections may be caused by inadequate hygiene. Prematurity, with all its associated feeding difficulties, may be due to poor nutrition, obstetrical procedures, and other factors. Inertia in the newborn, leading to difficulty in breast-feeding, may be due to obstetrical procedures and to improper use of analgesics. Some babies have to be taken off the breast because of admission to a hospital which has no accommodation for a nursing mother. Others are taken off the breast on account of congenital haemolytic anaemia. Cathie (1947) showed that this was a wrong practice. Others are taken off unnecessarily because of the onset of menstruation.

Some Difficulties in the Artificially Fed Baby

Many of the difficulties which occur in the breast-fed baby also apply to the artificially fed baby. In addition certain special difficulties may occur.

Excessive flatulence and therefore colic is often due to the hole in the teat being too small. I saw a case of excessive flatulence of very recent onset in a 6-months-old baby: it was due to the fact that the mother had filled the feeding bottle with sago pudding and expected the baby to suck it out through the ordinary teat. Flatulence is also commonly due to leaving the baby to feed himself from a bottle propped up on a pillow. This causes him to swallow air for two reasons: he may create a vacuum in the bottle, and when the teat flattens in consequence he continues to suck it, so that he merely swallows air. It may also be due to the teat not being kept filled with milk, with the result that the baby swallows a mixture of air and milk.

Constipation is usually due to underfeeding. It may also be due to insufficiency of fluid or to failure to add sugar to those dried foods which do not contain added sugar, such as National Dried Milk.

Diarrhoea may be due to an infection such as gastro-enteritis or to adding sugar to a dried food which already has a high carbohydrate content. Diarrhoea must be distinguished from the loose green constipation stools already mentioned.

Vomiting may be due to improper mixing of the milk or to excessive flatulence. It is occasionally due to the hole in the teat being too large so that the baby gets the food down too quickly.

Failure to gain weight satisfactorily is usually due to underfeeding, but it may be due to infections or other organic disease. It may be due to measuring dried milk with a teaspoon which gives much less than the expected drachm (3.5 ml.), or to excessive dilution of the milk, either deliberately or because of the use of a tablespoon as a measure of ½ oz. (14 ml.) (many tablespoons measure ¾ oz. (21 ml.) or more). It may be due to following the instructions on the packet instead of adjusting the quantity of food to the needs of the individual. Very exceptionally it may be due to overfeeding. Overfeeding on the bottle can occur, but it is rare. It is certainly not nearly as common as Gibbens (1949) suggests. He is quoted as making the assertion that nine-tenths of all diseases in infancy and childhood are due to overfeeding. In fact most babies know when they have had enough, and overfeeding is an extremely rare finding in infants. It must be remembered that some babies require more than the calculated requirement to make them gain weight normally.

A common practice in the face of these feeding difficulties is to change the feeds in order to try to find a particular food which will "suit" the baby. This is a bad practice. The modern dried foods are so good that any of them if given properly and in reasonable quantity will cause most babies to thrive. Some cause other than unsuitability of a particular brand of milk should always be sought for the child's symptoms.

Difficulties in Weaning

Most of these are due to mismanagement. The commonest difficulties arise from trying to force the baby to

take food which he does not want. A determined baby will not tolerate such forcing. Attempts to give solids before the baby can chew may lead to vomiting. When a baby refuses the food offered it is a good plan to offer him a breast-feed first and then try the solid food after the breast-feed. When he gets used to it the breast-feed is stopped. The same applies to the baby who spits out the cod-liver oil and defies all efforts to give it to him. He will often take it at the end of a breast-feed without difficulty. A baby's crying and fussing during a feed is apt to be considered mere naughtiness, when in fact it is due to thirst, a soiled napkin, fatigue, or teething. It may be due to his desire to feed himself, or to a desire to use a cup instead of a bottle. Attempts to force the child to feed when he does not want it will certainly increase the difficulty. Many mothers are worried by the normal falling off of the weekly weight gain after the first six months, and so of his appetite. If the mother tries to force him to take extra food he will certainly refuse it. The more anxious and fussy the mother, the greater the difficulties which arise. The calm, patient mother who does not force the baby to take food against his will rarely has serious difficulty in feeding her baby.

Conclusions

A very large proportion of feeding difficulties are man-made. They arise from failure to prevent difficulties, from ignorance of the normal variations, and from rigidity and inelasticity in infant feeding instead of adapting the method of feeding to the needs of the individual. Other difficulties arise from the smattering of knowledge possessed by many about nutrition. Ultimately most of the difficulties in infant feeding can be ascribed to the inadequate training of doctors and nurses in the practical details of infant feeding and to the concentration in their teaching on the rare and the obscure, and on complex laboratory investigation and procedure, instead of on the really common problems which they will meet every day in general practice.

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Within the next six or eight months the Northern Ireland Tuberculosis Authority hopes to have an additional 200 beds, including 116 for children. Dame Dehra Parker, Minister of Health and Local Government, stated recently that there were 1,381 cases of tuberculosis undergoing treatment in hospital, and that the number awaiting admission was 625. She added that there were now 248 more beds available than on September 1, 1947, when the Authority assumed all functions in connexion with tuberculosis services. The use of sleeping shelters at the homes of patients in suitable circumstances was being encouraged. At present 124 shelters were in use, and approval had been given to the provision of a further 50.

ANTIHISTAMINES IN THE TREATMENT OF NAUSEA AND VOMITING OF PREGNANCY

REPORT ON A CLINICAL INVESTIGATION

BY

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Nausea and vomiting of varying degree occur so often during pregnancy as to be accepted by the patient and her attendant as normal accompaniments of that condition. In some cases, however, in the absence of adequate treatment the vomiting becomes progressive, leading eventually to a complete intolerance of all foods and liquids.

Apart from those cases in which the sickness is associated with disorders of the urinary and gastro-intestinal systems, etc., little is known regarding the origin of the nausea and vomiting of pregnancy, although most clinicians seem to accept neurosis as an aetiological factor of considerable importance. Theories have been advanced which relate the condition to endocrine upsets and dietetic deficiencies; and the usual occurrence of the sickness during the period of placental development has led to speculation on the possible part played by the placenta in producing it. The most interesting hypotheses are those which consider that vomiting of pregnancy is an allergic reaction to albumin of ovo-placental origin, and that it is caused by toxic placental products, such as peptone, guanidine, and histamine, liberated into the blood stream by the activity of the trophoblast.

The conception that histamine might be an important aetiological factor was advanced by Hofbauer in 1926, and Kapeller-Adler (1941) has revived interest in this work. She has investigated the histidine-histamine metabolism in normal and pathological pregnancies. From her results she concludes that the toxaemias of late pregnancy are probably manifestations of histamine intoxication, and that the disorders of the early months, such as morning sickness, excessive salivation, dyspepsia, and headache, may indicate a smaller degree of such intoxication.

The encouraging results obtained from the application of antihistamine drugs to the albuminuria of acute nephritis led to an attempt to determine whether or not the onset of albuminuria as a manifestation of toxaemia could be averted by the use of these drugs in pregnancy. It was soon found that patients who complained of nausea and vomiting experienced relief from their symptoms during the administration of the antihistamine drugs. The response obtained, particularly in cases in which other measures had failed, was so striking that it was decided to carry out a fuller investigation of the therapeutic potentialities of the antihistamines in this condition.

Present Investigation

This clinical investigation was carried out during the period from January 1, 1948, to March 31, 1949, when a total number of 1,816 new patients attended the antenatal clinics of the Public Health Department of the County Borough of Smethwick. In the early part of the investigation observations were made on the effect of an antihistamine drug on patients whose nausea and/or vomiting did not respond to the therapeutic measures generally employed in obstetrics. These measures consisted in advice

on diet, such as the partaking of frequent small meals with abundant carbohydrate, the elimination of fried foods from the diet, and the avoidance of items such as tea and coffee, which in some instances seemed to aggravate the vomiting. All patients were advised to try the effect of eating a biscuit or two before rising from bed. "Marmite," yeast tablets, and dilute hydrochloric acid were also used, either singly or, in certain cases, in combination. The use of the antihistamines as primary agents in treatment was advocated later as the effects of their application were noted. Furthermore, as confidence in the drug was gained—having particular regard to the fact that no untoward reactions of any kind concerning the pregnancy itself were noted—it was found possible in some cases to give a larger therapeutic dose. The drugs used in the investigation were "anthisan" and later, when it became available, "phenergan."

The dosage of anthisan originally employed was one 0.1-g. tablet morning and evening, and this dosage was gradually increased until the drug was being given as a routine five or six times daily. The majority of the cases whose symptoms were not relieved completely by anthisan treatment occurred in the early stages of the investigation, when the smaller doses were given. This gave the impression that a stronger antihistamine drug would lead to better results, and accordingly, when phenergan became available for clinical trial in the latter part of the investigation, it was used in preference to anthisan. In most of the cases a daily dose of one 0.025-g. tablet three times a day proved to be sufficient to relieve symptoms. A few cases required a heavier dose, and in one case (No. 4, below) seven tablets were given daily to control the vomiting. The efficacy of the drug is dependent on the dosage employed, and its effect seems to be cumulative. It was found that the nausea and vomiting were most often relieved within two or three days of starting the drug, and treatment was continued for a period of several weeks to avoid relapse. It was usually possible to discontinue the drug after three or four weeks, but several cases were recorded in which the nausea and vomiting recurred, necessitating a further course of treatment. The chief side-effect noted with both drugs was drowsiness, and in those cases in which the effect was marked 5 mg. of amphetamine sulphate was sufficient to counteract this. The following is a summary of the results.

Total No. of cases	1,816
No. complaining of nausea and/or vomiting	899
No. treated with antihistamine drugs	94
Results of treatment:	
Cure	78 (83%)
Improvement	4 (4%)
Failure	12 (13%)

The use of the drug is illustrated in the following case records.

Case Reports

Case 1.—Mrs. A., aged 25, attended the antenatal clinic during the thirteenth week of her second pregnancy. She had suffered from severe morning sickness during the first pregnancy, the vomiting having continued intermittently until term was reached. She again complained of severe morning sickness, and was advised regarding her diet and the necessity for regular bowel action. When seen again four weeks later, however, she was no better and had lost 3 lb. 12 oz. (1.7 kg.) in weight. Anthisan, one 0.1-g. tablet three times daily, was prescribed for her, and after two weeks of treatment her sickness had disappeared completely. The drug was discontinued and she remained well for a period of four weeks, when vomiting of a milder type recurred. The drug was therefore prescribed again for a period of one week, after which the vomiting ceased entirely. Her convalescence from the vomiting the pregnancy remained normal throughout and culminated at term in the spontaneous delivery of a healthy female infant of 6 lb. 8 oz. (2.95 kg.).

Case 2.—Mrs. B., aged 38, attended the antenatal clinic in the ninth week of her seventh pregnancy. She complained of severe sickness, which occurred intermittently on several occasions each day, and stated that she had suffered thus throughout each of her pregnancies. She was given advice on general dietetic measures, and the retrodisplaced uterus was manually corrected, a Hodge pessary being inserted to maintain it in position. One week later, however, she was no better, and anthisan, one 0.1-g. tablet five times daily, was prescribed for her. At the end of one week of this treatment her sickness had disappeared entirely. The drug was then discontinued and the patient remained free of this troublesome complaint for the remainder of the pregnancy. She delivered herself spontaneously at term of a healthy male child weighing 8 lb. 10 oz. (3.9 kg.).

Case 3.—Mrs. C., aged 32, attended the antenatal clinic during the seventh week of her third pregnancy. Her two previous pregnancies had been unsuccessful, having terminated at nine weeks and eleven weeks respectively. She now stated that she had been forced to come to the clinic earlier than she had intended because of the severity of her sickness, which caused her constant trouble during the day. Phenergan was prescribed for her—one 0.025-g. tablet morning and evening. She reported a considerable improvement in her condition after four days of this treatment, and she was now sick only once each evening. The dosage was increased to three tablets a day, and this brought complete relief from her symptoms. The treatment was discontinued four weeks after her first visit. She remained well for a further three weeks, when the vomiting recurred, necessitating a further course of treatment for two weeks. Since then she has been perfectly well, and is now within four weeks of her expected date of delivery. The course of her pregnancy has otherwise been normal.

Case 4

The following case record, whilst not occurring within the above investigation, is included because of its unusual interest.

Mrs. X., aged 34, attended the gynaecological clinic in January, 1949, complaining of "one-child sterility." The only lesion discovered on examination was a cervical erosion, which was treated with the coagulating diathermy current. She was next seen during the tenth week of her second pregnancy, having been referred by her doctor because of excessive vomiting. During her first pregnancy she had required hospital treatment for hyperemesis gravidarum. The vomiting this time had started one week after the first missed period. At the beginning it had occurred two or three times daily, but had steadily become worse. Her doctor advised her on the general dietetic measures to be adopted and had tried the effect of insulin on four occasions. Despite this her condition deteriorated and eventually she was vomiting constantly by day and several times by night. During the eighth week of her pregnancy she was admitted to a Birmingham hospital as a case of hyperemesis gravidarum. She was treated for a period of 17 days along the usual lines, receiving phenobarbitone, vitamin B_1, intravenous glucose-saline, and glucose by mouth. There was some improvement in her condition with these measures, but nevertheless she was not cured completely of her vomiting and still had intense nausea when she left hospital. Her condition had been ascribed to neurosis.

Within three days of her discharge from hospital her condition relapsed and she was then admitted to St. Chad's Hospital for further treatment. Her general condition was poor and the acetone series was present in the urine in large amounts. A light diet with an abundant glucose and fluid intake was prescribed and steps were taken to rule out an associated cause of her vomiting. She was also given antihistamine drugs in the following regimen:

First Day.—Phenergan, one tablet at 6 a.m. and 10 p.m.; anthisan, one tablet at 10 a.m., 2 p.m., and 6 p.m.

Second Day.—Phenergan, one tablet at 6 a.m., 4 p.m., and 10 p.m.; anthisan, one tablet at 10 a.m., 1 p.m., and 8 p.m.

Fifth Day.—Phenergan, one tablet at 6 a.m., 12 noon, 5 p.m., and 10 p.m.; anthisan, one tablet at 10 a.m., 2 p.m., and 8 p.m.

Tenth Day.—Phenergan, two tablets at 6 a.m. and 10 p.m., and one tablet at 12 noon, 4 p.m., and 7 p.m.

The drugs were given in this manner in an effort to avoid, if possible, any feeling of drowsiness and also to make use of the minimum efficient dosage. It was found necessary to prescribe 5 mg. of amphetamine sulphate each morning when the dosage reached seven phenergan tablets per day; this counteracted the drowsiness very effectively.

By the end of the third day of treatment her condition had improved considerably, and by the fifth day all vomiting had ceased. The nausea gradually decreased and finally disappeared completely by the eighth day. She remained absolutely symptom-free until she was discharged from hospital on the nineteenth day, looking and feeling a "different woman." Thereafter the dosage was gradually decreased until a maintenance dose of three tablets a day was reached. This was discontinued after a period of three weeks; the symptoms did not recur, and at the time of writing this patient is approaching the end of her second trimester of pregnancy.

Commentary

The treatment of nausea and vomiting of pregnancy still constitutes a major problem in antenatal care. It is well recognized that spontaneous relief of symptoms may be expected by the end of the first trimester of pregnancy, and the majority of patients resign themselves to awaiting this happy outcome. Most cases, fortunately, are of mild degree and do not appear to require any special treatment. When treatment is necessary simple dietary measures usually suffice to give adequate relief. In many cases, however, despite such treatment, the annoying symptoms persist and render life miserable even if they do not constitute a potential danger to it. Such being the case, there is a need for a simple and safe method of treatment which will relieve the symptoms in those patients who do not find dietary measures sufficient.

The results of the investigation into the use of anthisan and phenergan in this condition suggest that the antihistamine drugs may offer just such a form of therapy. The majority of patients who received treatment with these drugs had already been treated along the usual lines, and, even allowing for the fact that some of these patients could have expected eventual relief without further treatment, it is difficult not to be impressed with the results obtained. At any rate, the success of this method has made it desirable to carry the investigation further with a series of patients treated in various other ways.

I am indebted to Messrs. May and Baker, Ltd., for supplies of anthisan and phenergan, and to the medical advisory staff of that firm for their advice and assistance.

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ANAEMIA OF PREGNANCY IN GLASGOW AND DISTRICT

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The importance of anaemia as a complication of pregnancy seems to have diminished in recent years in many parts of the British Isles. For instance, Fullerton, Mair, and Unsworth (1944) found that in Aberdeen only 3.9% of pregnant women of the hospital class suffered from anaemia, and comparison with previous surveys in that area indicates a rapid diminution in the number of cases since 1935 (Davidson, Fullerton, and Campbell, 1935). Similar observations have been made in Edinburgh (Davidson, Donaldson, Dyar, Lindsay, and McSorley, 1942; Davidson, Donaldson, Lindsay, and Roscoe, 1944).

It is therefore surprising to find that in Glasgow anaemia is one of the commonest complications of pregnancy and among the most serious. Unfortunately no previous investigation has been made in this area, and it is therefore impossible to assess progress.

The following attempt to survey the present position on Clydeside and to discover the cause of this high incidence of anaemia is based on the investigation of 4,595 patients at the antenatal clinic of the Glasgow Royal Maternity and Women's Hospital during 1947 and the latter half of 1946.

Methods

These were the standard procedures adopted by most haematological departments. Venous blood, withdrawn without constriction, was collected in heparinized tubes from every patient attending the antenatal clinic, and all investigations were carried out within six hours. Haemoglobin estimations were made by the Sahli method, 65% on this scale being equivalent to 70% Haldane, or 10.36 g.%. The haemoglobinometers were standardized at regular intervals against blood of known oxygen capacity. Pipettes requiring no correction factor were used.

Most authors consider 70% Haldane to be the lowest normal value during pregnancy. Roscoe and Donaldson (1946) have suggested that this lower limit varies with the patient's age, and that pregnant women in younger age groups are in an anaemic state at haemoglobin levels which come within the range of normality for older women. In view of this we have classified our patients into three groups: those with haemoglobin readings falling within the range 60–65% Sahli were classified "low normals"; those with readings between 50 and 60% were considered moderately anaemic; and those with readings below 50% were regarded as severely anaemic.

Classification of Patients

We found that 17.6% of all patients were anaemic at their first visit to the antenatal clinic. In addition a further 2.5% seen early in pregnancy became anaemic at some later date in pregnancy. These latter patients were in the "low normal" group originally. This gives a high incidence of 20.1%. Owing to the natural curve of haemoglobin values occurring in pregnancy certain corrections

were necessary before we arrived at this figure: these will be discussed later. The majority were cases of moderate anaemia, but approximately 5% of all patients had a severe anaemia with haemoglobin readings below 50% Sahli (8 g.%).

Since the numbers were so great and the majority of patients appeared at the clinic for the first time just before term it was impossible to investigate each case fully. Accordingly 140 were chosen for investigation in some detail over an average period of 2.2 months, and in no case less than one month. The average duration of pregnancy at first attendance was 5.6 months, with a range of from three to eight months. All anaemic patients were treated empirically with iron, and according to their response to that treatment these 140 patients were eventually classified into three groups: (A) 112 (80%) patients who showed satisfactory progress; (B) 26 (18.6%) patients who maintained their original haemoglobin level but failed to improve; and (C) two (1.4%) patients who deteriorated.

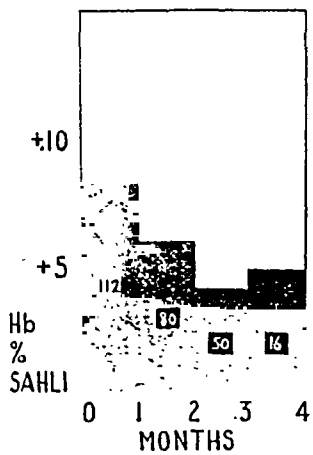


FIG. 1.—Whole of Group A. Monthly haemoglobin increments of 112 cases treated with iron as out-patients.

Group A

The results of treatment in this group are shown in Fig. 1. It will be seen that the increase in haemoglobin was greatest in the first month of treatment, and that the rate of increase diminished slightly in succeeding months. Seventy-seven of these patients were only moderately anaemic, and a graph of their monthly increments (Fig. 2) shows practically no curve. On the other hand, the remaining 35 severely anaemic patients showed a very steep curve of haemoglobin increments (Fig. 3), a rise of 10.8% being recorded in the first month, 5.4% in the second month, and 3.8% during the third month. Both curves (Figs. 2 and 3) are atypical when compared with non-pregnant cases, in which the rate of haemoglobin regeneration is said to be inversely proportional to the haemoglobin level (Whitby and Britton, 1946).

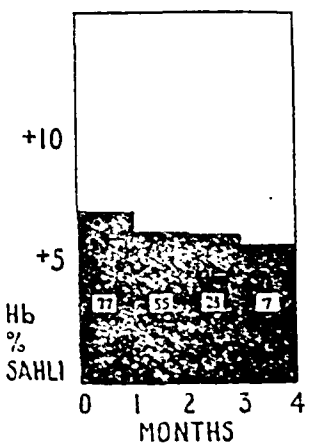


FIG. 2.—Cases of moderate anaemia in Group A. Monthly haemoglobin increments of 77 cases treated with iron as out-patients.

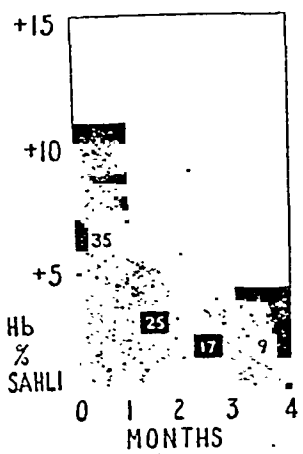


FIG. 3.—Cases of severe anaemia in Group A. Monthly haemoglobin increments of 35 cases treated with iron as out-patients.

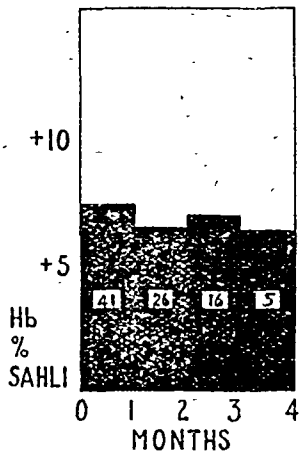


FIG. 4.—Cases of moderate "pure" anaemia in Group A. Monthly haemoglobin increments of 41 cases treated with iron as out-patients.

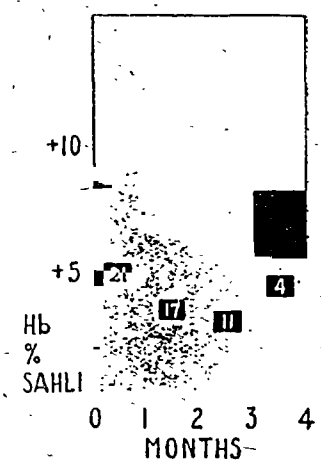


FIG. 5.—Cases of severe "pure" anaemia in Group A. Monthly haemoglobin increments of 21 cases treated with iron as out-patients.

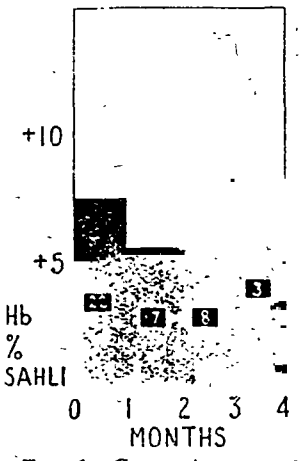


FIG. 6.—Group A cases of moderate anaemia with gastro-intestinal upset. Monthly haemoglobin increments of 22 cases treated with iron as out-patients.

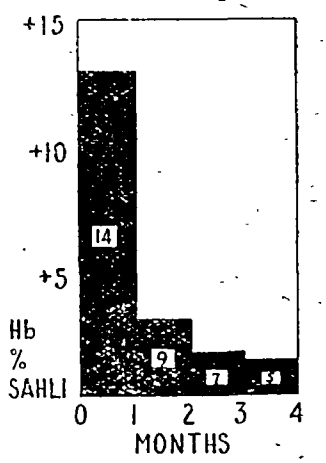


FIG. 7.—Cases of severe anaemia with gastro-intestinal upset. Monthly haemoglobin increments of 14 cases in Group A treated with iron as out-patients.

A further subdivision of these cases could be made on clinical grounds. Of the total, 62 were cases of "pure" anaemia—i.e., no other complication existed. Forty-one of these were of moderate degree, and their response is shown in Fig. 4; it was almost the same as in Fig. 2. The remaining 21 were cases of severe anaemia (Fig. 5), and these showed monthly increases which were inversely proportional to the haemoglobin level. In other words, the response of pregnant patients with uncomplicated severe iron-deficiency anaemia is the same as that shown by anaemic non-pregnant patients.

Of the remaining 50, 36 had a mild gastro-intestinal disorder: 22 of these were cases of moderate anaemia, and the curve of haemoglobin increments was similar to that of all moderate anaemias (Fig. 6); 14 were severely anaemic, the curve in their case being very steep (Fig. 7). A rise of 12.9% was recorded in the first month, but thereafter the response was only slight. It would therefore seem that a mild gastro-intestinal disturbance has little effect on the course of a moderate anaemia, but that in severe anaemia it seriously interferes with the response to treatment. *Since the initial response in these cases was satisfactory it is unlikely that the gastro-intestinal disturbance*

produced its effect directly by interfering with the absorption of iron. It is possible that it interfered with the utilization of iron, or it may have produced deficiencies of other haematinic factors.

The remaining 14 patients suffered from mild infections or high blood pressure, but the numbers in each group were too small to allow any further subdivision. The response to treatment did not appear to be affected. Most were cases of moderate anaemia.

While assessing the response to treatment of these 112 patients who improved it was noted that 20 showed a delayed response to iron. During the first month the increase was less than 5%. Thereafter the response was satisfactory (Fig. 8). The incidence of gastro-intestinal disorders and infections and the average duration of pregnancy were the same in this group as for the whole series. Neither these factors nor the severity of the anaemia could account for the delayed response. It is interesting to note that the response to iron therapy in this particular group of 20 patients is exactly the reverse of that seen in non-pregnant cases of anaemia. The importance of this group lies in the fact that no anaemia can be considered refractory to iron therapy unless treatment has been continued for more than one month.

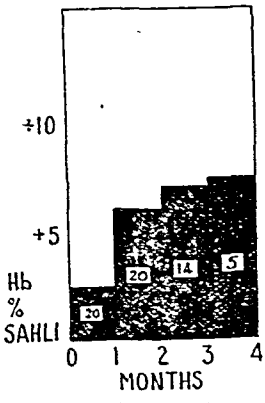


FIG. 8.—Monthly haemoglobin increments of 20 out-patients in Group A who showed a delayed response to iron therapy.

Group B

Although at first sight all of these 26 cases might be considered refractory, closer investigation suggests possible reasons for this apparent refractoriness in some. Thirteen of these patients received iron therapy for just over one month, and in view of the delayed response noted above it is not justifiable to consider them resistant to treatment. Two others developed severe infections necessitating confinement to bed for several weeks—an ample cause for their resistance (Pepper, 1927; Wintrobe, 1942; Saifi and Vaughan, 1944; Cartwright *et al.*, 1946). Another four were uncooperative, one patient improving after admission to hospital. Two patients had initial haemoglobin values of 55 and 57%. Although neither showed an increase of more than 5% in two months this was sufficient to bring them into the low normal range, and they might be incapable of further response. Only the remaining five cases of this group could be definitely regarded as resistant.

Group C

Of the two patients who deteriorated, one developed diarrhoea and vomiting in the ninth month, deteriorating thereafter. The other patient received iron for two months, during which time the haemoglobin fell 8%. She was admitted to hospital one week before term and given iron in large doses, but failed to respond although the blood picture was microcytic and hypochromic.

The first patient can scarcely be considered resistant to treatment in view of the complicating intestinal disorder. Out of the total of 140 cases of anaemia, therefore, six were definitely resistant.

Discussion

Although the survey covers a period in which many economical and social changes occurred it will be seen from Table I that there were only slight variations in the incidence of anaemia during 1946 and 1947. One out of every 20 to 25 patients attending the clinic was severely anaemic. It is interesting to note, however, that the average monthly haemoglobin readings for each of these years showed a tendency to rise in summer and fall in winter, but no correlation could be found between the incidence of severe anaemia and this seasonal variation. With the exception of a temporary rise during the Christmas season, when the numbers attending the clinic fell, this variation was quite regular, and it was also interesting to note that whereas the peak haemoglobin reading was in August, 1946, it was again reached in May, 1947, and fell rapidly thereafter.

TABLE I.—*Incidence of Anaemia*

Year	Severe Anaemias	Moderate Anaemias	Low Normals	Normals
1946	4%	17%	29%	50%
1947	4·8%	17·8%	24·5%	52·9%

From Table II it seems that age is significant only in severe anaemia. Parity is of no apparent importance.

TABLE II.—*Effect of Age and Parity*

	Age in Years	Standard Deviation	Parity	Standard Deviation
Normals	26·8	3·237	2·1	1·693
Moderate	28·3		3·5	
Average severe ..	30·7	2·812	3·6	2·810

Low Normal Series

In an attempt to elucidate the aetiology of anaemia of pregnancy a study of 85 patients whose haemoglobin values fell within the range of 60–65% was undertaken. These were followed from the fifth month of pregnancy onwards. They formed three groups.

Group I consisted of 44 patients who maintained their haemoglobin level throughout, sometimes increasing it towards term.

Group II consisted of 16 patients who showed an initial fall in haemoglobin but later improved. In none of these was the fall below 58%, and they could not be considered anaemic. Similar monthly variations in the haemoglobin values of normal patients have been noted by many authors (Meyer-Wedell, 1943; Roscoe and Donaldson, 1946; Kühnel, 1927; McGeorge, 1935; Boycott, 1936; Oberst and Plass, 1936; Thomson, Hirsheimer, Gibson, and Evans, 1938; Dieckmann, 1933). The maximum fall recorded in these patients was 4%, and these variations provide criteria for estimating the progress of any particular patient. It follows that in any patient of the "low normal" group a fall of less than 5% at any subsequent examination should not be considered significant. Doubt may be felt about the justification for this statement, since the original haemoglobin levels varied from patient to patient, and the stage of pregnancy on their first appearance at the antenatal clinic varied similarly. Statistical examination, however, showed that neither of these factors affected the validity of this conclusion.

Group III consisted of 25 patients who became anaemic. Incidentally, it was found in this group that if the haemoglobin fell below 58% Sahli the fall was progressive thereafter. Treatment was withheld until the haemoglobin fell below 55%.

A study of these three groups established certain facts relating to the onset of anaemia. Age and parity were of no significance. No difference in regard to these factors could be detected between those who maintained their haemoglobin level and those who became anaemic. Also,

since only a small percentage of "low normals" in any age group developed anaemia, pregnancy itself is not a cause of anaemia. Anaemia usually appears during the latter part of pregnancy, when foetal storage of iron is greatest. Maternal storage, however, is highest in early pregnancy, and it follows that anaemia of the later months may be related to the state of health earlier in pregnancy.

Investigation showed that 48% (12 cases) of those who became anaemic suffered from a gastro-intestinal upset in the early months, compared with 33% of those who maintained their haemoglobin level. Further, these 12 cases developed anaemia at the seventh month, whereas the remaining 13 with no such history did not become anaemic until the eighth month. Two conclusions may therefore be drawn. First, mild disorders of this nature in the early months are not a cause of anaemia later in pregnancy, although they probably hasten the onset. Secondly, the fact that the majority of those who deteriorated were healthy during the earlier months suggests that there was a relative deficiency of iron or other factors before pregnancy.

In order to test this hypothesis small groups of "low normal" patients were given dietary supplements. Twenty-five patients five months pregnant were given iron for several months. Twenty-five others received vitamin C, 150 mg. daily for one month, then 50 mg. daily till term. A similar group were given dietary advice on the type of food they should take and the best methods of preparing it. In addition, most received ½ lb. (227 g.) of liver each week for a period of not less than one month. Finally, one group received 3 dr. (11.6 g.) of "marmite" daily for one month. By that time most of them complained of nausea. All patients who deteriorated were given iron. The results of the test are shown in Table III, the control

TABLE III.—*Results of Therapy in the Low Normal Group*

Group	Improved	No Change	Deteriorated	Av. Rise in Hb After 1 Month of Iron Therapy
Control	4·7%	65·9%	29·4%	6·3%
Iron ..	40%	52%	8%	—
Vitamin C ..	16%	72%	12%	9%
Diet	32%	52%	16%	13%
Marmite	—	80%	20%	11%

group of 85 patients being used as a standard for comparison. From this it will be seen that iron therapy produced the best results but did not prevent the onset of anaemia in all cases. Vitamin C maintained the existing level of haemoglobin in a greater number of cases but was not so effective as iron in preventing deterioration. Its value may lie in its reducing power, thus improving the absorption of iron (McFarlane, 1936; Powell, 1944). Patients receiving special diet or marmite showed an increase in the incidence of deterioration, although not so high as in the control group. It is interesting to note the response to iron therapy of those who deteriorated in these groups. The steep rise in haemoglobin in those who had previously received special diet or marmite suggests that the rate of haemoglobin regeneration was enhanced by the diet, and that a small number of these patients had a deficiency of haematinic factors other than iron.

Summary and Conclusions

The results of the present survey show a high incidence of anaemia—namely, 17.6%—in pregnant women at their first attendance at the antenatal clinic of the Glasgow Royal Maternity and Women's Hospital. Reference to the group of low normals, however, shows that 29·4% of these patients ultimately become anaemic and a further 18.8% had readings below 60% Sahli at one time during pregnancy, though they did not develop anaemia. It is obvious that of the women attending the clinic those with haemoglobin readings below 60% at their first visit, diagnosed as anaemia, will not include the 29.4% of low normals who ultimately become anaemic, but may include the 18.8% whose haemoglobin reading is temporarily diminished. Correction for these figures gives an amended incidence of 20.1%—i.e., 20.1% of all patients seen for the first time at the clinic are or will become anaemic.

Direct comparison with other reports is difficult, but it is interesting to note that repeat surveys in other parts of Scotland show a diminished incidence of anaemia in patients attending antenatal clinics.

The reason for this high incidence on Clydeside is not apparent. The greatest emphasis has hitherto been laid on dietary iron intake. Coons (1932) estimated the daily iron requirements of the pregnant woman as 14.7 mg. Ohlson and Daum (1935) and the National Research Council, U.S.A. (1947), agree with his figure. McCance and Widdowson (1946), however, put the level as high as 20 mg. per day. Diet in the British Isles has become fairly standardized in recent years and it is therefore difficult to understand why anaemia of pregnancy should be so common in Glasgow. We have recently undertaken a dietary survey of cases of anaemia, and although to date we have examined only 16 patients the results emphasize the problem. The average daily iron intake of these patients was 16.67 mg., which is above the standard in America. It seems likely that social habits and environment may prove more important than iron intake as factors inducing anaemia in the pregnant woman.

Several points arise out of the investigation of cases of anaemia and of patients with "low normal" readings. These are best summarized as follows :

1. Thirty per cent. of all women with haemoglobin readings in the range 60–65% Sahli become anaemic if untreated.

2. Iron is the best form of preventive therapy, but an adequate intake of vitamins B and C should be maintained.

3. In these patients 58% Sahli (9.28 g. %) seems to be a critical level. Below this figure progressive anaemia develops.

4. In estimating progress a fall of less than 5% is not significant in any individual patient.

5. Pregnancy is not a cause of anaemia, and age and parity play no part in its onset.

6. Mild gastro-intestinal disorders in the early months hasten the onset of anaemia but are not responsible for it.

7. Those patients who develop anaemia are probably cases of deficient iron storage, and the defect arises before pregnancy.

8. In established cases of uncomplicated severe anaemia the response to iron therapy is similar to that obtained in non-pregnant cases. Moderate anaemias show a regular response which does not vary with the haemoglobin level.

9. When the anaemia is complicated by a gastro-intestinal disturbance there is no difference in response to treatment provided the anaemia is of moderate degree. When the anaemia is severe the response, initially good, practically ceases.

10. In 17.8% of cases the response to iron by mouth may be delayed for as long as one month.

11. An unsatisfactory response was obtained in 20% of cases, but reasons for this could be found in all but six cases, or 4.5%.

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ACUTE MASTOIDITIS IN CHILDREN TREATED WITH PENICILLIN AND SULPHADIAZINE

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It has been said that penicillin places a premium on good surgery, but is no substitute for it. While not preparing to dispute the former, the series of 17 cases recorded below would largely appear to disprove the latter.

It has been the practice at one ear-and-throat clinic at the Children's Hospital to treat as out-patients large numbers of cases of mastoiditis, early or subacute, by the extensive use of the sulphonamides and penicillin in the form of an oil emulsion, reserving for admission those cases which hitherto had appeared to demand immediate operation. While the possible risks attached to this procedure laid it open to criticism, the difficulties of obtaining adequate facilities for in-patient treatment within this or any other hospital in the vicinity were so great that it was considered a justifiable expedient.

The results, however, were so satisfactory that it was resolved to apply this method of treatment to those cases of mastoiditis which by all previous standards demanded immediate operation. The cases in this series, seen within a period of three months, are consecutive ones in which there could be no shadow of doubt of a clinical diagnosis of acute mastoiditis, and were treated by conservative methods. Cases were selected on admission and none was excluded on the grounds of its severity. Only those in which the disease had progressed so far as to produce, in addition to systemic disturbances, tenderness, swelling, oedema, and in some cases a fluctuating abscess over the mastoid process were included in the series. All showed, to a greater or lesser degree, the typical forwards and downwards displacement of the ear so well shown in the accompanying photographs. This, coupled with the appearance of the drum and meatus, left no doubt of the diagnosis nor, by the usual standards, of the necessity for operation. *X*-ray examinations were made only in the later cases in the series, and bacteriological examinations not at all. The latter is unfortunate, because it may be that the prevalent invading organisms at the time the cases were admitted were particularly penicillin- or sulphonamide-sensitive. All cases originally selected are recorded. A careful watch was kept throughout for signs of intracranial complications, but none occurred.

Treatment

On admission to hospital the following routine treatment was adopted: *Myringotomy* was performed in those cases in which the drum was intact and distended. *Intramuscular penicillin* was given in watery solution, 50,000 units six-hourly, in most cases. In the more severe cases 100,000 units were given six-hourly, and in one case 50,000 units three-hourly. *Sulphonamides* were given either four- or six-hourly, according to convenience in dosage, up to a total dose varying from 10 g. in infants to 30 g. in children of 10 years and over. No sulphonamide was given in one case in which there was acute glomerulonephritis. Sulphadiazine was used in most cases; and mist. sulphonamide co. (consisting of sulphadiazine 37%, sulphathiazole 37%, and sulphamerazine 26%) in younger children. Great attention was paid to a large fluid intake.

Local treatment consisted in careful cleaning of the meatus thrice daily and instillation of penicillin aural drops, 10,000 units per ml. As most of the children were drawn from the working-class districts of the city, one of the most important factors in the recovery of these cases was undoubtedly the excellent nursing care and attention to general health which they received.

The following is a summary of the notes of one of the most striking cases.

Case 1

Admitted April 13, 1948, aged 4 years, under the care of one of us (A. J. M.). Five weeks previously this child developed measles with otalgia and bilateral otorrhoea. The left otorrhoea ceased four weeks later, but the right otorrhoea had continued and right otalgia had been severe for the last three days. A right post-aural swelling was noticed three days before admission. It had since become worse.



FIG. 1.—Photograph of Case 1 taken on admission.

On examination the child looked pale and ill. Temperature 100° F. (37.8° C.). From the right ear came a profuse muco-purulent discharge, the exact source of which was obscured by deep meatal oedema. There was considerable diffuse periostitis over the mastoid process, which was extremely tender. The pinna was pushed down, forwards, and outwards (see Fig. 1). The left drum was wrinkled but without active inflammation. Treatment consisted of systemic penicillin, mist. sulphonamide co., and penicillin aural drops.

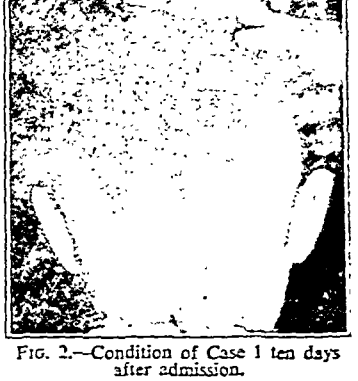


FIG. 2.—Condition of Case 1 ten days after admission.

Details of Remaining Cases

Case	Age	Duration of Symptoms	Physical Signs	Progress	Duration as In-patient	Follow-up
2	7 years	2 weeks	Right mastoid tenderness. Periostitis, especially over lateral sinus. Profuse discharge from posterior perforation	3 days after admission: otorrhoea ceased. 8 days: periostitis gone. 12 days: drum scarred; not inflamed	12 days	3 weeks after discharge: no complaints. Drum scarred; otherwise normal. Mastoid process normal. Hearing excellent. Circularized after 11 months: no further ear trouble
3	6 years	5 days	Right ear: swelling over Macewen's triangle and down post-aural groove. Copious pulsatile serous discharge from myringotomy (performed day before admission). Hearing: whispered voice at right ear	4 days after admission: otorrhoea ceased. 5 days: periostitis gone. 7 days: drum normal. Hearing: whispered voice from 5 ft. (1·5 m.) distance	7 days	6 weeks after discharge: no complaints. Right drum slightly retracted. Freely mobile. Hearing: W.V., right 10 ft. (3 m.), left 12 ft. (3·66 m.). Circularized after 9 months: no further ear trouble
4	19 months	3–4 weeks	Right ear: large post-aural swelling, pushing pinna down and out. Thick creamy discharge from posterior perforation in drum. Drum deeply injected	3 days after admission: swelling smaller but fluctuant. 8 days: swelling gone; otorrhoea ceased. 11 days: perforation healed	11 days	2 weeks after discharge: no complaints. General condition excellent. Mastoid process normal. Drum thickened but flat and white. Circularized after 10 months: no ear trouble of any sort
5	2 months	1 day	Left pinna pushed downwards and forwards by periauricular oedema. Meatus oedematous. Purulent discharge	3 days after admission: condition unchanged. 4 days: mastoidectomy decided on for next day unless much improved. 5 days: discharge ceased; meatal oedema subsiding. 11 days: postauricular and meatal swelling gone. Drum injected. 19 days: ear appears normal in all respects	19 days	10 weeks after discharge: "perfectly healthy baby"; taking feeds and sleeping well; mastoid process and zygoma normal; drum grey and normal in every respect. Circularized after 12 months: no ear trouble of any sort
6	7 years	5 days	Left drum bulging. Mastoid tenderness. Periostitis over Macewen's triangle and mastoid tip	On admission: myringotomy performed. 2 days after admission: tenderness gone. 4 days: otorrhoea ceased; swelling gone. 8 days: drum quite normal	12 days	9 weeks after discharge: "no complaints whatsoever"; mastoid processes normal; both drums quite normal and mobile. Hearing: whispered voice—right and left, 14 ft. (4·26 m.). Circularized after 11 months: had one attack of right otalgia; no trouble with left ear
7	5½ years	2 weeks	Right pinna displaced down and out. Mastoid process red and tender. Deep meatal oedema. Purulent otorrhoea	7 days after admission: periosteal thickening gone. 9 days: otorrhoea ceased. 12 days: drum thickened; otherwise normal	12 days	6 weeks after discharge: "no complaints at all. Better in every way"; mastoid process normal; drum retracted and poorly mobile; malleus prominent. Hearing: W.V. right 10 ft. (3 m.), left 12ft. (3·6 m.). Circularized after 8 months: no ear trouble
8	6 years	5 weeks	Left ear: profuse muco-purulent discharge. Periostitis over Macewen's triangle. Drum not seen owing to difficulty in examining child	6 days after admission: periostitis gone. 7 days: otorrhoea ceased. 8 days: drum white and flat	8 days	7 weeks after discharge—both drums quite normal and mobile. Mastoid processes normal. Hearing: W.V. right 12 ft. (3·6 m.); left 14 ft. (4·26 m.). Circularized after 11 months: no ear trouble of any sort
9	2½ years	4–5 weeks	Right ear: profuse purulent discharge from antero-inferior perforation. Drum deeply injected. Severe periostitis over whole of mastoid process extending above pinna along zygomatic root. No fluctuation	2 days after admission: swelling gone except for small area of thickening over centre of mastoid process. 4 days: otorrhoea ceased. 5 days: perforation healed. 9 days: mastoid process clinically normal	9 days	Circularized after 10 months: no further ear trouble
10	3½ years	1 month	Right otalgia for one month and right otorrhoea for one week. Post-aural swelling for one day. Continuous haematuria for one week. Right ear: large discoloured swelling over mastoid process, with fluctuation, maximal over Macewen's triangle; thick discharge from macerated drum. Urine: red cells and granular casts; albumin. Blood urea 31 mg./100 ml. Blood pressure 100/70. Abdomen: *nil* abnormal. Diagnosis: acute glomerular nephritis, complicating acute mastoiditis	3 days after admission: otorrhoea ceased. 5 days: swelling gone; meatus much less oedematous. Urine contains R.B.C.s and no casts. 11 days: meatus normal; drum scarred, otherwise appears normal	12 days	T. and A. 3 months later. Circularized after 10 months: no ear trouble since original attack; nephritis cleared up in 3 months
11	7 years	1 week	Previous history of severe right otalgia, 4 years and 18 months. Temperature 100·2° F. (37·9° C.). Right ear: meatal oedema, especially posteriorly; drum red and bulging; 3-point tenderness of mastoid, especially over tip	On admission: right paracentesis performed. 3 days after admission: tenderness gone. 5 days: incision healed. 7 days: drum scarred; otherwise normal	8 days	9 weeks after discharge: no complaint of ear at all; 2 head colds since discharge, but no otalgia. Right mastoid process feels normal; drum slightly retracted anteriorly, and scarred posteriorly by myringotom mobile. . left 12 ... months: no further ear trouble
12	3 years	3 weeks	Left ear: fluctuant tender swelling in post-aural groove; meatal wall sagging postero-superiorly; drum macerated (mostly obscured by meatal swelling). Radiograph: "infected left mastoid"	2 days after admission: swelling much smaller. 3 days: profuse left otorrhoea started. 9 days: mastoid process normal; attack of haematuria lasting a few hours; urine contained red cells but no other abnormality; sulphadiazine stopped. 10 days: otorrhoea ceased. 11 days: meatal swelling gone; drum landmarks visible	14 days	2½ months later: no further ear trouble; drums grey and retracted
13	4 years	4 weeks	Right ear: red tender swelling over Macewen's triangle; mastoid tip tender; deep meatus oedematous; drum obscured by hard wax. Radiograph: "infected right mastoid"	4 days after admission: swelling gone except for slight periostitis over upper part of mastoid process. 8 days: mastoid process normal. 10 days: meatus normal; still not possible to remove hard wax. 15 days: drum normal	15 days	Circularized after 10 months: child well; no ear trouble of any sort
14	12 years	3 weeks	History of 3 weeks' right otorrhoea following occasional otalgia for 6 months. Right ear: severe post-aural swelling. Radiograph: "infected right mastoid." Hears whispered voice at ear	4 days after admission: swelling gone; otorrhoea ceased. 8 days: drum normal; mastoid process normal; hears whispered voice from 6 ft. (1·8 m.) both sides	9 days	1 month: right ear: drum retracted; hears whispered voice at 5 ft. (1·5 m.) right, 8 ft. (2·4 m.) left

Details of Remaining Cases (continued)

Case	Age	Duration of Symptoms	Physical Signs	Progress	Duration as In-patient	Follow-up
15	4½ months	8 days	Right ear: swelling above and in front of pinna, pushing it down and out; no fluctuation; slight discharge from myringotomy incision, performed 2 days before admission. Radiograph: "A few infected zygomatic cells on the right side"	2 days after admission: otorrhoea ceased. 5 days: swelling gone; drum appears normal. 8 days: diarrhoea. 9 days: vomiting also. 10 days: temperature and pulse rates raised; right zygoma feels warmer, and is slightly reddened and more prominent than the opposite side; right cortical mastoidectomy performed; the major part of mastoid process normal, but a chain of infected zygomatic cells found. 12 days: general condition much improved. Steady uneventful recovery	29 days	[illegible] again 11 months
16	8 years	7 weeks	Left ear: tender over lateral sinus; drum bulging postero-superiorly; purulent discharge from antero-inferior perforation	2 days: tenderness gone. 3 days: otorrhoea ceased. 10 days: drum retracted. 11 days: home	11 days	Circularized after 9 months: no further ear trouble
17	6 years	2 weeks	Right ear: profuse purulent discharge from anterior perforation. Tender mastoid tip	2 days: tenderness gone. 11 days: otorrhoea ceased	13 days	Circularized after 10 months: one attack of acute R.O.M. 4 months after discharge. Cleared up in a few days on sulphonamide and penicillin drops, given in O.P.

Progress.—April 17: Right ear dry; perforation seen to be antero-inferior; no palpable periostitis now, but ear still lower than opposite side. April 19: Perforation healed. April 23: Pinna back *in normal position* (Fig. 2). *April 25: Could hear* the whispered voice at 15 ft. (4.57 m.) both sides. Right drum normal except for the antero-inferior scar. May 5: Transferred to convalescent home.

Subsequent History.—June 17: T. and A. July 15: Both ears dry; no ear trouble since May 3. Circularized after nine months (February, 1949): *No further ear trouble.*

The remaining cases are described above in tabular form.

Response to treatment was immediately noticeable in the general condition of the children. This in our opinion is the most important criterion of improvement in all acute mastoid cases. If the child looks as if it were making progress it is making progress, the constitutional condition reflecting the improvement in the ear. The slightly yellowish appearance of the complexion reminiscent of the tint of a telegram envelope, easy with practice to recognize but difficult to describe, rapidly gives way to a healthy pink. This alteration in appearance is often discernible within a few hours after treatment has begun, and precedes any obvious local change. The temperature and pulse rate fall rapidly at first and then move gradually to normal. Local changes in the ear quickly follow. The redness and tenderness rapidly disappear, the oedema subsides first, and is followed by the disappearance of fluctuation as the abscess, where the infection has burst through the bone, absorbs. The ear returns to its normal position, discharge ceases, the drum regains its colour and lustre, and hearing is restored. Many of these changes are accomplished in 48 hours, and are usually complete within a week.

We consider that the end-results of this method of treatment, as shown by examination or replies to questions several months afterwards, are at least as satisfactory as if the cases had been operated on; and that after such a lapse of time any further ear trouble is more likely to be a reinfection than a "lighting-up" of the old one, and would be equally likely to occur in children upon whom mastoidectomy had been performed.

Dr. T. M. Montford, M.O.H. of Castle Donington and deputy chairman of the Leicestershire and Rutland Executive Council, was re-elected a member of the Management Committee of the Association of Executive Councils (National Health Service) at the Annual Conference held at Bournemouth recently.

ELECTROCARDIOGRAPHIC INVESTIGATION OF 264 CASES OF HYPERTENSION

BY

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Improvement in the electrocardiogram is an objective criterion to which the utmost importance has been attached in estimating the effect of treatment of essential hypertension. It has long been known that confinement to bed may in itself produce temporary improvement in the electrocardiogram. It is a matter of great interest that more comprehensive investigations carried out within recent years have revealed considerable and lasting improvement in the electrocardiograms of patients with hypertension, notably in the T-waves, as a result of dietetic treatment (Bryant and Blecha, 1947; Kempner, 1948; and others) and of sympathectomy (Canabal *et al.*, 1945; Peet and Isberg, 1946; Hammarström, 1947; and others).

There are few comparative records of electrocardiograms of untreated patients with hypertension followed up over a fairly long period. Canabal *et al.* (1945) recorded the electrocardiograms of 56 patients under 55 years of age through five years and found improvement in five cases only, all of them women under 50. They concluded that the electrocardiographic changes in hypertension tend to show that improvement occurs in few cases only, and then chiefly after acute conditions such as myocarditis and infarction. Rasmussen and Böe (1945), after six years' observation of 39 hypertensive patients, found that the electrocardiogram showed deterioration in 14 cases, while it was unchanged in 22 (of which 15 were normal) and improved in only three.

In a previous follow-up of 1,000 out-patients with hypertension (Bechgaard, 1946) with a blood pressure on the first examination of 160/100, or 180 mm. systolic or more, I had not given sufficient attention to the importance of this fact and had not followed the electrocardiograms of the individual patients with this in mind. The electrocardiograms have therefore since been revised. On the first examination 890 patients had been submitted to electrocardiography. As appears from Table I, and from a statement by Aastrup (1937), the prognosis was considerably

worse for patients with a morbid electrocardiogram on the first examination than for those with a normal one.

TABLE I

E.C.G. on First Examination	No. of Patients	Second Examination	
		Living	Dead
Normal	753	591	162
Morbid	137	54	83

Present Investigation

Of particular interest are the electrocardiograms of 264 hypertensive patients under the age of 60, all of whom were alive 11 years later and all belonging to an age at which sympathectomy may be considered. In all these cases electrocardiograms were taken at the beginning and the end of the observation period, and in several instances once or more within this period. Two-thirds of these patients were women.

The usual criteria of a myocardial lesion have been applied in interpreting the electrocardiograms. An electrocardiogram with an isolated left-axis deviation was regarded as normal. The T-waves were accurately measured. To record an improvement it was required that T1 and T2 should be at least 0.1 mV higher at the follow-up than on the first examination.

In 162 cases the electrocardiogram was normal both on the first and on the second examination; in 48 the electrocardiogram was normal on the first examination but at the follow-up showed marked deterioration, revealing signs of a myocardial lesion in all cases; and in 45 cases morbid electrocardiograms on the first examination were mainly unchanged or aggravated at the follow-up. As shown in Table II, in only nine cases had the electrocardiogram

TABLE II

	Cases
Normal E.C.G. on both examinations	162
Normal E.C.G.→ morbid on second examination	48
Morbid E.C.G. on both examinations	45
E.C.G. improved during the observation period	(9) 3
Electrocardiograms observed for from 4 to 11 years	264

improved in the course of the observation period. In three of these nine cases the T-wave in the first lead showed marked improvement, being at least 0.1 mV higher than on the first examination, and in two of them it had changed from negative to positive. In three cases a left-axis deviation had subsided, and in three some ventricular extrasystoles present on the first examination had disappeared.

It is only in the first three cases that we can say for certain that a really morbid electrocardiogram had undergone a change for the better. Hypertension persisted in all cases.

Discussion

The conclusion to be drawn from this investigation must therefore be exactly the same as that of Canabal *et al.*—namely, that definitely morbid electrocardiograms of patients with hypertension show very little tendency to improve when acute conditions, notably cardiac infarction, are left out of account, as in our cases. Improvement occurred in three patients only. This figure, though smaller, is in accord with the results of the investigations made by Canabal *et al.* and Rasmussen and Böe—particularly so when the longer observation periods of my investigations are taken into account.

Actually, these investigations give too optimistic a picture of the spontaneous improvement in the electrocardiograms, since patients who died within the observation period have not been included. The deaths among patients with a morbid electrocardiogram on the first examination were in the great majority of cases due to cardiac diseases. It is to be expected, therefore, that the proportion of spontaneous improvements would have been smaller if it had been possible to include these patients.

Lasting improvement in the electrocardiogram in hypertension, notably improvement of the T-waves, may therefore be regarded as a criterion of the efficacy of a treatment, spontaneous improvement being a comparatively rare occurrence. It may furthermore be remarked that in more than half of the patients the electrocardiogram remained normal throughout the observation period.

Great prognostic importance must also be attached to improvement in the electrocardiographic findings, since a morbid electrocardiogram must be regarded as an extremely grave prognostic sign in cases of essential hypertension. In my previous investigations into the prognosis of 1,000 hypertensive patients the mortality rates were compared with the average mortality among the Danish population, the age distribution and the length of the observation period being taken into consideration. For men with electrocardiographically demonstrable myocardial lesions the mortality was found to be 5½ times as high as the average mortality, and for women about 3 times as high, as compared with 2 and just over 1 respectively for hypertensive subjects with normal electrocardiograms.

Summary

The electrocardiograms of 264 out-patients under 60 years of age with essential hypertension have been followed for from 4 to 11 years.

Of these, 162 had normal electrocardiograms on both the first and the second examination.

Forty-five patients presented fairly unchanged morbid electrocardiograms on the two examinations.

In 48 cases a marked deterioration had occurred.

In nine cases the electrocardiogram had improved, but significantly so in three cases only.

The follow-up of 1,000 patients with hypertension disclosed a mortality rate for men with electrocardiographically demonstrable myocardial lesions 5½ times greater, and for women nearly 3 times greater, than the average mortality, against 2 and 1 respectively for hypertensive subjects without this sign.

A treatment of essential hypertension which is capable of effecting a regular and lasting improvement of the electrocardiogram must be regarded as of real value.

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The Ministry of Health states that in the removal of persons of unsound mind to mental hospitals it may be necessary in some cases to have trained staff from the hospital in attendance to accompany the patient in the ambulance or car and if necessary to assist in the removal. Requests for assistance will usually be made by duly authorized officers of local health authorities, and when hospital management committees are asked to provide trained personnel for this purpose they should do their best to comply. The smooth working of arrangements will entail the closest co-operation between officers of the hospital management committee and of the local health authority. No charge will be made to local health authorities for the services of staff provided under these arrangements.

SENSITIZATION TO DENTURE MATERIAL AS A CAUSE OF ANGULAR STOMATITIS

BY

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Cracking of the angles of the mouth may be due to many causes. These vary from mechanical maceration by dribbling resulting from ill-fitting dentures to direct infection with monilia, staphylococci, or streptococci, and to that arising in association with vitamin deficiency, particularly in ariboflavinosis. I wish to draw attention to a further cause which is not generally recognized—fissure formation due to stomatitis caused by sensitization to denture material. Of nine cases of denture stomatitis I have seen during the last four years, in seven I was consulted because of cracks at the angles of the mouth, and only after direct questioning did these patients mention painful gums. All seven cases had been treated by local applications and by various vitamins without success, some of them for several years.

Stomatitis arising from sensitization of the buccal mucous membrane to the material of which dentures are made has been recognized for many years. Prinz and Greenbaum (1939) state that "rubber sore mouth" has been known ever since Thomas W. Evans, of Paris, introduced in 1844–5 vulcanite as a base for the construction of artificial dentures. The condition is mentioned in many of the standard dermatological textbooks, such as those of Sutton and Sutton (1939), Becker and Obermayer (1940), and Andrews (1946). Lain (1932) discussed briefly the basic constituents of dental plates and stated that probably the substance mainly responsible for the stomatitis is vermilion (mercury sulphide), which, in plates that have not been sufficiently hardened, is easily liberated on to the mucous membranes. Lindsay (1928) described glossitis occurring in a patient who was shown to be sensitive to a "plastic" type of denture by patch testing. Rattner (1936) described three cases of stomatitis due to sensitization to the newer plastic materials—two of which gave positive patch tests to the dentures strapped on to the arm for 48 hours. In the third case the patch test on the arm was negative, but Goldman and Goldman (1944) have shown that it is necessary in some cases to perform the patch test on the mucous membrane to demonstrate sensitivity, and they have devised a technique for doing this.

The patch tests in the cases described below were performed by taking scrapings from the denture which was suspect and leaving these moistened scrapings in contact with the skin of the upper arm for 48 hours. There was no difficulty in reading the results. A more spectacular way is to strap the whole denture on to the skin, but my patients did not wish to be without their teeth for a period of two days.

In addition to the cracks at the corners of the mouth, the one feature common to all the patients was redness and engorgement of the whole of the mucous membrane which came into contact with the denture. The sharp line between the red inflamed denture-covered part of the hard palate and the adjoining normal uncovered part was most striking. In some cases the mucous membrane of the cheek was also affected, and one case had superficial glossitis of the part of the tongue in contact with the denture. All have been cured by changing their type of denture.

Case Reports

Case 1.—A woman aged 31, seen on January 15, 1945, complained of having had cracking at the angles of the mouth for the previous six years; this started about six months after wearing a new denture. She had failed to respond to many different preparations. There was no history of previous trouble and her general health was good. On examination the cracking of the angles of the mouth was severe and there was redness and swelling of all the mucous membrane which came into contact with her dentures. The line of demarcation on the hard palate between the engorged mucous membrane and the normal-looking posterior part of the palate was very well marked. There was no history of previous skin disease or of any relevant past illness. The dentures were made of red vulcanized rubber, and a patch test performed with scrapings was strongly positive, blisters being formed on the skin of the upper arm after contact with the scrapings for 48 hours. She was advised to stop wearing her dentures and to have a "plastic" denture after first being tested with the plastic material to be certain that she was not also sensitive to that. She was seen again on April 12, 1945, when she was completely cured. In a letter dated July. 30, 1949, she stated: "I have not had any recurrence of the trouble with my mouth and gums whatsoever."

Case 2.—A woman aged 46 was seen on January 7, 1946. She gave a history of cracking of the corners of the mouth for one month, and for a week before being seen she had mild dermatitis of the circumoral region, chin, and neck. She had worn "plastic" dentures for six years, and during this time often had ulcers of her gums. There was no previous history of skin disease. She had marked cracking of the angles of the mouth, with a dry scaling dermatitis of the circumoral region, the chin, and the anterior aspect of the neck. The mucous membrane in contact with the dentures was red and engorged, and showed the sharp line of demarcation described above. A patch test to the denture was strongly positive. She was advised to change to a vulcanite denture. On July 30, 1949, she wrote saying that she "had slight recurrence of the trouble about 12 months ago which quickly responded to treatment. Apart from this I have experienced no trouble whatsoever."

Case 3.—A woman aged 44 was seen on November 22, 1946. She had had cracks at the corners of the mouth for three years continuously in spite of various forms of treatment. She first had artificial teeth in 1938, and had since noticed soreness of her gums from time to time. On examination there were deep cracks at the corners of her mouth, and the mucous membrane showed the changes seen in the other patients. The dentures were made of red vulcanite, and a patch test was strongly positive. She was fitted with "plastic" dentures, and wrote in January, 1947: "I got my new plastic teeth on December 29, and am delighted to say the cracks in my lips have quite gone and my skin is clear. My mouth has lost its soreness and I am free from ulcers."

Case 4.—A woman aged 64 was seen on August 27, 1945. On January 1, 1945, she had an irritable rash on the central part of the face, involving the forehead, nose, mouth, chin, and neck. She also had noticed cracks at the angles of the mouth during this time. She had worn dentures for about 40 years. On examination she had dermatitis of the areas mentioned above, cracks at the corners of the mouth, and marked redness and swelling of the whole of the mucous membrane in contact with the dentures. The dentures were made of black vulcanite with red vulcanite at the gums. Patch tests to the black and red vulcanite, to lipstick, and to face powder were negative. The rash and cracking persisted in spite of treatment, and in April, 1946, she was asked to discontinue wearing her dentures. She left them out only at night, but even with this the condition improved. Eventually she was fitted with a plastic denture, and wrote to me on July 29, 1949, to say that she was perfectly well, with no trace of the trouble.

Case 5.—A man aged 74 had had cracks at the corners of the mouth for about four weeks when seen on October 12, 1948. He had worn dentures for about 30 years. In addition to the cracks there was redness and swelling of the buccal

mucous membrane. A patch test to dentures was strongly positive. He was fitted with "plastic" dentures, and when seen again on March 7, 1949, the cracks had gone and the stomatitis was cured.

Case 6.—A woman aged 39 came to the out-patient department on May 14, 1949, with an infected mole. Angular stomatitis had been present for five and a half years; she had worn vulcanite dentures for about six years, and examination revealed the characteristic redness of the denture-contact area. A patch test when first tried was negative, but when repeated a delayed positive result was obtained. She was fitted with new teeth and the cracks have now healed.

Case 7.—A woman aged 58, seen on July 30, 1949, had had cracks at the angles of the mouth for many years despite many different kinds of treatment. She has worn black vulcanite dentures for 35 years. The mucous membrane showed the characteristic appearance, and a patch test to the denture was strongly positive. She has now stopped wearing dentures and the condition is much better.

Comment

These cases establish the association between denture sensitization and angular stomatitis. It is of interest that all these patients were in the habit of keeping their artificial teeth in at night, and it is reasonable to postulate that such a practice leads more readily to the establishment of a contact sensitization. In view of the numbers of dentures worn this condition is relatively uncommon, but in all the above cases the gum sensitivity was discovered only by direct questioning and examination, so that probably many cases are missed.

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ANALGESIA INHALER FOR TRICHLORETHYLENE

BY

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AND

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(From the Nuffield Department of Anaesthetics, University of Oxford)

Of the births in England and Wales 65% are supervised by midwives (Ministry of Health, 1946). In this circumstance the problem of the relief of pain is of lively interest to nearly half a million mothers a year, but is not easy of solution. The medical practitioner can choose the anaesthetic drug and vary its concentration to meet the requirements of any particular patient at any particular moment. The midwife, however, because of her limited training in anaesthesia, is at present restricted to apparatus set automatically to deliver 50% nitrous oxide and 50% air. This apparatus of Minnitt's (1938) has proved safe, but complaints are common that it is cumbersome, and in some hands the relief from pain it affords is disappointing. This may in some degree be attributable to the fact that the female is not mechanically minded, and gas-and-air apparatus does indeed need a modicum of attention from time to time. Whether more latitude should be allowed to midwives in the way of new apparatus and drugs is a serious question. Increased relief from pain is easily achieved by raising the percentage of any anaesthetic vapour inhaled, but, quite apart from any noxious effect this may have on the foetus, it carries with it the possibility that unconsciousness and its many attendant dangers may be produced in a susceptible patient; and it must be faced that the midwife is not adequately trained to meet such a situation. With this limitation in mind work is being carried out at various centres with the object of providing better relief of pain with apparatus as safe as Minnitt's, which has rendered such useful service for the past 15 years, but more portable and less likely to present technical difficulties to midwives.

There seems to be a widespread opinion that trichlorethylene is a good analgesic agent; when carefully given it affords very considerable relief of pain without markedly impairing consciousness. In 1943 Freedman introduced a small inhaler for trichlorethylene which, under certain conditions at any fixed ambient temperature, delivers a substantially constant concentration of vapour. This inhaler proved highly convenient and successful in some hands—so much so that on the recommendation of the Anaesthetics Committee of the Royal College of Obstetricians and Gynaecologists extensive clinical trials were carried out at various hospital centres to discover whether the apparatus was suitable for use by midwives in domiciliary practice (Royal College of Obstetricians and Gynaecologists Annual Report, 1947). As a result of these trials the committee reluctantly decided that the apparatus was not satisfactory, and this view was supported by laboratory tests which showed that, even if the apparatus is kept still, the concentration of vapour in the inspired air increases by 60% for a temperature rise from 20 to 30° C. Furthermore, marked fluctuations in concentration result from filling, shaking, or tilting the inhaler.

Constant Vapour Concentration

Before discussing the design of trichlorethylene inhalers delivering a substantially constant vapour concentration, the question naturally arises whether any fixed concentration of this drug in air would improve on the relief from pain afforded by the Minnitt gas–air apparatus and yet not be dangerous.

Special trichlorethylene inhalers in which the concentration could be varied at will in accurately known steps were handed over to our colleague Dr. E. H. Seward, and his observations (1949) suggest strongly that: (*a*) A trichlorethylene concentration of 0.5% v/v in air can be inhaled intermittently during labour over long periods. (*b*) After about three hours a slight cumulative effect may become noticeable in some patients. If in these cases the concentration is now reduced to 0.35% v/v this tendency is halted. (*c*) A very large proportion of patients prefer this method of pain relief to that afforded by gas and air.

In the design of apparatus to deliver a constant concentration of vapour of an anaesthetic liquid one of the main difficulties to be overcome is the effect of variation of vapour pressure with temperature. This can be obviated either by keeping the anaesthetic liquid in a thermostat, as for example in the Oxford vaporizer, or by introducing a compensating device which, for any rise in temperature, reduces the amount of vapour leaving the vaporizing chamber. The latter method was adopted by Goodman Levy (1905) in the design of his chloroform inhaler. During the last war this department was asked to produce a dosimetric chloroform inhaler for paratroops. The resultant

E.S.O. (Epstein–Suffolk–Oxford) apparatus also was based on the second method, and utilized a compensating device which reduces the amount of air drawn through the vaporizing chamber when the temperature of the liquid rises. This apparatus stood up to vigorous tests for robustness, and gave satisfactory results both in the laboratory and clinically. Many of the principles of the E.S.O. apparatus have been incorporated in the analgesia apparatus to be described.

A Hand-operated Inhaler

In our search for a constant-concentration inhaler for trichlorethylene analgesia various experimental models were constructed with devices—some hand-operated, others automatic—to keep the inhaled vapour concentration constant despite any changes in temperature of the liquid or the surroundings. Several of these models have given encouraging results in the labour wards of this hospital for the past year. An apparatus with an automatic temperature control has an obvious advantage, but a hand-operated control is more robust and foolproof, and we incline to the belief that it will be more satisfactory in the long run. On this account we confine ourselves at the moment to a consideration of a hand-operated model, a photograph of which is shown in Fig. 1; the diagram (Fig. 2) is intentionally schematic.

When the patient inspires, the non-return valve (NV) opens and air enters through a variable opening (a2) into the trichlorethylene chamber and emerges mixed with vapour; another current of room air is drawn through the permanently open by-pass of fixed size (a1) and dilutes the mixture issuing from the vaporizing chamber. If for a given size of inlet orifice (a2) and for a given temperature the concentration inspired by the patient is 0.5%, any change in temperature would alter this concentration. In order to maintain a constant concentration despite the change in temperature, compensation is effected by making the size of the air port (a2) variable. In the model illustrated the concentration can be kept constant over a temperature range from 12 to 37° C. (54 to 98° F.).

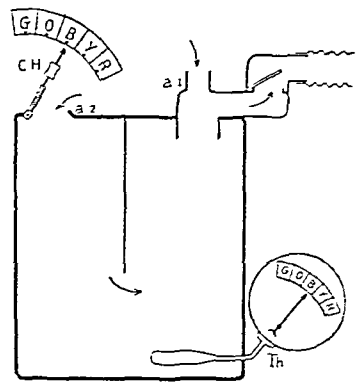


FIG. 2.—Schematic diagram of the apparatus.

On the dial of a metal thermometer (Th) are five equal sectors, each of a distinctive colour; the centres of these sectors correspond to the following temperatures: green 15° C., orange 20° C., blue 25° C., yellow 30° C., red 35° C. The movement of the compensator handle (CH) increases or diminishes the inlet (a2) to the vaporizing chamber, and the compensator handle can be set in any of five positions coloured to correspond with the colours on the five sectors on the thermometer dial (Th).

The apparatus is so constructed that the patient breathes 0.5% trichlorethylene vapour whenever the compensator handle is set to correspond to the sector which contains the thermometer pointer at that time. If, for example, the thermometer pointer lies within the blue sector, the compensator handle has to be set to the "B" mark. It is obvious that at high temperatures, when the thermometer registers in the red field and the compensator handle is set to "R," the inlet (a2) will be at its smallest; when the temperature is low enough to register in the green sector and CH is correspondingly set at "G," the opening (a2) will be maximal.

The heat capacity of the inhaler and heat transfer are such that the temperature of the anaesthetic liquid drops little during use in a room of reasonably constant temperature. If the temperature of the surroundings changes suddenly the internal temperature of the inhaler will follow, but only slowly. In practice, therefore, CH rarely needs to be reset. The statement that so long as CH is set to correspond to the colour indicated by the thermometer pointer the concentration of trichlorethylene vapour will be 0.5% needs but slight qualification. If the thermometer pointer is at the centre of a sector, say B, and CH is set to position B, the delivered concentration will in fact be 0.5%. If the pointer is in the right half of the sector, as shown in the diagram, the concentration will be slightly higher, and vice versa. If the pointer registers at the extreme right-hand side of a sector the concentration rises to 0.55%. However, we believe that in clinical practice such fluctuations of ± 10% in the vapour concentration are of little importance, and in speaking of "constant concentrations" possible variations within these limits are implied. It should be mentioned here that our analyses of vapour–air mixtures were carried out on samples of 2–3 litres.

The mechanism which permits delivery of a "weak" mixture (0.35%) instead of the "normal" concentration discussed so far is not shown in the diagram. It consists of a small disk which when rotated to the "weak" position opens a second air by-pass in addition to the permanent one (a1).

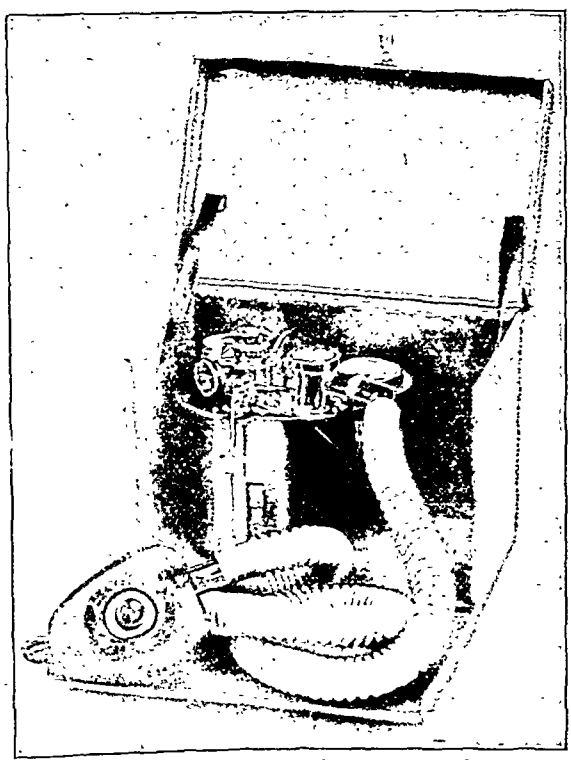


FIG. 1.—Photograph of a hand-operated model inhaler.

Besides changes in temperature other considerations must be borne in mind when designing an inhaler to deliver a fixed concentration of vapour. Unless care is taken, considerable fluctuations result from variation in the depth or rate of breathing. In the various models we have constructed the concentration remains practically constant for a range of respiratory volumes of from 6 to 15 litres per minute at rates from 12 to 30. Overfilling the vaporizing chamber with trichlorethylene is prevented by an overflow. Slow filling which occurs when the filler is at the low level of the overflow is avoided by placing the filler on top of the inhaler. Liquid does not spill to the outside during transport or if the inhaler should fall over. A glass level gauge permits an estimate of the consumption, and indicates by the "full" mark when no more liquid should be poured in. If this is overlooked the overflow comes into action almost at once. One filling is more than sufficient for a long case.

In view of the considerable cross-section of the vaporizer chamber, a special device is incorporated to give a reasonable movement of the level between "full" and "empty" corresponding to 1½ fl. oz. (42 ml.) of free liquid. The concentration of vapour remains constant whatever the position of the liquid level between the "full" and "empty" marks. Moreover, even if the level sinks out of sight, and the inhaler continues to be used, the concentration of vapour remains constant for at least three hours by virtue of trichlorethylene held in wicks. Despite the fact that the inhaler has a clearly visible liquid level—a not inconsiderable advantage—the concentration of vapour inhaled does not rise when the liquid has just been added to the inhaler, nor after the inhaler has been accidentally shaken, turned on its side, or completely inverted. These refinements would be futile if the permanent air inlet (a1) could be blocked, for the inhaler would then be dangerous in unskilled hands: accidental or intentional obstruction of this inlet has been made practically impossible. A feature of the apparatus is its low resistance to respiration compared with gas–air machines; inspiration is therefore more comfortable, and leaks due to an ill-fitting face-mask will be of less consequence in diluting the mixture reaching the patient. The apparatus is easily portable and weighs 11½ lb. (5 kg.) complete in its transit case, measuring 11 by 7 by 8 in. (27.5 by 17.5 by 20 cm.).

Some Practical Points

In using the inhaler care must be paid to three elementary points: (1) see that the liquid level lies between "empty" and "full"; (2) set the compensator handle to the colour indicated by the thermometer pointer; (3) if drowsiness or uncooperativeness should manifest itself the small disk previously referred to should be turned from "normal" to "weak," thus reducing the inhaled vapour concentration from 0.5 to 0.35% v/v.

It is unlikely that attention will have to be paid to any of these points during the course of an average labour. A very occasional glance at the thermometer pointer and control handle to confirm that the colours still coincide, and a look at the level gauge to see that it contains liquid, are all that is necessary. Movement of the non-return valve underneath its glass dome shows that the face mask fits reasonably well.

We are indebted to Imperial Chemical Industries Limited for a generous grant to meet laboratory expenses, and to our obstetrical colleagues in the United Oxford Hospitals for their willing co-operation. The apparatus in question can be obtained from the Medical and Industrial Equipment, Ltd., 12, New Cavendish Street, London, W.1, who contributed their usual enthusiasm and skill in production.

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Medical Memorandum

Recovery from Botulism

Botulism is a rare condition in this country and has a very high mortality. All of the eight affected persons succumbed in the Loch Maree outbreak of 1922. The mortality is generally considered to be at least 50%.

CASE REPORT

A woman aged 33 had an evening meal of canned tongue shortly after Christmas, 1948. The tin appeared normal, and the contents, which received no further cooking, had no unusual taste. In the early hours of the next morning she awoke with severe headache and nausea, followed by profuse vomiting. In spite of feeling very ill, she got up and went for a drive with her husband. She continued to vomit intermittently throughout the day. On returning home she found that her face was crooked and drawn to the right side. The same night the vision in the left eye was misty and swallowing had become difficult; fluids were regurgitated through the nose. For the next few days she remained in bed with mild pyrexia up to 100° F. (37.8° C.) and continued to vomit. Constipation was severe. On getting up after ten days she noted some weakness of the left leg. The difficulty in swallowing and in using the left eye persisted.

I first saw the patient on February 19, 1949, seven weeks after the onset of symptoms. The condition had not been diagnosed at the onset and consequently no antitoxin had been administered. The following signs were present: moderate dilatation of the left pupil, which was active to light but inactive on accommodation and convergence; slight left-sided ptosis; and complete paralysis of the left masseter, temporal, and pterygoid muscles. There was no facial anaesthesia and the corneal reflex was present. The left facial muscles were completely paralysed, with the exception of the orbicularis oculi, in which there was a faint contraction. Taste was normal on the left, but there was hyperacusis in the left ear. Both sides of the palate were weak. Examination of the limbs showed no abnormality other than a moderate weakness of the dorsiflexors of the left foot. The superficial and deep reflexes were normal, and there was nowhere any change in cutaneous or deep sensation.

Twenty-four hours after eating the suspected meat the patient's daughter had an attack of vomiting which continued for two days. There was no involvement of the nervous system. The patient's husband, who also ate the same meal, was unaffected.

The history of gastro-intestinal symptoms occurring a few hours after the ingestion of tinned meat and followed by paralysis of cranial nerves some hours later is characteristic of affection by the toxin of *Clostridium botulinum*. The site of action of this toxin is uncertain, but its action is probably peripheral (on the motor-nerve endings in striated and non-striated muscles) rather than central, and this theory is borne out by the absence of reflex or sensory disturbance and the ultimate complete recovery in those patients who survive the initial acute phase (Dickson and Shevky, 1923; Cowdry and Nicholson, 1924).

DAVID KENDALL, D.M., M.R.C.P.

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Reviews

THE THYROID

Pathology and Surgery of Thyroid Disease. By Joseph L. De Courcy, M.D., and Cornelius B. De Courcy, M.D. (Pp. 476; illustrated. £2 10s.) Oxford: Blackwell Scientific Publications. 1949.

Two distinguished members of the clinic at Cincinatti, Ohio, which bears their name have added yet another to the long list of recent monographs on thyroid disease and surgery. It is in most respects a thorough survey of the subject, based on experience of some 15,000 thyroid operations done over a period of almost 30 years.

The authors express a number of more or less original opinions on various topics, and these must be heard with respect. They claim, for instance, to be the originators of the view that the beneficial action of Lugol's solution in the pre-operative treatment of toxic goitre is chiefly due to a mechanical effect; the rapid storage of colloid in the vesicles of the gland produces, they say, a temporary state of pressure within the gland with a consequent oedema and limitation of the blood supply. Within a short time the effect is lost because the circulation in the gland returns to normal with adjustment to the changed state. In their survey of the physiology and pathology of the thyroid the authors emphasize the part played by the reticulo-endothelial system of the liver in the regulation of the iodine content of the blood, and discuss the value of blood-iodine estimations in diagnosis and treatment. The value of thiouracil treatment is, of course, fully discussed, and like most other unbiased observers they conclude that the chief value of these compounds is in the pre-operative preparation of the patient. The possible uses of radio-iodine are also described, but its limitations and dangers seem at present, at the De Courcy Clinic, to outweigh its virtues. The use and control of this dangerous weapon are indeed still in an experimental stage.

The difficult question of the aetiology and relationship of the two conditions known as Riedel's thyroiditis and Hashimoto's disease is fully considered, and the authors are inclined to regard them as separate clinical entities. They advance the theory that Riedel's thyroiditis begins as an inflammation outside and around the gland—a peri-thyroiditis, with fibrosis spreading into the gland from the periphery. Although the process certainly seems to affect the surrounding tissues, this explanation is unlikely to satisfy pathologists. The origin of the peri-thyroiditis is in any case left unexplained.

In this comprehensive survey the technique of thyroid surgery is given a relatively small space. It is interesting to note that the authors do not ligate the inferior thyroid artery, because they believe that the procedure "entirely destroys the blood supply of the parathyroid bodies and encourages the development of tetany." This view is contrary to the experience of most thyroid surgeons, and it is surprising that the bogy should still have any influence. The "enucleation" of thyroid adenomas from within the gland is also a procedure usually regarded as long outmoded.

A curious defect in the book is the very perfunctory account of cardiac disease in relation to thyroid surgery. The use of quinidine in the post-operative treatment of auricular fibrillation appears to be unknown to the authors, and far greater reliance is placed on the use of digitalis than would seem to be warranted by recent experience in Great Britain. A most interesting view, however, is expressed concerning the administration of desiccated thyroid gland for at least three months after thyroidectomy for toxic goitre. The authors believe that this will almost invariably prevent any recurrence of hyperthyroidism by putting the remainder of the gland entirely at rest. They even describe the history of a patient with severe toxic goitre who was cured by the administration of dried thyroid tissue without any surgical treatment at all. This subject needs further investigation.

Though not without defects, the book is interesting to read and most suggestive to any thyroid surgeon who looks beyond the mere technique of his craft. It is fully supplied with references at the end of each section.

GEOFFREY KEYNES.

VISCERAL PAIN

The Mechanism of Abdominal Pain. By V. J. Kinsella, F.R.C.S., F.R.A.C.S. (Pp. 230. £1 12s. 6d.) Sydney: Australasian Medical Publishing Company. *1948.*

The author is a distinguished Sydney surgeon who for many years has devoted himself to a study of the problems of abdominal pain. He is scientifically minded, well informed, and a keen and painstaking observer; this review of his findings will be read with profit by both clinicians and physiologists. Mr. Kinsella might well have given additional space to a more detailed account of his original observations and less to a consideration of the views of the classical writers like Ross, Lennander, Head, Wilms, Mackenzie, and the rest, whose theories and concepts have in the main outlived their usefulness and now tend to cripple fresh thinking on the subject. Some of Mr. Kinsella's own theorizing—for instance, on referred pain, visceral neuroses, the "rule of superior location," and cutaneous hyperalgesia (the last partly based on an excursion into comparative anatomy)—seems to outrun our knowledge of the facts. But the rest of the book is of high value. The historical outline is illustrated by plates from the works of Vesalius, Eustachius, and Willis which put many of the figures in our modern books to shame.

The author emphasizes that the clinical study of pain is beset with difficulties and pitfalls. Pain is not just a simple sensation like muscle sense—it is accompanied by varying degrees of feeling-tone and drives. "Patients' fear and anxiety may cause the stimulation of pain or an exaggerated reaction to slight pain. The method of questioning, either the tone of the voice or the words used, may influence the patient both as to the presence and absence of pain, its degree, and its situation. A question may set the patient on edge and arouse his apprehension." A leading question may be indispensable to elicit information, but it may call forth a misleading reply. In surgical studies under local anaesthesia the patient's imagination is apt to conjure up fearsome pictures and to anticipate much suffering, and he may reply to questions in a manner calculated to safeguard himself from pain. A local anaesthetic may produce general effects: thus cocaine induces euphoria and damps down unpleasant reactions. The administration of morphine tends to suppress the slighter pains. Mr. Kinsella describes in detail his technique for operating and questioning under local anaesthesia. It may be added that once a pain is gone it is hard to recall accurately and fully; a pain "recollected in tranquillity" is merely an intellectual and emotionless simulacrum of the real experience.

The afferent innervation of the abdominal viscera is very sparse. Langley has calculated that all the afferent fibres from the viscera of the cat equal in number those in one posterior nerve root; it might be added that the fibres in all the posterior nerve roots equal in number those in the optic nerve. The visceral afferents are probably non-

medullated and finely medullated like those coming from the skin. Mr. Kinsella quotes John Hunter very aptly—"for distinct sensation, two things are necessary, namely, time and space." To arouse a sensation an adequate number of impulses must reach the brain in enough fibres over a given time to permit of "central spatial and temporal summation." In testing visceral sensibility one must therefore stimulate an adequate portion of a viscus sufficiently vigorously. There is also a great difference between the sensibility of a normal and an inflamed viscus.

These considerations may account for the discordant findings about visceral sensibility. Thus, squeezing with fingers or forceps, or stitching, cutting, or clamping the healthy appendix or caecum arouses no pain. When the appendix is inflamed squeezing it along a considerable part of its length produces pain. Wolf and Wolff similarly found that pinching the gastric mucosa or rubbing it with the blunt end of a glass rod is painless except when the stomach is inflamed and oedematous. Other observations by Kinsella on the large intestine and cervix uteri seem to prove that afferent impulses arising from certain viscera may give rise to pain—i.e., there is so-called true visceral pain. The pain fibres in the mesentery arise mainly in the gut wall itself; it is easier to produce pain by stimulating the mesentery than the gut, because in the former the fibres are concentrated in the vicinity of blood vessels while in the latter they are sparse and widely distributed. A localized stimulus applied to the gut will stimulate fewer fibres than one suitably applied to the mesentery, especially in the neighbourhood of its blood vessels. From what is known about the properties of pain fibres elsewhere it is likely that the visceral pain fibres will respond to a wide range of stimuli having in common the property of nociception. In states of inflammation the altered blood supply, oedema, and the presence of abnormal chemical products may facilitate the reaction of the pain fibres to appropriate stimuli.

Evidence is produced that the posterior pelvic peritoneum, especially over the right iliac fossa, is less sensitive than the anterior peritoneum to painful stimuli. This observation helps to explain why a retrocolic or retrocaecal inflamed appendix commonly gives rise to less pain than the normally placed organ. Mr. Kinsella discusses the mechanism of pain in peptic ulcer at some length, but no convincing conclusion emerges.

It would be well if clinicians bore in mind the limitation of physiological knowledge about pain mechanisms in general. Some account can be given of the properties of pain fibres and the course of the pain impulses from the periphery as far as the thalamus, but beyond that point our knowledge is meagre. We do not know what part of the brain is responsible for mediating either the sensation of pain or its emotional accompaniment. Stimulation of the postcentral cortex, or for that matter of any other part of the cortex, is painless. There is, however, some evidence from the results of prefrontal leucotomy that the prefrontal cortex or prefrontal-subcortical areas may be somehow concerned with the feeling-tone. Nothing is known with certainty about the way in which skin pain is normally localized with considerable accuracy. It is hardly surprising, then, that we should not know why pain of visceral origin is inaccurately localized, projected to somatic areas, or sometimes accompanied by cutaneous hyperalgesia. It is to be hoped that Mr. Kinsella and other surgeons with similar gifts and opportunities will continue to collect and record accurate studies of patients—perhaps leaving the grand generalizations to emerge gradually in their own good time in the future.

SAMSON WRIGHT.

THE FUNCTIONS OF PSYCHIATRY

Psychiatry. Its Evolution and Present Status. By William C. Menninger, M.D. (Pp. 138. 11s. 6d.) London: Geoffrey Cumberlege. 1948.

This volume of Messenger lectures founded to "share knowledge on the evolution of civilization" describes man's mental reactions and their influence on society. After early neglect psychiatry has now assumed a wide popular appeal in the U.S.A., largely because 2,000,000 young men were rejected from war service on account of personality disorders and 700,000 were discharged as unfit on this account.

The lectures begin with a brief historical survey of the rise of psychiatry and reflections on the imperfections in the teaching of this subject in relation to medicine at the present time. There are signs, however, that it is now beginning to be more effectively integrated with general medicine. The first lecture concludes with a discussion of the relationship of psychiatry with psychology, social science, anthropology, and religion.

The second lecture gives an account of psycho-analytic psychiatry under four headings—the psychosexual stages of development, the anatomy of personality in terms of the conscious and unconscious, personality physiology in terms of the id, ego, and superego (which are reasonably lucidly explained, though the concept still remains difficult to the non-technical reader), and some examples of the defence mechanisms used by the ego to maintain its equilibrium.

The third section is on psychiatry and the social order, and what can be done to improve human relationships in the post-war world. Often in mental stress a change in the environment is as important as a change in the personality, and psychiatry may show how the environment can be most wisely changed. Knowledge can only be gained by an intense study of the reaction of the individual to his environment. The importance of the family is stressed, and the increasing disturbance of family life is ominous. Disturbances in community life seem to be increasing, due to prejudices, hostilities, and such factors as housing shortages.

The prevention of mental illness is still in a backward state, though mental hygiene is making progress. The training of leaders and the instillation of the proper motivation and a spirit of service are essential to the welfare of the human race, and psychiatry can certainly contribute to these ends. These three lectures cover a vast field, but they are clear and sensible and well worthy of study by both medical and lay readers.

R. G. GORDON.

ENDOCRINOLOGY IN BRIEF

The Value of Hormones in General Practice. By W. N. Kemp, M.D. (Pp. 115. $3.) Minneapolis: Burgess. 1949.

This work describes itself as "prepared for the express purpose of assisting general practitioners in the fullest possible utilization of the many pharmaceutical hormonal preparations now available." It is not prepared in book form, but consists of cyclostyled typewritten sheets bound with wire rings. There are no illustrations (a disadvantage in a book on endocrinology), neither is there an index: there are numerous typing errors.

It is on matters of treatment that the book is least helpful. For example, Simmonds's disease (which responds well to testosterone and other hormones) has no treatment mentioned at all. Cushing's syndrome is also left devoid of therapy, and no mention is made of the adrenal, pituitary, basophil, ovarian, or thymus tumours that can cause it. The dose of thyroid for myxoedema is not specifically

mentioned except for the statement, "Forty-five grains (3 g.) of thyroid extract is the theoretical daily requirement of an adult with comp'ete athyrosis . . . smaller clinical doses are the rule," which might lead to overdosage. In connexion with pituitary dwarfism we are told, "Therapy is fairly satisfactory . . . a potent growth hormone should be administered daily . . . a growth rate considerable [*sic*] in advance of normal is desirable." Perhaps that will be true one day, but it is not true yet. The treatment of Addison's disease is quite well described, but the information that "all the thirty-nine vitamins should be present in the diet" might frighten readers that something awful would happen if they only managed to include thirty-eight. The poor balance of the book can be illustrated by there being only eight lines about the treatment of thyrotoxicosis, whereas there is more than twice that amount written about the prevention of neonatal death among sheep.

A heavy style makes the reading matter less digestible than it should be. A child, instead of being called "debilitated" or "poorly," is described as being "under a strain from concomitant biochemical or bacteriological influences"; and it would be easier to read, "Reduce the dose," instead of, "A downward revision of the dosage regimen is indicated." Though parts of the book are reasonably accurate and informative, as a whole it can hardly be recommended as a useful guide for students or practitioners of endocrinology.

RICHARD ASHER.

GUIDE TO CHEMOTHERAPY

The Sulphonamides in General Practice. By Edward D. Hoare, M.D. (Pp. 90. 5s.) London: Staples Press. 1949.

The preface to this book states that it is intended for the general practitioner, and that it attempts to indicate briefly the conditions under which sulphonamides will be valuable and the dangers which may attend their use. In addition, the relative merits of sulphonamides and penicillin are briefly discussed. The book is adequate for this purpose, and it sets out in brief, simple language most of the information which the general practitioner requires. The main principles of sulphonamide therapy are now so well established that it is not possible to be original on the subject without becoming unsound; and, if some of the statements made seem platitudinous, this is because they repeat many of the recommendations given in various previous books on this subject (although no acknowledgment is made to these sources). The book is briefer than the M.R.C. Memorandum on the sulphonamides and it contains up-to-date minor details. The arrangement of the specific infections according to whether they are more, equally, or less susceptible to sulphonamides than to penicillin is somewhat confusing. There are a few minor misprints which are disfiguring rather than important. The book can be recommended as a concise elementary guide.

F. HAWKING.

Modern Discoveries in Medical Psychology, by Dr. Clifford Allen (pp. 236; 12s. 6d.; London: Macmillan, 1949), is the second edition of a book published twelve years ago with the object of explaining in simple language the theories and practice of medical psychology to general practitioners and students. It says much for the generation of psychiatrists, as they would now be called, of which the author is a distinguished member that such a book is much less necessary now than when the lectures on which it was founded were first delivered. Nevertheless, it is still interesting and affords us a good review of the development of the treatment of mental illness, especially psychoneurosis, which has taken place in the last half-century. Some remarks which were no doubt apposite when first written now seem out of place and might well have been omitted—for example, few contemporary neurologists seek to find a cerebral localization for hysteria.

BOOKS RECEIVED

[Review is not precluded by notice here of books recently received]

The British Pharmaceutical Codex, 1949. (Pp. 1,562. 63s.) London: The Pharmaceutical Press. 1949.

Handbook of Materia Medica, Toxicology, and Pharmacology. By F. R. Davison, B.A., M.Sc., Ph.D., M.B. 4th ed. (Pp. 730. 60s.) London: Henry Kimpton. 1949.

The Adrenal Gland. By F. A. Hartman, Ph.D., and K. A. Brownell, Ph.D. (Pp. 581. 60s.) London: Henry Kimpton. 1949.

Human Helminthology. By E. C. Faust, A.B., M.A., Ph.D. 3rd ed. (Pp. 744. 50s.) London: Henry Kimpton. 1949.

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THE USES OF STREPTOMYCIN

Streptomycin is now freely obtainable in this country, and the profession as a whole is consequently in a position to make valuable use of it. At the same time there are possibilities that this expensive and by no means harmless drug may be either wasted or used in such a way as to do positive harm, and therefore its properties and indications should be kept under careful review. Streptomycin, like penicillin, is usually administered by intramuscular injection, and for most purposes, owing to its slower rate of excretion, two daily doses suffice. There is no streptomycin equivalent to procaine penicillin, with a therapeutic effect lasting 24 hours or more, though a single daily dose has sometimes been used. Unlike penicillin, its dosage has to be kept within strict limits if serious toxic effects are to be avoided: the most notable of these is on the eighth nerve, causing vertigo and disturbance of position sense and even deafness, either of which may be permanent. It is in fact a much more harmful and also a less potent chemotherapeutic agent than penicillin, and would find no place in therapeutics but for the fact that it acts on many bacteria against which penicillin is powerless.

Foremost among these is the tubercle bacillus. Much could be written about the indications for using streptomycin in tuberculosis, but they depend on two principles which can be expressed shortly. One is that the more acute the disease the greater is likely to be the effect. This probably has much to do with the fact that in the early stages of any rapid extension of the disease the bacilli are more accessible to a drug reaching the affected area through the blood: large areas of tissue have not undergone caseation and so formed a mass remote from any blood supply and therefore partially or wholly impenetrable by the drug. The strongest indications for streptomycin therapy, both on this ground and of course because they are otherwise fatal, are the miliary form of the disease and tuberculous meningitis. Rapidly extending pulmonary infiltration and ulcerative tracheo-bronchitis also call for streptomycin treatment. But when it is contemplated in a more chronic case, whether of phthisis or of the disease elsewhere, the object should be clearly defined and streptomycin administration specifically related in time and intention to other treatment, particularly surgical. Thus in advanced phthisis with extensive cavitation streptomycin may sufficiently improve the condition to make possible a thoracoplasty which could not have been undertaken before, but it should not be used until plans for this have been completed. It may be very difficult to resist the demands of patients and relatives for the new "wonder drug," but if these demands are infrequently resisted and treatment of tuberculosis with streptomycin becomes at all indiscriminate the ultimate effects will be disastrous. A warning to this effect was given in the letter of Dr. B. Couts published in a recent issue (October 22, p. 933). The fact to be borne constantly in mind is that only one chance is usually given of killing any particular tubercle bacillus with this weapon. In the majority of patients bacilli surviving at the end of a course of treatment are found to be resistant to the drug, and remain so indefinitely. This change precludes the further treatment with streptomycin both of that patient and of anyone else whom he may infect. Several instances of infection with streptomycin-resistant bacilli in contacts of treated cases have already been observed in the United States. It is unfair to the whole community to use streptomycin in patients with open tuberculosis unless for good and well-defined reasons. The decision to use it is emphatically one for the expert only.

The other uses for streptomycin are almost all included in a category which can be defined only in bacteriological terms—infections due to Gram-negative bacilli, the majority of which are little affected by penicillin. These are numerous, but some of them are either unknown in this country or uncommon. It is in tularaemia that streptomycin has had perhaps an unqualified success, but in this country we cannot exploit its usefulness either in this disease or in plague. Its disappointing effect on enteric fever is difficult to explain, but fortunately another antibiotic, chloramphenicol, has a remarkable action in typhoid.[1] Given with sulphadiazine, streptomycin will cure brucellosis, but the same effect can be achieved more simply and safely with "aureomycin." Among uncommon conditions in which streptomycin is indicated are *H. influenzae* meningitis, pneumonia due to Friedländer's bacillus, and either septicaemia or meningitis caused by such organisms as *Proteus* or *Ps. pyocyanea.*

What are the commoner conditions, other than tuberculosis, in which streptomycin may be called for? They fall into three categories—certain intestinal infections, infections of the urinary tract, and some conditions due to penicillin-resistant cocci. When streptomycin is swallowed it is neither absorbed nor destroyed, but acts as a remarkably efficient intestinal antiseptic. It undoubtedly has a beneficial effect in

[1] *British Medical Journal*, 1949, 2, 918.

bacillary dysentery, and possibly in *Salmonella* infections other than enteric fever. Its action in infantile gastro-enteritis is a subject of controversy, possibly because there is more than one cause. It may be said that this type of use is justified only in severe cases which have been investigated as fully as possible. Most bacillary dysentery seen in this country is too mild and self-limited to deserve so costly a treatment. In ulcerative colitis streptomycin is useless. Urinary-tract infections are a different matter: owing to their frequent intractability the controlled use of streptomycin is fully justified. Whether such control is practicable outside a hospital is exceedingly doubtful. Urological investigation is first necessary to identify any underlying cause: no drug can be expected to eliminate infection in the presence of obstruction or a calculus. Examination of the urine should include determination of the sensitivity of the organisms to streptomycin and possibly to other drugs which merit trial first. It is then necessary by medication to render the urine consistently alkaline, since streptomycin is relatively inactive in an acid medium. Finally, the drug has to be given intramuscularly, and preferably—though there is singularly little information on this important point—three times a day at least. Even when such care is taken treatment with streptomycin sometimes fails, usually because some underlying cause has not been eliminated. How often, then, is success to be expected from a few intramuscular injections given optimistically to an ambulant and incompletely investigated patient? Laboratory and often other hospital facilities are also required for the investigation and treatment of the third group of infections which may be benefited by streptomycin: coccal infections normally responsive to penicillin but sometimes resistant to it. The majority are staphylococcal, though streptomycin may have a use in certain streptococcal infections. It has even been used in the treatment of penicillin-resistant bacterial endocarditis.

There are thus comparatively few conditions in which streptomycin can justifiably be used for a patient outside a hospital. Within hospital, though indications may be more numerous, the grounds for administration should be well ascertained and weighed. This warning is called for not merely because the production of streptomycin even in England means dollar expenditure, and waste is therefore the worst form of extravagance, or even only because the drug is potentially dangerous: the strongest objection to indiscriminate use is that already mentioned in connexion with tuberculosis—that unsuccessful treatment renders the organism completely resistant. The tubercle bacillus rarely acquires this property in less than about six weeks. Other bacteria, multiplying at a far greater rate, can acquire it within a few days or even overnight. The trial of streptomycin for a urinary tract infection, for instance, without proper safeguards can do a patient irreparable harm by placing him out of reach of even properly controlled treatment later. In time, no doubt, resistant bacteria of other species than the tubercle bacillus will be transmitted from person to person, and infections in untreated patients will be found totally resistant at the outset. It is even possible that the use of the drug will have to be altogether abandoned on this account in the not far distant future. Fortunately there is no other antibiotic or drug of any kind to which such high resistance can be acquired so rapidly, just as there is no other which can become an essential nutrient for an organism on which its previous action was destructive. This almost ludicrous transformation is now fully substantiated and known to occur in many species, including the tubercle bacillus. Nothing illustrates more clearly than this how fragile a weapon streptomycin is and how ill-defined is the boundary separating good from harm in its effects. Doctors possess in streptomycin something quite peculiar and not to be regarded in the same light as any other drug. It should be reserved for use only on the clearest indications and under the closest observation. Every patient treated unsuccessfully brings nearer the day when no patient will be able to be treated with streptomycin at all.

RECRUITMENT OF MEDICAL OFFICERS

The recommendations of the Spens Committees are exerting their influence far beyond the terms of reference that the committees considered. Organizations outside the Health Service competing to employ medical men—such as the universities, the armed Forces, and industrial firms—are finding that they must offer terms at least as attractive as those offered within the Health Service. Though it is doubtful whether remuneration in the Health Service fulfils the Spens recommendations in terms of the present value of money, a number of universities have found it necessary to increase the salaries paid to medical men, and the British Medical Association has made out a strong case that the armed Forces should do likewise.

Recruitment of regular medical officers to the Army, which is at an exceedingly low ebb, suggests that the financial terms offered must be improved if the Army is to be able to attract sufficient doctors, and there is reason to believe that that view is held in the War Office. The decline in recruitment can be accounted for in part as an inevitable post-war phenomenon. Research at the War Office has shown that recruitment has always fallen off after great wars, including the Crimean War, the Boer War, and the two world

wars. Though the total number of medical officers in the Army is at present sufficient for the establishment of 1.5–1.75 per thousand population at risk (which does not comprise only British troops), the number of regular medical officers is slightly below strength, and that of short-service officers is just over 60% below. The total numbers are likely to fall to about 10% below establishment by next January. The deficiency of regular officers is at present made up from National Service officers, whose work is highly praised at the War Office; they constitute about 50% of the total. This flow cannot continue in sufficient volume, for the shortage of vacancies in medical schools induces a considerable number of students to do their National Service before starting a medical course, so that they are not available to be conscripted as medical officers when they have completed it.

Specialists are particularly scarce, and the Army has recently advertised for civilian specialists at salaries that are distinctly attractive compared with those paid to medical officers, as correspondents to this *Journal* have pointed out. It is of interest to record that no specialist was appointed as a result of that advertisement, but so great is the need for them that the Army will probably continue the policy, as a temporary measure, of offering appointments to civilians. The Armed Forces Committee of the Association has considered whether it should recommend refusal of this kind of advertisement, but decided not to do so—at least for the present—in view of the Army's urgent need. It may take a different view if the Government fails to solve the Army's problem. Meanwhile many opportunities are given the regular officer to gain special experience and higher qualifications. They include study leave and work at suitable training centres, and the short-service officer is also encouraged to specialize. In all, about one-third of the regular and short-service officers are trained in this way.

The Ministry of Defence is now considering the B.M.A.'s proposals[1] for new scales of pay in the three Services. The increases proposed as a minimum range from 3s. a day in the lowest ranks to 27s. in the ranks of surgeon-captain, brigadier, and air commodore, with smaller increases in the ranks higher than those. The Government's reply is expected shortly, but the Ministry has already notified[2] the B.M.A. that remuneration of personnel in the armed Forces is decided by the Government, and that negotiations with bodies representing any section of the Forces have never been undertaken, since they would be incompatible with Service discipline. This attitude seems more calculated to frighten than to inform, for the Ministry can hardly be expecting the Association to incite its members in the Forces to sedition. No objection can be taken to the analysis of evidence and the preparation on it of a carefully reasoned case, particularly when the adoption of the Association's proposals is likely to encourage recruitment and thereby benefit the medical arms of the Services.

Though the country is in difficult circumstances economically there is no evidence that the Government intends to allow the Forces to fall below the strength vitally necessary for defence, nor would the nation allow it to do so. Further economy in medical man-power would seem to be impossible. Overlap between the three Services has already been largely eliminated; in small stations one of the Services is normally responsible for the medical care of personnel from all three, and at home the Forces co-operate with National Health Service hospitals and practitioners. The Government must therefore offer attractive terms if it is to fulfil its duty of providing adequate medical care of the armed Forces.

[1] *British Medical Journal Supplement*, April 2, p. 204.
[2] Ibid., September 17, p. 137.

ANAESTHETIC EXPLOSIONS

The risk of anaesthetic explosions should by now be well known in view of the attention it has received in recent years. In his review of the literature some four years ago Cole[1] was able to list 70 papers on this subject. They ranged from brief accounts of simple accidents in which only the doctor was damaged[2] to Greene's analysis of 230 anaesthetic fires and explosions.[3] Yet every year there are a number of anaesthetic explosions, many of which must needs be reported to the coroner. Every junior anaesthetist and probably most medical students know that the common inhalation anaesthetics used in this country—ether, cyclopropane, and ethyl chloride—are inflammable, and when mixed with oxygen explosive. Everybody knows that heat, or a spark, or a naked flame is needed to touch off an explosive mixture. It might thus appear that explosions would never occur in operating theatres, for who but the completely uninitiated would bring an explosive vapour and a source of ignition together? Yet this is what happens only too often. Two anaesthetic explosions have been reported this year[4]; many explosions in which there is no loss of life go unrecorded, though doctors, nurses, and onlookers may

[1] *Surgery*, 1945, 18, 7.
[2] *British Medical Journal*, 1892, 2, 1457.
[3] *Anesthesiol.*, 1941, 2, 144.
[4] *British Medical Journal*, 1949, 1, 117.
[5] Ibid., 1949, 1, 244.
[6] *Amer. J. Surg.*, 1945, 69, 89.
[7] Beckett, J., *Irish J. med. Sci.*, 1946, 6, 656.
[8] Leech, B. C., *Canad. med. Ass. J.*, 1947, 56, 28.
[9] *British Medical Journal*, 1936, 1, 74.

receive injuries varying from singed hair to the loss of an eye from flying glass. The patient may be spared or may suffer fatal blast injuries of the respiratory tract.

The dangers of static electricity, which was responsible for one of these two explosions,[5] are not yet generally appreciated. These electrical charges accumulate quickly and easily on insulated objects in an operating theatre. Complacency about static electricity was produced by a once common teaching that this phenomenon occurred only in countries with a very dry climate. We know better now, and even on the dullest, dampest day a little effort in an operating theatre in smartly pulling a blanket across the top of a theatre trolley will produce a spark when a finger is held about one-sixteenth of an inch away from the metal top of the trolley. The same effect may be obtained when an anaesthetized patient wrapped in one or more blankets is lifted from a trolley to the operating table. For this reason Waugh and Bond[6] recommend that woollen blankets should never be used in the operating theatre. These static charges may be dispersed or prevented from accumulating if certain simple precautions are adopted, one of which is the fitting of earthing chains dangling on the floor to every insulated movable object in the operating theatre. Surgeons and anaesthetists become insulated movable objects when they wear rubber-soled boots and shoes; all such footwear should have soles of conducting rubber, and boots of this sort are now obtainable. When the humidity of the theatre is kept as high as is compatible with working comfort the accumulation of static electricity is again less likely to occur.

Obvious sources of ignition abound in operating theatres. There are such old offenders as the sparking diathermy needle, and even the apparatus itself may be a danger, particularly when spark gaps are visible through a perforated metal case. These things must obviously be avoided in the presence of explosive vapours. Less well known is the risk associated with endoscope bulbs, which are so often overloaded because the surgeon wants more light. Ether vapour can be ignited by a temperature as low as 172° C., and these little bulbs may become very hot. Such a bulb may also break, with the momentary exposure of a white-hot filament. A simple device fitted to the voltage reduction apparatus will prevent their being damaged by overloading. Endoscopic instruments should also be inspected regularly to ensure that the lamp and the lamp-holder fit perfectly; a defective contact at this point may be responsible for touching off an explosive anaesthetic mixture.[7]

Less obvious sources of ignition are numerous and cannot all be tabulated here. Surgeons often use appliances like electrical saws, drills, cauteries, and lights without considering whether these instruments are safe or otherwise from the point of view of setting off an explosion. No such device should be introduced into the theatre until it has been approved by a trained physicist or an engineer who could say whether or not there is danger of an explosion when the instrument is in use. In the same way an expert electrician should inspect regularly the switches and plugs in operating theatres. Loose connexions and deficient earth connexions can then be made good. It is perhaps hardly necessary to state here that open-flame sterilizers should never be used in theatres and anaesthetic rooms. Much has been written about all these and other precautions. Were they all adopted explosions would be very rare. But lack of awareness on the part of surgeons, anaesthetists, hospital administrators, and theatre sisters still continues. The surgeon who enters the anaesthetic room with a cigarette at his lips would not be welcomed in any factory where there was the same risk of explosion, and there are certainly some anaesthetists who would regard such conduct as "entirely inexcusable."[3] When an obvious source of ignition must be present expert anaesthetists can usually administer satisfactorily a non-inflammable anaesthetic. Thus in one explosion the diathermy needle was applied near the pleura in a patient who had recently had a pneumonectomy. The possibility of a bronchial fistula being present in such a case is well known, and the use of an explosive mixture like cyclopropane and oxygen in these circumstances is surprising. Chloroform, thiopentone, nitrous oxide, and curare, all non-inflammable, are commonly employed in thoracic centres all over the world, and it seems that in this instance the use of one of these might have prevented the explosion. In cases of this kind the diathermy point and the explosive vapour may be separated only by thin pleura and the surgeon's steady hand. It is by no means certain that the risk attached to non-explosive anaesthetics in such cases is greater than the risk of explosion.

Anaesthetic explosions continue to occur despite all the publicity that has been given to the subject in the medical literature and in the newspapers. It should perhaps be considered whether the precautions now generally accepted should not be made a legal responsibility of hospital authorities and of those working in operating theatres. Thus, deaths resulting from their non-observance might at least raise the possibility of salutary penalties. Interest in the prevention of explosions would then be given new impetus. When the Ministry of Health issued a memorandum[9] on this subject before the war it had to be addressed to medical officers of health and local authorities. The Ministry is now more intimately concerned than ever before with hospital activities, and might perhaps be stimulated to consider again the problem of anaesthetic explosions and the avoidable deaths which are caused thereby.

MALIGNANT HYPERTENSION

There is a growing conviction that malignant hypertension is a form of primary hypertension not preceded by structural renal damage but causing it. This is a result of careful clinical and histological studies of early cases, and recently Byrom and Dodson[1] have put forward experimental evidence which gives further support to the theory. In malignant hypertension acute focal necrotic lesions occur in the terminal arteries and arterioles of many organs, especially in the kidney, where the glomerular vessels are affected and tubular changes develop. Byrom and Dodson studied the onset of this acute necrotizing arteritis in the hypertensive animal and demonstrated the aetiological importance of increased intravascular tension: neither uraemia nor "toxic" absorption from damaged renal tissue was a necessary or constant precursor. Other writers consider that the characteristic arterial necrosis will not occur unless renal abnormalities are present—despite the finding of such necrosis in the early stages of the natural disease in patients with otherwise clinically and histologically healthy kidneys. Some even believe that the renal factors alone are concerned and that increased intravascular tension is not.

In their first series of experiments Byrom and Dodson used the Goldblatt technique to produce hypertension in eight young rats. The left kidney was rendered ischaemic by constriction of the left renal artery with a cotton thread ligature; the right kidney was undisturbed. The animals were killed after periods of 3, 7, 10, 14, and 17 weeks, during which time the systolic blood pressures were recorded. In every animal some atrophy of the ischaemic kidney was found, but no arterial lesion. There were necrotizing arterial lesions in the intact (right) kidney of six rats and in the heart, mesentery, brain, and spleen in a similar number. The finding by Schroeder and Neumann[2] and Patton and his colleagues[3] of necrotizing lesions in both kidneys can be explained as the result of variation in the ligation of the left renal artery. As Byrom and Dodson have shown, effective ligation acts as a barrier and protects the left kidney against the increased arterial tension. In an endeavour to find out how hypertension causes the arterial necrosis, they tested the hypothesis that a consequence of sudden overstretching of the vessel wall, as may occur when the intravascular tension is increased, is necrosis of the overstretched muscle and lysis; blood and plasma then seep into the affected zone and are transformed into a fibrinoid plug by the action of thromboplastin from the damaged muscle. Two millilitres of warm Ringer's solution was injected through a short bent needle (0.6 mm. bore) ten to fifteen times into the exposed left common carotid artery of 23 young adult rats; the injections were made towards the heart—the upper end of the artery being ligated. In 10 of the animals a loop of thread round the left renal artery was pulled taut during the injections, thus protecting the left kidney against the sudden increased tension. The transient rise in pressure which resulted probably amounted to between 80 and 90 mm. Hg. During the injections, which were made as forcibly as possible, the cortex of the kidney was seen to blanch momentarily and equally briskly to regain normal colour. After repeated injections, however, small irregular areas of residual pallor were noticed which returned to normal more slowly owing to transient spasm of the intralobular arteries. The animals recovered quickly and appeared well when killed three days later. Typical acute focal fibrinoid necrosis of the arteries of the cortex, including the afferent glomerular arterioles, was found, except in the kidneys protected by occlusion of the renal artery. A clear demonstration of the sequence of events leading to the appearance of the lesion was obtained—necrosis of a segment of muscle cells with autolysis, and with fibrinoid exudation into the adventitia and subintima with or without round cell and fibroblast infiltrations. Occasionally simple coagulative necrosis occurred. No hypertensive glomerular lesions were seen: the parenchymatous damage was limited to slight tubular degeneration—a clear indication of the brief duration of arterial contraction. This is a most important observation, since there is clinical belief that the acute symptoms in malignant hypertension, especially those associated with encephalopathy, may be caused by transient vasospasm.

Other experiments of Byrom and Dodson confirmed the findings of Leiter and Eichelberger[4] that bilateral renal-artery ligation causes earlier death (48 hours) than bilateral nephrectomy (76 hours), and that necrotizing arteritis (of pancreas and other viscera) may occur after ligation of both renal arteries or both ureters. This shows that the arterial and arteriolar lesion can arise in the absence of gross hypertension as a result of total renal insufficiency and total necrosis of the kidney. But this combination is never present in either experimental or human hypertension. Braun-Menéndez and his colleagues[5] suggest in an ingenious hypothesis that arterial necrosis may develop from a combination of two of the three factors—hypertension, uraemia, and the toxic absorption of dead renal tissue. But this does not explain the appearance of the arterial lesion in experiments where hypertension alone is present. While admitting that both uraemia and renal necrosis may play a secondary part in the "malignant" termination of chronic renal hypertension and may accelerate the late stages of true malignant hypertension, Byrom and Dodson interpret the results of their experiments as good evidence for the simple mechanical explanation of acute hypertensive vascular lesions. Their work supports the modern clinical concept of malignant hypertension and the assumption that the difference between benign and malignant hypertension is simply one of degree.

[1] *J. Path. Bact.*, 1948, 60, 357.
[2] *J. exp. Med.*, 1942, 75, 527.
[3] *Surg. Gynec. Obstet.*, 1943, 76, 493.
[4] *J. clin. Invest.*, 1943, 22, 11.
[5] *Renal Hypertension*, 1946, Springfield, p. 67.

ACUTE MASTOIDITIS IN CHILDREN

The sulphonamides and penicillin have changed beyond recognition the prognosis and treatment of acute infections of the middle ear cleft. Nevertheless each new chemotherapeutic substance has its drawbacks as well as its advantages. The drawbacks are not always apparent at first, as witness the masking of symptoms in acute mastoiditis and the increased risk of deafness from otitis media before this was recognized as a possible danger. It is now accepted

that these complications may largely be avoided by adequate early dosage and prompt drainage of pus. The latter may be unnecessary if chemotherapy is instituted early enough, but all authorities reiterate the need for drainage of pus. Elsewhere in this issue Mr. A. J. Moffett and Dr. G. A. Dalton report the results of treating acute mastoiditis in children with penicillin and sulphadiazine. They included in their series every case of undoubted acute mastoiditis seen in hospital over a period of three months. In addition to systemic disturbances, tenderness, swelling, oedema, and, in some cases, a fluctuating abscess over the mastoid process were present: the typical downward and forward displacement of the pinna was seen, to a greater or lesser extent, in all the cases. The children were treated in hospital with full doses of sulphonamides and penicillin in addition to local cleansing and penicillin aural drops thrice daily. Myringotomy was performed when necessary. Out of 17 children, whose ages ranged from 18 months to 12 years, treated in this way all except one were cured without surgical drainage of the mastoid. The otorrhoea ceased in an average of 5.6 days (limits, 3 to 11 days), the periostitis in an average of 8 days (limits, 5 to 11 days), and the drum recovered its normal appearance in 13 of the cases in an average of 10.7 days (limits, 8 to 19 days) from the beginning of treatment. In all cases the parents were written to several months after discharge of the child from hospital in order to find out if there had been any lighting-up of the infection, but none had occurred. The saving of suffering to these children and the reduction in time spent in hospital are obvious advantages, but the risks of treatment should be borne in mind. As the authors point out, a careful watch must be kept throughout for signs of intracranial suppuration, and before this method can be generally applied further trial should be made of it in hospital. There will always be need to take special care that the often ill-defined signs of continued suppuration or its intracranial spread do not go unnoticed. The possibility of using this method of treatment in adults may be considered, but it should be remembered that because of the greater vascularity of the temporal bone in a growing child the reaction to infection caused by organisms sensitive to chemotherapeutic substances will probably be more favourable in children than in adults.

AUREOMYCIN AND SYPHILIS

Supplies of aureomycin have until recently been scarce in this country, and little has therefore been published here on its use in the treatment of various diseases. The report by Dr. R. R. Willcox which appears on another page is probably the first to be published in England about the treatment of early syphilis with this drug. Willcox treated nine Bantu negroes suffering from primary or secondary syphilis with doses of aureomycin ranging from 0.75 to 1.5 g. over periods of 24 to 48 hours and noted that lesions, especially secondary ones, healed rapidly and that spirochaetes disappeared from surface lesions in 48 hours. Unfortunately follow-up examination was impossible, so that the effect on serum reactions could not be observed. One patient with secondary syphilis relapsed after 12 days. In the U.S.A. O'Leary and his colleagues[1] reported two cases of syphilis treated with aureomycin. The first, a case of secondary syphilis, was given 44.2 g. of the drug in 16 days: a mild Herxheimer reaction occurred after 24 hours. Spirochaetes disappeared in 60 hours, and a scrotal lesion healed in 26 days; but serum reactions, though weakening, were still positive after 41 days. Side-effects included nausea and anorexia. The second case treated by these authors was one of primary syphilis. This patient received 67.5 g. of aureomycin in 15 days; spirochaetes disappeared after 16 hours, and the primary sore healed in 15 days. Reactions were similar to those in the first case. In experiments on rabbits infected with *T. pallidum* 10 to 14 days previously Wiggall and his colleagues[2] found that intramuscular injections of aureomycin (50 mg. per kg. of body weight) caused lesions to heal and spirochaetes to disappear, though rather slowly. They also treated 15 patients suffering from primary or secondary syphilis with doses varying from 18 to 36 g. for two to six days. Again spirochaetes disappeared rather slowly, in some cases persisting for nearly 72 hours, but most lesions healed in six days. Side-effects were mild in men, but the drug was toxic for rabbits, possibly because it was given parenterally.

Aureomycin is best given orally in the form of 250-mg. capsules, and toxic effects in human beings appear to be slight, consisting only of nausea or vomiting, anorexia, and diarrhoea. The drug undoubtedly has an effect on syphilis, but its relatively slow action in killing spirochaetes suggests that it is not nearly so active a remedy as penicillin or arsenic. Its influence on serum reactions and its action in late, neuro-, and cardiovascular syphilis will not be known for some time. Meanwhile its use in the treatment of human syphilis must still be experimental, and no attempt to give it as a routine can be justified until more is known about dosage, period of administration, and possible toxic effects. In this connexion it is of interest to note that aureomycin is effective in all five venereal diseases—syphilis, gonorrhoea, chancroid, lymphogranuloma venereum, and granuloma inguinale.

Sir Herbert Lightfoot Eason, President of the General Medical Council, died on November 2. An obituary notice is published in this issue of the *Journal* at p. 1117. The next meeting of the Council over which Sir Herbert should have presided will open on Tuesday, November 22, at 2 p.m.

Dr. Donald Hunter will deliver the Ernestine Henry Lecture before the Royal College of Physicians of London (Pall Mall East, London, S.W.) on Tuesday, November 15, at 5 p.m. His subject is "Devices for the Protection of the Worker against Injury and Disease."

Dr. Norman B. Capon will deliver the Charles West Lecture before the Royal College of Physicians of London (Pall Mall East, London, S.W.) on Tuesday, November 22, at 5 p.m. His subject is "Development and Behaviour in Childhood."

[1] *Proc. Mayo Clin.*, 1948, 23, 574.
[2] *Amer. J. Syph.*, 1949, 33, 416.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

MANAGEMENT OF THE PREMATURE BABY

BY

ALAN MONCRIEFF, M.D., F.R.C.P.

Nuffield Professor of Child Health, University of London

According to official figures twice as many premature infants die each year in Great Britain as the total number of all persons killed on the roads. This indicates the seriousness of the problem. Half of these deaths occur in the first 24 hours of life and present a challenge to the obstetrician to prevent premature labour, but better management of the survivors would go far to reduce the loss of life. Although figures in connexion with prognosis are somewhat contradictory, the position can be summed up by saying that except for a slightly increased risk of cerebral trauma at birth the prematurely born infant has as good a chance as any other baby of growing into a normal and useful citizen.

Details of management to be discussed here are deliberately planned for what may have to be carried out in the patient's home. Some think this is a better place for premature babies than a hospital; others believe that the hospital can offer facilities and apparatus far superior to those available in a house. This should have been remedied to some extent since 1944,[1] when local health authorities were advised to keep certain appliances on hand for use in the home. A general practitioner called upon to look after a premature baby should certainly contact the medical officer of health for the district and see what apparatus he can get, and the services of a paediatrician should be available to lend expert help if required. More important than any apparatus and the aid of the expert, however, is good nursing. Some midwives are more skilled with small babies than others, and it may be possible to secure the services of one who has had special experience with premature babies—for example, at a maternity hospital with a special unit for their care.

General Management

If premature labour has set in and a small baby is expected certain preliminary steps can be taken. It is wise to give the mother a dose of vitamin K. A cot or basket should be prepared with lined sides to prevent draughts. If time permits an oxygen cylinder should be obtained, with a close-fitting rubber mask or a nasal catheter for administration.

After the baby is born it should be wrapped in a warm towel and placed head downwards in the cot or basket, which should be suitably tilted. Gentle wiping out of the mouth and gentle aspiration with a rubber catheter will make sure that the air passages are clear. If available, oxygen may be administered for a short period to produce a good saturation of the arterial blood. If respiration is feeble carbon dioxide from a "sparklet" apparatus may be used, or some device improvised to secure a degree of rebreathing.

It must be remembered from the start that the greatest enemy is infection, and in the early days the nurse and doctor should wear an efficient mask and conduct all manipulations with an aseptic or antiseptic technique.

[1] Ministry of Health circular 20/44.

The room in which the baby is to be nursed must be kept warm—70 to 75° F. (21–24° C.) is ideal—in addition to the careful use of hot-water bottles in the cot or the employment of an electric blanket pad (which can be hired in some areas). The aim is to keep the baby's rectal temperature not below about 98° F. (36.7° C.), but this is sometimes not achieved for a few days. The temperature should certainly be taken and recorded four-hourly. The atmosphere must also be kept moist enough to minimize "evaporation" from the baby's skin and lungs. A wet towel hung over the back of the chair, with its end in a bowl of water and placed near a source of heat, will provide a reasonable degree of humidity. A bathroom, if available and able to be temporarily set apart for the baby, is often ideal because of its humidity.

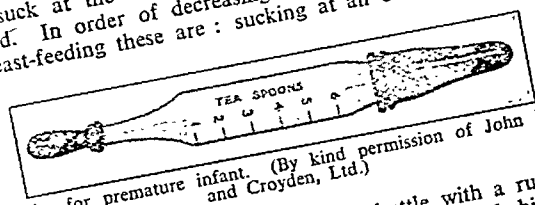
When the baby has recovered from the initial shock and is breathing well and a good colour the nurse may give it a gentle cleansing. This is most efficiently accomplished as a modified blanket bath with soap and water and a soft flannel, exposing only a small portion of the skin at a time. Drying should be carried out by gentle dabbing with a warm, soft towel, followed by a suitable baby powder (olive oil is messy, an inefficient cleaning agent, and not always sterile). The normal procedures for care of the eyes and cord should be carried out. Napkins can be applied, and the baby dressed in a gamgee jacket, bootees, gloves, and a bonnet, leaving only the face exposed. The bedclothes must not be too heavy. Before this dressing-up, however, the weight should be obtained if the baby's condition permits, for it is a most valuable base-line from which to judge subsequent progress. The infant should now be left in its cot and disturbed as little as possible, except to be moved from one side to the other from time to time to promote full expansion of the lungs. Oxygen may still be required at intervals if the colour does not remain good.

All these measures are necessary at first, but from the start the programme of management must be designed to speed up the process of maturation. That is to say, the baby must be brought daily nearer to the normal standards of care of the full-time infant. The external temperature of the room can be gradually lowered, some of the gamgee clothing cut away, and hot-water bottles or blanket pad left out of the cot for brief but increasing periods. It is difficult to lay down precise details to cover premature babies of all weights. Careful judgment is required, and the experience of the nurse is invaluable. I must stress the necessity for making progress and not keeping the baby too long before his own heat-regulating mechanism is called upon to take action.

Feeding

The same difficulty over precise details arises in connexion with feeding. Certain general principles will be discussed and, as far as possible, their application to a group of infants whose weights range from 2 lb. (1 kg.) or less up to the official standard of 5½ lb. (2.5 kg.).

Methods.—Most premature infants are too weak at first to suck at the breast, so that easier methods must be tried. In order of decreasing strain on the baby, after breast-feeding these are: sucking at an ordinary bottle;



Feeder for premature infant. (By kind permission of John Bell and Croyden, Ltd.)

the use of a Breck feeder (a small bottle with a rubber nozzle at the end opposite the teat, like the old-fashioned fountain-pen filler, by which positive pressure can be exerted); a spoon or pipette to drop the feed into the mouth; or tube-feeding by a catheter passed down the oesophagus through either the nose or mouth.

The first thing to establish after the baby is born is whether or not he can swallow. A little sterile water from a spoon can be tried. If there is no swallowing reflex, tube-feeding will clearly be necessary. If the baby can swallow, the next thing to ascertain is whether or not sucking can be carried out. If sucking proves possible a Breck feeder is the simplest apparatus: if not, a spoon or tube should be used according to the ability to swallow. The experienced nurse can soon determine a way of mixing the methods of feeding—one or two tube feeds and the rest by spoon, or starting the feed with a bottle and finishing with a spoon when the baby gets tired of sucking. Here, too, progress must be made and each day should see an attempt to take the baby a stage up the scale—tube, spoon, bottle—with the object of getting him to the breast.

Feeds.—Breast milk is the safest and most easily digested food. All premature babies should receive it at first even if it cannot always be continued. For the first 24 hours sterile water in small sips should be used, and during this period efforts to secure a supply of breast milk can be made. Only a few ounces a day will be required at first and should be obtainable without much difficulty from any nursing mother or from a maternity unit. It should be boiled and diluted to one-fourth strength for the very small babies and to one-half strength for the medium and larger-sized infants. Meanwhile the baby's own mother's supply of colostrum and milk should be obtained by manual expression.

By the end of a week or 10 days the breast milk can be given undiluted. If a supply proves impossible to obtain and no more can be got from the baby's own mother an alternative has reluctantly to be used. To avoid subsequent changes a choice should be made of a dried milk, either one of the so-called humanized varieties or a half-cream brand. These dried milks have the additional advantage of being obtainable at the local welfare centre. Either of these milks can be given from the second or third day of life and in a dilution which may vary from an eighth or quarter-strength, according to the baby's size, up to half-strength. One measure of milk powder to an ounce (30 ml.) of water may be assumed to be full strength. An attempt should be made to increase the strength daily, aiming eventually—in the second or third week—at full strength for the humanized brand and three measures to 4 oz. for the half-cream variety.

For simplicity, the addition of substances to the milk is not recommended. Some authorities prescribe additions of soluble caszin and others prefer to use evaporated milk, sweetened or unsweetened, but the programme outlined above works well and, as has been said, minimizes changes when the infant is older.

Times of Feeding.—Quantities and intervals of feeding are related. It must be remembered that small babies require relatively more food than full-term infants. If the basis for a 7-lb. (3 kg.) baby is 2½ oz. of breast milk per pound (150 ml. per kg.) body weight per day, then the smaller infant may require as much as 3, 3½, or even 4 oz per pound before a steady weight gain is achieved. But, as with normal babies, such a full feed programme should not be attained too quickly. If the largest feed, in volume, is achieved by the seventh to tenth day, this is usually safe If dried cow's milk is being used progress should be slower and for the smallest babies the full size (and strength) not reached until a little later. Provided that no oedema develops the weight curve is a most valuable guide and the experienced nurse can increase the strength and size of the feeds to keep pace with the strength and requirements of the infant. With the smallest infants this will usually mean beginning with feeds of 30 to 60 minims (1.8–3.5 ml.) every hour by day and two-hourly by night. Gradually this is increased to ½ oz. two-hourly by day and three-hourly by night, until 1 oz. is taken every three hours round the clock If the mother's milk supply has been established the infant may be tried at the breast at least once a day if over 4 lb (2 kg.) in weight at birth, or when this weight is achieved Even smaller babies, especially if twins (and therefore relatively more mature than the weight indicates), can suck quite strongly under this weight.

Whatever the feed a start should be made with vitamin supplements when the infant is a month old. Vitamin C as ascorbic acid in 25-mg. daily dosage can safely be given even before this. Vitamins A and D are best given as a vitamin concentrate to allow 1,000 to 2,000 units of vitamin D daily, and such dosage—twice the requirements for a full-term baby—should be continued throughout the first year. Iron is also best administered early, say at two to three months, and given in Mackay's mixture in a dosage of 1 gr. (65 mg.) three times a day.

Two other medicaments are also worthy of mention Some paediatricians give all babies vitamin K after birth to prevent hypoprothrombinaemia, and, as already suggested above, if premature labour is anticipated this vitamin can be given to the mother also. Thyroid extract has a useful part to play. If the baby is particularly sluggish and difficult to rouse and has a subnormal temperature, the metabolism can certainly be stimulated by giving the equivalent of 1/10 gr. of thyroid extract per pound (14.4 mg per kg.) body weight daily. This should generally be administered for a few days only, after which the increased food intake will itself stimulate metabolism.

Thyroid extract is the only safe stimulant for the premature baby. Brandy appears to be used fairly frequently, but it is irritating to the stomach and intestines and if given in stimulating dosage may produce a dangerous gastro-enteritis. If the baby is kept adequately warm and gently handled brandy should be unnecessary. If anybody needs it, perhaps the doctor and nurse should be considered.

A circular to hospital boards and committees from the Ministry of Health asks hospital management committees to ensure that medical superintendents of mental hospitals and mental deficiency institutions see a copy of all documents on the work of the hospitals and institutions issued to the committee by the Ministry or the Board of Control. It also warns hospital management committees that they should not alter the authorized accommodation in mental hospitals and mental deficiency institutions without the approval of the Ministry of Health.



[The Times

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

QUEEN ADMITTED HONORARY FELLOW

The Queen was admitted an Honorary Fellow of the Royal College of Obstetricians and Gynaecologists on November 3 by Sir William Gilliatt.

Sir William Fletcher Shaw, past President and first Honorary Secretary to the College, and Professor R. W. Johnstone, Senior Fellow in Scotland, presented the Queen for admission.

Sir William Fletcher Shaw said that, as the College had developed and matured and its value to the welfare of the women of the Empire had been more fully established, her Majesty had very graciously become the first Patron of the College. "That your Majesty accepted this office gave great joy to the College and added immensely to its prestige in all the countries of the Empire." More recently her Majesty had shown her great personal interest in the work of the College by the princely gift she had made to its Appeal Fund. "Now by becoming an Honorary Fellow of the College and thus identifying yourself with it in an even more personal way you confer the greatest possible honour on the College."

Professor Johnstone said: "When you, Sir, were kind enough to award me the great and happy privilege of acting as one of her Majesty's sponsors on this occasion, you remarked to me that her Majesty was a Scotswoman and was very proud of it, and that it would be becoming that one of her sponsors should be a Scottish Fellow of the College. In regard to that I would only say that her Majesty's very natural and proper pride of race meets an overflowing complement in the deep and affectionate pride which every Scotsman and Scotswoman the world over takes in her Majesty's most gracious self." All at the College were well aware that the College was receiving a much greater honour than it was giving.

After expressing her gratitude to the College, the Queen said that she shared with all her heart their belief that it was on the happiness of home and family life that the true worth and strength of a nation depended, but what had been so well described as "the miracle of life and the source of all tenderness and love in humanity" demanded more than ever the best technical attention. "It demands a spiritual approach as well, and it is good to know that in your profession its members bring to their work a warm human understanding and a deep sense of moral values."

Handing the Queen her scroll as a Fellow, Sir William Gilliatt said: "May it please your Majesty that I confirm your two sponsors in that the addition of your name will add distinction and lustre to the roll of Honorary Fellows.

"We are aware that your Majesty has never had, and cannot have, the opportunity of directly advancing the scientific side of our subject. I maintain, nevertheless, that by permitting us to elect you an Honorary Fellow and by your very generous gift to our Appeal Fund you are indirectly advancing in no uncertain manner the important work in which we are engaged. Your gracious acceptance of our Fellowship encourages us to feel that your Majesty is showing an even closer interest in our activities than was possible during the years you have been our Patron.

"We could not have asked you, Madam, to join us did we not consider that there are few higher aims than to contribute to the prevention of illness and the maintenance of health and well-being of mothers and their infants. Your Majesty's sponsors have spoken of the standards of family life in which you have set the world such a wonderful example. In our report on 'A National Maternity Service' published in May, 1944, we use the words, 'We are all conscious that the infusion of higher moral and spiritual values into the families of our country has a profound bearing on physical and mental health.' We on our part are encouraged by your presence here to-day and are determined to show that your trust in our future achievements has not been misplaced.

"May I, on behalf of Council here present and every Fellow and Member, welcome your Majesty as an Honorary Fellow and thank you for your gracious acceptance."

New President Installed

Installing Professor Hilda Lloyd as President, Sir William Gilliatt said that it gave him great pleasure to be the first to congratulate her on assuming the high office to which she had been elected. Her election was an outstanding occasion in that she was the first woman to be elected as President to one of the Royal Medical Colleges. He offered her, on behalf of his colleagues on the Council and for himself, their best wishes for very successful years of office. He wished to record his deep appreciation of her generous action in proposing to and convincing the Council that his term of office should be prolonged so that he might have the privilege of admitting her Majesty to the Honorary Fellowship of the College.

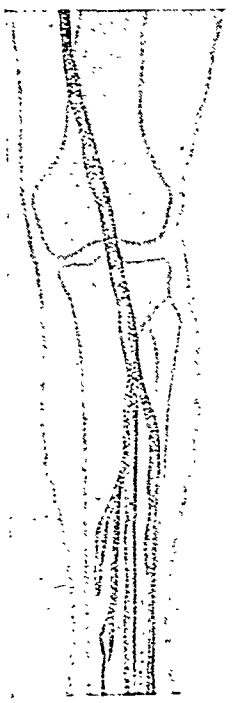
Professor Hilda Lloyd was then vested with the president's gown and repeated the president's oath.

Mr. V. B. Green-Armytage and Mr. J. Eric Stacey were installed as Vice-Presidents in place of Sir William Fletcher Shaw and Mr. James Wyatt, whose term of office had expired.

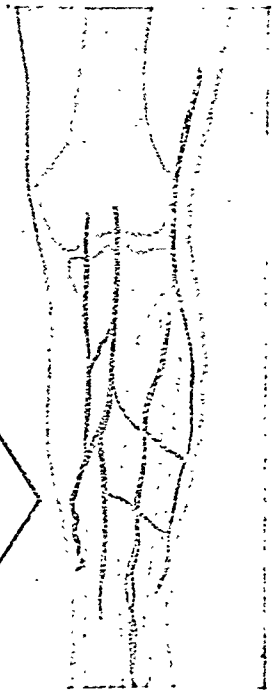
The Handicapped Pupils and School Health Service Amendment Regulations, No. 2, 1949, make certain interim amendments to the main regulations recommended by the Education Subcommittee of the Local Government Man-power Committee. It is now unnecessary for the local authority to obtain approval of the arrangements made or proposed for carrying on the school health service; the Minister will rely on inspection and on the specified annual returns. The approval of medical officers is limited to those employed in connexion with the authorities' arrangements for ascertaining whether pupils require special educational treatment because of educational subnormality. A number of forms have also been withdrawn because the National Health Service has made them obsolete. Under the Reports to Local Authorities (Records) Amending Regulations, 1949, one of the statutory forms on the reporting of children to the local health authority has been amended to facilitate co-operation between the educational psychologist and the medical officer in order to obviate duplication of work.

HEPARIN (EVANS)

THE PHYSIOLOGICAL ANTICOAGULANT



HEPARIN (EVANS) is indicated in the treatment and prophylaxis of phlebothrombosis, thrombophlebitis and pulmonary embolism. It may also be used to prevent post-operative thrombosis and as an anticoagulant in blood transfusion. Recent work has shown it to be of value in the treatment of coronary thrombosis.



1

2

Two phlebograms showing the radiographic changes in a case of acute thrombosis of the deep veins of the calf.

1) Taken before the onset of symptoms, showing the normal pattern of the deep veins.

2) Taken after establishment of the thrombosis. The deep veins have not filled and the contrast medium has passed over into the large saphenous vein system.

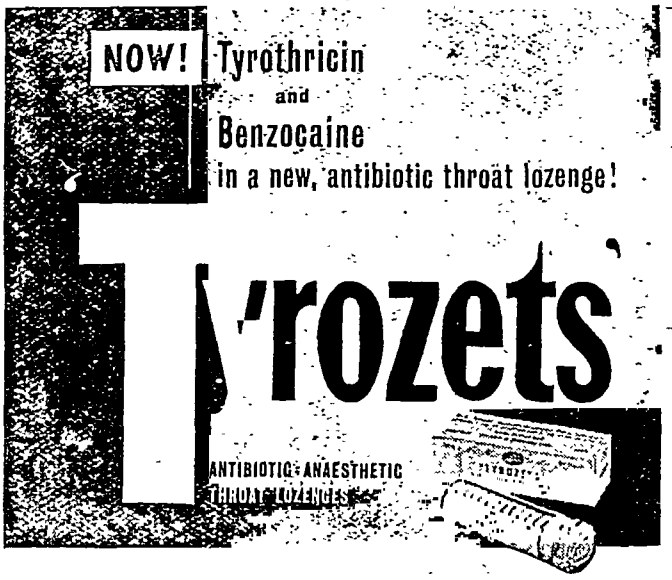
It is now recognised that Heparin given within the first 48 hours of the onset of symptoms will arrest the onward progress of the thrombotic condition in threatened phlebothrombosis of the deep veins of the leg. A total of 250,000 i.u. Heparin given over 7 days will usually bring about remission of all symptoms. Rabinowitch and Pines (1943) working on rabbits, have shown that treatment with Heparin will cause disappearance of an established thrombus in a high percentage of cases by facilitating fibrinolysis by enzymes. There is evidence to show that prolonged heparinisation can be effected by intramuscular injection of the most concentrated preparation. If required the heparin effect can be immediately suspended by the intravenous injection of 5ml. of 1% Protamine Sulphate.

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Rabinowitch, L. and Pines, B. (1943) *Surgery*, 14, 669.

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GROWTH AND REPRODUCTION OF BACTERIA

Lectures by Sir Paul Fildes

A course of special University of London lectures on general bacteriology was given at University College in October by Sir PAUL FILDES. His account of the growth and reproduction of bacteria covered a wide range, and it is possible to record only certain points of especial interest.

Sir Paul Fildes said that he intended to try to analyse some of the means by which bacteria were maintained as part of the population of the planet. This involved a description of a number of biochemical processes which were not peculiar to bacteria but were common in some degree to all living things. It was hardly possible to lecture on the biological processes of bacteria without making it obvious that bacteria were being used only as illustrations of cellular physiology in general. He might have selected other organisms, such as protozoa or plants or animals, but bacteria were chosen because they were easy to handle and yielded results within a matter of hours. It was for this reason that many of the findings of cellular physiology had been based upon the study of bacteria.

The physiology of bacteria derived its special importance from the likelihood that the control of bacterial activity in health or disease would not be achieved without greater knowledge than was available at present. Bacterial activity became apparent only as a sequel to growth and reproduction. This occurred automatically when conditions were favourable. Growth and reproduction were therefore the prime interests of cellular physiology, because without them the external effects of bacteria for either good or ill would be unimportant.

Organized Enzyme System

It was convenient, Sir Paul continued, to look upon a bacterium not as a mere "bagful of enzymes" but as an organized enzyme system. The organization was such that when the whole system was steeped in the proper substrates the "machine" started to work and continued automatically until the substrates failed or the environment became adverse. The co-ordinated working of the system resulted in an increase in the contents of the bacterial cell until there was a division of the cell into two. When the process was working in full co-ordination—which was not always the case—the time taken by one cell to become two might be some 30 minutes, so that in 24 hours there might be 48 generations and the one bacterium would become 17,000,000.

If nitrogen were taken as the key substance of the protein molecule, it was known from the work of Behring that some bacteria grew in gaseous nitrogen while some grew in such forms of nitrogen as ammonia. As the yield on analysis showed a vast increase in protein, it followed that protein was synthesized from ammonia by the organism. The first thing that happened was that the ammonia diffused into the cell, then it was fixed by one of the receptors of an enzyme and combined with another nutrient fixed by another receptor. In general the synthesis of protein might be looked upon as a chain of reactions carried out by a series of enzymes, each of which had two receptors and two substrates. Eventually by the serial combination of two similar substances the whole protein molecule was constructed.

Genetic Mutations

In order to bring bacteriology into line with general biological teaching it was necessary to make an assumption which could not yet be proved. It was held that the controlling or operating force behind the enzyme was a gene, and that genetic mutations led necessarily to changes in or the disappearance of enzymes in bacteria. These phenomena might have a marked effect on the survival of bacteria in particular environments.

A great deal of work had been carried out in elucidating the manner in which proteins were synthesized, and it was possible to make some tentative guesses at the steps of the synthesis. He described the role of tryptophan as a growth factor, also of indole, which could take the place of tryptophan. It was a question of guessing what two substances might be concerned in the synthesis of indole, for example, and testing whether they would have any effect in the absence of indole. Until an organism could be found which would give a positive growth response to a hypothetical growth factor, guessing could go no further.

The action of a synthetic enzyme was the reverse of that of a degraded enzyme. Energy was absorbed by the former, liberated by the latter. A synthetic enzyme combined two substrates into a larger, while the other type of enzyme split a larger into two smaller substrates. One and the same enzyme was capable of operating in both ways.

In his final lecture Sir Paul Fildes said that it was possible to summarize the two views—the former and the present view—as follows. When the structure of the bacterium altered, whether by the gain or the loss of an enzyme, it was considered to be due to some stimulus deriving from the environment. Broadly, it was said that, if a bacterium found itself in an environment rich in some particular substance which normally it had to synthesize, it did not synthesize and the enzyme associated with the synthesis faded away. The geneticists explained the phenomenon differently. They developed the generalization that behind every enzyme there was a gene which controlled its action. In the course of the reshuffling of genes in the process of cell division accidents might happen, in the same way that accidents might happen in any process which was often repeated. That was merely a matter of statistics. If an accident happened to a gene which affected its normal function the enzyme would be affected. In a normal case with the enzyme present it might disappear, or, if the enzyme was absent from the particular organism being studied, mutation occurred which had nothing to do with environment. The main conflict was whether mutation was merely a matter of chance or was induced by outside causes.

When inoculations in agar without tryptophan were made, a normal typhoid bacillus, for example, did not grow at all at first, but, as the size of the inoculum on the plate continuously increased, the time came when one colony appeared, and more still appeared with further increase of size. If one of these colonies were picked off and tested on the liquid medium it would grow normally and maintain the difference indefinitely. In every culture of typhoid bacilli there were a few abnormal units growing in a different manner. These abnormals were not necessarily present in the original inoculum; they appeared as the culture grew.

Environmental and Accidental Factors

The fact that these mutants made their appearance at widely different points in the growth of the culture, and sometimes not at all, indicated an erratic spontaneous origin rather than the constant influence of the environmental factor. Formerly it was assumed that the environment was concerned mainly with these mutations, but it now seemed reasonably certain that the general idea accepted in genetics held good, that when an operation like cell division was repeated often enough the liability to "accident" increased and there were more likely to be missing or altered genes.

Another series of observations also suggested a genetic origin. It was now well established that exposure of bacteria to constant doses of *x* rays or ultra-violet light caused an increase in the mutation rate of the survivors. This meant that the survivors would produce mutations perhaps at every hundred divisions instead of at every million. The mutants did not occur in the absence of some growth factor. The *x*-ray effect was thought to be due to a filtered chemical action on a single molecule—a one-cell action, the one cell being enough to produce mutation. One of the chief reasons for holding this "one-cell" view was that the number of mutations produced was proportional to the dose of *x* rays.

In sum, therefore, there were reasonable grounds for suggesting that mutations in bacteria and genetic mutations in higher

forms of life had many points in common. They appeared at random and spontaneously, whereas they did not occur following specific changes in the environment. The new character was as stable as the original. In addition to this kind of evidence favouring the existence of genes in bacteria, a more simple argument could be brought forward. No one could imagine that the bacterium was a bag with all its molecules in solution; if this were the case there would be little likelihood of the molecule finding itself on the right side of the curtain when division took place. There must be some mechanism in bacteria as in other cells by which characters were segregated in special divisions.

Sexual Process in Bacteria

It was often supposed that bacteria were non-sexual. Here he recalled an experiment in which a culture of *Bact. coli*, which grew quite well on ammonia because it was able to synthesize all its necessary requirements, was exposed to *x* rays to produce mutants. From the resulting mixture two strains were selected neither of which would grow on ammonia for the reason that one of them was unable to synthesize, say, substances A and B, whereas the other was unable to synthesize substances C and D. Starting with two strains, one of which had lost the genes controlling the A B synthesis and the other the genes controlling the C D, a strain was produced with all the genes and no growth disability. This could have occurred only by the fusion of one cell containing the A B substance with another containing the C D, producing a mutation which contained all four.

The fusion of two cells with reshuffling of the genes was the basis of sexual processes by which hereditary characters were handed on. In animals evolution had produced two entirely separate types of cell, each with complementary genetic disabilities, so that they could not reproduce without fusion. On the other hand, in bacteria this specialization had not taken place. Usually each cell had an adequate genetic establishment, and was developed to allow reproduction by fission in the environment in which it happened to live. At, say, every 20 generations, however, mutations would appear and cells would be produced with different hereditary characters. If two such mutations happened to take place at the same time, and if, more rarely, they happened to fuse and produce a strain of rearranged genetic pattern, and if, finally, this new pattern was more satisfactory for survival in the environment, this would be an established mutation due to sexual process. Necessarily this must be rare. In animals the opportunity existed permanently, and was taken advantage of at short intervals, and for this reason animals had evolved by natural selection more than had bacteria. In general bacteria did not differ, so far as could be judged, from their earliest progenitors.

The argument for including bacteria among the sexed population of the planet was cogent. There could be no doubt that bacterial culture was liable to occasional change in a random manner without any known determining change in the environment. The lecturer pointed out the importance of this in practical work. A bacterial culture could always be looked upon as a population of similar type yet continuously subject to innumerable chance mutations of any of its characters, and any one of those mutations might be selected by the medium which was being used.

The idea of permanent alteration of character resulting from genetic mutation could not yet be correlated with many known facts about bacterial enzymes. In particular, genetic ideas could not be correlated satisfactorily with what was known about the enzymes described as adaptive. Some enzymes had been known to increase in activity or to appear from apparently nothing when brought into contact with a specific substrate, without any cell division at all. This was clearly a phenomenon different from genetic mutation, but it was not a permanent change. It faded away when the substrate was removed, and it was evidently due to environment and not to chance. The vast field for speculation along these lines, as Sir Paul Fildes pointed out in closing his course of lectures, indicated how many matters in the field of bacteriology awaited further research.

Reports of Societies

WHITHER ANTENATAL CARE?

A discussion on this subject took place in the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on October 21, with Dr. LESLIE WILLIAMS presiding. Reference was first made to the election of Professor Hilda Lloyd to the presidency of the Royal College of Obstetricians and Gynaecologists. This was the first time a woman had been elected to the office, and she had gone straight to the position from the presidency of the Section.

Mr. ALECK BOURNE said that to debate the future it was necessary to review the past. The story of antenatal care was a chequered one. Until the middle of the last century no real interest was taken in the examination of the pregnant woman from the point of view of her health. In Great Britain the first clinic for providing supervision and advice for expectant mothers was that established by J. W. Ballantyne in Edinburgh in 1902, but Ballantyne was occupied with the prevention of stillbirths, monsters, and deformities. He was not an obstetrician, and his interest in the health of the pregnant woman was only in so far as it might affect her baby.

The progress of antenatal care was greatly stimulated by the first world war. In 1918 antenatal clinics began to be established, and now there were over 1,600 in the country. They were staffed mostly by antenatal officers who did not conduct the labour. Thus there had been four phases in the progress of antenatal care. The first dated from ancient times. Aristotle's instructions to midwives included such fantastic remedies as the following: "Take a swallow's nest and dissolve in water, strain, and drink it warm, and it gives delivery with great speed and much ease," but there was no mention of the examination of pregnant women. The second was in the latter part of the nineteenth century, when the care of pregnant women from the point of view of eugenics was suggested. The third, associated with Ballantyne, was concerned with the quality of the babies born. The fourth, within his own memory, starting about 1909, was concerned with the discovery of conditions which were likely to make labour difficult. In those days it was uncommon to examine a woman more than twice, towards the end of pregnancy, and no interest was taken in her general health, her personality, or her social surroundings.

This led to an immense amount of interference. Obstetricians became obsessed with the possibility of a difficult labour. If the head was high it was assumed that it would not fit into the brim. G. E. Herman, at the London Hospital, published a book, which was still of great interest and value, entitled *Difficult Labour*, and in the fifth edition (1910) he gave a number of dates from the thirty-sixth week onwards at which induction of labour should be undertaken. Watts Eden published a paper in which he pointed out that the child born from the thirty-sixth to the thirty-ninth week was just as well able to survive as the child born at the fortieth week, and this gave a considerable stimulus to the induction of labour. In Queen Charlotte's Hospital labour was induced in the following percentages of all admissions:

1910	.. 4 per cent.	1920	.. 5.3 per cent.
1912	.. 2.5 „ „	1921	.. 7.4 „ „
1913	.. 5 „ „	1922	.. 6.6 „ „

Between 1928 and 1934 the maternal mortality rate was steadily rising, and in the latter year reached 4.41 per 1,000 live births, the highest figure since the 'nineties of the last century, and this after 15 years of increasing antenatal care and improved teaching of students and midwives. It was not surprising that critics began to point out that antenatal care had failed in its object of reducing the death rate in child-bearing. It was gradually realized that external measurements were useless, but unfortunately the mechanists had another lease of life as a result of *x*-ray pelvimetry.

Throughout the whole range of medicine, Mr. Bourne continued, there was a tendency to confine the supposed normal within too narrow limits, and this was more marked in obstetrical

work than in any other branch. One example was the use of pelvic measurements in the prognosis of labour. Even with reduced measurements there might be a difficult labour only if the uterine contractions were feeble; there were few complications which did not lose something of their potential danger if the uterus reacted strongly. If function was so important, was it possible to predict it during pregnancy, and, if it was, could anything be done antenatally to ensure the maximum possible function? In many cases he thought this could be done. He believed that the function of the uterus depended primarily on the emotional attitude of the woman in labour, chiefly her degree of anxiety. It depended also upon her clinical or biological type. The vast majority of women could not be divided into one or other of the extreme types—the functionally good reproductive type and the difficult type—but it was possible with insight and experience to say on which side of the middle line they were.

The function of the uterus could be predicted by watching the emotional attitude of the woman to her forthcoming labour. Many began their pregnancy in ignorance and went through it in uncertainty and fear, and their fear was such that it was practically certain they would have inertia, maximum pain, and an assisted delivery. Antenatal visits afforded an opportunity for watching the state of mind and understanding the emotional state. Sometimes the condition was masked by a spurious courage, but it was possible to break that down and see what lay underneath. Nothing could be done to alter things physically, but a great deal could be done to exorcise fear and liberate uterine function from the inhibitions which fear imposed upon it.

On the question of diet, Mr. Bourne suggested that there was no evidence as yet that malnutrition had an effect upon uterine contraction, though it certainly had in precipitating early labour. As for exercise, its chief value was in making the woman feel that she was contributing something to the preparation for her labour.

Elimination of Fear

Professor W. C. W. NIXON said that he was a student of Mr. Bourne's a quarter of a century ago, and recalled his teaching on the necessity for a shift of emphasis from structure to function. Unfortunately, the mechanistic fog still existed, but there was an awakening to the need for taking the woman as a whole, considering both *psyche* and *soma*. The normal pregnancy had not the drama of the abnormal, and the assistant and student gaining experience voted a week without an incident as rather dull.

In his opinion there should be a food advice bureau attached to every antenatal clinic. Nutritional anaemia was still prevalent, and the only way to detect it was by an estimation of the haemoglobin. Every pregnant woman should have her haemoglobin estimated on her first visit and again at the thirty-sixth week. Investigations had shown that the idea that excessive weight was an indication of toxaemia was a fallacy. During the last few years at the antenatal clinic at University College Hospital radiography of the chest had been done as a routine, and the results had justified the procedure.

At University College Hospital it was felt that by the introduction of training classes much had been done to eliminate fear. In these classes the changes in pregnancy and the birth process were explained, and the mother was given confidence and enabled to recognize the various events of labour as signposts rather than as hidden enemies. It was Dr. Grantly Dick Read who had first pointed out the importance of the tensions set up by fear and how these could be relieved by reassurance and relaxation. Everyone recognized the need for mothers to be physically fit so that they could pass through labour relatively unharmed. It was important also to prevent mental trauma. If this were neglected the mother was denied an enriching and satisfying experience.

Professor Nixon then showed a film, taken in his out-patient department, illustrating the type of physical exercises taught to expectant mothers, and also the work of the food advice bureau. The film had been specially prepared for the meeting by Mr. P. L. C. Diggory, film secretary of the British Medical Students Association.

Value of Exercises

Mr. A. P. WRIGLEY said that at long last the general health of the patient was receiving attention. Energetic measures had been adopted to prepare the mother physically and mentally for labour, the physical side being dealt with by remedial exercises, proper food, and teaching of correct stance and relaxation. The first results were beginning to come in and were not as encouraging as might have been hoped. The statistical difference between patients who had had exercises and patients who had not did not appear to be marked. In a further attempt to help patients at St. Thomas's physiotherapy had been combined with a mild form of psychotherapy, but an analysis of 106 women who had elected to join these classes, when compared with a number of controls, seemed to show no advantage. No one regretted this more than he did, although the sister told him that these patients were in a much happier frame of mind when they arrived for labour. He had no doubt that this work was in its infancy, and would show better results as experience accumulated.

He thought there should be a much more common-sense outlook about the expected date of delivery, and less, not more, attention should be given to the pre-natal preparation of the patient for breast-feeding. If on a casual observation the breasts appeared normal and the woman accepted breast-feeding as the natural thing, he regarded any treatment of the skin or massage of the breast as unnecessary and undesirable. The position with regard to *x*-ray examination had changed during the last ten years as a result of intensive and painstaking observations. The technique of radiology was now such that risks of misinterpretation had decreased. The day was not far distant when an *x*-ray picture would be made of the pelvis of every woman embarking on her first pregnancy, and this would be done by someone trained for that work.

He pleaded also for a less rigid adherence to routine—routine in attendance or in the procedure at the clinics. Patients differed from one another right down to the last weeks of pregnancy. The lives of patients had become so regimented that if the burden could be eased by less adherence to schedule and more use of common sense it was the doctor's duty so to ease it. Finally he spoke of the liaison between outside antenatal clinics and those who had the care of labour. Instead of drawing them nearer, the effect of recent legislation was to drive them further apart, and as long as the present system continued the care of the woman remained divided. Altogether, while the results of the last 15 years had been good, he was certain they could do better.

In some brief general discussion Dr. ARNOLD WALKER said that he thought there should be a little less criticism of what the local authorities had done in the antenatal clinics, for, after all, this was the only way in which many women could get antenatal care, and the closing of many such clinics created a gap which it would be difficult to fill. Another speaker pointed out that, whereas at the hospital clinics there was no guarantee that the patient would see the same doctor again, at the local authority clinics the people worked as a team and also had a broader outlook on the background of social medicine than their colleagues in hospital. Dr. HAROLD WALLER said that mastitis was almost a preventable disease, but in some clinics it was as high as 10% among lactating women

Mr. ALECK BOURNE, replying, said that he wondered whether it was possible to relate the benefit of antenatal physical exercises to a statistical presentation of abnormalities at labour One value of the exercises was to give a woman a positive attitude towards her own effort.

HYPOPITUITARISM

At a meeting of the Liverpool Medical Institution on October 13, with the president, Professor Charles Wells, in the chair, Dr. V. K. SUMMERS read a paper on the syndrome of hypopituitarism.

Dr. Summers said that the commonest cause of severe chronic hypopituitarism was necrosis of the anterior lobe at the time of delivery. These patients were in a state of severe circulatory collapse, and this collapse was produced usually by a

combination of shock and haemorrhage; the obstetric conditions likely to be associated with pituitary necrosis were postpartum haemorrhage and retained placenta. The symptoms and signs were due to a failure of secretion of pituitary hormone. The first sign was failure of lactation, and in these cases no milk could be expressed.

Nutrition was unimpaired in these women, and the majority were, if anything, slightly above average weight for their height and age. The term "pituitary cachexia" used for this syndrome should be abandoned, because it was misleading and the source of many errors in diagnosis. Failure of menstruation with severe atrophy of the whole of the genital tract was an invariable sign.

Signs of adrenal insufficiency were constant; electrolyte changes which resembled those of Addison's disease, but of less severe degree, occurred. In contrast to the heavy deposition of pigment in Addison's disease, a depigmentation of exposed areas of the body and of normally pigmented areas—for example, the areolae—was seen in hypopituitarism. Loss of pubic and axillary hair was always noted within two years of the onset of the disease. The excretion of ketosteroids was reduced to very low levels. Loss of thyreotropic hormone secretion produced symptoms like those of hypothyroidism: a dry skin, low basal metabolic rate, elevated blood cholesterol, sensitivity to cold, and cardiac changes resembling those of myxoedema. Cardiac enlargement did not appear, and the scalp hair remained normal in amount and texture.

Professor H. L. SHEEHAN said that the anterior lobe of the pituitary could be destroyed by a variety of pathological lesions. The most important of these was post-partum necrosis, which accounted for about three-quarters of the cases of severe destruction of the gland. The loss of anterior lobe hormones produced a great atrophy of the adrenal cortex, the thyroid, and the gonads, and the loss of hormones from the gonads led to atrophy of the genital tract.

Dr. C. O. STALLYBRASS referred to the work of Dougherty and White on the activity of the adrenotropic hormone in stimulating the mechanism of antibody production and, more especially, lymphocyte and plasma cell destruction with consequent liberation of antibody. If the adrenal cortex was gravely affected, as in the Friedrichsen-Waterhouse syndrome in meningococcosis, then a twofold lethal effect would be produced. He also referred to veterinary interest, described by Kay, in the action of the lactogenic hormone in assisting cows to "let down" their milk, and the experiments that had shown that while the stimulus might be neural the mechanism was hormonal.

Nova et Vetera

DISCOVERERS FOR MEDICINE

Discoverers for Medicine. By William H. Woglom, M.D. (Pp. 229; illustrated. 18s.) London: Geoffrey Cumberlege. 1949.

The purpose of this unusual book is given in the author's quotation from Oliver Wendell Holmes—"Medicine learned from a Jesuit how to cure ague, from a friar how to cut for stone, from a soldier how to treat gout, from a sailor how to keep off scurvy, from a postmaster how to sound the Eustachian tube, from a dairymaid how to prevent smallpox, and from an old market woman how to catch the itch insect." The author describes these and many other debts which our profession and its patients owe to the traditions and common sense of the unlearned and to the patient researches of scientists whose work and results seemed to have no bearing on medicine. With an easy style and infinite patience Dr. Woglom traces to these sources the benefits of vaccination, of digitalis, of quinine, of spectacles, and of many other aids and remedies which we now take for granted without a thought for their obscure beginnings. The book is handsomely produced, with many good illustrations and a copious bibliography and index. In illuminating the background of his discoverers the author does so with vivid sketches of the personalities of his heroes. ALFRED COX.

Correspondence

British Branch of Ligue Internationale Contre le Rhumatisme

SIR,—The recent International Congress on Rheumatic Diseases in New York at which Hench and Kendall presented their paper on "cortisone" was sponsored by the Ligue Internationale Contre le Rhumatisme, and there can be no doubt in the minds of those who heard this paper and availed themselves of the varied opportunities at this congress of the immense value of such meetings.

We feel that the British Branch of the Ligue is not sufficiently widely known and that membership offers not only individual advantages but an opportunity to foster friendly international relations at these various gatherings held in different countries. The next congress of the Ligue Européenne is in Barcelona in 1951, and the whole Ligue Internationale will meet in Zurich in 1953. Judging by the high standard of papers in New York this year, these two promise to be important meetings.

Individual membership of the British Branch entitles attendance at these congresses and also at certain clinical meetings of the Heberden Society. The British Branch is arranging a quarterly publication of a pamphlet giving news of forthcoming meetings of interest, of postgraduate courses, and a list of clinics where postgraduate members will be welcome.

The annual subscription is one guinea and should be sent to the treasurer, Dr. G. D. Kersley, 6, The Circus, Bath.—We are, etc.,

London, W.C.1.

W. S. C. COPEMAN,
President, Ligue Européenne.
OSWALD SAVAGE,
Secretary, British Branch of the Ligue Internationale Contre le Rhumatisme

Progress in Obstetrics

SIR,—Since you did me the unexpected honour of using some of the subject matter of my Joseph Price Oration in America and my presidential address to the Edinburgh Obstetrical Society as a sort of text for your leading article on "Progress in Obstetrics" (October 8, p. 799), I feel it is incumbent on me to take some part in the discussion that has followed.

I am almost in entire agreement with the views advanced by Professor Andrew M. Claye (October 22, p. 927), which vary little from the suggestions I advocated in my Edinburgh paper. There is little doubt that the teaching of obstetrics has advanced greatly during the last twenty years, and, as I pointed out, I considered that this was one of the several reasons which had helped to lower the maternal mortality and morbidity. But even now, in my opinion, the newly qualified graduate is seldom capable of undertaking midwifery in a general practice until he has acquired more experience. This is not due to the teachers of obstetrics or to the students themselves, but to the paucity of cases available to give each student a thorough grounding in such everyday procedures as forceps delivery, the suture of the torn perineum, episiotomy, etc., not to mention the more difficult manœuvres, such as the turning of the occipito-posterior, external version for a breech presentation in a primipara, etc. It would therefore seem to be necessary to conserve cases for those who desire to practise midwifery in their general practice, and not to provide a number of midwifery cases to those who are later not going to be general practitioners but surgeons, pathologists, bacteriologists, psychiatrists, etc.

I suggested that if a year was to be spent following the final examination for clinical work before a degree was conferred those hoping to practise midwifery in the future would spend at least three months resident in a maternity hospital, where they would get an opportunity of carrying out the procedures I have already mentioned and at the same time obtain further clinical experience in normal and abnormal midwifery. In order to make cases available I suggested that it might be quite sufficient for the ordinary undergraduate to attend five

IN BRONCHIAL ASTHMA



1600: "*The specifics commonly used for moist asthmas are the roots of Cuckowpint, Hyssop, Horehound . . . . the syrup or volatile salt of Tobacco; Gum Ammoniac (above all) dissolved in vinegar. Compound Spirit of Verdigrise, dulcify'd Spirit of Nitre, Turpentine . . . . Balsam of Sulphur . . . . Juice of Woodlice with wine (an incomparable medicine) and the carminative spirit if the stomach be disordered.*" MICHAEL ETMULLER, *Professor of Physic, Leipzig*

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normal cases during his obstetric course and that residential stay in a hostel attached to the maternity hospital to study abnormal midwifery would be unnecessary. This would give the G.P. obstetrician-to-be much more material wherewith to acquire a better knowledge of the subject, and hostel accommodation in or near a maternity hospital would be available. Accommodation and the required tuition could be supplied not only in the present teaching hospitals but in non-teaching hospitals all over the country as well, on whose staff there was an obstetrician qualified to teach such students. A practitioner who had not previously taken this extra instruction and who wished later to do midwifery could take such a course at any time. In order to know which doctors were suitably qualified a diploma, such as D.Obst., might be given at the end of each course to all those who had acquitted themselves to the satisfaction of the consultant in charge, or after passing a small clinical examination conducted by an outside panel of examiners.

I quite agree with Dr. Walter Radcliffe (October 22, p. 927) that permission should be granted to general-practitioner obstetricians to attend patients in a number of maternity hospitals in the country provided they obey the rules of the hospital concerned and their work is supervised by the consultant in charge in the same manner as all the rest of the cases in the hospital are. This plan is carried out in a large number of the maternity hospitals in the U.S.A. with most satisfactory results, the practitioners being on what is called the "courtesy staff," and I may state that such facilities are already accorded to practitioners by at least one regional board in this country.—I am, etc.,

Edinburgh. W. F. THEODORE HAULTAIN.

Natural History of Asthma

SIR,—It is a long time since I practised medicine and I should not dream of criticizing the article by Drs. Elsie O. Williams and G. E. O. Williams (October 22, p. 897). At the same time, I cannot help feeling that it falls short, in some ways, of its majestic title.

My late friend, James Adam, of Glasgow, was interested in the subject precisely from the point of view of "natural history" and I doubt if he would have approved an essay which took so little account of habit and environment. In his search for clinical findings, too, he was more fortunate than your contributors. For example, he found eosinophilia almost universal and a consistent lowering of the systolic pressure. He attached much significance to these findings, and thought that the main factor was metabolic. It is perhaps a pity that this line of inquiry appears to have been dropped.—I am, etc.,

Helensburgh, Dumbarton. O. H. MAVOR.

SIR,—In their researches into the natural history of asthma Drs. Elsie O. Williams and G. E. O. Williams (October 22, p. 897) have presented a number of points and conclusions which lend support to the findings of other investigators, but at the same time have formed conclusions which might be regarded as highly controversial. In particular I would like to refer to the "relevance of hormonal allergy in women."

Few will dispute the increased incidence of asthma at puberty, and it may be significant that many become asthmatic for the first time at that period. In the same way the condition may appear initially or become aggravated during pregnancy. But, as stated in your annotation (October 22, p. 921), many are relieved of their distress when pregnant—a fact which is difficult to reconcile with the authors' theory. Important in this connexion is the finding of Kapeller-Adler[1] that the histamine values in the blood cells of pregnant women were comparable in amount with those of non-pregnant women. That positive skin reactions to endocrine hormones have been obtained is neither surprising nor convincing seeing that the results of skin testing are to be considered suspect rather than unequivocal evidence of allergic sensitivity.

Is not the reason for the greater frequency at puberty and in some pregnancies to be found, as has been suggested in the past, in the alteration of the mode of life of the adult woman as compared with the adult man? For at that time woman adopts a much more sedentary type of existence, with consequent slowing of metabolism and reduction of the stimulating effects of weather—influences which tend to encourage parasympathetic preponderances. The relative infrequency of asthma in the more primitive races supports this point of view. Certainly the encouragement in these girls of a more spartan type of existence is in itself frequently sufficient to ameliorate the illness to a very considerable degree. The question arises once again whether there is some intimate relationship between the increase of allergy and the increasing artificiality of our existence.—I am, etc.,

Glasgow. GEORGE KRASNER.

REFERENCE

[1] *Lancet*, 1949, 2, 745.

"Mantoux-conversion"

SIR,—There is a place in the English language for a term to indicate a change from the tuberculin-negative state to the tuberculin-positive state, but the use of two different terms with this meaning leads to confusion. In the American and English literature the term "Mantoux-conversion" is used to indicate this change, but some Scandinavian writers have preferred the term "Mantoux-inversion," and recently one English writer has followed them.[1] To the ordinary English reader "conversion" clearly indicates a change from a first state to a newly acquired one, while "reversion" equally clearly indicates a change from an acquired state to a pre-existing one. "Inversion" suggests merely a "turning upside down," with no implication as to the nature of the change.

For the sake of clarity and uniformity, therefore, it would be preferable for all writers on tuberculosis to use "Mantoux-conversion" to indicate the change from the tuberculin-negative to the tuberculin-positive state, as shown by the Mantoux technique. Mantoux-reversion is the correct term to indicate the change from tuberculin-positive to tuberculin-negative. I am sure that our Scandinavian friends, who have such a remarkable and enviable command of our language, will be willing to drop the term "Mantoux-inversion," which has no real etymological justification for use in the sense it has acquired.—I am, etc.,

London, W.1. CHARLES NEWMAN,
Chairman, Prophit Tuberculosis Survey Committee, R.C.P.

REFERENCE

[1] Irvine, K. N., *B.C.G. Vaccination in Theory and Practice*, 1949, Oxford.

Myxoedematous Madness

SIR,—Surely it is time that the science of semantics and the art of logical reasoning were taught in our medical schools. I can read no alteration of opinion in Dr. Richard Asher's letter (October 8, p. 818), yet Dr. E. B. Davies (October 29, p. 982) writes as if such an alteration had been expressed. This is not scientific discussion but misrepresentation, which is fortunately not common in science.

"Mad" is a term used by the laity for behaviour which varies from the mean so far as to endanger the subject or his fellows; it excludes delirium, in which the patient appears physically ill. Dr. Asher used the term correctly in the title of his article, most of his patients being referred to hospital by an authorized officer—a layman—because their behaviour was grossly abnormal and they were not delirious. Dr. Asher's task was to assess the degree of abnormality, and, if his observations confirmed those of the authorized officer, to discover whether there was physical disease associated with the disordered behaviour. He was successful, and restored nine patients to physical health and normal behaviour. The relation between physical disease and abnormal behaviour appears to be that of cause and effect, for reasons explained in detail by Dr. Asher; they are perfectly logical reasons and suffice to establish a reasonable presumption that this hypothesis is true.

The term psychotic is being used in two senses: first, as equivalent to "mad"—as in the term "organic psychosis"; and second, as a technical term used in psychology. The first use includes states varying from "clouding of consciousness"

to catatonia, but the second is much more selective: many psychotic patients can earn a good living.

"Mad" patients with gross disorders of behaviour may be suffering from organic disease or from some disorder without discoverable organic cause. Most people know that an acute psychosis can develop apparently as a response to a severe emotional stress, but it is equally important to recognize that madness may result from organic disease. G.P.I., myxoedema, or epileptic equivalents may all appear in the observation ward, and, as far as I know, the response to treatment of the organic disease is at least as satisfactory as is that to psychotherapy.—I am, etc.,

Teddington, Middlesex. GEORGE DISCOMBE.

SIR,—In the interesting article by Dr. R. Asher on myxoedematous madness (September 10, p. 555) and in the annotation (p. 587) the often missed diagnosis of hypothyroidism is pointed out. In the list of signs that help the practitioner to establish a right diagnosis the presence of myoidema is omitted. However, in my experience the presence of a marked myoidema after mechanical stimulation of skeletal muscle is of significant practical value, since its absence virtually eliminates the diagnosis of hypothyroidism.

The localized muscular contraction that determines the erroneously called myoidema is observed in several conditions, generally accompanying a negative balance of nitrogen, but never reaches the proportions and specially never lasts so long as in myxoedema. Furthermore, the disappearance of the phenomenon after thyroid treatment indicates the direct relation between the abnormal muscular response and the endocrine disturbance. On the other hand, the rare and fleeting myoidema that is observed in hyperthyroidism is another evidence of the effect of thyroid gland upon the reaction of skeletal muscle, since in this condition, with its muscle wasting, a marked myoidema would be logical to assume.

This important sign was first observed in hypothyroidism and myxoedema by Södebergh,[1] who gave a right explanation of it. Recently, apropos of a study of skeletal muscle in hypothyroid conditions, I insisted on the practical value of this sign, which goes hand in hand with the results of the treatment.[2] It is objective and does not depend on the good will of the patient. It should be remembered that in patients with marked infiltration of subcutaneous tissue it is better to palpate the biceps than to look at it after vigorous pinching of the muscle, the better form of applying a mechanical stimulation. In other rare conditions not entirely due to a deficiency of the thyroid gland but undoubtedly connected with it—such as hypertrophia musculorum vera and the syndrome of Debré-Semelaigne—myoidema assumes enormous proportions.—I am, etc.,

Buenos Aires. ALFREDO LANARI.

REFERENCES

1 *Rev. Neurol.* 1910, **2**, 487.
2 *Medicina, B. Aires*, 1947, **7**, 197.

SIR,—I have always been struck by the way that opposing correspondents misunderstand each other's views. The correspondence about my article on myxoedematous madness (September 10, p. 555) seems no exception. Dr. E. B. Davies (October 29, p. 982) is pleased that I no longer hold my "unrestrained opinions," but in my letter (October 8, p. 818) I did not alter them, I only explained them again. I regard myxoedema as an important cause of insanity because it is important for people to know about it, because it is important to recognize and treat it, and because it is not rare and may often be rapidly cured.

I cannot quite understand why Dr. H. Bourne (October 29, p. 982) wishes to discount six of my cases because they had on occasion clouded consciousness. Their madness was due to the myxoedema just the same, and it certainly did not (as Dr. Bourne says) "respond to thyroid as they regained consciousness." Case 5 became so irrational that she upset the whole of the ward, and Case 10 became maniacal and hallucinated for over a fortnight (this is made quite clear in my paper). Of the three which he says failed to respond, two showed considerable improvement (again quite clear in the paper).

Dr. Bourne says it requires more evidence to show that myxoedematous madness is a more distinct entity than "rheumatic madness," "acute haemorrhagic madness," etc. The evidence (apart from these 14 cases) is to be found on page 31 of the report by the Clinical Society of London[1] and in all the other references given at the end of my article, whereas there is nothing known about rheumatic madness or acute haemorrhagic madness. Further evidence is supplied by letters and messages I have had from doctors who have met similar mental changes with myxoedema and also by two more cases I have seen since I wrote the article.—I am, etc.,

London, W.1. RICHARD ASHER.

REFERENCE

Trans. clin. Soc., 1888, Supplement to vol. 21.

*** This correspondence is now closed.—ED., *B.M.J.*

Splenic Puncture

SIR,—Though sternal puncture has become an indispensable procedure in the study of the blood cells, in temperate zones diagnostic puncture of the spleen is becoming more frequently used. Splenic puncture is particularly helpful in the study of the cells of the lymphatic and reticulo-endothelial series and in the diagnosis of the obscure leukaemias and reticuloses. In the Tropics spleen puncture is much more frequently performed, especially for the diagnosis of kala-azar. Recently, however, splenic puncture has tended to become replaced by sternal puncture because of the supposed danger of the former and because in kala-azar the latter is supposed to give as many positive smears.

There is little justification for either of these suppositions. Although occasional deaths are reported as the result of spleen puncture, those with the greatest experience of the procedure find it perfectly safe.[1–3] Debono[4] in his experience of 2,000 cases of infantile kala-azar had only two deaths—one in a case of leukaemia and one in a moribund patient. Chung[5] reported 50 cases of kala-azar in which spleen smears gave fewer positives than either lymphatic gland or sternal smears, but in recent years he has seen cases in which sternal smears were negative and spleen smears positive (personal communication). Napier[6] in one series of 55 cases found 9 positive spleen smears in 11 cases with negative sternal smears. In another series[2] he found 9 out of 80 cases to have negative sternal smears; six of these nine patients were examined by spleen puncture, and positive smears were obtained in three. The writer has never found parasites in sternal smears when they were absent from spleen smears. The only large-scale comparative study is that of Ho and his colleagues,[7] who examined smears from both spleen and sternal punctures in each of 450 cases of kala-azar. They found sternal smears positive in 85.8%, while spleen smears showed leishmania in 97.6%. Napier and Ho agree that when parasites are present in both sternal and spleen smears they are easier to find in the latter.

During the past 18 months the writer has been using a simplified technique of spleen puncture the safety of which is demonstrated by the absence of mishaps in nearly 1,500 punctures, one-third of these being on cases of splenomegaly from causes other than kala-azar. The advantages of the technique are not only its safety and simplicity but also its rapidity and the fact that it can be carried out in every case regardless of the presence of blood changes. It requires no co-operation from the patient and can be used in infants and children, crying, struggling, or otherwise. Patients need no preparation or local anaesthetic, and they get up immediately after the puncture. The procedure may be repeated as necessary. The technique is as follows.

A dry all-glass 10-ml. syringe is used with a 22-gauge needle (1¼ in. = 3.1 cm.). The plunger of the syringe must be well fitting but freely movable within the barrel, and with the needle attached the syringe should be tested for these points just prior to performing the operation. The patient lies flat on a bed, and the skin over the spleen is cleaned with alcohol and allowed to dry. The operator stands on the patient's right side and with his left hand palpates the edge of the spleen. The right hand inserts the needle under the skin about midway between spleen edge and costal margin. The left hand then takes the barrel of the syringe and the right thumb and forefinger take the head of the plunger. With a rapid movement of the left hand the needle is thrust for a depth of about 1 cm.

into the spleen and immediately withdrawn from the patient. At the same time that the left hand pushes the needle into the spleen the right hand forcibly withdraws the plunger, so that during the fraction of the second that the needle point is within the spleen a partial vacuum is produced within the barrel. (The needle penetrates the splenic capsule at an angle of about 75° to its surface, though, since there is no time for the spleen to move while the needle is within its substance, this angle is unimportant.) Enough material is obtained on the tip of the nozzle of the syringe or within the needle for the making of a smear.

A similar technique has been used for liver puncture and for puncture of spleens which are not palpable. In the latter case the position of the organ is determined by percussion and the needle thrust between the ribs. Before using this technique, the rapid, co-ordinated movements of the hands should be practised.—I am, etc.,

Brighton. EMANUEL TUCKMAN,
Director, Anti-kala-azar Campaign, Friends' Service Unit (China).

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4 *Proc. R. Soc. Med.*, 1947, 40, 155
5 *Trans. Far Eastern Ass. trop. Med.*, 1938, 2, 111.
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7 *Trans. R. Soc. trop. Med. Hyg.*, 1948, 41, 629.

Lymphadenopathy in Brucellosis

SIR,—Dr. Hugh Conway's interesting article on lymphadenopathy in brucellosis (October 8, p. 787) was of great personal interest to me in view of the extensive work on the subject of Malta fever carried out by my father, the late Colonel J. C. Kennedy. He served in Malta from 1901–6, and was appointed a member of the Malta Fever Commission on its formation in 1904. In 1908 he received the Edinburgh University Gold Medal for his M.D. thesis on Malta fever. Parts I and III of this thesis deal with the aetiology, epidemiology, immunity, and prophylaxis of Malta fever, while part II is a description of the clinical conditions based on the personal observation of 250 cases. The following paraphrased extracts from this thesis seem to have some bearing on the question whether or not lymphadenopathy occurring in a patient with *brucellosis* is a specific manifestation of the disease.

1. In the section dealing with aetiology and experimental pathology the following findings are recorded. The experimental inoculation of *M. melitensis* into a monkey and two dogs caused enlargement of the spleen and certain lymph glands 20–60 days after the inoculation. *M. melitensis* was recovered (in profusion) from the mesenteric, femoral and axillary glands in the case of the monkey, and from the inguinal and axillary glands in the case of the two dogs.

2. Under the description of symptoms by systems is the following paragraph. "All the lymphatic glands are slightly enlarged, and those lying in the neck posterior to the sternomastoid muscle become tender very early in the disease. The glands are the last organs on the body for the micrococcus to leave (see morbid anatomy). Lymphangitis has occurred in one case in both legs with enlargement of the popliteal glands."

3. The following paragraph occurs under the heading "Post-mortem Bacteriology." "The organism *M. melitensis*, is recovered from the following organs in the greatest profusion in order of precedence: lymphatic glands (when fluctuating), spleen, liver, bone marrow, kidney. The observation that the lymphatic glands were so favourable to the recovery of the organism (Kennedy, *Malta Fever Reports*, IV) was of the greatest value from an experimental point of view, as it was proved that the organism remains in these organs long after it has disappeared from all other parts of the body. Therefore it became routine practice when making post-mortem examinations on experimental animals to make cultures from several of the glands. In many cases it was the saving of the experiment when these organs were the only ones containing the micrococcus."

In 1906, as a result of the findings of the Malta Fever Commission, the consumption of unpasteurized goats' milk was prohibited to all British Service personnel. Prior to that date the average incidence of Malta fever in the Malta garrison alone was in the region of 600 cases yearly. Since 1906 the incidence of Malta fever in the garrison has for the most part been only sporadic. For this reason it is probable that there will never again be such a wealth of material available for investigation and analysis. It is on these grounds that I submit the above extracts.

It may interest your readers to know that it was Colonel J. C. Kennedy who in January, 1914, provided the first clue that cows' milk might produce undulant fever in humans when he reported the presence of agglutinins for the *Micrococcus melitensis* in the milk and blood serum of cows in London.[1] Unfortunately, due to being posted overseas, he was unable to follow up this observation. It was four years later, in 1918, that Miss Alice Evans showed that these agglutinins found in the milk and blood serum of cows were due to infection by the closely allied *Brucella abortus*.—I am, etc.,

Penarth, Glam. M. C. S. KENNEDY.

REFERENCE
1 *J. R. Army med. Cps*, 1914, 22, 9.

Tetraethylthiuramdisulphide in the Treatment of Alcoholics

SIR,—I am glad that Dr. J. N. P. Moore (October 22, p. 932) has drawn attention to the need for a careful technique in the exhibition of this new drug. In answering the many inquiries I have had regarding it I have never failed to stress the importance of a proper selection of patients and control of conditions. Dr. Moore does not, I think, realize that no patients are accepted at Caldecote unless they promise, with their lips at any rate, to co-operate whole-heartedly during whatever course of treatment is prescribed for them. They are warned that any surreptitious consumption of alcohol while they are under treatment and on parole is liable to bring upon them distress up to the point of danger. Actually I never have encountered a dangerous state, though laymen, seeing a man as red as a turkey-cock and in the throes of acute anxiety, have told me *with alarm that he seemed to be in extremis* and "about to pass out." Some patients to whom I do not wish to give the drug I invite to act as umpires while a more robust fellow is undergoing test. They finally conduct the latter to bed and declare that a personal experience is not necessary for them; the vicarious atonement suffices. Quite possibly there exist individuals allergic to tetraethylthiuramdisulphide just as there are those allergic to other substances—e.g., strawberries, belladonna, bee-stings, etc.—but such have not crossed my path, or I intuitively have passed them over. Dr. Moore does not refer to the interesting fact that if a resistant patient on a small regular dose of the drug manages also to take a small quantity of alcohol he develops as the days go by, in addition to a pink complexion shortly after drinking, peripheral neuritis and mild general confusion. I have known several such cases and deliberately let them continue in order to observe results.

As to giving the drug for a few months only—this is just to help a patient by affording initial confidence and a sense of security while he is facing life again after a course of general and psychotherapeutic treatment. The drug alone cannot effect a cure; it only can act as a useful ancillary to a psychological reorientation of the character defect which in the first instance induced the individual to try to bolster himself up by recourse to alcohol. No drug of itself ever cures addiction. Unless the personality is readjusted relapse ensues when and if, sooner or later, fate turns on the screw appropriate to elicit that individual's malreaction, whatever it be.

The value of your space precludes me from entering into a more detailed exposition of this thesis. I conclude with the caution that to exploit any drug, new or old, with the promise that it will suffice to make a person behave himself for what politicians call "all time" is worthy of condemnation as quackery, be it consciously or ignorantly pursued.—I am, etc.,

Nuneaton. A. E. CARVER.

The Artificial Kidney

SIR,—With reference to letters and articles on the renal shunt and the artificial kidney I beg to suggest a much less drastic procedure to deal with anuria. In 1906 and 1907 I performed my first experiments with diathermy at the Veterinary Institute of the University of Berlin. After exposing by laparotomy both kidneys of rabbits or dogs and then treating one kidney from the back through all the integuments I noticed that the treated kidney assumed after a minute or two a highly arterial coloration while the other kidney remained bluish. I explained this effect by the local spasmolytic action of diathermy and

consequently used it as a life-saving device in cases of anuria. Not only was the severe pain in the back relieved in every case, but a subsequent flood of urine took place within one to several hours. The treatment should be of 30 minutes' duration, with maximal bearable intensity short of blistering, and should be repeated hourly until the flood of urine starts. In cases of not purely reflex anuria, which may be due partly to mechanical obstructions and partly to their reflex action, considerable amounts of sediment may appear in the first portions of urine.

Before deciding to use the artificial kidney, this very simple method should be tried. It is essential, however, to use classical and not short-wave diathermy, because of its specific action on the vascular nervous supply, as I have explained in my text-book on clinical diathermy which I hope will be published in the near future.—I am, etc.,

Manchester. K. F. NAGELSCHMIDT.

Poliomyelitis Vaccination

SIR,—The difficulty of immunizing against poliomyelitis as your correspondent, Mr. M. H. F. Johnson, suggests (October 1, p. 757) is that, apart from considerations of the safety and efficacy of the vaccine, the majority of strains of virus can only be propagated in monkeys, supplies of which are totally inadequate for any large-scale production of vaccine. If he wishes to know more on the question he might read the article by W. McD. Hammon on immunity in poliomyelitis in *Bacteriological Reviews* (September, 1949, **13**, 135).—I am, etc.,

Birmingham. B. R. SANDIFORD.

Aetiology of Erythema Nodosum

SIR,—Dr. S. A. Doxiadis, in his article on the aetiology of erythema nodosum (October 15, p. 844), stressed the importance of erythema nodosum as a signal of primary tuberculosis infection in children. My experience, based on 2,124 cases of childhood tuberculosis seen in the Dublin Corporation's primary tuberculosis clinic, may be of interest. This clinic was established in 1945, and the material is obtained from tuberculosis clinics, children's hospitals, and general practitioners. I have found only 61 cases of erythema nodosum in the total of 2,124 children—i.e., 2.8%. These 61 cases were all tuberculin-positive.

I would be interested to know if the incidence of erythema nodosum is greater in Dr. Doxiadis's material than has occurred in our case material in Dublin. Could Dr. Doxiadis give any estimate of the number of primary infections which had to be reviewed to produce the 100 cases of erythema nodosum published in his instructive article?

Compared with Scandinavian figures, our incidence of erythema nodosum is remarkably low. Every case was carefully questioned on this point in case the parents considered this manifestation of primary tuberculosis too trivial or did not connect it with the child's illness. My view, based on experience in an Irish sanatorium, is that erythema nodosum, as a sign of primary tuberculosis, occurs in the older age groups. Probationer nurses often show their primary infection by this sign. In Norway the age distribution curve for erythema nodosum presents a sharp maximum in the 20–25 age group. In Scandinavian countries primary infection occurs mostly in young adults, and childhood infection is rare. In Ireland childhood infection is common. As erythema nodosum is principally an affection of adolescence, this may account for the high incidence of this sign in Scandinavia (30%) and its low incidence in childhood primary tuberculosis here (2.8%). Eight of this group of 61 were under 5 years of age—all the others were in the 5–14 age group. Following the usual trend of this allergic reaction, 39 cases occurred in girls and 22 in boys.

The time interval between this outward sign and radiological evidence of primary infection was studied. I have observed that the erythema nodosum often preceded the *x*-ray evidence by one to three months; but in two cases pleural effusion showed, one six months later and one a year afterwards. I think it is of great importance that these cases should have repeat *x*-ray films, since films, including laterals, taken only on one occasion may miss the lesion. Some of our cases had *x*-ray evidence when the erythema was noticed, but two other cases which were tuberculin-positive showed no radiological evidence, although each had three *x*-ray examinations at intervals. Another interesting case had two attacks of erythema nodosum, the primary infection being diagnosed at the second manifestation. This last case, in a child aged 10 years, had a history of erythema nodosum diagnosed at a city hospital in April, 1944. She had a second attack when seen at the primary clinic in March, 1945. Her sputum was then positive; B.S.R. was 17 mm. in one hour, and there was cavitation seen on *x*-ray examination. She died in a sanatorium in February, 1948. This was the only death in the erythema nodosum group.

Perhaps Dr. Doxiadis can confirm my observations that erythema nodosum often precedes the radiological evidence of primary tuberculosis infection in children.—I am, etc.,

Dublin. M. DUNLEVY.

The Acute Throat

SIR,—In Dr. T. Anderson's very thorough article on the acute throat (October 15, p. 860) he states, referring to penicillin: "Local therapy by lozenges and so forth is therefore completely inadequate and systemic administration in high dosage is indicated." He then goes on to state that injections of the soluble compound four-hourly, or the insoluble procaine penicillin two or three times a day and later less frequently, are indicated for seven days. Later, referring to sulphonamides, he remarks, "The efficacy of these drugs has never been convincingly demonstrated in such conditions."

I feel I must disagree. One sees all varieties from mild to severe cases of tonsillitis (mostly caused by the haemolytic streptococcus): the mild cases nearly all clear up with penicillin lozenges and possibly an aspirin mixture, and the severe nearly all clear up with lozenges aided by sulphonamides by mouth and nearly, if not all, in two to five days. Very few G.P.s have the time to give all the recommended injections; the district nurses cannot possibly afford the time; the hospitals are too full; and most patients to-day cannot afford private nurses or nursing-homes.—I am, etc.,

Hove, Sussex. W. A. PORTER.

Sex Hormone Upset in Africans

SIR,—Dr. J. N. P. Davies's paper (September 24, p. 676) on this subject offers a hypothesis which would, if confirmed, throw a good deal of light on some of the perplexities of Bantu medicine. Being at present engaged on a clinical study of malnutrition in Zulu children, we would wish to comment on one or two points raised by Dr. Davies, especially where our own experience differs from his findings further north.

Trowell's findings regarding the prevalence and nature of the syndrome of kwashiorkor (malignant malnutrition) are amply in accordance with the situation in Zululand, but the suggestion made in the paper that few African children escape without at least a mild attack owing to the prolonged period of breast-feeding and the absence of a proper weaning period appears contrary to our findings. Traditionally the breast is supplemented from birth by sour maize porridge (*p*H 4–6), and breast-feeding (other than the mere act of dangling the child on its grandmother's shrunken breast) is usually discontinued by the end of a year, the child then being fed entirely on maize porridge with a little sour milk if available. Weaning may therefore be said to be going on all the time and to be extremely gradual.

Further, we have been able to induce a considerable number of mothers to feed wholly on the breast for six months and then to wean over the next three or four months, using maize products and milk. It would not appear so much that prolonged breast-feeding and the absence of a proper weaning period were at fault as what a child is fed on during and after weaning. Malignant malnutrition is common in children who have been weaned slowly and breast-fed for a "normal" length of time. Preliminary studies have shown that children wholly breast-fed to six months teeth two to three months earlier than their fellows who are fed on the traditional breast-and-porridge

routine. We hope to publish detailed studies at a later date on this matter.

Infertility does not seem so great a problem in Zululand as Dr. Davies describes in Uganda. Of 243 women (a small figure and part of an uncompleted series) past childbearing age, eleven (4.5%) had had no children, while 74% had four or more children.

While umbilical hernia is extremely common in Zulus (a great many of these hernias appear to undergo spontaneous regression about puberty), inguinal hernia appears relatively rare. In 5,000 admissions we recorded only six cases, but it must be remembered that a majority of males are away from this area for many months each year, working in the mines and industry.—We are, etc.,

E. A. BARKER.
MARGARET BARKER.

Nqutu, Zululand.

Significance of Convulsions in Infancy

SIR,—The correspondence on convulsions in infancy (September 3, p. 547, and September 10, p. 598) raises the question whether hyperpyretic convulsions are necessarily the forerunners of epilepsy in later life. This is still a controversial issue.

On the one hand, Peterman[1] maintains pessimistically that every convulsion in a child, unless it is caused by encephalitis, meningitis, or poisoning, has to be considered as the first manifestation of a later epilepsy. In his series of 55 cases of convulsions associated with fever an electroencephalogram was done in 34; only five had normal tracings, and in 35 the diagnosis of epilepsy had to be given subsequently. On the other hand, Neyroud[2] is more optimistic: he states that in the majority the hyperpyretic convulsions may be considered as a common accident which has nothing to do with epilepsy and the prognosis of which is favourable. In his series of 70 children the electroencephalogram was normal in 57, doubtful in nine, definitely abnormal in four, and two showed epileptic patterns.

These extremes will have to be reconciled by further research. Apparently some children will have convulsions when a certain set of circumstances is favourable for their initiation—e.g., fever, with its hyperventilation, and changes in the water metabolism. These conditions may never be imitated later on in life and no epilepsy will ensue.

The therapeutic question, in my opinion, boils down to this: there is no need to start anticonvulsant treatment in every disclosed dysrhythmia so long as it does not give rise to symptoms such as manifest epilepsy, behaviour disorders, or irritability. In febrile convulsions, when no electroencephalogram is available for the elucidation of the case—and at present it is not for a good many general practitioners—the exhibition of antipyretics and phenobarbitone whenever a febrile illness makes its appearance will be all that is necessary. This seems to me a better scheme than that suggested by Dr. G. Daynes (p. 547), who advises anticonvulsant drugs "during the years when the threshold is low." There is no knowing when to discontinue and also a risk in a case of idiopathic epilepsy of status epilepticus after withdrawal of prolonged anticonvulsant treatment.—I am, etc.,

E. GUTHANER.

Gatton, Queensland.

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2 *Praxis*, 1947, 36, 759.

Treatment of Basal-cell Carcinoma

SIR,—As a dermatologist who over a period of years has treated a very large number of rodent ulcers with radiation, I would like to draw attention to one point in connexion with their aetiology which I feel should have some bearing on the selection of treatment. Among the cases I have treated there has been a number of "recurrences" in excision scars. Knowing who operated in most of these cases, I have not often entertained any suspicion that the lesions were not widely enough excised in the first place.

I think that most of us to-day recognize trauma as the cause of a considerable proportion of the cases of basal-cell carcinoma seen. Patients present themselves with a history of having had a scratch from a pin, a rose thorn, etc., or a cut with a razor blade, which healed but broke down to form a "sore" which would not clear up. In other cases the original injury never healed. In a person with a proclivity to develop rodent ulcers a surgical incision constitutes a greater skin injury than does a scratch with, say, a pin or a rose thorn. I believe that many of the so-called "recurrences" are not really recurrences at all. In my opinion a basal-cell carcinoma had developed in an excision scar in a person with a tendency to develop skin malignancies. Quite recently I saw two cases which illustrate this point.

The first was in an elderly woman who three years ago had a small microscopically proved squamous-celled carcinoma excised from the side of her neck because she could not spend enough time in the city to undergo a course of radiotherapy. She returned recently with two basal-cell carcinomata, one towards either side of the 3-in. (7.5-cm.) excision scar. She had keratoses and another rodent ulcer as well. The second case was that of a woman who had had a mastectomy done some years ago and who presented herself with two basal-cell carcinoma (proved by biopsy) in the mastectomy scar. She was a freckler and had keratoses on the hands and face as well.

I am bringing this point up because I feel that patients who show evidence of a tendency to develop malignant conditions of the skin, keratoses, pigmented patches, etc., are much more likely to develop new basal-cell carcinoma in excision scars than patients who show none of these stigmata. I feel it is much safer to treat them with radiation than by excision.—I am, etc.,

J. M. O'DONNELL.

Perth, Western Australia.

Identification of Microfilaria

SIR,—I have for a long time been interested in getting a quick method, of value in field work, by which the various species of microfilaria could be identified. Lately I have used the brilliant-cresyl-blue method as a vital staining, and I have been surprised at the rapidity and efficiency of the method, which is as follows.

Slides are prepared by dropping on them a drop of a saturated alcoholic solution of brilliant cresyl blue. On the dried slides a drop of blood is placed. A cover slip is placed over the drop, the edges sealed off with vaseline, and the slide examined immediately. The microfilariae will be found to survive for about five minutes, and the granules will be distinctly stained, allowing easy identification.

—I am, etc.,

E. S. MONTEIRO.

Singapore.

Medical Services of the Armed Forces

SIR,—The scope of Major E. A. Smyth's article (October 1, p. 751) is so large that detailed comment on all its points is difficult. May I write on one or two he has not mentioned?

(1) Could not the smaller formations, such as field ambulances, have a non-medical adjutant for administration purposes? While fully admitting the necessity for medical officers in these units to be well versed in man management—which is inborn, not acquired—training, discipline, strategy, map-reading, etc., it always seemed to me a gross waste for medical men to be chained to a desk for hours every day, grappling with audit boards, imprest accounts, courts of inquiry, summaries of evidence, messing, rations, and pay, when they should have been out with their men, getting to know them, supervising training and exercises.

(2) Has, I wonder, any conference been called at the Staff College to which distinguished Territorial officers (who commanded field ambulances and casualty clearing stations by the dozen, and were A.D.M.S.s to at least four or five famous fighting divisions, D.D.M.S.s to at least two corps and to one Army command) have been invited? Could not their elasticity of mind and their genius for improvisation—the acquiring, for example, of thousands of extra square yards of canvas to supersede the miserable pent-houses on the three-tonners—be an asset? Could not their knowledge and experience be made use of in considering future wars? Perhaps this has been done. If not, it is surely overdue.—I am, etc.,

W. A. BELLAMY.

Aylesbury, Bucks.

Paddington Green Children's Hospital

SIR,—Your readers are probably familiar with the decision of the board of governors of St. Mary's Hospital to convert Paddington Green Children's Hospital to adult use and for the reason which has been given for this action—namely, the excess of children's beds in the St. Mary's group over the number recommended in the Goodenough Report. They may also have read the Ministry of Health circular (R.H.B. (49) 132), which together with your annotation entitled "Changes in Use of Hospitals" (October 15, p. 857) encouraged many to believe that the board might reverse their decision. Unhappily, there is no sign of any change of heart.

I am therefore writing, as chairman of a committee which is composed mainly of members of the local public and which is non-political, to give publicity to this fact. It seems right that the profession should know exactly what is happening, because this is certainly no academic medical dispute. In Paddington and neighbouring boroughs a great wave of spontaneous public indignation has occurred and now finds expression through the Save the Children's Hospital Committee. Twenty thousand people, mostly local, have already signed a petition, and further evidence is found in the resolution passed by the Paddington Borough Council on November 1, after a special committee appointed by them had investigated the matter, deploring the decision of the St. Mary's board. It is apparent that the board of St. Mary's Hospital has failed completely to understand the depth of feeling which their action has aroused. Their explanation, that students must be properly taught, does not carry conviction. Hitherto there has been no suggestion that the doctors produced by St. Mary's are less capable than their colleagues.

My committee feels a need to work hard to bring about the final decision in the near future, since a hospital which is under threat of annihilation works under strain, and it is only a matter of time before signs of deterioration must appear through the unwillingness of serious workers—whether doctors, nurses, or others—to spend their energy on tasks which have no relation to a future.

Surely the proper course is to allow the Children's Hospital to continue the work which it has carried on with acknowledged success for 66 years, and to allow its teaching facilities to be transferred to another teaching hospital group less fortunately situated than St. Mary's.—I am, etc.,

MICHAEL HARMER,
Chairman, Save the Children's Hospital Committee.

London, N.W.1

The G.P. and E.C.T.

SIR,—The experience mentioned by Dr. Donald M. O'Connor under the above heading (October 29, p. 984) has been unfortunate, but it may have been due in some instances to factors other than mere inefficacy of E.C.T. Many of our modern techniques (E.C.T., insulin coma, prolonged narcosis, leucotomy, etc.) do not so much cure the patient as render him more accessible and responsive. In other words they pave the way for other therapeutic methods, and if these are not applied the patient remains half-treated and incompletely recovered.

Some cases, after special physical treatments, require psychotherapeutic help, while many need weeks, even months, of intensive rehabilitation under good hospital conditions. Whether this takes the form of occupational therapy, physical training, and special games for one patient, of outdoor sport, general entertainments and competitive outlets for another, or of cultural activities, social functions, and club conditions for yet another, such rehabilitation is unlikely to be available except to in-patients, and it is in hospital that proper combinations of all the required activities can best be prescribed, organized, and carried out.

It is unfortunate that there has been a temptation to hail the newer physical treatments not only as applicable to too wide a range of conditions but also as complete and sufficient therapies in themselves, forgetting that mental stability and a resumption of normal life cannot always be achieved without the application of rehabilitating and resocializing methods before the patient returns to his home, so that if he leaves hospital without adequate treatment during his convalescence the risks of a relapse will naturally be all the greater.—I am etc.,

Warrington, Lancs. J. ERNEST NICOLE.

Catalogue of Medical Films

SIR,—Two years ago, with the aid of a generous grant from the Royal Society of Medicine, the medical committee of the Scientific Film Association set up a "master file" of data on medical films. It includes details of production, distribution and content, and a provisional grading of each film. It covers all the films in existence in this country up to 1946 and is being added to constantly. Covering over 800 films, it provides the most comprehensive collection of data about its medical films that any country in the world (with the possible exception of Canada) can show. From this master file was prepared the RSM-SFA catalogue of medical films. The first edition of 1,000 copies was exhausted in twelve months, a remarkable index to the widespread interest in medical films.

We are faced with the problem of deciding whether to reprint or to prepare a new edition. As the lay-out of the first edition was cramped by paper shortage, and as there are many new films to be included, we have decided in favour of a new edition. We are constantly getting requests from abroad as well as from this country, and we ask the hospitality of your columns for this explanation of why the catalogue will not be available for some months yet.—I am, etc.,

4, Great Russell Street, London, E.C.1.

KENNETH GOADBY,
Chairman, Medical Committee, Scientific Film Association.

POINTS FROM LETTERS

Retinal Arterial Occlusion in Migraine

Dr. LEO HAHN (Leicester) writes: I have been most interested in Dr. G. S. Graveson's article (October 15, p. 838), which provides an important contribution in support of the time-honoured vascular theory of the migraine attack. As long ago as 1923 I accepted the view that the migraine paroxysm is initiated by a cerebral angiospasm and introduced the potent vasodilator drug papaverine into the treatment of migraine (*Dtsch. Z. Nervenheilk.*, 1923, 77, 191). Forty milligrammes of papaverine hydrochloride, if given intravenously—very slowly in order to prevent a fall in blood pressure—early in the attack, rarely fails to arrest the paroxysm. Administered orally in much higher doses (100 mg. t.d.s.) for long periods, the drug is in most cases effective in reducing the frequency of attacks. The effectiveness of this treatment has been confirmed by several authors. . . . Dr. Graveson's cases illustrate very well that occasionally the cerebral disturbances characteristic of the aura and caused by the initial angiospasm may substitute the attack. Together with Dr. E. Kraupa I have reported a case of spasm of the central retinal artery producing the picture of "acute retinal ischaemia" with subsequent amaurosis in a girl 5 years of age (*Klin. Mbl. Augenheilk.*, 1921, 66, 829). Papaverine treatment restored within a few weeks the retinal circulation and the visual acuity. It seems probable that the early administration of papaverine in cases as reported by Dr. Graveson could prevent the thrombotic vascular occlusion.

Migraine and Calcium Deficiency

Dr. N. M. STEPHEN (Saxmundham, Suffolk) writes: With reference to the article (October 15, p. 838) by Dr. G. S. Graveson calling attention to a condition of arterial spasm in migraine, I have the following observations to make. Acting on the assumption that migraine might be considered to be a vasomotor disorder involving changes in the vascular tone of the arteries of the meninges, I made an attempt in a series of severe cases of migraine to try the effects of calcium therapy. The form of calcium used was colloidal calcium with vitamin D. The results were surprisingly successful. Therefore I have concluded that migraine is due in part at least to a genuine calcium deficiency. The treatment was used empirically, and I had no facilities for carrying out estimations of the serum calcium in the patients treated. An interesting fact is that one of the patients stated that she had been free from attacks of migraine while she was pregnant. This might be explained by supposing that all supplies of calcium are mobilized during that period and are therefore more readily available. All the patients referred to had already experienced all the usual forms of treatment—i.e., aspirin, phenobarbitone, and ergotamine tablets. The time interval between the injections tends invariably to increase, and a space of two to three months may elapse before the next injection becomes necessary.

Obituary

Sir HERBERT EASON, C.B., C.M.G., M.D., M.S. F.R.C.S.

Sir Herbert Eason, president of the General Medical Council since 1939, died at Guy's Hospital on November 2 at the age of 75. He had attained distinction in the practice of a medical specialty, in hospital administration, in the government of a university, and as president of the body controlling the training and discipline of the medical profession. So closely associated was he with academic and public life that it was often forgotten that he was also an ophthalmic surgeon who had contributed much to the literature and teaching of ophthalmology. At Guy's Hospital he was chief of the ophthalmological department for more than thirty years. Herbert Lightfoot Eason was born in London on July 15, 1874, and received his education at University College. From there he went to Guy's medical school, qualifying in 1898, and taking his M.D. degree in 1901 and his M.S. a year later. In 1902 he became resident warden at Guy's, and in the following year dean of the medical school, a post he held until 1912. During the first European war he served with the rank of lieutenant-colonel as consulting ophthalmic surgeon to the Forces in the Mediterranean, Egypt, and Palestine. He was mentioned in dispatches, and awarded the C.M.G. in 1917 and the C.B. in 1918. His experiences in the Near East are recorded in *Guy's Hospital Reports* of that period and in the *Transactions* of the Ophthalmological Society, of which at that time he was an active member.



[Russell and Sons

Herbert Eason's appointment as superintendent of Guy's Hospital took place in 1920, when Sir Cooper Perry retired, and he made his home in the elegant old building, since destroyed by enemy action, on the east side of the famous court in which stands the statue of Thomas Guy. This post he held for not far short of twenty years, during which time many notable developments took place in the hospital. One of these was the opening by the Prince of Wales, afterwards Edward VIII, of Nuffield House for private patients, situated in the hospital grounds.

The affairs of the University of London, then in a transitional stage, began to claim his attention in 1911, when he was elected to the Senate as a representative of the Faculty of Medicine. He also represented the Senate itself on the University Court. Eason was chairman for various periods of the library and finance committees and of the advisory council, and in 1935 he became vice-chancellor. This office he held until 1937, when the Senate appointed him to the post of Principal of the University for a period of four years. The construction of the great university buildings in Bloomsbury, which during the war were the home of the Ministry of Information, had already been started, and Eason's appointment to the post of principal synchronized with the flying of the university flag from the completed tower. These four years were important ones in the history of the university. Eason had already been a member of the departmental committee of the Board of Education on the reconstitution of the university, and to a large extent under his guidance the reconstitution was effected and great progress made in all branches of its work. Research was promoted by scholarships and other means, and a large university professoriate was built up. At the end of his term of office as principal London University had 250 professors, 167 readers, and nearly a thousand recognized teachers.

Eason's outstanding work for the university by no means exhausted his activities in the educational field. He was for six years a member of the departmental committee of the Ministry of Health on postgraduate medical education, and he served as a member of the governing body of the British Postgraduate Medical School, which, like the twelve undergraduate schools in London, is a school of the university. It was his association with the University of London which brought him on to the General Medical Council; he took his seat as its representative in 1925. His already great administrative experience proved most useful in this field. He took a prominent part in the Council's discussions on education; he also became co-treasurer of the Council and a trustee of the English Branch. In whatever activity he engaged he seemed to make an effortless progress towards the top, and when Sir Norman Walker retired in 1939 Eason was the unanimous choice of his colleagues as President. He brought to the chair a long business experience as well as a natural authority, wisdom, and urbanity. A fierce light often beats on the G.M.C., but Eason was neither flattered nor intimidated. Throughout his career he had the most jealous regard for the ethics of his profession. He carried this to such a point that in his various official positions he would not allow his name to appear in the newspapers if it could be avoided. When newspaper men called on him for information he would tell them that they might say that the superintendent of Guy's took such and such a view or that the principal of the University of London had this or that intention, but the name of Eason they must not print, and generally his wishes were respected.

In a lecture he once delivered to students at Guy's Hospital he said that the simple rule which should govern them in their professional career was that same unwritten rule which guided the true Englishman in all circumstances—namely, that certain things are not done. This rule, he said, extended from trivial affairs of taste right down to cheating or embezzlement. "Gentlemen," said Eason, "the code of conduct summed up in the words 'it is not done' begins in the public school and goes on through the university, and remains with a man throughout his career. Keep those words in mind, and you will never come before the tribunal over which at the moment I have the honour to preside."

Eason was a member of the General Nursing Council, on which he represented the Ministry of Health. He was a co-opted member of the Public Health Committee of the London County Council, a member of the General Council and of the Economy Committee of the King Edward's Hospital Fund for London, a J.P. of the County of London, and a trustee of the Beit memorial fellowships for medical research. He was an honorary Bencher of the Inner Temple, and he contributed the articles on ophthalmology to French's

Index of Differential Diagnosis. Like some others who have occupied leading positions on the General Medical Council, in order to remain unembarrassed in dealing with disciplinary cases he stood outside the membership of the B.M.A., but he was sympathetic to the Association's aims, and in earlier years he rendered it good service as a member of the Ophthalmic Committee which helped to sponsor the National Eye Service. His name appeared as a knight in the birthday honours list of 1943.

RICHARD LAKE, F.R.C.S.

Mr. Richard Lake, who was for many years a well-known ear, nose, and throat surgeon practising in London, died in a nursing-home at Bristol on November 1 at the age of 87.

Richard Lake was born at Sittingbourne, Kent, on December 14, 1861, and was a student at St. Thomas's Hospital, where he qualified in 1885. In the same year he took part in the Sudan campaign as a surgeon of the National Aid Society. This was before the organization of the Red Cross, and he undertook similar work in the Servo-Bulgarian war, for which he was decorated by both the Servian and Bulgarian Governments. Returning to England, he took the F.R.C.S. in 1890, and from then onwards specialized in the treatment of diseases of the ear, nose, and throat.

Mr. Lake was appointed surgeon laryngologist to Mount Vernon Hospital in 1897, and in the following year began his long association with the Royal Ear Hospital. For many years he was consulting surgeon in his specialty to University College Hospital and to the Seamen's Hospital, Greenwich, and he was president of the otological section of the Royal Society of Medicine. During the 1914–18 war he served as aural surgeon to the R.F.C. Hospital and to Princess Christian's and Robert Lindsay's Hospitals for Officers. For four years from 1924 he was Geoffrey E. Duveen Lecturer on otology in the University of London. He was also at one time president of the West London Medico-Chirurgical Society. He published a number of papers on tuberculosis of the larynx, simulated deafness, aural vertigo, re-education of the deaf, mastoid suppuration, and other subjects in his specialty.

C. O. HAWTHORNE, M.D., F.R.C.P.

J. M. A. writes: May I pay tribute to the memory of my patient and friend, Dr. C. O. Hawthorne (October 29, p. 986)? His great age brought increasing infirmity, but he never once complained. The disability which interfered with the use of his typewriter was a blow to him, and his friends missed his pungently witty notes. His command of the English language, verbal and written, was superb, and no man was more widely read. He was equally at home in the German language. When in 1942 his house in Hove was almost destroyed by a bomb he maintained an admirable philosophic calm. His interest in his profession and in the British Medical Association remained unabated to the end of his life. To the last his amazing memory was unimpaired, and there was no senile reiteration of old stories, but a gentle irony when discussing current events and modern medical politics. Only this year he published a popular science pamphlet, *The Human Body: A Justification.* Physically and mentally he was a big man, and beneath his reserved manner lay a vast understanding of human frailties. Although he outlived most of his contemporaries, he will be missed by all who knew him.

Dr. Bernard Myers writes: As a colleague of Dr. C. O. Hawthorne for many years at the Royal Waterloo Hospital I would like to mention the high respect in which Hawthorne was held by his colleagues for his downright honesty in his views, even if disagreeing with those expressed by the other members of the medical committee. He always spoke sound common sense and was fair in argument. If his external manner was apt to be severe, that was not the real man, for when we lunched together his genial and kindly spirit was evident. Those who knew him well will mourn the passing of a sound physician, loyal colleague, and good friend.

Dr. Eva McCall writes: May another old student of Dr. C. O. Hawthorne also pay a tribute to his memory? Dr. Hawthorne lectured to the women students in the medical faculty at Queen Margaret College, University of Glasgow, in the 'nineties, and I was privileged to be one of those. He was a most inspiring teacher, and dressed the dry branches of materia medica with glowing tints, so much so that this dull subject became quite fascinating, and I owed him a lifelong debt of gratitude for his magnificent teaching. It was an incalculable loss to the university, where he would have filled a professorial chair with great distinction.

Dr. ARTHUR HILL BURNETT died suddenly on October 7 at the age of 68. He was born in Southampton and educated at King Edward VI School and the old Hartley College. He carried out his medical training at Edinburgh University and the London Hospital, qualifying in 1904. He held house appointments at the British Lying-in Hospital, Endell Street, at St. Mary's Hospital for Women and Children, Plaistow, and at the Kensington Infirmary, London. For a time he was a ship surgeon and visited many parts of the world. During the first world war he served in the R.A.M.C. with the rank of captain. In 1919 Dr. Burnett was appointed honorary anaesthetist to the Royal South Hants and Southampton Hospital, and medical officer to St. Mary's Institute. When the latter building was blitzed in 1940 he continued his work at Moorgreen Hospital. Apart from conducting a busy practice and his institutional work, he gave a large part of his time to the administration of anaesthetics at the Royal South Hants Hospital, where he was recognized as an expert anaesthetist. Retiring from this post during the recent war, he was appointed honorary consultant anaesthetist to the hospital. Dr. Burnett was an able physician, a skilled anaesthetist, and the pleasantest of colleagues. His contemporaries will long remember his happy disposition, his sincerity, and his great friendliness. To his widow and sons many colleagues and friends will extend their deep sympathy. —S. N. L.

Dr. CHARLES ROPER, of Rochester, who died there on October 17, was the younger son of the late Charles Roper, of South Kensington. He was born in 1877, and was educated at St. Paul's School, where he obtained a Tancred studentship in physic to Caius College, Cambridge, going into residence there in 1895. After taking the Natural Sciences Tripos he was awarded a scholarship to the medical school of the Westminster Hospital, and graduated B.C. in 1903 and M.B. in 1904. He proceeded M.D. in 1911, and took the Oxford D.P.H. in the same year. After filling house appointments at the Westminster Hospital he held for a few years an appointment as medical officer in Assam. Later, after his career had been interrupted by tuberculosis, he took up the study of that disease as a specialty. He was medical superintendent of Tehidy Sanatorium in Cornwall, and then tuberculosis officer for Kent, with headquarters at Rochester, and there he remained for the rest of his professional life. He had contributed on several occasions to the literature of his specialty. Dr. Roper was chairman of the Rochester, Chatham, and Gillingham Division of the British Medical Association from 1930 to 1932. He married Ethel, daughter of Mr. G. A. Dick, who survives him.

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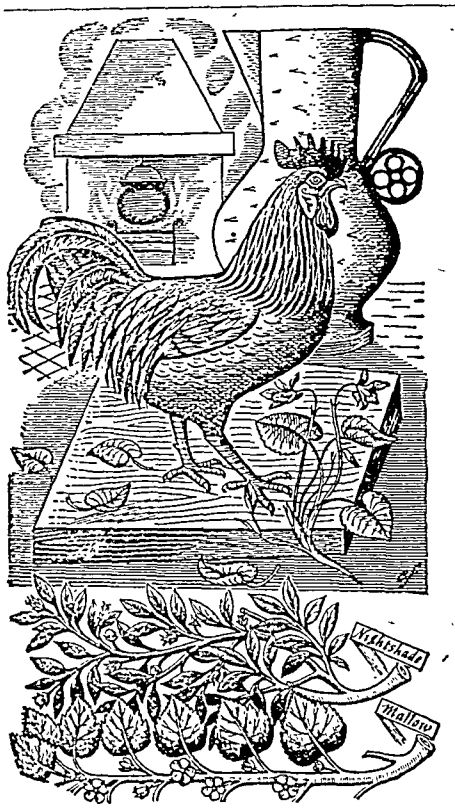
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Medico-Legal

DANGEROUS DRUGS IN LOCKED CAR

A doctor was recently fined for keeping dangerous drugs other than in a locked receptacle.[1] His appeal, by way of case stated by Lord Ilkeston, the stipendiary magistrate for Birmingham, was heard in the King's Bench Division on October 19. Information against the doctor was originally preferred by a chief inspector of police, who alleged that on January 9, 1949, the doctor had contravened regulation 5 (2) of the Dangerous Drugs Regulations, 1937, which provided that "every drug . . . in the actual custody of a person authorized by this regulation shall, except when the necessities of the practice of the profession . . . by virtue of which that person is authorized . . . require, be kept in a locked receptacle which can be opened only by him or by some other person authorized by virtue of this regulation."

The facts proved before the magistrate were as follows: The doctor, as a registered medical practitioner, was a person legally authorized to be in possession of drugs to which the Dangerous Drugs Act, 1920, and the regulations made under it applied. On January 9 the doctor went to the cinema in his car, which he left in a car park with the doors locked. Inside the car was an unlocked leather case containing a number of dangerous drugs. On leaving the cinema he found that the car had been stolen. It was recovered on January 12, unattended and with all the doors wide open and the unlocked leather case containing the drugs on the rear seat. The drugs were handed to a police inspector, who later saw the doctor. The doctor admitted that the drugs were his.

It had been contended for the prosecution that a locked car was not "a locked receptacle" within the meaning of regulation 5 (2), and that if the doctor wished to take advantage of the exception in the sub-regulation the burden of proving the necessary facts for that purpose was on him. For the defence it was held that the doctor had complied with the regulation by leaving the drugs in an unlocked case in a car all the doors of which were locked. The key to the car was in the doctor's possession and was peculiar to that car. The word "receptacle" was not limited to the container of the drugs; the real test was whether the drugs were safely under lock and key. It was also argued that it was essential for the doctor to have these drugs easily accessible in case of emergency, and that it was much safer for him to leave the drugs in an unlocked case in a locked car than to leave them in a locked case in an unlocked car. The magistrate found the charge proved, and the doctor was therefore fined.

Judgment

The Lord Chief Justice, giving judgment,[2] said that in his opinion the regulation contemplated that drugs of this kind should be permanently and regularly kept in some locked receptacle. It was impossible to say that a motor-car was a "receptacle" within the meaning of the regulation. If it were, it could be held that if a doctor left dangerous drugs in his house and then went out and locked all the doors the drugs had similarly been left in a locked receptacle within the meaning of the regulation. A motor-car might be described as a receptacle for luggage, but the regulation must be construed so as to effect the obvious purpose of the Legislature. A motor-car which had constantly to be locked or unlocked, according as it was being driven or parked, could not fairly be brought within the terms of the regulation as being a "receptacle." The appeal was therefore dismissed.

1 *British Medical Journal*, October 8, 1949, p. 819.
2 *The Times*, October 20, 1949.

According to a report issued by the International Tuberculosis Campaign about 16,000,000 children and young adults in the countries in which Unicef is conducting feeding programmes had been tuberculin-tested and about 7,500,000 had been vaccinated with B.C.G. up to August 1, 1949.

Medical Notes in Parliament

NATIONAL HEALTH SERVICE (AMENDMENT) BILL

Lord SHEPHERD in the House of Lords on November 1 moved the Second Reading of the National Health Service (Amendment) Bill, which had already passed the House of Commons (*Journal*, October 29, p. 989). He described the Bill as small and non-contentious. In certain particulars it applied also to Scotland. Its objects were, first, to elucidate and amend those provisions in the National Health Service Acts which prohibited the sale of practices of doctors in the Service, and which compensated them for the loss of goodwill, in regard to partnerships of a mixed character. Secondly, the Bill implemented promises of amendment made to the medical and dental professions. Thirdly, it made certain minor administrative amendments, and, fourthly, it removed doubts regarding some of the provisions of the original Acts.

Great difficulty had been experienced in framing clauses dealing with partnerships and with the sale and purchase of medical practices, and even when these Bills became Statutes a good deal of discontent had remained concerning their effect. Mr. Bevan had appointed a committee under Mr. Justice Slade to examine those parts of the Acts which referred to partnerships, and he had completely accepted the report of this committee. The recommendations made in that report were provided for in the Bill. The Government wanted to encourage the formation of partnerships in the medical profession, believing this to be of advantage to doctors and to their patients. There would be as little interference with partnerships as possible. Lord Shepherd understood that there were only 50 "mixed partnerships" affected by the Bill, and the number of doctors concerned was only 150.

Part II of the Bill was simpler but of great interest. For some time the medical ranks had been agitated by a fear that under the Acts a full-time service might be established. Indeed, it was possible under the original Acts for Orders to be introduced into both Houses for the purpose of placing the medical service upon a full-time basis. Such a power had existed since the National Health Act of 1912. Mr. Bevan, however, had given a pledge in the House of Commons on April 7 that it would be made impossible by regulation to place the medical profession effectively on a full-time basis. Mr. Bevan had also said that the Government had no intention of establishing a full-time practice and that he would make this clear in an amending Bill.

Minor Amendments

Among other things the Bill referred to the tribunal which had power to take out of the Health Service those who must be disqualified. It was made up of a legal chairman, an executive council member, and a member of the profession concerned. The last member would be appointed by the Minister of Health, and at the suggestion of the medical profession would be taken from a panel representing the various interests of the profession concerned. The Minister had agreed to this.

Another point related to the costs of the establishment of local committees of doctors, chemists, and opticians. The professions concerned had suggested that the expenses of these committees should be borne out of block deductions from the fees to be paid to them. This had the advantage of maintaining the independence of the professions. The time in which doctors could make a claim for midwifery fees was extended to three months. Dentists would have the same rights as doctors in taking into hospitals as paying patients those of their clients who did not wish to be Service patients. The Minister held that as 95% of the population were in the scheme the number of persons among whom private practices could be built up was so small that they could receive the advantages of the hospital service without getting unduly in the way of those who were in the scheme.

In a great service relating to the hospitals questions of labour or remuneration were bound to arise. It was proposed, in

Clause 13, that the Conciliation Act of 1896 and the Industrial Courts Act of 1919 should be applied. A special tribunal of the Industrial Court would be appointed to deal with disputes arising out of remuneration or other conditions of service.

It was also intended to provide that men who were in the hospital service but desired to sever their connexion with it for a period should be enabled to do so but still remain in the superannuation scheme. It was desirable that medical officers should be able to take short-service contracts in the Colonial Medical Service while continuing to contribute to the Health Service superannuation scheme. Lord Shepherd went on to speak about clauses introduced at the request of outside organizations. District nursing associations and other bodies found much of their former work undertaken by hospitals and other authorities. The Bill would permit these bodies to hand over to the Health Services any property for which they no longer had any use but which existing trust deeds might have prevented them handing over. Clause 24, which applied to Scotland only, enabled children under 16 in that country to be treated on the initiative of parents or guardians as voluntary patients in mental hospitals. This would bring Scottish law into line with English law. Another provision, primarily a mental health matter, enabled a charge for board and lodging to be made to hospital patients who went out to work in the later stages of their recovery.

Lord Shepherd confessed that the Bill was somewhat disjointed. It was a list of small things promised, of little difficulties to be remedied, and of frictions to be eased. It was the first, but it would not be the last, National Health Service (Amendment) Bill. It was a matter for congratulation that the Government, having found that some adjustment was required, had taken early steps to bring it about. In the course of time as the Service grew the Government might have to call on Parliament to make other adjustments, but he believed that no attempt would be made to undermine the main principles on which the Acts were based. He moved that the Bill be read a second time.

One Shilling on Prescriptions

Lord LLEWELLIN said that had the promises which this Bill was to fulfil not been made the National Health Service might never have started. Although it was a minor Bill it did a major piece of work. Three years ago when the National Health Service Bill was discussed in the House of Lords statements were made that the partnership clauses would not work. Last time Lord Horder, Lord Moran, and Lord Webb-Johnson were all present in full cry. To-day those three noble Lords were conspicuous by their absence. From that it was clear that the medical profession agreed with the Bill.

He asked Lord Shepherd to tell the House whether the Government intended to use this Bill to effect the payment of one shilling per prescription which had been announced as part of the economy campaign, or whether that proposal would be contained in another measure. He had noted that old-age pensioners were to be exempt from the new charge, and he asked the Government to consider also the inclusion in this exemption of the disabled ex-Serviceman who needed medical supplies for his actual disablement.

Lord CLYDESMUIR said the parent Act had been applied to Scotland with little modification, and Scotland had the Health Scheme with all its mistakes, some of which were becoming evident. The medical services in Scotland were working under strain, and the House would assist those services by approving the Bill. The second part of the Bill provided that regulations should not require specialists to be employed whole-time. There was anxiety among specialists in Scotland about whether this clause was wholly watertight. A case had been instanced of a Scottish hospital in which as a result of administrative action, by advertisement, the door had been closed to anything but full-time employment of specialists.

Lord SALTOUN suggested that the provision for treatment in mental hospitals for children under 16, on the initiative of parents or guardians, might be an interference in Scotland with the boy's Common Law right. In Scotland a boy of 14 was considered capable of carrying on his affairs in all respects except ownership of a heritage.

The Earl of CORK and ORRERY, speaking of the proposed p ment of a shilling on prescriptions, said that two men wh he had consulted had both asked why it was not arranged a patient to pay the tax on his first visit to a doctor. That wo limit the number of people going to see the doctor in first place. It would cut down the mob in the waiting-roo and would obviate the need for the doctor to go on prescrib coloured water. It would reduce the number of old wom sitting there talking when all they needed was a Beecham's p

Lord KERSHAW replied briefly. He was unable to tell Lo Llewellin whether the shilling charge would be brou into the Bill. The matter was under consideration and w regarded as one which should be dealt with promptly. T suggestion with regard to disabled ex-Servicemen would be co sidered sympathetically by Mr. Bevan.

The Bill was then read a second time and was committed a Committee of the whole House.

NURSES BILL

The Nurses Bill, which had its second reading in the Hous of Commons on October 21 (*Journal*, November 5, p. 1056) was considered on October 28 in committee.

Mr. LINSTEAD moved on Clause 1 the first of a series of amendments intended to give an assistant nurse the statutory title of "enrolled nurse" and to describe the relevant committee as the Enrolled Nurses Committee. He said that at the moment there was an anomaly because although these nurses were on a roll called the Roll of Assistant Nurses they had the right to call themselves nurses without using the word "assistant." Whether the House wished it or not many hospitals, particularly the hospitals for the chronic sick, would be staffed by assistant nurses. Anything which would help to bring these girls under the control of the General Nursing Council as assistant or enrolled nurses should be done.

Mr. BLENKINSOP sympathized with the object of the amendment. He said the Government did not regard the term "assistant nurse" as being a final choice. The Ministry had recently shortened the period of training for assistant nurses, and the time was a bad one to choose for suggesting a new name. It would be difficult for the average person to differentiate between enrolled nurses and registered nurses.

The amendment was then withdrawn.

Before the deputy chairman, Mr. BOWLES, called an amend ment on Clause 2 in the name of Mr. WALTER ELLIOT to leav out "Standing Nurse Training Committee" and insert "Nurs Training Authority" he asked for an assurance that there was no more in it than a mere change of name. Otherwise he would have to rule the amendment out of order as conflicting with the money resolution already carried which authorized expenditure by standing nurse-training committees.

Mr. LINSTEAD moved the amendment and said that under the title first proposed the committees might be regarded as subordinate bodies of the regional board. That was not so, and the alternative name "authority" had commended itself to the Royal College of Nursing. Mr. BLENKINSOP was unable to accept this amendment, which was withdrawn.

An amendment by Mr. DIAMOND was also withdrawn, and Clause 3 was ordered to stand part of the Bill after Mr. Blenkinsop had said the Ministry was satisfied that under the Bill as it stood the General Nursing Council was entirely responsible for examinations and could standardize them throughout the country or authorize regional committees to carry them out on whatever conditions the Council considered necessary.

Training and Employment

Sir HUGH LUCAS-TOOTH moved to leave out subsection (2) of Clause 4. He said the purpose of the clause was to separate responsibility for the training of nurses from the employment of nurses. On second reading the House had not discussed how that purpose was to be carried out. He asked the Government to say how this scheme would work. Could a hospital do any training of nurses if it had not previously been approved by the nurse-training committee? If it could not, they might find that the scheme was what Mr. Bevan would describe as

muscle-bound. He also asked whether disbursements in respect of training would be made by the hospitals themselves or whether the nurse-training committee would be able to carry out a scheme within the walls of a hospital. He held it to be important that the actual training should be carried out completely by the hospital. Where there were two different bodies responsible for policy and payment there was danger of conflict. A hospital might require 50 nurses in training for the purposes of employment, but the nurse-training committee might decide that only 30 nurses should be in training in that hospital. How would that sort of question be resolved?

Mr. BLENKINSOP said the intention was first to issue a general indication of the category of expenditure which Mr. Bevan would regard as coming within the nurse-training fund. It would be possible to separate this from the general administrative expenses of the hospital, but some expenses which could be regarded as connected with nurse training could not reasonably be separated from general administrative expenses. To set out the categories of expenditure which the Minister regarded as being separately chargeable would be the first step. Categories of expenditure which Mr. Bevan would regard as coming within this section of the Bill would include the payment of sister tutors, expenditure on lecturers and others, and might also include certain types of building, such as provision for classrooms. Hospital management committees and boards of governors in framing budgets for nurse training would have regard to these specified types of expenditure, which would be open to variation from time to time. On the allocation of expenditure the Ministry hoped to get agreement in the regional committee. In the case of a new teaching centre which could also be used for other purposes of general hospital administration a regional committee might feel that the matter should not be included in the training budget. That was the type of question which would go to the Minister for decision.

Sir HUGH LUCAS-TOOTH asked whether the Government contemplated that the Minister should be able to divide up expenditure which was partly for training and partly for administrative expenses of the hospital.

Mr. BEVAN intervened to say it was perfectly clear that this was intended. The Bill was providing what was available already in the National Health Service to ensure that the academic side of medicine was kept separate and that the provision of apparatus on the secular side was the obligation of the Minister of Health.

The amendment was by leave withdrawn, and Clause 4 was added to the Bill.

Sir HUGH LUCAS-TOOTH moved on Clause 8 an amendment to provide that a finance committee should consist of not less than seven nor more than eleven members.

Mr. BLENKINSOP said the House would be undertaking responsibility which it had better leave to the General Nursing Council if it specified any precise numbers for the finance committee. He believed the general view was that it was desirable for the finance committee to be reasonably small. The amendment was withdrawn, and Clause 8 was ordered to stand part of the Bill. Minor amendments were made to Clauses 12, 13, 15, 16, and 19 on the motion of Mr. BLENKINSOP.

On Clause 21 Mr. BLENKINSOP secured the insertion of a provision that "chief male nurse" should mean a male nurse in charge of the male nurses employed in a mental hospital.

General Nursing Council

A new clause was added to the Bill to provide that membership of the Council and its subordinate committees should not involve disqualification from election to Parliament. Discussing the First Schedule, Mr. HOWARD moved to provide that one member of the General Nursing Council should be a member of the University Grants Committee. Mr. BLENKINSOP resisted the amendment and it was withdrawn.

Mr. BURDEN moved to provide that one member should be a nurse whose name was included in the supplementary part of the *Register* containing the names of nurses trained in the nursing of cases of infectious disease. He said the amendment had the support of the National Association of Local Government Officers. Mr. BLENKINSOP, in resisting the amendment, said he was glad to announce that owing to the decline in the need for fever nurses this part of the *Register* was becoming smaller. New admissions had fallen from 740 in 1946 to about 300 this year. The Government preferred to look forward to the early cessation of special training of this kind and would expect to find within the general training of nurses the necessary knowledge of infectious diseases. The amendment was then negatived.

Mr. SKINNARD moved an amendment to raise the representation of ward sisters on the General Nursing Council from one to two. Mr. HASTINGS supported the amendment and said that ward sisters required representation because they were engaged practically all their time, or ought to be, in nurse training. Mr. BLENKINSOP said it was wrong to assume that the representation of each particular viewpoint must be ensured specifically in the Bill. The amendment was negatived.

Mr. HOWARD thereupon moved that two members of the Council should be registered medical practitioners. He said the best results in nursing were obtained only where there was the closest working partnership between the medical man and the nurse. Mr. BLENKINSOP said in the past the Minister had always ensured representation of the medical profession. There was no intention to depart from that practice, but he preferred not to agree to the insertion in the Bill of the words proposed by Mr. Howard.

Dr. H. B. MORGAN said he failed to see why the medical profession should by statute be included on the General Nursing Council unless in the pending reform of the General Medical Council there was to be a reciprocal arrangement by which nurses would be included. He would tell the B.M.A. Council at its next meeting that he failed to see why the medical profession should ask to have representation on the General Nursing Council. The amendment was negatived.

Mr. HASTINGS then moved to provide that one member of the Council appointed by the Minister should be a person having experience in the nursing of cases of tuberculosis. He said nurses who had practical experience in nursing this disease would be of the greatest help to the General Nursing Council and indirectly to the Government in explaining what was wrong and in getting more nurses for this important class of case. Mr. BLENKINSOP said if it was not possible to meet the need in any other way he would be much inclined to accept the amendment. He hoped that increasingly nurses would gain experience in this field as part of their general training. He believed they would get experience of this field through the general representation of nurses, and he asked Mr. Hastings not to press the amendment. Mr. HASTINGS withdrew his amendment.

Further amendments to the First Schedule were moved and withdrawn and the Schedule as amended was agreed to. The Second Schedule (Standing Nursing Training Committees) was agreed to without amendment. Minor amendments were made on the motion of Mr. BLENKINSOP in the Third Schedule (Mental Nurses Committee). The Bill was then reported to the House with amendments.

Food Hygiene

Mr. SKEFFINGTON-LODGE on October 31 raised the question of food-poisoning and food hygiene. He said that between 1938 and 1947 there had been 3,270 outbreaks of food-poisoning in this country. In 1938 there were 156, as against 964 last year. There was reliable authority for the view that food-poisoning generally was at least three times what it had been before the war. Returns of the Registrar-General for the years 1937–46 recorded 246 deaths from this cause. Mr. Skeffington-Lodge calculated that one-half of the population had at least one meal a day away from home. Midday meals were served in schools to about two-thirds of the school population of the country. Since the war there had been two very hot summers, and many weaknesses on the food front had been exposed. The precautions taken in a cool summer would have to be looked at and revised, for experience showed that they were not adequate to deal with changed conditions and what might be a changing climate. He asked Dr. Summerskill whether she was satisfied that in the circumstances the powers of inspection which were available to her staff and to local authorities under the Food and Drugs Act were applied rigorously enough.

British standards of food hygiene were lower than in the United States and very bad indeed. He regretted that the model by-laws which had just been issued did not include among their excellent recommendations any reference to smoking. The preparation, handling, and serving of food should not be mixed with smoking. Customers should complain when utensils and personnel were unclean, when tea-towels were used for washing hands and cutlery and also for wiping table tops, or when washing-up water in kitchen premises was used over and over again, or when open displays of food were not properly protected from contamination.

Dr. EDITH SUMMERSKILL said that if the model by-laws recently distributed were adopted, and if the provisions made in them were carried out, it would be possible to eliminate most of these abuses. Unfortunately the public conscience was not sufficiently aroused to demand that there should be an alteration in the present practice. Outbreaks of food-poisoning were increasing; yet everyone knew that they were preventable. In fact the people had the cure in their own hands. She said that food which in the past had been thrown away was now stored, rehashed, and reheated, and so bacteria were given a new lease of life.

Mr. Skeffington-Lodge had quoted figures showing the number of cases since 1938, but he must remember that until that year food-poisoning had not been a notifiable disease. Only since then had public health laboratories supplying data on this subject been increased from 12 to more than 50. The country was more conscious of food-poisoning than in the days before 1938. The Central Council for Health Education, through the local authorities, had made an important contribution to the solution of the problem. Women's organizations also had done everything in their power. She appealed to housewives, if they saw the conditions which had been mentioned, to protest at the time and not to go to that shop again.

Salaries of Specialists

On November 1 Mr. CARMICHAEL asked the Secretary of State for Scotland if he knew of the decision of the Western Regional Hospital Board to increase the salaries of certain members of the medical staff, in some cases by more than 100%.

Mr. WOODBURN replied that the Western Regional Hospital Board had taken no such decision. They had recently made contracts with the doctors working in their hospitals providing for payment in accordance with the nationally agreed scales. These scales were settled by agreement between the Government and the medical profession last June and were [illegible] the recommendations of the Spens Report. From that it were based on and accepted by the Government with effect, which was published hospital authorities in the [illegible]nt in principle in June, 1948. All observe these nationally agr[illegible] National Health Service had to board had any discretion [illegible] scriptioned scales. No regional hospital cam[illegible]tion in the matter.

The Services

Flight Lie[illegible] DSC for April 21, [illegible]utenant M. E. Fearnley, R.A.F., has been awarded the and untir[illegible] great courage when he was flown to *H.M.S. Amethyst* on *Amethyst*', [illegible] 949, and joined her under heavy fire. With great skill [illegible]ng devotion he rendered invaluable services to *H.M.S.* Surgeon [illegible]; wounded.

mentioned [illegible] Lieutenant J. M. Alderton, R.N., has been posthumously duty in [illegible] military [illegible]l in dispatches for outstanding courage and devotion to 1949, a [illegible] *H.M.S. Amethyst* when she was fired upon by Chinese the Ya[illegible] S forces while she was proceeding to Nanking on April 20, she ma[illegible]nd subsequently when forced to remain for three months in 30–31, [illegible]ngtze River under the constant watch of shore batteries until Surgeo[illegible]e her daring escape down the river on the night of July [illegible], Ow[illegible]1949.

[illegible] paragraph Commander W. B. Taylor, R.N., and Surgeon Lieutenant with the [illegible]en, R.N., have been mentioned in dispatches for outstanding was consider[illegible] and devotion to duty while serving in H.M. Ships *Black Swan*, respectively, during their attempts to assist except owners[illegible] while under very heavy gun-fire on April 20–21,

Universities and Colleges

UNIVERSITY OF OXFORD

Corrected announcement

In a Congregation held on October 13 the following medical degrees were conferred:

B.M.—J. G. Widdicombe, E. A. D. W. Simpson, R. W. Torrance, *Nina A. Cohen.

*In absence.

UNIVERSITY OF CAMBRIDGE

In a Congregation on October 15 the degree of M.A. was conferred on Frank George Young, D.Sc., F.R.S., Sir William Dunn Professor of Biochemistry in the University. Professor Young has been appointed a member of the Council of the School of Veterinary Medicine until December 31, 1950, in place of Dr. Chibnall, who has resigned.

The Raymond Horton-Smith Prize for 1948–9 has been awarded to John Rupert Squire, M.D., for his essay on "The Relationship Between Horse Dandruff and Horse Serum Antigens in Asthma." *Proxime accessit:* Michael Braithwaite Paul, M.D., whose subject was "Thoracoscopy and Internal Pneumolysis in the Treatment of Pulmonary Tuberculosis."

UNIVERSITY OF LONDON

A special University Lecture on "Some Problems of Old Age" will be delivered by Dr. J. H. Sheldon at the London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., on Tuesday, December 1, at 5.30 p.m. The lecture is addressed to students of the University and to others interested in the subject Admission is free, without ticket.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At a quarterly comitia of the College, held on October 27, with the President, Lord Moran, in the chair, Dr. E. C. Dodds, F.R.S., was elected Harveian Librarian, and Dr. C. F. T. East, Dr. N. B. Capon, Sir Horace Evans, Dr. J. G. Scadding, and Dr. T. F. Fox were elected Councillors.

The following were elected representatives of the College: Dr. C. M. Hinds Howell on the Committee of Management of the Conjoint Board; Dr. F. S. Langmead on the Central Midwives Board; the President, Sir Leonard Parsons. Dr. H. E. A. Boldero, Dr. W. G Barnard, and Sir Allen Daley on the Standing Joint Committee of the three Royal Co[illegible] Dr. Hinds Howell, Dr. T. C. Hunt, Dr. J. C [illegible] Hawksley, and Dr. J. B. Harman on the Committee of Reference; and Dr. Hinds Howell and Dr. Harman on the Central Medical War Committee.

Dr. J. C. Broom was appointed Milroy Lecturer for 1951, his subject being "Leptospirosis."

The President announced that the Jenks Memorial Scholarship had been awarded to Barry Reid Wheeler, late of Epsom College.

MEMBERSHIP

The following candidates, having satisfied the Censors' Board were elected Members of the College:

J. D. Aitchison, M.B., L. S. Antonoff-Lewis, M.B., P. E. Baldry, M.B., T. B. Binns, L.R.C.P., M. I. Bostock, B.M., D. P. Bowler, M.B., R. E. Britten Jones, M.D., P. H. Buxton, M.B., L. Capper, M.B., R. A. Chambers, B.M., D. Collins, M.B., Geraldine E. L Cummins, M.B., R. R. De Mowbray, B.M., Captain, R.A.M.C., M. F. J. Donnelly, M.D., Margaret D. D. Dudley-Brown, M.B., J. Dundas, M.D., M. Y. El-Gammal, M.B., D. G. Evans, M.B., P. H. Friedlander, M.B., R. McK. Fulton, M.B., W. F. M. Fulton, M.B., J. M. Gardiner, M.D., I. Gordon, M.B., K. G. Green, M.D., R. Greenwood, M.B., J. H. Gubbin, M.B., D. B. Gunasekara, M.B., K. J. Gurling, M.B., E. J. Halliday, M.B., G. P. Hallwright, M.B., W. S. Hamilton, B.M., R. M. Hardisty, M.B., H. W. Holland, M.B., J. G. Holmes, M.B., Mary C. Holt, M.B., J. A. Irwin, L.R.C.P., A. D. M. Jackson, M.B., G. A. Jackson, L.R.C.P., S. L. O. Jackson, M.B., R. N. Johnston, M.B., H. E. M. Kay, M.B., R. J. Kernohan, M.D., J. D. S. Knight, M.B., D'A. Kok, M.B., M. H. Lessof, M.B., N. A. Lewtas, M.B., H. M. Lloyd, B.M., H. E. Magee, M.B., I. A. Magnus, M.B., R. H. Marten, B.M., F. B. Meade, M.B., J. B. Mitchell, M.D., J. K. Morgan, M.B., B. Mullally, M.B., N. A. Neville, B.M., L. L. Nussbaum, M.B., J. S. Oldham, B.M., D. N. Patel, M.B., R. A. Peebles Brown, M.B., E. R. Price, M.B., D. A. Pyke, M.B., J. Rankin, M.D., R. M. E. Seal, M.B., P. H. Shorthouse, L.R.C.P., Major, R.A.M.C., R. G. Simpson, M.D., A. L. Speirs, M.B., P. G. Swann, M.D., W. P. Sweetnam, M.D., M. G. Thorne,

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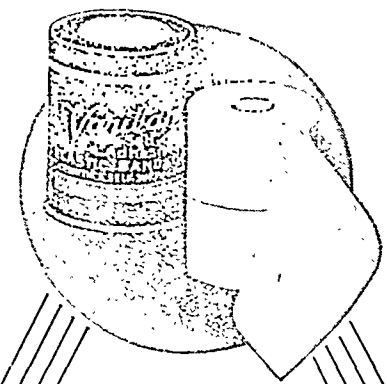
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LICENCES

Licences to practise were conferred upon the following 173 candidates (including 31 women) who had passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board and who have complied with the necessary by-laws:

A. G. Ackerley, J. D. B. Andrews, Doreen R Austin, G. R. Baji, J. P. E. Balbirnie, Barbara B. Ball, M. J. Ball, A S. Basri, W. H. B. Begg, G. I. Benson, Peggy M. Birch, F. J. Birkett, B. Ll. Bisley, K. Böheimer, J. M. Bolton, R. K. Bowman, T. L. Bradbeer, Anna A. Braga, M. T. D. Braide, H. H. Broadhead, H. S. Brown, D. W. Bull, G. Canty, N. S. Capstick, Nancy I. Cardno, P. Chaudhuri, P. H. Cima, Brigid M. R. Clark, C. R. Cowan, J. L. Cowan, H. A. Cowie, C. C. Cox, J. S. Cox, C. C. Crampton, R. A. Crook, D. I. Davies, D. J. Davies, G. Davies, R. A. L. Davis, Ida J. Dawson, J. De Choisy, Marie T. M. D'Netto, R. P. G Dickerson, A. K. Doust, B. W. Durrant, H. Duschinsky, Betty B Dyer, Z. Elkes, Diana M. Elkington, B. D. Ellis, T. Lawford Evans, T. Leighton Evans, J. L. Facer, Dorothy Field, J. F. Filbee, R. H P. Fitzpatrick, Alison M. M. Fleming, R. G. Forster, A. F. Franks, R A Garson, J. B. Gayes, H. R. E. Gillespie, J. E. Glover, J. D. Griffiths, J. J. Griffiths, G. E. Hanks, R. G. Hardwick, C. E. Hartley, S. K. Heywood, B. Hirst, C. McA. Hogg, T. C. Hopkins-Husson, P. T. Howse, R. T. Hughes, A. C. Hunt, P. J. Hynes, P. G. Jackson, Hilary M. K. Jenkins, W. P. Johnston, N. Jones, O. Ll. Jones, J. H. G. Jowett, Lucy E. Kaye, G. Kazantzis, Patricia M. Keefe, G. E. Kelly, S. M. A. Khadri, B. G. Kiddle, Barbara Kilpatrick, E. T. Knudsen, S. A. Kotz, R. G. F. Lampart, K. Lee, D. M. Lewis, P E Lewis, R. I. Lindfield, J. W. Lloyd, B. R. W. Lodge, D H Mackenzie, L. W. Mackey, I. E. J. McLauchlan, L. K. Manhajm, H. T. P. Martin, C. E. A. Mason, J. H Mason, E. T. Mathews, D. C. Mayberry, B. Measday, Mary S. Medcalf, Maureen Meikle, J. A. Menon, F. G. Montfort, D. F. Morley, A. Morris, Elizabeth S. B. Nicoll, N. A. Nobbs, Lola E. Owers, Doreen B. Pallot, D D. G. Parsons, R. E. H. Partington, Dina Patuck, J. H. Pauffley, P. M. Pawsey, A B. L. Peake, Dorothy J. Pearse, A. M. Platt, H R. Playfair, D. F. Potter, G. L. Powell, J. M. Price, D. C. E. Rabbin, Rebe S Rainsbury, Olga M. Rampersaud, Stella J. E. Randall, F. G Reader, M. Reckless, V. E. Rees, Joyce M. Richardson, J. J. Ridealgh, K. H. Ritchie, N. Rivers, J. S. Robertson, Yvonne K. Russell, M. Sackwood, J. G. Sahakian, C. M Samuel, J T. Scott, J D Shapland, E. W. Shepherd, E. A. D. W. Simpson, W. K Slack, G. H. Smerdon, Margaret W. H. Smith, A. W. Sonia Gwendoline R. Stockley, W. H. J. Summerskill, A S Szurkawski, D. H C. Thomas, Olwyn K. Thomas, O. L. Thomas, K. D B. Thomson, N A Toes, A. Trueman, B. S. Turner, C. A. Unsworth, J. T Wallace, D. E. Wallis, G. Walters, A. W. S. Webster, I. M. Wedgwood, B. L. Whitaker, R. Wilkins, S. W. Wilkins.

DIPLOMAS

Diplomas in Child Health, in Industrial Health, and in Physical Medicine were granted jointly with the Royal College of Surgeons of England to the successful candidates whose names were printed in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of October 22 (p. 935).

Diplomas in Ophthalmic Medicine and Surgery were granted jointly with the Royal College of Surgeons of England to J. H. Owen-Flood and to the other successful candidates whose names were printed in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of October 22 (p. 935).

Diplomas in Tropical Medicine and Hygiene were granted jointly with the Royal College of Surgeons of England to T. H. Work and to the other successful candidates whose names were printed in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of October 22 (p. 935).

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At a quarterly meeting of the College held on November 1 with the President, Dr. W. D. D Small, in the chair, a Diploma of Fellowship was granted to Dr. J J. R. Duthie (Edinburgh).

Diplomas of Membership were granted to Drs. J. H. Wright (Glasgow), W. H. Jopling (Rhodesia), T. S. Row (India), P. C. Mitchell (Aberdeenshire), R W. Crocket (Glasgow), R B. Baird (Uganda), W. H. Perry (Vancouver), J E A Bartlet (Edinburgh), D. A. Gordon (London), R. F. Maggs (Capetown), H. N. Singh (India), P. C. Bhattacharjee (India), W. D Munro (Edinburgh), B. Mukharji (India), G. I Robertson (Stirling), W. J. Weston (New Zealand), M. W. M. Hadley (Edinburgh), M. J. Murray (New Zealand), K. S. Millingen (Sydney), J. N. Pohowalla (India), K. R. Keay (Anstruther), D. F. Gibbs (Edinburgh), A. M. Rudolph (Johannesburg), and Mary D. Smith (Glasgow).

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended October 22. [No. 42

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949					1948 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	24	3	15	6	1	31	5	17	3	1
Deaths		—	—				2	—		
Diphtheria	92	9	30	3	7	153	16	29	12	7
Deaths	1	—	—	—	—	—	—	1	—	1
Dysentery	154	8	67	—	1	99	5	62	1	1
Deaths				—	—				—	—
Encephalitis lethargica, acute	2	—	—	—	—	1	—	—	—	—
Deaths		—					—			
Erysipelas			25	8	4			32	12	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				94					24	
Deaths	38	2	4	8	3	26	3	2	2	5
Measles*	1,052	40	37	119	53	5,303	86	100	37	116
Deaths†			—	—	—			—	—	—
Ophthalmia neonatorum	63	2	7	—	—	53	6	15	1	1
Deaths										
Paratyphoid fever	18	5	6 (B)	4 (B)	—	4	—	1 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	317	13	5	1	—	426	24	2	1	1
Deaths (from influenza)‡	5	2	—	—	1	10	1	1	—	—
Pneumonia, primary			120	13				153	16	
Deaths	124	23		6	9	175	31		5	6
Polio-encephalitis, acute	29	2				4	—			
Deaths										
Poliomyelitis, acute	385	64	7	3	4	76	7	5	2	—
Deaths§	19	3				4	1			
Puerperal fever		—	5				—	12		—
Deaths										
Puerperal pyrexia¶	81	6	5	1	2	115	12	14	—	1
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,909	163	251	135	159	1,359	86	277	189	43
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	6	3	—	3	1	13	1	4	3	—
Deaths	—	—	—	—	—	2	—	—	1	1
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	834	26	53	44	46	2,163	120	95	52	17
Deaths	3	—	—	5	—	1	—	1	—	—
Deaths (0–1 year)	249	32	35	24	20	267	39	30	17	9
Deaths (excluding still-births)	4,085	651	507	161	100	4,371	710	534	155	104
Annual death rate (per 1,000 persons living)			10·2	10·0				10·8	9·9	
Live births	7,044	1121	844	411	214	7,270	1203	918	369	234
Annual rate per 1,000 persons living			16·9	25·5				18·5	23·1	
Stillbirths	172	18	32			193	24	25		
Rate per 1,000 total births (including stillborn)			37					27		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

¶ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

Notifications in the week-ended October 29 were: poliomyelitis 347 (385), polio-encephalitis 20 (29). Figures for the previous week are shown in parentheses. This is the second week in which notifications have fallen.

In the following counties multiple cases were reported: London 55 (66), Bedford 2 (3), Berkshire 3 (6), Buckingham 4 (1), Chester 10 (8), Cumberland 2 (2), Derby 2 (5), Devon 3 (0), Dorset 3 (3), Durham 2 (3), Essex 26 (32), Gloucester 9 (12), Hereford 2 (0), Hertford 9 (6), Kent 16 (26), Lancaster 32 (25), Leicester 3 (13), Lincs, Lindsey 13 (7), Middlesex 17 (19), Norfolk 5 (8), Northumberland 2 (9), Nottingham 8 (9), Oxford 2 (1), Rutland 2 (1), Somerset 11 (10), Southampton 13 (13), Stafford 3 (12), East Suffolk 2 (1), Surrey 14 (16), East Sussex 9 (2), West Sussex 3 (2), Warwick 8 (9), East Yorks 2 (3), North Yorks 2 (3), West Yorks 50 (47), Glamorgan 7 (6).

Discussion of Table

In *England and Wales* there were decreases in the notifications of whooping-cough 41, acute pneumonia 37, acute poliomyelitis 33, polio-encephalitis 16, and dysentery 25, with increases in the incidence of scarlet fever 65 and measles 60.

The rise in the notifications of scarlet fever was contributed by the southern section of the country, while in the northern section there was a small fall in incidence. In the south-eastern and south-western counties a rise of 58 was recorded.

The largest rises in the incidence of measles were 44 in the Isle of Ely and 53 in Lincolnshire; the two chief centres of infection were Chatteris U.D. 57 and East Elloe R.D. 58. In the remainder of the country the trend of measles was unchanged.

The chief feature of the notifications of diphtheria was an increase of 7 in Durham. Only small variations occurred in the notifications of whooping-cough, notably decreases in Lancashire 32 and London 25.

Of the 18 cases of paratyphoid fever 12 were notified in Lancashire (Liverpool C.B. 6). A further 98 cases of dysentery were notified from the outbreak in Lancashire (Liverpool C.B. 28, Ince in Makerfield U.D. 21, Hindley U.D. 17, Abram U.D. 15); the only other important centre of infection was Glamorganshire 14 (Cardiff C.B. 10).

In *Scotland* there were decreases in the incidence of acute primary pneumonia 44 and whooping-cough 15. A fall of 13 was reported in the number of notifications of dysentery in Glasgow. Another 4 cases of paratyphoid B were notified in Lanark county.

In *Eire* there were increases in the notifications of scarlet fever 50, whooping-cough 13, and measles 11. The chief centres for scarlet fever were Dublin C.B. 70, Sligo, Sligo U.D. 12; for measles Waterford C.B. 32, Kilkenny, Kilkenny U.D. 30; and for whooping-cough Dublin C.B. 17 and Wexford, New Ross R.D. 16.

In *Northern Ireland* increases were recorded in the notifications of scarlet fever 15, whooping-cough 14, and measles 11. These trends were mainly influenced by the experience of Belfast C.B.

Statistical Review for 1947

According to Part II, Civil, of the Registrar-General's Statistical Review for 1947 the birth rate during the year at 20.5 per 1,000 total population was the highest rate since 1921. The marriage rate remained high at 18.6 per 1,000. Divorces were almost double the previous year's total, and 60,190 decrees nisi were made absolute during 1947 compared with a yearly average of 8,288 for the ten years 1936–45.

Week Ending October 29

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,972, whooping-cough 749, diphtheria 101, measles 995, acute pneumonia 303, cerebro-spinal fever 26, acute poliomyelitis 347, acute polio-encephalitis 20, dysentery 139, paratyphoid fever 14, typhoid fever 7, food-poisoning 130.

Medical News

Physicians to the King

Sir Horace Evans and Dr. D. T. Davies have been appointed Physicians to the King's Medical Household.

G.M.C. Election

Dr. O. C. Carter, of Bournemouth, has been elected a Direct Representative for England of the General Medical Council in place of the late Dr. John Bone. His term of office will be for five years, from November 8, 1949.

International European Society of Haematology

The Second International Congress of Haematology was held at Montreux on September 15–17. The presidents Drs. P. Chevallier, of Paris, P. Lambin, of Brussels, and G di Guglielmo, of Naples, welcomed haematologists from most European countries. Great Britain was represented by a small group, and Dr. W. Dameshek brought the greetings of the International Society of Hematology from the U.S.A. The secretarial work and the arrangements were in the hands of Dr. S Moeschlin, of Zurich. The first day's discussion, on the haemolytic anaemias, was introduced by Professor Heilmeyer, of Freiburg, and Dr. Dameshek, of Boston, U.S.A. Antimitotic and cytostatic substances were considered, and a discussion was opened by Professor A. Haddow with a new hypothesis on the mode of action of nitrogen-mustard. Dr. L. M. Meyer of Brooklyn, U.S.A., reported experience with folic acid and antagonists and mentioned especially his disappointment with aminopterin. Professor K. Rohr, of Zurich, finally pleaded for the continued maintenance of the classical terminology of blood cells, to which most people had become accustomed. Various demonstrations included phase-contrast photographs and marrow, liver, spleen, and lymph-gland biopsies.

Annual Meeting of University College Hospital

The annual meeting of University College Hospital was held in the Medical School on November 1. The chairman of the board of governors, Major-General Sir Harold Wernher G.C.V.O., explained that it had been decided to hold the customary meeting in public since the introduction of the National Health Service. He said that the hospital now had supervision of St. Pancras Hospital, where 300 new beds with nurses' accommodation had recently been opened. The Tropical Diseases Hospital was also under their control. The beds in the private block had been reduced during the period under review in order to afford more accommodation for the nursing staff, and the out-patient department had been modernized. Sir Harold remarked that the National Dental Hospital, which was part of University College Hospital, had been overloaded with work since the advent of the Health Service, but the efficient teaching of undergraduates was being safeguarded. He added that the working of the Act had proceeded smoothly in the University College Hospital Group, but that costs had risen considerably, particularly in the last few weeks—for example food bills had increased in price by 10%, and an extra £3,000 a year would have to be spent on streptomycin alone.

Memorial to Dr. Slome

Tributes were paid to the work of the late Dr. Irving Somerset Slome at a ceremony on October 26 at the London School of Chiropody when a memorial plaque was unveiled. Mr. R. Y. Paton, the present Director of Studies and President of the School's Governing Council, introduced Mr. R. W. Raven. Mr Raven said that Dr. Slome had been one of the best teachers of anatomy in London. He had done a great deal in seeking the co-operation of hospitals in connexion with the training of students in chiropody. Mr. A. M. A. Moore, President of the Board of Registration of Medical Auxiliaries, then unveiled the plaque, and described how Dr. Slome, a South African by birth,

had been one of the most brilliant students at the London Hospital, where he qualified in 1935. His death at the early age of 36 was a great loss.

Homoeopathic Hospital Centenary

The London Homoeopathic Hospital marked its centenary by a reception on November 2 in the Great Hall of the British Medical Association, Tavistock Square. The King, who is patron of the hospital, sent a message, and the reception was attended by the Duke and Duchess of Gloucester who were received by Mr. A. Clifton Brown, chairman of the management committee, and Sir John Weir, honorary consulting physician to the hospital. The Duchess was presented by a member of the nursing staff with a bouquet compounded of 50 varieties of flowers and plants from all of which homoeopathic drugs are regularly prepared. The hospital was established in 1849 by the English Homoeopathic Association in a small house in Golden Square. It comprised only 25 beds. In 1857 the freehold of the fine property at the corner of Great Ormond Street and Powis Place was acquired, and the new building was opened on May 12, 1857, the Lord Ebury of that day giving the inaugural address. The eastern part of the hospital is on the site of a house where Macaulay spent the years of his early manhood and wrote the first of his famous essays. It is intended further to mark the centenary by an appeal for funds to carry on homoeopathic research, education, and practice.

Cigarettes for the Disabled at Christmas

The Alexandra Musical Society is arranging to send boxes of cigarettes to disabled ex-Servicemen in hospitals, convalescent homes, sanatoria, and mental hospitals on Christmas Day. This scheme has been made possible through the generosity of the Rhodesia Tobacco Association. Medical superintendents or matrons who have not already applied for their hospitals to be included in the scheme should write at once to Mr. Ernest C. Thomas, Honorary Organizing Secretary, Alexandra Musical Society, Room 412, County Chambers, Martineau Street, Birmingham. The gifts are only for the disabled ex-Servicemen who will be patients in hospital on Christmas Day. The society also hopes to entertain 1,000 disabled ex-Servicemen at various Christmas parties. To enable these events to be carried out an appeal is made for £500. Donations will be greatly welcomed and appreciated. Her Majesty the Queen has honoured the society with a donation towards its work for disabled ex-Servicemen.

British Rehabilitation Methods in Greece

On a visit to Greece in March this year, which was arranged by the British Council in collaboration with the British Medical Association, Mr. St. John Buxton, senior orthopaedic surgeon at King's College Hospital, and Mr. A. E. Whiffing, technical inspector to the Ministry of Pensions limb-fitting centre at Roehampton, gave advice to Greek hospitals and artificial limb factories on British methods. The co-ordinating committee of the Greek Recovery Programme has now invited them to return, their expenses being paid by the Economic Co-operation Administration. Mr. St. John Buxton will leave for Athens on November 16 to give further advice on rehabilitation and to deliver lectures on orthopaedic surgery, and Mr. Whiffing has been seconded for three months to the co-ordinating committee to reorganize the artificial limb factories.

Wills

Dr. Brian Ingram Johnson, pathologist at Churchill Hospital, Oxford, who died in a car accident on March 19, left £50,043. Dr. James Barr, of Torquay, left £37,500; Dr. Robert Anderson, of Edgbaston, Birmingham, £13,310; and Dr. William Forbes McDonald, of Bristol, £1,194. Mr. Edgar Somerville, of Newton Abbot, Devon, left £40,976; Dr. James Galbraith, of Dingwall, £42,783. Professor John McGibbon, of Crieff, who was emeritus professor of midwifery and gynaecology, University of St. Andrews, left £5,249; Mr. Arthur Herbert Buck, of East Dereham, Norfolk, £4,391. Mr. Owen William Richards, of Bideford, Devon, formerly director of the Egyptian Government School of Medicine, left £72,109.

COMING EVENTS

Institute of Laryngology and Otology

Professor Geoffrey Jefferson, F.R.S., will deliver the annual address at the Institute of Laryngology and Otology, 330–332, Gray's Inn Road, London, W.C., on Friday, November 18, at 4.30 p.m. His subject is "The Acoustic Neuromas."

Liverpool School of Tropical Medicine

A reception will be held at the Liverpool School of Tropical Medicine, Pembroke Place, Liverpool, on Tuesday, November 22, at 7.45 for 8.15 p.m., on the occasion of the fiftieth anniversary of the opening of the school and presentations of the Mary Kingsley Medal.

Society of Medical Officers of Health

The annual dinner of the Society of Medical Officers of Health will be held at the Piccadilly Hotel, London, W., on Thursday, November 24, at 7 for 7.30 p.m.

Leeds School of Medicine

The fifty-ninth annual dinner of the past and present students of the Leeds School of Medicine will be held at the Great Northern Hotel, on Friday, November 25, at 7 for 7.30 p.m., when Professor J. W. McLeod, F.R.S., will preside. Professor H. S. Raper, F.R.S., Dean of the Faculty of Medicine of the University of Manchester, will be the guest of honour. Tickets may be obtained on application to the honorary secretary, at the Medical School, Leeds.

National Association for Mental Health

A one-day inter-clinic conference of the professional staff of child-guidance teams will be held at the Y.W.C.A. Central Club (Queen Mary Hall), Great Russell Street, London, W.C., on Saturday, December 3. The fee for admittance to the conference is 5s. (2s. 6d. for full members of the association), and applications should be sent to the conference secretary, Inter-clinic Conference, National Association for Mental Health 39, Queen Anne Street, London, W.1.

Conference on Psychology

A conference on "The Outlook for Psychology" will be held at the Oxford House, Mape Street, Bethnal Green Road, London, E.2, on Sunday, December 4, starting at 10.30 a.m. Among the speakers will be Dr. W. Lindesay Neustatter, on "Psychology in the Clinic." Particulars may be obtained from the Oxford House.

Manchester Medical Ball

The Manchester Division of the B.M.A. and the Manchester Local Medical Committee have arranged a medical ball to be held at the Midland Hotel, Manchester, on Wednesday, December 7, when there will be a dinner at 7.30 p.m. and dancing until 1 a.m. Tickets (£1 5s. each) may be obtained from Dr. F. S. Catto, B.M.A. Regional Office, 33, Cross Street, Manchester, 2.

SOCIETIES AND LECTURES

Monday

LONDON UNIVERSITY.—At University College (Chemistry Theatre), Gower Street, London, W.C., November 14, 5.15 p.m., "*The Chemistry of the Transuranics and Other Newly Discovered Elements*," by Professor H. J. Emeléus, F.R.S.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, London, W.—November 14, 8.30 p.m., Discussion: "*Medico-Biopsies*," to be introduced by Dr. R. Bodley Scott and Dr. R. B. Terry.

UNIVERSITY COLLEGE, Gower Street, London, W.C.—November 14, 4.45 p.m., "*Bacterial Toxins*," by Dr. W. E. Van Heyningen.

Tuesday

EUGENICS SOCIETY.—At Royal Society, Burlington House, Piccadilly, London, W., November 15, 5.30 p.m., "*Family Service Units for Problem Families*," by Mr. David Jones.

INSTITUTE OF OBSTETRICS AND GYNAECOLOGY.—At Postgraduate Medical School of London, Ducane Road, W., November 15, 3 p.m., "*Radiotherapy in Treatment of Uterine Malignant Disease*," by Mr. Malcolm Donaldson.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—November 15, 5 p.m., "*Psoriasis*," by Dr. F. R. Bettley.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, London, S.W.—November 15, 5 p.m., "*Devices for the Protection of the Worker Against Injury and Disease*," Ernestine Henry Lecture by Dr. Donald Hunter.

ROYAL PHOTOGRAPHIC SOCIETY: MEDICAL GROUP.—At 16, Princes Gate, London, S.W., November 15, 7 p.m., "*The Importance of Quality in Medical Photography*," by Mr. E. V. Willmott, F.R.P.S.

Wednesday

HARVEIAN SOCIETY OF LONDON.—At 26, Portland Place, London, W., November 16, 8.15 p.m., "*Oesophageal Disorders in Children*," by Dr. W. P. H. Sheldon.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—November 16, 5 p.m., "*X-ray Technique*," by Dr. C. W. McKenny.

MIDDLESEX COUNTY MEDICAL SOCIETY.—At Clare Hall Hospital, South Mimms, Barnet, November 16, 3 p.m., meeting.

NORTH EAST LONDON CLINICAL SOCIETY.—At Prince of Wales's Hospital, Tottenham, N., November 16, 8 p.m., films and discussion on antenatal and obstetric subjects.

ROYAL INSTITUTE OF PHILOSOPHY.—At University College (Anatomy Theatre), Gower Street, London, W.C., November 16, 7.30 p.m., "*Hume and Kant and Their Attitude to Metaphysics*," by Mr. P. F. Strawson.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, London, W.—November 16, 3.30 p.m., "*Hygiene in the Factory*," by Dr. J. J. O'Dwyer.

ROYAL MICROSCOPICAL SOCIETY, B.M.A. House, Tavistock Square, London, W.C.—November 16, 5.30 p.m., ordinary meeting. "*Cytology of the Neurone in Experimental Poliomyelitis*," by Dr. G. M. Findlay and Mr. F. C. Grigg.

SOCIAL PSYCHOTHERAPY CENTRE, 7, Fellows Road, London, N.W.—November 16, 5 p.m., "*Active Psychotherapy*," by Dr. A. R. Redfern.

Thursday

BRITISH INSTITUTE OF RADIOLOGY.—At 32, Welbeck Street, London, W., November 17, 8.15 p.m., joint meeting with Section of [illegible] *Chemical Factors Modifying Radiobiological Response*," to be opened by Dr. John Read.

DURHAM UNIVERSITY.—At Royal Victoria Infirmary, Newcastle-upon-Tyne, November 17, 5.15 p.m., "*The Study of the Living Cell*," Rutherford Morison Lecture by Dr. Arthur Hughes.

HONYMAN GILLESPIE LECTURE.—At Anatomy Theatre, University New Buildings, Teviot Place, Edinburgh, November 17, 5 p.m., "*The Surgical Management of the Malignant Colon*," by Mr. G. T. Mowat.

ROYAL MEDICAL SOCIETY.—At Royal College of Physicians of Edinburgh, Queen Street, Edinburgh, November 17, 7.15 for 7.30 p.m. President's annual dinner.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—At London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C., November 17, 7.30 p.m., laboratory meeting.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—November 17, 4.30 p.m., lecture-demonstration: "*Neurology*," by Dr. D. J. Williams.

WESTMINSTER HOSPITAL SCHOOL OF MEDICINE, Meyerstein Lecture Theatre, Horseferry Road, London, S.W.—November 17, 5.30 p.m., clinico-pathological demonstration. Discussions; (1) "*Osteitis Fibrosa Cystica*," (2) "*Asthma*."

Friday

BRITISH INSTITUTE OF RADIOLOGY.—At 1, Wimpole Street, London, W., November 18, 8.15 p.m., joint meeting with Section of Radiology, R.S.M., "*Chemical Factors Modifying Radiobiological and Radiotherapeutic Response*," to be opened by Drs. Frank Ellis and L. A. Elson.

BRITISH TUBERCULOSIS ASSOCIATION.—At 26, Portland Place, London, W., November 18, 3.15 p.m., Presidential address: "*Tuberculosis Services in the Future*"; "*Tuberculosis Survey in Malaya*," by Dr. Andrew Morland; "*Tuberculosis Survey in Western Samoa*," by Dr. Brian Thompson.

FACULTY OF RADIOLOGISTS: THERAPY SECTION MEETING.—At Royal College of Surgeons, Lincoln's Inn Fields, London, W.C., November 18, 2.15 p.m., "*Modern Conceptions of a Dosage Unit for Radiotherapy*," by Dr. L. H. Gray.

INSTITUTE FOR THE SCIENTIFIC TREATMENT OF DELINQUENCY.—At St. George's Institute, Broadbent Street, Davies Street, London, W., November 18, 5 p.m., annual general meeting and address by the Earl of Feversham.

INSTITUTE OF LARYNGOLOGY AND OTOLOGY, 330–332, Gray's Inn Road, London, W.C.—November 18, 4.30 p.m., "*The Acoustic Neuromas*," by Professor Geoffrey Jefferson, F.R.S., annual address.

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES MEDICAL SCHOOL, Maida Vale, London, W.—November 18, 5 p.m., clinical demonstration by Dr. D. McAlpine.

ROYAL INSTITUTE OF PHILOSOPHY, 14, Gordon Square, London, W.C.—November 18, 5.15 p.m., "*Everything*," by Mr. H. L. A. Hart.

ROYAL SANITARY INSTITUTE, 90, Buckingham Palace Road, London, S.W.—November 18, 2.30 p.m., "*The New Milk (Special Designations) Regulations*," discussion to be opened by Dr. W. A. Lethem (Ministry of Food).

UNIVERSITY COLLEGE, Gower Street, London, W.C.—November 18, 5.15 p.m., "*Transmission of Excitation in Nerve and Muscle*," by Dr. Bernhard Katz.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—At South Kensington Hotel, 41, Queens Gate Terrace, London, S.W., November 18, 7.15 for 7.30 p.m., dinner meeting. "*The Story of Cortisone*," by Dr. W. S. C. Copeman.

Saturday

YORK MEDICAL SOCIETY.—At 17, Stonegate, York, November 19, 8.30 p.m., "*Ascertainment and Educational Treatment of Deafness*," by Professor A. W. G. Ewing and Mrs. Ewing.

APPOINTMENTS

CRAWSHAW, DONALD G., M.B., Ch.B., D.C.H., D.P.H., Medical Officer of Health, Peterborough.

DAVIES, J. O. F., M.D., D.P.H., D.R.C.O.G., Senior Administrative Medical Officer, Oxford Regional Hospital Board.

EAST ANGLIAN REGIONAL HOSPITAL BOARD.—*Assistant Chest Physician (Senior Registrar) in Cambridge Area*, J. B. Mitchell, M.D. *Assistant Chest Physician (Senior Registrar) in East Norfolk Area*, P. H. Sutton, M.D., M.R.C.P.

LYON, D. M., M.B. Ch.B., D.P.H., Deputy County Medical Officer of Health and Deputy School Medical Officer for Kent.

SOUTH WESTERN REGIONAL HOSPITAL BOARD.—The following appointments have been announced. *Geriatrician, Bristol Clinical Area*, W. Hughes, M.D., M.R.C.P., D.T.M. *Assistant Plastic Surgeon, Frenchay Hospital, Bristol*, D. C. Bodepham, M.B., Ch.B., F.R.C.S.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Cooper.—On October 15, 1949, at Southmead Hospital, Bristol, to Flavia Cooper (née James), M.B., Ch.B., D.A., wife of Ashley Cooper, a second daughter—Caroline.

Piney.—On October 29, 1949, to Gladys (née Fleet), wife of Dr. J. Piney, a son.

MARRIAGE

Watson—Lowis.—On October 10, 1949, at Dunleer, Co. Louth, Eire, John Ernest Watson, M.B., B.Ch., to Margaret Sarah Lowis.

DEATHS

Bergin.—On October 25, 1949, at Clifton, Bristol, Frank Gower Bergin, M.R.C.S., L.R.C.P.

Brown.—On November 2, 1949, in London, John Claude Brown, M.D., of 16, Addison Gardens, London, W.

Burnett.—On October 7, 1949, Arthur Hill Burnett, M.R.C.S., L.R.C.P., of Bitterne Park, Southampton, aged 68.

Curry.—On October 28, 1949, at his home in Towning Place, Cross Hills, Keighley, Yorks, Alexander Curry, L.R.C.P.&S.I.

Davis.—On November 5, 1949, at a nursing-home, the Rev. George Brocklesby Davis, M.D., of 371, Cherry Hinton Road, Cambridge, formerly of C.M.S., India, and Ely, Cambridgeshire, aged 76.

Debono.—On October 12, 1949, Salvino Debono, M.D., of Malta.

Eason.—On November 2, 1949, at Nuffield House, Guy's Hospital, Sir Herbert Lightfoot Eason, *C.B., C.M.G.*, M.D., M.S., F.R.C.S., aged 75.

Fairbairn.—On October 31, 1949, at 1, St. Mary's Grove, London, S.W., Donald Charles Fairbairn, M.C., M.B., B.S.

Ferraby.—On November 1, 1949, at 140, Broomfield Avenue, Worthing, Sussex, George Arthur Ferraby, M.R.C.S., L.R.C.P.

Lake.—On November 1, 1949, in a Bristol nursing-home, Richard Lake, F.R.C.S., aged 87.

Macdonald.—On October 29, 1949, at Edinburgh, Coll Macdonald, M.B., Ch.B., of Westcliff-on-Sea, Essex.

Macdonald.—On November 2, 1949, at 9, Fernielan Avenue, Edinburgh, Angus Macdonald, M.B., C.M., F.R.C.S.Ed., late of Southdean, Colinton Road, Edinburgh.

Muir.—On October 29, 1949, at Lealands, Box, near Stroud, Gloucestershire, Joseph Corbett Muir, M.D.

Nixon.—On November 4, 1949, at Forbes Fraser Hospital, Bath, John Hobart Nixon, M.D., of 25, Deansway, Chippenham, Wilts, aged 72.

Palmer.—On October 31, 1949, at Exmouth, Cadwallader Edwards Palmer, M.B., B.Ch., Colonel I.M.S., Ret., aged 68.

Palmer.—On October 19, 1949, at Torquay, Sydney Joseph Palmer, M.B.E., M.D.

Price.—On November 2, 1949, at a nursing-home, Leamington Spa, Horace John D'Arcy Gerard Price, M.R.C.S., L.R.C.P., formerly of Nuneaton, Warwickshire, aged 68.

Pridmore.—On November 3, 1949, at 5, The Terrace, Chale, Isle of Wight, John Walter Pridmore, M.R.C.S., L.R.C.P., late of Ryde, Isle of Wight, aged 79.

Rogers.—On October 28, 1949, in London, Norman Cumming Rogers, M.B., Ch.B., of 3, St. John's Wood Road, London, N.W.

Roper.—On October 17, 1949, at a nursing-home in Rochester, Kent, Charles Roper, M.D., D.P.H., aged 71.

Russell.—On October 26, 1949, at Southport Infirmary, John Cooper Russell, M.B., Ch.B., of 33, Balfour Road, Southport, Lancs.

Sevestre.—On October 13, 1949, at 38, Springfield Road, Leicester, Robert Sevestre, M.D., J.P., *aged 81*.

Shelley.—On October 12, 1949, at St. Bartholomew's Hospital, Rochester, Arnold Shelley, M.B., B.Ch., of Camden House, Chatham.

Shipton.—On October 31, 1949, at Briarfield, Milford-on-Sea, Hants, William Shipton, M.D., J.P., of Buxton, Derbyshire.

Watson.—On October 15, 1949, at 21, The Circus, Bath, Andrew Gordon Watson, M.D.

Young.—On October 25, 1949, at Torwood, Tomintoul, James John Taylor Young, M.D., aged 84.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Treatment of Retinitis Pigmentosa

Q.—*Is there any effective treatment of retinitis pigmentosa? Has there been any further work published on the implantation of preserved placenta, which I believe was suggested by Filatov?*

A.—The inquirer must have referred to four articles which appeared in the Journal of Soviet Medicine, 1946, 3, No. 5: "The Treatment of Pigmentosa with Intramuscular Injections of Placenta" (p. 388); "Retinitis Pigmentosa and the Question of Preserved Placenta in Retinitis Pigmentosa" (p. 398); "The Implantation of Preserved Living Tissues in Pigmentosa" (p. 398)—all by V. P. Filatov and N. Nazarova. There was also an article by Von Max Nowakowski in Ophthalmologica, 1948, 116, No. 4-5, 241-249 on the Placentatherapie der Retinitis Pigmentosa which might be consulted.

Placental implants beneath the conjunctiva for retinitis pigmentosa are being carried out in this country, but no one is yet in a position to give a firm opinion about the value of this treatment. The feeling among certain Continental surgeons is that temporary subjective improvement occurs in some cases but that the visual field is not increased. No statements are made about slowing or checking the progress of the disease. Filatov's facts are not carefully set out in his papers on this subject. Oestrogens and cervical sympathectomy have also been tried but without any appreciable effect. The writer's impression to date is that the claims made for all the therapeutic measures tried for retinitis pigmentosa are unconvincing.

Mortality from Bovine Tuberculosis

Q.—*I have seen it stated in the Press that bovine tuberculosis accounts for about 1,500 deaths per annum in England and Wales. Is there any statistical evidence to support this statement?*

A.—There is no statistical evidence, in the usually accepted meaning of the term, to support this statement. The number of deaths from bovine tuberculosis is an estimate based on a series of necropsies where bacteriological examination has been carried out in fatal cases of non-pulmonary tuberculosis to determine whether the infection was of human or of bovine origin. In 30% of the cases the origin was found to be bovine. In some of the fatal cases of respiratory tuberculosis the infection is, of course, also of bovine origin. From the evidence available the number of deaths due to the bovine type of disease has been calculated as one-third of the deaths from non-pulmonary tuberculosis. During the last three years for which the figures of deaths from non-pulmonary tuberculosis in England and Wales are available a large decrease has been reported. Deaths from non-pulmonary tuberculosis in the years 1946-8 numbered 3,482, 3,394, and 2,897, respectively. It is therefore likely that 1,500 deaths per annum is an overestimate of the present level of mortality from bovine tuberculosis.

Stilboestrol and Dysmenorrhoea

Q.—*Can prolonged administration of stilboestrol cause dysmenorrhoea? For the last four months a young woman has been treated for acne on her face by 0.5 mg. of stilboestrol dipropionate twice a day during the second week of the intermenstrual period. The condition of the skin has improved, but lately the patient has complained of dysmenorrhoea on the first day, otherwise her periods are normal. Are there any known ill effects of indefinitely continued treatment?*

A.—Stilboestrol, even in heavy and prolonged dosage, does not directly cause dysmenorrhoea. If given during the first half of the cycle in amounts large enough to inhibit ovulation it prevents dysmenorrhoea, because oestrogen-withdrawal haemorrhage is always painless. In the case quoted the dose is hardly enough to prevent ovulation—it might even be stimulating it in a woman who has previously had anovulatory cycles, and this would explain the onset of painful periods. On the other hand, the onset of dysmenorrhoea is more common at this age than at the menarche, and it may be unrelated to the treatment. Although the continuous administration of oestrogens has side-effects such as endometrial hyperplasia, irregular and heavy uterine haemorrhage, and pigmentation of the nipples, the intermittent treatment described is unlikely to do harm even if continued for several months.

Estimation of Erythrocyte Sedimentation Rate

Q.—*Could you give me an authoritative opinion on the correct procedure for estimating the erythrocyte sedimentation rate (Westergren method)? My own technique is as follows: To 0.5 ml. of 3.8% sodium citrate is added 2 ml. of fresh blood. The tube is set up immediately and read after one hour. Frequently two tubes are set up simultaneously, as I find that slightly different readings are obtained from each. The points I would like elucidated are: (1) Why do different readings occur? (2) Should the blood be allowed to reach room temperature before the tube is set up? (3) Should flocculation occur in the 3.8% solution of sodium citrate? (4) If slightly less than 2 ml. of blood is used, in what manner is the reading affected?*

A.—The questioner's procedure is identical with that of the writer, and is preferable to the method described in the answer in the *Journal* of March 17, 1945, because it is very difficult to fill a 2-ml. syringe without introducing air-bubbles, thus making an erroneous dilution. To take the questions seriatim: (1) In duplicate estimations variations of up to 10% should be expected, because it is impossible to set tubes exactly vertical and deviations of as little as one degree from the vertical should make an appreciable difference. (2) This is probably unimportant. Thermal equilibrium with the surroundings will be reached very quickly after the blood has been drawn up into the tube, which should not be in a draught or in a place where rapid changes of temperature occur. If duplicate estimations are made at different temperatures, considerable differences in readings occur. (3) No. If gross agglutination or flocculation occurs, then either the blood has started to clot or the patient is suffering from gross hyperglobulinaemia, the commonest cause of which in this country is myelomatosis. If, however, the question is intended to imply that flocculation occurs in the citrate without the addition of blood, then this should not normally occur; when it does it is nearly always due to the growth of fungal mycelium. This may be overcome by sterilizing the citrate in 25-ml. batches in universal containers and throwing away the contents as soon as they cease to be crystal clear. (4) The writer cannot answer this question, but believes that errors of 10% have surprisingly little effect.

Phonocardiography

Q.—*What exactly is phonocardiography, and has it any special advantages? Is it possible to make gramophone records of the heart sounds?*

A.—Phonocardiography is the graphic registration of heart sounds and murmurs. Its chief clinical advantage is that it provides a permanent record of the auscultatory findings. But it has other advantages: (1) it may resolve auscultatory doubts; (2) it serves to time heart sounds and murmurs against other electrical or mechanical events which may be recorded simultaneously; (3) it has proved helpful in analysing the nature of the heart sounds. Unfortunately, phonocardiograms are difficult to perfect technically, and many records being obtained at the present time are not entirely reliable. Again, the simultaneous recording of other events which aid the interpretation of the records presents other difficulties and necessitates more elaborate equipment. For this reason phonocardiography is unlikely to be used widely in this country for many years. Most cardiological units and research departments, however,

are studying it. Henriques made gramophone records of the heart sounds which could be played back to an audience. The results were poor, sounds and murmurs being grossly distorted and interference being considerable. His machine met with little enthusiasm in this country, and so far as is known is not being made now. It could certainly not be recommended for didactic purposes; auscultation could never be learnt from this device.

Post-herpetic Neuralgia

Q.—*Is there any method of preventing post-herpetic neuralgia? What domiciliary treatment can be used for this complication? Are injections of liver extract and vitamin B of value?*

A.—The prevention of post-herpetic neuralgia in the elderly appears to depend on treatment during the active stage of the zoster infection. The hypodermic injection of 0.5 ml. of pituitrin daily for 21 days from the onset of the infection has always proved successful in the experience of the writer. Large doses of vitamin B_1 by injection, sodium iodide by mouth, and more recently the antihistamines have also been used with some success.

"Allergy" and "Hypersensitivity"

Q.—*Can you distinguish between allergy and hypersensitiveness? To a question on lipstick dermatitis (July 16, p. 189), in which the inquirer talks about allergy, the answer carefully avoids the term and refers to hypersensitiveness. Is there any proof of hypersensitivity to the eosin colouring matter in lipsticks? Eosin belongs to the fluorescein series, and these substances are used, for example, on the conjunctiva for diagnostic purposes. Are there any corresponding cases of hypersensitivity to fluorescein?*

A.—Some years ago writers on this subject considered allergy and anaphylaxis as subdivisions of the main subject—hypersensitiveness. Allergy was often defined as hypersensitiveness occurring in man. At the present time the tendency is to consider anaphylaxis as a subdivision of the main subject—allergy—and hypersensitiveness becomes synonymous with "allergic state." Whichever terminology is used, "hypersensitiveness" is interchangeable with "allergy" or "allergic state" so far as human reactions are concerned. It is merely a question of using the term which the writer considers more generally acceptable in this country. Apart from this, "hypersensitiveness" is sometimes used in a wider sense than the word "allergy," which implies, at least, an antigen–antibody reaction in the tissue cells. Thus a person might be described as hypersensitive to misuse of the word "allergy," but not as allergic to it. The conservative mode of thought in this country is perhaps reflected in a continued preference for the word "hypersensitiveness," as distinct from the Americans' ready acceptance of the shorter and neater "allergy."

Proof of hypersensitivity to the eosin colouring matter in lipsticks has been obtained—see Sulzerberger, Goodman, Byrne, and Mallozi, *Arch. Derm. Syph., Chicago*, 1938, 37, 597—and is now generally accepted. The writer has not come across any reference to fluorescein sensitivity.

Cancer of Bladder in Dye Workers

Q.—*What is the incidence of bladder carcinoma among aniline workers? Has aniline ever been held responsible for cancer in any other sites? An aniline worker, a patient of mine, has developed an osteosarcoma of the humerus with multiple bone secondaries and involvement of the chest.*

A.—Bladder tumours are known to occur among a high proportion of workers in the aniline dye industry, but they are not in general attributable to aniline as such. The substances generally held to be responsible are amino derivatives of naphthalene and benzidine. Such tumours have been observed and recorded in many different countries, including America, Russia, Japan, and the principal countries manufacturing aniline dyes in Europe. The actual incidence is not known, since many workers leave the factories before the tumour has developed and are not traceable. However, it is held by various observers that where working conditions are unsatisfactory almost all the workers in the department may be attacked, but at different times and in different forms. Very occasionally the kidney is also involved.

Primary tumours in other sites than the bladder and kidney cannot be attributed to work with dyestuff intermediates. The disease has been known for some 55 years, but no suggestion has ever been made that such tumours as bone sarcoma occur more frequently among workers in dye intermediates than among the general population. Experimental evidence exists that other amino derivatives of cyclic hydrocarbons can produce primary tumours in other sites—for example, liver, stomach, as well as bladder—but there is no evidence that such tumours arise in workers as an industrial disease.

Persistent Monilia Infection

Q.—*Two male patients have persistent monilia infection of the oral cavity. Treatment with aniline dyes, aluminium acetate, and vitamins has been most unsatisfactory, and reference to numerous books offers little encouragement. Can you advise?*

A.—Persistent monilia infection of the oral cavity usually suggests an unhealthy condition of the mucous membrane, since it is generally thought that moulds will not grow where the mucous membrane is healthy. In the majority of cases attention to cleanliness is the most important measure. In persistent cases where the condition does not disappear with attention to oral hygiene a search for possible systemic causes should be made. The disease is frequently associated with deficiency of vitamin-B complex, and in such cases large doses coupled with intramuscular liver injections may prove beneficial. The condition is also occasionally seen in diabetics, and it is therefore advisable to exclude any diabetic tendency. For local application gentian violet is, of course, the standard treatment, but silver picrate preparations are equally effective and do not have the undesirable staining properties of the aniline dyes. Boric acid solutions are of little value.

NOTES AND COMMENTS

Acute Nephritis and Sweating.—Dr. CHARLES ROMER (Worcester) writes: From time to time the answers in "Any Questions?" must have surprised your readers and have made them wish that the replies were not anonymous. In the *Journal* of October 1 (p. 767) the hardy annual of whether to nurse a case of acute nephritis in blankets is revived. As the General Nursing Council still expects this (together with an intimate knowledge of leeches, wet and dry cupping, etc.) is it not time, Sir, to ask that the subject should be thrashed out and a really authoritative statement issued? Your answer states: "The General Nursing Council is acting in this matter with the full approval of medical authority. The scientific principle involved is allied to the known fact that patients suffering from this disease tend to sweat excessively." The answer continues very logically that such patients are more comfortable in blankets, and for rheumatic fever everyone is in agreement. No mention is made of the diaphoretic action, which must be taken as approval of such measures being, as Dunlop and Davidson in their *Textbook of Medical Treatment* (1949, Edinburgh) put it, "now generally abandoned." The crux of the matter is, then, do patients with acute nephritis "tend to sweat excessively"? No mention of such sweating is made in Price, Savill, Sheldon, Paterson, or Ellis's Croonian Lectures (*Lancet*, 1942, 1, 34 and 72). None of the medical sisters asked, nor the writer, can recall having seen this alleged sweating. It is of interest to think that there can be such a wide divergence of opinion over a point that can be settled by simple clinical observation. The writer can see no reason for continuing to use blankets, but would beg for really authoritative views, lest another baby be thrown away with the bath water.

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THE SECRETARY REPORTS

MEDICAL SUPERINTENDENTS

For as long as the National Health Service lasts the medical profession will have its grievances, some of them large and others small. But I doubt whether it will ever have a more strongly grounded grievance than its objection to the terms and conditions of service of future medical superintendents. The area of the grievance may be small, in that the number of persons affected is not large. None the less, a regrettable state of affairs exists.

Consider first the medical superintendent who is a specialist. The broad plan is that he should be remunerated as a specialist for that part of his time he spends on specialist duties and as an administrator for the remainder, unless the amount of time spent on administration is trivial. It will be observed that, if the administration element is not trivial, his remuneration will be lower than that of any member of his staff, possibly his deputy, who is engaged whole-time or almost whole-time on specialist duties. Here then is the first grievance—that it should be possible for a specialist medical superintendent to receive less remuneration than a specialist deputy medical superintendent or a specialist medical officer who is neither a superintendent nor a deputy.

The wind has been tempered, however, in the case of a medical superintendent of a mental hospital. The Ministry has made plain in an official circular that his administrative work "need not, it is estimated, exceed 10% of the time given by a whole-time officer, and this may properly be regarded as so small a proportion of the time that there need be no abatement of the remuneration at clinical rates for the whole of his time." Incidentally, in the assessment of clinical duties they are taken to include "activities directly connected with the treatment, training, and occupation of patients, as well as general supervision of entertainments and the provision of amenities." In other words, the authorities classify some non-clinical work as clinical and then give a broad hint that the remaining administrative work can be regarded as *too small in amount to justify reduction* in salary. This is reasonable and sensible. But why not extend this kind of definition and assumption to all medical superintendents whether of mental hospitals or not?

A greater grievance arises where the amount of administrative time is more than trivial, constituting the whole or part of the time. At its worst, the whole-time medical superintendent of a large hospital is regarded for purposes of pay, and so of status, as exactly the same as the lay secretary of a hospital management committee. This means remuneration somewhere between £640 and £1,700 inclusive, the actual remuneration being determined on a points system.

Purely Administrative Posts

Existing officers have, of course, some protection. The test of the position will arise when a post for a purely administrative medical superintendent falls vacant and the hospital authority invites applications from medical practitioners to fill it. It is insisted that a doctor is needed. All the authority will be permitted to offer is the salary applicable to a lay secretary. The Ministry seems to have the idea that there is only one variety of administration, and whether it is done by doctor or layman it is just the same and should be paid for at the same rates. It is entirely wrong that where a doctor is needed for a purely administrative post he should be paid as a layman and not as a doctor. Some may think that it is desirable that we should move away from medical administration to lay administration, but that is a question of policy which it would be wrong to mix with questions of remuneration. If a doctor is wanted he should be paid as a doctor.

This Ministry attitude to the whole-time administrative superintendent affects the salaries of all future holders of posts involving both clinical work and administration, except where the time spent on administration is trivial. We recently had an example of the application of the terms of service in a particular case. An advertisement was received from the South-west Metropolitan Regional Hospital Board for a medical superintendent at the St. Mary's Hospital, Portsmouth, a hospital of 1,039 beds, in the following terms:

> Applications are invited by the Board for the whole-time appointment of
>
> MEDICAL SUPERINTENDENT
>
> The successful candidate will be required to undertake the medical administration of the hospital, and his duties will include the medical care of nursing staff, charge of chronic sick wards, three sessions per week to be devoted to clinical surgery, superintendence of mental deficiency beds, and the control of admissions and discharges. The salary for medical duties (six sessions) will be based on the scale £1,300 by £50 to £1,750 per annum and for administrative duties (five sessions) on the appropriate administrative scale—i.e., £710 by £25 to £910 per annum. Living accommodation will be provided, in respect of which a charge will be made. The appointment will be subject to the provisions of the National Health Service (Superannuation) Regulations, 1947, and will be in accordance with the agreed terms and conditions of service of hospital medical and dental staff under the National Health Service. Applications, stating age, qualifications, experience and present appointment, and giving the names and addresses of three referees, should be made by letter and sent to the Secretary (S.D.1), South-West Metropolitan Regional Hospital Board, 11a, Portland Place, London, W.1, to arrive not later than September 17, 1949. Canvassing will disqualify.

The composite salary approximates to a scale of £1,032 to £1,368, subject to deduction for accommodation. This is an illustration of the application of the Ministry's formula, as it conforms to the terms of service. The salary is far too low for the work and responsibility involved.

Clinicians have not always loved medical administrators, but they will, I think, agree to two propositions. The first is that they should pause awhile before expressing an official view as to the form administration should take in the future in the hospital field. Preference for lay administration might conceivably be replaced, in the light of experience, by one for medical administration. The second proposition is this: the profession should insist that, wherever there is a job which a doctor only can fill, even though it be administrative in character, the pay should be such as is appropriate to a doctor. That there *is* such a thing as medical administration—as distinct from lay administration—no doubt the medical officers of the Ministry of Health and our colleagues in the public health service would agree, however difficult the lay administrator may find it to accept that a medical training contributes something to certain kinds of administration which their own training does not.

SOCIAL SECURITY IN WESTERN UNION

The Foreign Ministers of the five Brussels Treaty Powers—Belgium, France, Luxembourg, the Netherlands, and the United Kingdom—have signed two conventions linking arrangements for social security in the five countries.

The first convention, which is related to the bilateral agreements on social security already negotiated or being negotiated between the five countries, will enable nationals of these countries to take advantage of any of these agreements no matter in which of the five countries they reside or have resided. The benefits covered by these agreements include those provided in case of sickness, invalidism, old age, death, maternity, industrial injuries, and prescribed occupational diseases.

Free Medical Treatment

The second convention is based on the principle that if a national of any of the five countries, when resident in the territory of any of the other four, requires social or medical assistance, but is without sufficient resources, he will receive such assistance from the latter country on the same basis as its own nationals. For example, an Englishman living in Holland, who is without sufficient resources, will receive the same free hospital treatment as a Dutchman in similar circumstances.

The five countries will not reimburse each other for the cost of any such assistance. Repatriation solely on the ground that assistance is likely to be long-continued or costly is not to be resorted to if the person concerned has, for instance, close family ties in the foreign country in which he is living or has resided there for more than five years—10 years if he entered that country after the age of 55—or is not in a fit state to be transported. But the convention does not affect the ordinary laws governing repatriation on other grounds.

A supplementary agreement is to be worked out between the Governments dealing with a number of matters of detail.

APPOINTMENTS TO HOSPITAL MANAGEMENT COMMITTEES

The terms of office of about one-third of the members of hospital management committees expire on March 31, 1950. The members will be eligible for reappointment for a further term of three years. The Minister of Health considers that it is "the intention of Parliament and clearly desirable" that there should be full consultations on this matter, even though the N.H.S. Act does not require the regional hospital board to consult any body specified except the committee itself. This view is expressed in Circular R.H.B. (49) 143 from the Ministry of Health.

Balanced Membership

The Minister's aim is to have on each committee a balanced membership, including the appropriate types of experience and reflecting the interests of the community to be served. When members are due to retire from management committees, boards should inform the following bodies of the retirements and invite them to submit suggestions: the committee itself; every local health authority and every executive council any part of whose area is served by the committee; senior medical and dental staff of each of the hospitals concerned; and each of the bodies originally consulted under paragraph (*d*) of Part 2 of the Third Schedule of the Act, together with any other local bodies which appear to the board to be appropriate.

A reasonable proportion of the retiring members may be reappointed, but boards should consider introducing some new element into the membership—e.g., from house committees or from the local community.

Community Interests

The proportion of professional members should not be high. "The committee must essentially be and remain a group of non-professional members of the local community rendering voluntary service in the public-spirited tradition of the past and in the interests of the community."

Officers of committees should not be appointed as members of them, though there is less objection to appointing officers of one committee to be members of another. Members of both management committees and hospital boards should be strictly limited.

Doctors and matrons should be invited to attend meetings of management committees and their subcommittees. They can make their fullest contribution to the work of the committees by attending as advisers rather than as members.

CHEMISTS PROTEST AGAINST 1/- TAX

The Pharmaceutical Society has informed the Prime Minister that the charge of up to 1s. on prescriptions will not deter those who are misusing the Service to a serious extent, though it will tend to reduce calls on the services of doctors and chemists under the Service. "It would appear that the charge will be prejudicial to the use of the Service by persons who need medical attention, but will not reduce excessive and unnecessary resort to doctors and chemists by those who are least deserving of the benefits they are receiving."

COLLIERY MEDICAL OFFICERS

Members of the Joint Subcommittee on Remuneration of National Coal Board Medical Officers, and 19 representatives of part-time colliery medical officers from various areas, attended a conference on October 26 under the chairmanship of Dr. I. D. Grant.

The first discussion ranged round rates of pay proposed by part-time medical officers and approved by the Representative Body at Harrogate. The conference agreed that this scale should be accepted.

Discussion followed on the duties of part-time colliery medical officers, the issue being whether such practitioners wished to be an integral part of the Colliery Medical Service or merely available for emergencies in their area. It was pointed out that although area medical officers were appointed they were not normally, owing to distance, available for emergencies. It was finally agreed that the duties of part-time colliery medical officers should be as laid down in the duties of industrial medical officers.

Emergency Calls

Fees for emergency calls were then considered, and emergency calls were divided by the conference into three categories:

(1) Where the casualty is available at the pit-head when the doctor arrives or very shortly afterwards.
(2) Where the doctor is required to go underground.
(3) Where the doctor has to wait at the pit-head for the casualty to be brought up.

It was suggested that in the last two categories fees should be on the basis of £1 11s. 6d. an hour or part of an hour.

The question of benefits payable by the National Coal Board where a doctor is injured or killed while attending at a mine was referred to the Joint Subcommittee.

Recommendations were made to the Joint Subcommittee regarding payment for examination of outstanding colliery compensation cases and also regarding co-option of certain members of the conference on to the subcommittee.

NATIONAL INSURANCE LOCAL ADVISORY COMMITTEES

Nominations Invited from Local Associations by November 30

The Minister of National Insurance, Mr. James Griffiths, is setting up 230 committees to advise on questions relating to the local administration of the National Insurance Act; 186 of these committees will be in England, 26 in Scotland, and 18 in Wales. Each committee will consist of about 20 members, of whom six will represent employers and six employees. There

will be two or three representatives of local authorities and one or two of friendly societies. These representatives will be called together and asked to select four or five other persons with suitable local knowledge to complete the full committee.

The Ministry of National Insurance local associations wishing to nominate such persons for consideration should put forward their names, with particulars of their qualifications, not later than November 30 to the appropriate *regional controller* of the Ministry of National Insurance.

National Insurance Regions

The areas covered by each National Insurance region and the address of the regional controller are shown in the following table

Region	Area Covered	Address of Regional Controller
Northern	Northumberland, Cumberland, Durham, Westmorland, and North Riding of Yorkshire	Newcastle-upon-Tyne
East and West Ridings	West Riding and East Riding of Yorkshire	5–7, New York Road, Leeds, 2
North Midlands	Derbyshire, Nottinghamshire, Lincolnshire, Leicestershire, Rutlandshire, and Northamptonshire	Block 3, Government Buildings, Chalfont Drive, Western Boulevard, Nottingham
Eastern	Huntingdonshire, Cambridgeshire, Norfolk, Suffolk, Bedfordshire, Essex, and Hertfordshire	"St. Regis," Montague Road, Cambridge
Inner London	Area of London County Council and County of Middlesex	31, Cumberland Terrace, London, N.W.1
Outer London	Surrey, Kent, Sussex, and parts of Hertfordshire and Essex	2–12, Prince Albert Road, Regent's Park, London, N.W.1
Southern	Oxfordshire, Buckinghamshire, Berkshire, Hampshire, Isle of Wight, and Dorsetshire	Whiteknights Park, Earley, Reading, Berks
South Western	Gloucestershire, Wiltshire, Somersetshire, Devonshire, and Cornwall	"Avonleigh," Stoke Park Road South, Bristol, 9
Midland	Herefordshire, Shropshire, Staffordshire, Warwickshire, and Worcestershire	Broadway Court, 69, Broad Street, Birmingham, 15
North Western	Counties of Cheshire, Lancashire, and the High Peak District of Derbyshire, viz., Bamford, Buxton, and Glossop, New Mills, and Chapel-en-le-Frith	"Heyscroft," Palatine Road, Didsbury, Manchester, 20
Wales	Wales and Monmouthshire	Cathays Park, Cardiff
Scotland	Scotland	39, Drumsheugh Gardens, Edinburgh, 3

EMERGENCY BED SERVICE

The work of the Croydon Emergency Bed Service was taken over on November 7 by the South-western Branch of the E.B.S., Gap Road, Wimbledon (telephone: Wimbledon 6581).

The following functions, formerly carried out by the Croydon Bed Service, are now the responsibility of the Croydon Group Hospital Management Committee at Croydon General Hospital (telephone: Croydon 3427): chronic-sick and pay-bed accommodation admissions to Croydon hospitals, and admissions to Coombe Cliff Convalescent Home.

Particulars of other E.B.S. offices were listed in the *Supplement* of October 8 (p. 160).

TREATMENT OF MERCHANT SEAMEN IN PORT

Executive councils are responsible for arranging medical treatment for merchant seamen on shore (*Supplement*, August 13, p. 80). The Ministry of Health has now issued a circular on the provision of drugs and appliances when prescribed for these seamen by doctors employed whole-time by the Shipping Federation at the London and Royal Docks and the ports of Southampton, Cardiff, Manchester, Newcastle-upon-Tyne, Liverpool, and Glasgow.

A special issue will be made to these practitioners of Forms E.C.10 bearing the name of the London Executive Council and stamped "Shipping Federation Medical Officer." These prescriptions may be handed in at pharmacies in the area of any executive council, even though the practitioners are working in the various ports named.

HOSPITAL STAFF DISMISSED

The general practitioner staff of the North Herts and South Beds Hospital at Hitchin have received notices of dismissal as from October 31. The staff point out that their dismissal is contrary to the Minister's intentions expressed in circular R.H.B. (49) 132 (*Supplement*, October 15, p. 168), which warns regional hospital boards that they are not to deprive patients of hospital beds in the charge of general practitioners. The hospital staff have taken up the matter with the Minister of Health.

HEARD AT HEADQUARTERS

Hearing-aids

From a discussion at the Medical Society of London the other day we gather that the difficulties which have surrounded the introduction of the Government hearing-aid are being smoothed out. The bottle-neck is no longer at the distribution centres, where it used to be, but in the diagnostic clinics. It was stated that it is extraordinary how many old people are thrilled when, after a little instruction, they get the "hang" of the thing—people who, a few years ago, would never have thought of trying such an appliance. On the other hand, some of them cannot put up with these electrical contrivances, and the old ear trumpet or the "banjo" still has its vogue. We were told of old people who sit on either side of the fireplace and communicate with one another through three feet of rubber tube. One speaker knew of someone who has already had five Government hearing-aids. His complaint is that after about two months some fault in the material declares itself, and the aid has to be taken back and a new one obtained while the old one is repaired and renovated. It was suggested that it would have been more economical for the Government to use less cheap material.

Rendezvous

One lady to another in a doctor's waiting-room: "Ah, Mrs. Smith, I haven't seen you here lately. I hope you haven't been unwell."

Questions Answered

Salary of Hospital Locum

Q.—*I have been qualified for two years and have just finished a B2 appointment. Without having been graded I have been appointed locumtenent to an assistant medical officer who is on special leave. The doctor I am replacing was graded as registrar from July, 1948. Pending the new hospital establishment he has been receiving his original (lower) salary. What remuneration am I entitled to expect?*

A.—The Ministry has instructed boards of governors, regional boards, and hospital management committees that a locumtenent engaged to fill the post of house officer, J.H.M.O., or registrar shall be remunerated at the same rate as the officer whose place he is filling. In this case, as the grade of the officer whose work the locum has taken over is that of registrar (first year), the salary to which he is entitled is £775 per annum.

Refusal of Temporary-resident Patients

Q.—*Am I not entitled to refuse to have temporary residents on my list and to charge them private fees?*

A.—A doctor is free to refuse to accept a person on his list, either as a temporary or a permanent patient; but he must (*a*) give any person who has applied for and been refused acceptance by him advice on the steps to be taken to enable him to be accepted by another doctor, and (*b*) provide without charge to the patient any treatment required by the person in an emergency or pending acceptance by another doctor.

CENTRAL CONSULTANTS AND SPECIALISTS COMMITTEE

REPRESENTATION OF CONSULTANTS

At the meeting of the Central Consultants and Specialists Committee held at B.M.A. House on November 3, with Mr. R. L. Newell in the chair, a letter from members of the South-west Metropolitan (Western Area) Regional Committee, which appeared in the *Supplement* of October 22 (p. 185), was considered. The letter complained of the decision of the Central Committee that the Joint Committee should appoint and instruct the members of the staff side of the Whitley Council, and stated that the Regional Committee had decided unanimously that if the Central Committee continued to be subordinated to the Joint Committee the Regional Committee would consider withdrawing its representatives from the former and relying on representation by other means.

The chairman deplored the publication of such a letter. He restated the views set forth in his own reply, published in the *Supplement* of November 5 (p. 206). He said that the letter from the Regional Committee was in many ways misleading. If any constituent body represented on the Joint Committee had written such a letter he would have regarded it as a disastrous action. The Joint Committee had worked very well indeed and had the confidence of the Ministry. It had never been in disagreement with any of its constituent bodies. In fact, there had never been a division on any question. He felt that if the Regional Committee persisted in its demand the result would be that consultants would be represented by many bodies without any real authority whatsoever, instead of by one body to which the Ministry now looked as representing the consultants of the country. The chairman's remarks were received with expressions of general assent.

Mr. Ross Smith, one of the signatories of the letter, said that it was complained particularly that no reference was made to the regional committees before it was decided to subordinate the Central Committee to the Joint Committee in the matter of the representation of hospital medical staffs. He and his fellow signatories could not agree that the Joint Committee should be the instructing body. The instructing body should be a committee democratically elected. One matter on the present agenda concerned the setting up of an independent fighting fund for hospital medical staffs. It would surely be an anomalous position if the Central Committee acted as the defence organization, holding the defence fund in trust, while another body over which it had at best only minority control had to decide action. He could not see the general body of consultants in this country having confidence in such a set-up, and if there was not confidence there would not be financial support.

The Secretary (Dr. Charles Hill) said that other bodies wanted to participate in representation on Whitley Councils. The Central Committee was set up to speak for the general body of consultants, and the Joint Committee was established in order to avoid the possibility of half a dozen separate organizations each claiming an independent right. If there was a departure from that collective position they might be represented on the Whitley machinery by the three English Colleges, the Scottish Colleges or Corporations, by their own committee, possibly by the British Medical Association as a separate organization, and other bodies, and would be in a worse position. It was of paramount importance to consultants and specialists to have for Whitley purposes one generally accepted body.

Other members expressed regret at the lack of trust in the Joint Committee which was made evident in the letter. On the other hand, one member suggested that the Central Committee had been set up on a sufficiently broad basis to include almost all the bodies which were entitled to be considered by the Ministry.

After a short discussion it was agreed that the letter from the Regional Committee be left to lie on the table.

Special Distinction Awards

Dr. Rowland Hill, chairman of the Executive Committee, presented certain proposals as a basis for discussion on the assessment of "merit" for distinction awards. It was recommended that "merit" be defined as the total professional value of a consultant to the community, and that the following factors be taken into consideration in the assessment: the nature and responsibility of posts held and the standard of efficiency attained in the performance of the duties of the posts; professional qualifications and academic and other professional attainments; and the value of the consultant's researches and his published works.

The committee also submitted certain amended proposals as to the method of implementation. One of these was that lists of recipients of merit awards should not be published in the medical or lay press, but should be made available to the profession by the National Committee, which decided the awards, through the Joint Committee and its constituent bodies and by boards of governors and regional boards to their medical committees and medical advisory committees respectively, all such information to be regarded as confidential.

Dr. Rowland Hill pointed out that with most awards a reasonable degree of publicity was part of the award, and it was significant of the atmosphere which surrounded the whole of this arrangement that such secrecy had to be observed. He added that it was not the advertising of the recipient which was to be deprecated, but the "de-advertising" of those whose names did not appear in the list.

The difficulty of maintaining secrecy about the awards was mentioned in the committee, especially the difficulty of disclosing something to the profession and withholding it from the public. One member advocated the fullest publicity for the awards, if only in order that young consultants might know at what objectives to aim.

The committee agreed generally with the proposals put forward, including the one that in each region there should be established a committee of distinguished practitioners of consultant status, not interested in merit awards (that is, those already in receipt of the highest award or retired from practice), who should select consultants in the area for recommendation to the National Committee. It was the general feeling that the Central Committee should not itself participate in the recommendations.

Pay-bed Accommodation

Some discussion took place on the continuing reduction in the number of private hospital beds and the increase in maintenance charges. Dr. Rowland Hill said that the question would be further discussed with the Ministry, and particulars of any hard cases would be submitted. It was stated that there was a drive to create amenity beds out of private beds. It was agreed to press the point that the retention of private hospital beds at an adequate level would reduce the cost of the hospital and specialist service.

Various recommendations from groups were considered. One of them, from the Venereal Diseases Group Committee, urged that regional hospital boards be asked to make facilities available for the training of women as specialists in venereology, with a prospect of adequate employment and the opportunity of competing for the highest honours in the specialty. It was also asked that arrangements should be made for women patients who so desired to be treated by women venereologists. This was endorsed by the committee for representation to the Ministry.

The Radiologists Group Committee asked that the question of financial assistance to radiologists to offset the loss of capital due to the fact that their practices had become unsaleable should be taken up. It was agreed that this question should be one of the items to be considered by the Whitley Council as soon as it was formed.

The committee reappointed its six representatives on the Joint Committee—namely, Dr. T. Rowland Hill, Mr. C. E. Kindersley, Dr. W. S. Mack, Mr. A. M. A. Moore, Mr. R. L. Newell, and Mr. T. Holmes Sellors.

Correspondence

Status of General Practice

SIR,—The rape of general practice has been going on for some long time, but its progress has been accelerated by the introduction of the new National Health Service. By "rape" I mean to convey the taking away from the general practitioner of what is now considered outside his competence and handing such sections of his work over to the specialist, so often a side of his work which he considers the most interesting. Among the early branches of practice that went in this way were ophthalmology, dentistry, pathology, and public health. Later this was followed by orthopaedic and E.N.T. work, anaesthetics, and the staffing of clinics for children and antenatal purposes. At the present time the process is being completed by removing from the competence of the general practitioner the general surgery previously carried out by him as a member of the staff of his local hospital.

The reason given is the increase in newly acquired medical knowledge and its constantly changing techniques. This has been exploited far too fully, so that now the general practitioner has the practice of nearly all techniques (complicated or comparatively simple) removed from him, if not on the ground that they are considered outside his competence, then included in a neat bundle with those which quite possibly are. This, in the future, must tend to produce a deterioration in the type of practitioner for what is the object of learning to become proficient along certain special lines if in the future there will be no opportunity of putting such into practice? Why choose to become a house-surgeon if, after leaving the hospital, you will never remove an appendix or perform any routine surgical procedures?

The rights and wrongs of the present tendency are debatable, but what is not debatable is the fact that the status of the general practitioner must be maintained, so that what was described by a professor of medicine as "the backbone of the profession" should not become the resort of the comparative failures within the profession, swayed and governed by the body of specialists, who, however brilliant in their own sphere, often dismally fail to comprehend medical practice in anything like its breadth and depth.

It should remain the main object and the grave responsibility of all teaching hospitals to create as in the past a body of general practitioners capable of carrying out successfully the routine techniques of the department in which they serve after qualification. It is these men who should serve the needs of the smaller local hospitals in the areas in which they later find themselves.

In the present chaotic over-organization of doctors' work by other doctors the outstanding results appear to be on one side the unmanageable weight of work thrown upon the specialist and the hospital in which he works, and on the other side the general practitioner increasingly divorced from the more technical and stimulating sides of his work, striving to retain at least some interest in his professional work, from which so much other than the hack work has been successfully removed.—I am, etc.,

Long Handborough, Oxford. CLEMENT J. L. WELLS.

SIR,—The slogan of the Church of England's Mission to London to be read on the posters stated that "Recovery starts from within," a truth inherent not only in things spiritual but a truth very widely neglected. Does the medical profession give due weight to the fact that recovery starts from within? I see little evidence of its doing so. We discuss rates of pay, grading of specialists, and so on, while giving little attention to the reorganization of the medical services. The original B.M.A. health scheme did little more than suggest that the dependants of N.H.I. patients should be added to the doctors' panels, as though the panel system was in itself the answer to the demand for an improved medical service.

Improved rates of pay will not ensure a satisfactory medical service. The importance of the general practitioner must be fully recognized and not merely paid lip service to, and he must be, as he is not at present, fully trained for his work, which in many respects differs from that of the consultant and specialist. Health centres are not needed primarily to do away with doctors' surgeries but to provide diagnostic and treatment facilities for general practitioners.

Many of the regulations are a direct insult to general practitioners. They are now informed that they may no longer in an emergency obtain direct an oxygen tent, but must do so through a hospital consultant, who alone may order belts, valgus pads, and such simple things. If the general practitioner is as inefficient as all that, something is seriously wrong with his medical education, for which these consultants are responsible; and will these consultants bear in mind Sir Robert Hutchison's dictum, "No one is too good to be a general practitioner."

One way of maintaining a high standard among general practitioners is to associate them with the hospitals in some semi-official way such as clinical clerkship. This could be arranged on a rota system. In America it has been noted that clinical ability tends to decline after leaving hospital and being separated from its work.

The reforms I suggest are (1) better training of the general practitioner for the work he has to do, (2) provision of diagnostic and treatment facilities, and (3) continued association of the general practitioner with the work of a hospital.

I may be wrong in these suggestions, but, bearing in mind that recovery starts from within, let us at least recognize the need for reform and strive to promote it.—I am, etc.,

London, W.8. HAROLD H. SANGUINETTI.

Protest Against Higher Pay

SIR,—In the *Sunday Times* of September 4 I was surprised to read that the B.M.A. (of which I am a member) is putting in a claim for still higher payment for general practitioners. When I was a panel doctor—1922 to 1937—the capitation fee was around eight to nine shillings, and I was quite satisfied. It was not my only source of income, any more than it is the only source of income of National Health Service practitioners to-day—private practice (and there is still quite a lot available) and part-time appointments, of which there is a wide scope (divisional police surgeons, part-time industrial medical officers, dental anaesthetics, child-welfare clinics, examinations under the Factory Acts, minor-ailment treatment centres for school-children, to mention a few). Also a number of general practitioners have specialized in ophthalmology, nose, throat, and ears, dermatology, industrial medicine, etc., and hold part-time appointments in these.

Even if a few doctors depend only on their National Health Service remunerations they appear more than adequately paid for it, and it must also be remembered that a high percentage of the medical investigation and treatment of their patients is carried out at the hospital.

I wish to protest against this demand for a further increase, which to my mind is quite unjustified. I would also remind the B.M.A. of the serious financial position of the country; but the country's interest is quite forgotten in the general scramble for more money for less work. I am sending a copy of this letter to the Minister.—I am, etc.,

London, N.6. W. A. H. BELL.

Establishment of Registrars

SIR,—It needs no more than a few moments' reflection to realize that a serious problem is fast gaining momentum. At most of the larger hospitals, especially teaching institutions, there has been an increase in the number of registrar appointments in proportion much greater than that before the war.

Ten years ago in two neighbouring hospitals there was a total of 15 registrars; to-day there are 41. These figures are typical of other centres. One large teaching hospital, at least, has multiplied its number more than 10 times.

Since the post-war replenishment of permanent appointments vacancies have now become very few, and the intended expansion of specialist services shows no sign at present of taking

place. The situation is already indicated by the large list of applicants for any staff appointment. It is a situation which is bound to deteriorate unless steps are taken, and it is a disheartening position for those who have been at pains to spend years in special training.

If the country still needs and can economically support a great specialist service, it seems that now is the time to enlarge establishments. If this is not the case, then it would be rational to limit the total number of registrars in a reasonable proportion to the number of permanent specialist appointments.—I am, etc.,

London, W.1. P. H. NEWMAN.

Compensation for Taking Partner

SIR,—One can only view the letters from principals and assistants which have been published recently with a great deal of sympathy for both sides, but also with horror that acrimony is developing within the profession itself.

Many principals would be willing, even pleased, to grant partnerships to their assistants if they could be sure that the loss of income involved could be balanced by the acquisition of capital as was the practice in pre-N.H.S. days. May I suggest that the Ministry of Health be approached to grant immediate compensation to the value of the share given to an incoming partner?

It could be stressed to the Minister that this procedure would ensure that his protégé (the penniless young doctor) obtained a professional livelihood, and that practice in general would benefit thereby.—I am, etc.,

Hayes, Kent. MATTHEW SHERIDAN.

Bifocal Glasses

SIR,—In reply to Dr. H. S. Gaskell (*Supplement*, October 22, p. 185) it should be pointed out that bifocal lenses are more difficult to obtain than single-sighted lenses, and a large increase in the proportion of bifocals prescribed would lead to very long delays. Solid bifocals, in particular, are in very short supply.

From the point of view of expense there is little difference, since the cost of two frames fitted with single-sighted lenses is approximately the same as one frame with bifocals.

Bifocal lenses are a great boon to thousands of people, but in many cases they are not suitable, and the decision must rest with the ophthalmic optician or ophthalmic medical practitioner carrying out the examination.—I am, etc.,

S. BLACK,
London, W.1 Association of Optical Practitioners.

Tax on Prescriptions

SIR,—In your annotation (*Journal*, October 29, p. 971) you remark that "Mr. Attlee's decision that a patient from now on will have to pay a small token fee up to a 1s. for prescriptions issued under the N.H.S. . . . will be welcomed by the medical profession." Before we have details of how this charge is going to be made it is extremely difficult to express a considered opinion on it. Household remedies for one patient are medical necessities for another—e.g., cotton-wool for a patient with a colostomy. Aspirins, which the Minister now suggests that the patient should buy, before the N.H.S. were sold to him by his private doctor either as tablets dyed pastel shades of pink or yellow or in the form of very palatable emulsion, coloured or plain according to fancy. One thing we can regret from Mr. Attlee's decision is that the Government has decided that the economic barrier to medical services shall be reintroduced

The responsibility of over-prescribing must lie with the doctors. Complaints that seem trivial to the medical man seem important and even dangerous to the ignorant and the neurotic. When we complain of overcrowded surgeries we are apt to forget that patients often wait for two hours for our advice and opinion. They would rarely do this if it was to save themselves 6d. for a bandage. The result of a charge for prescriptions may well mean that patients already discouraged by over-full waiting-rooms will return to self-medication and patent medicines.

Mr. Attlee and his Government have done little to help the general practitioners to run the Service. We wait in vain for the amenities of the health centres, but his latest action will not be welcomed by the general practitioner in the industrial areas, who foresees hardship for many, especially the large families of the lower income group.—I am, etc.,

Birmingham. M. BARROW.

Housing and Health

SIR,—In view of the national crisis and possible further economies in national expenditure, I feel that the medical profession should make a stand against any further reduction in the already inadequate housing programme.

It seems little use pouring money into the sacrosanct National Health Service when a steady stream of mentally ill people is also being poured into it as a result of inadequate housing. The loss to the nation in man-hours must be colossal when one considers the mental illness that is brought about by overcrowding and having to live with uncongenial relations and under unhygienic conditions. In addition to this, much time in psychological departments is given up by psychiatrists and psychological social workers to fighting a losing battle with these conditions. I say nothing of the time and cost to the nation of juvenile delinquency, largely consequent on marital breakdown due to inadequate housing.

It seems to me that the housing problem should be sacrosanct, and if this were so the needs of the National Health Service would be considerably decreased.—I am, etc.,

London, W.1. MARION GREAVES.

POINTS FROM LETTERS

Mental Change

Dr. D. SAKLATVALA (W. Bromwich, Staffs) writes: It has been "Heard at Headquarters" (*Supplement*, October 1, p. 149) that the Minister of Health is baffled by "the mental change that comes over a doctor when he functions as a member of organized medicine." In believing that there is such a change the Minister is exhibiting a mental phenomenon which is universally seen in laymen but which need not, I think, baffle us. It is a matter of common experience that Mr. Everyman has, and ever has had, complete trust in the humanity, integrity, and skill of "his own" doctor. At the same time it has long been common knowledge that doctors as a body are always under the suspicion of Mr. Everyman. The B.M.A. has for many years been scathingly spoken of as "the strongest trade union," while the man-in-the-street is never ready to believe in doctors as a class suffering any hardship or difficulty, because he can always believe that, before all else, doctors look after themselves. . . . When the patient is in trouble, then all his hopes, all his future, seems to be in the hands of his doctor, and if he is to have confidence in his future he must have confidence in his doctor. If he is to be emotionally stable this confidence must be absolute, and not weakened by any doubts. . . . The surest way of avoiding any such doubts is, clearly, to "decide" that, while Dr. A is a paragon of all the relevant virtues, Drs. B, C, D, etc., are a collection of unprintable rogues and scoundrels. . . . Since in the profession Mr. Everyman's (or Mr. Bevan's) "own" doctor is in a minority of one, while the rest are the unreliable scoundrelly nincompoops, it follows that Mr. Everyman can safely trust the one, while he *must* suspect and abhor the many. Mr. Bevan is reported as urging "psychological research." I venture to find that unnecessary, but I believe that some "public relations" research is badly needed. It has long been my view that the combating of this ambivalence in the public's attitude should be our first propaganda concern, for until we have eradicated it all our other teaching falls on stony ground. Unfortunately I have no idea of how we should begin.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

H.M. Forces Appointments

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

Major H. F. T. Macfetridge, D.S.O., I.M.S. retired, to be Lieutenant (Substituted for the notification in a *Supplement* to the *London Gazette* dated March 15.)

Captain A. M. Rennie to be Major.

Captain K. W. N. Palmer, T.D., to be Major.

Captain D. C. Taylor has been granted the acting rank of Major.

Lieutenant G. J. Dixon to be Captain, and has been granted the acting rank of Lieutenant-Colonel.

Lieutenant D. H. Jenkins to be Captain, and has been granted the acting rank of Major.

Lieutenant R. V. Stone to be Captain, retaining the acting rank of Major.

TERRITORIAL ARMY RESERVE OF OFFICERS: ROYAL ARMY MEDICAL CORPS

Majors J. B. Schofield and J. D. Swan, from Active List, to be Majors.

REGULAR ARMY: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

Lieutenant (Acting Lieutenant-Colonel) A. A. W. Petrie, C.B.E., has relinquished his commission (without pay and allowances) and has been granted the honorary rank of Lieutenant-Colonel.

Captains J. G. Kendall and G. Maizels have relinquished their commissions and have been granted the honorary rank of Major.

ROYAL AIR FORCE

Air Chief Marshal P. C. Livingston, C.B., C.B.E., A.F.C., K.H.S., to be Air Marshal

Flight Lieutenants R. Mortimer, J. M. Dawson, J. J. McNair, and E. C. F. Bramwell to be Squadron Leaders.

J. B. Good to be Squadron Leader (Temporary).

ROYAL AIR FORCE VOLUNTEER RESERVE

Squadron Leader J. B. Good has relinquished his commission on appointment to a temporary commission in the R.A.F.

Flight Lieutenants R. D. McD. Morrison and K. R. Hudson have relinquished their commissions on appointment to the reconstituted R.A.A.F., retaining the rank of Wing Commander.

Flight Lieutenant G. P. Arden to be Squadron Leader.

Flight Lieutenant J. R. Anderson has relinquished his commission on appointment to the reconstituted R.A.A.F., retaining the rank of Squadron Leader.

Flight Lieutenant P. M. Lynch has relinquished his commission, retaining the rank of Squadron Leader.

WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

Flight Lieutenant L. G. Moore to be Squadron Leader.

Flight Lieutenant E. H. M. Lewin has relinquished her commission, retaining the rank of Squadron Leader.

INDIAN MEDICAL SERVICE

Major-General J. P. Huban, C.S.I., O.B.E., has retired.

Lieutenant-Colonels H. W. Mulligan, T. A. Doran, C. R. Henderson, H. S. Smithwick, O.B.E., and P. H. Cummins have retired, and have been granted the honorary rank of Colonel.

Lieutenant-Colonels J. F. Shepherd, M.B.E., S. T. Davies, A. I. Cox, O.B.E., J. L. Donnelly, J. H. Gorman, B. J. Griffiths, W. J. L. Neal, O.B.E., and G. Milne have retired.

Majors N. A. Michael, F. A. B. Sheppard, C.I.E., O.B.E., and G. T. Wrafter have retired.

Captain W. W. Hamilton has retired, and has been granted the honorary rank of Major.

Lieutenants L. H. Nugent and P. G. Morris have retired, and have been granted the honorary rank of Major.

INDIAN MEDICAL DEPARTMENT

Captains K. E. R. Robertson, N. A. Michael, and N. C. Todd to be Majors.

COLONIAL MEDICAL SERVICE

The following appointments have been announced: D. F. Clyde, M.D., Medical Officer, Tanganyika; A. Hargreaves, M.B., Medical Officer, Dermatologist, Kenya; C. E. Hunter, M.D., Medical Officer, British Somaliland; M. A. Rozalla, M.B., Medical Officer, Sarawak; J. F. Nunn, M.B., Medical Officer, Federation of Malaya; Z. S. Walko, M.D., Assistant Medical Officer, St. Lucia, Windward Islands; R. L. Cheverton, M.R.C.S., Director of Medical Services, Gold Coast; H. D. Tonking, M.R.C.S., Pathologist, Nigeria; H. M. Johnston, M.B., M.P.H., Malariologist, Jamaica; E. H. Madge, M.B., Medical Superintendent, Victoria Hospital, Mauritius; M. Theodoulou, M.D., and C. C. Ioannides, M.D., District Medical Officers, Cyprus.

Association Notices

FORMATION OF ST. VINCENT BRANCH

The Council has formed a St. Vincent Branch comprising the area of the Island of St. Vincent, British West Indies.

The new Branch comes into existence as from the date of publication of this notice.

CHARLES HILL,
Secretary.

November 12, 1949.

PRIZES FOR MEDICAL STUDENTS, 1950

The Council of the British Medical Association is prepared to consider the award in 1950 of prizes to medical students for essays submitted in open competition.

The subject of the essays shall be "Clinical Teaching in Relation to the Practice of Medicine."

The purpose of these prizes is the promotion of systematic observation among medical students. In awarding the prizes due regard will be given to evidence of personal observation. No study or essay that has previously appeared in the medical press or elsewhere will be considered eligible for a prize. Any medical student who is a registered member of a medical school in Great Britain or Northern Ireland at the time of submission of the essay is eligible to compete for a prize.

If any question arises in reference as to the eligibility of a candidate or the admissibility of his or her essay, the decision of the Council of the British Medical Association shall be final. In determining the number and the value of the prizes to be awarded the Council will take into consideration the number of essays received. Should the Council decide that no essay entered is of sufficient merit, no awards will be made.

Each essay must be typewritten or legibly written in the English language, on one side of the paper only, must be unsigned, and must be accompanied by a form of application which can be obtained from the undersigned. Essays must be forwarded so as to reach the Secretary of the British Medical Association not later than December 31, 1949. Inquiries relative to the prizes should be addressed to the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1.

NATHANIEL BISHOP HARMAN PRIZE

The Council of the British Medical Association is prepared to consider the award of the Nathaniel Bishop Harman Prize in the year 1950. The value of the prize is approximately £100. The purpose of the prize is the promotion of systematic observation and research among consultant members of the staffs of hospitals who are not attached to recognized medical schools. It will be awarded for the best essay submitted in open competition. The work submitted must include personal observations and experiences collected by the candidate in the course of his practice. A high order of excellence will be required. No study or essay that has been previously published in the medical press or elsewhere will be considered eligible for the prize.

Any registered medical practitioner who is a consultant member of the staff or senior hospital medical officer of a hospital in Great Britain or N. Ireland and is not attached to a recognized medical school is eligible to compete. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay the decision of the Council shall be final.

Should the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1950 but will be offered again the year next following this decision, and in this event the money value of the prize on the occasion in question shall be such proportion of the accumulated income as the Council shall determine.

The writer of the prize-winning essay may be required to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate Section of the Annual Meeting of the Association. Each essay must be typewritten or printed in the English language, and must be distinguished by a title and a motto. The essay must not bear the name of the writer, which should be sent with the essay in a sealed envelope bearing only the motto on the outside.

The title of the proposed essay and the motto should also be notified in writing to the Secretary by December 1, 1949, on a form to be

obtained from the Secretary. Essays must be forwarded to reach the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, not later than March 31, 1950. The prize will be awarded at the Annual Meeting of the Association to be held in 1950. Inquiries relative to the prize should be addressed to the Secretary.

SIR CHARLES HASTINGS CLINICAL PRIZE

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of 50 guineas, is again open for competition. The following are the regulations governing the award:

1. The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research, and record in general practice.
2. Any member of the Association who is engaged in general practice is eligible to compete for the prize.
3. The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not be omitted when it bears directly on their results, their interpretations, and their conclusions.
4. Essays, or whatever form the candidate desires his work to take, must be sent to the British Medical Association House, Tavistock Square, London, W.C.1, not later than December 31, 1949. The prize will be awarded at the Annual General Meeting of the Association to be held in 1950.
5. No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. A prizewinner in any year is not eligible for a second award of the prize.
6. If any question arises in reference to the eligibility of the candidate or the admissibility of his or her essay the decision of the Council on any such point shall be final.
7. Preliminary notice of entry for this competition is required, on a form to be obtained from the Secretary.
8. Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.
9. The writer of the essay to whom the prize is awarded may, on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate Section of the Annual Meeting of the Association.
10. Inquiries relative to the prize should be addressed to the Secretary.

SCHOLARSHIPS IN AID OF SCIENTIFIC RESEARCH

The Council of the British Medical Association is prepared to receive applications for Research Scholarships as follows: An Ernest Hart Memorial Scholarship of the value of £200 per annum, a Walter Dixon Scholarship of the value of £200 per annum, and four Research Scholarships each of the value of £150 per annum. These scholarships are given to candidates whom the Science Committee of the Association recommends as qualified to undertake research in any subject (including State medicine) relating to the causation, prevention, or treatment of disease. Preference will be given, other things being equal, to members of the medical profession.

Each scholarship is tenable for one year starting on October 1, 1950. The scholar may be reappointed for not more than two additional terms. A scholar is not necessarily required to devote the whole of his or her time to the work of research but may hold an appointment at a university, medical school, or hospital, provided the duties of such an appointment do not interfere with his or her work as a scholar.

Conditions of Award: Applications

Applications for scholarships must be made not later than Friday, April 28, 1950, on the prescribed form to be obtained from the Secretary of the Association, B.M.A. House, Tavistock Square, London, W.C.1. Applicants will be required to furnish the names of three referees who are competent to speak of their capacity for the research contemplated.

CHARLES HILL,
Secretary.

Diary of Central Meetings

NOVEMBER

16	Wed.	**Council**, 10 a.m.
17	Thurs.	Publishing Subcommittee, 11 a.m.
17	Thurs.	Radiologists Group Conference, 1.30 p.m.
17	Thurs.	Radiologists Group Committee (at termination of Group Conference).
23	Wed.	Health Centres Subcommittee of the General Medical Services Committee, 11 a.m.
25	Fri.	Committee on Psychiatry and the Law, 2 p.m.
25	Fri.	Venereologists' Group Committee, 2.30 p.m.

DECEMBER

1	Thurs.	Planning Subcommittee of Occupational Health Committee, 11 a.m.
1	Thurs.	Remuneration Subcommittee of Occupational Health Committee, 2 p.m.
1	Thurs.	Joint Committee of the B.M.A. and the N.V.M.A., 2.30 p.m.
15	Thurs.	Journal Committee, 2 p.m.
22	Thurs.	Occupational Health Committee, 2 p.m.

Branch and Division Meetings to be Held

CAERNARVONSHIRE AND ANGLESEY DIVISION.—At Physics Laboratory Lecture Theatre, St. Deiniol Road, Bangor, Sunday, November 13, 2.30 p.m., sound colour film: "Diagnosis and Treatment, Pathology, and Prognosis of Angina Pectoris."

DUMFRIES AND GALLOWAY DIVISION.—At Oughton's Restaurant, Dumfries, Thursday, November 17, 8.15 p.m. to 1 a.m., dinner-dance.

FURNESS DIVISION.—At Fisherman's Arms, Bardsea, Friday, November 18, 8 p.m., dinner-dance.

GREENWICH AND DEPTFORD DIVISION.—At Miller Hospital, Greenwich High Road, London, S.E., Wednesday, November 16, 8.30 p.m., Dr. Frank Gray: "Rules and Regulations of the N.H.S."

HARROGATE DIVISION.—At Majestic Hotel, Harrogate, Wednesday, November 16, 8.30 p.m., B.M.A. Lecture by Professor L. S. P. Davidson: "The Aetiology and Treatment of Rheumatoid Arthritis with Special Reference to Cortisone (Compound E)."

HERTFORDSHIRE BRANCH.—At Napsbury Hospital, Friday, November 18, 8.30 p.m., clinical meeting. Subject: "Psychiatric Treatment." Films will be shown and a discussion will follow.

KESTEVEN DIVISION.—At Bristol Arms Hotel, Sleaford, Sunday, November 20, 6.30 for 6.45 p.m., dinner; 7.45 p.m., "Some Types of Congenital Heart Disease," by Dr. J. W. Brown.

LEEDS DIVISION.—At Queen's Hotel, City Square, Leeds, Friday, November 18, 8 p.m., dinner and dance.

LEWISHAM DIVISION.—At Lewisham Hospital, High Street, London, S.E., Sunday, November 20, 11 a.m., clinical meeting.

NORTH BEDFORDSHIRE DIVISION.—At Bedford County Hospital, Friday, November 18, 8.30 p.m., clinical evening. Cases to be arranged by Dr. J. L. H. Easton.

NORTH OF ENGLAND BRANCH.—At Royal Victoria Infirmary, Newcastle-upon-Tyne, Thursday, November 17, 7.15 p.m., clinical demonstration by Dr. G. O. Richardson: "Some Clinical Aspects of Diabetes"; 8.45 p.m., address by Dr. J. G. Scadding: "Bronchiectasis."

ROCHESTER, CHATHAM, AND GILLINGHAM DIVISION.—At St. Bartholomew's Hospital, Rochester, Thursday, November 17, 8.30 p.m., clinical meeting. All medical practitioners in the area are invited.

SCARBOROUGH DIVISION.—At Scarborough Hospital, Thursday, November 17, 8.30 p.m. Talk by Dr. J. T. Ingram: "Skin Conditions."

SOUTH MIDDLESEX DIVISION.—At Jersey Rooms, Red Lion Hotel, Hounslow, Thursday, November 17, 8.30 p.m., Dr. Gerald Slot: "Angina and Coronary Thrombosis" (film).

SOUTHAMPTON DIVISION.—At Royal South Hants and Southampton Hospital, Wednesday, November 16, 8.30 p.m., Dr. Robert Forbes: "Legal Hazards of Medical Practice."

STRATFORD DIVISION.—At King George Hospital, Ilford, Tuesday, November 15, 8.45 p.m., clinical meeting. Dr. J. L. Lovibond: "The Clinical Value of Special Diagnostic Tests in the Management of Cardiovascular Disease."

SUNDERLAND DIVISION.—(1) At Royal Infirmary, Sunderland, Thursday, November 17, 3 p.m., annual address by Professor Stanley Davidson: "The Aetiology and Treatment of Rheumatoid Arthritis with Special Reference to the Therapeutic Use of Cortisone (Compound E)." (2) At Seaburn Hotel, Sunderland, November 17, 7.30 p.m., annual dinner.

WEST DENBIGH AND FLINT DIVISION.—At Palace Hotel, Rhyl, Thursday, November 17, 8 p.m., B.M.A. Lecture by Mr. J. W. Tudor Thomas: "Some Observations on Ocular Therapeutics."

BRITISH MEDICAL JOURNAL

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FURTHER STUDIES CONCERNING THE PARTICIPATION OF THE ADRENAL CORTEX IN THE PATHOGENESIS OF ARTHRITIS

BY

HANS SELYE, M.D., Ph.D., D.Sc., F.R.S.C.

Professor and Director of the Institute of Experimental Medicine and Surgery, Université de Montréal, Montreal, Canada

A few years ago we noted that rats chronically treated with large doses of desoxycortone acetate (D.C.A.) often develop joint lesions which exhibit the histological characteristics of rheumatic arthritis and periarthritis. Curiously, arthritides occurred only in a certain percentage of our experimental animals, although other "rheumatic" changes (e.g., a "rheumatic type" of arteritis, myocarditis, and encephalitis) were constantly present. Furthermore, even when an arthritis developed during the first weeks of treatment it tended to disappear in spite of continued D.C.A. administration; only rarely did such lesions progress towards what might be called an experimental replica of rheumatoid arthritis (Selye, Sylvester, Hall, and Leblond, 1944). In this respect the joint affliction again differed from the other manifestations of D.C.A. overdosage which tend to progress as long as a hormone excess is given.

During subsequent years we occasionally observed an acute joint swelling in D.C.A.-treated monkeys and dogs. Others pointed out that Addisonian patients may develop "rheumatic-like" joint swellings under the influence of D.C.A. overdosage (Dejean, 1947; Dejean, Mahoudeau, and Bricaire, 1947; Laroche, 1947a, 1947b). All these observations revealed that this corticoid exerts a rather specific effect upon joint structures in various species, but the production of arthritis was not constant enough to serve as the basis for systematic studies concerning its pathogenesis.

In the course of experiments planned to increase the incidence of this lesion we noted that, under the influence of D.C.A. overdosage, adrenalectomized rats developed arthritis more frequently than intact controls (Selye, Sylvester, Hall, and Leblond, 1944). This fact was subsequently confirmed on a very large experimental material by my pupil O. Hall (1946). Some actions of mineralocorticoids (such as D.C.A.) are inhibited by gluco-corticoids (such as "cortisone") (Selye, 1949a). Hence it was reasonable to assume that adrenalectomy sensitizes to the toxic effects of D.C.A. because it removes the source of endogenous gluco-corticoids and thereby predisposes to the development of a particularly unfavourable gluco-corticoid/mineralo-corticoid balance.

Several earlier observations had called our attention to the importance of this balance, inasmuch as a mineralocorticoid (D.C.A.) exhibited effects which are diametrically opposed to those of gluco-corticoids. Thus, chronic pretreatment with D.C.A. tends to cause thymus hypertrophy (Selye, 1941; Selye and Beland, 1943), while gluco-corticoids exert an opposite effect (Selye, 1946). D.C.A.-pretreated rats respond to various stress-producing agents (cold, formaldehyde injections, atropine injections, surgical trauma, exercise) with hypoglycaemia instead of the usual hyperglycaemia characteristic of the alarm reaction (Selye and Dosne, 1942); conversely, adreno-cortical extracts (rich in gluco-corticoids) increase the hyperglycaemic response to stress even in the adrenalectomized animal (Selye and Dosne, 1941). The development of shock after surgical trauma is aggravated by D.C.A. pretreatment and mitigated by corticosterone (a gluco-corticoid compound) (Selye, Dosne, Bassett, and Whittaker, 1940). It has been noted, furthermore, that the hypertension which can be elicited in sensitive patients by D.C.A. overdosage is abolished by an adrenal extract rich in gluco-corticoids (Perera and Pines, 1949).

On the basis of these and many other observations we came to the conclusion that D.C.A., when it is given in toxic concentrations, may create a "partial hypocorticoidism"; in other words, it can cause a condition in which manifestations of hypo- (decreased resistance to stress, thymus enlargement, hypoglycaemia) and hypercorticoidism (sodium retention, hypertensive disease) are simultaneously manifest. It is also noteworthy in this connexion that, although the clinical condition of Addisonian patients is improved by moderate doses of D.C.A., they are hypersensitive to the toxic effects of this steroid—presumably again because these individuals are deprived of the antagonistic gluco-corticoids (Selye, 1949a).

Quite recently Pirozynski and Akert (1949) noted that, even when no macroscopically visible arthritis develops in D.C.A.-treated rats, one consistently finds histological evidence of a "rheumatic-like" joint involvement. These authors confirmed that adrenalectomy sensitizes the rat to the production of joint lesions by D.C.A. They discovered, furthermore, that even the extra-articular manifestations of D.C.A. overdosage (such as cardiovascular and renal lesions) are aggravated by adrenalectomy, probably because the source of the protective gluco-corticoid had been removed.

Subsequently it was found that "rheumatic" changes in the heart and joints, similar to those produced by D.C.A., can also be elicited by a crude lyophilized anterior pituitary (L.A.P.) preparation, but only in the presence of the adrenals. Since adrenalectomy prevented these effects of L.A.P., it was concluded that they are largely, if not entirely, mediated through the adrenal cortex, perhaps owing to the discharge of some D.C.A.-like mineralocorticoid compounds (Selye, 1946).

In the course of our work on the general-adaptation syndrome, it became obvious that in response to a variety

obtained from the Secretary. Essays must be forwarded to reach the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, not later than March 31, 1950. The prize will be awarded at the Annual Meeting of the Association to be held in 1950. Inquiries relative to the prize should be addressed to the Secretary.

SIR CHARLES HASTINGS CLINICAL PRIZE

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of 50 guineas, is again open for competition. The following are the regulations governing the award:

1. The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research, and record in general practice.
2. Any member of the Association who is engaged in general practice is eligible to compete for the prize.
3. The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not be omitted when it bears directly on their results, their interpretations, and their conclusions.
4. Essays, [illegible] essays, must be [illegible] to us at [illegible]

Diary of Central Meetings

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Branch and Divisi[illegible] were readily available

[illegible] formation of mineralo-corticoids is postulated almost entirely on the basis of indirect evidence, because of the great technical difficulties involved in the determination of these latter compounds. It should be kept in mind, however, that even if the absolute amounts of mineralo-corticoids were not increased their effect could be augmented owing to sensitization (e.g., by sodium retention or renal failure), or the gluco-corticoid/mineralo-corticoid quotient may become unfavourable.

At the time of our first observations the assumption of a pathogenetic relationship between the adrenal cortex and the "rheumatic-rheumatoid type" of arthritis appeared rather far-fetched. However, this view received strong support from recent clinical observations. It was noted that adrenal-cortical extracts (Bassi and Bassi, 1946), which are notoriously rich in gluco-corticoids, and especially cortisone (Hench, Kendall, Slocum, and Polley, 1949), a typical gluco-corticoid compound, produce spectacularly beneficial effects in patients with chronic rheumatoid arthritis. It is of special interest in this connexion that purified adrenocorticotrophic hormone (A.C.T.H.) is also effective in rheumatoid arthritis (Hench, Kendall, Slocum, and Polley, 1949), since normally this compound appears to stimulate particularly the production of gluco-corticoids.

On a purely empirical basis, so-called non-specific therapeutic procedures (e.g., parenteral injection of foreign proteins or colloidal metals, blood-letting) have long been used in the therapy of rheumatoid arthritis. It is presumably due to the same mechanism that this joint lesion can improve under the influence of a variety of other non-specific stress-producing conditions, such as pregnancy, icterus, traumatic injuries, and starvation (Hench, 1949). All these are highly effective "alarming stimuli"—that is, they can produce a condition of systemic stress with the characteristic endogenous discharge of pituitary A.C.T.H. (Selye, 1946, 1949a; in the press). As we have said elsewhere, probably the most important factor in the therapeutic action of "non-specific therapy," "fever therapy," and "shock therapy" is the fact that such drastic measures stimulate defence by eliciting a general-adaptation syndrome, and, more particularly, an increased production of A.C.T.H. (Selye, 1949b; in the press). The observation that potent gluco-corticoid and A.C.T.H. preparations are especially effective in combating rheumatoid arthritis agrees with this view.

It remains to be seen why certain impure anterior pituitary preparations (e.g., L.A.P.) often produce arthritis

Recently we succeeded in developing a simple technique for the consistent production of arthritic and periarthritic changes, and, having now obtained adequate amounts of the anti-arthritic hormone preparations (A.C.T.H. and cortisone), we were able to analyse further the role of the pituitary adreno-cortical system in the production and prevention of arthritis. It is upon this work that we report in the present communication.

Methods

The *experimental animals* used in this study were adult male Wistar albino or piebald rats. The *experimental arthritis* was produced by the injection of dilute formaldehyde solutions of varying concentration (see description of individual experiments) just beneath the plantar aponeurosis of the hind paws. Normally, this strong irritant produces an intense hyperaemia and oedema of the entire paw within a few minutes.

As we shall see below, the action is increased by pretreatment with D.C.A. or L.A.P. and diminished by previous administration of A.C.T.H. or cortisone. We had noted in earlier experiments that the effect of various hormones largely depends upon the sensitization or desensitization of the target organs by peripherally acting "conditioning factors." Thus, the production of nephrosclerosis or arteriosclerosis by D.C.A. depends upon the sodium content of the diet (Selye, 1949a). In the present instance, however, formaldehyde as an irritant is the actual eliciting factor, while the hormone preparations appear to act as "conditioning factors" determining the degree of response.

About 10 days after the first hyperaemic and oedematous response vanishes, a secondary more chronic type of joint reaction becomes manifest. By this time most of the oedema has subsided, but the surrounding skin remains intensely hyperaemic and the periarticular connective tissue begins to proliferate, especially in the ankle-joint region. It is somewhat unexpected that the injection of the irritant at some distance from the ankle-joint should produce a secondary response in this articulation, but numerous observations leave no doubt concerning the selective responsiveness of the ankle-joint region during the chronic indurative stage. Probably the stretching of tissues incident to the great mobility of this joint is responsible for this.

In the course of our preliminary experiments we compared the inflammatory response to a given quantity of formaldehyde in various organs—for instance, the

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frequently it continues [illegible] noted that rats chronically treated with discontinued, so that eventually [illegible]state (D.C.A.) often develop mously enlarged, stiff, and extremely painful to touch. We shall report upon the histogenesis of this lesion elsewhere; suffice it to say here that, microscopically, in the acute oedematous stage it resembled the rheumatic, in the chronic stage the rheumatoid, type of arthritis. For the sake of simplicity we shall merely refer to these changes as the acute and chronic phases of "formalin-arthritis" (see Fig. 1).

Corticotrophin (*A.C.T.H.*) was administered subcutaneously in the form of a solution containing 5 mg. per ml. of physiological saline. Two highly purified preparations were supplied by the Armour Company, of Chicago: "lot 60–61," which has a biological potency of 100% Armour Standard La-I-A, contains 0.03 unit of oxytocin and 0.06 unit of vasopressin per mg.; "lot 64–A" has a biological potency of 180% of Armour Standard La-I-A and contains 0.03 unit of oxytocin per mg. Both these preparations are contaminated by only negligible amounts of the remaining known pituitary factors.



FIG. 1.—On the left, hind paw of a normal rat; on the right, hind paw of a rat which received three injections of a 1% formaldehyde solution under the palmar aponeurosis at two-day intervals one month before this picture was taken. Note the typical appearance of the chronic "formalin arthritis." The lesion is largely limited to the ankle-joint, which became almost immobilized by the hard cartilage-like indurating granulomatous vegetation. The skin covering this region is very hyperaemic and the joint extremely tender to touch.

Lyophilized anterior pituitary (L.A.P.) was injected subcutaneously in the form of a preparation containing 40 mg. of lyophilized cattle anterior pituitary powder, suspended in a 10% aqueous alcoholic solution.

Cortisone was given subcutaneously as a saline suspension of cortisone acetate microcrystals, each millilitre containing 25 mg. The preparation was that distributed by Merck and Co., Rahway, N.J., in which suspending agents (to keep the microcrystals from settling) and 1.5% benzyl alcohol (as a preservative) are added.

formaldehyde injections, atropine injections, surgical trauma, exercise) with hypoglycaemia instead of the usual in the form of a microcrystalline suspension. [illegible] days later all animals of both groups were injected with 0.1 ml. of a 4% formaldehyde solution into the right hind paw, as described above. A second similar injection was given into the same paw four days later. Immediately after each injection the initial hyperaemic and oedematous response to the local irritation was approximately the same in both groups. However, a few days after each injection the oedema tended to subside much more in the untreated than in the D.C.A.-injected rats. The experiment was terminated on the 14th day after the first formaldehyde injection, at which time the oedema, induration, and hyperaemia of the paw were significantly more pronounced in the D. C. A. - pretreated than in the control rats (see Fig. 2). It must be emphasized, however, that the high concentration of formaldehyde used in this first experiment caused actual necrosis in the plantar skin, and hence the inflammatory response was quite intense and diffuse (not limited to the ankle region) even in the controls. In spite of this intense local damage, D.C.A. pretreatment aggravated the inflammatory response.

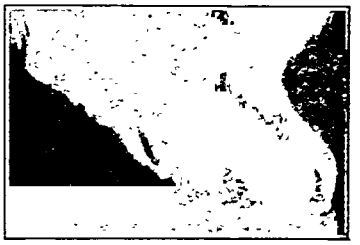


FIG. 2.—Hind paw of a rat pretreated with D.C.A. (left) and a not pretreated rat. Both animals were injected with the same amount of formaldehyde into the joint region, yet the D.C.A.-treated animal developed a much more pronounced inflammatory reaction.

Effect of D.C.A. and Cortisone upon the Subacute and Acute Stage of "Formalin Arthritis"

The second experiment was designed to examine the effect of D.C.A. and cortisone (both in themselves and in combination with each other) on the development of "formalin arthritis." For this purpose we used 40 male piebald rats weighing 120–150 g. All animals were bilaterally adrenalectomized on the first day of the experiment in order to eliminate any complicating endogenous corticoid formation. They were then subdivided into four groups of ten rats each: group I, no hormone treatment; group II, D.C.A.; group III, D.C.A. and cortisone; group IV, cortisone. D.C.A. was administered in the form of two 25-mg. pellets subcutaneously on the day of the

adrenalectomy. Cortisone was given in two 2.5 mg. injections daily subcutaneously. All animals received 1% NaCl as drinking fluid in order to help their survival after adrenalectomy and also because a sodium supplement aggravates D.C.A. intoxication.

An injection of 0.1 ml. of a 1% formaldehyde solution was given in the usual manner into the right hind paw on the second and fourth days after adrenalectomy. On the fifth day the swelling was very mild in the groups receiving cortisone or cortisone and D.C.A., while it was pronounced in the remaining two groups. There was no clear-cut difference between groups I and II (no hormone treatment or D.C.A. alone) nor between those of groups III and IV (cortisone alone or in combination with D.C.A.). At this time another injection of 0.1 ml. of a 2% formaldehyde solution was administered into the left hind paw, with the remarkable result that even three hours after the injection of this rather concentrated solution none of the two cortisone-treated animals (groups III and IV) responded, while the untreated animals, and especially those bearing the D.C.A. pellets, developed a marked hyperaemia and oedema, especially in the ankle region (see Fig. 3).



FIG. 3.—Cortisone-pretreated (left) and D.C.A.-pretreated adrenalectomized rats. Both animals received the same amount of formaldehyde, yet the cortisone-pretreated rat failed to respond, while the animal receiving D.C.A. developed a very pronounced and persistent inflammatory reaction. Adrenalectomized rats of this group receiving both cortisone and D.C.A. also failed to respond, while not pretreated adrenalectomized controls reacted violently, though not quite as much as those receiving D.C.A.

II. Experiments with Hypophyseal Preparations

Effect of A.C.T.H. upon the Acute Stage of "Formalin Arthritis"

Having learned that both in more chronic and in acute experiments cortisone inhibits, while D.C.A. tends to aggravate, "formalin arthritis," it appeared of interest to determine whether A.C.T.H. would act like cortisone, since in so many other respects these two hormones have similar properties. Twelve male Wistar albino rats weighing 120–180 g. were subdivided into two groups of six animals each. Group I received no hormone treatment, while in group II each animal was given 2.5 mg. of A.C.T.H. ("lot 60–61") subcutaneously. Twenty-five minutes later all animals of both groups received 0.1 ml. of a 1% formaldehyde solution into the left hind paw in the usual manner. Again the controls showed an almost immediate hyperaemic and oedematous response at the site of injection, while the A.C.T.H. pretreated animals exhibited only a very slight hyperaemia with almost no oedema. Two hours after the first injection an additional 2 mg. of A.C.T.H. was administered in group II. It was noted that in these animals the local response to the formaldehyde, though detectable, was extremely mild, even several hours after the second A.C.T.H. injection; by this time the paws of the control animals were very hyperaemic and so intensely swollen that the skin covering the plantar surface became shiny from extreme distension (see Fig. 4).



FIG. 4.—A.C.T.H.-treated (left) and not pretreated control. Both animals received the same amount of formaldehyde, yet the A.C.T.H.-treated animal almost completely failed to respond, while the control developed a pronounced oedema of the periarticular tissue and a pronounced hyperaemia of the skin almost immediately after the formaldehyde injection. Unlike the intact control, the A.C.T.H.-pretreated rats of this group gave no particular manifestations of pain when the joint region was touched.

Effect of A.C.T.H. upon the Chronic Stage of "Formalin Arthritis"

Having thus established that the acute local response to formaldehyde is inhibited by an immediately preceding injection of A.C.T.H., we undertook another experiment to examine the influence of prolonged A.C.T.H. treatment upon chronic "formalin-arthritis." Twelve male piebald rats weighing 120–136 g. were subdivided into two groups of six. Group I acted as controls, group II received 5 mg. of A.C.T.H. (lot 64-A) daily subcutaneously, subdivided into five injections of 1 mg. each. After two weeks of this pretreatment the animals of both groups received 0.1 ml. of a 4% formaldehyde solution administered into the right hind paw in the usual manner. With this dosage the immediate oedematous reaction was almost the same in the A.C.T.H.-treated and in the control animals, but in the former the swelling subsided rapidly while in the latter it persisted for several days. Seven and again 12 days later 0.1 ml. of a 1% formaldehyde solution was injected into the same paw in all animals.

After each injection the immediate response was almost as pronounced in the A.C.T.H.-pretreated as in the control animals, but, while in the former only a trace of oedema persisted a few days after each



FIG. 5.—A.C.T.H.-pretreated (left) and not pretreated control. After a few A.C.T.H. injections both these animals were given repeated injections of the same amount of formaldehyde into the paw. The controls developed marked indurative chronic arthritic and periarthritic lesions; the A.C.T.H.-pretreated animals showed only a negligible response.



FIG. 6.—Plantar view of the specimens shown in Fig. 4. Note that although the direct necrosis-producing effect of the formaldehyde injection was the same in both cases, the A.C.T.H.-pretreatment (left) almost completely prevented the proliferative inflammatory response to the local tissue injury which is so evident in the control.

injection and no cumulative effect was detectable, in the latter the inflammation became increasingly more pronounced and gradually proceeded towards induration. By the 25th day after the first A.C.T.H. injection all the control animals had developed a pronounced and proliferative indurating inflammatory lesion, especially in the ankle-joint region, but to some extent also around the metatarsal joints. In several of the A.C.T.H.-treated rats there was also a barely detectable oedema of the paw, but without predilection for the ankle-joint region and without induration. In this series, where the first injection consisted of the concentrated (4%) formaldehyde, definite necrotic changes were obvious in the plantar region of all animals in both groups. This necrosis presumably resulted from the protein-precipitating (fixative) action of the formaldehyde, which of course could not be inhibited by the hormone treatment. It is especially instructive to note that in spite of the creation of an equally severe necrotic focus the inflammatory response to the irritation was so effectively suppressed by the hormone treatment (see Figs. 5 and 6).

Comparative Study of the Effect of L.A.P. and A.C.T.H. upon "Formalin Arthritis"

It will be recalled that in our earlier experiments L.A.P. occasionally produced arthritis even without any local trauma to the joints, while in the above-mentioned groups A.C.T.H. inhibited the development of "formalin-arthritis"; hence we wanted to compare the effect of the two hormone preparations under similar experimental conditions. For this purpose 18 male piebald rats weighing 120–150 g. were subdivided into three groups of six animals each. Group I received no hormone preparation; group II were given 40 mg. of L.A.P. daily, divided into five doses; and group III received 10 mg. of A.C.T.H. (lot 60-61) daily, divided into five doses. On the first, second, and third day of the experiment the rats of all groups were given 0.1 ml. of a 1% formaldehyde solution into the right hind paw in the usual manner. Here again the immediate response to the irritant was only slightly less pronounced in the A.C.T.H.-pretreated than in the other two groups. However, about 24 hours after each injection the oedema had subsided most markedly in the A.C.T.H.-treated animals and remained especially pronounced in those receiving L.A.P. This difference became quite obvious two days after the last formaldehyde injection. Thus A.C.T.H. greatly diminished, while L.A.P. slightly increased, the arthritis-producing effect of formaldehyde.

Our earlier observations had revealed that A.C.T.H. (like cortisone) causes rapid involution of the thymus and other lymphatic organs. This response is also manifest during the alarm reaction produced by any agent capable of causing systemic stress effects (e.g., nervous stimuli, infections, intoxications, exposure to cold), while L.A.P. tends to enlarge the thymus and the lymph nodes (Selye, in the press). It had been observed, furthermore, that during the alarm reaction the phagocytic power of the macrophages is considerably augmented, presumably due to increased A.C.T.H. and gluco-corticoid hormone production (Selye and Timiras, in the press). Since phagocytosis plays an important part in inflammatory reactions we added a few drops of commercial indian ink (Higgins's "American India ink") to the formaldehyde used in this experiment for the production of arthritis. This made it possible simultaneously to follow the process of phagocytosis. Upon necropsy of the rats on the second day after the last formaldehyde injection it became immediately obvious that, on the formalin and indian ink injected side, the popliteal and iliac lymph nodes were most markedly stained in the A.C.T.H. group and least markedly in the L.A.P.-treated animals. The size of these lymph nodes, on the other hand, was smallest in the A.C.T.H.-treated and largest in the L.A.P.-treated rats. Thus, apparently, the removal of the indian-ink particles was accelerated by the A.C.T.H. and inhibited by the L.A.P. preparation, while the morphologic

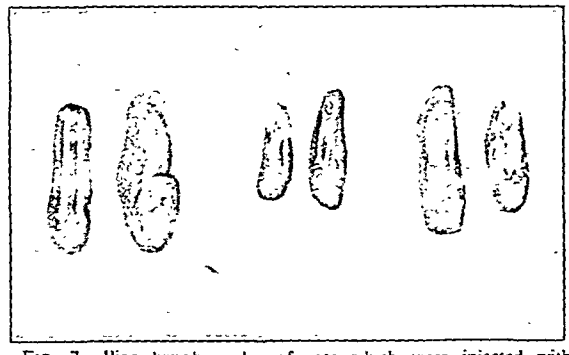


FIG. 7.—Iliac lymph nodes of rats which were injected with formaldehyde and indian ink into the joint region. On the left, not hormone treated control; in the middle, A.C.T.H.; on the right, L.A.P. pretreated animals. Note the A.C.T.H. increases phagocytosis but diminishes the size of the lymph nodes, while L.A.P. exerts contrary effects.

development of the lymph nodes was promoted by L.A.P. and diminished by A.C.T.H. (see Fig. 7). At the same time we confirmed that A.C.T.H. causes pronounced thymus involution while L.A.P. tends to augment the development of the thymus. This latter finding is all the more remarkable since the adrenal cortical enlargement produced by A.C.T.H. and L.A.P. was almost exactly the same at the dose level employed in this experiment. The adrenals of the untreated controls weighed 21±1 mg., those of the A.C.T.H.-treated rats 30±3 mg., and those of the animals receiving L.A.P., 32±2 mg. This would imply that at the dose level used the corticotrophic effect of the two preparations was quite comparable in degree, as judged by the ability of these preparations to cause adreno-cortical hypertrophy, yet the thymolytic and lympholytic effect was manifest only with pure A.C.T.H. Perhaps some contaminating substances present in the L.A.P. but absent in the A.C.T.H. counteract certain manifestations of the pure corticotrophic hormone.

Effect of the Alarm Reaction Upon the Development of Formaldehyde Arthritis

The last experiment of this series was planned to examine the effect of an alarm reaction (produced by various means) upon the response of the joint tissues to local formaldehyde injection.

Fifty male piebald rats weighing 150–200 g. were subdivided into five groups of ten animals each. Group I served as not pretreated controls. In group II an alarm reaction was produced by forced exercise in a drum cage 12 in. (30 cm.) in diameter and revolving at a speed of 12 revolutions per minute. The animals were forced to run three to four hours at a time, the revolving cage being stopped for a few hours whenever one or two animals of the group were too tired to run. Group III were exposed to a temperature of +1 to +3° C. during 24 hours. In group IV stress was produced by transection of the spinal cord at the level of the seventh cervical vertebra. In group V 0.5 ml. of a 10% formaldehyde solution was injected subcutaneously in the region between the shoulder blades four times during 24 hours. Since fasting increases the ability of various damaging agents to cause an alarm

reaction, all animals of groups II to V inclusive were fasted 24 hours before, as well as during the exposure period. Since all stresses were applied during 24 hours, the total period of fasting was 48 hours. At the end of this time 0.1. ml. of a 2% formaldehyde injection was injected in the usual manner into the right hind paw. Fifteen minutes later pronounced hyperaemia and oedema had developed in the not pretreated control animals of group I while none of the alarmed animals showed more than a trace of hyperaemia or oedema; most of them did not react at all.

It should be specially emphasized that, although some of the alarmed animals were in a very debilitated condition, those which showed no obvious signs of weakness likewise failed to respond to formaldehyde. Hence the failure to react cannot be ascribed merely to a decreased vitality.



FIG. 8.—On the left, untreated control. Note normal appearance of the hind paw. In the middle, unpretreated control showing pronounced oedema and hyperaemia of the paw after local formaldehyde injection. On the right, paw of an animal in which an alarm reaction was produced by spinal-cord transection. Note almost complete absence of hyperaemia and oedema. The paw is practically indistinguishable from the intact control, although the same amount of formaldehyde was injected into it. A variety of other alarming stimuli (cf. text) exerted the same inhibitory effect.

This view receives further support from our previously mentioned observations on adrenalectomized animals. Many among these were almost moribund at the time of formaldehyde injection and yet responded with pronounced periarticular swelling. We are inclined to assume, therefore, that in this experiment endogenous secretion of A.C.T.H., and consequently of gluco-corticoids, was responsible for the inhibition of the "formalin-arthritis" (see Fig. 8).

Discussion

If we now attempt to evaluate these observations the concept of "non-specific resistance" or "crossed resistance" first comes to mind. We had repeatedly observed that during an alarm reaction, produced by diverse means, both the specific and the non-specific resistance of the organism rise above normal. That is, the exposed individual becomes more resistant not only to the particular damaging agent with which the alarm reaction was elicited but also to entirely unrelated stimuli. Thus an alarm reaction produced by cold, forced muscular exercise, spinal-cord transection, etc., increases resistance against the fatal lung oedema produced by toxic doses of adrenaline, anaphylactic and anaphylactoid reactions, etc. Since such manifestations of crossed resistance were invariably accompanied by histological signs of increased adreno-cortical activity, and since they were never observed in adrenalectomized animals exposed to stress, they had tentatively been ascribed to an increased production of corticoids during the alarm reaction (Selye, 1946; in the press).

We have reported elsewhere upon experiments showing that in the rat anaphylactoid reactions to egg-white can also be effectively inhibited by A.C.T.H. and cortisone (Selye, 1949c).

It is rather probable that in the final analysis the inhibition of "formalin-arthritis" by A.C.T.H., cortisone, and the alarm reaction is due to the effect of cortisone-like glucocorticoids upon the directly injured tissues. The mechanism of this response is still unknown. It may be related to the anti-hyaluronidase effect of gluco-corticoids (Seifter, Baeder, and Dervinis, in the press), or to their well-known antihistaminic action. It has long been assumed that histamine-like compounds are liberated from tissues at the site of injury, and that these play an important part in inflammation. It is noteworthy, therefore, that the phenomena of "crossed resistance" which can most effectively be compared by the alarm reaction are also markedly inhibited by antihistaminic drugs (e.g., lung oedema, anaphylactic and anaphylactoid reactions). In view of this observation it would be interesting to examine the value of antihistaminics in some of the clinical conditions (e.g., rheumatic fever, rheumatoid arthritis, and lupus erythematosus) which have been effectively combated with cortisone or A.C.T.H.

It is particularly difficult to explain the apparent antagonism between D.C.A. or L.A.P. on the one hand and cortisone or A.C.T.H. on the other. Perhaps D.C.A., being a close chemical relative of cortisone, prevents the latter from reaching its target organs; this might be due to some mechanism of "competition for the substrate," such as has been demonstrated to exist between adrenaline and certain adrenaline derivatives, or vitamins and their corresponding anti-vitamins. However, this possibility is meanwhile purely hypothetical.

It is curious that the impure pituitary preparation L.A.P acts like D.C.A., while purified A.C.T.H. exerts cortisone-like effects. L.A.P. contains A.C.T.H., and under the conditions of our experiments it produced an equally pronounced adrenal cortical enlargement; hence we must consider the possibility that the pituitary contains additional principles which antagonize the A.C.T.H. effect or so modify it that a D.C.A.-like action results. This may be important in the pathogenesis of the "diseases of adaptation." It will be recalled that under certain conditions chronic exposure to stress (e.g., cold, parenteral protein administration) causes nephrosclerosis, myocarditis, hypertension, and arteriosclerotic changes similar to those produced by D.C.A. or L.A.P. (Selye, 1946; in the press).

Finally, it must be kept in mind that the "anti-arthritic effect" of A.C.T.H. and cortisone is by no means specifically directed against the hypothetical pathogen which causes rheumatoid or rheumatic joint lesions. Clinical observations have shown A.C.T.H. to be highly effective also in gouty arthritis (Thorn, Bayles, Massell, Forsham, Hill, Smith, and Warren, 1949), and our observations reveal that even the arthritis caused by formaldehyde—an obviously entirely non-specific inflammatory reaction—is effectively prevented by A.C.T.H. and cortisone. It should be mentioned that upon discontinuation of A.C.T.H. treatment in patients predisposed to gout an attack of arthritis can be elicited (Hellman, 1949; Thorn, *et al.*, 1949). Correspondingly, in many of our experiments (not reported here) we noted that if a "formalin-arthritis" is inhibited by an

alarming stimulus during a period of one to two days it usually flares up in a particularly severe form upon discontinuation of the stress—e.g., cold, muscular exercise. Indeed, sometimes the arthritis developed after a latency period even if the stress was continued. Such observations raise the question whether it will be possible to combat clinical "diseases of adaptation" indefinitely by continued A.C.T.H. or cortisone therapy.

Summary and Conclusions

A technique has been developed which permits the production of an acute arthritis and periarthritis by the local injection of formaldehyde into the vicinity of joints. If large doses of formaldehyde are administered the acute stage is followed by a very prolonged chronic arthritis and periarthritis, characterized by moderate oedema and very pronounced connective-tissue proliferation, with stiffening of the joint and hyperaemia of the surrounding skin. The resulting chronic granuloma is self-maintaining, as it continues to proliferate for weeks after the administration of the local irritant.

This "formalin-arthritis" is slightly aggravated by pretreatment with desoxycortone or crude anterior-pituitary preparations; on the other hand it can be almost completely inhibited by cortisone or A.C.T.H. Thus there seems to exist an antagonistic relationship between D.C.A. or crude anterior-pituitary preparations on the one hand and cortisone or purified A.C.T.H. on the other.

The possible role of such an antagonism is discussed in connexion with the concept of "crossed resistance" and of the "diseases of adaptation."

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TUBERCULOSIS IN EUROPE DURING AND AFTER THE SECOND WORLD WAR

BY

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THE TUBERCULOSIS SERVICES*

Before describing the reorganization of the tuberculosis services in the different European countries it may be helpful to say something of the conditions Unrra found in some of these countries at the end of the war. A preliminary stage of the Unrra programme was to study these conditions at close quarters, assess the damage, and make proposals for a programme of relief and rehabilitation on the basis of this assessment. Travelling throughout the countries as we did, discussing problems with people of all kinds, we were in a position often to get an exceptional overall view of the situation, and were in fact able to report back to the central authorities much that was unknown to them. It is only by remembering what these conditions were that we can appreciate what has been achieved since then.

It is difficult in this country to realize the extent of the disruption and destruction in some of the countries. Of those we saw, none had suffered more than Poland. The occupation had been brutal against a continuous opposition—the avowed German policy had been one of systematic reduction of the Poles to the status of a slave people, and a part of this policy had been the killing of professional and skilled workers. Some six million people of the total population of 33 millions had been killed in concentration camps, at their work, in their homes, or elsewhere. All higher education was stopped. The city of Warsaw was systematically destroyed till less than 10% of buildings were left standing, and other cities were similarly destroyed. The tragic war years were reflected in all we saw: when we went in we found towns that had throughout their area the look of some patches we know around St. Paul's or in the East End. Vast areas of farmland had been laid waste. People were living in cellars, dug-outs, in shells of buildings—one, two, or three families together in a room. Nearly all had lost relations in concentration camps or had spent years in camps themselves; there were half a million orphans; thousands of people were migrating from one area to another; thousands were returning from other countries. In the midst of all this the Polish people were attempting to rebuild—to provide homes, food, and services.

Dr. Gould, who visited Yugoslavia for Unrra, tells a similar story. In his words: "All the factors which tend to increase the incidence and mortality of tuberculosis became particularly acute during the war years. Entire villages had been burned after being plundered of food, clothing, livestock, and valuables. Men and women had been deported as slave labourers. With the combination of enemy action and civil strife the public health service was completely disorganized. Trained tuberculosis doctors and nurses were dispersed and lost."

Dr. McDougall reported from Greece: "In spring, 1945, when Unrra was invited to make a survey of tuberculosis requirements in Greece, after four years of German, Italian, and Bulgarian occupation and a month or more of civil

*The second Milroy Lecture (abridged) delivered at the Royal College of Physicians on February 17. The first lecture appeared last week.

war, it was clear that public health organization was completely out of hand. . . . During the occupation malnutrition had assumed epidemic proportions; anaemia and emaciation were the common lot of the majority of the population." But later he observes that after the war the great problem was not shortage of food but its cost, resulting from the lack of control of prices, black-marketeering, and the sale of imported food supplies by the Government at exorbitant rates.

It is against this background of countries physically and sometimes morally maimed that one must consider the tuberculosis services in the post-war period. The increase in mortality and the high incidence revealed by *x*-ray surveys set the first priority—the finding of hospital beds for the tuberculous sick.

Hospitals and Sanatoria

In Poland during the war all sanatoria had been occupied by the Germans. When they left they took instruments and equipment; buildings were left in a sorry condition. Even before the war there were only 8,300 beds for the tuberculous, representing about one bed per six deaths from tuberculosis. At the end of the war only 800 beds were available; but by May, 1946, there were already some 5,000 beds occupied. Buildings had been restored and supplied with Unrra beds, bedding, and equipment: this represented not only the large contributions by Unrra, but an effective and honest distribution by the Poles themselves, despite the occasional chaos in administration because experienced people were so few. By the end of 1947 there were over 11,500 beds for tuberculosis in sanatoria and hospitals; now they have 17,000—i.e., twice as many as before the war, and for a smaller population.

A major problem was the financing of hospital and sanatorium treatment. Before the war it was paid for by the Social Insurance Organization, the Red Cross, the local authorities, or the individual patient. Those dependent on their local authorities were the least likely to get treatment for an adequate time, if at all. Some of the best sanatoria were owned, directed, and staffed by the Social Insurance Organization. After the war this situation was unchanged, and there was in fact little co-ordination between insurance, private, and public sanatoria. The money provided from public funds was so meagre that, though there were too few beds for the tuberculous, some were empty because there were no funds to pay for patients in them. However, the State contributions to sanatorium treatment have increased considerably each year, and that problem has been resolved. Moreover, since the beginning of this year the split in the services between the Social Insurance Organization and the Ministry of Health no longer exists; the hospitals are now directed by the Ministry of Health, while the Social Insurance Organization has the function of financing the treatment of insured persons.

The conflict between social insurance organizations and the central health services was one we saw reproduced, with much more startling anomalies, in other countries, particularly in Italy. There before the war the National Insurance Organization (I.N.P.S.) had built what were the finest sanatoria in the country. There were few reputable sanatoria belonging to any other organization. Few of the sanatoria were damaged during the war, and in fact in 1945 the situation was very much as before, though some hundreds of beds were still controlled by the military authorities. Insured patients could be admitted to sanatoria of the I.N.P.S. as soon as diagnosed, regardless of their condition, whereas for the very large numbers of non-insured patients (some 60% of the population) there was in many areas little hope of getting hospital treatment at all. Beds in I.N.P.S. sanatoria could be rented by the local authorities, but only when these could pay. In one typical poor district visited no taxes were being paid, and for lack of funds the local authorities with a waiting-list of 240 patients had not been able to send a single patient to hospital for four months, while the Insurance Sanatorium, on the outskirts of the town, had 70 empty beds.

Another outstanding problem in countries where there was a shortage of hospitals was the type of accommodation required for the tuberculous. One striking feature of the sanatoria in Italy apart from their excellent equipment was their size. The Forlanini Institute had 2,000 beds. Another sanatorium, completed in 1939 at Sondalo, in the Italian Alps, was designed to accommodate 3,000 patients. Described as a sanatorium village, it consisted of nine large buildings grouped closely together on the side of a steep mountain. Though the medical treatment in some of the large sanatoria was of a high quality, the dangers inherent in their size were not averted; the lack of a personal element in supervising the welfare of patients was obvious.

In most other countries it has been interesting to observe a definite swing away from the conception of sanatoria as large luxurious establishments up in the mountains. In Holland, where three sanatoria were destroyed in the course of the fighting, it was decided to erect wooden hutment buildings in connexion with existing institutions. It was planned to do this on an extensive scale, and, though the scheme was held up by shortage of material and fittings, several temporary sanatoria were set up, yielding a total of over 1,100 new beds for the tuberculous. In Hungary before the war there were some 6,500 tuberculosis beds; in the spring of 1945 only about 500 beds were available. By 1948 many of the hospitals had been restored, and over 5,000 beds were in use for tuberculous patients. But at least another 8,000 are required, and the present plans are to set up hutment buildings of the Swedish type around existing hospitals, providing treatment, nursing, and food from the central building. Later on the huts not needed might serve for recreation and workshops. In Poland the Swedish Red Cross set up not far from Warsaw a whole children's sanatorium made of excellent hutment wards, with well-equipped and cheerful interiors. In Greece, where there was a dire overall shortage of accommodation, Dr. McDougall elaborated a programme for the supply of prefabricated buildings which would accommodate an additional 5,000 beds and 30 polyclinics; the scheme received enthusiastic support from the Ministry of Health under one Government, but there were many interests involved, and under another Government the scheme was dropped.

In several countries, in addition to erection of these pavilions, other buildings were being taken over, such as country villas, hotels, castles, and spa buildings, and were being converted for use as small tuberculosis hospitals. It is mainly by such means that in Yugoslavia, for instance, the number of tuberculosis beds has been increased from the pre-war figure of 3,250 to 10,300 in 1949. Some countries have decided that 5–10% of the beds in general hospitals in the towns must be assigned, at least provisionally, to the care of tuberculous patients; given adequate precautions against contagion, this is a measure which might well be given serious consideration in our own country (Boland, 1948).

Related to standards in England, the level of hospital care in some of these countries, and particularly in some areas, was low. Special post-war conditions aggravated the situation. It was not rare to find hospitals where

patients had to bring their own linen if they were to have any, and no drugs were provided; frantic relatives would spend much time trying to buy such drugs as calcium gluconate on the black market, to say nothing of penicillin and, later, streptomycin. To speak of these conditions is not to imply that our own services are faultless. Though the general standard of institutional care for the tuberculous here is high, even we are not without so-called sanatoria which have no diagnostic equipment, no facilities for active treatment, and no staff qualified to apply it if they had it, and whose patients are sent many miles away on the rare occasions when an *x*-ray film is thought necessary.

With the realization of the problems there was a growing feeling in several countries that the available beds were not being properly utilized, and a part of the plans for the future was to have centres to which patients would be admitted for primary observation and decision regarding the hospital to which they should go. Even more was it being realized that most of the local authorities who before the war had complete responsibility for providing tuberculosis services were far too small to perform such a function. We have seen this in England, and the regionalization of the hospital services is the natural outcome. This is happening in many countries. In Italy the provinces have been grouped into larger regions. In Czechoslovakia and Yugoslavia, too, there has been a regrouping in large regions to ensure a more equitable distribution of beds. In France also, where new legislation has brought radical changes in the tuberculosis services, these are now established on a regional basis, each region including several *départements*. The aim, as in England, is that each region shall provide a complete hospital service. The new Act stipulates that the hospital in the principal town of each *département* shall include a tuberculosis centre, with beds; where the town has a medical school the hospital unit becomes the regional tuberculosis centre.

The assumption by the State of much greater financial responsibility in provision of treatment for the tuberculous is an outstanding feature in the post-war services. The wartime increase in tuberculosis, in the absence of undue increase in other diseases except venereal disease, gave rise to the conception of this public health problem as a national emergency. The financing of sanatoria received radical reform. Before the war one of the causes of delay in sanatorium admission in France was the multiplicity of organizations, which made quite involved the problem of finding out before a patient went into sanatorium who would pay for him. Now if a bed is available the patient is admitted immediately; the payment of sanatorium expenses is incumbent on the *département* where the patient lives, unless eventually defrayed by a public or private body. All tuberculosis institutions qualify for a State subsidy, amounting to as much as 75% for building and equipment expenses. In many other European countries, including our own, the cost of institutional treatment is now entirely borne by the State.

Similarly, financial assistance to the tuberculous and their families, as a national scheme, was introduced in England in the middle of the war. As a basic principle it was recognized that the tuberculous patient must be relieved of economic anxiety, so that he might accept treatment for as long as is necessary, and so that his family might be protected. The measures introduced brought partial alleviation; but the scales were at a minimum subsistence level, and only certain patients qualified. Now since July 5, 1948, financial aid to tuberculous patients is covered by the National Assistance Board. In France since the liberation there has been increasingly generous social legislation, and part of it is directed to the new tuberculosis service. Previously patients received social insurance benefits for six months only. The new legislation grants the benefits of "prolonged illness" to insured tuberculous patients and to members of their families should they become tuberculous; during three years the patient gets all treatment expenses and half his salary. In Poland, Bulgaria, and Czechoslovakia similar new schemes of financial aid to the tuberculous have been introduced.

One concept, that of the so-called preventorium, which is practically unknown here, is prevalent in many European countries; the preventoria constitute sometimes more than 25% of the institutional tuberculosis accommodation. To these places are sent small children from tuberculous families, particularly when there is at home an infective patient who cannot or will not go to a sanatorium; for one or more years the children are kept away from the source of contagion, and then return at the end of their stay in the preventorium. Some were well organized; others we saw were barracks with children looking less healthy than those seen on the city streets. The problem is a thorny one. Certainly accommodation should be available for isolating children from households with an infective patient who cannot go away. However, one would like to be certain that every effort has been made to remove the infective case, since the preventorium is a second-best solution, returning the child to the infective household sooner or later, and leaving exposed the even more susceptible adolescents.

Dispensaries

The dispensary service is the basic diagnostic unit in European countries as it is here. But whereas here dispensaries have functioned for many years under the local authority, there they were directed before the war by a number of different organizations. In France, for instance, the 920 dispensaries had been created in the past 20 years mostly by local initiative, many by private organizations and Red Cross committees; there was no connexion with official centres; there was overlap in some areas, no service in others; financial arrangements and follow-up were extremely involved. The 1945 legislation makes the organization similar to what we have here; in each *département* now a list of dispensaries has been drawn up, and to each is ascribed a definite sector so that the districts concerned cover the whole *département*. A tuberculosis specialist is appointed to supervise all tuberculosis work in the *département*, and with him a specialized social worker. Each region has now a tuberculosis consultant with high qualifications. Another new feature is that many sanatorium medical officers attend at local dispensaries.

In Greece, too, the multiplicity of voluntary organizations was responsible for many gaps in the service. In whole large areas such as Epirus, with a population of over 300,000, there was not a single dispensary or institution for the diagnosis or treatment of tuberculosis. In Poland there was a basic organization, centred on the regions with their populations of about 1½ millions each, and numerous dispensaries in the districts, to a total of over 500 before the war. But here again, in the cities at least, there was a division between the local authority dispensaries and those belonging to the Social Insurance Organization, with little co-ordination between the two. The recent transfer of responsibility to the Ministry of Health is resolving a part of the problem, but the development of dispensary services is proceeding relatively slowly. The quality of the work in the hundreds of small country dispensaries varies

greatly; most of them are staffed by local practitioners who give one or two sessions a week and have no particular experience of tuberculosis. In Yugoslavia before the war there were some 50 dispensaries only, most of them poorly equipped; now there are 136, each of them with an *x*-ray unit and staffed by doctors who, while they have many other duties, have had at least three months of special training in tuberculosis work.

In Sweden the dispensaries were previously organized and financed by the National League Against Tuberculosis; now the expenses are chiefly defrayed by the State. In Belgium some dispensaries belong to the Œuvre Nationale Belge, some to other organizations; the Ministry of Health now covers 80% of dispensary expenses, compared with 50% pre-war. Denmark has a highly co-ordinated service with 85 dispensaries, of which 81 belong to the State. Every county, with about 150,000 population, has its own independent service, with tuberculosis hospital and dispensary working closely together; the specialist in charge of the hospital also serves the dispensaries in the neighbourhood. Great importance is attached to bacteriological examination, and in fact it is highly centralized, all cultures being done at the State Serum Institution in Copenhagen.

Staff

To the many problems of the tuberculosis services is added that of a lack of qualified personnel. Italy is the only country in which it is claimed that there is an excessive number of doctors, though even there adequate medical services are not readily available to large sections of the population. On the other hand, in Poland, where already before the war there were only 13,000 doctors for a population of 32 millions, the problem has become acute. In 1945 there were under 7,000, and in January this year 8,400—for a population of 24 millions. Moreover, they are concentrated in the towns, and there are rural areas with only one doctor serving 10,000 to 15,000 people. University medical courses were stopped throughout the war, and so, although the medical schools are now more than full and there are two new schools, there is little hope of the need being met before 1954 or 1955. There is a particular dearth of doctors with tuberculosis experience. Two-month postgraduate courses in tuberculosis are being held in all medical schools, but it is not easy to get doctors to attend these, as all are so busy. In Yugoslavia, also, the lack of doctors was a main obstacle to the programme; in 1945 there were only 25 tuberculosis specialists left of a pre-war total of 77. There, too, intensive three-month courses are being held for general practitioners, and three-year courses for the training of specialists. In France under the recent laws there is now provision for selection, by competitive examination, of physicians joining the dispensary service. Many more than before the war are engaged full-time. Physicians appointed to sanatorium posts are also now required to hold certain higher professional qualifications.

A nursing shortage is obvious in many countries, but nowhere has it had so severe an impact on the services as in this country. In Mediterranean countries nursing as we understand it does not exist in many places, and the work is done by nursing aids with little training. In many other countries there is a severe dearth of trained nurses, which was obvious before the war and has been made worse by the loss of so many during the occupation. Though many new training schools are being set up, the needs will not be met for many a year. However, it has been instructive to see how in some countries good nursing care is given in certain hospitals with a very small number of trained nurses and a sufficiently large number of domestic aids to carry out all duties except those requiring nursing skill. In our own country the number of nurses available would not rank elsewhere as a shortage, but thousands of beds are empty for "lack of staff," and the common waiting period for admission to sanatorium is six to nine months. This problem is so grave as to constitute by far the greatest obstacle to progress in our tuberculosis services to-day. In the present acute situation, at least a partial solution might be found in a revision of traditional ideas concerning division of labour between nursing and domestic staff (the revision could include a "job-analysis" on tuberculosis wards), followed by an imaginative effort to secure staff for hospital duties which do not require skilled training in nursing.

Rehabilitation

Rehabilitation services in Europe are for the most part rudimentary or non-existent. Countries are taking a great interest in rehabilitation projects, but economic circumstances are such that these schemes must take second place. One scheme is particularly worthy of mention, and deserves to be reproduced here—that of the tuberculosis service for students in France. It is a complete diagnostic, treatment, and rehabilitation service. The focus of the service is the Sanatorium des Etudiants in the French Alps above Grenoble. University students, young graduates, and doctors are accepted as patients; many of them have been diagnosed on routine examination at university. The State pays part or the whole of the cost of treatment, according to the patient's ability to pay. A basic aim is to maintain morale and so hasten recovery. The sanatorium employs a director of studies, who takes details of the level of studies of each patient who arrives, and together with the medical adviser decides how much and what type of work the student can do each day. According to the stage of illness, a student may be encouraged to do individual reading in bed, or take part in study circles, or attend lectures given in the sanatorium by visiting professors, or finally attend lectures on one to three days a week at the University of Grenoble. Lectures are relayed to the bedside for those who cannot get up. Each patient, in fact, gets individual attention as a student who happens to be ill; that is the constant approach. There is none of the mental paralysis one finds often elsewhere: the social and intellectual life of the sanatorium is remarkably lively—there are concerts, plays, and discussion circles, and the students even produce four times a year a good literary journal called *Existences*. The sanatorium is now only one of several institutions: one in Paris takes in students waiting for a bed, and other post-treatment hostels in Grenoble and Paris serve the needs of students between their leaving the sanatorium and their full recovery. In Paris there is in addition a "medico-social" restaurant, where special meals are served for students who have a medical recommendation from the dispensary set up by a Relief Committee. Belgium, Switzerland, Holland, and Poland also each have a special sanatorium for university students.

Routine Examinations

In several countries schemes for regular medical examination of university students have been introduced or extended since the end of the war, and we are falling far behind in this respect. In France yearly medical examinations of university students was introduced by a decree in April, 1946. *X*-ray examination has also been made compulsory for all teaching staffs—a measure entirely justified by the reports of minor tuberculosis epidemics discovered in school classes.

The examination of students is only a part of the work aiming at early diagnosis by routine examination which has been considerably extended since the advent of mass miniature radiography. This method has proved its value in the detection of undiagnosed lesions in large population groups, and there is no doubt now that it has an important place in tuberculosis eradication. Reports from services where annual examinations have been made have shown a falling incidence at successive annual re-examinations of a community, the fall being almost certainly due to the discovery of the early lesion with good prognosis, and the reduction of the infector pool. In England it has been developed as a national scheme, operated by as yet a limited number of local authorities; teams are trained centrally, and the technical level of work is relatively high. On the Continent it has been taken up by different organizations, and on an extensive scale in all countries I think except France; in fact, it has been adopted with almost embarrassing enthusiasm as in the first line of tuberculosis control. In countries which still have a very high prevalence of tuberculosis, and whose material resources are limited, mass radiography can for the time have only a small part in tuberculosis control; its role there can be to make spot surveys and so determine which population groups require prior attention in the tuberculosis programme. There is a danger at the moment in some countries that its excessive use in areas without adequate services may mean that other more fundamental work in tuberculosis control is being neglected.

B.C.G.

Another method of control that has been used widely since the end of the war is that of immunization against tuberculosis by B.C.G. vaccine. It was already being extensively used in Scandinavian countries. At the end of the war teams of the Danish Red Cross undertook B.C.G. vaccination in Poland, Hungary, and Germany. In 1947 it was decided by the newly formed Unicef (United Nations International Children's Emergency Fund) that, in addition to programmes of feeding and re-establishment of children's institutions and services, Unicef should continue and extend to several other countries the work started by the Danish Red Cross. This scheme is now in operation. Unicef furnishes supplies and equipment; Scandinavian teams do the initial field work; the Ministry of Health in each country furnishes local teams which will eventually take over the work; the World Health Organization assists with its advisory staff and will carry out a statistical analysis of the results. Finland, Poland, Czechoslovakia, Yugoslavia, Hungary, and Greece are taking part. By June 1, 1949, about six million tuberculin-negative children had been vaccinated. B.C.G. vaccination is being adopted with enthusiasm in these countries. One must hope that the development of basic measures of tuberculosis control will not be thereby neglected, for, even if the vaccine is as effective as its most ardent supporters claim, the basic tuberculosis services will still be required for many years to come.

International Services

The services described above have been those concerned specifically with tuberculosis. No doubt the measures taken to re-establish or improve the services are contributing to the post-war decline in tuberculosis mortality. But much of the decline, which in some countries started before the end of the war, and in nearly all countries has occurred since the war, may be attributed to the national and international services designed on a generous scale to protect the health of the peoples. In this respect it can be said that the work of Unrra in relief and rehabilitation and in the restoration of normal living was an important contribution to reduction of the tuberculosis rate.

Looking back on the work of Unrra in that post-war period, there is no doubt that it was a major achievement in international work. With all its faults, the organization carried out the task given to it by the United Nations—the task of relieving the most distressed areas in the war-ravaged countries, and of providing supplies to assist those countries to return to at least their pre-war standard of living. Because of it the dangers of famine and epidemics in the chaotic post-war period were averted, and with them the danger of another grave increase of tuberculosis.

Unrra, having provided immediate relief and the material for future reconstruction, was followed by other organizations operating under the United Nations; one of these is the World Health Organization. Established officially in 1948, WHO confirmed the decision of the Interim Committee, which had preceded it, regarding the priorities to be given to different diseases in the work of the organization. It was agreed without question that malaria, tuberculosis, and venereal diseases were the three main scourges demanding prior and special attention. An Expert Committee on Tuberculosis was formed, and held its first meeting in July, 1947. Among its recommendations to WHO were the following:

1. That travelling fellowships be awarded to countries most in need.

2. That the Tuberculosis Section prepare from time to time material on recent developments of special importance for the use of physicians in different countries who may request such information. Dr. McDougall, who heads the section, reports that there has been a great demand for data on tuberculosis mortality and morbidity rates, mass radiography, and B.C.G. (Many of the rates given in this paper are taken from the WHO *Epidemiological and Vital Statistics Reports* (1948).)

3. That demonstration teams shall be available, at the request of governments, for countries where new tuberculosis schemes are about to be introduced. In this connexion work has been done in China, Greece, Poland, and India.

4. That WHO should develop and recommend uniform procedures on such matters as the classification of tuberculosis, *x*-ray interpretation and mass radiography, bacteriological diagnosis, and evaluation of new chemotherapeutic agents such as streptomycin.

It is fully acknowledged by those working for WHO in this field that they have a relatively limited part to play in the overall campaign for reduction of tuberculosis prevalence; in their words: "Without progressive improvements in the purely public health field, and above all in the economic status of countries, the best efforts of tuberculosis workers can be of only limited significance" (McDougall, 1948).

Conclusion

Sir Wilson Jameson, in his Harveian Oration to this College in 1942, traced the phases of advance in social medicine, and showed how many of them resulted from the medical necessities of war. Similar great advances were already being made then, but he forecast also a different attitude from that following the first world war, in that there was even then in 1942 "everywhere a conviction that great changes lie ahead of us and a desire so to plan the measures designed to meet the national emergency that some permanent good may be derived from them when the world is once again at peace."

It is true that out of this last war, with all its catastrophes and refined barbarities, people have emerged with a deepened sense of national and international responsibilities: of national responsibilities because we learned in

time of stress to co-ordinate action in defence of the community, and methods dependent on bounty and charity have been replaced in many countries by the conception of the community's duty to protect itself as a whole and each individual who may suffer misfortune. Hence the general measures we have seen of co-ordination of the tuberculosis services, their financing by the State, free treatment, and financial allowances to the sick and their families. The war awakened also a sense of international duty. It had brought together peoples who had lived in ignorance of each other, and, having assumed duties towards them in wartime, the projection into peacetime was natural, so that well before the war ended there were being laid the plans of international relief and co-operation which finally materialized in Unrra and then in the World Health Organization.

The wartime rise and the post-war fall in tuberculosis provide evidence that constitutes an indictment of existing social services when one relates them to what they should be. That tuberculosis is related to social conditions was already known, but the wartime evidence showing precise points of rise and fall is outstanding. With such evidence as this, and with the knowledge of rates obtained in countries such as Denmark, no country with a tuberculosis rate anywhere above the lowest rate yet recorded can afford not to make a continuous attack upon the disease and upon the conditions that favour its development. It has been said that "public health is purchasable, and that within natural limitations any community can determine its own death rate" (Biggs, 1911). Certainly of tuberculosis it is true. The more sore the economic plight of a country, the less it can afford to tolerate a preventable disease which affects the most active members of the community, and it is particularly in such countries that the tuberculosis programme should have a high budget priority.

We have the good fortune to be living through an age of extraordinary achievement. In the 80 years since the discovery of the bacterial sources of disease the advancement of knowledge in medicine alone has raced far ahead of our application of it to human welfare. Wars have arrested and then spurred on our progress. The means for attack on tuberculosis can be clearly seen; if the necessary measures are taken, and given a long enough respite from mutual massacre, there is no reason why this disease which has plagued the continent of Europe for many hundreds of years should not be almost eradicated before this century is out.

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VARIATIONS IN BACTERIOLOGY OF THROAT AND RECTUM OF INFANTS IN TWO MATERNITY UNITS

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This investigation was prompted by the suggestion that gastro-enteritis in infants might be due to bacteria usually regarded as normal inhabitants of the throat or intestine (Cruickshank, 1946). Particular strains or types of these organisms might be concerned; for instance, a serological type of coliform bacillus such as has been isolated from infants with diarrhoea (Bray, 1945; Giles and Sangster, 1948), and strains of *Streptococcus faecalis* which are active producers of tyrosine decarboxylase (Gale, 1944). It was also suggested (G. S Wilson, 1947; personal communication) that *Staphylococcus pyogenes* might be the cause of some outbreaks of neonatal diarrhoea. The laboratory studies necessary to establish the serological type of coliform bacilli, the tyrosine decarboxylase activity of streptococci, and the phage type of staphylococci require considerable time and experience. In field investigations of an outbreak of neonatal diarrhoea it would be helpful if simple bacteriological methods could be used to give a rapid indication that coliform bacilli, faecal streptococci, or aureus staphylococci were present in cases with greater frequency than in healthy infants. Some observations suggested that this might be the case.

It had been noted in some outbreaks that coliform bacilli were often isolated from throat swabs (J. Taylor, 1947; personal communication) and in others that streptococci

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were present in greater abundance than usual in films and cultures of faeces (E. F. Gale, 1947; personal communication). Numerous surveys of the incidence of *Staph. pyogenes* in older age groups have revealed differences which suggest that it might be useful as a base-line for the study of epidemics of neonatal diarrhoea and vomiting to determine the incidence of the organism in newborn infants. In this investigation, therefore, simple bacteriological methods were used for routine examinations of throat and rectal swabs from infants. A general survey of the organisms in cultures was made and three points were particularly studied: (1) the frequency with which coliform bacilli were isolated from throat swabs; (2) the frequency with which colonies of *Str. faecalis* outnumbered those of coliform bacilli in cultures of rectal swabs; and (3) the frequency with which *Staph. pyogenes* (aureus) was isolated from throat and rectal swabs.

Technique

Infants in two maternity units were studied. Details about the two units, A and B, are given by Dr. Janet Roscoe at p. 1144 of this issue in a report on the incidence of infections in them. Apart from one outbreak of mild staphylococcal infections of eyes or skin there were only sporadic infections in the infants and no severe diarrhoea or vomiting. At Unit B weekly swabbings of all infants were examined from April to July, 1947, and from October, 1947, to April, 1948. At Unit A all infants in one of the four wards were swabbed each week from May to July, 1947, and from November, 1947, to April, 1948.

All swabs were taken by Dr. Roscoe, with care to swab the posterior pharyngeal wall and to avoid contamination of the rectal swab by the circumanal skin. The swabs were plated within a few hours of the time they were taken. Throat swabs were plated on horse-blood-agar plates which were incubated aerobically overnight and examined for aureus staphylococci, coliform bacilli, and other organisms. Rectal swabs were plated on horse-blood-agar plates which were incubated anaerobically for 18 hours in the first three months of the investigation and from November onwards for 42 hours before examination. The growth of coliform bacilli and streptococci was recorded as +, ++, or +++, and the presence of other organisms was noted. When the estimate of streptococcal colonies was higher than that of colonies of coliform bacilli, streptococci were said to be present in excess. Rectal swabs were also plated on 7.5% salt-agar plates which were incubated aerobically overnight before examination for aureus staphylococci. Films from rectal swabs were stained by Gram's method and examined for lactobacilli, Gram-negative bacilli, and Gram-positive cocci.

From time to time the following tests were done: coagulase tests on aureus staphylococci; V.-P., M.R., citrate, indole, and 44° MacConkey reactions on coliform bacilli; grouping of streptococci. Some streptococci isolated at the end of the investigation were tested for tyrosine decarboxylase activity.

Results

From throat swabs albus staphylococci and viridans streptococci were almost always isolated; pneumococci were occasionally found, as were haemolytic streptococci. None of the latter reacted with Group A, C, or G sera; one strain tested with Group D serum was found to belong to that group. The frequency of isolation of aureus staphylococci and coliform bacilli will be described later. All strains of aureus staphylococci tested were coagulase-positive. The majority of coliform bacilli tested were found to be faecal *Bact. coli*, a few were *Bact. aerogenes* or irregulars.

From most rectal swabs blood plates showed colonies of coliform bacilli and streptococci. The streptococcal colonies were readily recognizable as low convex bluish colonies about 2 mm. in diameter, usually with greening under them, sometimes with no change in the blood and occasionally with β-haemolysis. Tests of colonies with the different types of haemolysis showed that they were Group D. At the end of the investigation 18 colonies of Group D streptococci isolated from rectal swabs were tested for tyrosine decarboxylase activity. One was inactive. The other 17 were active producers of the enzyme; 10 of them were picked from cultures of two infants (five each), three from a third infant, and four from four other infants. A few colonies of clostridia were occasionally seen on the blood plates. Proteus was very rarely present. Lactobacilli were isolated, but irregularities in the frequency of their appearance and in the number of colonies relative to other organisms were such that analysis of the results was not made.

On MacConkey plates non-lactose-fermenting colonies of coliform bacilli were uncommon and the organisms in such colonies were not salmonellae or shigellae. Colonies of coliforms and cocci appeared in the same relative numbers on MacConkey plates as on blood plates of the same specimen, but colonies of streptococci could not be distinguished from those of other cocci.

Films of faeces stained by Gram's method usually showed large numbers of Gram-positive rods resembling Cruickshank's (1925) drawings of lactobacilli. Coliform bacilli were less frequently seen, and Gram-positive cocci, usually in pairs, still less frequently. Gram-positive rods resembling bacilli or clostridia were occasionally seen.

Differences between Cultures from Infants of Different Ages

In cultures from infants during the first 24 hours of life growth was scanty or absent, and the percentage of swabs from which the organisms listed in Table I were isolated

TABLE I.—*Percentage of Positive Cultures from Infants on Each of the First Five Days of Life*

	Age of Infant in Days				
	0	1	2	3	4
Throat swab:					
Aureus staphylococci ..	19	13	17	25	27
Coliform bacilli	0	9	14	17	17
Recta /swab:					
Coliform bacilli	22	60	74	86	75
Streptococci	26	76	69	92	85
Excess streptococci	15	56	31	36	36
Aureus staphylococci ..	8	17	15	18	26
No. examined ..	27	24	42	36	41

was with one exception lower than on subsequent days. The exception was that aureus staphylococci were found in the throat almost as often on the first day of life as on later days. The results from infants aged 1, 2, 3, or 4 days showed an increase in the percentages of positive results during the first three days, and figures for the 4-day-old infants were approximately equal to those for 3-day-old infants. Subsequent comparisons were therefore made on results of swabs from infants aged 3 or more days.

The stained films of faeces showed that lactobacilli were present in an increasing percentage of infants on each of the first five days of life, the percentage positive on each day being 4, 14, 49, 60, and 82.

Differences between Cultures from Infants in Unit A and Unit B

Cultures were made from 187 infants aged 3 or more days in Unit A and from 198 infants aged 3 or more days in Unit B. The last column of Table II gives the percentages of these cultures from which certain bacteria were isolated, and the other columns give the percentages for successive time periods during the investigation. These periods were the result of grouping successive weekly swabbings so as to give, when possible, about 20 or 30 results in each period.

TABLE II.—*Percentage of Positive Cultures from Infants Aged 3 or More Days*

	Period										
	1 April-May	2 May-June	3 June-July	4 October	5 November	6 December	7 January	8 February	9 March	10 April	Total
Unit A											
Throat swabs:											
Aureus staphylococci		27			19		6	30	40	23	24
Coliform bacilli ..		10			9		10	0	4	8	8
Rectal swabs:											
Coliform bacilli ..		95			82		84	85	68	75	82
Streptococci ..		100			85		74	95	92	69	86
Excess streptococci		27			47		36	45	40	36	38
Aureus staphylococci		43			3		21	30	36	13	23
No. examined ..		40			32		31	20	25	39	187
Unit B											
Throat swabs:											
Aureus staphylococci	55	76	54	18	39	29	53		19		42
Coliform bacilli ..	22	12	54	41	35	25	47		33		33
Rectal swabs:											
Coliform bacilli ..	98	94	96	95	86	93	95		96		95
Streptococci ..	75	94	100	86	77	72	84		89		84
Excess streptococci	3	6	8	5	22	25	31		33		16
Aureus staphylococci	55	59	38	50	33	32	32		26		35
No. examined ..	36	17	26	22	23	28	19		27		198

All these infants received fluids or complementary feeds during the first few days of life.
Mild staphylococcal infections occurred in infants at Unit A in mid-May, July, and late February and March, and in Unit B in mid-May and January.
The following differences between the percentages of totals were statistically significant:
Throat swabs: aureus staphylococci D/SE = 3·8; coliform bacilli D/SE = 6·4.
Rectal swabs: coliform bacilli D/SE = 4·1; excess streptococci D/SE = 5·0; aureus staphylococci D/SE = 2·6.

Aureus staphylococci were less often cultured from both throat and rectal swabs taken in Unit A than from those taken in Unit B. The figures for successive time periods showed that in both units these organisms were more often isolated at times when mild staphylococcal infections were occurring in the infants. Not enough data were available to show whether an increased prevalence of the organism preceded the appearance of infections as suggested by Allison and Hobbs (1947) or occurred rapidly at the time when the first case was noted. The differences in the frequency with which aureus staphylococci were isolated in the two units can be attributed to a greater exposure of infants in Unit B. All infants in Unit B were in the same nursery as the infected infants, whereas in Unit A swabs were taken from infants in four nurseries and some infants were in nurseries where there were few or no cases. Infants in Unit B were often kept in the unit longer than those in Unit A. The environmental conditions in Unit B (see Roscoe, p. 1144 of this issue) were more likely than those in Unit A to allow the spread of organisms from infant to infant.

Coliform bacilli were less often found in the throat and rectal swabs from Unit A than in those from Unit B. The percentage of cultures of rectal swabs yielding streptococci was similar in the two units. The cultures of rectal swabs in which streptococcal colonies were in excess of those of coliform bacilli formed a greater percentage of all cultures in Unit A than in Unit B. The percentage of cultures with excess streptococci increased in both units in November, when the time of incubation of the cultures was increased from 18 to 42 hours. The difference between the units was maintained throughout the investigation, though it was less in the later periods. The plates on which streptococci were present showed an excess of the organism more often in Unit A than in Unit B (Table III).

TABLE III.—*Percentage of Cultures of Rectal Swabs with Streptococci in which Streptococcal Colonies Outnumbered Colonies of Coliform Bacilli*

	Period										
	1 April-May	2 May-June	3 June-July	4 October	5 November	6 December	7 January	8 February	9 March	10 April	Total
Unit A		27			55		48	47	43	52	44
Unit B	4	6	8	5	29	35	37		37		19

In films of faeces, lactobacilli were found in 93% of 187 examined from Unit A and in 71% of 198 examined from Unit B. Differences noted between the units were that in Unit B there was (1) a higher percentage of cultures yielding coliform bacilli, (2) a lower percentage of cultures with excess streptococci, and (3) a lower percentage of films showing lactobacilli. The explanation which suggested itself was that these differences were due to the fact that a greater proportion of infants in Unit B than in Unit A were receiving complementary feeds or were artificially fed at the time of examination. Below is presented an analysis of data which were available on the effect of different feeding regimes on the bacterial flora.

Differences between Cultures from Infants on Different Feeding Regimes

Cultures were examined without knowledge of the feed given to the infant. With the help of Dr. Roscoe's data the bacteriological results were analysed to show results for infants on different feeding regimes.

In Unit B among 33 infants who were artificially fed the percentage of cultures of throat swabs yielding coliform bacilli was 60, as compared with 36% in 66 infants receiving complementary feeds and 29% in 42 infants who were breast-fed at the time of examination but had received fluids during the first few days of life.

A regime of breast-feeding with no additional fluid or food was introduced in two wards of Unit A in January This made it possible to compare the bacteriology of the throat and rectum of completely breast-fed infants with that of three groups of infants. The first group had received complementary feeds during the first few days of life but were breast-fed when specimens were taken; the second group were receiving both breast and complementary feeds; and the third group were artificially fed at the time of examination.

The results (Table IV) varied in a similar way to those already mentioned. Coliform bacilli were not found in the throats of 65 breast-fed infants; they were present in two of 28 infants who had received complementary feeds but were breast-fed when examined, in four of 28 infants who were receiving both breast and complement, and in

TABLE IV.—*Percentage of Positive Results in Infants in Unit A Aged 3 or More Days on Different Feeding Regimes*

	Feeding of Infant			
	Breast Only	Breast After Complement	Breast and Complement	Artificial
Throat swabs:				
Aureus staphylococci ..	23	29	18	21
Coliform bacilli .	0	7	14	17
Rectal swabs:				
Coliform bacilli ..	62	76	86	100
Streptococci	86	71	82	92
Streptococci in excess ..	41	35	21	19
Aureus staphylococci ..	12	14	21	12
No. examined ..	65	28	28	24

tour of 24 infants who were artificially fed. Only one of the 10 infants whose throat swabs yielded coliform bacilli had vomited, and that one on a single day only. Three of the other nine had oral thrush. The remaining six were apparently perfectly healthy infants. In cultures of rectal swabs coliform bacilli were isolated less often from infants who received breast milk only and with increasing frequency in the other three groups : (1) those solely breast-fed but having received complement, (2) those receiving breast and complement, and (3) those artificially fed. Streptococci were found in approximately the same percentage of cultures from all four groups, but their colonies were in excess of the colonies of coliform bacilli in a higher proportion of cultures from infants who were receiving breast milk only at the time of examination than in cultures from infants receiving artificial feeds solely or as complement.

The absence of coliform bacilli in the cultures of throat swabs from 65 infants who were entirely breast-fed and the isolation of coliform bacilli from the throats of a number of infants who had received or were receiving complementary feeds (Table IV) suggested that these bacilli had been introduced with the feeds. In accord with this suggestion were the higher percentages of isolations of coliform bacilli from rectal swabs of artificially fed infants (Table IV) and the more frequent detection of Gram-negative bacilli in stained films of swabs from the same group of infants (Table V). Tests were made on several

TABLE V.—*Percentages of Films from Rectal Swabs showing Different Numbers of Organisms*

Organism	Growth	Feeding of Infant			
		Breast Only	Breast After Complement	Breast and Complement	Artificial
Lactobacilli	+	19	10	20	27
	++	17	24	40	33
	+++	54	59	35	17
	Total	90	93	95	77
Gram-negative bacilli	+	15	17	25	43
	++	0	3	5	14
	+++	0	0	0	10
	Total	15	20	30	67
Gram-positive cocci	+	17	3	25	50
	++	2	0	10	14
	+++	0	0	0	3
	Total	19	3	35	67
No. examined		59	30	30	30

samples of the ingredients of the complementary feeds and of feeds prepared in the ward, but coliform bacilli were not isolated. This did not, however, rule out the possibility that bacilli were introduced with some feeds. It is probable also that there were alterations in the intestinal environment of the artificially fed infants which favoured the growth of coliform bacilli. The coliform bacilli isolated from the throat may have been merely transients there, deposited from feeds or by regurgitation.

The Gram-stained films from rectal swabs provided further evidence (Table V) of differences in the intestinal flora of infants receiving different feeds. Lactobacilli were less often seen, and far less often seen in large numbers, in the films from artificially fed infants than in films from infants receiving breast milk only at the time of testing. The converse was found for Gram-negative bacilli and Gram-positive cocci.

Discussion

The simple cultural methods which we used showed the following maximum percentages of isolations from infants aged 3 or more days : (1) 54% for coliform bacilli from the throat in Unit B and 10% in Unit A ; (2) 47% for excess streptococci from rectal swabs ; (3) 40% for aureus staphylococci from the throat and 50% from rectal swabs at times when no staphylococcal infections were occurring in infants. Films of faeces showed lactobacilli in large numbers in 60%, Gram-negative bacilli in 20%, and Gram-positive cocci in 15%. Figures of this order suggest that the methods might indicate the more frequent presence of large numbers of these organisms in infants with diarrhoea as compared with controls. Analysis of our results shows that in making these comparisons attention must be paid to the age of the infants and to the method of feeding, since these factors affect the results.

The methods used in this study might therefore, if applied to field investigations of epidemics, give a rapid indication of an abnormality in the bacterial flora of the cases. This would aid in deciding on the lines of search for the sources of an infection and its mode of spread. Subsequent typing of strains would be essential in order to establish the identity or difference of strains isolated from patients and other sources. The simple cultural methods which were used may be successful when applied to cases in which the infecting organism is likely to be present in large numbers. In the search for carriers and in the bacteriological diagnosis of some cases selective media may be necessary. For example, Robertson's meat medium with 10% of added NaCl (Maitland and Martyn, 1948) would be valuable for isolating staphylococci from faeces. The use of selective media would increase the percentages of positive results above those reported here and might reduce or eliminate differences such as we found. It does, however, appear from our results that the combination of simple cultural methods with rough quantitative estimates would be a practicable, and possibly a useful, method in field investigations of epidemics of neonatal diarrhoea.

Summary

In order to obtain a base-line for the study of epidemics of neonatal diarrhoea simple bacteriological methods were applied to the examination of throat and rectal swabs from infants in two maternity units. During the 12 months of the investigation the incidence of infections was low.

Variations were noted in the percentages of cultures from which coliform bacilli, faecal streptococci, and aureus staphylococci were isolated. Differences were found between the flora of infants examined during the first four days of life. The incidence of aureus staphylococci was higher at times when staphylococcal infections were occurring. Coliform bacilli were more often isolated from the throats of infants who were receiving complementary or artificial feeds at the time of examination than from the throats of breast-fed infants. In cultures of rectal swabs streptococci were more often present

in excess of coliform bacilli when specimens were taken from infants receiving artificial feeds than when they came from infants who were receiving breast milk only at the time of examination. Although coliform bacilli were not isolated from some feeds and ingredients tested, the differences observed suggested that the bacilli might have been introduced with the feeds. Whether they were introduced in that way or from some other source, the higher incidence of coliform bacilli and their preponderance in the faeces of artificially fed infants may have been due to changes in the intestinal environment of these infants.

Films from rectal swabs stained by Gram's method were examined and rough quantitative estimates were made of the numbers of lactobacilli, Gram-negative bacilli, and Gram-positive cocci. Variations were found with infants of different ages and on different feeding regimes.

It is suggested that the methods used in this study might be applied to field investigations of outbreaks of neonatal diarrhoea as a preliminary to typing of organisms and that they might help to direct investigations of the source and mode of spread of infection in the infant community.

This study was planned as part of a combined clinical and bacteriological study of infections in newborn infants. We wish to thank Dr. Janet Roscoe for taking swabs and for keeping clinical records for use in the analysis of the bacteriological findings. We are also indebted to Dr. Joan Boissard for grouping some streptococci in the early part of the investigation.

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INCIDENCE OF INFECTIONS IN INFANTS IN TWO MATERNITY UNITS

BY

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Since May, 1947, all infections and illness, however trivial, occurring in the babies of two maternity units in Cambridge have been carefully recorded. Unit A took all normal obstetric bookings; Unit B took the abnormal obstetric patients. In each ward day-by-day charts have been kept of the number of mothers, the number of live births, the number of babies in the nursery, and the number of these which were premature. Any infection which has occurred among the babies, the mothers, or the staff has also been recorded on these charts. Bacteriological investigations of the infected cases were undertaken by the Public Health Laboratory Service, Cambridge. In addition throat and rectal swabs of every baby in the ward were taken at intervals throughout the year. These results form the basis of a separate report by McFarlan *et al.* (see p. 1140 of this issue).

I saw all the infected babies. A detailed analysis has been made covering the period from May, 1947, to April, 1948. The infection rate in Unit A was 8.3% (104 infected babies in 1,257 live births); in Unit B the infection rate was 10.3% (19 infected babies in 185 live births) (Table I). It should be emphasized that the slightest evidence of infection was recorded as such; the smallest single pustule, or a sticky eye if it remained sticky for longer than 24 hours, was recorded even if no pathogen was grown from the swab.

*This work was undertaken while holding a grant from the Medical Research Council.

TABLE I.—*Analysis of Infections*

	Unit A					Unit B
	By Wards				Total	
	VIIA	VIIB	IV	VI		
Eyes	20	19	20	9	68 (5·4%)	3 (1·6%)
Skin	4	12*	9	1	26*(2·1%)	8* (4·3%)
Umbilical discharge	1	—	—	—	1	—
Rhinitis	—	2*	—	—	2*	4*
Otitis media	—	—	—	—	—	3
Thrush	1	—	3	—	4	—
Pneumonia	1	—	1	—	2	—
Green stools (± vomit)	—	2	1	—	3	1
Chicken-pox	—	—	—	—	—	1
Total	27	33*	34	10	104*(8·3%)	19*(10·3%)
Live births	391	343	367	156	1,257	185

* Three babies had two infections at the same time—two in ward VIIB and one in Unit B. The totals are therefore adjusted accordingly.

Table II shows the distribution of infections in Unit A according to wards, with the number of live births, by four-week periods. It will be seen that the infections occurred more or less sporadically throughout the year, apart from a sudden increase in VIIB early in 1948, when there was a small epidemic of spots and sticky eyes at the beginning of March. This was controlled by barrier nursing precautions and the use of penicillin and sulphadimidine (sulphamezathine). None of the babies affected was ill and the nursery was not closed.

TABLE II.—*Time Distribution of Infections in Unit A*

	Total Infections	Total Births	Wards							
			VIIA		VIIB		IV		VI	
			I.	B.	I.	B.	I.	B.	I.	B.
1947										
May 18–June 14	6	87	1	23	4	27	1	37	—	—
June 15–July 12	9	100	5	37	3	25	1	22	0	16
July 13–Aug. 9	3	84	1	24	1	25	1	26	0	9
Aug. 10–Sept. 6	11	89	3	30	5	29	2	27	1	3
Sept. 7–Oct. 4	8	106	3	33	2	29	2	31	1	13
Oct. 5–Nov. 1	2	80	0	29	0	22	1	25	1	4
Nov. 2–Nov. 29	6	120	0	35	2	28	3	35	1	22
Nov. 30–Dec. 27	7	94	2	32	0	19	4	27	1	16
1948										
Dec. 28–Jan. 24	10	84	3	26	1	24	6	21	0	13
Jan. 25–Feb. 21	3	94	1	31	1	28	1	23	0	12
Feb. 22–Mar. 20	17	107	3	29	9	35	3	31	2	12
Mar. 21–Apr 17	13	118	2	36	5	31	5	32	1	19
Apr. 18–May 15	9	94	3	26	0	21	4	30	2	17
	104	1,257	27	391	33	343	34	367	10	156

I. = Infections. B. = Births.

Very few upper respiratory tract infections and no intestinal upsets amongst the mothers or staff were reported during the year under review. It seems likely that this may have been a factor in the reasonably low infection rate amongst the infants. That there was no consistent rise of infections corresponding with increased business of the ward, as shown by live births, means no more than that there was adequate staff and space for potential cross-infection to remain controlled.

In Unit A 20 infant deaths occurred during the year covered; none was attributable to infection. Post-mortem examinations were made on 10 of these. Seven of the others were very premature (2–3½ lb. (0.9–1.6 kg.) birth weight) and died within a few hours of birth; the other three had severe congenital abnormalities and died within a few days. In this unit the only infection which caused serious illness was pneumonia; two babies were affected, one being a premature infant of 3 lb. (1.36 kg.), but both eventually recovered.

In Unit B three babies recovered from one infection only to get another later; these were counted as separate infections: the total of 19 infections therefore implicates only 16 babies. These infections also were spread fairly evenly through the year. One death was attributable to infection: the baby was the eighth child of the family and obviously premature, though the dates were unreliable and birth weight was 5½ lb. (2.5 kg.). He never would suck and had to be tube-fed. When a fortnight old he suddenly lost 9 oz. (0.25 kg.) in 24 hours and showed signs of otitis media. *Staph. aureus* was grown from the throat. In spite of penicillin, sulphadimidine, and intravenous therapy for 12 days, he died. Post-mortem examination revealed pus in both mastoid cavities from which *Bact. coli* was grown. The other two cases of otitis media occurred four months later at ten days' interval; one was a premature baby of 3 lb. 2 oz. (1.39 kg.) whose ear discharged spontaneously. Neither appeared seriously upset by their infection, and both cases cleared satisfactorily.

Accommodation and Staffing

These have such an effect on cross-infection in any hospital that it is important to give details for comparative purposes. From the following description it will be apparent that the staff were working under conditions less than ideal.

Unit A

Accommodation.—Fifty-six mothers could be accommodated. Only normal cases were booked. These were divided between four wards as follows:

Ward	Mothers	Floor Area of Nursery	Potential Area per Cot
VIIA ..	14	216 sq. ft. (12 × 18)	15·4 sq. ft.
VIIB ..	14	384 sq. ft. (12 × 32)	27·4 sq. ft.
IV ..	16	1,152 sq. ft. (24 × 48)	72 sq. ft.
VI ..	12	270 sq. ft. (15 × 18)	22·5 sq. ft.

Ward VI was regarded as an overflow; it was opened in June, 1947, and was closed twice during the year under review for two or three weeks each time. It had not its own labour ward; women were therefore delivered in Ward IV or VIIA, the mother and baby then being transferred to Ward VI at once. Each ward had its own nursery in which the babies were nursed in separate cots. It will be realized that the potential cot space varied greatly in the different wards. Ward IV had plenty of space; in Wards VIIB and VI there was very little space between each cot; and in Ward VIIA the cots almost touched. All the nurseries had good windows. No provision was made for the isolation of infected or premature babies, unless by chance one of the side rooms, of which there were two each on all the wards but VI, happened to be available. Infected babies were therefore usually nursed in a corner of the nursery.

Staff.—Each ward had one sister and one staff nurse; in addition there were pupil midwives (undertaking the first six months of their C.M.B. training)—six on Ward IV and four on each of the other wards. All the nurses attended the mothers and the babies; there were no "nursery nurses" who looked after the babies and no one else. Each ward had also one nursing orderly and one charwoman. The night staff consisted of one sister, four staff nurses, three pupil nurses, and eight assistant nurses. On any one night a total of nine or 10 nurses were distributed round the four units. There was one resident house-surgeon. The medical officer lived out and paid a daily visit.

Nursery Technique.—Masks of one sort or another had to be worn by anyone entering the nursery; but in fact the mask "drill" had been somewhat neglected and masking had become perfunctory. Gowns were not worn. At birth sulphacetamide drops were instilled into the eyes: the baby was then bathed and weighed. Two days later it was bathed and weighed again, and thereafter daily. Each nursery had, next to the basin, a bathing-table covered with a mackintosh and sheet, on which the baby was placed on his own towel for bathing or changing. The basin was mopped round with "ibcol" between each bathing. The buttock ointment was kept in a communal jar but was extracted with a small square of lint, a separate piece for each baby, so that the nurses' fingers should not touch the ointment. After changing, the soiled napkins and clothes were dropped in a bucket; after feed-time these were taken to the sluice-room, where the nurses rinsed them in plain water before sending them to the common laundry. Babies were taken to and from their mothers, one under each arm, at feed-times. Mothers did not mask unless they had a cold or sore throat. There was no special routine care of mothers' breasts or hands. The nursery floors were swept once a day.

Feeding.—Until January, 1948, all babies were offered, after each breast-feed for the first three days of life, a complementary feed of a dried milk preparation which, when reconstituted, had a relatively high carbohydrate percentage. This was given by a nurse or the mother by cup and spoon. From January, 1948, two wards continued this practice, while the other two gave no complementary feeds or fluids except in special cases. When complementary or supplementary feeds were used they were made up in the ward kitchen. There was no milk kitchen. Bottles and teats were boiled in a fish-kettle on the gas-stove.

Unit B

Accommodation.—This unit was the maternity unit in the general hospital. The intention was that only abnormal obstetric cases should be admitted. There were two lying-in wards, taking six and four women respectively. The only nursery was very small (10 ft. 6 in. by 13 ft.—3.2 by 3.96 m.) with one window facing north. There were nine cots, which were packed in threes on three trolleys; the sides of the cots were touching and there was barely 1 ft. (30 cm.) floor space between the trolleys. Infected or premature babies could not be properly isolated; the bathroom (sister's office) was used in conjunction with an oxygen box as the only place available away from the nursery.

Staff.—A nursery nurse attended to the babies, but when she was off duty or needed assistance one of the pupil nurses on the unit came into the nursery to help. At night there was only one nurse for the whole unit; she attended to the mothers and babies. One ward maid "charred" for the unit. A paediatrician attended daily.

Nursery Technique.—Masks were worn in the nursery, but here again masking had become careless. There was one gown per infant, which was worn for washing or changing or artificial-feeding that infant; when taken off it was rolled up and put on top of the baby's basket on the trolley underneath the cots. These baskets were therefore closely packed. Babies were weighed at birth, again on the third day, and thereafter daily. They were bathed at birth, then "topped and tailed" daily until the cord came off, and thereafter were bathed daily. Bathing and changing were done on the nurse's lap. The floor of the nursery was polished parquet. During the daily sweep and polish the trolleys were pulled out into the corridor and the cots on them covered with a single layer of butter muslin. Otherwise the technique was similar to that described for Unit A.

Feeding.—According to the mother's condition the baby was put to the breast after 24 to 48 hours. Until then boiled water was given. This, and the artificial feeds given when necessary, were prepared in the ward kitchen. Bottles and teats were boiled in a fish-kettle on the gas-stove.

Discussion

It is interesting to compare infection rates amongst the babies of maternity units in different parts of the country from time to time. Various earlier reports (Henderson, 1943; Corner, 1946; Department of Health for Scotland, 1947) have recorded infection rates for neonatal units of

between 20% and 30%. While the present report was in progress another was published (Frazer, 1948) which is salutary to all who had been achieving rates of about 10%, for in Belfast the commendably low figure of under 3% was reached. So far as can be ascertained the criteria of infection used by each observer were similar to those employed at Cambridge.

It will be appreciated from Table III that eye infections are usually the most prevalent and skin infections next so. However, Frazer's figures and those of Unit B show skin

TABLE III.—*Records of Neonatal Infection Rates*

	Cambridge 1947–8		Edinburgh (Henderson, 1943) 1940–2	Bristol (Corner, 1946) 1944–5		London St. Heller* 1945	Belfast (Frazer, 1948) 1946–7
	Unit A	Unit B		A	B		
Total live births	1,257	185	8,075	3,344	3,190	1,293	2,274
Total infections	8·28%	10·28%	29·8%	25·9%	29·7%	21%	2·77%
Eye infections ..	5·4%	1·62%	15·9%	13·49%	17·6%		0·61%
Skin infections	2·06%	4·32%	6·8%	6·58%	10%		1·58%
Thrush ..	0·32%	0	4·9%				0·35%

* Department of Health for Scotland Report, 1947, p. 24.

infections to be nearly three times more common than eye infections. It is therefore interesting to conjecture whether the covering of the cot with gauze as practised by Frazer, which minimizes dust-borne infection, and the removal of the babies during the cleaning of the ward in Unit B in Cambridge had any part in the reversal of the usual finding.

The incidence of infections in hospital nurseries must be related to the quality and number of staff available. However, it would also seem likely that the architectural arrangements of the unit are of great importance. In the Belfast Maternity Home (Frazer, 1948) the basic units accommodated five or six mothers and babies, and the number of deliveries was such that a unit could be filled within 24 hours, allowing a thorough cleaning and airing of each unit for 24 hours between each intake. These arrangements would seem to be a factor in reducing cross-infections. These small units are very different from the large nursery for 50 babies described by Corner, even though the Bristol nursery was partially divided into three sections. In the Edinburgh nurseries, on which Henderson reported, a large number of babies are also collected in one room (personal communication).

These observations suggest that one way of reducing the hospital neonatal infection rate would be to reduce the number of babies in each nursery unit. By reducing the infection rate among newly born infants the death rate from infection in this age group should also be reduced. Infections are responsible for over 25% (Department of Health for Scotland, 1947) of neonatal deaths, and they are the most readily preventable cause.

I would like to thank Dr. Allan McFarlan, Dr. French, and the staff of the County Maternity Unit for their help and co-operation.

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THE RELATION OF STAPHYLOCOCCUS PYOGENES TO INFANTILE DIARRHOEA AND VOMITING*

BY

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The aetiology of infantile diarrhoea and vomiting remains obscure despite the efforts of many investigators. Amongst the many suggested causative bacterial agents mentioned is the staphylococcus. The purpose of this paper is to present the findings in an investigation to determine whether *Staphylococcus pyogenes* was a possible direct cause of the gastro-intestinal condition. The staphylococcus in relation to parenteral infection as a cause of diarrhoea and vomiting is not considered.

Draper and Brown (1946) recorded the presence of *Staph. aureus* in the stools in 26.5% of infants aged 0–1 year suffering from enteritis. One death occurred, in a child 8 months of age who had had a history of diarrhoea for six weeks before admission to hospital and died nine days later; the faeces contained pus and mucus. Felsen and Wolarsky (1942) reported an outbreak of epidemic diarrhoea of the newborn in 19 babies; they found *Staph aureus* in pure culture in two cases, and it was the predominating organism in a third case. These authors suggested that the presence of *Staph. aureus* was significant, but they were uncertain whether their evidence was sufficient to incriminate any single bacterial agent. Kramer (1948) reported a fatal case of enteritis in a child aged 6 weeks, and described the condition as one of staphylococcal enteritis on the finding of a coagulase-positive streptomycin-resistant *Staph. aureus* from the terminal ileum at necropsy. *Staph. aureus* was not cultured before the child's death.

Crowley *et al.* (1941), in their investigation of epidemic neonatal diarrhoea in maternity hospitals, found a coagulase-positive *Staph. aureus* in two cases in a series of 10 infants. They concluded from the evidence that there was nothing to justify the claim that the staphylococcus was anything more than a possible cause in some outbreaks. Taylor *et al.* (1949), in a series of 19 babies in two outbreaks of infantile diarrhoea and vomiting, found *Staph. pyogenes* in the stools on six occasions, and showed by phage-typing that the staphylococci did not belong to the types commonly present in staphylococcal food-poisoning. Because they found a low incidence and a sparsity of staphylococci in rectal swabs they discontinued further phage-typing.

The incidence of staphylococci in the stools of normal infants has been recorded by Duncan and Walker (1942), who found *Staph. aureus* in 74.4% of 61 newly born infants (method of isolation not stated), and by Martyn (1949), who, using a selective medium for the isolation of staphylococci, reported the presence of *Staph. pyogenes* in 50% of 130 healthy infants aged 0–7 days. Crowley *et al.* (1941) isolated *Staph. aureus* once in 57 normal breast-fed infants aged 3–23 days.

*This work was undertaken whilst holding the Cow and Gate Research Fellowship in Child Health, University of Manchester.

The Present Investigation

This paper records the results of an investigation into the incidence of *Staph. pyogenes* in the stools (*a*) of infants in hospital suffering from diarrhoea and vomiting, (*b*) in infants in hospital not suffering from gastro-intestinal symptoms, and (*c*) in a number of healthy babies attending a child-welfare clinic. The last two groups were examined to serve as controls.

All the infants in this series were aged between 2 weeks and 1 year. The majority of them were in the age group 1–3 months. The investigation was carried out between October, 1948, and July, 1949, and includes cases from four hospitals.

Bacteriological Methods.—Rectal swabs from the infants were plated as soon as possible after collection on horse-blood-agar plates and inoculated into a 10% NaCl meat medium recommended by Maitland and Martyn (1948) as being selective for staphylococci. All staphylococci isolated were tested for coagulase production; all positive strains are referred to as *Staph. pyogenes*, and these strains were tested for sensitivity to penicillin (40 units per ml.) and streptomycin (1,000 units per ml.), using soaked strips of filter-paper laid over 18-hour broth-culture streaks of the organism on agar plates. In addition all *Staph. pyogenes* strains were bacteriophage-typed, using the series of phages in routine use at the Central Public Health Laboratory, London. The strains classified as non-typable were tested against all the staphylococcal phages. In every case strains were tested against Kreuger phage.

Results of Culture.—Cultures were made from 119 infants with diarrhoea and vomiting, from 78 infants in hospital with no gastro-intestinal symptoms, and from 44 healthy infants attending a child-welfare clinic. The results are summarized in Table I. The incidence of *Staph. pyogenes* in cases (44.5%) and in controls (46%) showed a close similarity. There was a low incidence of streptomycin-resistant strains, only four being isolated. The frequency of penicillin-resistant strains was little different in cases and controls in hospital, but was higher in the out-patient controls; the difference is not, however, statistically significant. In Table II the incidence of bacteriophage types of the *Staph. pyogenes* strains isolated is recorded; the nomenclature, as already stated, is that used by the Central Public Health Laboratory. The distribution of types and the proportion of non-typable strains was similar for cases and controls. It is noteworthy that one type (47) accounted for almost half the typable strains. This type was also found to be prevalent in the staphylococci isolated from healthy newborn infants (Martyn, 1949), the strains having been typed after publication, and nearly all these type 47 strains were penicillin-resistant. Of the 38 strains of phage type 47, 26 were penicillin-resistant. Type 6/47 is recorded five times in the two groups: this type has been shown by Allison (1949) to be often associated with staphylococcal food-poisoning. There were 20 non-typable strains.

TABLE I.—*Incidence of Staph. pyogenes in Cases of Infantile Diarrhoea and Vomiting and in Controls, with Results of Sensitivity to Penicillin and Streptomycin*

Source	Cases of Infantile Diarrhoea and Vomiting	Controls		
		In-patient	Out-patient	Total
Total Nos. of cases ..	119	78	44	122
Staph. pyogenes isolated	53 (44·5%)	41 (52·5%)	15 (34%)	56 (46%)
Penicillin-resistant ..	15 (28·3%)	13 (31·9%)	9 (60%)	22 (43·9%)
Streptomycin-resistant	2	2	0	2

TABLE II.—*Incidence of Phage Types in Strains of Staph. pyogenes Isolated from Cases of Infantile Diarrhoea and Controls*

Source of *Staph. pyogenes*	Numbers of Phage Types											
	Not Typable	6	6/47	31	47/53	47/54	47	47B	52	52A	53	54
Cases of diarrhoea and vomiting (53 strains)	11	1	5	1	2	4	19	2	2	3	2	1
Controls (56 strains)	9	2	5	3	1	2	19	1	6	0	4	4

Discussion

The presence of *Staph. pyogenes* in the stools of 44.5% of infants suffering from diarrhoea and vomiting and in 46% of controls who either were not suffering from diarrhoea and vomiting or were normal, the close similarity of phage-type distribution in the two groups, and the close correlation of sensitivity to streptomycin and penicillin do not seem to indicate that the organism bears any causal relationship to infantile diarrhoea and vomiting.

The use of a highly selective medium for the isolation of *Staph. pyogenes* from the stools explains the high incidence of the organism, as on only four occasions was *Staph. pyogenes* isolated direct on blood agar—twice in cases and twice in controls.

There were 13 deaths recorded in children examined bacteriologically; in four of these *Staph. pyogenes* was isolated, but then only as a result of using the selective salt–meat medium. It should be mentioned that the number of staphylococci in the original inoculum was not known. In cases and controls in which *Staph. pyogenes* was present there may have been fewer than 10 organisms, because, as Maitland and Martyn have shown, the salt–meat medium will detect small numbers of staphylococci when mixed with large numbers of other bacteria. The failure to isolate staphylococci direct on blood agar, except in four instances, suggests that the number of staphylococci present in the stools is very low. The failure of cases to respond to streptomycin therapy (Holzel, Martyn, and Apter, 1949) does not suggest that an organism nearly always found to be sensitive to the antibiotic *in vitro* bears any causal relationship to the disease. None of the cases in this investigation were found to have either blood or pus in the stools as did many of the cases recorded by Draper and Brown (1946): whether they were dealing with the same clinical condition is a matter of conjecture.

If consideration is given to all the data available there seems to be no evidence that *Staph. pyogenes* bears any direct causal relationship to infantile diarrhoea and vomiting.

Summary

A bacteriological investigation of the incidence of *Staph. pyogenes* was carried out in cases of infantile diarrhoea and vomiting and in infants not suffering from any gastro-intestinal abnormality.

Staph. pyogenes was isolated from 44.5% of the stools of 119 cases of diarrhoea and vomiting and from 46% of controls. Only four streptomycin-resistant strains were encountered in 109 strains of *Staph. pyogenes* tested.

Bacteriophage types were distributed evenly in the two groups. Type 47 predominated, being found in 35% of the total number of strains tested. A food-poisoning type (6/47) was found five times in each of the two groups. The relationship of *Staph. pyogenes* to infantile diarrhoea and vomiting is discussed, and the general conclusion is drawn that this organism bears no relationship to the disease.

I wish to thank Professor Gaisford for his interest and advice, and to acknowledge my thanks to Professor Maitland for his help and criticism, to Dr. R. E. O. Williams and Miss J. Rippon, of the Central Public Health Laboratory, for sending me staphylococcal phages and propagating strains, and to Mr. K. Boulter for technical assistance.

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MORTALITY AND SURVIVAL RATES IN MALES WITH SILICOSIS OR SILICO-TUBERCULOSIS

BY

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Whilst the literature on silicosis and silico-tuberculosis is voluminous, there are few published data on the expectation of life in these two conditions. So far as silico-tuberculosis is concerned, as the prognosis is obviously dominated by the tuberculous element its assessment is not unduly difficult to the experienced chest physician. The necessity for data is much greater in silicosis without tuberculosis, as the question of expectation of life may be raised in connexion either with life insurance or with compensation, but most physicians see too few cases to establish criteria. The data upon which this paper is based have been accumulated by one of us (H.M.T.) in Sheffield during the last 19 years; the statistical analysis is the work of the co-author (W.J.M.).

Sheffield is traditionally the home of the grinder, but it is perhaps not so well known that a number of other trades in Sheffield also carry an occupational hazard of silicosis. These trades are sand- and shot-blasting, fettling steel, steel-dressing, ganister mining and quarrying, ganister-crushing, silica-brick making, building, repairing, and scaling furnaces lined with silica bricks, stone-masonry and stone-dressing, and finally coal-mining. Records have been accumulated of 857 men in whom some degree of silicosis or of silico-tuberculosis has been diagnosed. Of these 43 had no opportunity of reaching the age of 40 years, and have been excluded. The series therefore consists of 814 men with silicosis or silico-tuberculosis each of whom reached the age of 40 years and had the opportunity of reaching the age of 41 or more.

The reasons for the selection of 40 as the commencing age in the series are as follows. Silicosis is a condition which develops gradually as a result of an occupational hazard over a period of years. The proportion of cases in which it is possible to diagnose silicosis with certainty below the age of 40 varies in different processes, but is comparatively small. After the age of 40 this proportion increases fairly rapidly. Nevertheless, even before the lung changes have progressed to diagnostic level on a radiograph, they have from a pathological point of view been initiated and such risks to health as may be associated with silicosis have started to operate. With the same line of argument, it appears logical to credit a case in which silicosis was first diagnosed at the age, say, of 52 with survival from age 40 to age 52, because there can be no doubt that the silicotic hazard has existed continuously since the age of 40. It is necessary to have some standard with which comparison of the survival rates in silicosis and silico-tuberculosis can be made. For this purpose the data in the English Life Table No. 10 (Registrar-General, 1931) have been used. From the "lx" column a percentage survival rate for ages over 40 has been calculated. This represents the survival rates for males in England and Wales starting at age 40.

Survival rates at ages over 40 for silicosis and silico-tuberculosis together with the control survival rates are given in Table I and expressed graphically in the Chart.

TABLE I.—*The Number of Survivors at Each Age Expressed as a Percentage of the Number at Age 40*

Age	Silico-tuberculosis (466 Men)	Silicosis (348 Men)	English Life Table No. 10 (1930–2)
40	100	100	100
41	98·7	99·4	99·4
42	97·2	99·1	98·8
43	95·3	98·6	98·2
44	94·0	98·3	97·5
45	91·8	97·7	96·8
46	89·2	97·4	96·0
47	87·0	96·5	95·2
48	84·3	95·8	94·3
49	81·9	94·2	93·4
50	78·1	92·6	92·4
51	75·3	90·9	91·4
52	72·6	87·6	90·3
53	69·2	86·6	89·1
54	66·9	84·5	87·9
55	63·6	80·0	86·5
56	59·9	76·8	85·1
57	55·6	72·5	83·7
58	50·1	70·6	82·1
59	44·7	66·0	80·4
60	39·7	61·4	78·6
61	35·3	57·7	76·7
62	31·4	53·5	74·7
63	25·7	49·2	72·5
64	22·2	44·9	70·3
65	20·0	40·3	67·8
66	16·3	36·5	65·3
67	14·6	30·6	62·5
68	12·1	26·6	59·7
69	9·0	21·4	56·7
70	5·7	18·0	53 6
71	4·5	16·3	50·3

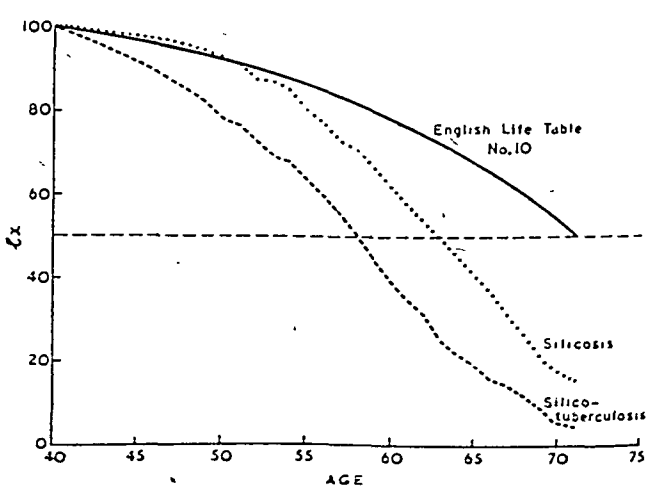


Chart showing percentage of survivors from age 40.

Before considering these findings it is necessary to give further information with regard to the series upon which the analysis is based. The 814 cases divide into 466 in which silicosis accompanied by tuberculosis was diagnosed and 348 in which silicosis without tuberculosis was diagnosed (referred to below as "pure silicosis") All cases in which a diagnosis of tuberculosis was made at any time are in the group of silico-tuberculosis. It is interesting to note, however, that the group of pure silicosis cases was a relatively stable group, and only 23 cases were first diagnosed as pure silicosis and later developed tuberculosis. In this series, therefore, the chances of a case originally diagnosed as pure silicosis later developing tuberculosis were 6 in 100. The 23 cases included a man diagnosed as a case of heavy silicosis at the age of 69 who developed acute tuberculosis one year later, and a man aged 62 who developed tuberculosis at the age of 63. The other 21 cases ranged in age from 33 to 57 (average 46 years) when silicosis was first diagnosed. The average age at which tuberculosis was diagnosed in these 21 cases was 54 years.

Of the 814 cases in the whole series 610 (75%) have been followed till death occurred; the remainder, with the exception of 15 cases which "left the area" or were "lost sight of" at various ages, are still alive. These 15 cases drop out of the survival table at the age at which they were last known to be alive. The distribution of the series between various occupations is given in Table II. It will

TABLE II—*Distribution of the Cases Between Various Occupations*

Occupation	Silico-tuberculosis		Pure Silicosis		Totals
	Alive	Dead	Alive	Dead	
Grinders	49	280	52	140	521
Fettlers and steel-dressers	9	32	19	24	84
Coal-miners	8	15	24	16	63
Masons and stone-dressers		21	1	20	42
Ganister-workers, quarry, mine, crushers, etc.	3	14	11	11	39
Sand- and shot-blasters	3	12	8	5	28
Furnace builders and repairers	6	5	4	4	19
Miscellaneous	4	5	3	6	18
Totals	82	384	122	226	814

be noticed that the ratio of silico-tuberculosis to pure silicosis varies in different trades. Thus of 521 grinders 329 (63%) had silico-tuberculosis, of 84 fettlers and steel-dressers 41 (49%) had silico-tuberculosis, whilst of 63 coal-miners only 23 (37%) had silico-tuberculosis. The appreciably lower proportion of silico-tuberculosis in coal-miners is in line with the experience of other workers. Fletcher (1948) discusses at some length the relation of tuberculosis to the pneumoconiosis of coal-miners, and sums up by stating that clinically tuberculosis appears as an infrequent but often serious complication of the disease.

Clinical experience in Sheffield supports the view that the prognosis so far as tuberculosis is concerned in the silico-tuberculosis of coal-miners is better than the prognosis of comparable cases in grinders. Gardner and others (1930) cited experimental evidence in favour of the theory that the dust from coal may exercise a favourably modifying effect on the development of tuberculosis. Reference has been made elsewhere (Turner, 1939) to the fact that, quite apart from the question of silicosis, the incidence of sputum-positive pulmonary tuberculosis among coal-miners in the Sheffield area is not high, and that, moreover, it shows an absence of the middle-age peak in the age-incidence curve which is a characteristic feature in the age-incidence curve for occupations unfavourable with regard to tuberculosis. Cummins (1935) suggested that coal dust in a miner's lung acts as an adsorbent of tuberculin and in so doing reduced the toxicity of any lesions which may occur. This theory and the work of Cummins and Weatherall (1931) upon which it is based must be accorded considerable weight.

The very high proportion of grinders who develop tuberculosis with silicosis has in the past been attributed to the harmful effect of silica together with the bad working conditions that have prevailed in the industry. It is, however, well to bear in mind that grinders and sand- and shot-blasters are abrading steel and may well also inhale fine particles of the metal. Tuberculosis is a common complication of the sidero-silicosis found in haematite miners. Stewart and Faulds (1934) gave details of post-mortem findings in 15 haematite miners, and in 11 of these the lungs showed evidence of tuberculosis accompanying the sidero-silicosis. It is possible, therefore, that the presence of iron in the lungs may exercise an unfavourable effect on local tissue resistance to tuberculosis.

Discussion of Findings

As would be expected, the survival curve for silico-tuberculosis shows the greater deviation from the control survival rates, and this deviation begins in the first year of risk. Tuberculosis with or without the mention of silicosis is the cause of death in the majority (313 of 384 deaths in this group were due to tuberculosis). At the Johannesburg Conference (Gardner and others, 1930) the question was put, "What is the prognosis in a case of silicosis with tuberculosis?" The agreed answer was, "This is always serious; it is worse (1) when the tuberculous infection occurs at the outset of the silicosis, (2) in younger than in older subjects, (3) than in cases of tuberculosis alone." Clinical experience in Sheffield endorses this answer, with a reservation on its second part. When tuberculosis either first manifests itself or recrudesces in later life it is often of an acute type with a rapid downhill course.

One handicap in the treatment of silico-tuberculosis is that collapse therapy is rarely either indicated or helpful. There are several reasons for this. The majority of the patients are in their fifth or sixth decade, and there is often difficulty in judging the contralateral lung both with regard to its functional capacity and also to the presence of active tuberculous lesions. It is probably the almost invariable reduction in cardio-respiratory capacity, due partly to concomitant emphysema, which is the main contraindication and which is responsible for disappointments when collapse therapy is tried. In favourable circumstances with conservative treatment, particularly in the middle-age group, there is a tendency for the disease to assume the productive form, and such cases may survive for many years without ever achieving complete quiescence, but with only moderate disability. In a small proportion complete arrest of the tuberculous disease is obtained, but even so life is usually shortened because of damage to the cardio-respiratory function. In view of the generally poor prognosis in cases of silico-tuberculosis where the disease is in the exudative phase, and the general lack of application of collapse therapy, experiments with streptomycin would be justified. One such case can be quoted.

A steel-dresser was first seen in 1931, at the age of 39, when he had slight silicosis. He continued at his trade and in 1943 was seen again, and an *x*-ray film showed moderate silicosis. In 1946 the position remained unchanged. In November, 1948, at the age of 57, he had a febrile illness, diagnosed as a bronchopneumonia localized to the left lower zone. As his recovery was slow he was referred to the chest clinic, and proved to have a localized exudative tuberculous lesion in the left lower

lobe, with tubercle bacilli in the sputum; there was moderate silicosis of both lungs. He was admitted to a sanatorium and given 1 g. of streptomycin daily for 60 days. Within three weeks the sputum disappeared and a radiograph showed diminution of the mottling in the left lower lobe, suggesting that the exudative reaction had ceased and that the absorptive and productive phase had started. Six months after the beginning of treatment he was able to return home, with the tuberculous process apparently quiescent, general condition excellent, and B.S.R. 6 mm. in the hour.

Turning to pure silicosis, it will be noticed that the survival rates up to the age of 51 years are almost identical with the control rates. Thereafter the silicosis group shows a definite adverse deviation which increases year by year, until by the age of 65 the survival rate is 27% below the control and only 20% above that for the silico-tuberculosis group. These findings indicate that pure silicosis is associated with a definite decrease in expectation of life as compared with males in the community at large. Table III shows that, excluding the 313 deaths due to pulmonary tuberculosis, 209 (70%) of the remaining 297 deaths were due to respiratory conditions. In clinical experience, also, the effects of silicosis and its frequently concomitant emphysema and bronchitis on the cardio-respiratory function begin to become more apparent with each passing year after the age of 50. Shortness of breath on exertion causes some limitation of activities in the majority of silicotics by the age of 55, and in some this reduction of cardio-respiratory function constitutes the salient feature of the clinical picture. How much of this disability is due to emphysema and loss of elasticity of the lungs and how much is due to changes in the pulmonary circulation and the right heart is a matter meriting further study. There is, however, little doubt that the resistance of elderly men with silicosis to respiratory infections is less than could reasonably be expected. When pneumonia occurs in men with silicosis it is serious, and radiological residua are common in survivors. These residual shadows are probably due to persisting lobular or segmental collapse.

TABLE III.—*Cause of Death in 610 Cases*

Cause of Death	Grinders	Fettlers and Steel-dressers	Coal-miners	Other Trades	Totals
Pulmonary tuberculosis	222	31	14	46	313
Silicosis	62	8	3	19	92
Bronchitis	38	5	5	8	56
Pneumonia	12	3	5	7	27
Cancer:					
Lung and mediastinum	19	3	2	8	32
Oesophagus	3				3
Stomach	3				3
Colon			1		1
Rectum	1			1	2
Larynx	1				1
Prostate	1			1	2
Other sites	2			4	6
Cerebral haemorrhage	10		1	1	12
Arteriosclerosis	7			2	9
Chronic nephritis	3			2	5
Coronary disease	4	2		1	7
Heart failure	6			1	7
Hypertension	2				2
Cerebral thrombosis	3				3
Suicide	2				2
Appendicitis	1	1		1	3
Infective endocarditis	1			1	2
Accident and violence	1	2			3
Rupture of heart	1				1
Acute intestinal obstruction	1				1
Diabetic coma	1				1
Occlusion of mitral valve	1				1
Cirrhosis of liver	1				1
Amyotrophic lateral sclerosis	1				1
Gastric ulcer and haematemesis		1			1
Pulmonary embolism	1				1
Prostatectomy	1				1
Infarction of bowel	1				1
Cause unknown	7				7
Totals	420	56	31	103	610

One other cause of death which deserves further reference is cancer of the lung. 32 (11%) of 297 deaths from causes other than tuberculosis were due to cancer of the lung, and there was one death from cancer of the larynx. Of the deaths from cancer of the lung 19 occurred in grinders, which suggests a heavy incidence in this group of workers when account is taken of the toll exacted by tuberculosis before the cancer age period. Although no statistical significance attaches to such small figures, their trend supports findings in a previous investigation into the cancer mortality in certain Sheffield trades (Turner and Grace, 1938). This significantly excessive mortality from cancer of the respiratory tract was found in engineers, foundry workers, and grinders, but in none of the other occupational groups investigated. Kennaway and Kennaway (1936) discuss the question whether there is any association between silicosis and cancer of the lung. They show that metal-grinders have a high rate for cancer of the lung, while stone-masons show only a slightly increased rate, and conclude that the factors which lead to silicosis are not active in producing cancer of the lung or larynx. It may possibly be that the inhalation of metal dust in the grinding process is of more importance in this connexion than the inhalation of silica. Brockbank (1932), in a survey of primary intrathoracic cancer, gave full occupational details for 52 male cases, and 13 of these had worked with iron and steel.

It has been shown that expectation of life is reduced in both silico-tuberculosis and pure silicosis, and it may be helpful to express this reduction quantitatively. If the expected age at death in each group is taken to be the age at which the living members equal those who have died, or, in other words, the age at which the chances of being alive or dead are equal, it will be found that under the conditions of this investigation the expected age at death for silico-tuberculosis is 58, for pure silicosis 63, and for males in the general population 71 years. Thus from age 40 there is a reduction in expectation of life of 13 years for the silico-tuberculosis group and of 8 years for the pure-silicosis group.

Summary

Survival rates at ages over 40 in a series of 814 men with silicosis or silico-tuberculosis have been calculated.

It has been shown that survival rates for males with silico-tuberculosis compare very unfavourably at all ages over 40 with the rates for males with pure silicosis or with the control rates for males in the general population. There is a reduction of 13 years in the expectation of life at age 40 for the group with silico-tuberculosis.

Up to age 51 the survival rates for males with pure silicosis are similar to those of males in the general population. After the age of 51 there is an adverse deviation in survival rates for the group with pure silicosis. This results in a decrease in expectation of life of eight years from age 40, as compared with the expectation of life of males in the general community. It is suggested that this is due to the effects of silicosis on cardio-respiratory function and on the capacity to resist respiratory infections.

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PARAFFIN PNEUMONIA

BY

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It is not uncommon for cases of paraffin (kerosene) poisoning to be admitted to the children's ward of the Salisbury Native Hospital. Since paraffin has many interesting effects, particularly on the respiratory tract, I consider it of general interest to describe the clinical picture that such ingestion might produce. Further recognition of the disorder may easily be overlooked, although doctors practising amongst Africans may be well aware of the consequences of this accident.

The condition is seen particularly among infants living in native compounds, where the paraffin lamp is used for lighting. When the lamp is filled, the remaining paraffin is sometimes not emptied back into the bottle but left in a mug. It is not difficult to appreciate the danger of such a practice, as the crawling infant may easily snatch the container and consume its contents. The child coughs and cries; the mother is alarmed and rushes him to the hospital, where, as a rule, after the stomach is washed out he is admitted for the night.

The infant's condition is usually satisfactory, though there will be some rise in temperature, with the presence of a cough. In most cases the child is not very ill; but certain physical signs, such as an impairment of the air entry and inspiratory crepitations in the affected parts of the lungs, may be evident. Dullness and tubular breath sounds will not be present unless the patch is large. In most cases the lesions are found in one or both regions of the lower lobes of the lungs.

A radiograph taken at this stage of the illness, about 24 to 36 hours after the onset, generally reveals areas of "cotton-wool" opacities of small irregular size. In the more extensive cases, however, the lesions are lobar or lobular in appearance. They may be unilateral or bilateral.

The fever usually lasts a few days, the temperature then gradually returning to normal. At the height of the fever the respiratory rate may be increased as well as the pulse. The temperature generally varies from 100 to 103° F. (37.8–39.4° C.). So far I have not encountered any fatal cases or sequelae; all the patients made an uninterrupted recovery.

The differential diagnosis of paraffin poisoning is that of any acute respiratory affection, such as acute bronchitis or pneumonia. Malaria and acute febrile states may have to be considered also.

Illustrative Cases

Case 1.—A native male infant aged about 1 year was admitted on January 1, 1949, with a history of having drunk some paraffin the previous night. The mother did not know what amount had been taken, but believed it was not much. The child coughed and attempted to vomit. He was a well-covered child. The temperature was 99.7° F. (37.6° C.); the next evening it had risen to 101° F. (38.3° C.), after which it gradually subsided, reaching normal a few days later. On admission the pulse rate was 140 and the respiratory rate 36 a minute, dropping to 130 and 24 respectively after four days. On examination of the chest tubular breathing was audible in the left base, moist crepitations over the same area being heard later. The rest of the physical examination was negative. The white cell count was 13,100, with 60% neutrophils, 33% lymphocytes, and 7% monocytes. No malaria parasites were found in smears prepared from the peripheral circulation. On admission the stomach was washed out, when the smell of paraffin was detected. No special treatment, such as the use of penicillin or sulphonamides, was given. A radiograph taken on January 26 showed a large area of homogeneous consolidation at the left base, with a more extensive zone of mottled densities in the corresponding area of the right lung.

Case 2.—A native female infant aged about 1 year was admitted on April 25, 1948, with a history of having consumed 2 oz. (57 ml.) of paraffin that day. On admission the temperature was 102° F. (38.9° C.) and the child was slightly dyspnoeic. The temperature varied from 100–102° F. (37.8–38.9° C.) for the next three days, after which it gradually subsided to normal. Physical examination revealed inspiratory crepitations, mostly at the right base but with a few on the left. The mouth and throat were normal, the abdomen was slightly protuberant, and no enlargement of the spleen or liver was detected. The heart was normal, and no abnormal changes were noted in the nervous system. The urine was clear of albumin and sugar. Peripheral blood smears were negative. A radiograph of the chest taken on April 27 showed a soft area of consolidation in the lower zone of the left lung. On April 29 the child was discharged as fully recovered.

Case 3.—A native male infant aged about 15 months was admitted on December 6, 1948, with a history of having accidentally swallowed 2 oz. (57 ml.) of paraffin, after which he had vomited three times. On admission he was coughing, and paraffin could be smelt in the breath. The temperature was 103° F. (39.4° C.). He was given a gastric lavage. Examination of the chest revealed crepitations at the left base with bronchial breathing. Nothing else of note was found in the lungs. The mouth, throat, heart, abdomen, and central nervous system all appeared normal. No malaria parasites were found in smears taken of the peripheral blood. The total white cell count was 15,600 (43% neutrophils, 49% lymphocytes, 5% monocytes, and 3% eosinophils). The patient made a rapid recovery, the temperature returning to normal within three days.

Case 4.—A native female infant aged about 1 year was admitted on February 16, 1949, with a history of having swallowed paraffin a few hours previously. According to her mother, the amount consumed was about 1 oz. (28 ml.). On admission her temperature was 104° F. (40° C.), pulse 130, and respirations 30. She coughed, but no physical signs were observed in the lungs. A gastric lavage was given soon after admission. A radiograph taken the following day revealed a patchy consolidation in the lower zone of the left lung. The child was given 20,000 units of penicillin three-hourly by intravenous injection and 0.25 g. of sulphadiazine four-hourly by mouth. The temperature subsided rapidly, and two days after admission she had fully recovered and was discharged.

Case 5.—A native female infant aged about 15 months was admitted from the Location Dispensary by Dr. L. Stern, having swallowed paraffin on the afternoon of the previous day. She became very restless and later feverish. The next morning she vomited and developed a cough and some diarrhoea. Later, on admission (February 11, 1949), the temperature was 102° F. (38.9° C.) and she was coughing. The mouth and throat were healthy and the abdomen normal. The urine was free of sugar and albumin. The central nervous system was normal. The lungs did not reveal any gross changes on physical examination, but a radiograph showed a well-marked lobar consolidation of the upper zone of the right lung. The stomach was not washed out. The fever gradually subsided to normal after about six days and the patient was discharged.

Discussion

The literature, especially from America, contains a number of references to paraffin poisoning and pneumonia. Barbour (1926) reported four cases, one of which was fatal. Another fatal case was recorded by Higgins (1933), who suggests that the serious sequelae following the ingestion of paraffin are due to pulmonary involvement from aspiration of the liquid into the lungs. Waring (1933) emphasized the frequency of this type of poisoning. Some of his experiments on dogs tended to show that the pulmonary

involvement was due to aspiration of the paraffin direct or by regurgitation from the stomach into the lungs. Clinically, 9 (39%) out of 23 patients developed pulmonary changes varying from mild bronchitis to a fatal pneumonia.

Nunn and Martin (1934) recorded their findings in a series of 65 cases. These showed that 43% of the cases had aspirated some of the paraffin into the lungs. There was a mortality of 9%, all the fatal cases showing evidence of a pneumonitis. Fatalities occurred within the first 18 hours after ingestion. These authors therefore concluded that the prognosis was directly proportional to the amount of hydrocarbon entering the lungs. Their conclusion that all fatalities occurred within 18 hours after the ingestion of paraffin was corroborated by Farabaugh (1936) when he reviewed the various reports on cases of paraffin poisoning found in medical literature.

From experimental work on rabbits, Lesser, Weens, and McKey (1943) concluded that the pulmonary manifestations in these animals were due to aspiration of paraffin into the lungs rather than to its absorption from the gastro-intestinal tract. No changes were noted in the lungs of rabbits given varying amounts of paraffin by stomach tube. However, when the paraffin was administered by means of a tracheal catheter, pulmonary oedema and, later, confluent pneumonia were seen. Of a series of 22 cases of paraffin poisoning studied radiographically, 17 (77%) showed pulmonary changes.

Similar experiments on the action of paraffin on the lungs were reported by Deichmann *et al.* (1944). After administering it to rabbits by mouth or intraperitoneally they concluded that the vascular damage through absorption in the blood stream accounted for changes in the bronchi, and that the pathological lung changes were of the same character whether the paraffin was given by stomach tube or by intraperitoneal injection. In view of lung manifestations due to paraffin carried via the blood stream as well as from direct contact resulting from aspiration, these investigators stressed the necessity for early and efficient removal of all traces of the oil from the gastro-intestinal tract in the emergency treatment. They also showed that the percentage of deaths from the same dose of paraffin varied from *nil* with highly purified paraffin to as much as 60 with less-purified products.

About the same time Scott (1944) reported what he considered to be the first case in the literature of pneumonia, pneumothorax, and subcutaneous emphysema complicating paraffin poisoning. A similar case was recorded by Lavenstein in 1945.

Steiner (1947) paid particular attention to the clinical picture. He claims that there is an acute intoxication with evidence of cerebral depression, particularly of the vagus and respiratory centres. In most cases recovery takes place in a few days. Many who ingest paraffin develop changes in the lungs, detectable clinically or radiographically. These changes vary from slight infiltration " to more serious complications." Steiner classifies the cases into three groups on the basis of severity and complications: (1) acute toxicity and depression of the central nervous system, with minimal pulmonary changes followed by rapid recovery; (2) severe pneumonia and hyperpyrexia, with prolonged recovery; (3) severe pneumonia, with evidence of degenerative changes in the myocardium, liver, kidneys, and gastro-intestinal tract.

According to Steiner, the central nervous system of infants is sensitive to paraffin. Absorption from the stomach is rapid and likely to produce symptoms within an hour after an accident. These include a rapid and feeble pulse, shallow respirations, cyanosis, and drowsiness, with occasional muscular twitchings. Most infants soon recover from these effects. The lungs, however, are often involved (Group 1). In Group 2 stupor or coma with high fever and more marked changes in the lungs (confluent pneumonia) are seen. In Group 3 the degenerative effects of absorbed paraffin on the liver, spleen, kidneys, and myocardium are superimposed on the toxicity and pneumonia. He describes a case with auricular fibrillation and flutter.

Steiner discusses the two reasons given for the production of the various syndromes—absorption via the blood stream and/or aspiration direct into the bronchi. Clinically, it appears that absorption of paraffin from the stomach has enough pathological potentiality to warrant its prompt removal by gastric lavage. Yet, while such removal has been advocated in the emergency treatment, the development of gastric hyperaemia and occasional multiple erosions of the gastric mucosa necessitate the exercise of caution during this procedure. In evaluating the outlook Steiner stresses the following: (1) age—infants are more susceptible than adults; (2) amount ingested; (3) the extent of vomiting and aspiration; and (4) the nature and rapidity of the emergency treatment.

Clinically, it is clearly difficult to state whether the pneumonic changes are due to aspiration of the liquid into the lungs in the first instance or to absorption of the paraffin from the stomach and its eventual settlement in the lungs. In most cases the radiograph reveals basal changes, thus favouring ingestion. It will be noted that in Case 5 of the present series the upper lobe of the right lung only was involved. This might be considered to favour gastric absorption rather than aspiration direct into the lungs.

Steiner claims that the central nervous system of the infant is particularly sensitive to paraffin, but in no case that I have yet seen has there been any undue central nervous depression.

Summary

Cases of paraffin pneumonia in Southern Rhodesia are reported and the clinical features described.

The prognosis, as a rule, is good, although fatal cases are on record in the literature.

In view of the complications of paraffin poisoni[illegible]14 [illegible]ng it is advisable to admit all cases to the ward for observat[illegible]ted ion.

My thanks are due to Dr. R. M. Morris, Secret[illegible]es v[illegible] ag[illegible]ary for Health, Southern Rhodesia, for his permission to publish this [illegible]ith [illegible] paper.

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A new Health Sciences Building at the University of Washington was formally opened on October 9. It houses the university's schools of medicine, dentistry, and nursing. A college of pharmacy will be built later. The main auditorium, seating 600 people, is wired for television, and when the equipment is complete operations being performed in other parts of the building will be televised. Dr. Edward L. Turner is dean of the medical division.

SUCCESSFUL TREATMENT OF TWO CASES OF GANGRENOUS INTUSSUSCEPTION IN CHILDHOOD

BY

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AND

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Early surgical correction of an acute intestinal intussusception in childhood usually results in a satisfactory recovery, but when gangrene of the constricted bowel has occurred the mortality rate is very high. Only three recoveries were reported by Ladd and Gross (1941) in 18 cases in which a primary anastomosis was carried out to deal with this complication. A Mikulicz double enterostomy operation produced only seven recoveries in 25 cases. Similar experiences have been recorded by Nyborg (1943) and by Wakeley and Atkinson (1938).

The onset of an intussusception in childhood is usually marked by sharp bouts of severe abdominal colic, though sometimes this symptom may be difficult to recognize or quite indefinite. Vomiting on one or more occasions occurs in the first 24 hours. Anorexia is often pronounced, and some pyrexia is present in the majority of cases. The motions are often looser than usual, but in about 50% no blood is passed in the first 24 hours. Though the "red-currant jelly" stool is characteristic, only streaks of blood may be passed or the motions may merely appear dark from altered blood, and the condition should not be overlooked in such cases. The shocked state of the child between paroxysms of colic is also an important point, and it is easier to palpate the abdomen at this time. If an abdominal mass is present it is prominent during peristalsis, though tightening of the abdominal wall and screaming may interfere with examination. Rarely, constriction at the neck of the intussusception is not severe enough to interfere with the vascular supply of the invaginated gut or to cause much intestinal obstruction. In such a case the history is of recurrent bouts of peri-umbilical pain for days or weeks without vomiting or the passage of blood per rectum. In the following two cases absence of a typical clinical picture resulted in a serious delay in diagnosis and admission to hospital.

Case 1

A boy of 22 months was admitted because of vomiting, restlessness, and anorexia since a brief attack of diarrhoea five days before. One convulsion occurred the day before admission. He had been treated for gastro-enteritis with sulphaguanidine, as his mother had suffered from a bout of diarrhoea at the same time. There was now no abdominal colic and the stools were normal. On examination he was listless, hypotonic, and dehydrated, but the skin colour was good. He was distended and resented abdominal palpation, but no localized tenderness or mass was detected. The urine was normal and contained chlorides. Other systems were normal. His temperature was *98.4° F. (36.9° C.), pulse 140, and respirations 40.* He was given an intravenous infusion of half-strength Hartmann's solution with 5% glucose. Twelve hours later he passed a tarry motion for the first time, and the distended abdomen then showed peristaltic waves. A barium enema confirmed the presence of an intussusception in the right half of the transverse colon.

Operation under general anaesthesia was performed by Mr. Gardham. On opening the abdomen by a right paramedian incision greatly distended intestine escaped from the wound. Complete reduction of the intussusception was not possible, and there remained a length of about 2 in. (5 cm.) of ileum situated some 6 in. (15 cm.) from the ileo-caecal valve in which there was an irreducible intussusception. Owing to the peritoneum splitting over a distended ileum, and in order to return the small intestine to the abdomen, a catheter was inserted into the ileum and the contents aspirated. The gangrenous intussusception was resected and a double-barrelled ileostomy was formed at the lower end of the incision.

During the operation and for 48 hours afterwards gastric suction was applied. For the first 12 hours it was used continuously, and then during alternate hours. For the first six post-operative days the child had half-strength Hartmann's solution with 5% glucose intravenously, each pint alternating with a pint of half-strength plasma. A watch was kept on the plasma chlorides, and when these were reduced normal saline was infused until the level was corrected. Before oral feeding was started the daily intravenous fluid intake was 3 oz. per lb. (180 ml. per kg.) body weight; later, as the quantities of food by mouth increased, the intravenous infusion was decreased. Twenty-four hours after operation he was given hourly 1-oz. (28-ml.) feeds of water during the day, and after 48 hours small feeds of 1½ oz. (42 ml.) of half-strength reconstituted dried milk three-hourly for six feeds in the day. By the sixth post-operative day he was taking 4-oz. (114-ml.) feeds thickened with a proprietary food five times in the day. He had a pyrexia of 101° F. (38.3° C.) for the first 10 days; penicillin, 50,000 units, was therefore given eight-hourly and a course of sulphadimidine for one week.

Four days after operation the abdomen was still distended. *The ileostomy did not work well at first, becoming blocked intermittently.* The abdominal wall round the ileostomy became very excoriated and was treated by splinting the child's arms to prevent him from scratching, exposing it to the sun, and applying polyvinyl alcohol jelly buffered to *p*H7. The jelly was warmed to make it more fluid, and was applied to the skin every two or three hours during the day and night; on cooling, it set as a thin impervious layer protecting the underlying skin.

A month after the original operation the ileostomy was separated from the parietes, the distal loop of ileum closed with catgut, *and the proximal loop joined to the caecum by* an end-to-side anastomosis. An intravenous infusion of half-strength Hartmann's solution with 5% glucose was again alternated with plasma intravenously for three days; from this time the child's recovery was uneventful, and he was discharged from hospital seven weeks after admission.

Case 2

A boy of 9 months was admitted because of drowsiness and vomiting of all feeds for 24 hours. He had developed a slight cough three days before, which was improving. He had anorexia, though usually his appetite was good. The last normal stool was passed just before the onset of the vomiting. At no time was there obvious colic and he did not scream *or draw up his legs.*

The child looked ill, shocked, and pale, but was well nourished and big for his age. There was no dehydration. The pulse rate was 180 a minute and the temperature 102° F. (38.9° C.). The abdomen was soft and easily palpated without tenderness or guarding. A small ill-defined swelling was present in the left hypochondrium, extending in the line of the proximal descending colon for 2 to 3 in. (5 to 7.5 cm.). Visible peristalsis was not found, and there was no abnormality on rectal examination. Other systems were normal. Fresh *blood and mucus were passed per rectum for the first time* an hour after admission. Intussusception was diagnosed, and an intravenous drip of half-strength normal saline and 5% glucose was set up preparatory to surgical treatment.

At operation under general anaesthesia Mr. Gardham found a little free fluid in the abdomen; the intestines were not distended. The head of the intussusception was felt in the splenic region. Reduction of the mass could be effected as far as the middle of the ascending colon. Beyond this point the

bowel was gangrenous, and resection of the proximal 3 in. (7.5 cm.) of ascending colon and caecum, the appendix, and the distal 2 in. (5 cm.) of the ileum was carried out. Thrombosed veins were present in part of the mesentery removed. The ileum and remaining parts of the ascending colon were double-barrelled; they were brought out through the lower end of the incision and clamped with Pringle's clamps, these being left attached and removed after 12 hours.

The post-operative condition of this child was fair. He was put on prophylactic penicillin, 30,000 units four-hourly, and sulphadimidine, 0.5 g. four-hourly. The ileostomy began to function on the third post-operative day. Intermittent gastric suction was continued for three days, and the intravenous infusion was kept up with half-strength Hartmann's solution containing 5% glucose alternated with half-strength plasma. Normal saline was substituted whenever the plasma chlorides were reduced. After 48 hours he started ½-oz. (14-ml.) feeds of expressed breast milk three-hourly, as he had previously been in process of being weaned. The size of oral feeds was rapidly increased, so that by the fourth post-operative day he was taking eight 1½-oz. (42-ml.) feeds daily.

On the fifth post-operative day the temperature rose and the ileostomy ceased to function, vomiting recurred, and gastric suction was restarted. Next day abdominal distension was apparent, the child looked ill, and an *x*-ray film of the abdomen showed multiple fluid levels in the small intestine. A high intestinal obstruction was diagnosed.

Operation under local 2% procaine was performed by Mr. Gardham, using the right-oblique-muscle-cut approach. Distended and congested bowel was found in the region of the duodeno-jejunal junction, caused by a band which had kinked the bowel and had obstructed it without interfering with the blood supply. The distended loop was aspirated with a catheter, and a purse-string suture closed the hole. Intermittent gastric suction was continued for 48 hours after the second operation; then the child was given small feeds of breast milk, with gastric suction for an hour before each feed for the next four days. Twelve days after the first operation the intravenous drip was taken down, and on the 13th day a large haematoma was evacuated from the muscle-splitting incision. The sutures were removed and the wound allowed to granulate from the bottom. The wound area was exposed to the sun, and polyvinyl alcohol buffered gel was used to prevent the intestinal juice from digesting the skin. We found on this occasion that the buffered jelly did not completely prevent excoriation, so resort was had to a thick coating of aluminium paste about the ileostomy.

By the 22nd post-operative day the child had gained 1¼ lb. (0.68 kg.) in weight, but during the next 10 days 2½ lb. (1.13 kg.) was lost. The administration of 200 ml. of plasma by tube into the stomach showed satisfactory absorption. As there was no great amino-acid loss in the ileostomy faeces it was concluded that neither intestinal hurry nor lack of absorption of food was primarily responsible, but possibly there was a vitamin deficiency due to failure of synthesis in the isolated colon. When given aneurin, riboflavin, and nicotinamide in adult doses he began to put on weight again and his diet was supplemented by 20 g. of casein added to dried-milk feeds three times a day. On the 32nd day after operation an enterotome was applied; this was followed 18 days later by the passage of the first normal motion. After seven days an extraperitoneal closure of the ileocolostomy was carried out and the wound left open. The child now began to gain weight more rapidly, and he was discharged home on the 75th post-operative day.

Comment

Recent writers have expressed the need for both pre-operative and post-operative intravenous replacement therapy and gastric aspiration (Nyborg, 1943; Hindmarsh, Stewart, and Morrison, 1945; Morrison and Court, 1948). The type of fluid administered depends upon the state of shock and dehydration of the infant and upon the plasma chlorides. In the two cases reported plasma was given for shock and the nutritional state.

When the plasma chlorides were low, normal saline with 5% glucose was given until the chloride estimations were again satisfactory. If dehydration persisted, with normal plasma chlorides, half-strength Hartmann's solution with 5% glucose was given. An anaemia of 50% haemoglobin in one child was treated with whole-blood transfusion. Oral feeding was started 24 hours after operation, with 1 oz. (28 ml.) of water hourly, gradually increasing to 5 oz. (142 ml.) or more of breast milk or dried-milk feeds. Gastric aspiration with the Wangensteen apparatus was continued intermittently for 10 days.

Nyborg has recently recommended neostigmine to combat paralytic ileus, but we consider its use is not free from danger, and prefer nepenthe, intravenous fluid replacement, and gastric suction. Penicillin and sulphonamides should be given in prophylactic courses.

Of the recommended operative procedures, the Mikulicz double enterostomy operation seems to us to be safer than excision and primary suture, or oversewing and hoping the gangrenous part of the bowel will be passed spontaneously per rectum. The primary suture involves anastomosing an acute obstructed gut to a normal gut, while the latter does not relieve the obstruction at all. Oversewing, with a proximal ileostomy of the Witzel type, has been recommended, but in this type of operation the gangrenous infected segment is still left inside the abdomen.

The disadvantages of the Mikulicz procedure have been quoted as being wasting, excoriation of the abdominal wall, and further operative procedures for closure. The first disadvantage can be combated by giving vitamins and extra proteins, the second by polyvinyl alcohol gel or aluminium paste, and it has been noted how soon a well-formed stool comes from the ileostomy. Closure of the ileostomy starts with crushing the spur, with an enterotomy 10 days after the first operation, followed later by an extraperitoneal or intraperitoneal closure.

We believed that the surgical, biochemical, and feeding problems presented by cases such as the two described stand more chance of a successful solution when the surgeon and the paediatrician combine forces in the treatment of the child.

Summary

Two cases of gangrenous intussusception in childhood are described. Both were operated on and a Mikulicz procedure performed. With intravenous infusion and careful feeding both patients recovered.

We wish to thank Dr. B. E. Schlesinger and Mr. A. J. Gardham for their help and kind permission to publish this article.

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A cartoon film entitled "Local Government—a History in Pictures," sponsored by the Ministry of Health and produced by the Central Office of Information, traces the origin and historical development of one local authority—Norwich. Copies are available free of charge to borrowers with their own sound projector, and may be obtained from the Central Film Library, Imperial Institute, London, S.W.7. It can also be shown free by mobile units of the C.O.I. to special audiences. *Application for this service should be made to the appropriate regional film officer, whose address can be obtained from the* C.O.I., Norgeby House, 83, Baker Street, London, W.1.

Medical Memorandum

Subacute Bacterial Endocarditis Due to Salmonella typhi-murium

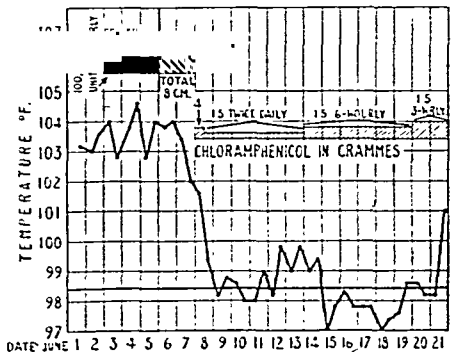
In view of the rarity of subacute bacterial endocarditis due to *Salmonella typhi-murium*, the following case may be considered worthy of publication.

Case Report

A single girl, aged 19, a bottler in a mineral-water factory, was admitted to hospital on June 1. There was no previous history of illness of any kind apart from some fits in infancy. The present illness had started seven weeks before with general weakness, occasional rigors, and epistaxis, and during the week preceding admission there had been unproductive cough and bouts of diarrhoea.

On examination there were marked pallor, furred tongue, sordes on the teeth, prostration, and mental depression; temperature 103° F. (39.4° C.), pulse 112, respirations 40; throat clear; pupils and fundi normal; no neck rigidity or Kernig's sign; abdominal reflexes absent, but all deep reflexes present. A few scattered rhonchi were heard in the lungs. Examination showed no enlargement of the heart clinically, but there was a marked gallop rhythm and a blowing apical systolic murmur not conducted into the axilla and not accompanied by a thrill. The abdomen was slightly distended and tumid on palpation, but the liver and spleen were not felt. B.P. 120/80. A chest radiograph on admission was clear. Her white cells numbered 13,800 (80% polymorphs) and red cells 4,510,000 per c.mm.; Hb 81%. Blood was sent for culture and agglutination, and specimens of stool and urine for culture.

Her condition remained serious and her temperature continued without intermission as in the accompanying Chart: penicillin, 100,000 units three-hourly, was started on June 3 and



increased next day to 150,000 units three-hourly without any effect. On June 3 it was reported that there were no agglutinations to *Salm. typhi* O, *Salm. typhi* H, *Salm. paratyphi B* O, *Salm. paratyphi B* H, non-specific *Salmonella* H, or *Brucella abortus*, but on June 6 *Salm. typhi-murium* had been cultured from the Widal clot. In the meantime petechiae had appeared on the upper arms and at the root of the neck, and her general condition had deteriorated still further. The diagnosis was now apparently septicaemia due to *Salm. typhi-murium* (? subacute bacterial endocarditis), and it was decided to try to obtain a supply of chloramphenicol ("chloromycetin") from Parke, Davis and Co. in view of the results obtained in other *Salmonella* infections. Pending the arrival of the drug (over the Whitsun holidays), and in view of the patient's desperate condition, streptomycin was given six-hourly in 1-g. doses. The chloramphenicol arrived after a total of 8 g. of streptomycin had been given, and by then the patient's general condition was decidedly better, with fewer fresh petechiae and improvement in the gallop rhythm, but no marked fall in temperature. Sensitivity of the organism was demonstrated to chloramphenicol and to a greater degree to streptomycin.

Chloramphenicol 4 g. (16 capsules of 0.25 g.) was given at 10 a.m. on June 8 and was continued in 1.5-g. doses twice daily; by 10 p.m. her temperature was normal. The next day the improvement in her toxaemia was quite marked, but she developed sudden pain and swelling in the right knee with severe limitation of movement. Fundus examination showed severe toxic changes in the right macular region, and a small subhyaloid haemorrhage in the left macular region. Her diarrhoea rapidly improved and was replaced by complete constipation; but fresh petechiae continued to appear, and in view of a slight rise in temperature on June 12 and 13 it was decided to double the dose of chloramphenicol by giving 1.5 g. six-hourly. From then on her temperature did not rise above normal until she died. She continued to be extremely irritable and prostrated, however, and fresh petechiae appeared, though fewer in number; the blood pressure fell progressively to 66/50; the apical systolic murmur changed suddenly to a high-pitched musical murmur, and in spite of increasing the dosage again to 1.5 g. three-hourly she developed acute pulmonary oedema and died on June 22. At no time were specific agglutinins demonstrated against this strain of *Salm. typhi-murium*, and all specimens of stools and urine were negative on culture for that organism throughout.

Post-mortem examination showed no abnormality in the nervous system or in the abdomen, and in particular there were no lesions in the intestines, but two small white infarcts were found in the spleen. The lungs were very oedematous and there were a few small subpleural infarcts. The heart was normal in size but extremely flabby, and the myocardium was very toxic in appearance and necrotic in parts. There were two vegetations on the mitral valve, one small and one moderate in size, and apparently still active but sterile on culture. Microscopy of the vegetations showed only polymorphs present in the fibrin, and no bacteria were seen.

Comment

Systemic invasion with *Salm. typhi-murium* appears to be comparatively rare. Seligmann and Hertz (1944) report a case of cholecystitis and two cases of salpingitis; Angrist and Mollov (1946) quote Seligmann's post-mortem findings of infected dissecting aneurysm of the aorta and a case of mitral endocarditis. In general, mortality appears very high when *Salmonella* infections become invasive, and the chief help from chemotherapy is likely to be the prevention of systemic invasion by early control of the primary infection. In the present case of established endocarditis the continuing occurrence of petechiae in spite of a normal temperature, and the sudden change in quality of the cardiac murmur at the end of 12 days' intensive treatment, suggest that a much higher maintenance dosage is required at the onset of treatment than is employed in typhoid (i.e., 1.5 g. of chloramphenicol three-hourly instead of twelve-hourly), and this would possibly have to be continued for at least 28 days, on the analogy of penicillin therapy for subacute bacterial endocarditis. Fortunately the drug appears to be completely non-toxic even in such large doses.

I would like to express my thanks to Dr. W. Kwantes, of the Public Health Laboratory, Carmarthen, for his assistance with the bacteriology of this case; to Dr. A. F. S. Sladden, Director of the Beck Laboratory, Swansea General Hospital, for the pathological examinations; to Dr. Stanley White, chief medical officer to Parke, Davis and Co., for his invaluable assistance in obtaining supplies of chloramphenicol; and to Dr. Joan Taylor, of the Salmonella Reference Laboratory, for her reports on the organism.

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Physician, Llanelly General Hospital.

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Reviews

THE PASTORAL SIDE OF MEDICINE

Rational Medicine. By John W. Todd, M.D., M.R.C.P. (Pp. 378. £1 5s.) Bristol: John Wright and Sons. 1949.

Books entitled "Rational Medicine" so often proceed to deal in irrational medicine that one is relieved to find this sensible account of some aspects of diagnosis and treatment. It begins with a critique of the value and meaning of signs and symptoms, discusses later the effects of treatment by special regimens, diet, and drugs, and describes at some length the unfortunate section of the population, referred to by William James as the tender and by the laity as the highly strung, which provides the raw material for prophets of auto-intoxication, focal sepsis, sympathetic imbalance, sexual repression, or whatever may be the current explanation of sub-average health and vitality. Dr. Todd's sceptical views on rest, constipation, psycho-analysis, and the like are in touch with current thinking, and students who read this book will be better equipped to minister to sick people than might otherwise have been the case.

"Minister" is the key word, for Dr. Todd has written a book about what has been called the pastoral side of medicine. My experience is that students find formal instruction in these matters tedious, and they are more likely to acquire the necessary skill and attitude from the example of teachers who practise than from those who preach or write. Just as dynamic psychology can only be learned by the experience of analysis and similar procedures, so the vague concept of ideas which goes by the name of psychosomatic medicine cannot be learned by the student from books, but only by the experience of working with living people under the supervision of sympathetic teachers. But if they should want a text, they will find Todd more useful than Flanders Dunbar and her school, though less profound than Clark-Kennedy.

L. J. WITTS.

AN UNORTHODOX DOCTOR

Doctor Himself. An Unorthodox Biography of Harry Roberts, M.D. By Winifred Stamp. Introduction by V. S. Pritchett and sidelights by Sidney Dark, H. M. Tomlinson, Gerald Bullett, and Lord Horder. (Pp. 165. 10s. 6d.) London: Hamish Hamilton. 1949.

It is a long time since I read a book which kept me as interested, and indeed as excited, as this. I imagine that the author enjoyed writing it as much as I did reading it. In it a very unusual kind of man has found a biographer as unconventional as himself.

by Dr. Roberts was one of three sons of a father who deter-
On the d on an income of £300 a year to make all of them
this was Harry showed his self-confidence at the age of
normal m he "wrote a book" on gardening, one of the
of the ile sions of his life, which purported to be "written
The child e of schoolmasters and others." Not particularly
discharged a scholar, he did once get a prize for an essay
t," which, the author slyly remarks, "seems to
ed him on this subject for the rest of his life."

Recent w ssible in this review to record the incredible
operative a channels into which Roberts directed his
therapy and left his medical studies at St. Mary's unfinished
Stewart, and ience master at Leek, in Staffordshire, where,
The type of fluid e made the place too hot for him by his
shock and dehydratio He defied every social convention
chlorides. In the two cases
shock and the nutritional state.

It was during this phase that he formed friendships with many of the leading socialists of the time. Some of his local friends, loath to lose him, offered to set him up in a public house. Probably Roberts would have agreed, but his wife jibbed. After a short and inglorious career on the stage he went back to St. Mary's, eking out the scanty allowance from his father by "cramming" for a correspondence college, where he became friendly with H. G. Wells. After qualifying and doing a few locums he went into general practice in Cornwall, where he did much miscellaneous authorship, always on country subjects, for he was above everything a countryman. The literary contacts he made here eventually brought him to London, where he combined journalism with general practice as a side line. There was a curious episode at this time when (though Sidney Dark, a lifelong friend, remarks that Roberts was a "born heretic") he toyed with the notion of becoming a priest in the Established Church. He went so far as to make contact with Bishop Winnington Ingram, who was prepared to accept him. But both the Bishop and Roberts realized in time that the Church was no place for a "born heretic." There followed some years of journalism, and it was not until 1904 that he found his real place in medical practice.

The story of how and why he went to Stepney is fantastic and is told with great humour and understanding. He built up there, in the most unpromising conditions, what became the largest panel practice in the country—and not only the largest but the most unconventional. In it were employed four partners, a dentist, a masseur, and two nurse-midwives. Roberts personally attended over 500 confinements in his first year. This would have more than satisfied most men, but Roberts had many other irons in the fire. For many years he wrote a "medical column" which was syndicated by a group of newspapers. He even started a weekly paper *Topics,* which had a disastrous career of three weeks.

Making money did not interest Roberts, except as a means of financing his schemes for practical social reform. He quickly became the best-known public man in the East End, largely through his work on the Stepney Board of Guardians. He was pressed to become the Labour candidate for the Division. His prospects of election seemed very promising, but, though he always regarded himself as a socialist, the book shows that he was at heart a thorough individualist and no good party man. After many quarrels with the local party he resigned his candidature, refusing to be bound by any party pledges. At one time he had written a book on *Constructive Conservatism* which brought him into contact with many of the younger Tories.

No picture of the man would be fair to him if it did not mention the way in which he discovered the small estate near Petersfield out of which he created a home and a garden. Here, in the intervals between his strenuous work in Stepney, he undoubtedly spent the happiest days of his life. It was no "week-end cottage." He and his faithful secretary, the author of this book, worked incredibly hard to make it not only a notable garden but a guest house (populated largely by "cranks"), and at one time a sanatorium for tuberculous children. The author rightly describes the inmates as "happy-go-lucky." Many notable people visited the place, where they found a congenial host. Roberts was inevitably drawn into the social and cultural life of Petersfield.

The fascination of this man is brought out in tributes by V. S. Pritchett, Sidney Dark, H. M. Tomlinson, Gerald Bullett, and Lord Horder. The last named knew Roberts personally only during the last five years of his life, but

the impression made by him is well brought out in the closing sentences of his tribute : " Havelock Ellis has said that the art of life is really the art of loving, but that we only master this art too late. It is with gratitude to Fate and with humility that I can say that in the case of Harry Roberts and myself we were just in time."

With confidence I strongly recommend this book to anyone who likes to read about a vivid personality made known by a writer who is obviously the one person who could do it.

ALFRED COX.

MALNUTRITION IN GERMANY

Das Hungerödem und andere alimentäre Mangelerkrankungen. By Professor Hans W. Bansi. (Pp. 211. No price.) Stuttgart: Ferdinand Enke. 1949.

Professor Bansi is the senior physician of the first medical division of St. George's Hospital, Hamburg, and has based his book on hunger oedema on his experiences of malnutrition during the British occupation between 1945 and 1948. The approach is mainly clinical, though there is a considerable amount of chemical and clinical pathology in the book. The author discusses the history of the condition and describes the effect of hunger oedema on the various organs of the body, on the haemopoietic system, and on the blood chemistry. There follows an account of the cause of the disease and its pathology, pathogenesis, differential diagnosis, prognosis, and treatment. The author also discusses what he calls *Mangelfettsucht* or paradoxical *Fettsucht*, an excessive fatness seen in some young women and repatriated prisoners of war which he considers was due to an endocrine dysfunction.

There is an index, though not a very detailed one, a bibliography of some five hundred references, and twelve photographs of patients suffering from hunger oedema. The book is illustrated with numerous tables and diagrams, including an interesting representation of the energy liberated by the combustion of a pound of fat in the body. This apparently provides enough energy to play 77 hours of light music but only 30 hours of Beethoven. Considering that the author's observations were made during the difficult post-war years in Germany, the number of laboratory investigations performed was remarkable. These include studies on nitrogen and calcium balance, water and creatin excretion, glucose-tolerance tests, and complete haematological investigations. Although it is difficult to contribute anything really new on the subject of malnutrition to-day, Professor Bansi has tackled the subject with Teutonic thoroughness.

F. PRESCOTT.

THE SURGEON AND THE SPASTIC CASE

Cirugia de las parálisis espásticas. By F. Bastos Mora. Preface by M. Bastos Ansart. (Pp. 151; 52 illustrations and 22 drawings. 65 cents.) Barcelona: José Janés, Publicaciones Médicas.

This account of the surgery of spastic paralysis is a successful effort to synthesize in manual form a clinical entity and a surgical problem which has taken many of us, and undoubtedly will take many others, long and painful hours to study. It is a small monograph by a collaborator of M. Bastos Ansart, on whose experience the text is mainly based.

In spite of its reduced number of pages this work includes the major features of interest in the subject, and emphasis is correctly placed on the physio-pathological factors involved. The works of Förster, Pollok, Fulton, Stoffel, and Barré are those which the author mainly follows in his study of the two principal factors contributing to the clinical picture of these patients—paresis and spasticity. The description of the part played by the sympathetic nervous system in muscular tonus is mainly based on the results of histological findings to which the Spanish school has greatly contributed, particularly Castro, Cajal, Del Rio, and Tello. A good account is given of the major signs and symptoms which form the clinical picture of the spastic case, and comment is made on the intellectual and language changes so frequently associated with this central disturbance.

The first part of the book ends with separate descriptions of the main characteristics of paralysis in the upper and lower extremities. The second part discusses the values of a number of surgical techniques which have been employed in the treatment of the condition. It is this section that is most fully based on the author's own experience. He mentions the part which may be played by efferent neurectomy (Stöffel) before excessive shortening has taken place in muscular contractures localized to one muscular group only, but he is rightly moderate in his enthusiasm for this method. Tenotomy, tendon elongation, muscular transplant, and muscular reinsertion are in general well valued, and the book ends by mentioning the most important features of surgical treatment applied to different parts of the limbs. Illustrations emphasize a number of the author's points, and a well-selected, if reduced, bibliography completes the work.

J. TRUETA.

HANDBOOK OF TROPICAL MEDICINE

An Epitome of the Laboratory Diagnosis and Treatment of Tropical Diseases. By Horace M. Shelley, M.R.C.P., D.T.M.&H. Second edition. (Pp. 147. 10s. 6d.) London: Staples Press.

There are several good textbooks on tropical medicine and more than one good synopsis, but the author of this useful brief work has confined himself to two important aspects of the subject—laboratory diagnosis and treatment. The book will not be particularly helpful to the student of tropical medicine for examination purposes, but it will be useful for quick reference by the general physician in this country, who is being made increasingly conscious of tropical infections by the many examples that he is encountering in ex-Servicemen in his practice.

The only general criticism is that the author has some weakness for sitting on fences; he too frequently uses such expressions as " may be examined " and " should be tried."

The treatment of malaria is not satisfactory : the author never faces the real problem of this disease, which is the treatment of the benign tertian infection to prevent relapses. That the complete answer has not yet been found is no excuse. The position of pamaquine in the treatment of malaria is nowhere clearly defined. Methylene blue is described as a remedy for malaria without any qualifications, and chloroquine and pentaquine are not mentioned in this chapter. The section on kala-azar is fairly satisfactory, though it is stated that solidification is the indication of a positive serum formalin reaction: the criterion is opacity, not solidification. There is no reference to the troublesome neuropathy that may follow treatment by stilbamidine, though this drug is recommended. These are not serious defects, however, and to some extent are the result of compression, with which the author has on the whole been very successful. The format is excellent and the price reasonable, but the book is not entirely free from misprints.

L. EVERARD NAPIER.

CARE OF THE TUBERCULOUS PATIENT

Tuberculosis Nursing. By Jessie G. Eyre, S.R.N. (Pp. 304; 102 illustrations. £1 1s.) London: H. K. Lewis and Co. 1949.

The author of any book on the nursing of a condition such as tuberculosis has always a difficult task in deciding how much to include and how much to leave out. Tuberculosis covers a very wide field, and a successful tuberculosis nurse must have knowledge of many subjects beyond that of attention to the patient. In the volume under review the author has carefully balanced the information on these ancillary matters with those of the actual nursing and treatment of the patient, and has thereby succeeded in producing a guide both for those who wish to undertake tuberculosis nursing as a means of gaining additional postgraduate experience and those who intend to specialize in the subject. She has also shown very clearly that tuberculosis is full of interest to the nurse, and that special training is necessary if the nursing problems are to be overcome and the patient is to receive full benefit from the treatment. The book demonstrates the important role of the nurse in the management of the case: without the co-operation of a well-trained nurse the physician can have little hope of providing his patients with efficient and beneficial treatment.

The chapters on nursing procedure are particularly good, and a useful appendix to the book contains valuable information on disinfectants, preparation of surgical equipment, and the examination of sputum. A little more care might have been exercised in the arrangement of the chapters on clinical matters, in that there is a tendency to group a number of not too closely related subjects under a caption that is really limited to a definite aspect of the disease. This may be noted in the chapters on the course and clinical picture of pulmonary tuberculosis. If future editions are published, it is hoped that information will be included on such matters as the various types of apparatus used in artificial pneumothorax treatment, epituberculosis, tuberculosis of the eye, the use of streptomycin in the treatment of tuberculous laryngitis, the jelly patch test, and the vole acid-fast bacillus vaccine. In the chapters on tuberculosis care and aftercare the functions of the regional hospital boards will have to be clarified from those of the local health authorities.

FREDERICK HEAF.

The first edition of *Pathology of the Nervous System*, by J. Henry Biggart, M.D. (foreword by Professor A. Murray Drennan; pp. 352; £1 1s.; Edinburgh: E. and S. Livingstone, 1949), published in 1936, justly enjoyed a popularity which led to its reprinting in 1940. In this second edition the general form has been maintained. It is only 17 pages longer in spite of the addition of certain sections and the rewriting of parts of the text to bring it up to date. Sections on polyarteritis nodosa and fat embolism have been added to the chapter on vascular diseases, and aneurysms of the carotid artery within the cavernous sinus now receive a note. Articles on toxoplasmosis, Boeck's sarcoidosis, acute lymphocytic chorio-meningitis, and equine encephalitis are useful additions to subsequent chapters, while the accounts of tuberculous meningitis and anterior poliomyelitis have been revised. Knowledge acquired during the war upon the effects sustained by the brain in head injuries has led to extensive revision of the appropriate chapter. Many new illustrations in half-tone appear, and a notable addition is the inclusion of ten excellent colour plates made from photomicrographs by Mr. T. Dodds, of Edinburgh University.

Specs, by "BM/TFCE" (pp. 49; 3s. 6d.; St. Albans: Cartmel; 1949) is a racily written survey which contains chapters on the National Ophthalmic Service, spectacle frames, and some elementary and not altogether accurate information on diseases of the eye.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

A Twentieth Century Physician. By the late Sir Arthur Hurst. Foreword by J. A. Ryle, M.D., F.R.C.P. (Pp. 200. 15s.) London: Edward Arnold. 1949.

Operative Surgery. By F. C. Hill, B.A., M.S., M.D. (Pp. 698. 63s.) Oxford University Press. 1949.

Is Evolution a Myth? By D. Dewar, B.A., F.Z.S., L. Merson Davies, D.Sc., F.G.S., and J. B. S. Haldane, F.R.S. (Pp. 92. 2s. 6d.) London: Watts and Paternoster Press (jointly). 1949.

Doctors East Doctors West. By E. Hume, M.D. (Pp. 278. 12s. 6d.) London: George Allen and Unwin 1949.

Recent Advances in Physiology. By W. H Newton, M.D., M.Sc. 7th ed. (Pp. 268. 21s.) London: Churchill. 1949.

Brompton Hospital Reports. Vol. 17, 1948. (Pp. 183. 10s.) London: Research Department of Brompton Hospital. 1949.

The Thyroid Hormones and their Action. By G. Mansfeld, M.D. Translated by E. Pulay, M.D. (Pp. 157. 24s.) London: Frederick Muller. 1949.

Operative Obstetrics. By J. M. Munro Kerr, F.R.C.O.G., M.D., and J. Chassar Moir, M.D., F.R.C.O.G. 5th ed. (Pp. 948. 63s.) London: Baillière, Tindall and Cox. 1949.

Society and its Criminals. By P. Reiwald. Translated and edited by T. E. James. (Pp. 315. 21s.) London: William Heinemann (Medical Books). 1949.

Ankylosing Spondylitis. Part 1 by F. Hernaman-Johnson, M.D., D.M.R.E., and Part 2 by W. A. Law, O.B.E., F.R.C.S. (Pp. 200. 25s.) London: Butterworth. 1949.

Fundamentals of Otolaryngology. By L R. Boies, M.D. (Pp. 443. 32s. 6d.) Philadelphia and London: Saunders. 1949.

The Pharmacology and Toxicology of Uranium Compounds. Edited by C. Voegtlin. Ph.D., and H. C. Hodge. Ph.D. (Two vols. Pp. 1,084. 60s.) New York, Toronto, and London: McGraw-Hill. 1949.

Female Sex Endocrinology. By C. H. Birnberg, M.D. (Pp. 128. 35s.) Philadelphia, London, and Montreal: Lippincott. 1949.

Le Diagnostic Bio-clinique en Radiologie Pulmonaire. By G. Voluter. (Pp. 452. 40 Swiss francs.) Basle and New York: Karger. 1949.

Contribución del Coeficiente Citológico a la Fisiologia y Patalogia de la Correlación Hipofisotiroidea. By E. Del Conte. (Pp. 87. No price.) Buenos Aires: Libreria y Editorial el Ateneo. 1949.

Die Heilkunde und der Ärztliche Beruf. By P. Diepgen, M.D. 3rd ed. (Pp. 304. M. 18.) Berlin: Urban and Schwarzenberg. 1949.

Das Chronische Cystische Hydrom der Dura in seinen Beziehungen zum Sog. Chronischen Traumatischen Subduralen Hämatom und zur Pachymeningitis Hämorrhagica Interna im Lichte der Relationspathologie. By A. Bannwarth. (Pp. 57. M. 9.60.) Stuttgart: Georg Thieme. 1949.

Aktuelle Probleme der Pathologie und Therapie. By H. Holthusen. (Pp. 248. M. 29.) Stuttgart: Georg Thieme. 1949.

Grundlagen der Funktionellen Urologischen Röntgendiagnostik. By W. Pfeifer. (Pp. 88. M. 9.60.) Stuttgart: Georg Thieme. 1949.

Studie zur Psychopathologie Krampfbehandelter Psychosen. By H. J. Weitbrecht. (Pp. 86. M. 8.70.) Stuttgart: Georg Thieme. 1949.

Die Dystrophie. By H. Berning. (Pp. 197. M. 18.) Stuttgart: Georg Thieme. 1949.

Anatomie und Physiologie. By J. Bücker. 6th ed. (Pp. 152. M. 15.5.) Stuttgart: Georg Thieme. 1949.

Vom Wesen der Neurose. By E. Speer. 2nd ed. (Pp. 106. M. 7.80.) Stuttgart: Georg Thieme. 1949.

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HORMONES AND RHEUMATISM

In commenting on the dramatic results obtained by Hench, Kendall, Slocomb, and Polley in the treatment of rheumatoid arthritis by cortisone we referred[1] to the highly interesting series of experiments by Hans Selye and his colleagues from which they concluded five years ago[2] "that the adrenal cortex may play an important role in the pathogenesis of rheumatic and rheumatoid conditions in man." As a result of his observations Selye put forward the idea of "a general adaptation syndrome" and of "adaptation diseases." In the opening pages of this week's *Journal* Selye reviews some aspects of his work, and makes an important new contribution to the problems underlying the treatment of rheumatism with the adrenocorticotropic hormone (ACTH) and the "gluco-corticoid" hormone of the adrenal known as cortisone. He has succeeded in devising a method of producing an acute or chronic arthritis and periarthritis by the injection of formaldehyde into the tissues near a joint. Before the use of this technique experimental work on animals was held up by the fact that neither desoxycorticosterone (DCA) nor the lyophilized anterior pituitary preparation (LAP) which Selye employed produced arthritis regularly enough to permit the systematic investigation of therapeutic methods. With this difficulty overcome Selye has been able to study the influence of the pituitary-adrenocortical system on the production and prevention of experimental arthritis.

In his first series of observations a number of rats were given injections of DCA for fourteen days, after which a "formalin arthritis" was induced. In these rats and in the controls the immediate hyperaemic and oedematous response to the injection of formaldehyde was approximately the same. After a few days, however, the reaction tended to subside in the untreated control rats but not in the DCA-treated rats. The effect of cortisone and DCA, both separately and in combination, was then studied, and it was found that the joint swelling was very mild in the groups of rats receiving cortisone or cortisone and DCA, while it was pronounced in the remaining two groups which had received either DCA alone or no hormone treatment at all. From these and other similar experiments it became obvious that in both the acute and chronic phases of experimental arthritis cortisone inhibited, while DCA tended to exacerbate, the inflammatory process. In later experiments Selye found that if an injection of formaldehyde was preceded by one of ACTH the usual inflammatory reactions did not appear; while LAP, which will sometimes of itself produce an arthritic condition, seemed to increase the arthritis-producing effect of the formaldehyde. Certain other effects of cortisone and ACTH, among which may be mentioned involution of the thymus gland and other lymphatic organs, seemed also to be reversed as the result of sensitization by DCA and LAP.

One of Selye's previous findings had been that during the "alarm reaction" effects similar to those of cortisone are produced by any agent capable of causing systemic stress. In his present paper he shows that an experimentally produced alarm reaction inhibited the development of "formalin arthritis." This effect, he believes, is due to the endogenous secretion of ACTH and so of gluco-corticoids. This failure of animals subjected to severe stress to respond to the formaldehyde injections might be ascribed to their debilitated condition, but that this is not so can be judged by the fact that animals which showed no sign of weakness also failed to respond, while immediate and severe reactions to formaldehyde injections were observed in a series of adrenalectomized animals subjected to stresses which rendered them almost moribund.

It would seem therefore, if these experiments are confirmed, that the inhibition of "formalin arthritis," and probably other types as well, by cortisone, ACTH, and the alarm reaction is due to the direct effect of gluco-corticoids upon the injured tissues. The mechanism of this response is unknown, but it might be related to the well-known antihistamine action of the gluco-corticoids. It has long been assumed that histamine-like compounds are liberated from tissues at the site of injury and are concerned in the development of inflammation. Further investigation of the action of antihistamine drugs in some of the other clinical conditions which seem to be benefited by cortisone or ACTH might have interesting results.

The apparent antagonism between these two hormones and DCA and LAP is difficult to explain, particularly since the degree of adrenocortical enlargement produced in experimental animals by both series of hormones was almost exactly the same. Selye himself suggests that

[1] *British Medical Journal*, 1949, 1, 812.
[2] *J. Amer. med. Ass.*, 1944, 124, 201.
[3] *New Engl. J. Med.*, 1949, 241, 529.

DCA, being a close chemical relative of cortisone, might prevent the latter from reaching its target organs. Possibly some competition mechanism is involved, similar to that between vitamins and their corresponding anti-vitamins.

It is evident from Selye's work and from other published reports that the anti-arthritic effect of cortisone and ACTH is to a large extent non-specific. Recently Thorn and his associates[3] have shown that ACTH has a curative action in gouty arthritis, and they have observed that an acute attack often occurs when treatment is discontinued. Selye has found too that when the onset of "formalin arthritis" has been inhibited by an alarm stimulus the condition may flare up in a particularly severe form after a period of latency. Such observations are bound to raise the question whether arthritis can be held in check indefinitely by continued treatment with cortisone or ACTH.

TUBERCULOSIS AND WAR

Twice within a period of 40 years whole populations have been forced to live in conditions of abnormal stress, and on both occasions the rise in tuberculosis mortality and morbidity rates was directly related to the devastation caused by the conflict. In spite of the disruption of national life many important epidemiological investigations have been carried out, and in the Milroy Lectures, published in this and last week's *Journal*, Dr. Marc Daniels has most ably summed up the history of tuberculosis in Europe during and after the war of 1939–45. He prefaces his study of tuberculosis mortality and morbidity with the remark that "when one presents statistics of tuberculosis in Europe it is with a feeling that they are better than no information at all, but not much better." This reservation is important, particularly as it applies to morbidity figures, for in occupied countries those diagnosed as tuberculous were able to obtain extra rations and privileges. It is known that some persons employed such devices as pressing small pieces of cotton-wool soaked in "lipiodol" on to their chests immediately before being radiographed, or chewing a small pellet of bread soaked in B.C.G. vaccine just before a specimen of sputum was taken.

Mortality figures cannot be influenced by such deceptions, but when large movements of population are taking place the influence of environmental factors is hard to assess. The experience of the island of Jersey provided some information about the effect of removing from a country large numbers of persons whose racial susceptibility to tuberculosis differed from those who remained. The population of Jersey before the recent war was composed mainly of English immigrants and Jersey natives. The former came, generally speaking, from a stock that has a fairly high racial resistance to tuberculosis, while the latter were of Breton extraction and had a lower resistance to the disease. When the war started large numbers of the English left the island, and after the German invasion most of the remainder, along with many of the healthiest of the Jerseymen, were removed to labour camps on the Continent. Dr. R. N. McKinstry, medical officer of health for Jersey, has shown in his annual report for 1947 that one of the immediate effects was a very steep rise in the mortality from tuberculosis. The high rate continued until 1945, when it suddenly fell. The rise after the outbreak of hostilities and the fall at their conclusion occurred too quickly to be related to changes in living conditions. A possible explanation for the rise might be that mainly susceptible individuals were left behind; the fall could have been due to the dilution of the susceptibles by the return of the resistant English residents at the end of the war. Some development of this theory might be possible by studying what effects the mass movement of Jews in Europe has had on mortality rates, since there is evidence that the Jewish race is more resistant to tuberculosis than other races. Something more than dilution, however, is required to explain the rapid fall in tuberculosis death rates that is taking place in Europe to-day, for only a small proportion of the displaced Jews have returned to their original homes.

Dr. Daniels refers to the need for further epidemiological studies. In spite of the mass of information available many of the wartime and post-war trends in tuberculosis cannot be satisfactorily explained. It remains an open question whether the many thousands of deaths from tuberculosis which would not have occurred but for the war were due in the main to new infections or to the aggravation of disease from which the patients would ordinarily have recovered. Except in Scotland the wartime rise in tuberculosis has chiefly affected men; in fact, in some countries the rise was confined to them. Many reasons have been put forward for this; it has even been suggested that men react more severely to malnutrition than women. Another phenomenon common to most countries is that as the mortality among males has fallen, so the peak of the curve has shifted towards the older age groups; the curve of the mortality rate for women, however, has retained a sharp peak at ages 15–24. An attempt to explain this has been made by studying the tuberculosis mortality in successive generations, and it appears that the curve of the tuberculosis mortality in different age groups plotted on a generation basis shows little tendency to change through successive decades.

Perhaps the most important anti-tuberculosis measure now in use which was not available after the first world war is mass vaccination with B.C.G. It may be that the vaccination campaign during the past 10 or 15 years has been largely responsible for the downward trend of the tuberculosis mortality rates in the Scandinavian countries. But B.C.G. vaccination will not account for the sudden fall in the figures for Holland, and for Amsterdam in particular. The extreme hardships suffered by the Dutch during the last years of the war would cause the death of many patients with active disease; the consequence would be a diminution in the foci of infection (the influenza epidemic of 1918–19 removed sources of infection in the same way). This, and a rapid improvement in diet at the end of the war and the restoration to their previous high standard of the preventive tuberculosis services, are having the desired result. There was no rise during the war in the tuberculosis mortality rate in Denmark, which, as Daniels points out, enjoyed a comparatively good standard of living. In fact Professor Knud Faber has stated that there was little or no fall in the protein and fat intake during the German occupation. In addition to this the public health services suffered little disorganization during the war and remained at their peacetime level of efficiency. In both Holland and Denmark there are three to four tuberculosis beds for each death from the disease, and therefore the segregation of infectious cases is relatively easy.

In many European countries, such as Poland, Italy, and Yugoslavia, great efforts have been made to increase the number of institutional beds. Though such beds are officially designated for treatment, the community benefits greatly by the segregation of the infectious cases. The standard of nursing in some countries is low compared with that in Britain, and one nurse may be put in charge of many patients. This at least has the advantage of overcoming the shortage of nurses, and even if the supervision of treatment has to be neglected the removal of each infectious patient from his or her home does limit the spread of infection. The use of residential nurseries and open-air schools, which in this country have a comparable value to the "preventorium," for breaking the contact between the child and the infectious adult is a development that began during the war period and should be encouraged.

In the rehabilitation of the tuberculous Great Britain leads the way. There is a great need for the spread of information about suitable methods in those European countries where no schemes are in existence. Perhaps some of the travelling fellowships recommended by the World Health Organization could be used to further the study of this important aspect of tuberculosis. At Papworth and Preston Hall and in the developing "Remploy" factories there are unrivalled opportunities for observing and investigating methods of training and rehabilitating tuberculous persons.

Dr. Daniels's study demonstrates very clearly how great an asset to any country is an efficient and well-equipped tuberculosis service. In countries with a service which before the war worked hard to prevent disease, recovery from the effects of war was more rapid than in the countries which possessed only a poor or inefficient service. The tuberculosis dispensary is still the nucleus of the service, and the development of this unit is an essential feature in all reconstructive programmes. It is noteworthy that in many countries the doctor in charge of the dispensary is regarded primarily as a tuberculosis specialist, and that in France "a tuberculosis specialist," aided by a specialist social worker, is appointed to supervise all tuberculosis work in the department. Thus there seems to be no doubt about the retention of tuberculosis as a specialty and about the need for a unified service to combat the disease. The survey made by Daniels of tuberculosis schemes in Europe affords an opportunity of looking at our own with a critical eye. In the regular examination of certain groups of the population, such as students, "we are falling far behind" several countries. There seems to be little doubt that successive annual re-examination of a community is a profitable undertaking that amply rewards the labour expended. It follows that the diagnostic and preventive services must be developed so that susceptible persons are prevented from contracting the disease, and so that appropriate treatment can be offered to infected persons when the disease is in its early and curable stage. In France the improvement in the tuberculosis services is reflected in the falling death rate; this has been greater in France than in any other country in Europe. Some of this decrease may be due to the extensive use of B.C.G. during recent years, and if this is so then due credit must be given to the pioneer work that has been done in France with this.

Dr. Daniels refers to the remarkable "sense of international duty" awakened by the war. No doubt the work of the World Health Organization, including the special assistance given by the Scandinavian countries to Unicef, has had a marked effect in reducing both the incidence and the mortality of tuberculosis in devastated countries. But there is no justification for complacency because the influence of war is receding and death rates are falling. Rather the time is opportune for even more strenuous efforts. The closing words of Daniels's second lecture are worth repeating: "Given respite from mutual massacre, there is no reason why this disease which has plagued the Continent of Europe for many hundreds of years should not be almost eradicated before the century is out."

SIZE AND ACTIVITY

The importance of scale and dimensions has been more seriously considered in relation to animal design than as affecting physical performance. It has been pointed out, for example, that a mouse which had been enlarged to the size of an elephant would be unable to stand, and that an elephant which had been contracted to the size of a mouse would be handicapped in agility by an unnecessary thickness of leg: in short that the sudden alterations in size which befell Alice in Wonderland would have raised problems of an engineering kind which her mathematician creator had failed to foresee. It has been left to Professor A. V. Hill, in a recent lecture to the Royal Institution,[1] to apply arguments of the same kind to questions of athletic performance, and to show that only in the high jump and in under-water swimming does size as such offer any advantage. The underlying geometry is simple enough: that in a scale enlargement a doubling of linear dimensions is accompanied by a fourfold increase in corresponding areas, and by an eightfold increase in volume, and incidentally in weight, provided that structural materials have been kept the same. In practice so simple an expansion is impossible, whether in engineering design or in animal anatomy, and for the nearest approach it is necessary to go to the sea, where the problem of standing up is no longer significant.

Between the blue whale, the largest of the Cetacea, and the dolphin, there is a range in length of about 12 to 1, and a range in weight of more than 1,000 to 1, though in general shape and design there is a reasonably close correspondence. Both animals move in the water with unusual efficiency, cruising for long periods at 15 knots, and being capable of shorter bursts of 20 knots or over. But on the basis of weight of muscle it has been commonly argued that the whale should have the easier task.[2,3] Parry, it is true, has pointed out that muscle power cannot be expressed as a simple function of size.[4] but Hill makes the broader physiological approach and examines the scale relationship between dolphins and whales in terms of the circulation of the blood—the factor which imposes an overall limit on rate of energy output. In one such investigation he examined the aorta of the whale, and showed that its cross-section or area was in approximately scale relationship to that of man, and presumably the dolphin. At the same rate of blood flow the aorta could therefore supply a quantity of blood in proportion to surface area, not to volume or weight. To achieve the latter proportion there would have to be a 10-times faster flow and a peak difference of pressure of the order of several atmospheres. This would obviously be impossible, and the same conclusion is supported by a comparison of heart size and heart rate. As between whale and dolphin, heart size is in proportion to weight, but heart rate should be reduced by a factor of about 8, so that it must be impossible for the larger whale to generate a horse-power in proportion to its weight. This accepted, it follows that whales as well as dolphins must possess a great capacity for inducing a smooth flow of water past their bodies, and that the performance of both should make ship designers envious.

More generally, it appears that in "similar" animals of whatever kind rate of energy output—otherwise horse-power—must be in approximate proportion to surface area, and that the development of engineering power in proportion to weight is an impossible achievement if respiratory and circulatory systems increase to scale. Other and converging arguments can also be adduced. In the case of swimming, the pressure on propulsive organs would be increased beyond possibility if they were moved at the same frequency in a larger animal as in a smaller one. In the case of running, the kinetic energy put into limb movement can only be balanced by the work done by muscles on the condition that frequency of movement is reduced in proportion as limb size is increased. The larger animal will have a slower heart beat, move its limbs more slowly, but achieve the same speed, other things being equal. Because of scale complications there is no such satisfying comparison as that between dolphin and whale. The elephant, at around 20 m.p.h., is clearly handicapped by the consequences in design of its greater size. The mouse, running flat out to safety, eludes stop-watch as well as stick. But the broad picture suggests a lesser variation in speed than might otherwise be expected. The larger greyhound is but slightly faster than the smaller whippet. The speed of the hunting leopard, which is credited with 64–66 m.p.h. in a short chase and is the fastest of all animals, is not so greatly different from the 24 m.p.h. achieved by man on his two legs. At various kinds of jumping there are closer correspondences. In a running jump the horse, large kangaroo, man, and the antelope can cover 25 to 30 ft. (7.6 to 9.1 m.) in that order, with the jumping hare only 5 ft. (1.5 m.) less. With a standing start the 4-in. (10-cm.) jumping mouse is the equal of man. Among high-jump "records" a rat kangaroo the size of a rabbit has been seen to clear an 8-ft. (2.4-m.) fence; the large kangaroo, helped by its higher centre of gravity, one of 9 ft. (2.7 m.).

There is at least general support in these figures for Hill's conclusion that, irrespective of size, animals of similar form and designed with a similar factor of safety should be able to run and swim at the same speed and to jump the same height. Muscle speed, adjusted to safety as well as function, shows a wider range, and for

1 *Science To-day*, 1949, 6, 341; *Nature, Lond.*, 1949, 164, 820.
2 Gray, J., *J. exp. Biol.*, 1936, 13, 192.
3 *Nature, Lond.*, 1948, 161, 199.
4 Parry, D. A., *ibid.*, 1948, 131, 200.

this an engineering explanation can be suggested. As with an engine, reversals of movement which were over-rapid in proportion to size would break either muscles or structural components, and the kangaroo endowed with the muscles of a grasshopper would soon suffer injury. Muscle speed is adjusted to speed of living, and speed of living depends on heart rate and so on size.

SURGERY IN PULMONARY TUBERCULOSIS

The importance of surgery in the treatment of pulmonary tuberculosis is taken for granted, but 30 years ago the help of the surgeon was not even contemplated. The co-operation between chest physician and surgeon is now as close as in any branch of medicine, and the patient has greatly benefited in consequence. Two eminent authorities, H. Morriston Davies[1] and Th. Naegeli,[2] who have been pioneers in applying surgery to the treatment of pulmonary tuberculosis, have recently discussed developments in this field, and in general their views do not diverge very far.

If an artificial pneumothorax is inefficient or contra-selective the result is bad, and when there is tracheo-bronchial tuberculosis or a persistent surface or tension cavity this form of treatment may be dangerous. In such cases, however, pneumothoraces are often maintained. These contraindications are not emphasized by Naegeli. Division of adhesions is necessary in order to maintain an artificial pneumothorax in many cases, and although this will usually be done by the cautery through a thoracoscope an open operation is occasionally required. There should be no hesitation in abandoning an ineffective artificial pneumothorax in favour of a major surgical operation. Both Morriston Davies and Naegeli recommend oleothorax for a small group of patients—in fact they would use it more often than is customary in this country. They agree that the place for phrenic crush is limited and that it is of greater value for lower lobe disease than for upper; the permanent paralysis which occasionally follows may cause anxiety if a thoracoplasty is eventually performed. Pneumoperitoneum is a valuable adjunct, especially when bilateral disease is present. While these methods of treatment may heal a cavity in the basal segment of the lower lobe, cavities at its apex in the dorsal segment often remain open, and the problem of the treatment of lesions in this part of the lung remains unsolved. It is unusual for abnormalities to be discovered at routine bronchoscopies, but if intrabronchial tuberculosis is found this may have an important bearing on treatment. Naegeli does not stress this point, nor indeed is endoscopy universally recommended.

Both surgeons pay tribute to Sauerbruch, Friedrich, and other pioneers of thoracoplasty, and discuss the various techniques which are in use. Finality has not been reached. The relaxation afforded by an apicolysis or Semb strip may not be as effective as the contramediastinal collapse which follows removal of ribs and transverse processes, and sometimes of costal cartilages too. Large cavities may require preliminary Monaldi drainage. Naegeli discusses extrapleural pneumothorax and its variants at some length. This is an operation which has always been more popular on the Continent than in England, and it is scarcely mentioned by Morriston Davies. On the other hand, the latter describes insertion of an inert plastic material to maintain permanent collapse. This, the most modern form of plombage, can be used to bring about a selective collapse of any part of the lung. The operation is done in one stage; it causes little shock and no paradoxical movement, and no refills are required. Preliminary reports refer to the relative freedom from complications, and if experience confirms this an advance of some importance will have been made. Morriston Davies prefers polythene strips contained in a pack to lucite balls, which are more rigid. The periosteum is stripped from the ribs and left attached, with the intercostal bundles, to the mobilized pleura; the plastic is put between these structures and the ribs.

Another recent development, also not discussed by Naegeli, is resection: lobectomy is occasionally performed, usually for a tuberculoma, but pneumonectomy is more usually performed for tension cavities in the lower lobe, bronchial stenosis, bronchiectasis, or disease with caseation rather than cavitation. With streptomycin to reduce post-operative complications resection may become the treatment of choice whenever indicated rather than a desperate last hope when all else has failed. Postural retention may reduce the size of cavities temporarily, making the patient fit enough for more extensive surgical treatment. The value of sanatorium treatment, carried out conscientiously and continuously, remains of the first importance.

[1] *Thorax*, 1948, 3, 189.
[2] *Der Tuberkulosearzt*, 1948, 2, 501.

INDUSTRIAL FLUOROSIS

The report[1] on industrial fluorosis to the Fluorosis Committee of the Medical Research Council is an interesting example of the way in which a research problem may be elucidated by the independent observation and intensive team-work of a few individuals. The first step leading to this very full investigation of local conditions, animals, and human beings was taken in 1943, when the occupant of a farm in Fort William, Scotland, situated about half a mile (800 metres) from an aluminium factory, complained that his sheep and cattle were suffering from an unusual form of debility in spite of there being an abundant supply of herbage.

Clinical examination of the affected animals by Professor G. F. Brodie, of the Royal (Dick) Veterinary College, Edinburgh, revealed that their emaciation and debility were due to dental lesions which prevented them from chewing their food effectively. The question of possible ill-health in human beings from pollution of the atmosphere by compounds given off by the aluminium factory was raised in 1944 by Dr. A. M. Fraser, medical officer of health of Inverness-shire, and later in the same year the Secretary of State for Scotland requested the Medical Research Council to conduct an investigation. For this purpose the Fluorosis Committee was set up by the Council in consultation with the Department of Health for Scotland. The investigation comprised analyses of the electrolytic process of manufacture of aluminium and of contamination of the air of the

[1] *Industrial Fluorosis—A Study of the Hazard to Man and Animals near Fort William, Scotland.* Medical Research Council Memo. No. 22, 1949. London: H.M.S.O.

factory and of the atmosphere, soil, herbage, and water of the surrounding area; study of the animals and of the local agriculture; and examination of selected groups of individuals in the factory and among the local residents and of the teeth of adults and school-children. The willing co-operation of the management and workers of the British Aluminium Co., Ltd., greatly assisted the task of the investigators.

The fumes containing fluorine, to which the disorder of the cattle was eventually traced, arise during the electrolytic reduction of alumina, which is dissolved in a bath of the fused fluorides of aluminium and sodium. At the time of the investigation the fumes extracted from the furnace rooms at the Fort William factory were not scrubbed or treated in any way but were allowed to escape from vents opening just above the level of the roof, drifting across the countryside as a dense white cloud of smoke. Inside the factory concentrations of fluorine as high as 3.6 mg. per cubic metre were found in the worst of the furnace rooms, decreasing to about 15% of this figure at a distance of 200 yards (180 metres) and to about 3% at one mile (1.6 km.). Contamination of the soil ranged from 1,010 parts per million in the immediate vicinity of the factory to 66 p.p.m. at 7 miles (11.2 km.) in the direction of the prevailing wind and 13 p.p.m. at 3.3 miles (5.28 km.) at right angles to the wind. Analyses of grass samples gave results closely parallel to those obtained from soil. The teeth of the animals reared on contaminated pastures showed mottling of the enamel, distortion, and deformity. Chemical analysis of teeth and bone showed an excessive fluorine content, and some cases of osteomalacia due to chronic fluorine intoxication were found.

Selected groups of individuals from the workers in the factory and from local residents were then subjected to clinical, radiological, haematological, and biochemical examination. Routine medical histories showed little evidence of an unusual rate of sickness or of organic disease. Radiological examination revealed abnormal appearances in the bones in a proportion—highest (25.4%) in the factory workers who had had the greatest exposure, low (4%) in the local residents, and absent in school-children. Within each broad age group the incidence of abnormalities tended to increase with the length of exposure to fumes. These abnormalities, though very variable in degree and unaccompanied by any clinical disability, resembled those described in the literature as skeletal fluorosis. Excretion of urinary fluorine was roughly parallel to the intensity of exposure. Some mottling of the teeth was found in 5.6% of the children examined, but mottling of a similar type was found in 3.1% and 0.6% of children in two country areas far removed from Fort William.

It is obvious that the severe loss of condition and drop in milk production in affected animals constitute a serious impediment to economic sheep and cattle farming in this area, and though the bone changes found in older factory workers were not associated with any clinical disability they must be regarded as a warning that exposure to fluorine fumes should be limited as far as possible. The report concludes with the recommendation that everything practicable should be done to reduce the amount of fluorine discharged from the factory.

G.P.s AND GERMAN MEASLES

That rubella early in pregnancy may cause defects in the human embryo has been one of the unpleasant surprises thrown up by medical research during the past few years. It is important to get far more exact information on this tragic complication of what is for the sufferer a mild complaint, and in our correspondence columns this week Professor A. Bradford Hill asks general practitioners to join with him in a piece of research from which it is reasonable to expect highly useful results. As Professor Bradford Hill points out, it is desirable to discover the frequency of congenital defects in children born of mothers who catch rubella during pregnancy, the severity of such defects, and their relation to the stage of pregnancy at which infection occurs, and the inquiry may well be extended to such infections as chicken-pox, mumps, and measles. Much of this kind of information could be secured through the Ministry of National Insurance without any breach of the confidential relationship that exists between patient and doctor. The way he proposes to make this inquiry is described in this week's correspondence columns by Professor Bradford Hill, and we hope that general practitioners will respond to the appeal made to them so that more may be known about this unfortunate sequel to German measles.

ROYAL SOCIETY AWARDS

The two Royal Medals for the current year have been awarded to Sir George Thomson, F.R.S., and to Professor R. A. Peters, M.D., F.R.S. Professor Peters was educated at Cambridge University and St. Bartholomew's Hospital, London, and was a pupil both of Sir Joseph Barcroft and of Sir F. Gowland Hopkins. During the war of 1914–18 he spent nine months as a battalion medical officer, and was awarded the M.C. (with bar), but was recalled for scientific work. In 1923 he left Cambridge, where he was Dunn lecturer in biochemistry, and became Whitley professor of biochemistry and a Fellow of Trinity College, Oxford. After early work with Barcroft on the specific oxygen capacity of haemoglobin, Peters turned his attention to vitamin problems, and his name is particularly associated with work on the vitamin-B complex. In 1930 came the first demonstration of the *in vitro* action of a vitamin—the specific response of avitaminous pigeon's brain to Vitamin B_1. This led to proof of the intimate connexion of this vitamin with the metabolism of pyruvic acid. During the recent war Professor Peters directed two teams of research workers on specific war problems. Out of this work came the highly important discovery of BAL or British Anti-Lewisite.

Among the other awards of the Royal Society is that of the Davy Medal to Professor A. R. Todd, F.R.S., for his work in organic chemistry and biochemistry, especially on the B and the E vitamins.

GENERAL PRACTITIONERS' REMUNERATION

Just before we went to press the B.M.A. received a reply from the Ministry of Health on the general practitioners' case for increased remuneration. It is published in the *Supplement* at page 218.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

FRACTURE OF THE CLAVICLE

BY

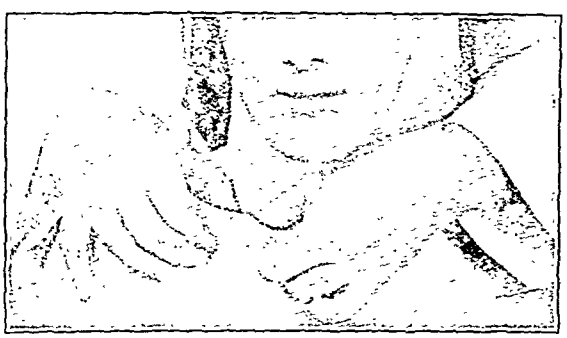
T. P. McMURRAY, C.B.E., M.Chir., F.R.C.S.Ed.

Emeritus Professor of Orthopaedic Surgery, University of Liverpool

Fractures of the clavicle occur more frequently than any other bony injury, and they are almost invariably the result of transmitted or indirect violence applied to the clavicle through a fall on the outstretched hand or on the elbow, or through contact with the tip of the shoulder. Although compound fractures of the clavicle are not unknown, especially in war injuries, yet this fracture is usually simple, even when resulting from a direct blow on the anterior surface of the bone.

Age Incidence

The fracture is one of the more active period of life, occurring mostly in youths and young adults. As it is commonly caused by a fall, it is usually seen in children or in those taking part in sport. In the elderly, fracture



Examining the clavicle for an ununited, or obscure recent, fracture. (From Mr. Hamilton Bailey's *Demonstrations of Physical Signs in Clinical Surgery*, by permission of the author and John Wright and Sons, Ltd.)

of the clavicle is a comparatively rare accident; at this age a fall on the outstretched hand is more likely to cause a Colles's fracture or an injury to the neck or head of the radius.

Site of Fracture

The fracture usually occurs slightly beyond the middle of the bone where the medial anterior curve meets the posterior curve of the outer segment. Here the strain is greatest. The fracture may also occur toward the inner or outer ends of the bone, the site of the lesion in the inner segment being usually at a point three-quarters to one inch from the sternal attachment of the bone, while the site of the distal fracture is usually the same distance from its acromial attachment.

Symptoms and Signs

These vary according to the type of fracture. With a greenstick fracture, which is common up to the age of 14 or 15 years, the symptoms and signs are slight. Following a fall, the patient, usually a boy, may complain of an ache in the shoulder region but may finish the game he is playing with comparatively little discomfort. Later, persistent aching in the shoulder may draw attention to a clavicular swelling, tender on pressure, but causing little disability and no limitation of movement. Radiographic examination will confirm the presence of a crack in the bone, usually without displacement.

The symptoms and signs which follow a complete fracture in the usual mid-clavicular situation are more severe. The patient complains of a sudden pain in the shoulder region accompanied by a feeling of uselessness in the whole arm and forearm. As a rule, in order to relieve the pain the affected arm is immediately supported by the other hand in an effort to lift the shoulder and prevent the dragging weight across the site of fracture.

On examination of the site of injury it is evident that the clavicle has been broken. The outer sharp, irregular edge of the inner fragment of the bone can be felt projecting under the skin above its normal site, and restoration of the line of the clavicle is possible only by raising the shoulder above its normal position. The radiograph demonstrates that considerable displacement has occurred at the site of fracture, the outer fragment being displaced downwards and the outer end of the inner fragment projecting upwards, leaving a considerable gap between the broken ends.

The symptoms and signs of fracture at the inner or outer end of the bone are considerably modified from those which follow a lesion in the usual situation. As a rule, with either of these fractures there is little displacement and a minimum of deformity. Pain and disability following their occurrence may be so slight that the injury may easily be overlooked unless demonstrated by radiographic examination.

With a fracture close to the inner end of the clavicle impaction on one side of the bone is often present. Some thickening and tenderness are apparent over the injury and movements of the arm are limited because of pain.

When the fracture has occurred towards the outer end of the clavicle there is no displacement if the lesion is situated between the attachments of the acromioclavicular ligaments; tenderness and swelling over the site of injury and subcutaneous haemorrhage indicate the severity of the injury.



Common sites of fracture of the clavicle.

Diagnosis

The diagnosis is, as a rule, an easy matter if the possibility of this injury is borne in mind. The only difficulty is met with in the greenstick fracture of children and in the fractures occurring close to the extremities. A simple subperiosteal haemorrhage may cause some difficulty in clinical diagnosis, but the doubt can easily be settled by radiographic examination.

Complicated Injuries of the Clavicle

On occasion this fracture is accompanied by injury to some of the neighbouring tissues. Thus, fracture of the clavicle may be associated with a lesion of the brachial plexus, particularly of its upper components. After a fall on the point of the shoulder it is obvious that the patient

has sustained a fracture of the clavicle, and unless a careful examination of muscle movements is carried out an accompanying injury to the fifth and sixth cervical nerves may be missed. Because of the pain produced by the fracture the patient naturally keeps the whole shoulder at rest, and it is frequently difficult to separate the loss of power which follows injury to the plexus from the reflex inhibition produced by the fracture.

If the force applied to the shoulder is extreme the fracture may also be associated with a lesion of the whole of the plexus. In this event the differential diagnosis is comparatively simple, and is indicated by the complete flaccidity of the whole of the affected arm, with a loss of sensation over the entire limb below the elbow.

When the fracture has resulted from a violent pull on the arm in a position of full-extension the lower cord of the plexus may be stretched or torn, giving a loss of power in the intrinsic muscles of the hand—a complication which is very difficult to diagnose directly following the injury. Injury to the neighbouring blood vessels may occur also, usually not as a result of traction but following direct injury to the vessels by the sharp surface of the inner end of the outer fragment of the bone.

These injuries can all be diagnosed by a careful examination of the patient, and treatment of the fracture should be delayed until the possibility of these complications has been eliminated.

Treatment

The treatment of this fracture is not difficult, and if a few simple precautions are employed a successful result is to be expected.

Methods

Figure-of-8 Bandage.—The objects of treatment are to raise the shoulder to bring the two fragments of the broken bone into alignment; to pull back the shoulder to prevent overriding of the broken bone; and to restore full length, with fixation in that position until clinical union has occurred. The simplest and most generally satisfactory method of accomplishing these aims is by the use of the figure-of-8 bandage. Two or three large flannel or calico bandages are employed, passing round each shoulder in turn and crossing each other posteriorly. These bandages are applied firmly, the shoulders being pulled back by each turn of the bandage. When the bandages have been firmly fixed in this position by pinning or tying, a firm loop of bandage is attached to each shoulder loop in front across the chest. This simple method of retention keeps the original figure-of-8 in position and prevents the bandage slipping from the shoulder, which would destroy the fixation.

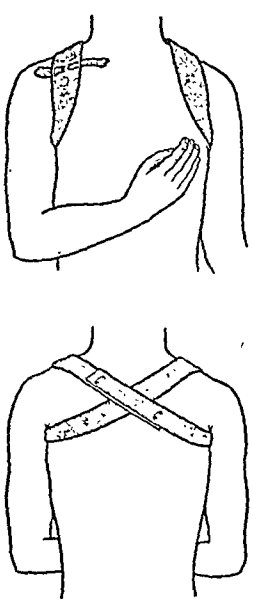


Diagram illustrating the pulling back of the shoulders without the anterior bandage support. (From Mr. George Perkins's *Fractures*, by permission of the author and Oxford University Press.)

When fixed in this way the patient is encouraged to use the hand, fingers, and elbow in order to prevent stiffness of these joints, a complication which is to be feared in the adult patient. After four weeks clinical union is usually satisfactory, and the patient may be allowed freedom from all control, gradually restoring full movements at all the joints by voluntary exercises. A sound, fully functioning limb is to be expected, with no disability except for the presence of a bony nodule at the site of fracture.

Occasionally, especially if the fracture has been comminuted, a spike of bone is present at the fracture site projecting under the skin. This spike should not be interfered with or removed, as it rapidly diminishes in size and gradually becomes rounded.

T-Splint.—To obtain the same fixation a T-shaped wooden splint may be used. This is placed on the patient's back, the long arm of the T extending from the sacrum to the level of the middle of the scapulae. The cross arms of the T extend behind each shoulder, and to these cross arms the shoulders are firmly bandaged, stability of the splint being obtained by fixing the main portion to the body and pelvis. The object of fixation and raising the shoulder can be attained equally well with the less cumbersome figure-of-8 method, and there are no special advantages in the use of the splint.

Strapping Method ("Sayre's").—This method of fixation by applying strapping round the arm and chest to pull back the shoulder and pull the elbow upwards and forwards has been gradually abandoned. It was the procedure generally adopted and taught in the textbooks for many years, but there are so many disadvantages in the method that it has now been largely superseded by the less troublesome fixation by bandages. In applying this form of treatment the arm was first pulled backwards and fixed to the chest by wide strapping, while by a second strap the elbow was pulled forward and upward with the hand and fingers firmly applied to the chest wall. The subsequent rigidity of all the joints of the limb usually required a long period of physiotherapy for their relief, and in many instances full movements could not be restored to the adult patient.

Treatment in Recumbency.—For those few patients in whom the presence of a nodule on the substance of the bone would be considered to be a great deformity, better alignment and a smaller mass of callus can be secured by treatment in recumbency. The patient is treated recumbent on a firm mattress with a small sandbag placed between the shoulders. This position is maintained for three to four weeks. As a result the alignment is improved and less callus is formed, but the confinement to bed for a month is usually considered to be unbearable for the treatment of a comparatively simple injury.

Intra-medullary Wiring.—An attempt has been made to restore and maintain the exact alignment of the bone by fixing the fragments in position by means of an intra-medullary wire. This is introduced through an opening in the outer or inner fragment and threaded along the medullary cavity of both fragments. The method is not to be recommended; snapping of the wire has occurred on several occasions and the presence of the wire does not stimulate but rather retards bony union.

Sequelae of Fracture of the Clavicle

If treated by the simple figure-of-8 bandage without fixation of the hand and fingers the result is usually excellent Full movements are gradually restored to all the joints and the patient is left with no disability. Under certain circumstances the result is not so satisfactory, and subsequent trouble and disability may be encountered.

Rigidity.—Limitation of movement may affect any of the joints of the upper limb, either as a direct result of the fall or as a consequence of inefficient treatment. At the

time of the accident the shoulder joint or the muscles of the shoulder region may be injured, and as full movements of the joint cannot be maintained until the fracture is united limitation of movement may become obvious when all fixation has been removed. The limitation may be reduced by the patient's own efforts during treatment, but massage and exercises may be needed at a later date.

A much more serious state of rigidity is encountered in those patients, especially adults, in whom the hand and fingers have been kept at rest during the course of treatment. Massage and voluntary exercises help to diminish the rigidity, but as a rule a considerable disability is left if the possibility is forgotten.

Non-union.—Non-union of a fracture of the clavicle is a comparatively rare complication, especially when the fracture is simple. It may occur in spite of correct and efficient treatment, but is usually seen only when treatment has been neglected or when a portion of the bone has been removed in a compound fracture. As a result of non-union the patient usually complains of aching and a feeling of clicking when the arm is used. There is usually little or no tenderness over the fracture, but the movements of the fractured surfaces on each other are disabling.

Treatment of Non-union

On occasion, union of the fractured bone can be obtained by continuing the fixation for a longer period. If the fracture is comparatively recent a further period of fixation of four to six weeks may be sufficient to produce a sound, painless union. When non-union has been present for a considerable period even prolonged fixation is usually unsuccessful in producing union, and operative interference is advisable.

Bone Grafting.—In attempting to produce bony union a bone graft is applied to the site of fracture. An inlay graft is placed in a deep slot cut on the antero-inferior aspect of the clavicle and reduction maintained as in a fresh fracture of the bone. Because of the difficulty of obtaining complete fixation of the fracture the bone-grafting operation may not be successful, and if the operation has failed on the first occasion the prognosis is much worse if a further attempt is made.

Partial or Complete Removal of the Clavicle.—If bone grafting has failed and the patient still complains of pain and disability a considerable improvement in the condition may be effected by the removal of a large section of the clavicle from either side of the fracture. As a result of this the painful clicking of the fractured surfaces is eliminated, and though the shoulder tends to fall forward to a slight degree the usefulness of the limb is increased. Because of the possibility of the re-formation of the clavicle which has been removed it may be advisable on occasion to remove the whole of the bone, which, though apparently a radical procedure, does little to reduce the strength and usefulness of the affected limb.

The Ministry of Health has notified hospital boards and committees that it will not set up any central machinery for dealing with redundant, worn-out, or obsolete equipment in hospitals. Boards and committees should dispose of such equipment as before. Serviceable items of equipment which become redundant in any hospital should be transferred to another hospital where they can be used. No cash adjustment should be made for the transfer, but it should be recorded. Hospitals holding equipment issued on loan during the war under the Emergency Hospital Scheme should use it where possible. Schedules of this equipment should be prepared and sent to the Ministry of Health, Supplies Division I, Whitehall, London.

SURGICAL TRAVELS IN COLOMBIA

BY

RONALD W. RAVEN, O.B.E., F.R.C.S.

Honorary Professor, National University of Colombia; Surgeon to the Westminster Hospital (Gordon Hospital); Surgeon to the Royal Cancer Hospital

Surgical travels in other lands are full of interest, and are valuable for the development of understanding between the countries involved. Our country always welcomes the surgeons of other lands to her surgical centres, and many avail themselves of the facilities provided. Others find it impossible to make the journey, but they can be reached and helped when British surgeons undertake such a mission as is described in this paper. The National University of Colombia extended an invitation to Dr. Lawrence H. Morris and myself to visit Bogotá in order to deliver a course of lectures and perform surgical operations. This invitation was accepted, and we left England on April 26, 1949. As this is the first occasion such a visit has been made, it is felt that a record of it might be of interest.

Historical Background of Colombia

Colombia is the only country in the New World which bears the name of the discoverer, Christopher Columbus. The exploration of this region was carried out by his companions and contemporaries, and resulted in the foundation there of Santa Marta in 1525 and Cartagena in 1533. These ports developed into two of the most important centres of this vast continent and became the scene of many struggles and sieges in bygone days. In some of these expeditions Sir Francis Drake was actively engaged. The last great attack which Cartagena suffered in the colonial age was in 1741, when Sir Edward Vernon arrived at the head of the greatest army ever to reach the coasts of the Caribbean Sea.

Colombia was the cradle of the great Chibcha and Kimbaya Indian civilizations, which fell before the Spaniards. Santa Fe de Bogotá was founded by Jiménez de Quesada after a heroic expedition, and the future capital of the country came into being. Its history is bound up with the revolt of the Comuneros and the beginnings of Colombian science under Mutis and Caldas. Finally there came the great revolutionary movement organized by Bolivar, Nariño, and Santander, which transformed the country and ended in its independence being established. The Colombians have never forgotten the help they received from the British soldiers in their fight for freedom.

Geographical Facts

Colombia extends over an area of nearly half a million square miles of land in the north-western region of South America. It is the only country in this continent to face two great oceans, since its western seaboard opens on the Pacific Ocean while its northern coastline looks out on that portion of the Atlantic Ocean which forms the Caribbean Sea.

The outstanding feature of the country is the gigantic mountain ranges of the Andes, which rise in the Caribbean region and continue southward across the continent. This great mountain system spreads out into three main ranges, united in the south-west and opening towards the north. Thus on the left is the Western Cordillera of Chocó, in the middle the Central Cordillera of Quindio, and on the right the Eastern Cordillera of Sumapaz. Scattered among these mountain ranges are high tablelands where the population is denser, especially in the eastern region. To the east and south-west of the Eastern Cordillera is an immense plain traversed by the great rivers Caquetá and Vichada, which empty respectively into the Amazon and the Orinoco.

The country lies entirely within the Tropics, but the climatic conditions vary greatly. The line of the Equator traverses its southern part, but when the rivers, forests, and lowlands are left behind, temperate valleys and plateaux are reached where there is perpetual springtime with orchards and flowers in full bloom; and rising high above the plateaux are the mountains.

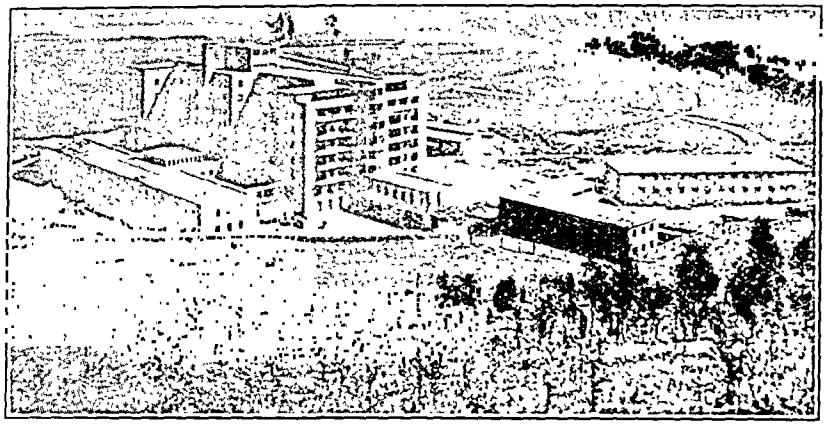


FIG. 1.—The San Carlos Hospital, Bogotá.

covered always with snow. The dry and wet seasons alternate at intervals of three months, starting with a dry period from December to February.

Colombia is a land of contrasts, and these are most striking when seen from an airplane. The landscape is always changing, revealing interwoven greens, browns, and blues. The huge mountain ranges, their jagged summits rising up against the sky, the rivers winding in the valleys, and the numerous primeval forests scattered throughout the country are an impressive sight.

The flora is abundant and diverse, and botanists affirm that more than fifteen thousand specimens have been described. Many of the wild plants, like the chupahuevo and matarrotón, are said to possess medicinal properties; and parasitic plants abound, notably the orchids which grow in rich profusion on the trunks of trees.

On the plains and in the valleys immense herds of cattle graze, and sheep and pigs are being reared on an increasing scale. Also, horses are imported from England to improve the local breeds. In the jungle there are various wild animals, including jaguars, tapirs, boars, deer, pumas, foxes, and bears, in addition to numerous species of monkeys and squirrels. The rivers contain the crocodile, the gliding eel, small salmon, the bagre, and the captain fish. Amongst the marshes and lakes are found waterfowl, heron, and wild duck, and on the moors quail, partridge, and pigeon. It is possible to see on the mountain crags a hawk or the rare condor. Many varieties of butterflies exist here, and numerous kinds of parrots, macaws, and parakeets.

There is a very interesting area known as the Macarena Hills, which is infested with monkeys and where yellow fever is rife. Consequently it has never been explored by man until recently. The control of yellow fever by inoculation has now made this possible. A research centre has been established with its headquarters in Villavicencia, and we had the opportunity of meeting and talking with the director of this work. A number of interesting biological investigations are being carried out, and it is hoped to extend these researches in the future. This appears to be a fruitful field for capable trained investigators.

The Travel Itinerary

We went to New York by sea, and, after spending one night in that city, travelled by air to our destination in Colombia. It was a grand flight over Miami in Florida, Cuba, and Jamaica; the beauty of the islands in the Caribbean Sea is most impressive. We reached Colombia at Barranquilla, a fine international port which is linked by the Magdalene River with the heart of the country. Here we received a warm welcome before proceeding by air to Bogotá, the capital city, where our main work was to be done. We were met by a deputation which included the Minister of Hygiene, the Director of the National Radium Institute, the representatives of the British Council, and a number of professors and doctors.

Bogotá is situated on the great plain—the Sabana de Bogotá—at a height of 8,500 feet above sea-level. It was established over 400 years ago, and is divided into old and modern sections, the former of which has a distinctly Spanish atmosphere, with narrow winding streets, big balconies on large colonial houses with gay patios, and peaceful little squares. Possessing a population of more than 600,000 persons, it is the centre of the political and cultural life of the country. The National University of Colombia occupies an area of 400 acres and has a large faculty of medicine. We spent four weeks working in Bogotá, and then left by air for Medellin, the capital of the rich department of Antioquia. This city was founded in 1674, and is recognized as one of the greatest industrial centres of Colombia. We worked in the University of Antioquia for three days and then proceeded by air to Cartagena.

Cartagena is a historic city of great grandeur situated on one of the beautiful bays of the Caribbean Sea. It is an important intellectual centre, with its university, the Academy of History, and the Naval School of the Colombian Navy. We spent a short period of two and a half days at work in the university. From Cartagena we went by air to the U.S.A. and attended the Joint Meeting of the American Proctologic Association and the Proctological Section of the Royal Society of Medicine, which was held in Columbus, Ohio. From Columbus we flew to New York and returned to England by sea.

Surgical Work in Bogotá

At the National University a large number of medical students are being trained. The curriculum extends over a period of six years, and after qualification resident appointments in the hospitals are available. Facilities are also provided for those who desire to make a study of special branches of medicine and surgery; these graduates often spend a period in the specialized clinics in England and the U.S.A. Many expressed a wish to come to England for this purpose.

The teaching hospitals vary greatly in size, the largest containing 1,200 beds. The treatment of cancer patients is mostly carried out in the National Radium Institute—a school of the University—whose director is a professor of surgery. This very active surgical centre also possesses a radiological department divided into therapeutic and diagnostic sections, a pathological department, and a statistical department. A large number of undergraduates attend the practice of this hospital.

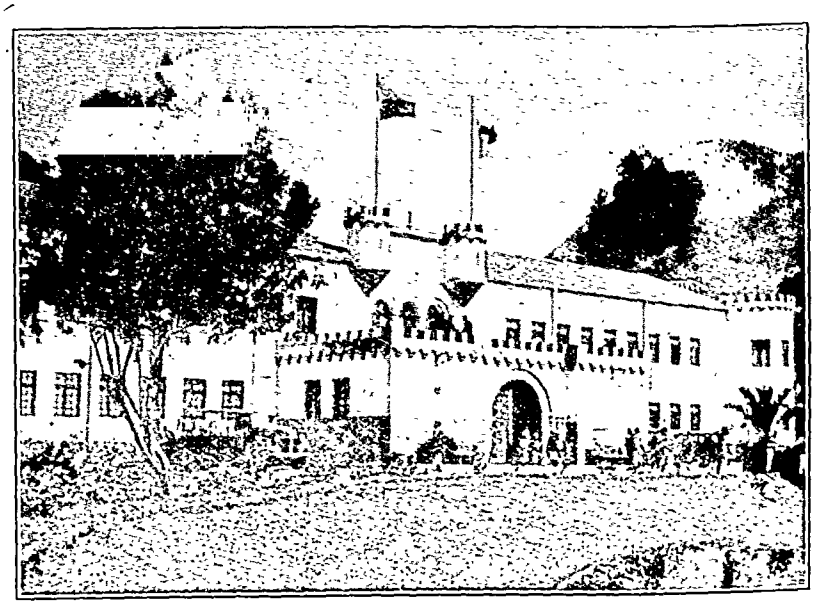
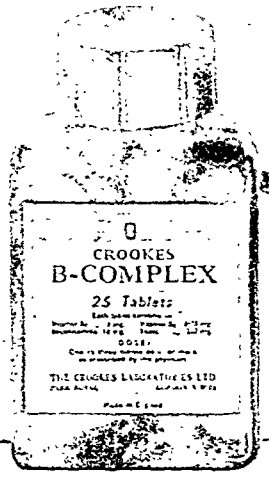


FIG. 2.—The Military Hospital, Bogotá.

When the clinical condition suggests

NUTRITIONAL DEFICIENCY



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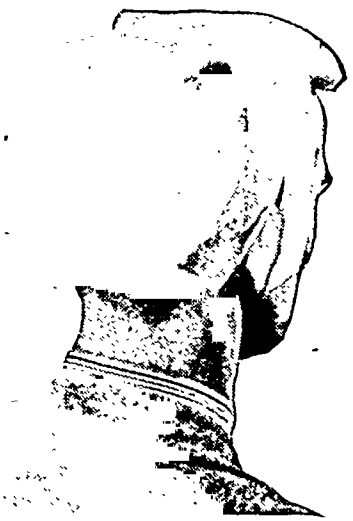
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In the treatment of scalp injuries, Elastoplast provides a neat and effective means of retaining a dressing in position.

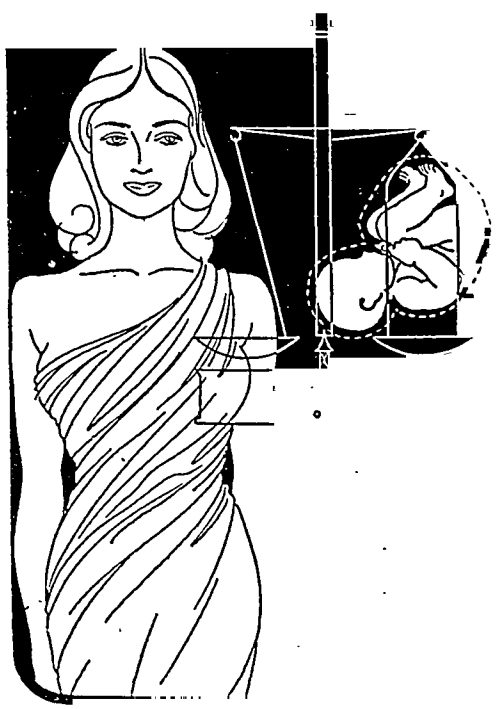
A short length of 3 in. Elastoplast Bandage is tailed at each end to accommodate the ears, and is applied as illustrated. This method ensures that the dressing is retained firmly in position, yet avoids the discomfort associated with bandages round the neck and chin.



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As pregnancy advances, the main concern of the doctor in charge is to preserve the nutritional balance of the mother against the undeniable demands of the foetus.

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* The recommended daily dose provides: vitamin A 2,000 i.u., vitamin D 300 i.u., vitamin B_1 0.6 mg., vitamin C 20 mg., vitamin E 1 mg., nicotinamide 25 mg., calc. phosph. 480 mg., ferr. sulph. exsic. 204 mg., iodine, manganese, copper, not less than 10 p.p.m. each.

PREGNAVITE

Protects the Mother . . . Safeguards the child

A single supplement for safer pregnancy*

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An important addition to the hospitals in Bogota is the new San Carlos Hospital (Fig. 1) for the medical and surgical treatment of tuberculosis. It embraces the most recent developments in hospital design, and is equipped with every modern device, including its own laundry. From its lay-out, especially in connexion with the wards and operation theatres, this hospital may be considered a model of its kind.

In addition to the civil hospitals there is the military hospital (Fig. 2)—a well-equipped institution beautifully situated amongst the hills.

The staffs of the hospitals are extremely keen and capable. A number of surgeons are engaged in various specialties, which include thoracic, gynaecological, and neurological surgery, urology, and proctology. In addition to routine undergraduate surgical teaching, clinical conferences and staff rounds are organized in each hospital and are well attended. On such occasions a number of patients with various lesions are shown and the diagnosis and treatment are discussed; or a definite subject is chosen and presented by a staff member, this being followed by a discussion. Original investigations are carried out in the laboratories, and facilities for pathological, clinical, and experimental research are provided.

There are two excellent clinics in Bogotá containing over 100 beds for the treatment of private patients. I was shown over them and was impressed with the facilities provided.

Most of our surgical work was carried out in the National Radium Institute, where every help was given by the director. Operations were also performed in the other teaching hospitals in the city.

The daily programme was a full one, the general plan being as follows. Surgical operations and anaesthetic demonstrations began at 8 a.m. and continued until 1 p.m. on four days a week, and until 11 a.m. on two days a week so that clinical meetings could be held. The staff were present at these meetings together with surgeons and doctors from other hospitals. The afternoons were devoted to discussions with staff members of hospitals, the examination of patients, or other work. Formal lectures were delivered daily at 6 p.m. in the faculty of medicine of the National University. These lectures comprised both general and special subjects. Amongst the former were such topics as "The Contribution of Great Britain to World Surgery," "The London Blood Transfusion Service," etc. The special group included the surgical treatment of cancer in various sites, anaesthesia, and lectures on war surgery. This was the first occasion on which lectures on surgery in war had been given in the country.

The National Academy of Medicine is an important learned society where papers embodying original work are presented. We had the privilege of addressing this academy at a special session. I also addressed the Congress of Gynaecologists meeting under the auspices of the Bogotá Surgical Society at its San José Hospital. In addition an address was given to the National Colombian Society of Gastro-enterology.

Medellin and Cartagena

The teaching hospital in the former city is San Vincente, which is a large and busy institution. Surgical operations and anaesthetic demonstrations were carried out and lectures were delivered in the medical faculty of the University of Antioquia.

At a special meeting of the academic council of the University of Cartagena it was pleasing to hear the Director of Education and the Rector speak of the close bonds of affection which have linked Great Britain and Colombia together over a period of many years. We worked in the teaching hospital of Santa Clara and lectured in the faculty of medicine of the University.

Malignant Disease in Colombia

During my stay I saw a large number of patients with malignant disease and also studied statistical reports. As in Great Britain, many of the patients apply for treatment when the disease is far advanced. It is important to establish an anti-cancer campaign there, and I discussed this subject with the profession. They are very anxious to develop this work, and realize the importance, both for the lay population and for doctors, of an educational programme dealing with the early symptoms of this disease. It is hoped that this work will soon begin, and that it will result in patients being treated much earlier in the disease than at present.

Regarding the incidence of various types of malignant disease, I was struck with the number of cases there were of sarcoma and other tumours of bone. All types of case were seen, and from the records there did not appear to be any outstanding aetiological factor.

Carcinoma of the cervix uteri is one of the commonest forms of this disease, and the same applies to the breast. A fair number of cases of epithelioma of the vulva and vagina are seen, and certain parts of the alimentary canal appear to be affected more frequently than others, common sites being the mouth, oesophagus, and stomach. As in this country, every effort should be made to diagnose carcinoma of the stomach much earlier in its development than at present. There appear to be fewer cases of carcinoma of the colon and rectum than with us.

General Impressions

The vastness and the grandeur of the country leave an indelible impression upon the mind of the visitor, and distances are such that air travel is essential. The medical profession received us with great friendliness, and it is a pleasure to recall the kindnesses we received. The hospital arrangements are good, with units varying in size up to a bed complement of 1,200. It is obvious that excellent surgical work is being done there, and the surgeons are keen and enthusiastic. There is a desire to progress and to learn new methods and techniques. It is hoped that facilities will be available for more of these keen young men to visit Great Britain and see the work here. Many Colombians wish to learn the English language, and in this and many other ways the British Council is doing excellent work.

It is a pleasure to thank the National University of Colombia for the invitation to undertake these travels, and also the University of Antioquia and the University of Cartagena for kindly asking us to visit them. The British Ambassador in Colombia gave us all possible help during our stay, and the Colombian Ambassador in London was most helpful in connexion with our visit. The medical profession in Colombia and many other friends showed us great kindness. The British Council made many arrangements for us, and its representatives in Colombia were most helpful throughout.

HEALTH EDUCATION

National Conference in London

Lord Woolton, president of the Central Council for Health Education, opened a two-day national conference at the Central Hall, Westminster, on November 8. The conference was attended by 700 delegates from local health and education committees and voluntary organizations, with many medical officers of health and directors of education. An exhibition, opened by Sir Arthur Hobhouse, chairman of the County Councils Association, was held in association with the conference. This was much more than the usual miscellaneous display of pictorial material. It was planned in five sections, comprising the nature, needs, environment, and diseases of man, and the social and health services, each illustrated by means of models, films and film-strips, charts, posters, photographs, and booklets.

At the opening session Professor ANDREW TOPPING, of the University of Manchester, made a striking contribution in which he blamed the medical profession for the general lay attitude towards sickness—namely, the attitude that anatomy, physiology, and pathology were esoteric subjects, beyond the comprehension of the layman. Admittedly under present conditions it was difficult for the doctor to find time for frank discussion with inquiring patients instead of making an arbitrary diagnosis and giving a scribbled prescription, but eventually he hoped that a large part of the resources of the medical profession would be devoted to the things that really mattered—the education of the public, the prevention of disease, and the control of the basic factors that produced disease.

It was an unpalatable fact. Professor Topping went on, that 90% of the minor illnesses from which we suffered were due to our own fault as individuals, parents, or members of the community. It was so easy for the ill person to consider himself a victim of something beyond his control, and there was still a regrettable tendency to "enjoy" ill-health, to be sentimentally avid for sympathy, and to be proud if one's illness was dignified by a high-sounding name. He believed that there was more scope for education in the field of infectious diseases than in any other. The vast majority of such diseases were avoidable by human endeavour. With one important exception—infantile paralysis—it was known exactly how infection was spread. The public should be told the facts in very simple language. He pleaded for an abandonment of the prudery which made the task of educating the public unnecessarily difficult. Euphemisms cut little ice. The public should be told in plain words how bowel diseases and food-poisoning originated and were spread.

Professor W O. LESTER SMITH, of the University of London, emphasized the importance of the school nurse. A good school nurse exerted the influence of a missionary. It would be an admirable thing if once a year school doctors and nurses attended a staff conference with health education as the sole subject on the agenda, when every aspect of the curriculum could be brought under review in relation to problems of health.

Second Session

The second session was presided over by Sir WILSON JAMESON, who reminded the conference that the Central Council was the child of the Society of Medical Officers of Health. The policy of the Government was now to reduce its direct grants in the belief that the Central Council would have a more independent, and in some ways a more useful, role under the aegis of local authorities.

Mr. D. R. HARDMAN, M.P., Parliamentary Secretary to the Ministry of Education, discussed the task of the health educator. His function was not to teach facts or even to develop skills, but to encourage an attitude of mind which would attract the child or the adult of the community generally to the ideal of healthy living.

Dr. ROBERT SUTHERLAND, medical adviser and secretary to the Central Council, said that the Council was just emerging from a period of considerable despondency and frustration. About two years ago it was told that, for reasons which were quite logical, the Government proposed to reduce its direct grant, at the same time increasing its grants to local authorities in the expectation that from such authorities there would be increased support for health education. The associations of local authorities, with which the subject was discussed, felt that they could not ask their individual authorities to double their subscriptions, as has been suggested, in order that the Central Council might not only maintain its existing services but improve them. The Central Council had been obliged to review its functions and to make very serious retrenchments, which was uncomfortable for everybody concerned. He believed, however, that as a result of this experience it had gained new life and new force and had directed its services into channels of even greater value.

Those who were working in preventive medicine, Dr. Sutherland continued, had been going through a similar experience as a result of the changes which had been brought about by the National Health Service Act. Many public health workers had felt that a large part of their life's work had been taken from them. He believed that such a period of tension was a necessary preliminary to a new orientation and re-direction of effort and a great surge forward into new fields of activity. There was every reason to believe that the local authorities, and those concerned with preventive medicine and with the teaching hospitals, and with education generally, were awakening to a new realization of the scope of health education in their own fields.

Professor R. H. PARRY, of the University of Bristol, said that they all hoped that the family doctor in the future would have sufficient time to be also the family friend and adviser. A healthy adult, however, did not need expert medical knowledge to maintain his fitness and lead a healthy life. "There is no need for him to qualify as a doctor—in fact, life tables prove that he would shorten his life by so doing." What he wanted was a sound knowledge of elementary biology. He must know the capabilities of his own body, and he might need an occasional word of advice on special problems that arose. Professor Parry went on to criticize certain forms of sex education. He was convinced that sex lectures to classes in senior schools often did more harm than good, merely stimulating the curiosity of the child. Training in biology in schools should supply sufficient knowledge, so that with a little further instruction, preferably from parents, the child or adolescent could understand his personal problems.

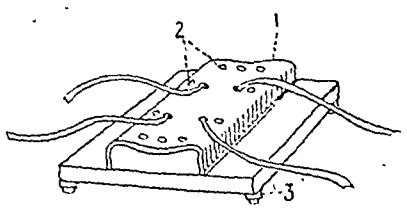
Conference Dinner

Lord Woolton presided over a dinner held in connexion with the Conference. He mentioned that it had been his hope as Food Minister that the children of the country would go through the war unscathed. If they had come through rather better physically than they had been at the beginning it was a matter for great thankfulness. Dr. Charles Hill, in proposing the toast of "The Guests," said that there could be no greater tribute to the Central Council for Health Education than the distinction of the guests, who included the Lord Chancellor representatives of the Ministries of Health and Education, of the departments of public health and social medicine at the universities, and of the associations of local authorities Viscount Jowitt made a response in a jocular vein in which he said that the real test of the value of the doctor was to see what happened when the patient had not done what he advised Mr Walter Elliot, M.P., proposed the health of local authorities, and expressed the hope that in future they would be more closely concerned with health education. Sir Howard Roberts, clerk to the L.C.C., said that local authorities needed all the "health" they could get. They had undergone some severe operations, with the removal of some of their health functions, though health education was still left to them. Sir Wilson Jameson, Chief Medical Officer of the Ministry of Health and Ministry of Education, said that the Central Council had been able to attract the help of large numbers of able and public-spirited people who had given generously of their time. In particular an immense debt of gratitude was due to Dr. Charles Hill, a former president of the Council, for the work he had done in public health education. Other speakers were Dr. Maurice Williams (president, Society of Medical Officers of Health), Mr. F. L. Freeman (president, Association of Education Officers), Dr. E. K. Macdonald, and "Fougasse" of *Punch*.

Preparations and Appliances

WEIGHT-BEARING DEVICE

Dr. W. S. TEGNER, physician to the Arthur Stanley Institute for Rheumatic Diseases (Middlesex Hospital), writes: The apparatus here illustrated has been designed by two physiotherapists of the institute to replace the conventional roller-skate as a means of obtaining non-weight-bearing movement, especially in the hip-joint after vitallium-mould arthroplasty. It has the advantages over the roller-skate of being designed for the job, of being mobile in all directions, of having a wide base, and of being easily used even when the limb is in plaster. It consists essentially of a wide-grooved wooden plate lined with "sorbo" rubber and diffusely perforated to allow of firm fixation by bandage to different sizes of limbs. While it has proved particularly useful in treatment after hip arthroplasty, it has also a wide range of other uses when non-weight-bearing exercises are required. It is being made by Messrs. Stanley Cox, and will be known as the Boltworth skate.



1, Rubber-cushioned surface for limb 2, Variety of holes for ties. 3, Ball castors.

AUREOMYCIN AND CHLOROMYCETIN

The Ministry of Health has issued the following memorandum:

These drugs are scarce and costly. Their use can be justified only for conditions in which they are considered likely to be beneficial. To ensure that the available supplies are used to the best advantage, the Ministry of Health has arranged to purchase all available supplies of both drugs and to distribute them through regional hospital board centres previously used for distribution of streptomycin. Hospitals outside the National Health Service will be able to obtain supplies of aureomycin and chloromycetin from these centres on payment. These arrangements will operate from November 21, 1949.

On the advice of the Medical Research Council it has been decided for the present to confine the use of these drugs to the treatment of the following conditions:

Aureomycin.—Suspected cases of ornithosis; proved cases of undulant fever (brucellosis), lymphogranuloma inguinale; severe cases of atypical pneumonia in which there is good reason to believe that the cause is a virus.

Chloromycetin.—Suspected cases of ornithosis; proved cases of undulant fever (brucellosis), lymphogranuloma inguinale, typhoid fever, paratyphoid fever (severe), salmonella septicaemia.

These categories are under constant review and may be added to from time to time in the light of current expert advice.

The Regional Distribution Centres are listed below.

Aureomycin and Chloromycetin Distribution Centres

Area No. and Board	Distribution Centre	Tel. No.
Area No. 1 Newcastle R.H.B.	Newcastle-upon-Tyne General Hospital, 418, Westgate Road, Newcastle, 4	Chief Pharmacist New. 35211
Area No. 2 Leeds R.H.B.	Leeds Blood Transfusion Laboratory, The Bridle Path, York Road, Seacroft, Leeds	Leeds 45091/3
Area No. 3 Sheffield R.H.B.	City Hospital, Hucknall Road, Nottingham	Nottingham 66292 (3 lines)
Area No. 4 East Anglian R.H.B.	Addenbrooke's Hospital, Cambridge	Chief Pharmacist Cam. 4451
Area No. 5. N.W. Met. R.H.B.	West Middlesex Hospital, Twickenham Road, Isleworth, London	Chief Pharmacist Hounslow 2311
Area No. 6 N.E. Met. R.H.B.	Mile End Hospital, Bancroft Road, London, E.1	Physician, Supt. Advance 2873/7
Area No. 7 S.E. Met. R.H.B.	Grove Park Hospital, Lee, London S.E.12	Lee Green 1077/8
Area No. 8 S.W. Met. R.H.B.	South London Blood Supply Depot, Benhill Avenue, Sutton, Surrey	Vigilant 0068
Area No. 9 Oxford R.H.B.	United Oxford Hospitals, Churchill Hospital, Headington, Oxford	Chief Pharmacist Oxford 48651
Area No. 10 South Western R.H.B.	Ham Green Infectious Disease Hospital and Sanatorium, Bristol	Bristol 31165
Area No. 11 Wales R.H.B.	City Isolation Hospital, Canton, Cardiff	Medical Supt. Cardiff 960
Area No. 12 Birmingham R.H.B.	Selly Oak Hospital, Birmingham	Medical Supt. Selly Oak 1361
Area No. 13 Manchester R.H.B.	Manchester Royal Infirmary, Manchester, 13	Chief Pharmacist Ardwick 3300
Area No. 14 Liverpool R.H.B.	Fazakerley Sanatorium, Liverpool, 9	Medical Supt. Aintree 2324

The Joint FAO and WHO Expert Committee on Nutrition held its first session at Geneva on October 24–28 under the chairmanship of Lord Horder. The committee recommended devising other methods of supplying prophylactic doses of iodine than adding it to table salt, especially in undeveloped areas. WHO is to gain information on the prevalence of pellagra, and to conduct an inquiry into the various forms of kwashiorkor. A recommendation was addressed to FAO on the preparation of an international code of analytical methods for the determination of vitamins in foodstuffs. The following were the members of the Joint Committee: Professor G. Bergami (Italy), Professor J. F. Brock (Union of South Africa), Professor Josue de Castro (Brazil), Professor M. J. L. Dols (Netherlands), Lord Horder (United Kingdom), Dr. V. N. Patwardhan (India), Dr. J. Salcedo (Republic of Philippines), Dr. W. H. Sebrell (U.S.A.), Dr. Hazel Stiebeling (U.S.A.), Professor E. F. Terroine (France).

Reports of Societies

NEONATAL PNEUMONIA AND TOXOPLASMOSIS

At a meeting of the Liverpool Medical Institution on October 20, with the president, Professor Charles Wells, in the chair, Dr. A. H. CRUICKSHANK read a paper on "Experimental Studies of Neonatal Pneumonia."

Lantern slides illustrating some of the common conditions affecting the lungs of babies who had died at birth, or within a few days of birth, were first shown. These included macroscopic views of atelectatic lungs with marked interstitial emphysema, microscopical views of polymorphonuclear cells in the alveoli of a stillborn infant, inhaled squamous debris from the infant's own skin, macrophages filled with phagocytosed meconium, and alveoli lined by hyaline membrane. These appearances were then discussed in relation to the respiratory movements that have been observed clinically and experimentally by various workers. Some authorities had suggested that the unborn human infant normally inhaled amniotic fluid. The results of experiments in which amniotic fluid, and its various constituents and contaminants, had been introduced into the lungs of adult rabbits by intratracheal injection were then presented. Meconium was shown to have a harmful effect by virtue of the intensely irritant bile salts which it contained. The desquamated squamous cells found in human amniotic fluid were then shown to be capable of causing a foreign body giant-cell reaction in rabbits' lungs; and, finally, collapse and leucocytic migration were demonstrated after the injection of cell-free, sterile, rabbit's amniotic fluid. A similar reaction was obtained after the injection of normal saline solution.

It was concluded that it must be abnormal for amniotic fluid to reach the infant's alveoli, and that it did so only as a result of a difficult labour, or of some other cause of foetal asphyxia. If the reaction in the lungs of adult rabbits was an index of the reaction in infants' lungs, inhalation of much amniotic fluid would be likely to cause a fatal atelectasis. In four or five days' time a foreign-body reaction might be found experimentally, but such a reaction was rarely noted in material from human infants in the neonatal period. That a foreign-body reaction could occur in a baby was shown in a slide from an infant surviving for four days with amniotic debris in its lungs. The rarity of such a finding pointed to the rarity of survival for as long as four days in these cases.

Toxoplasmosis

Dr. A. MACDONALD read a paper on toxoplasmosis, in which he discussed the laboratory diagnosis of the condition by methods including the serum neutralization test on the chorio-allantois of the developing chick and a complement-fixation test using antigen prepared from infected chick embryo tissue. Three cases of congenital toxoplasmosis in Liverpool gave similar results with both types of test. Positive complement-fixation tests were obtained in three out of 100 "normal" sera, presumably as a result of symptomless infection. It was difficult to assess the significance of a positive test in patients who had only one or two of the clinical signs often associated with the disease. Preliminary investigations showed an increased incidence of positive complement-fixation tests in infants with anencephaly, chorio-retinitis, and mental retardation, as compared with normal children. He emphasized that blood from both mother and infant should be examined preferably by at least two types of serological test.

In the discussion which followed, Professor N. B. CAPON discussed the possibility of other infections besides toxoplasmosis damaging the embryo and foetus. Dr. J. BERKSON said that from 1943 onwards there were frequent references in the American ophthalmic journals to the retinal changes due to toxoplasmosis. The pictures illustrating the retinal lesions accompanying these articles did not appear to him to differ from those seen regularly in the past and labelled congenital

coloboma, or old congenital choroido-retinitis. One of the three cases discussed by Dr. Macdonald was a patient of Dr. Berkson's, seen in March of this year. He was a boy aged 9 who presented a convergent strabismus in a microphthalmic eye, with a large area of old choroido-retinitis. He appeared to be mentally defective. The case was shown to the speaker's colleagues as a case of toxoplasmosis, and *x*-ray examination of the skull showed areas of cerebral calcification. Dr. Macdonald finally confirmed the diagnosis by showing a positive serological reaction in the boy and in his mother.

Dr. H. G. FARQUHAR said that the incidence of toxoplasmosis in man was not accurately known. It was a common parasite of animals, being found in cats, dogs, mice, rabbits, canaries, and sparrows, as well as in many other animals. Clinically, it appeared to occur in man in four more or less distinct forms: (1) a congenital infection, in which the foetus was affected *in utero*; (2) an encephalitis affecting older children; (3) an acute febrile illness in adults with a rash rather similar to that of typhus, and with a high mortality; (4) an apparently symptomless form affecting adults, which could often only be diagnosed by specific tests, but which might be confirmed in the female by the birth of a child affected with the disease. The diagnosis could be confirmed by finding the parasite in the blood, the cerebrospinal fluid, or post-mortem in the tissues. Tests for antibodies also helped in the diagnosis. Since the incidence of this disease was not known, and the mode of transmission was also in doubt, it was desirable that any case showing some or all of the known symptoms should be investigated with the diagnosis of toxoplasmosis in mind. Every effort should be made to find whether there had been any contact with an infected animal.

NORTH OF ENGLAND OBSTETRICAL AND GYNAECOLOGICAL SOCIETY

At a meeting of the North of England Obstetrical and Gynaecological Society held in the Jessop Hospital, Sheffield, on October 21, the chair was taken by the president, Mr. S. B. Herd.

Professor A. M. CLAYE described a case in which a sewing needle, which was not of surgical type, had been removed from the abdominal wall fourteen years after he had performed total hysterectomy for multiple fibroids.

Dr. T. SMITH discussed as "an unusual ovarian complication of pregnancy" a case in which an adherent ovarian mass had been removed from the pouch of Douglas. The patient was four months pregnant. On section, decidua-like tissue without demonstrable endometrial tissue was found, and the suggestion was put forward that the mass was a decidual tissue tumour arising from an ovarian endometrioma.

Dr. F. J. MILLYARD described a case of "uterine carcinoma *in situ*." The patient, aged 48, had had irregular uterine haemorrhage for one year and had uterine enlargement corresponding in size with a three-months pregnancy. On hysterectomy a gross endometrial hyperplasia was found which on section showed a non-penetrating carcinoma of the endometrium.

Dr. C. R. MACDONALD gave details of a case of the rare benign haemangioma of the uterus which he had treated by hysterectomy.

Dr. WILLIAM HUNTER discussed the diagnosis and treatment of "double uterus," and confined his remarks to cases in which two separate and distinct uterine cavities had been demonstrated, excluding cases with a rudimentary uterine horn. He had based his studies upon an analysis of a series of 27 cases and a survey of the literature.

Dr. Leslie G. Housden, member of council of the Save the Children Fund and one of its medical advisers, is shortly leaving England to visit the Sudan and British Somaliland on behalf of the Fund. He will survey conditions of child life there in order to see how the Save the Children Fund can best respond to appeals for help which have reached it from the Governor-General of the Sudan, the Colonial Office, and the Governor of British Somaliland.

Correspondence

Sunday's Wonder Drug

SIR,—Your leading article on streptomycin in the current issue of the *Journal* led a reporter of the *Sunday Express* to ring me and ask my view upon it. I gave him my opinion in the following words:

> The warning against the present somewhat indiscriminate use of streptomycin is very opportune, even though the general assessment of value of drug is on the pessimistic side. The story of streptomycin illustrates once more the tendency to overstate the range of usefulness, and to understate the toxic or side-effects, of new remedies. Actually, as the article states, the range of useful action is less than penicillin and the degree of undesirable side-effects is greater. The moral is (1) accurate diagnosis of the patient's condition. (2) forbearance in the use of any new drug till its limits are known; (3) careful oversight during its administration.

The reporter thanked me and said this was just what he wanted. But my opinion was not published, as no doubt the Editor considered it spoiled the story he was bent upon telling —I am, etc.,

HORDER.

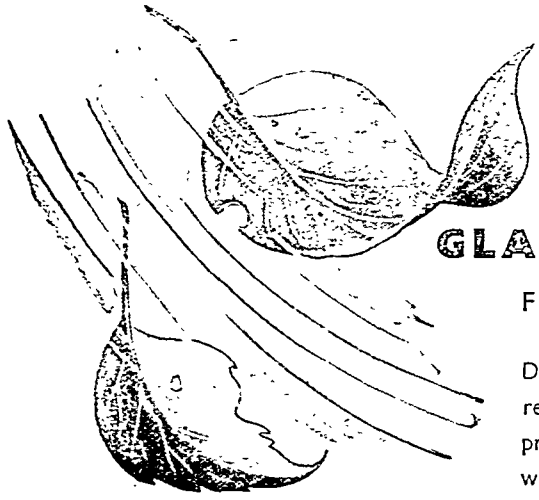
Virus Diseases in Pregnancy

SIR,—May I use your columns to appeal to medical practitioners to treat me with forbearance and to give me a little help in an inquiry that I am making into the possible effects upon the foetus of certain infectious diseases in the mother during pregnancy?

The position is this. There is, I believe, no doubt whatever that rubella early in pregnancy can cause defects in the child. What we do not know with any pretence to accuracy is the frequency with which the disease, occurring at different stages in pregnancy, will lead to such abnormalities. We can hardly talk of therapeutic abortion as being necessary for a woman who suffers from rubella during the first three months of her pregnancy (and such a step *has* been proposed) unless we know how often the child subsequently born has congenital defects and with what severity. That is not easy to find out. It implies the observation of an attack of rubella in a pregnant woman particularly in the first few weeks of pregnancy before she usually comes under medical observation, and a subsequent study of the child born.

Earlier this year Dr. T. McL. Galloway and I published a few observations of this kind (*Lancet*, 1949, **1**, 299). I am now hoping to extend them with the assistance of the Ministry of National Insurance, and at the same time to include some other infectious diseases the possible effects of which we do not know. The technique I have adopted is as follows. An insured woman in employment may be certified by her general practitioner as being absent from work through an attack of rubella, chicken-pox, mumps, or measles. The local office of the Ministry of National Insurance automatically receives a record of the illness and will make a special note of it whenever it bears one of these diagnoses and relates to a married woman. The same woman may claim maternity benefit for a birth that takes place within 12 months of the beginning of this previously recorded illness. In such circumstances the Ministry of National Insurance has an automatic record of the "double event"—a specified illness occurring at a specified date during (or just before) pregnancy and the date of birth of the child.

When this double event occurs the Ministry will notify me of the occurrence, but to ensure that the practitioner's certificate remains entirely confidential I shall *not* be given the name of the woman concerned. All that I shall know is that such an occurrence has taken place in the practice of one Dr. A. B. The Chief Medical Officer to the Ministry of National Insurance will himself send the name of the patient to Dr. A. B., with an explanation of the circumstances. At the same time I shall write to Dr. A. B. to ask whether one of my medical colleagues may visit him (or her) to discuss the nature of the



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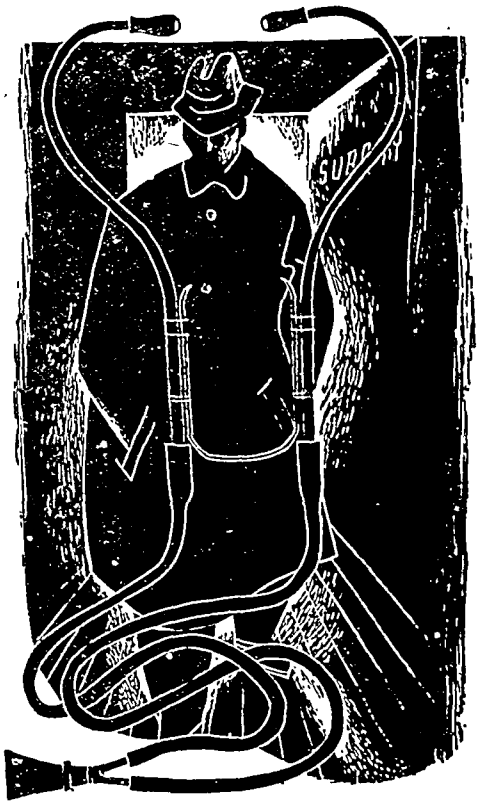
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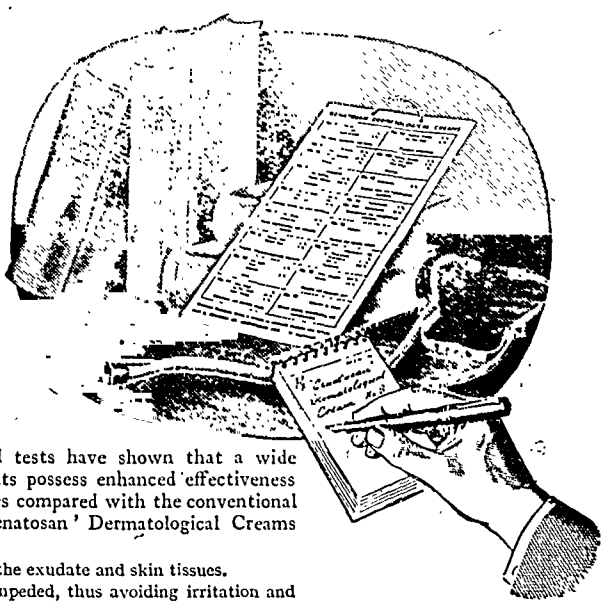
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congenital defects, if any. In the first instance the inquiry will be limited to the London and Home Counties area.

Cases of infectious diseases in the pregnant woman are uncommon, and I shall be surprised if I secure, all told, more than a hundred cases in a year. In short, I am unlikely to weigh down any general practitioner with work, but I have all the more reason to endeavour to lay hands on every case I can. I hope the relatively few medical practitioners to whom I shall have to write will listen sympathetically to my plea. Of course I would not say no to any doctor who might care to offer assistance personally by recording cases outside the sphere of employed married women, to whom my scheme is necessarily limited. But my request is not, in fact, for that help but for something very much slighter, yet essential if an important problem is to be solved.—I am, etc.,

A. BRADFORD HILL.

Department of Medical Statistics,
London School of Hygiene and Tropical Medicine,
London, W.C.2.

"Mantoux-conversion"

SIR,—I strongly support Dr. Charles Newman's plea (November 12, p. 1111) for the avoidance of two words, "conversion" and "inversion," for the same process. His criticism of my importation of "inversion" is right; referring frequently to the Scandinavian literature on B.C.G., I had fallen into their usage of the word. I agree with Dr. Newman that etymologically "conversion" is correct and join with him in hoping that "our Scandinavian friends . . . will be willing to drop the term 'Mantoux-inversion.'" I myself shall do so in future.

But a more difficult point arises over a word for a person who undergoes conversion or reversion, and I should welcome advice on this. The Scandinavians use "inverter" and "reverter" (Dr. Konrad Birkhaug, of New York, spells them "-or" in his foreword to my book). Though "reverter" is allowable, is "converter"? The purist would insist that it should be "convert," but this has a religious connotation. Some may even argue that it should be "convertee," but I refuse to assist at the birth of so monstrous a word.—I am, etc.,

K. NEVILLE IRVINE.

Henley-on-Thames.

Modern Trends in Radiology

SIR,—Whatever may be the merits and demerits of mass radiography, Dr. J. F. Brailsford (October 1, p. 724) is to be commended for his courageous attack on the abuse of radiology in general. Apart from the fear of litigation, the main reasons for this abuse are as follows.

First, there is the scientific neo-mediaevalism which believes that an *x*-ray film is bound to "show something." The most flagrant example is the incessant demand for *x*-ray examination following injuries, however slight, to the front of the chest adjacent to the sternum, regardless of the elementary fact that costal cartilage is radio-transparent. Secondly, as has often been said, slavishness to the machine has caused a deterioration in clinical examination and the eclipse of logical thought. Medical teachers continually deplore this state of affairs but seem powerless to remedy it. Thirdly, ambition, pride in craftsmanship, and commercial competition—admirable motives which in other spheres of activity increase the national wealth—in medicine inevitably lead to perpetual expansion out of all proportion to the practical results achieved.

Before the appointed day this country had a flourishing export trade in films. Since that day the supply has been insufficient to meet home needs. The Ministry, instead of using this shortage to bring doctors, auxiliaries, and the public to their senses, stimulated home production and imported films from abroad. Twice within a few weeks I have been urged to lay in a stock of Belgian films. Thus workers have been drawn from the creation of wealth and the balance of trade in films has been reversed to our economic disadvantage, with no gain to our standard of health. I cannot imagine that the Belgians indulge in this extravagance, and from all accounts they are better fed than we are. Their sense of values is evidently superior to ours. It is quite impossible to make the younger generation understand the simple fact that every film expended through carelessness or ignorance or merely for the satisfaction of personal ambitions makes our food dearer and lowers our standard of living.

Even the appeal to self-interest falls on deaf ears. The machine costs money—in labour, replacement, and consumption of materials. Honorary staffs of voluntary hospitals were independent of their hospital's resources. Now all payments come from the same source and the total sum is limited. It stands to reason, therefore, that the more that machines are used instead of brains the more of this sum will be used to pay the machines and the less will be left to pay the brains. We cannot have it both ways.

These things are very, very simple, so simple that I am almost ashamed to mention them. Yet perhaps their simplicity is the reason why they are not understood.—I am, etc.,

FF. ROBERTS.

Cambridge.

SIR,—As radiologist to a provincial hospital group I would like to support Dr. J. S. Gemmill's admirable letter (November 5, p. 1046). Dr. Brailsford's crusading zeal is well known, but there is a vast deal of truth in what he says. Diagnostic radiology must be complementary to clinical medicine. It can never be a substitute for it. The number of cases a doctor refers for an *x*-ray examination is often in inverse proportion to his clinical ability. Requests are constantly being made for elaborate and multiple *x*-ray examinations of several systems without any adequate clinical investigation.

I have been impressed in the last few years by the increasing number of patients—particularly with chest conditions—demanding *x*-ray examinations, not because of disease but because of the fear of disease. Radiology is a very expensive method of investigation and reassurance. The ever-increasing demands made on hospital departments and the flooding out of the department with unnecessary work can only hinder that leisurely and detailed investigation of the case in which radiology can help. For the same reason the all-important consultation with one's clinical colleagues is made so much more difficult. In the last analysis it is the radiologist who alone can appreciate the clinical facts, the help, and, still more, the limitations of his specialty.—I am, etc.,

E. OWEN FOX.

Eastbourne.

SIR,—The material presented in my paper (October 1, p. 724) was not the provoked outburst of an enthusiast but the gleanings from many years of careful observations, applied research, and approved opinions obtained in discussions with eminent clinicians both here and in America. I see no evidence in the criticism to alter the views expressed.

It would have been courteous to your readers, particularly in these days of paper shortage, if the critics had given evidence that they had studied my article and the material in the papers to which I referred, which answered their criticism, before writing their letters. The sole reason for the references was the desire to avoid repetition and save valuable space in your *Journal*. It is particularly noticeable that my critics have taken certain passages from their context, put their own interpretations, not mine, on their significance, and then called it nonsense—even I agree with them. Thus, in my article I stated that "there would be fewer errors in interpretation of radiographs if radiology was always preceded by a *sound* clinical examination," and Dr. Peter Kerley (October 15, p. 870) states, "It is not misinterpreting Dr. Brailsford to summarize his views on the diagnosis of tuberculosis and carcinoma as follows—wait until the patient has a big haemoptysis or a palpable tumour." Would it not be reasonable to point out that, if this is the standard of his clinical examination, what he does not know about clinical medicine is practically all there is to be known?

It is amazing to me to see that men engaged in these mass examinations fail to appreciate the mental and physical pain which their activities produce. I need produce no other facts or figures to condemn mass radiology than those provided by Dr. Peter Kerley. He states that three and a half million people were examined by mass radiography and that "as a result of the initial examination 13,401 were found to be suffering from active tuberculosis necessitating treatment. Samples of these patients compared with samples of patients reporting with symptoms to chest clinics have shown that those detected by mass radiography require from six to seven months' treatment before returning to work, as against 18 months to two years

required by those reporting to chest clinics." Since we have been told that most of the cases detected by mass radiography had no signs or symptoms, and since by far the greater number of these cases have had tuberculosis and must have recovered from it without having had any treatment, was it necessary to keep them in sanatoria for six months before sending them back to work? (We have 5,669 beds in sanatoria empty because of the shortage of nurses.) On the other hand, of the cases referred for radiography by the general practitioner because of signs and symptoms, many show so-called minimal lesions, but even with prompt sanatorium treatment progression continues for a time, and few would be considered by the tuberculosis officer to be fit for work in six months' time—some die though every expedient is used.

Dr. Kerley's second statement is open to even more serious criticism. He states, "A still larger group of individuals with minimal tuberculous lesions or lesions of doubtful activity detected by mass radiography have been kept under observation while at work." Why? Perhaps the best explanation can be obtained from the cases cited in the Prophit Tuberculosis Survey.[1] Take, for example, Case 108:

"English nurse. *X* ray normal in September, 1938. In April, 1942, doubtful shadow below right clavicle—in September, undoubted lesion. No symptoms, no clinical signs of activity. Remained on duty. January, 1943, definite spread and probable commencing cavitation. Feeling quite fit; E.S.R. 10. In March, 1943, further spread, and definite small cavity. The nurse still had no symptoms, and was still on duty. The following month, *while on holiday* (my italics), she complained of increasing malaise, persistent cough and sputum, and huskiness. In July, 1943, the infraclavicular cavity was larger and well defined and sputum was found to be T.B.+. A.P. was then induced"

In the face of the radiographic evidence of progressive disease, why was the nurse kept on duty? We must believe either that the statement that she had no symptoms was false, that the clinical examination was poor, or that the holiday caused the symptoms. Is it not possible that she tried to hide the symptoms and that the medical officer, short of nurses, too readily accepted the statement? The detection of the early lesion by radiography did not secure her treatment: this she got, in spite of radiographic evidence of progressive disease, only after she had developed signs of a severity which could not have escaped the clinical acumen described by Dr. Kerley.

Dr. S. Cochrane Shanks and Dr. Peter Kerley are advisers to the Ministry of Health on radiography, and neither they nor their assistants can be said to be free from vested interests. They are obviously angry that I should suggest that in these days of bankruptcy, when we have 5,669 empty beds, their service, which merely finds a few more cases they have not the means to treat, should be abandoned and the money devoted to those purposes which raise the resistance to the disease. From their concerted statements—"It is deplorable that such nonsense should have been given space in a scientific journal" (October 15, p. 870)—they indicate clearly that if they had the power they would prohibit it. Many distinguished clinicians have expressed entire approval of my constructive criticism.

Material from most radiographic departments could be obtained which proves the lack of judgment, skill, and knowledge on the part of certain doctors in carrying out on patients the procedures the significance of which I suggested students might learn by performing on each other. Is it nonsense to say to such people, "You have it done to yourself by someone as incompetent as yourself and see if you would then think it justifiable"?

Dr. F. Kellerman (October 15, p. 870) need have no fear for the reputation of British medicine in my hands. Constructive criticism of trends is not condemnation of the whole. The many honours bestowed upon me before and during my extensive tour of the U.S.A. were in acknowledgment of my contributions to the literature, and I can assure him that I have every reason to know that I left in every State an enhanced opinion of British medicine.

Edgbaston, Birmingham. JAMES F. BRAILSFORD.

REFERENCE

1 *Tuberculosis in Young Adults*, 1948, London.

*** This correspondence is now closed.—ED., *B.M.J.*

Use and Abuse of Vitamins

SIR,—In his article on the use and abuse of vitamins (November 5, p. 1036) it is noteworthy that Professor L. S. P. Davidson never refers to the human factor. He is satisfied that the general practitioner, if adequately trained in the science of nutrition, is the proper person to give advice to the family on how to eat, when to eat, and what to eat. Is he as well satisfied that the family will accept the advice?

Every doctor in touch with the people knows that they will eat what they like when they can get it, and will not eat what they do not like unless they are hungry and can obtain nothing else. It is obvious that if the populace was sufficiently regimented to conform to the instructions of the dietitian (and how these dietitians can disagree) there would be no need of vitamin preparations except in infrequent cases.

I know what my patients should eat. I advise, but I am well aware of what they really do eat and what they will not eat. They are not cranks, merely a cross-section of our population. Taking these people as we find them, desiring to help them, and knowing that health propaganda, particularly in the field of dietetics, is likely to be tedious and show little effect in our lifetime, it is found necessary to prescribe vitamin preparations much more frequently than would appear to be necessary from Professor Davidson's article.—I am, etc.,

Hexham, Northumberland. RICHARD BELL.

Teaching of Physiology

SIR,—It is unfortunate that Dr. M. Beddow Bayly (November 5, p. 1048), whether wilfully or unconsciously, completely missed the point of Professor D. H. Smyth's letter (October 8, p. 813) on this subject. This was a plea that the medical profession as a whole should help to guide public opinion so that at least some fraction of the hundreds of thousands of cats and dogs destroyed annually in this country should be made available for physiological teaching and research, on which, ultimately, all advances in medicine depend. Instead, Dr. Bayly concentrated on the word "restrictions," referring to them as "undesirable restrictions," and proceeded to fill a column in asking why they were undesirable. Professor Smyth had neither suggested nor implied such an idea. In common with all physiologists in this country, he knows that the restrictions imposed by the Home Office are highly desirable, for they afford the protection of the law against interference from the antivivisectionists. They offer no hindrance to research, since little of physiological value could be obtained from experiments on animals in acute emotional distress.

It is possible that Dr. Bayly is himself a member of an antivivisection society—his illogicality is typical of their pronouncements. If I misjudge him, and his misreading of Professor Smyth's letter was not deliberate, I offer my apologies. The whole question of the supply of cats and dogs for research is so acute, and of such importance to the future of medicine in this country, that attempts to draw attention from it must not be allowed.—I am, etc.,

London, W.C.1. M. GRACE EGGLETON.

*** This correspondence is now closed.—ED., *B.M.J.*

Reform in Medical Education

SIR,—The article on "Reform in Medical Education" by Professor W. Melville Arnott (September 3, p. 497) is a notable contribution to the literature on this subject. It should prove most useful to those who are responsible for framing curricula in numerous medical schools. Where so much is excellent, one hesitates to criticize, but there appear to me to be three points which call for comment.

(1) If one infers correctly, the author is of the opinion that physical examination of the chest is a clinical method inferior to that of examination by radiography, and that the only purpose of such method is to provide practice "against the time when radiology is not available." Surely, however, there is to be obtained from physical examination of the chest much information which may not be revealed by even the very best

radiograph. Furthermore, there are many points concerning the functional aspects of the thorax about which the radiograph will tell us nothing. Professor Melville Arnott may look upon these points as axiomatic, and possibly the statement in the *Journal* does not represent the full text of his address to the East Yorkshire Branch of the B.M.A.

(2) "Mathematics to a higher standard, including elementary statistical methods and an introduction to the calculus . . . should be an essential requirement for admission to a medical school." There is no doubt that such knowledge is most useful to a medical student, but if the possession of it were made a condition of entry, one feels, from long experience of medical students, that such insistence would preclude the admission of many to the medical faculty.

It might here be mentioned that Professor E. C. Dodds, in his article in the same issue of the *Journal* (p. 505), states, "I have been impressed with the curious allergic objection that they (medical students) have to any form of mathematics," and, further, he says, "It is possible to explain to students the phenomena of physical and colloid chemistry without recourse to higher mathematics." One has noticed over a period of years that not a few students who do very well in mathematics do not do well in other subjects of a biological nature requiring skill in the fundamental disciplines of clinical examination. It was shown in a paper a few years ago that too great insistence on mathematical ability would have deprived a number of Australian hospitals of some first-class clinicians. A paper by D. H. Smyth, quoted in the article, bears out the fact that there is room in the medical profession for men and women possessing very diverse aptitude.

(3) As Professor Melville Arnott says, the selection of students is a most controversial question. Experience over a number of years with the interview, however, convinces one that this procedure has very definite limitations. It has been said very truly that it is only by living with people that one comes to know them well. If all intending medical students who were physically fit were required to undergo a year of national service, with a proportion of time given over to scholastic work as in a Service training college, it would be possible to obtain from their instructors the information that university authorities are seeking.—I am, etc.,

Brisbane. E. S. MEYERS.

Treatment of Ringworm of the Scalp

SIR,—There are certain statements in the letter by Drs. J. Martin Beare and Ivan H. McCaw (October 8, p. 815) which call for further comment. The literature by no means confirms their contention that 25% of *M. audouini* infections of the scalp undergo spontaneous cure in less than six months. In fact there are countless reports, such as that of Lewis[1] and Lewis and Hopper,[2] in which such cases have been treated by local methods for long periods of time without any response whatever. Even in series such as that of Livingood and Pillsbury,[3] in which some 33% of "spontaneous" cures were claimed despite the fact that local treatment was applied the whole time, it took anything up to two years for the cases to become finally clear. It is evident, therefore, that this factor is of little or no importance when evaluating any method of treatment which will cure this condition in an average time of three months or less.

At this point it may be emphasized that the desirability of rendering these cases non-infective as soon as possible precludes the possibility of using untreated cases as controls. While the use of a toothbrush in applying the ointment to the scalp may be regarded as a useful "additional mechanical factor," as Drs. R. T. Brain and H. Haber and Mr. J. W. Hadgraft point out in their paper (September 17, p. 626), it has never been suggested that it is anything more than this, and it is difficult to imagine how it could ever approach in efficiency manual epilation with forceps by a skilled operator as Drs. Beare and McCaw suggest. In any case, except for academic reasons, surely it is quite immaterial whether the toothbrush assists the action of the local application or not. The fact which is of real importance, as the previous paper by Brain and his colleagues[4] and the preliminary communication by Drs. A. J. E. Barlow, F. W. Chattaway, and C. S. Whewell (October 15, p. 875) shows, is that this method of treatment is capable of curing some 75% of cases of *M. audouini* infection in an average time of 8–9 weeks without its being necessary to resort to manual epilation with forceps or any other procedure which cannot be carried out by the parent at home This last point is, I think, of particular importance.

Although Drs. Beare and McCaw had four cases of contact dermatitis out of 14 cases in which salicylanilide in carbowax was used, they do not state the concentration of the fungicide or whether the preparation contained any other substances which may have caused sensitization. It should also be pointed out that both Schwartz and his colleagues[5] and Kinnear and Rogers[6] treated a considerable number of cases with salicylanilide not exceeding 5%, and no cases of contact dermatitis were reported. Irritation due to mechanical friction should be distinguished from true sensitization dermatitis.

While it was admitted by Brain and his colleagues[4] that *x*-ray epilation still afforded the quickest and most certain method of cure, it should be remembered that at many specialized centres practising this form of therapy there is a wait of sometimes three to four months before treatment can be commenced. Add to this the four or six weeks required for cure and the total time is some three to four months, which is four to eight weeks longer than the time taken to cure 75% by effective local therapy. In almost every case which yields to local treatment a distinct reduction in the number of infected hairs as seen under Wood's light seems to occur within eight weeks, and usually much sooner, thus enabling one to sort out at this stage with a fair degree of certainty those which will probably require *x*-ray epilation. This can then be arranged. It will be seen, therefore, that even the 25% of failures can then be assured of a probable cure in a total time of five to six months.

It might be as well at this point to summarize the main disadvantages of *x*-ray epilation[7]: (1) Permanent alopecia is extremely unlikely in the most expert hands, but always remains a possibility, especially with less expert operators. Shanks[8] instances nine cases in 2,400 epilations. (2) Apparatus and expert radiotherapists are not available everywhere. (3) *X*-rays are unsuitable for very young children and quite often necessitate an anaesthetic with its negligible but nevertheless ever-present risk. (4) Hair is longer regrowing than after local therapy, which is a particular disadvantage in the case of girls.

I would suggest, therefore, that the method of treatment outlined by Brain and his colleagues,[4] while suitable only where facilities exist for examination under Wood's light and, preferably, culture of the organism, should be used in preference to *x*-ray epilation under the following circumstances: (1) in all cases of pre-school age; (2) where facilities for *x*-ray epilation are not available within a very short time, and especially during epidemics; (3) in all cases of infection with the animal microsporon—e.g., *M. felineum* or *M. lanosum*.—I am, etc.,

Witley, Surrey. K. D. CROW.

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Treatment of Erysipeloid with Penicillin

SIR,—I am prompted by Dr. R. A. Bush's medical memorandum concerning his case of erysipeloid of Rosenbach (October 29, p. 964) to let you know of my experience. During the past year I have seen four cases. The diagnosis was made on clinical grounds; a painful, slowly spreading erythema was present and there was a history of contact with raw meat or fish. In all cases the hand was the site of the lesion, which had been present for roughly one week before medical attention was sought.

As some cases are said to respond to sulphonamides[1] a course of sulphamezathine was started, but it was evident that the area involved was extending, and after three days the drug was stopped and replaced by penicillin intramuscularly. It was

given in doses of 500.000 units in aqueous solution at 24-hour intervals. The patients continued at their work and no local treatment was administered. The response in all cases was dramatic; 24 hours after the first injection the colour was fading. Twenty-four hours after the second injection the skin appeared normal, but some pain was present on movement. A third injection cleared this, and no further treatment was given.

One of the patients defaulted after the second injection, but the condition resumed activity after two days and the patient attended again. It would appear that in addition to the skin clearing one must be sure that movement is painless before pronouncing the patient cured.—I am, etc.,

Huddersfield. N. V. SAPIER.

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Hypnosis in Treatment

SIR,—Dr. K. M. Hay (October 15, p. 874) remains far from being reassured of the possible dangers of hypnosis to the personality. I have tried to allay his fears and suspicions in my last letter (October 1, p. 756) by reporting that in the light of present knowledge no evidence of personality danger exists during hypnosis as demonstrated by the Rorschach test. Dr. Hay dismisses such evidence as invalid because he doubts that the Rorschach test is anything more than a modified ink-blot test and can be nothing more than a rough measure of the personality biased by one psychological school or another.

Agreed that the Rorschach test is as yet an imperfect measure of the personality, yet it remains a universally recognized test of personality and is considered by many as the most efficient of such tests in the psychological armamentarium. It is certainly a more accurate and scientific investigation of the personality than that which might be revealed by any inquiry conducted by general practitioners, religious leaders, and philosophers as was advocated by Dr. Hay in his earlier letter (September 17, p. 653).—I am, etc.,

London, W.14. NEVILLE MURRAY.

*** This correspondence is now closed.—ED., *B.M.J.*

Infantile Enteritis

SIR,—I have read with interest your leading article (July 15, p. 141) on the aetiology of infantile enteritis and the paper in the same issue (p. 117) by Drs. Joan Taylor, B. W. Powell, and Joyce Wright describing an investigation of the aetiology and treatment of this condition. From the statements in the *Journal* it does not appear likely that you have read my papers.[1,2] These investigations I carried out on infantile diarrhoeas occurring in infants in nurseries for the newborn in Ontario. The epidemics, 10 in number, occurred from December, 1940, to September, 1943.

At that time, during the bacteriological investigations of faeces and other specimens obtained from sick infants and fatal cases, I was impressed with the large numbers of *Bact. coli* in these sick infants. Many of these colon organisms showed distinct zones of haemolysis around the colonies on sheep-blood agar plates but failed to show any appreciable haemolytic titre against sheep or rabbit blood cells in the test-tube.

It is quite possible that the toxin liberated by many colon organisms can produce the characteristic symptoms in infants if they are suddenly swamped with large numbers of viable, toxin-producing organisms in their feeds. Histamine may be produced and may be one of the factors causing the severity of the symptoms. I suggest five reasons for suspecting the *Bact. coli* and their ability to produce symptoms in these infants. (1) Abundance of these organisms in sick infants and fatal cases. (2) Production of scours in calves due to colon organisms; Theobald Smith reports that calves which did not receive the colostrum milk were more often attacked. (3) Presence of lysozyme in mothers' milk and not in cows' milk. (4) *Bact. coli* bacteriophage absent in the intestinal tract of the newborn infant. (5) Production of toxins from colon organisms and their ability to produce diarrhoea, vomiting, and even death in cats.

As I have stated, the possibility of a virus has not been excluded. Light and Hodes were able to produce diarrhoea in Guernsey calves from filtrates of the faeces taken from affected infants. I am not aware that this finding has been confirmed by other workers. All these investigations should once again stress the importance of breast-feeding. It was noted in these epidemics that premature infants were the first to become ill and were the first to die. It was not until a normal infant became ill that the epidemic was recognized.

I am now practising in a mission hospital in South China, and here at least 95% of the infants are breast-fed. We do not have these epidemics in the nursery. We do not have feeds of cows' milk lying around to become contaminated with *Bact. coli*. The fermentative reactions which occur in the intestine of the breast-fed infant keep the numbers of colon organisms greatly reduced, until the infant can deal with them and create an immunity against the toxins produced by them, or whatever the process is that enables the infant to accustom itself to them.—I am, etc.,

Kongmoon, South China. WALLACE B. MCCLURE.

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Dosage of Penicillin

SIR,—It seems to me that during the last few years the dosage of penicillin recommended in the treatment of various maladies has steadily risen. When we first received supplies of penicillin for trial we were told that after exhaustive research it had been found that 15,000 units three-hourly or a total of 120,000 units in 24 hours maintained an effective blood level.

In the article by Mr W. M. Mollison entitled "The Acute Ear" (October 22, p. 923) there is recommended a dosage of 500,000 units of watery solution twice daily—i.e., a daily total of 1,000,000 units—this in spite of the fact that the drug is now provided in a much more pure state.

Has this dosage been arrived at by research in a bacteriological laboratory or is it because of a loss of faith in the power of the drug? Is it a result of clinical experience, or is it simply because penicillin is now so much cheaper that it can be wasted? In all humility I ask, Is this dosage really necessary? Or is it just as ridiculous and wasteful as pushing large quantities of vitamins into a patient who is already getting enough from his diet?—I am, etc.,

Witney, Oxon. L. G. LE CLERCQ.

Buccal Ulcers Caused by Isoprenaline

SIR,—We have recently had in the Middlesex Hospital, under the care of Dr. G. E. S. Ward, three patients suffering from asthma who presented an unusual and trivial, but to them distressing and to us inconvenient, complication. They obtained good relief from attacks by sucking a tablet or half a tablet (10–20 mg.) of isoprenaline under the tongue. The first patient complained of "sores" in her mouth which looked like aphthous ulcers and were treated accordingly. She had been discharged before similar lesions occurring in two further patients drew our attention to the possibility that they were caused by isoprenaline. That this was so was readily confirmed. Two brands of isoprenaline ("neo-epinine" and "neodrenal") were tried, and both caused ulceration.

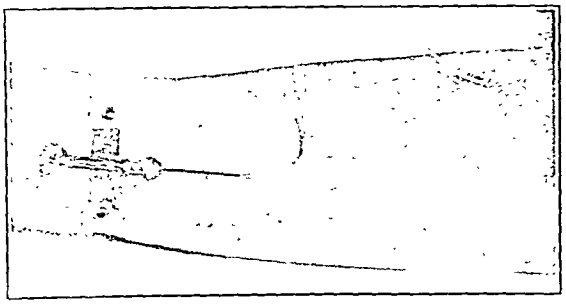
Neither of these patients showed sufficient skill or understanding to obtain comparable relief from hand-operated spray inhalers, so we sought for a way to avoid this unpleasant side-effect. It seemed reasonable to suppose that the buccal mucosa was in some way damaged by prolonged contact with the vaso-constrictor drug when concentrated in a tablet, so we tried powdering the tablet in a small amount of liquid (rather less than half a teaspoonful of lemon syrup was used, but this is only arbitrary) before giving it to the patient to suck. This had the desired effect, and both patients were able to use the tablets satisfactorily with no further trouble.

It is felt that this complication and the simple manœuvre by which it is avoided are worth reporting, because isoprenaline is valuable in the relief of asthmatic attacks, especially so in those patients who are unable to master the (albeit elementary) technique of using and looking after a hand-spray inhaler.—I am, etc.,

London, W.1. MORAN CAMPBELL.

Heparin Administration by Polythene Tubing

SIR,—I was very interested by Dr. W. A. L. MacFadyen's note (October 22, p. 925) on the use of polythene tubing and a diaphragm adaptor for the intravenous administration of heparin. I have for some time been giving heparin by a similar method, but have used the Robertshaw modification of the Gordh adaptor. This adaptor is similar to that described by Dr. MacFadyen but is provided with a wide metal flange which facilitates attachment to the arm. Although this adaptor is supplied with a rubber strap for fixing it to the arm, it is in practice much better to attach it with a length of elastic adhesive strapping as shown in the accompanying photograph.



Robertshaw-Gordh adaptor with 14 s.w.g. needle and fine polythene tubing. After sterile dressings have been applied over the diaphragm and the puncture wound, the whole apparatus is covered with a soft bandage.

A further advantage of this apparatus is that the diaphragm is set at an angle to the needle, which facilitates injection.

This needle adaptor is supplied by A. L. Hawkins and Co., Ltd., 15, New Cavendish Street, London, W.1, and it has been in use in a number of the wards of St. Bartholomew's Hospital. I can certainly vouch for the simplicity of the apparatus, which has completely revolutionized heparin treatment. Whereas the ordinary Gordh needle cannot be used in the antecubital fossa, the polythene tubing can be readily inserted here and pushed up the vein for an inch or two above the elbow (this is often especially useful in those patients who, having no suitable forearm veins, could not previously be treated easily with the ordinary diaphragm needle).

Finally, I would like to emphasize that many patients are up and about throughout the period of treatment, the polythene tube remaining in the same vein for four or five days, and sometimes for as long as 10 days.—I am, etc.,

Radlett, Herts. R. S. MURLEY.

Carbachol for Migraine

SIR,—Ophthalmologists will be grateful that such an authority as Sir John Parsons thought it necessary to comment (October 29, p. 980) on the article by Dr. G. S. Graveson (October 15, p. 838). The majority will agree with his remark that Dr. Graveson's article is liable to misrepresentation and may cause suffering to migraine subjects.

I have been particularly interested in this condition for many years, and I have never found a case of permanent homonymous field defect due to migraine. I do not find that the typical migraine syndrome has the scintillating scotomata as a most frequent sign. I consider the bad headache, sickness, photophobia, and the wish of sufferers to rest in a darkened room are most symptomatic. I am acquainted with the theories of migraine here and abroad, but must say that I have not met many cases of aphasia, tingling, and numbness of fingers and tongue, as described. I have tried to watch the fundal condition in some patients during an attack, and admit my complete inability to see any change in the retinal vessels.

However, my whole ambition in writing this letter is to stress that, whatever theories, syndromes, and ideas we would like to postulate, our great mission as physicians is to bring relief to the unfortunate victims of this or any other condition, and I believe we have a specific for migraine in carbachol. Carbamylcholine chloride is a similar substance to acetylcholine. It is, I believe, resistant to cholinesterase, and is a parasympathetic nervous stimulant and produces peripheral dilatation of the blood vessels. If vascular spasm is the cause, carbachol may counteract it.

Long before the war I used a similar substance, though an inferior one, the German "doryl" (an English preparation was named "moryl"). In an article appearing in this *Journal* in 1945 (May 12, p. 663) Dr. A. K. James gave facts and figures of his treatment of migraine with carbachol. I had prepared a series of cases to report in the *Journal* of my success with "moryl," and I went on to investigate carbachol, and since then I have never failed in curing a migraine attack either temporarily or permanently by the use of this preparation. In fact, I am now so sure of its activity that in bad headaches and conditions simulating migraine where one suspects the history given by a patient I give or advise carbachol, and if there is no immediate improvement I feel the condition has nothing to do with migraine.—I am, etc.,

Walton-on-Thames, Surrey. J. H. MELLOTTE.

New Mechanism of Vitamin Deprivation

SIR,—Under this title Professor A. C. Frazer published an article in your journal (October 1, p. 731). His considerations cover a very wide field—the causes of deficiencies of fat- and water-soluble vitamins, some of which practically have nothing in common but the name vitamin. Several of his statements as well as his main claim to have discovered a new mechanism causing vitamin deficiencies require comment. His conclusions are based on some features of deficiencies of vitamins of the B group—riboflavin, nicotinamide, pyridoxin, and folic acid—as observed in sprue. My comments are as follows.

1. Professor Frazer states that the effect of antibacterial agents on vitamin deficiencies is unknown. This is not so. Considerable reduction of urinary output by man of aneurin[1] and of nicotinamide methochloride[2] has been observed after oral administration of "sterilizing" sulphonamides to humans, some of which were pellagrins. Moreover, cases of nicotinamide deficiencies have been reported after oral application of succinyl sulphathiazole,[3] sulphadiazine, and penicillin.[4]

2. Professor Frazer states that all these vitamins mentioned by him are essential growth factors for bacteria, particularly those which are known to be present in the upper part of the small intestine in sprue. He does not give details of the types found under these conditions. If, however, *Bact. coli*, which are the main producers of nicotinamide in the human intestines under normal conditions, are amongst these bacteria this statement is incorrect, since *Bact. coli* can easily grow without any of these vitamins.[5]

3. Professor Frazer further states that the part played by the intestinal bacteria in vitamin synthesis in human subjects is obscure. It has been shown that the human requirements of aneurin,[1] riboflavin,[6] and nicotinamide[2] are covered to a considerable extent by the production and release of these substances by the intestinal flora. These earlier investigations have been reviewed and discussed on several occasions.[7–10] It has been shown by simultaneous examination of the bacterial composition of the faeces and of the height of urinary nicotinamide methochloride elimination that the latter parallels the amount of *Bact. coli* in the faeces.[11] Of the most frequent inhabitants of the human intestines, *Bact. coli* produces, and *Proteus* and *Staphylococcus faecalis* consume, nicotinamide.[12]

4. The competition of nicotinamide-consuming and producing bacteria and other inhabitants of the intestinal tract as influencing the amount of nicotinamide available from this source for human requirements has been discussed in almost every

paper dealing with this subject. Consumption or production of nicotinamide by a mixed culture from the human caecum depends on the growth under anaerobic or aerobic conditions.[13] The fact stressed by Professor Frazer that in cases of sprue intestinal bacteria were found in the upmost part of the small intestine in a- or hypohydrochloric patients as being important in the development of the deficiency is irrelevant. Viable *Bact. coli* release only very little nicotinamide, while dead *Bact. coli* release this substance to a large extent.[12] In the highest part of the intestines most of the bacteria will be alive, while in the rectum a large proportion of the bacteria are dead, and nicotinamide is readily absorbed from the rectum.[14]—I am, etc.,

London, S.W.1. P. ELLINGER.

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Manufacture of Cortisone

SIR,—After hearing a talk broadcast by the B.B.C. on the use of "compound E" in rheumatoid arthritis, in which the speaker mentioned that the bile from 40 carcasses of cattle was required to produce one daily dose of cortisone, it occurred to me that the present slow rate of production might be accelerated if it were possible to produce, by operation, biliary fistulae in suitable cattle. I can quite imagine that it might present a surgical problem of some magnitude, but, recalling the remarkable feats of surgery performed by physiologists such as Pavlov on animals, I can see no *prima facie* reason why it should not be feasible. Moreover, if cortisone proves to be indeed the answer to rheumatoid arthritis, it might be worth the trouble to arrange for the central collection of the bile that drains from the bile ducts of patients who have undergone choledochotomy, which in aggregate over the entire country must amount to many gallons daily.—I am, etc.,

Bedford. CECIL ALEXANDER.

The G.P. and E.C.T.

SIR,—E.C.T. again! Surely "this is where we came in." I can recall several previous discussions, in all of which I had the pleasure of joining. Dr. Donald M. O'Connor (October 29, p. 984), because of some relapses in his patients, would have us go back to "bromides, barbiturates, and chloral hydrate." Supposing a certain number do relapse, what is wrong with a second course of E.C.T., or even a third? Three courses can be given (average 6–10 treatments) in under three months, and a cure in this period compares favourably with 6–18 months of "bromides, barbiturates, and chloral"—not to speak of long periods in the latter treatment when one goes to sleep uneasily wondering whether the patient will stick it out or whether one will get a telephone message from a relative saying he failed to return "from a walk in the country."

As illustrating the value of E.C.T., may I quote my own experience here? Largely as the result of E.C.T., admissions to the hospital of which I am in charge (St. Luke's, Armagh) have quadrupled (approximately 90 per annum to 350) in the past five years. In spite of this our permanent population has risen very little. Had relapses been at all frequent or of serious nature we should have been swamped.

One point I will grant Dr. O'Connor: E.C.T. in out-patient practice is only about 60% as effective as when a patient agrees to enter hospital. This can easily be understood when it is appreciated that instead of continuous rest the patient must make his way home a few hours after treatment and perhaps have to tackle business or domestic problems with a mind showing marked temporary lapses of memory. Nevertheless, if the patient will not or cannot enter hospital it is an essential part of treatment for all anxiety and depressive conditions and should be given forthwith.

The long night of waiting in psychiatric practice is over and the dawn is here. Psychiatry, with E.C.T., insulin coma leucotomy, occupational and recreational therapy, suggestion persuasion, explanation, and understanding, is on the march and nothing will reverse the process and revive the days of "bromides, barbiturates, and chloral hydrate."—I am, etc.,

Armagh, Northern Ireland. ROBERT THOMPSON.

Health and the Soil

SIR,—In your issue of February 11, 1939, you were good enough to publish an article of mine entitled "Health and the Soil," which I prefaced with the modern danger of an excessive speed of knowledge at the periphery unaccompanied by a strengthening of knowledge at the centre. I supported this thesis with a saying of the great Goethe (who foresaw what we now see) in his *Wahlverwandschaften*: "Every evil shall be healed upon the spot, where it shows itself, and no one concerns himself about the place, where it really takes origin, whence it works its effects. For this reason it is difficult to take counsel."

Reflecting upon this divergency as affecting my own profession, I had for some years collected such notes as I could to restore a balance by concentrating on the central problem—namely, health—as revealed by the healthiest people I could find. Under the guidance of Sir Robert McCarrison I chose the Hunza of the Gilgit, of whom he wrote: "These people are unsurpassed by any Indian race in perfection of physique; they are long-lived, vigorous in youth and age, capable of great endurance, and enjoy a remarkable freedom from disease in general."

I embodied the results of my investigation in a book.[1] Briefly, the conclusion come to in this study was that in devising life nature devised health with it—the health of the soil, the health of the river and sea, the health of the plants, animals, and man as one interdependent whole—and that the key to the part that man should play was to preserve this interdependency by the rule of return, under which everything that had life in the soil should after death be restored to the soil as food for further life. This rule the Hunza followed: the dead leaf, the outworn cloth, the excreta, all were collected to form a compost for the soil that nourished further life.

This rule, it was found, was almost entirely neglected by the modern, city-dominated civilization. There were, of course, some who saw the terrible danger of this neglect. But as for official opinion and action, there is now the remarkable National Health Service. Its planning has been carried out with the utmost care and precision, such as evokes admiration and wonderment. So much so is this that its very creators, creatures of the periphery, praise themselves in no mean measure. "It offers a chance—and a challenge—to build the most efficient health service in the world, and one which as the years go by will add steadily to the nation's fitness, happiness, and working capacity." I almost quail before my own opinion of this fine boastfulness, but having reached threescore years and ten I cannot recede. It is this—that one doctor at least must make it public that this boast is "sheer bilge" in a scheme which takes no heed of the centre and throughout never mentions the soil.—I am, etc.,

London, S.W.1. G. T. WRENCH.

REFERENCE

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Sudden Obesity and Psychological Trauma

SIR,—I should like to record my appreciation to Drs. H. J. Shorvon and John S. Richardson for their excellent article (October 29, p. 951) on the above subject. No longer can we rely on the Shakespearean "lean and hungry look" as a steadfast sign of the anxiety state. The syndrome which has been discussed bears some resemblance to the acute exudative attacks of seborrhoeic dermatitis which are frequently psychogenic. It has been suggested by Barber[1] that these may be associated with

an increased secretion of the antidiuretic hormone from the posterior pituitary acting through the hypothalamic nuclei. In these cases there is evidence of cutaneous hydration, and they are favourably influenced by the promotion of diuresis. (As the obesity cases were kept on a full diet, their loss of weight was presumably associated with polyuria.)

In contrast to the severe psychiatric trauma in the authors' cases, acute seborrhoeic dermatitis may follow trivial emotional upsets, such as apparent "loss of face." It is to be remembered in this connexion that in Parkinsonism, where the principal lesions are in the substantia nigra, "seborrhoea" is a usual clinical feature.

It would be of interest to learn if these cases of obesity had an excessive secretion of sebum before treatment. In Case 2 mention is made of "an itching rash on the inside of her legs and pruritus ani."—I am, etc.,

London, W.1. IAN MARTIN-SCOTT.

REFERENCE

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Definition of Senility

SIR,—Considerable misunderstandings occur on account of the lack of definition of the words "senile" and "senility." This difficulty arises frequently for those in charge of homes for aged people. Some doctors will write a medical certificate saying that the old person suffers from "senility." This may mean that they are old and feeble. It may mean that they are mentally failing, and it may mean a complete break-up both physically and mentally. On the other hand, with the general public the two words are usually used in the sense of mental failure ranging from mild forgetfulness to senile dementia. They are, in fact, very loose terms describing various degrees of ageing, and it will be a matter of great convenience to all concerned if these terms can be more clearly defined.—I am, etc.,

London, N.6. M. N. HILL.

Pause for Refection

SIR,—To see writers on scientific subjects drawing to the full upon the rich treasure of the vocabulary of the English language is never other than a source of satisfaction. But words are in some sense tallies or counters, the legitimate use of which is subject to limitation. I am led to this reflection by the use of the verb "refect" by Professor A. C. Frazer in his paper entitled "A New Mechanism of Vitamin Deprivation" (October 1, p. 731). The *O.E.D.* defines "refect" used as a transitive verb as meaning "to refresh, especially with food or drink" and mentions that it fell out of use before 1700 and was revived in the nineteenth century, but has always been rare and is now somewhat rhetorical. According to this authority the late George Augustus Sala, eminently a rhetorical person, "remembered once refecting himself at a public dinner." But how and when is a rat "refected"?—I am, etc.,

Wolverhampton. S. C. DYKE.

Failed Forceps

SIR,—I read Professor F. J. Browne's article entitled "Failed Forceps" (October 29, p. 975) with great interest. I was, however, surprised and disappointed that he did not mention deep transverse arrest of the foetal head, which in my opinion is the commonest cause of arrest of the foetal head and therefore of failed forceps. It is noteworthy that none of the recent textbooks stresses this condition sufficiently, since new housemen are always surprised at the frequency.

Of our last 100 forceps deliveries, deep transverse arrest was found 40 times and a persistent occipito-posterior position twice only. If a pelvic application of the forceps is made the blades will slip off. Similarly I do not think it is sufficiently stressed in textbooks that the foetal head engages in the transverse diameter in approximately 40% of cases, and that deep transverse arrest is therefore only rarely due to an incompletely rotated occipito-posterior position.

Professor Browne recommends manual rotation by passing the hand into the vagina and the forefinger on to the anterior shoulder without dislodging the head. However, the latter is very liable to happen to a practitioner not well versed in this manœuvre, and he will find himself faced with a high free head to which he cannot or should not apply forceps unless he is able to press the head into the pelvis again. This explains why so many cases of "failed forceps" due to transverse arrest arrive in hospital with a high head, though the practitioner who failed to deliver the baby states that the scalp had been visible at the vulva before the attempt at delivery was made. It is therefore safer in the first instance to perform manual rotation of the head with one hand in the vagina and to rotate the anterior shoulder simultaneously with the outside hand. This almost invariably succeeds.—I am, etc.,

Leicester. W. P. HIRSCH.

The Acute Throat

SIR,—I have appreciated very much the comments made by the various critics of my article on the acute throat (October 15, p. 860). I am sure that it is only one of the functions of a refresher course to supply an up-to-date description of signs, symptoms, and treatment; the other, quite as important, is to make the reader take stock as it were and consider his own practice in the light of someone else's experience. If my forthright utterances have caused readers to ponder upon the value of different forms of treatment the article will have served a useful purpose.

I was of course aware that the sulphonamides were widely regarded as efficacious in tonsillitis. Nevertheless, it is necessary to be clear about what the sulphonamides are expected to do. I imagine I am not exaggerating if I say that of every 100 sore throats which are severe enough to make the patient seek medical advice at least 70 of them will subside, by means of the hosts' natural defences, within a matter of 24–48 hours. I am not satisfied from my own clinical observation that sulphonamides hasten this process. Further, one of my assistants, Dr. J. O. French, conducted a very carefully controlled investigation of the efficacy of sulphonamides in scarlet fever. She was unable to observe any beneficial effect upon the throat or upon the duration of pyrexia in those given sulphonamide compared with a group of patients (alternate cases) not so treated. When an infection shows a spontaneous tendency to rapid cure in a high proportion of cases one must be wary of making unqualified claims for a certain measure of treatment.

In the second place, the clinical diagnosis of streptococcal throat makes a further difficulty. From my own clinical observation, supported by adequate bacteriology, I am far from convinced that I can diagnose streptococcal tonsillitis on sight. In a fair proportion of apparently typical cases the flora obtained on a blood-agar plate is little different from the normal, and streptococci are disappointingly absent. As a rule, however, it is not difficult to recognize the effects of streptococcal invasion, and I feel that sulphonamide should be reserved for such cases. It was for this reason that I stressed the importance of examining glands, middle-ears, and sinuses.

Finally, I would like to plead for thoughtfulness in the use of all the different chemotherapeutic weapons. Coming to terms with the common pathogenic bacteria is, in this imperfect world, an essential part of growing up. The throat is by long experience well equipped to cope with most of the bacteria that meet it. The occasional mild tonsillitis may be no bad thing if, as a result, our immunity mechanisms are stimulated, for we may thereby be the better equipped to deal with later attacks. The unnecessary aborting of mild illness of no danger to the patient just for the saving of a few hours in the total duration of the infection should not too easily be regarded as a good thing. The experience of the clinician in the fever hospital leaves no doubt about the great increase in sensitization rashes. The experience of the clinician and of the pathologist leaves no doubt about the great increase in the occurrence of polyarteritis nodosa. I would be foolish to say that there was an absolute correlation between these facts and the known increase in the ingestion of sulphonamides, for of course there has been an increase in the ingestion of all kinds of chemicals in recent years. But such facts should make us pause before using sulphonamides routinely for trivial illnesses.—I am, etc.,

Glasgow. THOMAS ANDERSON.

POINTS FROM LETTERS

Congenital Pyloric Stenosis

Dr. C. V. PINK (London, S.E.3) writes: In their interesting memorandum Messrs. E. S. R. Hughes, H. A. D. Small, and J. W. F. Macky (October 1, p. 741) state that "the aetiology of congenital pyloric stenosis is quite obscure." So perhaps the following is worthy of notice, since it seems to indicate the direction in which we may have to look to find the cause of it. On return from a few days' holiday my late partner was told of a fully developed case of pyloric stenosis. The baby, 3 weeks old, had lost 12 oz. (340 g.) in three days, and the vomiting was definitely projectile. After interviewing the mother he told me that her attitude to the baby was all wrong and that he thought he had been able to help her put it right. The baby had no more symptoms from the time of interview. The trouble may have been that pregnancy was resented or used for purely personal ends. . . . The presence of a strong psychological factor in pregnancy is at least a possible explanation of the observations you published on the occurrence of pyloric stenosis in twins.

Spoons as a Measure

Dr. J. M. HAMILL (London, W.14) writes: It is generally considered that two tablespoonfuls equal approximately one fluid ounce, and I have a measuring glass on which the markings agree with this. I had, however, the curiosity to test whether the tablespoon markings on the measuring glass did correspond to actual tablespoons, and I found on trying several tablespoons in my possession that each when filled contains one ounce of liquid which when transferred to the measuring glass rose to the two tablespoonfuls mark. In other words my tablespoons measure just twice as much as the tablespoons marked on the glass measure and contain one ounce of liquid instead of the usually presumed half ounce. This has practical importance, because a physician may prescribe a dose of one tablespoon expecting this to be half an ounce, whereas with my tablespoons the patient would be getting one ounce.

Medical Administrators

Dr. JOHN SLEIGH (Saxmundham, Suffolk) writes: Mr. G. H. Colt (October 1, p. 756) regards the use of medical men purely as administrators and superintendents as a waste. He considers that medical men in their prime, superintending and inspecting hospitals and planning could be better employed working at medicine or surgery. It cannot be too often repeated that the treatment of illness and disease does nothing to reduce their incidence, and that the fall in the death rate during the last century has been due not to advances in treatment but to advances in environmental hygiene. . . . It is not unreasonable to presume that further improvements in the health of the people will be due in part to the concern of public health service administrators with those broader aspects of environmental hygiene to which most human ailments are due and with which in the past, being partly occupied with hospital administration, they have not had time to deal. As regards the question of the medical superintendents, it is at any rate noteworthy that the Central Consultants and Specialists Committee (Scotland) strongly favours the retention of the medical superintendent (*British Medical Journal Supplement*, 1949, 1, 270).

Open Sesame

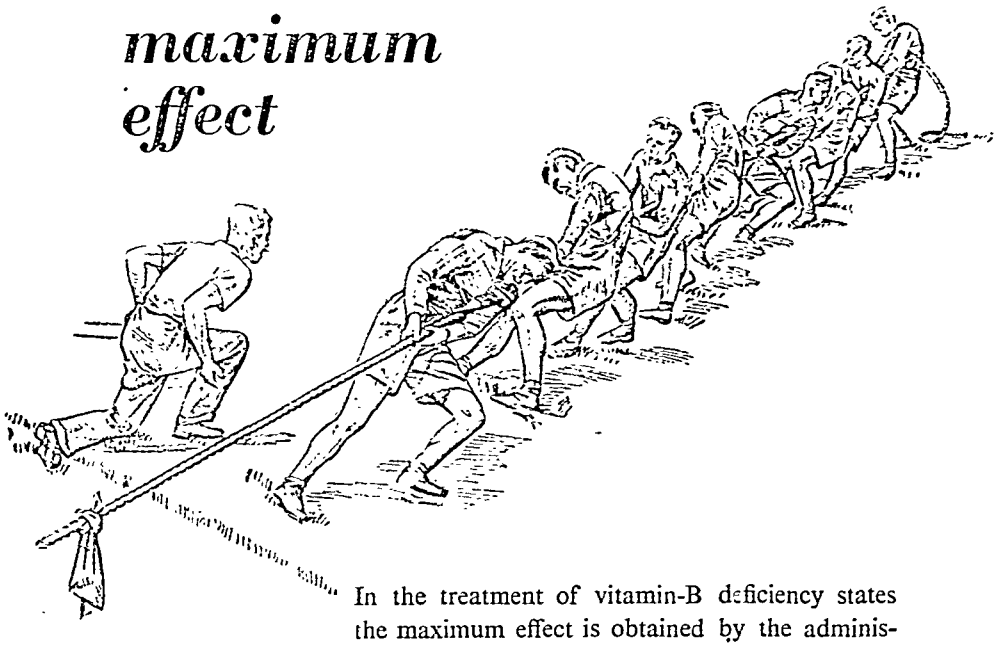
Dr. H. J. HOYTE (Birmingham) writes: Dr. T. Anderson, in his instructive article (October 15, p. 860) entitled "The Acute Throat," refers to the difficulty of examining the throat of an uncooperative child. In my experience this is a real problem in the infant between 1 and 3 years old. Seated comfortably on his mother's lap, he has no objection to being thoroughly inspected—indeed he returns this with interest—but to let a strange man gaze into his interior would be, he feels, an unwarrantable intrusion into his own personal privacy. Yet the examination of the throat is so important, and it is almost equally important not to antagonize him (or her) by the use of force. The following little ruse takes only a few seconds of time and very often succeeds in unlocking the tight little lips. The child is seated on his mother's lap (or that of a nurse) in a good light. After a brief general inspection I turn to the mother and say, "Look, Mrs. ———, I'm going to peep into your mouth and then I want you to give a bit of a laugh." The mother opens her mouth, and I make a show of examining it without actually soiling my spatula; then she gives a laugh or murmurs, "Oh, how nice." If the father is at hand, or an elder brother or sister, I do the same with each of them and finally turn to the child, saying, "Now it's your turn," and in most cases the mouth springs open.

Obituary

Dr. JOSEPH EVERETT LA FRENAIS, of Runcorn, Cheshire, died suddenly on October 2 while on his way for a holiday in Scotland, with which country he had close associations. He was educated at Dollar Academy, and studied medicine at Edinburgh, qualifying in 1930. He was a house-surgeon at Hull Royal Infirmary, and later house-physician at Chester Royal Infirmary, where he first became acquainted with the county in which he finally settled in 1935. He soon became popular as a general practitioner, and was appointed to the visiting staff of Runcorn Hospital and also acted as police surgeon for the area. From the outbreak of the recent war he spent six years in the R.A.F., five of them in the Middle and Far East, including India, Burma, and China. He attained the rank of wing commander before he was invalided out with a disability which was subsequently to cut short his life at the early age of 44. Joseph La Frenais was the ideal type of practitioner. He possessed not only clinical ability of the highest order but a genial personality which with his friendliness and kindness attracted to him patients of all ages. Although a bachelor himself, he was especially fond of his young patients, who instinctively responded to him. In all aspects of his work, in all his endeavours on behalf of his patients, he never spared himself. On leaving the R.A.F. he resumed his practice—in partnership with his brother and later his brother-in-law. While fully aware of the implications of his disability, and of the necessity of having to suffer some restriction of his work, he faced the future with cheerfulness and courage. He was a freemason, a rotarian, and was associated with the Runcorn Squadron of the A.T.C. He always took a close interest in a number of sports, not only as a spectator, but as a player. He was a keen golfer, and at the time of his death was the popular captain of Runcorn Golf Club. His jovial and engaging personality brought him many friends, and, although ever proud of being a Scot, he occupied a prominent place in the town of his adoption. He was especially happy in his home and family life, and to his mother, brother, and sisters the sincere sympathy of his colleagues will be extended. The memory of the sterling qualities of Joseph Le Frenais will long be held not only by his patients and friends in Runcorn but by those of us who worked with him. To one who was his first assistant and enjoyed the hospitality of his home, the memory will be not only of an able clinician and unselfish chief but of a good friend.—E. W. T. E.

Dr. JOHN JOHNSTONE WILSON, of Anstruther, died on October 6 at the age of 82. He was born in Dunkeld, where his father was minister of the parish church, and educated at George Watson's College and Edinburgh University, graduating M.B., C.M. in 1889 and proceeding M.D. in 1894. He was a house-physician at Edinburgh Royal Infirmary with Dr. Affleck in the year following graduation. He came to Anstruther as an assistant in 1890. Despite the claims of an arduous and extensive practice, he found time for reading and study, as is shown by his taking the M.R.C.P.Ed. in 1922, 33 years after graduating. He was elected F.R.C.P.Ed. in 1925. Dr. Wilson was an enthusiastic member of the Fife Medical Association, holding office as president and also contributing several papers on medical subjects. He was an active member of the B.M.A. and was president of the Fife Branch in 1927–8. During his school and 'varsity days he was a noted rugby player. As an assistant he first lived in St. Monans—about four miles away—and walked to Anstruther daily, sometimes walking as much as 16 miles a day in all weathers. A son of the manse, he continued to take a deep interest in church matters and held office as an elder until his death. He was also a freemason and a past master of the local lodge. John Wilson had a long career as a general practitioner, yet he was something more. He showed that it was possible to combine reading and study with the management of a busy practice, and obtained high academic honours by examination at a time when most practising doctors consider they have left such ordeals far behind. He always put service

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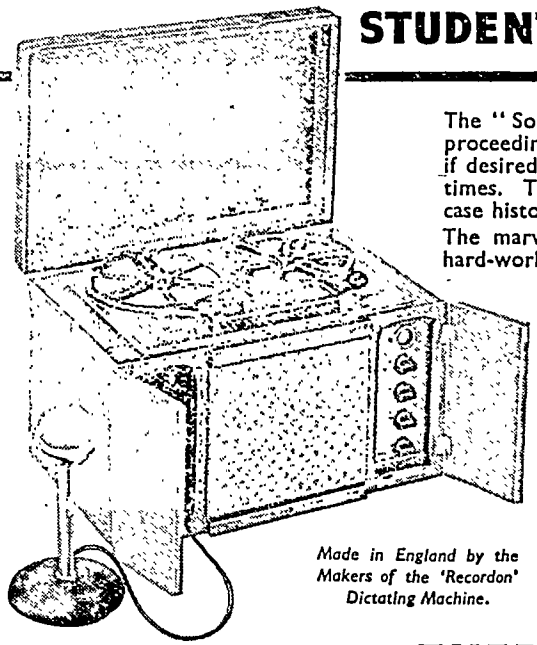
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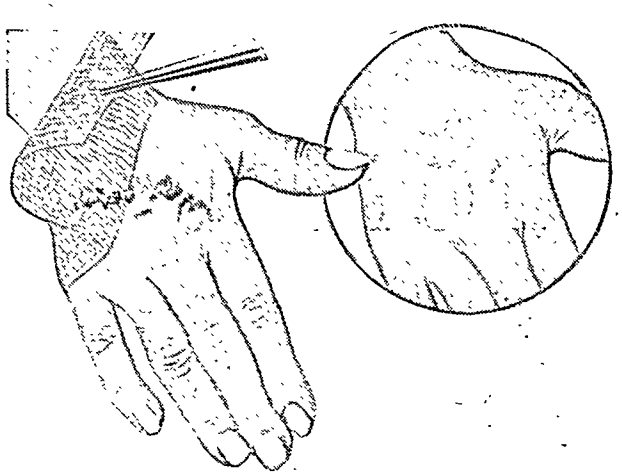
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before self, and he was both doctor and friend to his patients. A man of character and resource, he set himself a very high standard of practice and was an example of the best type of country doctor, loved and respected by all with whom he came into contact. Always attentive to the interests of his patients, he looked upon their faults with a kindly and tolerant humour, giving freely without complaint arduous service to the community and finding in his work his chief reward. He leaves a widow and two sons, one of whom is a consultant physician with the Northern Regional Hospital Board.—A. A. M.

Dr. ROBERT SEVESTRE died at his home in Leicester on October 13 at the age of 81. Some months ago it was necessary for him to undergo an operation, from which he recovered sufficiently to enable him to get about again. Born in Calcutta, of Huguenot stock, he was brought to England in childhood, and was educated at Rugby, Trinity College, Cambridge, and St. Bartholomew's Hospital. He qualified in 1893, graduated M.B., B.Ch. a year later, and proceeded M.D. in 1896. Some two years later he was appointed honorary assistant physician to Leicester Royal Infirmary. Later he became honorary physician, and then, at the age of 60, he was elected honorary consulting physician. During the first world war he served in France in the R.A.M.C. with the rank of major, and was attached to a general hospital. Returning to this country, he was posted to the 5th Northern General Hospital, Leicester, where he met his wife, who was then on the nursing staff. He was the joint author of the section on "Wounds of the Chest" in the *Manual of War Surgery*. Mrs. Sevestre died in 1937, and their only son, a subaltern in the K.O.S.B., was killed in an accident in the Far East in 1943. Dr. Sevestre was appointed a justice of the peace for Leicester in 1929. He was a governor of the Wyggeston Hospital, chairman of the Pensions Committee, a trustee of Simons Charity, and an officer of the Order of St. John of Jerusalem. He was president of the Midland Branch of the B.M.A. in 1922–3, and represented his constituency at Annual Representative Meetings in 1904–6. He was also a member of the Leicester Medical Society. Dr. Sevestre was of a quiet and retiring disposition, but became widely known and highly thought of in the city to which he devoted a full life of medical service. A link with a previous generation of physicians has been severed at his passing. His work at the infirmary, to which he unselfishly devoted himself for so long a period, earned for him the gratitude of countless thousands of patients.—R. McD. C.

Dr. LIONEL DUDLEY WOODS died on October 23 at his home in the Isle of Man at the age of 63. He qualified in Dublin in 1907, finishing his course at the Meath Hospital, and he became house-surgeon at Noble's Hospital. He then entered general practice in the same district in which his father in an Irish jaunting car was so familiar a figure. In August, 1914, Dr. Woods went to Netley, and subsequently he served with distinction in Salonika. He was mentioned in dispatches twice and was awarded the O.B.E., the Serbian Order of St. Sava, and the Croix de Chevalier d'Honneur. A many-sided personality, Dr. Woods was a traditional family doctor, beloved by his patients and valued for his understanding of human nature. Soon after his return from the Army he was appointed honorary surgeon and radiologist to Noble's Hospital. In the earlier inter-war years he was most active in surgery, and especially noted for his management of difficult fractures. Later when rheumatism crippled his fingers he devoted himself more and more to radiology, and the present highly developed radiological and physiotherapy department at Noble's Hospital bears testimony to his constant endeavour to keep his department up to date. Dr. Woods was chairman of the War Pensions Board and of the medical division of recruiting. An active member of the B.M.A., he was president of the Isle of Man Branch in 1933–4. In 1926 he was made an officer of the Order of St. John of Jerusalem, and the present flourishing state of the brigade in the island is in great part due to his efforts. He ultimately became county surgeon. In the recent war he was medical officer to the first battalion of the Home Guard, and as the war progressed more work devolved on him. It was the strain of these years which took such a heavy toll of his strength and hastened his untimely death, a loss which his colleagues in the island feel acutely.—C. G. P.

Dr. FRANK GOWER BERGIN died at his home in Clifton, Bristol, on October 25, at the age of 70. A native of County Cork, Dr. Bergin qualified at Bristol in 1905. He was a house-physician and later a house-surgeon at the Bristol General Hospital before starting in practice in Clifton in 1908. From the earliest days he was interested in radiology, and in 1916 he joined the R.A.M.C. as a radiological specialist. He was serving on board H.M.S. *Britannic*, which was used as a hospital ship, when she was torpedoed and sunk off Malta. After his demobilization in 1919 he was appointed honorary radiologist to the Bristol General Hospital, and continued in this capacity until 1939, when, following the amalgamation of the Bristol hospitals, he was appointed director of the radiological department. In the very early days he possessed the only *x*-ray plant in the West Country, and often made long trips by ambulance with his portable apparatus in order to assist hospitals which had not at that time obtained *x*-ray equipment. Apart from his specialist practice, Dr. Bergin was for 37 years responsible for the medical care of the children and staff of Muller's Orphanage. At different times his father and his elder brother had served the same institution. He only relinquished this work last year on account of failing health. Dr. Bergin was for a number of years consultant radiologist to Clifton College, to the British Overseas Airways Corporation, and to Southmead Hospital, and he was a lecturer at Bristol University. He was also associated with the Bristol Dispensary, the Homoeopathic Hospital, and the Central Clinic. Dr. Bergin was a keen amateur photographer and gardener, and he always took the greatest interest in his many young friends, and particularly his own grandchildren. A deeply religious man, he was associated for over 40 years with the Clifton Bethesda. The sympathy of his colleagues, his former patients, and his many friends will be extended to his widow and his two sons, who are both members of the profession.

Dr. JOSEPH CORBETT MUIR, who was for many years medical superintendent of Whipps Cross Hospital, died suddenly on October 29 at his home in Gloucestershire. Dr. Muir studied at Cambridge and at Manchester, graduating M.B., B.Ch. in 1897, and proceeding M.D. in 1901. After holding resident appointments at the Manchester Royal Infirmary and at the Pendlebury Children's Hospital, he joined the staff of Plaistow Fever Hospital, working under the late Dr. Biernacki. In 1908 he was appointed medical superintendent of Whipps Cross Hospital, where he was to remain until 1932, except for a period from 1915–19 when as a captain in the R.A.M.C. he saw active service in Flanders and was for some time a prisoner of war in Germany. Whipps Cross Hospital had been open only for some five years when Dr. Muir joined the staff, and it may be said that its development into a busy, modern, and well-equipped general hospital is largely due to the advice which he tendered to the former West Ham board of guardians. A man of strong personality, he greatly improved the conditions of the patients and staff. He was a strict disciplinarian, but nevertheless he was very attentive in dealing with any problems concerning members of the hospital staff, many of whom will recall the help that he gave them. Dr. Muir was regarded by his professional colleagues as a practitioner of outstanding merit, and members of the consulting staff always valued his opinion on a difficult case. As a hospital administrator he was known throughout the country, and for a period held office as president of the Medical Superintendents' Society. Ill-health caused him to retire in 1932, and he had since been living at Box, in Gloucestershire. He closely identified himself with the life of the district and was a member of the Stroud Rural District Council. Although he was confined to his home, and was unable to visit the hospital for which he had done so much, nevertheless he was delighted to receive news of its progress and much appreciated visits from members of the staff if they happened to be in the neighbourhood. Although many of those who worked with Dr. Muir have left the hospital, there are still some who have personal recollections of his work.

while his reputation is known to all who profit by the standards which he set in the past. A keen sportsman, Dr. Muir was an accomplished tennis player and golfer. He played tennis for Essex and Gloucestershire, and he had a very low golf handicap. He was equally enthusiastic about rugby, and followed the fortunes of the Stroud Club. Dr. Muir is survived by his widow, to whom the sympathy of his colleagues and friends will be extended.—A. N. S.

Medico-Legal

INSANITY IN THE CRIMINAL LAW OF MALTA

BY

PAUL CASSAR, M.D., B.Sc., D.P.M.

Psychiatrist, Hospital for Mental Diseases, Malta

The plea of insanity raised by the defence in the recent Haigh trial (*Journal*, July 30, p. 286) demonstrated once again the difference between the medical and the legal view regarding the criminal responsibility of mentally disordered persons. This paper attempts to describe in brief how Maltese legislation deals with the question of the culpability of the insane offender and to outline the procedure followed by a Maltese court of law. It is suggested that similar legal provisions could be substituted in England for the present unsatisfactory tests of legal responsibility and methods of assessing the mental state of the accused.

A commission of five Maltese legal men was set up in 1831 to compile a criminal code and a code of criminal procedure for the Island of Malta and its Dependencies. The commissioners were instructed to base their work on the report drawn up in 1826 by a distinguished English judge, Sir J. Richardson, and upon the principles of the best foreign codes. The Neapolitan Code, promulgated in 1819 in the Kingdom of the Two Sicilies and based on the reformed French Code, was adopted as a model. In 1836 the first draft code of penal laws to be drawn up under British rule was published. After several revisions and a lengthy discussion in the Council of Government, the draft code was finally promulgated in 1854. Article 32 of this code stated that "no person is liable to punishment for an act done or omitted by him when he is of unsound mind or in a state of madness." Other articles dealt with the procedure to be adopted when the plea of insanity was raised and with the disposal of the insane criminal. Important amendments and additions to the original code were introduced in 1900, 1909, 1914, and 1935.

Present Provisions

The plea of insanity may be raised either during the inquiry (Court of Judicial Police as a Court of Criminal Instruction) or during the trial (H.M. Criminal Court).

During the Inquiry.—Article 34, para. (*a*), of the Criminal Code lays down that no one is liable to punishment if at the time of the act or omission complained of such person was insane. When, therefore, there are reasonable grounds for suspecting that the alleged offender was insane at the time of the commission or omission of the act, or at the time of the instruction, the court appoints one or more mental experts to examine the accused and report upon his state of mind. If they report that the accused was mentally ill at the time of the alleged offence, the court orders the transmission of the records of the inquiry to the Attorney-General. If the latter does not decide to contest the findings of the experts, the court decrees that the person in question be sent to the mental hospital, and it informs the Head of the Government of this step. The Head of the Government then issues such directions as he deems necessary for the care and custody of the insane person. The accused has the right of appeal against the court's decision. If the Attorney-General opposes the experts' opinion, he may direct the court to continue with the inquiry on the merits of the charge, or he may refer the matter to H.M. Criminal Court, where the issue of insanity is decided by a jury.

During the Trial.—In conformity with Article 34, it has been held that no one can be called to answer to a charge if at the time of the trial he is insane. Should the defence wish to raise the plea that the accused is insane at the time of the trial, it must do so during the preliminary proceedings following the reading of the indictment and before the answer of the accused party as to his being guilty or not. If the plea of insanity is raised by the defence after the preliminary stage, then it is dealt with together with the other pleas on the merits. The question of insanity at the time of the offence or at the time of the trial may also be raised by the court. In such a case, if the medical experts come to the conclusion that the accused was insane, and both the defence and the prosecution do not contest the experts' findings, then the court dispenses with further proceedings and orders the removal of the accused to the mental hospital.

Insanity at the time of the offence cannot be alleged after the jury has given its verdict, but, whenever the necessity arises from any fact or circumstance of fact expressly found by the jury, the plea of insanity, both at the time of the crime and during the trial, may be brought forward even after the jury's verdict on the alleged offence, provided that this plea is made before the delivery of the sentence of the court. The decision whether a person is insane or not is determined by the jury by a majority of votes. Following a verdict of insanity, the accused party is ordered by the court to be detained in the mental hospital. The board of the mental hospital is empowered to recommend the discharge of a criminal patient to His Excellency the Governor if the patient recovers or if he no longer requires further detention.

Medical Experts

Only the court has the right to appoint and to choose the medical experts. They are usually of an uneven number and they are given a specified time (which may be extended if necessary) within which to submit their report. They are given every facility to study the mental condition of the accused party. Thus, once the plea of insanity has been raised, the court orders the accused to be sent to the mental hospital "under observation for mental disorder." Here the psychiatrists will have every opportunity to study the accused man or woman. The experts swear to perform their duties faithfully and honestly. It has been recommended by the court that, whenever in the course of their inquiries the experts obtain information, the persons giving such information should be heard as witnesses and their information recorded in the form of statements. It has also been recommended that a regular *procès-verbal* of the interrogatory of the patient, when made by the experts, should be kept and filed with the report. The report of the psychiatrists is read publicly and they may be submitted to cross-examination under oath. Those persons who have given information to the experts are also examined like any other witness.

The court may allow the mental experts to obtain on oath all relevant information about the accused from witnesses residing outside its jurisdiction. It has been held "that it is the court's duty to see that every provision be made so that the experts may have at their disposal all such information as may enable them to give, in the interests of justice, a correct opinion." The court, the prosecution, the defence, and members of the jury have the right to ask for further elucidation from the experts on their report or on such other points as they may deem necessary in order to make the opinion of the experts clearer. The members of the jury are not bound to abide by the conclusions of the mental experts against their own conviction.

Comment

The superiority of Maltese law over English law on the subject of the culpability of the insane is obvious. In Malta there are no tests of legal responsibility in the case of mentally disordered persons arraigned before a court of law. Maltese legislators have not laid down any rules by which the distinction between sanity and insanity is to be drawn. They are aware that this demarcation line is a delicate one, and they leave it to the mental experts to decide when a man ceases to exercise control over his actions on account of mental illness. Maltese jurisprudence has likewise recognized the fact that, apart from psychosis and mental defect, such disorders of the personality as "adolescent instability" and "psychopathic

personality" may exonerate the accused from culpability. In Malta, therefore, it is enough for the psychiatrists to show that an accused person is mentally ill to exempt him from punishment. Of course the jury may not accept the psychiatrists' diagnosis of insanity, and they are free to judge the accused party to be sane in spite of the psychiatrists' opinion to the contrary. But the illogical situation of finding a person insane and at the same time legally responsible for his acts can never occur in a Maltese court of law.

Another advantage of Maltese procedure is in the calling of mental experts to assess the state of mind of the accused. The appointment of mental experts to examine the accused pertains to the court alone. It has been held that it is not only the right but also the duty of the judicial authority to ascertain the state of mind of the accused both at the time of commission or omission of the act complained of and at the time of the trial. To deny such a right to the judicial authority is to ignore one of the fundamental principles of criminal justice and to run the risk of convicting a non-responsible person.

The divergence of opinion that often arises in an English court of law about whether the accused is insane within the meaning of the law tends to create confusion in the minds of the jury. There may also be a tendency for the jury to look upon the mental experts of either the defence or the prosecution as biased or interested parties. Maltese legal provisions with regard to the choice of the mental experts cannot give rise to such perplexity in the minds of the jury. The psychiatrists are appointed by the court, and this ensures their absolute independence of both the defence and the prosecution. They are as independent as the judge himself. They are above any possible suspicion of bias either in favour of or against the accused, and, what is equally important, the public feels that justice is not only being done but is "manifestly and undoubtedly seen to be done."

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Medical Notes in Parliament

NURSES BILL

The Nurses Bill was considered on report in the House of Commons on November 4. The committee stage was taken on October 28 (*Journal*, November 12, p. 1120).

Mr. BLENKINSOP moved and Mr. WALTER ELLIOT supported a new clause to impose penalties on persons who falsely represented themselves as being included in the list of nurses kept under Section 18 of the 1943 Act. The clause was added to the Bill.

Mr. HOWARD moved a new clause providing for the appointment of a training committee and setting out its powers. He pointed out that Parliament was setting up within the General Nursing Council one statutory committee to deal with finance and another to deal with mental nursing, but there was no statutory committee to consider improvements in the training of nurses. Mr. LINSTEAD, in seconding, said the General Nursing Council was ceasing to be an independent professional body and in half its activities was becoming a paying agent of the Treasury. Once it was partially integrated into the Government machine it was in danger of losing authority and independence.

Mr. BLENKINSOP said the control of training was the main function of the General Nursing Council, and it was clear that it would set up a committee, as it had done in the past, to look after this feature of its work. The Government had already gone as far as it ought in statutorily subdividing the General Nursing Council. Mr. SOMERVILLE HASTINGS believed that the clause would be undesirable. The object of the Bill was to separate the training of nurses from the administration of hospitals. Mr. HOWARD then withdrew the amendment.

Nurse-training Committees

On Clause 2 Mr. BLENKINSOP moved an amendment substituting "Area Nurse Training Committees" for "Standing Nurse Training Committees." This and other small amendments were approved.

On Clause 4 Mr. DIAMOND moved an amendment to ensure that the General Nursing Council should not be required to consider an estimate unless that estimate related to a hospital which had already been approved by the Council for the purpose of nurse training. Mr. BLENKINSOP said it was true that Clause 4 did not specifically refer to training which was in accordance with the Council's training rules, but Clause 6 clearly provided that the Council should defray all expenses which had been incurred by an Area Nurse Training Committee with the approval of the Council. It would be within the power of the Council to decline to approve any expenditure on training not in accordance with its rules.

Mr. LINSTEAD was perturbed at the suggestion that no finance would be forthcoming for nurse training except in respect of institutions already approved. That seemed to him to crystallize and sterilize everything. He hoped the Minister would say a few words on how experimental training schemes, while they were being built up to the stage justifying approval, were to be financed. Mr. BLENKINSOP said the Bill left the General Nursing Council full discretion to deal with expenditure in the building up of training schools to the required standard.

Mr. WALTER ELLIOT said the grading up of hospitals and the standards of teaching institutions had been points around which arguments had gone on for years, particularly in regard to the grading up of local government institutions to the point of becoming teaching institutions. An institution anxious to reach the standard might believe it could do so, but the General Nursing Council might think it could not. In those circumstances a promising development might be stultified. There were many cases where advocates for a hospital becoming a training school had great difficulty in persuading the powers that be that the hospital was fit to be recognized for training.

Mr. HASTINGS received an assurance from Mr. BLENKINSOP that if a regional hospital board decided to build a 200-bed hospital and to have a nurse-training school requiring a certain amount of building and equipment, the regional hospital board could apply for finances for this purpose. Mr. DIAMOND then withdrew his amendment.

Mr. HOWARD moved an amendment to make it clear that the Minister should not specify what type of equipment or activity was desirable for the purpose of training nurses. He said it was for the professional body to specify and for the Minister to approve. Mr. LINSTEAD seconded this amendment.

Mr. BLENKINSOP suggested that the amendment would give to the General Nursing Council a responsibility for splitting up general expenditure which should not be the responsibility of that Council and must be the responsibility of the Minister. The amendment was negatived, and small amendments were accepted on Clauses 5, 6, and 7.

On Clause 8 Mr. BLENKINSOP moved an amendment authorizing the nomination to the finance committee by the Minister of not more than two persons other than members of the Council, after consultation with the Council. He said the Government felt that such appointments would be valuable to both sides. The House accepted the amendment.

Mr. BLENKINSOP further moved as an amendment to the First Schedule that some of the first members appointed to the Council should hold office for a term of three years. He said this would provide more overlapping of the periods of office of the different members of the Council. Minor amendments were made in the Second Schedule and the report stage ended.

Third Reading

The third reading followed immediately. Mr. BLENKINSOP said the House was anxious to give every encouragement to the General Nursing Council because of the value to the Health Service which would come from the further improvements in nurse training which the Bill would effect.

Sir HUGH LUCAS-TOOTH said the Opposition had apprehensions that difficulties would arise in the working of the Bill. He feared the Government had over-simplified the position, perhaps because they had in mind what had been done in the training of doctors. Ministers were disposed to think that it would be possible to set up some kindred organization which would work as easily and as quickly. The organization connected with the medical schools had grown up over a very long time and it would be difficult to introduce a similar organization quickly for training nurses. He feared there would be a number of errors before the country secured a satisfactory system.

Colonel LIPTON said both teaching hospitals and municipal hospitals, as they used to be called, would gain from the co-ordination that was likely to be brought about by the Bill. He welcomed the assurance given earlier by Mr. Blenkinsop that the General Nursing Council was not likely to make demands upon the teaching hospitals which would diminish their high standards. He hoped that neither regional boards nor hospital governors would deter any ward sister or any others in the lower ranks of the nursing profession from endeavouring to get elected to the General Nursing Council.

The Bill was then read a third time without a division.

National Federation of Hospital Officers

Sir JOHN MELLOR on October 25 drew attention to the refusal of the Minister of Health to negotiate with the National Federation of Hospital Officers. He said the Federation had been formed and registered as a trade union in 1948. Its constitution prescribed that only administrative, clerical, professional, and technical workers in hospital should be eligible for membership and that its activities were to be limited to the interests of hospitals services and hospitals officers. It further provided that these activities should be strictly non-political. At present in the administrative and clerical field the Federation had approximately 3,500 members out of its total membership of about 6,500. In July, 1948, the Federation wrote to the secretary of the staff side of the administrative and clerical functional council under the Whitley scheme in the National Health Service applying for seats on the functional council. That application was not approved.

The Federation then appealed to the Minister and asked him to grant it the right to negotiate directly with him if it was not given seats on the functional council. The Minister's attitude was that the composition of the staff side was a matter for the staff side itself. Later the Minister wrote that he would not be warranted in entering into separate discussions with the Federation on matters within the scope of the Whitley Council. The Minister had in fact created a closed shop with no mandate from anyone in the Service except the members of certain bodies which he had invited to form a staff side. Sir John said the National Federation had a larger membership than any other body which had a seat on the Whitley Council. There were about 40,000 hospital officers in the administrative and clerical categories, and the bodies which had been established on the staff side represented only about 8,000 out of this number.

Mr. BURDEN asked Mr. Bevan not to accede to the request of Sir John Mellor. An overwhelming majority of the hospital staffs were already members of existing trade unions. These unions and professional organizations had acted as negotiating bodies before the National Health Service Act, 1946, was passed. The National Federation of Hospital Officers did not exist when the Minister invited the staff side organizations to agree to the setting up of the new functional councils. In accordance with Whitley practice person in question could obtain admission to the Whitley [illegible] the Head of the Gh the consent of the existing staff [illegible] the Government then issues such from normal procedure if he [illegible] care and custody of the insane sponsors of the Federation [illegible] appeal against the court's decision. [illegible] ex-voluntary hospi- [illegible] another opinion, he may direct the court [illegible] trade union [illegible] merits of the charge, or he may [illegible] of the [illegible] Court, where the issue of insanity is decided [illegible] [illegible] nformity with Article 34, it has been held [illegible] to answer to a charge if at the time of [illegible]

Sir JOHN MELLOR said these men were not opposed to trade unionism but were opposed to political trade unionism, and the constitution of the Federation reflected that opposition.

Mr. HAYDN DAVIES said Sir John Mellor had not rendered a service to the hospital administration by raising this matter. His endeavour was to make things more difficult for those who had to administer the teaching hospitals. It was sheer snobbery for persons to say that they could not be represented on the staff side of the Whitley Council through their trade union. Before the mushroom growth of the Federation there had been appropriate trade unions which could have taken in all the professional men.

Dr. H. B. MORGAN said that the union of which he as a medical man was a member, the Confederation of Health Service Employees, had more officers as members than had the Federation. The Federation had been formed from a source which had had opportunities in previous years to get representation on bodies connected with hospital matters and had suddenly realized after the passing of the National Health Service Act that the voluntary hospitals were part of the national health system. The Federation was a new union of doubtful strength. He doubted whether it would last long. Many trade unions still had no representation. Some were too small and some were not sectionalized enough. The health section of the Transport and General Workers Union was definitely sectionalized and discussed only its own problems. The Federation should wait its turn and ask for representation when the Act had consolidated itself. He thought that Sir John Mellor did not know the difficulties which had been encountered in consolidating the status of doctors and of nurses in the Service and of adjusting one side to another. Those behind the scenes were doing their best to get a smooth passage for the Act, which would take at least five years to come to full fruition.

Mr. BLENKINSOP, replying to the debate, regretted that this discussion would make the position on the Whitley Council more difficult. If it were to be suggested that the Minister as employer should have a right to settle the form of staff side representation, that would have a most disastrous effect on the health services. It would be difficult for the Whitley machinery to work smoothly if separate negotiations were going on with another body. The Ministry had not closed the door to future direct negotiations should it be satisfied that by denying them a large proportion of the workers in this field would be ruled out of representation. The Ministry did not feel that a membership of 3,000 out of some 22,000 workers was sufficient to warrant its interference with the Whitley Council and the danger of breaking the Whitley Council arrangements by opening direct negotiations. He accepted that membership of the Federation was growing and said that the Ministry would have to review the matter later. Before the Ministry opened negotiations it must also be satisfied that the Federation was becoming established as a permanent body. It had only been in existence for a short time.

Second Opinions by R.M.O.s

Mr. DOUGLAS HOUGHTON on November 1 asked the Minister of National Insurance what decisions were reached by regional medical officers in the 202,188 cases referred to them for a second medical opinion in the twelve months ended September 30, 1949, and in the 75,189 referred to them in the previous twelve months.

Mr. JAMES GRIFFITHS, in reply, circulated the following table with the particulars asked for expressed as percentages:

	Cases submitted to Regional Medical Officer	
	Year ended September 30, 1949	*Year ended September 30, 1948*
Accepted as incapable without examination after consultation with claimant's doctor, or found incapable of work on examination	48	41
Incapable of normal occupation but not incapable of alternative work	4	5
Not incapable of work	16	13
Failed to attend examination or submitted evidence of recovery before examination	32	41



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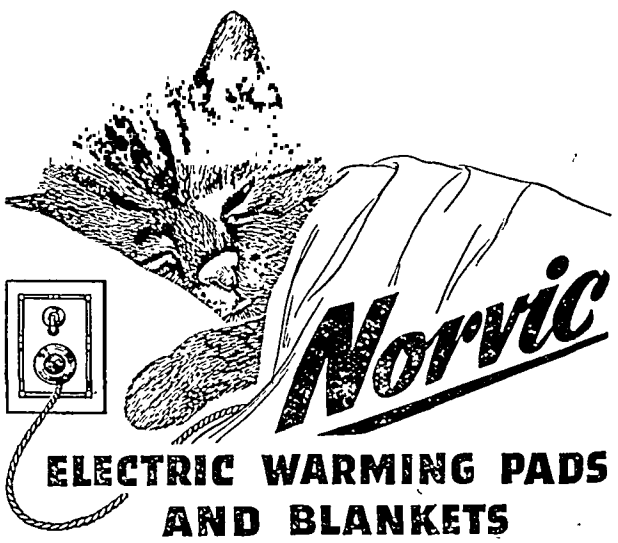
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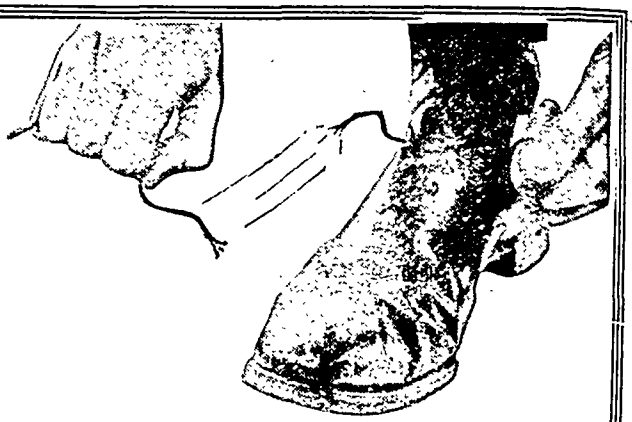
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Mr. Griffiths added that the reports of regional medical officers did not constitute decisions on claims for benefit but were evidence which, along with the certificates rendered by the claimant's own doctor, would be taken into account by the statutory authorities in determining the claim.

No Names

Colonel ALAN DOWER on November 1 asked the Chancellor of the Exchequer to make known the names of the members of the Exchange Control Medical Advisory Committee who decided whether to approve or disapprove applications for urgent medical treatment abroad.

Mr. GLENVIL HALL replied that this could not be done. Sir Stafford Cripps had already said it would not be advisable to disclose the names of the members of the committee.

Morphine for Mountaineers

Mr. EDE, replying on November 3 to Squadron Leader FLEMING, said that, in consultation with the Minister of Health, he was considering whether it would be possible to make arrangements, subject to suitable safeguards, for the administration of morphine to injured climbers. He could not approve the arrangements which the Manchester surgeon, Mr. Wilson Hey (*Journal*, November 5, p. 1056), had operated since 1934 for mountain rescue squads to carry ampoules of morphine for the speedy treatment of injured climbers. He said he could not wink at defiance of the law for 15 years, but if Mr. Wilson Hey submitted another plan for the carrying of this drug he would consider it

Size of N.H.S. Lists

Mr. PLATTS-MILLS asked on November 3 for a list showing the numbers of general practitioners with 2,500, 3,000, 3,500, 4,000, and over 4,000 patients registered with them under the National Health scheme.

Mr. BEVAN said general statistics were not readily available, but inquiries had been made in a number of areas. Analysis of the information supplied by six areas, not necessarily typical of the whole country, showed that the following numbers and percentages of doctors on the medical lists of those areas fell into the different categories referred to by Mr. Platts Mills. In compiling the statistics doctors engaged in partnership had been assumed each to be responsible for the average of the number of persons on each partner's list. Doctors employing assistants had had their lists notionally reduced by 2,400 for each assistant. The number of doctors practising under the National Health Service in the six areas concerned was 2,429.

Size of List	Number of Doctors	Percentage of Total Number of Doctors
2,501 to 3,000	323	13·3%
3,001 to 3,500	277	11·4%
3,501 to 4,000	234	9·6%
Over 4,000	160	6·6%

Mr. Bevan added that as there was some element of inflation in executive council's registers, the figures in columns 2 and 3 might be higher than was actually the case. Executive councils were asked in November, 1948, to request doctors with lists in excess of 4,000 not to accept additional persons for inclusion in their lists, except relatives of persons already on their lists living in the same house, until their lists had been brought within the permitted limit. Executive councils generally acted on this request. Some had gone further and used their discretion to require doctors to take further steps to see that their lists were brought within the limit.

Convalescence and Holidays

Mr. PLATTS-MILLS pointed out on November 10 that when a child was sent away for convalescence by a hospital the cost was borne by the regional hospital board and there was no charge to the parents. But if the child was sent away by the local health authority for a recuperative holiday a standard charge was levied on the parents.

Mr. BEVAN replied that convalescence proper was part of the hospital service and was free. Facilities for holidays were one of the "extras" which local authorities could provide as a form of aftercare and for which they could make reasonable charges. He saw no reason to alter this.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

In Congregation on October 29 the following medical degrees were conferred:

M.D.—F. W. Watkyn-Thomas (by proxy), H. Harris, B. G. Parsons-Smith, W. S. Haynes, R. V. Stone, C. C. Bryson, M. S. M. Palmer.

UNIVERSITY OF BIRMINGHAM

Professor George Haswell Wilson, M.D., resigned from the Chair of Pathology on September 30. He was elected Professor of Pathology in the University in 1922.

Professor S. Zuckerman, M.D., F.R.S., Director of the Department of Anatomy, has been appointed a member of the Agricultural Research Council.

Professor W. Melville Arnott, M.D., F.R.C.P.Ed., and Professor Zuckerman have been appointed to the University Research Committee as representatives of the Faculty of Medicine for the Session 1949–50.

Walter Thomas Smith, M.B., Ch.B., has been appointed Lecturer in Pathology and G. Cumming, B.Sc., Research Fellow in Medicine from October 1; and R. H. Cawley, B.Sc., Research Fellow in Medical Statistics from August 1.

Degree Day, 1950, will be held on Saturday, July 1, when there will be Congregations in the morning and in the afternoon.

The University Medical Officer's Department will in future be known as the University Health Service.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

The following were admitted to the Membership of the College on November 4: W. G. Keane, D. J. O'Callaghan, I. B. Patwari, O. P. D. Ryan.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The following lectures will be delivered at the College (Lincoln's Inn Fields, London, W.C.): Tuesday, November 22, 3.45 p.m., Imperial Cancer Research Fund Lecture by Dr. James Craigie, "A Quantitative Approach to the Study of Transplantable Tumours"; Thursday, November 24, 5 p.m., Thomas Vicary Lecture by Sir Henry Wade, "The Barber Surgeons of Edinburgh"; Tuesday, November 29, 3.45 p.m., Imperial Cancer Research Fund Lecture by Dr. C. H. Andrewes, F.R.S., "The Virus Theory of Cancer in the Light of Recent Work"; Thursday, December 1, 5 p.m., Otolaryngology Lecture by Professor Geoffrey Jefferson, F.R.S.; "Intracranial Abscess"; Thursday, December 8, 3.45 p.m., Arnott Demonstration by Mr. R. J. Last, "The Knee Joint"; Tuesday, December 20, 3.45 p.m., Arnott Demonstration by Mr. Last, "The Larynx."

The lectures are open to those attending courses at the College and to all other medical practitioners, dental surgeons, and advanced students.

At a meeting of the Council of the College held on November 10, with Sir Cecil Wakeley, President, in the chair, Professor G. Grey Turner was re-elected as the representative of the College on the Council of King's College, Newcastle-upon-Tyne.

Diplomas of Membership were granted to the 173 successful candidates for the licence of the Royal College of Physicians of London (*Journal*, November 12, p. 1122).

Diplomas in Tropical Medicine and Hygiene were granted jointly with the Royal College of Physicians of London to T. H. Work and in Ophthalmic Medicine and Surgery to J. H. Owen-Flood.

St. Woolos Hospital, Newport, Mon., was recognized in respect of the six months' resident surgical appointment required of candidates for the Final Fellowship examination.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

In connexion with the 350th anniversary of the foundation of the Faculty Mr. Archibald L. Goodall, Honorary Librarian, will deliver the Finlayson Memorial Lecture entitled "The Royal Faculty of Physicians and Surgeons" in the Hall of the Faculty, 242, St. Vincent Street, Glasgow, on Wednesday, November 23, at 5 p.m. The lecture is open to the public.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended October 29. [No. 43

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949					1948 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	26	2	7	—	2	22	2	18	1	—
Deaths		1	—				—	—	—	
Diphtheria	101	11	33	4	4	129	24	53	7	1
Deaths	—	—	—	—	—	2	—	—	—	—
Dysentery	139	13	55	—	—	68	7	63	1	3
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—	—	1	2	—	1	—	—
Deaths		—					—			
Erysipelas			15	11	5			44	8	4
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				55					61	
Deaths	31	—	7	6	—	32	1	9	4	—
Measles*	995	63	27	129	45	6,211	119	47	127	65
Deaths†			—	—	—			—	—	—
Ophthalmia neonatorum	39	4	7	—	—	45	5	12	1	—
Deaths										
Paratyphoid fever	14	1	1 (B)	2 (B)	—	7	2	—	1 (B)	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	303	18	—	4	4	418	22	4	3	1
Deaths (from influenza)‡	11	2	3	—	—	11	1	1	—	1
Pneumonia, primary			133	10				153	19	
Deaths	136	15		7	7	155	19		4	11
Polio-encephalitis, acute	20	2				4	1			
Deaths										
Poliomyelitis, acute	347	53	5	5	4	66	9	3	3	1
Deaths§	21	2				4	—			
Puerperal fever		—	6				—	9		—
Deaths										
Puerperal pyrexia‖	72	4	6	—	—	107	10	6	—	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,972	169	224	99	159	1,374	82	320	169	49
Deaths†			—	—	—			—	—	1
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	7	—	—	2	—	10	—	1	1	—
Deaths	—	—	—	—	—	2	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	749	31	45	50	39	2,060	127	75	66	16
Deaths	2	—	—	—	—	2	—	—	—	—
Deaths (0–1 year)	233	30	38	23	6	259	30	43	13	13
Deaths (excluding still-births)	4,466	710	577	157	118	4,491	723	547	166	118
Annual death rate (per 1,000 persons living)			11·6	9·7				11·0	10·4	
Live births	6,699	1051	820	376	177	7,419	1184	870	406	226
Annual rate per 1,000 persons living			16·4	23·3				17·6	25·4	
Stillbirths	150	20	29			176	27	36		
Rate per 1,000 total births (including stillborn)			34					40		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

Notifications in England and Wales in the week ended November 5 were: poliomyelitis 318 (347), polio-encephalitis 12 (20). Figures for the previous week are shown in parentheses.

Multiple cases were reported in the following counties: London 50 (55), Bedford 6 (2), Berks 7 (3), Buckingham 2 (4), Chester 16 (10), Derby 3 (2), Devon 3 (3), Dorset 7 (3), Durham 3 (2), Essex 24 (26), Gloucester 6 (9), Hereford 4 (2), Hertford 4 (9), Huntingdon 5 (0), Kent 15 (16), Lancaster 26 (32), Leicester 12 (3), Lincoln, Lindsey 5 (13), Middlesex 14 (17), Norfolk 7 (5), Northampton 4 (1), Northumberland 4 (2), Nottingham 9 (8), Oxford 2 (2), Salop 2 (0), Somerset 2 (11), Southampton 9 (13), Stafford 7 (3), East Suffolk 2 (2), Surrey 6 (14), East Sussex 5 (9), Warwick 7 (8), Westmorland 3 (1), Wiltshire 2 (1), North Yorks 2 (2), West Yorks 36 (50), Glamorgan 4 (7).

Smallpox

In Liverpool a male laboratory assistant aged 16, who handled glassware contaminated with smallpox virus modified by egg passage, has developed smallpox. The onset of his illness was on October 24, the rash appearing on October 27. Primary vaccination had been performed on October 17, soon after he started work in the laboratory. The diagnosis has been confirmed by the isolation of smallpox virus from the pustules: the rash is discrete and modified. The patient was isolated on October 29, and contacts have been vaccinated and placed under surveillance.

On November 10 the patient's younger brother, aged 15, living at the same address in Liverpool and unvaccinated at the time of contact, was put under observation with symptoms of early smallpox. His illness is relatively mild.

There is a possibility that the original case may have infected others during the pre-eruptive stage, but all contacts are believed to be under close surveillance, and spread to the general public is not expected.

Typhoid Fever in Salford

There has been a considerable outbreak of typhoid fever in the Salford district. Preliminary inquiries disclosed that all the early cases had taken a meal at the Masonic Hall, Salford, on October 6. Subsequently other cases were found to have had meals at the same place on other dates, and it became apparent that a continuing source of infection had been present. It is thought that some 3,000 persons are at risk.

Up to the present the total of confirmed and suspected cases is 34. The organism is of Vi-phage type E1. Inquiries are being made among the food-handlers at the restaurant. Three are at present under suspicion, and one is excreting organisms of Vi-phage type E1 and is probably a chronic carrier. All food-handlers at the restaurant have been taken off duty temporarily.

Discussion of Table

In *England and Wales* there were decreases in the notifications of whooping-cough 85, measles 57, and acute poliomyelitis 38. The only increase of any size was in the incidence of scarlet fever 63.

Small variations were noted in the incidence of scarlet fever, the largest being an increase of 31 in Lancashire. For the fifth successive week there was a rise in the notifications of diphtheria; the chief feature of the returns was an increase of 7 in Lancashire.

The fall in the notifications of measles was due to the experience of the Midlands; in the south and north the incidence increased. In the combined area of London, south-eastern, and south-western counties a rise of 81 was recorded, and in the north-western and northern counties there was a rise of 70. The largest local changes in the notifications of measles were decreases in the Isle of Ely 55 and in Warwickshire 37, with rises in Norfolk 52 and Lancashire 35.

A further 89 cases of dysentery were notified in the Lancashire outbreaks: Liverpool C.B. 29, Wigan C.B. 16, Ince in Makerfield U.D. 15, and Hindley U.D. 11. The largest returns for food-poisoning were from Yorkshire West Riding, Sheffield C.B. with 37 notifications, and from Warwickshire, Rugby M.B. 24.

In *Scotland* there were small decreases in the notifications of most infectious diseases; the largest fall was scarlet fever 27. The largest returns for dysentery were Glasgow 37 and Dundee 12.

In *Eire* decreases were reported in the incidence of diarrhoea and enteritis 39 and scarlet fever 36. The experience of Dublin C.B. mainly contributed to these falls. Notifications of measles in Waterford C.B. increased by 57, while a fall was recorded in the remainder of the country.

In *Northern Ireland* there were only small fluctuations in the notifications of infectious diseases. A decrease of 12 in the notifications of measles was recorded in Belfast C.B., while an increase of 13 was reported from County Down.

Week Ending November 5

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,048, whooping-cough 398, diphtheria 86, measles 1,082, acute pneumonia 419, cerebro-spinal fever 18, acute poliomyelitis 318, acute polio-encephalitis 12, dysentery 83, paratyphoid fever 7, typhoid fever 11, food-poisoning 94.

Medical News

The Vicary Lecture

Sir Henry Wade, C.M.G., D.S.O., F.R.C.S.Ed., will deliver the Thomas Vicary Lecture before the Royal College of Surgeons of England (Lincoln's Inn Fields, London, W.C.) on Thursday, November 24, at 5 p.m. His subject is "The Barber Surgeons of Edinburgh."

Visits to Canada

It is hoped that any medical men and women who intend to visit Canada will inform the Secretary of the B.M.A. so that information of such visits may be forwarded to the Canadian Medical Association which is anxious to be of help to doctors from the United Kingdom visiting Canada.

Interpreters for the Deaf

The Secretary of State for Scotland has asked local authorities to provide, if possible, the services of a qualified interpreter for the deaf when a deaf or a deaf and dumb person is being medically examined for certification as mentally deficient. This step has been taken as a result of representations made by the Scottish Association for the Deaf.

Christmas Seals

The National Association for the Prevention of Tuberculosis again offers Christmas seals and cards for sale. The profits help to pay for the association's valuable work in educating the public in the prevention of the disease and for the welfare of the tuberculous. The seals have been given by the Canadian Tuberculosis Association and cost 4s. a hundred. The cards are 6d. each, including envelope. Both can be obtained from the Duchess of Portland, chairman of the N.A.P.T., Tavistock House North, Tavistock Square, London, W.C.1, or in Scotland from the N.A.P.T. (Scottish Branch), 65, Castle Street, Edinburgh, 2.

World Research in Alcoholism

The Department of Public Welfare of the State of Illinois publishes monthly an annotated bibliography entitled *World Research in Alcoholism*. This contains abstracts of papers and books on all aspects of the subject of alcoholism and descriptions of the arrangements made by various States to treat and rehabilitate alcoholics. Those wishing to receive copies of *World Research in Alcoholism* should write to the editor, Illinois Department of Public Welfare, Division of the Alienist, 912, South Wood Street, Chicago, 12, Illinois.

British Plastic Surgeon in Turkey

Professor T. Pomfret Kilner, Nuffield Professor of Plastic Surgery in the University of Oxford, left London by air on November 13 for a lecture tour in Turkey organized by the British Council in conjunction with the Turkish Ministry of Health. He will speak in the Universities of Ankara and Istanbul and at hospitals in Ankara and Izmir.

Scholarships for Nurses

The British Commonwealth and Empire Nurses War Memorial Fund will award the following scholarships in 1950: *United Kingdom.*—Royal College of Physicians Scholarship, Sir James Knott Scholarship (limited to a nurse or midwife from Northumberland or Durham), Robert Wood Johnson Scholarship (limited to an English nurse training in child welfare. Countries visited, preferably Canada or Australia) *Dominions.*—Pakistan: Gilchrist Scholarship. Canada: Thomas Wall Scholarship. Ceylon: Mountbatten Scholarship. *Colonies.*—Malaya: Mountbatten Scholarship. Hong Kong: Royal College of Physicians Scholarship (candidates must be colonial nurses). These scholarships will be tenable in a country other than that in which the candidate is domiciled. Nurses and midwives in the U.K. can obtain particulars of the qualifications required from the scholarships secretary of the fund at Dorset House, Stanford Street, London, S.E.1 The entrance form must be completed before January 31, 1950. Selected candidates will then be required to write an essay on "What contribution has nursing made, and can nursing make, to the life of your country?" On the results of this essay a short list will be interviewed for final choice. Candidates from the Dominions and Colonies will be selected by the appropriate authorities there.

Scientific Films

A film on "Tracing the Spread of Infection: Pemphigus Neonatorum," made for the Ministry of Health by the Central Office of Information, was shown at the C.O.I. on November 11. Intended mainly for teaching pupil midwives, it illustrates how the infection may spread from any of the contacts of the infant, and the laboratory methods used in tracing it. The photography and commentary are clear, though in view of the purpose of the film it is questionable whether it should have included such detailed illustration of the laboratory work required in carrying out the coagulase test and phage-typing. It was made with the advice of the Medical Research Council Cross-Infection in Hospital Wards Subcommittee and the Central Midwives Board. Copies of the film (35 mm. and 16 mm.) may be borrowed after November 30 from the Central Film Library, Imperial Institute, London, S.W.7, by those with their own sound projectors. It will also be available on C.O.I. mobile units, for which application should be made to the appropriate regional film officer. His address can be obtained from the C.O.I. at Norgeby House, 83, Baker Street, London, W.1. In either case its use is free of charge.

The London Optical Practitioners Branch of the Association of Scientific Workers showed some scientific films at Friends House, London, on November 10, one of particular interest being a Russian film, with a commentary by Professor J. B. S. Haldane, F.R.S., on blood transfusion experiments in animals. It showed an isolated dog's head supplied with oxygenated blood from a special pump. The head responded to a number of external stimuli; the eyes reacted to light by blinking, and in response to noises the head pricked up its ears. Sometimes the tongue licked round the lips. The film then showed blood being completely drained from an anaesthetized dog, and after ten minutes the blood was pumped back. In due course the dog revived, the pump was detached, and the wound stitched up. On recovery from the anaesthetic the dog seemed none the worse.

Association of Industrial Medical Officers

Dr. L. G. Norman, Chief Medical Officer of the London Transport Executive, has been elected President of the Association of Industrial Medical Officers.

COMING EVENTS

Birmingham Consultants' Meeting

A meeting of the Regional Consultants and Specialists Committee will be held at the Queen Elizabeth Hospital, Birmingham, on November 23, at 5.15 p.m. Subjects to be discussed include reconstitution of the committee and election of representatives.

Cantor Lectures

Mr. D. W. Kent-Jones, Ph.D., will deliver three Cantor Lectures before the Royal Society of Arts (John Adam Street, Adelphi, London, W.C.) on Mondays, November 21 and 28 and December 5, at 6 p.m. His subject is "Bread."

Contraceptive Technique

A lecture and demonstration (on living models) of contraceptive technique will be given by Dr. Marie C. Stopes and Dr. M. Beddow Bayly at the Mothers' Clinic, 108, Whitfield Street, London, W., on Thursday, December 1, at 2.30 p.m. Tickets of admission must be obtained in advance.

SOCIETIES AND LECTURES

Friday

BRITISH INSTITUTE OF RADIOLOGY.—At 32, Welbeck Street, London, W., November 18, 5 p.m., meeting of medical members.

Monday

HUNTERIAN SOCIETY.—At Society of Apothecaries of London, Blackfriars Lane, Queen Victoria Street, E.C., November 21, 8.30 p.m., discussion, "*That Alcohol has Contributed More to the Happiness than to the Misery of Mankind*," proposed by Dr John Y. Dent and Dr. Desmond Curran and opposed by Dr. Henry Yellowlees and Mr. Archibald Crawford, K.C.

LONDON UNIVERSITY.—At London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., November 21, 6 p.m., "*The Contribution of Surgery to Preventive Medicine*," Heath Clark Lecture by Sir James Learmonth.

ROYAL SOCIETY OF ARTS, John Adam Street, Adelphi, London, W.C.—November 21, 6 p.m., "*Bread*," Cantor Lecture by Mr. D. W. Kent-Jones, Ph.D.

UNIVERSITY COLLEGE, Gower Street, London, W.C.—November 21, 4.45 p.m., "*Bacterial Toxins*," by Dr W. E. Van Heyningen.

Tuesday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At University New Buildings (Anatomy Lecture Theatre), Edinburgh, November 22, 5 p.m., "*Pancreatitis*," by Dr. Thomas C Hunt

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—November 22, 5 p.m., "*Histopathology of the Skin*," by Dr. I. Muende.

INSTITUTE OF OBSTETRICS AND GYNAECOLOGY.—At Postgraduate Medical School of London, Ducane Road, W., November 22, 3 p.m., "*Radiotherapy in Non-malignant Uterine Haemorrhage*," by Dr. Mary D Gilmour.

LONDON UNIVERSITY.—At London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., November 22, 6 p.m., "*The Contribution of Surgery to Preventive Medicine*," Heath Clarke Lecture by Sir James Learmonth.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, London, S.W.—November 22, 5 p.m., "*Development and Behaviour in Childhood*," Charles West Lecture by Dr. N. B. Capon.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—November 22, 3.45 p.m., "*A Quantitative Approach to the Study of Transplantable Tumours*," Imperial Cancer Research Fund Lecture by Dr. James Craigie.

Wednesday

INSTITUTE OF PHYSICS: LONDON AND HOME COUNTIES BRANCH.—At Royal Institution, 21, Albemarle Street, London, W., November 23, 5 p.m., "*Physics of Atmospheric Pollution*," by Dr. A. R. Meetham. Joint meeting with Royal Meteorological Society.

INSTITUTE OF PSYCHIATRY (UNIVERSITY OF LONDON), Maudsley Hospital, Denmark Hill, London S.E.—November 23, 4.30 p.m., lecture-demonstration for postgraduates by Dr E. Stengel.

LONDON UNIVERSITY.—At London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., November 23, 6 p.m., "*The Contribution of Surgery to Preventive Medicine*," Heath Clark Lecture by Sir James Learmonth.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW, 242, St. Vincent Street, Glasgow.—November 23, 5 p.m., "*The Royal Faculty of Physicians and Surgeons*," Finlayson Memorial Lecture by Mr. Archibald L. Goodall.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, London, W.—November 23, 3.30 p.m., "*Mechanization in its Relation to the Public Health*," by Dr. W. Blood.

SOCIAL PSYCHOTHERAPY CENTRE, 7, Fellows Road, London, N.W.—November 23, 5 p.m., "*E.C.T. and Short Methods in Relation to Psychotherapy*," by Dr. A. Joyce Martin.

SOCIETY OF CHEMICAL INDUSTRY: FOOD GROUP.—At Medical Society of London, 11, Chandos Street, Cavendish Square, London, W., November 23, 6.15 p.m., meeting of Microbiological Panel, "*Recent Work on the Bacteriology of Pasteurization*," by Messrs. E. B. Anderson and L. J. Meanwell.

Thursday

BRISTOL UNIVERSITY.—At Canynge Hall, Bristol, November 24, 5.15 p.m., "*Disorders of Speech*," by Dr. Macdonald Critchley.

EDINBURGH CLINICAL CLUB.—At B.M.A. Rooms, 7, Drumsheugh Gardens, Edinburgh November 24, 8 p.m., "*Emergencies in Cardiac Practice*," by Dr I. G. W. Hill.

HONYMAN GILLESPIE LECTURE.—At Anatomy Theatre, University New Buildings, Teviot Place, Edinburgh, November 24, 5 p.m., "*Pleurisy*," by Dr. James Laurie.

KING'S COLLEGE OF HOUSEHOLD AND SOCIAL SCIENCE, Campden Hill Road, London, W.—November 24, 5.30, p.m., "*Food and Mankind*," by Professor John Yudkin.

LONDON UNIVERSITY.—At London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., November 24, 6 p.m., "*The Contribution of Surgery to Preventive Medicine*," Heath Clark Lecture by Sir James Learmonth.

MEDICO-LEGAL SOCIETY.—At 26, Portland Place, London, W., November 24, 8.15 p.m., "*Psychiatry and the Defence*," by Dr W. L. Neustatter

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—November 24, 5 p.m., "*The Barber Surgeons of Edinburgh*," Thomas Vicary Lecture by Sir Henry Wade.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—November 24, 4.30 p.m., lecture-demonstration "*Psychiatry*," by Dr D. Curran.

TORQUAY AND DISTRICT MEDICAL SOCIETY.—At Torbay Hospital, November 24, 8.30 p.m., "*Headache*," by Dr. Anthony Feiling

Friday

KENT AND CANTERBURY HOSPITAL, Canterbury.—November 25, 5 p.m., clinical meeting.

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES MEDICAL SCHOOL, Maida Vale, London, W.—November 25, 5 p.m., clinical demonstration by Dr. P. H. Sandifer.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos Street, London, W.—November 25, 8 p.m., general meeting. "*The Ocular Aspects of the Venereal Diseases*," by Professor A. Sorsby.

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh.—November 25, 8 p.m., "*The Aetiology of Neoplasia*," by Mr. A. H Duncan.

UNIVERSITY COLLEGE, Gower Street, London, W.C.—November 25, 5.15 p.m., "*Transmission of Excitation in Nerve and Muscle*," by Dr. Bernhard Katz.

APPOINTMENTS

HOSPITAL FOR SICK CHILDREN, Great Ormond Street, London, W.C.—*House-physician* (*Junior Registrar grade*), J. A. Davies, M.B., B.S. *House-surgeon* (*Junior Registrar grade*), A. J. Alldred, M.B., Ch.B. *Resident Anaesthetic Registrar* (*Registrar Grade*), Elizabeth P. Champion, M.B., B.S. *Junior Resident Anaesthetic Registrars*, Margaret E. Browne, M.B., Ch.B., Phyllis M. de Saram, M.B., B.S. *Part-time Orthopaedic Registrar* (*Senior Grade*), G. R. Parry, M.B., B.S. *Registrar to Ear, Nose, and Throat Department* (*Senior Registrar Grade*), B. H. Pickhard, M.B., B.S., D.L.O.

KALRA, ATAM P., M.B., B.S., D.P.H., D.C.H., Medical Officer of Health to Braintree, Witham, and Dunmow, and Assistant County Medical Officer of Health, Essex.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Brueton.—On November 7, 1949, at Southmead Hospital, Bristol, to Nancy (nee Baldwin), M.B., Ch.B., wife of Neville Brueton, M.B., Ch.B., a daughter.

Nicholson.—On November 8, 1949, at Lynfield, The Downs, Altrincham, to Rosabelle and Frank Nicholson, a daughter.

Robertson.—On November 11, 1949, at the Radcliffe Infirmary, Oxford, to Ruth (née Colyer), wife of Dr. D. N. Struan Robertson, a daughter.

MARRIAGES

Blythe—Skidmore.—On September 10, 1949, at Tettenhall Church, Wolverhampton, Frank Blythe, of Woodthorpe, Nottingham, to Clarice A. Skidmore, M.B., B.S., of Tettenhall.

DEATHS

Cooper.—On October 21, 1949, at The Ark, South Bersted, Bognor Regis, Sussex, Ludford Cooper, M.D., late of Devonshire Place, London, W., and formerly of Rochester, aged 82.

Fairweather.—On November 7, 1949, at Purdown House, Stapleton, Bristol, David Stanley Fairweather, M.D., D.P.M., aged 48.

Godfrey.—On November 5, 1949, at Appleton House, Hinckley, Leics., Harry Munn Godfrey, M.D., aged 57.

Gudson.—On November 13, 1949, at 28, Town Walls, Shrewsbury, Leonard Joseph Godson, M.R.C.S., L.R.C.P., aged 80.

Harding.—On November 13, 1949, Robert Dennis Harding, D.M., M.R.C.P., D.T.M.&H., of Stonerush, Wootton Courtenay, Minehead, Somerset.

Macfarlane.—On November 8, 1949, in a nursing-home, Aylmer Alexander Macfarlane, M.D., of 2, Gwydyr Mansions, Hove, Sussex.

Macleod.—On November 10, 1949, at Glenavon, Bradford-on-Avon, George Ernest Macleod, L.R.C.P.&S.Ed., L.R.F.P.S., Surgeon Commander, R.N., Ret.

Prior.—On November 6, 1949, at Bournemouth, John Ralph Prior, M.D., D.P.H., aged 75.

Swayne.—On November 10, 1949, Francis Griffiths Swayne, M.B., B.Ch., of Pen-y-Plock, Tillington, Hereford, aged 85.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Immunization Against Colds

Q.—*Is there any method of immunization which will protect an individual against recurrent catarrhal colds during the winter?*

A.—It is now generally accepted that the common cold, and probably similar catarrhal infections of the upper respiratory tract, are due to viruses which have not yet been specifically identified. Protection against the primary virus infection is therefore not to be expected by the use of bacterial vaccines unless the vaccine in some way increases non-specific resistance to the common cold. It seems likely, however, that secondary bacterial infection is a common complication of the primary coryza, probably as a result of the damage to the respiratory mucosa. The bacteria concerned are mostly those already present in the throat, particularly pneumococci, *Haemophilus influenzae*, haemolytic streptococci, and probably some strains of *Neisseria catarrhalis*. Stock vaccines containing these organisms have for many years been used for the prophylaxis of catarrhal infections, and, although control trials have failed to show any significant benefit, many practitioners believe from their personal experience that these anticatarrhal vaccines have some value. Autogenous vaccines made from the pathogenic bacteria present during the later stages of a cold are also used, and these may be preferred, particularly when there is evidence of persisting sinus infection due to a specific organism. Some catarrhal infections may have an associated allergic factor, and here again the vaccine may act as a desensitizing agent. Avoidance of fatigue, damp footwear, and rapid changes of temperature probably helps to maintain resistance against these catarrhal infections.

Chronic Urticaria

Q.—*How should one investigate a case of chronic urticaria? What are the possible methods of treatment?*

A.—The most important items in the investigation of chronic urticaria are a very detailed history and a full physical examination, bearing in mind that the following are the main aetiological factors: foci of infection, foods, drugs, and psychological disturbances. Less often endocrine disturbances, parasites such as worms, and other skin lesions such as scabies and epidermophytosis are the cause; more rarely contact allergens and physical agents (cold, heat, light), and very rarely inhalant allergens. Radiological and laboratory investigations are usually necessary in the search for infection, which must be thorough. Skin tests are of little value, and in inexperienced hands may be misleading. Cooke (*Allergy in Theory and Practice*, London, 1947, p. 306) summarizes the allergist's viewpoint excellently when he writes: "Thirty-five per cent are due to infection, usually focal, 10% are caused by foods, and another 10% by drugs. This leaves nearly half of our cases aetiologically undiagnosed."

Foci of infection should be removed and, where this is impossible, vaccine therapy given. Drug allergy should always be suspected, and it is wise to stop all drugs, apart from antihistamines, for two to three weeks. "Headache powders," purgatives, and the occasional sleeping-tablet must be specially inquired for and stopped. Food allergy may be suspected from the history, but often can be properly investigated only by dietary trial. The foods commonly found responsible are those the patient usually eats—that is, egg, milk, wheat, potato, fish, chocolate, and fruit; and the writer has had a few successes by stopping all tinned foods. Suspected foods should be eliminated, one or two at a time, for two or three weeks, and during this period all traces of these foods must be avoided—for example, egg is contained in cakes, mayonnaise and sauces of all types, meringues and various pastries, etc. Each food or drug tested by elimination must then be added in the quantities usually taken and the effect during the following two to three days observed.

Psychological disturbances play an important part in many of these cases, and the help of a psychiatrist is often required. A lead might be obtained from a history of previous or accompanying psychological symptoms, such as palpitations, insomnia, headache, or vague dyspepsia; and especially so if a history of emotional stress preceding or accompanying the urticaria was obtained. "Sodium amytal" is useful in these cases. Urticaria at the menopause often benefits from stilboestrol. For suspected insect bites the liberal application of D.D.T. powder next to the skin, during the night and in the daytime, should be tried for four to five days: a few cases, especially if of the papular type, are dramatically eased.

The best symptomatic treatment is obtained with the antihistamine drugs. The large majority of cases can be controlled with suitable dosage; drowsiness during the day should be avoided and this side-effect taken advantage of during the night. They can safely be used for long periods. Non-specific treatments with peptone, histamine, vitamin K, calcium, and autohaemotherapy are of little value; they have been given up by many workers in this field. Sometimes, however, when such treatment is being tried one can by careful observation find the underlying cause which has previously been missed.

Quinine in Late Pregnancy

Q.—*The use of quinine to induce labour is now generally deprecated, but some years ago there were numerous reports claiming that in small divided doses (1½ gr. (0.1 g.) t.d.s.) during the last few weeks of pregnancy quinine tended to shorten the duration of labour and lessen the intensity of the pains. Is this so? Is there any evidence that in this dosage it causes any harm to mother or child?*

A.—Although the administration of small doses of quinine for a few days before labour had been previously recommended, D. A. Mitchell, acting on the suggestion of Philip Jones, seems to have been the first to advocate its routine use during the last three weeks of pregnancy (*British Medical Journal*, 1930, 1, 144). He as well as other writers claimed that it improved general well-being, made labour shorter and easier, ensured good uterine retraction, decreased the need for forceps delivery, and reduced the risk of puerperal sepsis. These and similar claims appear, however, to have been always based on clinical impressions rather than on controlled observations, and there is no definite evidence to support them. The fact that quinine has lost popularity rather suggests that other observers have not been convinced of its efficacy, but it is still used occasionally in cases in which poor uterine action is anticipated. It is never possible to judge its value, but in such dosage it is unlikely to have an adverse effect on the foetus.

Detection of Porphyria

Q.—*What is the simplest and surest way to detect porphyrin in urine, stools, and blood serum?*

A.—There is no simple way of detecting porphyrin in any body fluids. The importance of porphyrin in diagnosis can be exaggerated, and in practice there are two conditions only in which its presence may be of importance: these are acute porphyria and severe chronic lead-poisoning. The easiest techniques were described last year in a letter to the *Journal* (1948, 2, 659). As the presence of porphyrin in stools is physiological, there is very rarely any need to look for it. In a few cases of porphyria, but not in all, porphyrin can be detected in the serum because it fluoresces red under the black ultra-violet light. In practice, the diagnosis of porphyria is rendered almost certain by a positive response to the Watson and Schwartz test. The other methods necessitate the use of a well-equipped laboratory. In small laboratories the porphyrin may conveniently be concentrated in a barium sulphate precipitate obtained by adding barium chloride to the urine and then eluting it with

ammonia, but this is not a suitable procedure when access to a well-equipped laboratory is not available.

The best account of the subject yet written is the classical monograph by Waldenström, published in *Acta Medica Scandinavica*, 1937, Supplement, 82. An inquirer with a laboratory would also find the following references useful: Watson, C. J., *J. clin. Invest.*, 1934, 14, 106; 1935, 14, 116; 1937, 16, 383. Waldenström, J., *Acta med. scand.*, 1934, 83, 281; *Dtsch. Arch. klin. Med.*, 1935, 178, 38. Roth, E., *Z. klin. Med.*, 1935, 129, 123. Dobriner, K., *J. biol. Chem.*, 1936, 113, 1. Turner, W. J., *Arch. intern. Med.*, 1938, 61, 762. Vahlquist, B., *Hoppe-Seyl. Z.*, 1939, 259, 213. Rimington, C., *Biochem. J.*, 1943. 37, 443. Petrie, E., *British Medical Journal*, 1948, 1, 926.

Dicoumarol in Disseminated Sclerosis

Q.—*Would there be any justification for using dicoumarol in a case of disseminated sclerosis?*

A.—Dicoumarol has been employed to treat disseminated sclerosis because it was suggested that the pathological basis of the disease was a tendency to spontaneous clotting in the blood vessels of the nervous system. This hypothesis has not been generally accepted, and many remain unconvinced that dicoumarol is of any value; moreover, it is not free from risk.

Irregularity at the Menarche

Q.—*Is any treatment required for irregular menstruation in young girls? A healthy girl of 14 started menstruating 18 months ago. The cycle was at first six to seven days every four to eight weeks. Latterly, however, the monthly pattern seems to be lost. She may lose continuously for two or three weeks, then be clear for a week or ten days, then start again. Her general health seems unaffected, and there is no sign of anaemia and no pain. She leads an active life. Is treatment indicated? Can her mother be assured that the girl will grow out of it?*

A.—Menstrual irregularity of this and other types is common at this age, but shows a strong tendency to natural cure within months, or one or two years at the most. If the bleeding is not so heavy as to produce constitutional upset or to interfere with ordinary activities, there may be no need for any special treatment. Thyroid 1 gr. (65 mg.) daily for two or three months often seems to stabilize the cycle in these cases, and calcium might also help. The bleeding is probably anovular in type, but may be a manifestation of either hypo-oestrinism or hyper-oestrinism. If sex-hormone therapy becomes necessary, either of these two possibilities would therefore be covered by giving ethinyl oestradiol, 0.05 mg. twice daily by mouth, administration starting on the second or third day of menstruation and continuing for 20 days. During the last seven days of this treatment ethisterone, 10 mg. three times a day sublingually, should be given as well. The next period is likely to start a few days after the completion of this treatment, and, when it does, repeat the course, giving it three times in all.

Femoral Thrombectomy

Q.—*Is femoral thrombectomy ever undertaken in this country? What are the indications and the possible dangers, and what results have been obtained in any published series of cases?*

A.—Femoral thrombectomy is undertaken in this country, but is not yet established as a regular procedure, many surgeons being content to rely upon Leriche's procedure of procaine block of the lumbar ganglia and the combined administration of heparin and dicoumarol. In certain conditions—for example, after prostatectomy, hysterectomy, haemorrhagic lung infarcts, etc.—one fears to use the anticoagulants in the fullest doses; in these cases ligation of the femoral veins is strongly indicated, and if a clot is encountered at the level of the ligature it must be completely removed above the ligature or it will propagate upwards and manufacture emboli. The removal is done from the iliac veins with forceps such as those designed by Trendelenburg for pulmonary thrombectomy, coupled with a sucker tube with an expanded end. Confirmation that the whole clot has been removed is supplied by the finding in the fragments extracted of the characteristic cap at the end of the clot.

Placental Implants for Rheumatoid Arthritis

Q.—*During a recent visit to Pistány, Czechoslovakia, I was given the opportunity of seeing the operation of placental grafting for rheumatoid arthritis and allied conditions. Is this operation performed in England? If so, what results have been obtained?*

A.—This procedure, which is an empirical one, is not performed in England. The underlying idea is that certain of the hormones which are elaborated in the placenta during pregnancy are of value in the treatment of rheumatoid arthritis. By implanting placental tissue it is hoped that the action of these hormones may be prolonged beyond what might be hoped of injection therapy.

"Rheumatoid Rectal Neuralgia"

Q.—*Is there such a thing as rheumatoid rectal neuralgia? This diagnosis was made recently in a case in which there were no physical signs and the only symptom was rectal pain. I have been unable to find any reference to it in the textbooks.*

A.—There appears to be no scientific justification for the diagnosis of "rheumatoid rectal neuralgia" as an explanation for symptomless rectal pain. The writer has recently heard of this diagnosis being made by a proctologist, but on inquiring the grounds for this opinion he discovered that the word "rheumatic" (or "rheumatoid") was being employed in the mediaeval sense—that is, as a synonym for "painful."

NOTES AND COMMENTS

Jelly-fish and Weever-fish.—Dr. H. S. RUSSELL (Bradford) writes: The answer to the request for advice in treating jelly-fish and weever-fish stings ("Any Questions?" October 1, p. 767) appears to me to be somewhat incomplete. On a recent holiday in Suffolk my small son, aged 11, trod on some stinging fish while coming ashore from a bathe, presumably a lesser weever-fish being responsible. When seen 5 minutes afterwards there was a definite puncture mark seen above the left little toe, with an urticarial weal—radius ½ in. (1.25 cm.)—around it. Intense pain was complained of. A small amount of "anthisan" cream happened to be available and was rubbed into the affected part, which ended the incident completely in about two minutes without any sequelae. May I add that I saw an experienced nurse last night who had a wasp sting while visiting. A little anthisan cream rubbed in at once stopped the pain, though it did not prevent the "lump" from developing. I think these anti-histamine chemicals applied locally in good time save a great deal of trouble to all concerned.

Corrections

The address from which information may be obtained about the Commonwealth Fund fellowships offered by the Commonwealth Fund of New York (November 5, p. 1060) is 35, Portman Square, London, W.1, not Portland Square as printed.

Dr. MAX REISS (Bristol) writes: I would be glad if you would correct a misquotation in the issue of November 5 (p. 1041), in the report of the meeting of the Section of Physical Medicine of the Royal Society of Medicine. The report states: "Dr Max Reiss said that he and Hempel were probably the first to use corticotropic hormone in the treatment of rheumatoid arthritis. . . ." This should read: "Dr. Max Reiss said that he and Hemphill were probably the first to use corticotropic hormone in the treatment of human subjects, and published in 1942 the results of investigations carried out on a group of cases suffering from involutional melancholia (*J. ment. Sci.*, 88, 559)." It is important that this correction should be made, as to suggest that I have treated rheumatoid arthritis is misleading.

Dr. T. M. Montford should have been described as part-time Medical Officer of Health to the Castle Donington Rural District Council in the *Journal* of November 12 (p. 1089).

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111 TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone. Authors desiring REPRINTS should communicate with the Publishing Manager, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs.
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SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY NOVEMBER 19 1949

THE SECRETARY REPORTS

A MORAL OBLIGATION

It will be recalled that in a circular issued to boards of governors of teaching hospitals and regional hospital boards reference was made to a moral obligation to ensure that members of hospital staffs displaced as a result of a change of user should be found other appointments. The exact words of the circular were as follows:

"The present opportunity is taken of emphasizing the Minister's view that, where the board's plans for offering permanent contracts on a revised basis of allocation of duties involve displacement or serious disturbance of consultant staffs (e.g., where it is proposed to change the use of particular premises, or to carry out the work with a reduced number of staff), he has a moral obligation for seeing that the staff displaced or disturbed are given as far as practicable the opportunity of undertaking similar duties elsewhere—a moral obligation which he can only meet through the boards themselves.

"In the case of a regional hospital board, the board should, in the Minister's view, be able in almost every case to arrange for the displaced specialist to be offered duties of similar scope and extent in some other hospital where services in his specialty need strengthening.—It is more difficult for a board of governors to do this, as their administrative control extends over a much narrower field, but they should seek the co-operation of neighbouring regional hospital boards in endeavouring to arrange for the offer of similar work at a regional board hospital; and regional boards are asked to do all they can to assist; in nearly every case the staff concerned are of proved calibre and it will be to the board's advantage to obtain their services. Such offers of alternative duties as part of the review are not, of course, subject to the National Health Service (Appointment of Specialists) Regulations, 1948 (S.I. 1948, No. 1416)."

Resistance to Fulfilment

Recently the question of fulfilling this moral obligation has arisen in London, definitely in the case of one hospital and potentially in the case of others. Already the question has arisen of fulfilling the obligation by arranging for a displaced consultant to be appointed to another hospital without the preliminaries of advertisement. Rather unexpectedly, there are signs that the fulfilment of the moral obligation in this way may be made difficult by the resistance of some or all of the consultants on the staff of the hospital to which it is proposed to appoint the displaced practitioner. Indeed, there has already been an instance in which active opposition has been organized. It would be tragic if this developed into a general attitude. After all, no one knows when as a result of change of user he or she may become a displaced consultant needing an alternative post, for there will be many changes of user in future.

The point I want to make is that hospital staffs should be generous in their attitude to any proposed appointment of a displaced consultant. From what we have seen in the London area it is clear that the Ministry and regional hospital boards are anxious to find suitable alternative posts for displaced consultants, and it would be a pity, to say the least of it, if their efforts were in any way frustrated by members of the profession.

While on this subject, one might add a word of congratulation to those teaching hospitals which have found it possible to take under their wing the members of the consultant staffs of hospitals which have become linked with the teaching hospital. The Westminster Hospital and King's College Hospital come within this category. Where this is done, no problem of displacement arises. It is a pity that other teaching hospitals do not find themselves able to follow the same course of action.

I shall be glad to be informed of any single "displaced consultant" problems which arise as a result of change of user in different parts of the country, for we shall be very glad to give such help as we can.

N.H.S. Superannuation

Recent changes in the N.H.S. superannuation scheme are the subject of a leaflet which has been prepared by the Ministry of Health specially for practitioners on executive council lists and part-time specialists. The leaflet (S.D.H.) has been issued to executive councils, regional hospital boards, and boards of governors of teaching hospitals for distribution.

A point of interest to general practitioners is that from August 1, 1949, an assistant is excluded from the superannuation scheme unless his principal has to obtain the consent of the executive council to his employment. Such consent is required where an assistant's employment is for more than three months.

Normally pensionable age is 65, but general practitioners can apply to the Ministry for an extension to 70. Applications for extension may be made on reaching 60 and should be addressed to the Ministry of Health, Health Services Superannuation Division, Government Buildings, Honeypot Lane, Stanmore, Middlesex.

The qualifying period for a pension is 10 years, and general practitioners who were between 60 and 61 on entering the Service in July, 1948, could not, therefore, get in the minimum number of 10 years to count for pension before reaching 70. The Ministry has made a concession and is now prepared to consider an extension in such cases to 71. In the original scheme the maximum service which could be counted for the calculation of benefits was 40 years. This maximum is increased to 45 years by the amending regulations, with effect from August 1, 1949.

Part-time specialists are reminded that, unless they spend substantially the whole of their time in N.H.S. work and choose to have their benefits on the basis of 1/80 of average remuneration for each year of contributing service, their benefits will be reckoned on the basis of 1¼% of total remuneration over all the years of service in the same way as those of general practitioners.

The normal pensionable age for a part-time specialist is 65 (60 for mental health officers), but where service is extended superannuation contributions may now be paid, and the extended service may count for the calculation of benefits up to 70 years of age (65 for mental health officers). This is subject to an overall maximum of 45 years' service, and in reckoning these 45 years no more than 40 years before the age of 60 (55 for mental health officers) may count.

Remuneration of General Practitioners

We have received—just in time for publication in this week's *Supplement*—the Ministry's reply to the representations made to it on the subject of the aggregate pool of remuneration for general practitioners in the Service.

GENERAL MEDICAL SERVICES COMMITTEE

START OF SECOND YEAR'S WORK

At an all-day meeting of the General Medical Services Committee on November 10, the first of the new session, Dr. S. Wand was unanimously re-elected chairman. In taking the chair he drew attention to the size of the agenda, comprising some 90 items, including the reports of five subcommittees. It had been hoped that the first year would see the end of the most urgent of their problems, but now the committee was confronted with a greater volume of work than faced it a year ago.

Dr. Wand proposed the setting up of an executive committee to relieve the pressure of business on the main body. An amendment that, instead of this, the committee meet every month rather than every two months was not carried, the voting being 15 to 15, and after further discussion the proposal to appoint an executive was agreed to, its duties to be to consider and report on matters referred to it by the main committee, to carry out instructions of that committee, to make recommendations, and, between meetings, to advise the chairman at his request on emergency issues.

A small committee was also set up to review the constitution and procedure of medical services committees, another to review the question of protecting the practices of doctors called up in national emergency, and yet another on the general position of assistants under the Act. On this last point it was suggested that the committee should hear evidence from assistants, turning in the first instance to those who had contributed to the correspondence columns of the *Journal*.

Service Points

A question arose concerning the payment of general practitioners attending the aged and infirm in buildings which were under the regional hospitals board, though the persons themselves came under the Welfare Committee of the local authority. The chairman suggested that the several aspects of this question were a matter for informal discussion with the Ministry, and this was agreed to.

A motion was brought forward from the Cheshire Local Medical Committee expressing the view that, in cases where the local medical committee, the executive council, and the Medical Practices Committee were in agreement on the selection of a candidate to fill a vacancy in the medical services of any district, there should be no right of appeal to the Ministry against the decision of the Medical Practices Committee. The Cheshire representative on the committee said that such an appeal was a reflection on the integrity of the medical profession. Surely an unsuccessful candidate should acquiesce in the decision when the three committees were in agreement. Dr. W. M. Knox said that in Scotland, at a joint meeting of representatives of the bodies concerned, the suggestion was favourably received by the Department of Health that the appointment should be made at executive council level and that any appeal should lie to the Medical Practices Committee. It was stated that this could be done under regulations, without new legislation. This matter, with several resolutions of the recent Conference of Local Medical Committees on the filling of vacancies, was referred to the executive for close examination of the whole matter.

A motion by Walsall which was referred by the Conference to the committee, that the question of the burden of work be taken up with the Ministry at an early date, was considered. It was announced that the same expert statistician, Professor Bradford Hill, who made a survey on behalf of the Insurance Acts Committee in 1939, was now engaged on a similar survey, following exactly the same procedure of taking every fifth name on the list, no matter whether the practitioner selected in this automatic way had a large or a small list or was a general-practitioner specialist. In reply to some criticism of the value of this method, the chairman pointed out that the whole strength of their case as to any increased burden of work rested on the fact that the committee had made no selection of practices at all; everything had been left to the neutral expert.

Another matter which had been before the Conference came forward again in the committee—namely, the admission to the medical list of doctors from adjoining areas. Dr. D. F. Hutchinson said that there had been a number of complaints from practitioners in Middlesex that doctors residing four or five miles away from the place where they had accepted patients had been taken on the list, with the result that the resident doctors had to do much of the emergency work for their patients. It was felt that there should be machinery whereby the Medical Practices Committee was able to refuse admission to a list when the executive council had represented that the doctor's place of residence was too far away from where he had patients. One member pointed out that the remedy lay at executive council level. Freedom for a man to practise in an area was one thing, but whether a doctor was able to carry out his obligations in a proper manner when admitted was quite another. The executive council should have power to approve deputizing arrangements. The chairman, at the end of a considerable discussion, said that it was evident that some clarification of the whole position was needed, and he suggested, and it was agreed, that this matter also be considered and reported upon in all its aspects by the smaller committee.

Discussions with the Ministry

The committee then turned to consider a report on a number of matters which had been the subject of recent discussion with the Ministry, some of them bearing on resolutions passed by the Conference. One question concerned frivolous and unjustified emergency calls. The Ministry had promised to consider ways of giving general publicity to such matters as that requests for visits should be made before 10 a.m. if possible, that the patient should not make unreasonable demands, and so on. It had been suggested that instructions to this effect should be printed on the medical card, but the view of some members of the committee was that propaganda on the wireless and in the newspapers would be more effective. The chairman said he gathered that the Minister would not consider sanctions against patients, so that the words "shall" or "must" could not be used on the medical card, but it was useful for the doctor to be able to point to something specific on the card in justification of his requests. The Ministry's offer to consider publicity on this point was agreed to.

General-practitioner Specialists

The status of general-practitioner specialists also came forward. The Ministry had stated that the assessment of status, with the suggestion for special appeals machinery, would be raised with them in the near future by the Joint Committee representing consultants. Dr. Howie Wood said that the position was that certain general-practitioner specialists were not to be issued with permanent contracts at all. Apparently no effort had been made by the reviewing boards to carry out any investigation into the quality of the work done by the practitioner. Once the lists were made up and there was a clear-cut separation it would be very difficult to get reassessment.

It was useful to have the statement from the Ministry that the subject was one which could probably be dealt with during discussions between the Ministry and the Joint Committee. The Ministry's representatives had promised that if evidence was produced which showed that a principle had been misunderstood or misapplied they would investigate the matter.

Many other questions remained on the agenda of the committee, including the disposal of the several resolutions of the Conference, which were referred for detailed consideration by the appropriate subcommittees or noted for reference at the next meeting with the Ministry's representatives.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

FACULTY OF OPHTHALMOLOGISTS

At the council meeting held on October 14 it was reported that, with reference to the Inter-Departmental Committee which has been appointed to consider the registration of opticians, a Joint Evidence Committee has been set up by the British Medical Association, on which the Faculty is represented.

Mr. J. D. M. Cardell and Mr. J. H. Doggart, the two retiring representatives of the Faculty on the Ophthalmic Group Committee of the British Medical Association, have been re-elected.

A memorandum by Mr. Mackie on the duties included in Category 1 in the terms and conditions of hospital medical staff was considered. Many members considered that this document was in need of considerable modification. The matter is being investigated and legal advice sought. Mr. Mackie's memorandum was passed to the Ophthalmic Group Committee for consideration and reference if thought desirable.

Some confusion had arisen as a result of two apparently conflicting decisions of the council concerning the period of postgraduate training and experience recommended before qualifying as a consultant. The three Royal Colleges in 1946 drew up a list of criteria, having considered the advice of other bodies, including the Faculty, and a minimum of five years was agreed upon. Later, in the early part of this year, on a further request from the Joint Committee for Consultants through the Royal College of Surgeons, the council of the Faculty gave its opinion that 10 years was the necessary period. This was done before it was known that there would not be a division between specialists and consultants. When it was discovered that there would be no division, the decision was rescinded and the original view of five years was confirmed and the appropriate bodies informed.

The annual general meeting will be held on Friday, March 9, 1950, at 2.30 p.m.

WELSH COMMITTEE

The Welsh Committee, newly constituted to be fully representative of the Divisions in Wales, held its first meeting of the session at Shrewsbury on November 2. Dr. H. R. Frederick was appointed chairman and Dr. Graham Williams vice-chairman. Dr. J. Griffith Jones was appointed honorary secretary.

The question of the establishment of a Welsh House was discussed, and members of the Cardiff Division reported on properties that had been inspected with a view to purchase. The committee voted *nem. con.* that it was essential that the Welsh House should be centrally placed in Cardiff.

There was discussion on the possibility of an Annual Meeting of the Association being held in Wales in the fairly near future, and the possibilities are being explored.

The chairman was asked to bring to the attention of the Welsh Board of Health the existence of the committee and its willingness to advise on matters affecting Wales.

Correspondence

Private Practice for M.Os.H.

SIR,—It is impossible to read without surprise the extraordinary letter from Dr. J. Katz (*Supplement*, November 5, p. 207). That public health salaries need attention and that much time has been wasted in securing that attention is perfectly obvious, but Dr. Katz is so wide of the mark in several respects as to seem to wish to attract attention of precisely the wrong sort.

He has not even bothered to get his facts right. To say that the average salary paid to medical officers of health by local authorities is £750 per annum is ridiculous. The *minimum* salary for a whole-time M.O.H. is, of course, £1,100 per annum. If he is referring to assistant medical officers of health he ought to say so; even then the minimum salary of the posts is £710 (including bonus), so that an assistant M.O.H. with two years' service will receive £760. In view of the fact that a number of local authorities pay salaries above the scale level and that a considerable number of assistant medical officers serve as part-time medical officers of health for minor authorities and thus qualify for the higher scale, it is hard to believe that the average salary is less than that paid as a minimum to an officer with two years' service. If Dr. Katz were right, it could only be because the great majority of assistant medical officers were so disgusted with their conditions of service that they resigned after a bare year of work.

Even if the average salary of the assistant M.O.H. were £850, it would still be deplorably low. But is not Dr. Katz's suggestion admirably calculated to produce precisely the wrong impression on an austerity-minded Government and Civil Service? What he says might be rendered as follows: "Here is a large body of men and women who are paid whole-time salaries for work which does not occupy the whole of their time and who have plenty of time for other jobs if they like. Keep their salaries low, but make the lazy fellows stir themselves and, if they want more money, earn it 'on the side.'"

Dr. Katz is, I understand, himself an assistant medical officer of health. One would have expected him to learn that, to the officer who takes his job seriously and is really interested in it, the work of an assistant M.O.H. is a whole-time post in the full sense of the term and a rather exacting one at that. Let us act both honestly and boldly and reaffirm that the work is important enough to deserve recognition on its own merits.

It may well be that in the course of the next few years the general practitioner may find an increasing place in public health, especially in the child health services, as one part of his total work. This, however, will come by degrees, and public health will always depend largely upon a corps of doctors who are specialists in its various aspects and are doing that specialist work whole-time. I take leave to doubt very seriously whether any of the ancient nations which Dr. Katz mentions as relying for their public health work on part-time officers have built up public health services whose efficiency surpasses, or even equals, that of the British service.

And Dr. Katz's last words are the most surprising part of the letter. A doctor who believes that preventive medicine is not real medicine has certainly no place in the public health service; whether he could even be a good general practitioner in the full sense of the term is open to question. I have myself suffered from the inadequacy of public health salaries, and I know that many of my colleagues have had a worse deal than myself, but I believe that I speak for the vast majority of them when I say that we would rather remain underpaid than see social medicine degraded to the status of a sideline which is unworthy of serious attention and whose practitioners are not real doctors. To degrade any one branch of medicine is to begin to degrade the whole. In public health no less than in general practice or consulting practice the good labourer is worthy of his hire, and negotiations should begin—as they have done—and continue with this as an absolutely fundamental principle.—I am, etc.,

Colchester. JOHN D. KERSHAW.

Status of General Practice

SIR,—The question of the status of general practice has worried me for some considerable time. It would appear that it is likely to deteriorate; nothing could be worse for British medicine. Nothing could be worse than to see the ranks of general practitioners filled with discontented, disillusioned, "failed" specialists.

We are all well aware that in order to make general practice attractive we must aim at free access to pathological and other services, general practitioner beds, improved remuneration, and the opportunity, if one so desires, to specialize through and within general practice. Is it the lack of these things that makes specialism more attractive than general practice? General practice was apparently more attractive 20 years ago than it is to-day, and yet it was without these additional attractions.

Is it not the type of person who is being admitted to our medical schools that is wrong? I believe that the medical

H.M. Forces Appointments

REGULAR ARMY RESERVE OF OFFICERS

Colonel (Honorary Major-General) *J. G. Gill*, C.B.E., D.S.O., M.C., late R.A.M.C., having exceeded the age limit for liability to recall, has ceased to belong to the Reserve of Officers.

Colonel E. A. Brock, late R.A.M.C., having exceeded the age limit of liability to recall, has ceased to belong to the Reserve of Officers.

REGULAR ARMY: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Substantive Captain S. P. C. O'Reagain has relinquished his commission on appointment to the R.N.V.R., and has been granted the honorary rank of Major.

Association Notices

Diary of Central Meetings

NOVEMBER

23	Wed.	Health Services Subcommittee of the General Medical Services Committee, 11 a.m.
24	Thurs.	Public Health Subcommittee of the Medical Functional Council, 2.30 p.m.
25	Fri.	Committee on Psychiatry and the Law, 2 p.m.
25	Fri.	Joint Evidence Committee on Registration of Opticians, 2 p.m.
25	Fri.	Venereologists' Group Committee, 2.30 p.m.
29	Tues.	Ethical Rules Subcommittee, 2 p.m.
30	Wed.	Committee on the Postgraduate Education of General Practitioners (adjourned from November 9), 10.30 a.m.

DECEMBER

1	Thurs.	Planning Subcommittee of Occupational Health Committee, 11 a.m.
1	Thurs.	Remuneration Subcommittee of Occupational Health Committee, 2 p.m.
1	Thurs.	Joint Committee of the B.M.A. and the N.V.M.A., 2.30 p.m.
2	Fri.	Committee *re* Capital Punishment, 11.30 a.m.
2	Fri.	Colonies and Dependencies Committee, 2 p.m.
6	Tues.	Proprietary Medicines Committee (*Provisional*), 11 a.m.
6	Tues.	Orthopaedic Group Committee, 2 p.m.
9	Fri.	Medical War Relief Fund Committee, 2 p.m.
15	Thurs.	Journal Committee, 2 p.m.
19	Mon.	Armed Forces Committee, 2 p.m.
22	Thurs.	Occupational Health Committee, 2 p.m.

Branch and Division Meetings to be Held

BOURNEMOUTH DIVISION.—Friday, November 25, 8.15 p.m., lecture by Dr. G. D. Kersley: "Recent Advances in Connexion with Rheumatism and the Endocrine Glands."

DERBYSHIRE BRANCH.—At Smedley's Hydro, Matlock, Sunday, November 27, 2.30 p.m., annual general meeting. Dr. E. Grey Turner, Assistant Secretary of the B.M.A.: "Current Affairs."

DORSET DIVISION.—At the Old Shire Hall, Dorchester, Thursday, November 24, 8 p.m., Film: "Peptic Ulcer."

HUDDERSFIELD DIVISION.—At Huddersfield Royal Infirmary, Wednesday, November 23, 8.15 p.m., address by Dr. E. Grey Turner (Assistant Secretary, B.M.A.).

OLDHAM DIVISION.—At Oldham Hotel, Rhodes Bank, Monday, November 21, 9 p.m., Mr. P. G. McEvedy: "Haemorrhoids and Other Conditions of the Rectum and Anus Commonly met with in General Practice."

OXFORD DIVISION.—At Lecture Room, Radcliffe Infirmary Maternity Home, Wednesday, November 23, 8.15 p.m. Annual general meeting. Address by the Chairman of the Division.

ROCHDALE DIVISION.—At Kingsway Hotel, Rochdale, Thursday, November 24, 8 for 8.30 p.m., annual dinner. Members may take medical guests.

SOUTH ESSEX DIVISION.—At Oldchurch Hospital, Romford, Friday, November 25, 9 p.m., clinical meeting.

ST. PANCRAS DIVISION.—At B.M.A. House, Tavistock Square, London, W.C., Friday, November 25, 8.30 p.m., Mr. A. Dickson Wright: "Out-patient Letters."

SOUTH-WEST WALES DIVISION.—At St. David's Hospital, Carmarthen, Sunday, November 27, 2.30 p.m., Annual B.M.A. Lecture by Mr. D. H. Patey: "The Acute Abdomen."

SWANSEA DIVISION.—At Osborne Hotel, Langland, Thursday, November 24, 7.30 p.m., lecture by Sir Horace Evans: "Hypertension with Special Reference to Surgical Treatment."

WEST MIDDLESEX DIVISION.—At Red Lion Hotel, Southall, Friday, November 25, 8.30 p.m., Dr. Clifford Allen: "Psychiatry through the Ages."

WEST SOMERSET DIVISION.—At Yeovil District Hospital, Thursday, November 24, 5.30 p.m., clinical meeting. Mr. E. G. Tuckwell: "Sympathectomy."

Meetings of Branches and Divisions

COVENTRY DIVISION

The first ordinary general meeting of the Division for 1949-50 was held on October 11 and was attended by 55 members. The chairman, Surgeon Commander R. S. Rudland, R.N.V.R., in his inaugural address told of his experiences during the war on H.M.S. *Iron Duke* and H.M.S. *Devonshire*. He described particularly the operation concerned with the return of King Haakon of Norway to his own country in 1945, and also with the surrender of important units of the German Navy. He showed films demonstrating life at Scapa Flow, naval exercises, and incidents in the Suez Canal, Ceylon, and Australia.

The address was greatly enjoyed by the Division, and a very warm vote of thanks was accorded on the proposition of Dr. Meacock seconded by Dr. Elford.

On Sunday, October 16, members of the Division attended Evensong at St. Lawrence Church, Foleshill, Coventry. Lessons were read by the chairman of the Division, Dr. R. S. Rudland, and the vice-chairman, Mr. T. Berrill. It is hoped that such a service will be held each year in the parish church of the chairman of the Division on the Sunday nearest St. Luke's Day.

SOUTH EASTERN COUNTIES DIVISION

At a meeting of the Division held on October 16 a film, lent by the B.M.A. Film Library, showing the anatomy, pathology, and clinical features of angina pectoris was shown and aroused great interest.

The secretary drew attention to the form of certificate required for some of the industrial insurance policies, and it was agreed that a minimum fee of 10s. 6d. would be in order in these cases. The secretary announced that Mrs. McGregor had now taken over the secretaryship of the Royal Medical Benevolent Fund and that she would be grateful for any donations.

The emergency fees that had been agreed upon by the Department and the B.M.A. had in that area been withdrawn. It had always been the custom among the doctors of the Borders to assist each other with this work. The appointments system at hospitals was brought to notice, and while the system itself was welcomed it was felt that it would be inopportune in view of the unfinished condition of the central hospital meantime. The Department of Health had notified the regional hospital board that it declined to pay a special fee for domiciliary V.D. treatment. They had not yet replied to the secretary's note. The secretary reported that it was hoped to discuss this directly with the members of the Department at a meeting at St. Andrew's House.

The position of a new central hospital for the Borders was being discussed by the management board and the regional hospital board, and the secretary asked for the doctors present to indicate whether they would prefer to have it in the neighbourhood of Galashiels, or more centrally in the area. Among those present the opinion was definitely that it should be near Galashiels. (Most of the Galashiels and district doctors were present.)

Dr. McCracken, by letter, raised the question of a fee for lunacy certificates. It was agreed that the secretary should inquire into who was the responsible party for the payment to practitioners. Dr. McGregor raised the question of duplicate certificates for insured persons. The secretary pointed out that the original agreement was that the Ministry of National Insurance should on request issue these certificates, but they now complained that owing to shortage of staff they were unable to fulfil these. The secretary was to take this matter up with the Scottish Medical Services Committee.

TUNBRIDGE WELLS DIVISION

A week-end refresher course was held on October 22-23 at the Kent and Sussex Hospital. On October 22 Sir Stanford Cade lectured on "Malignant Disease: Incidence, Early Diagnosis, and Achievement of Treatment," and Mr. Holmes Sellors lectured on "Malignant Disease in the Chest: Early Signs, Symptoms, and Treatment." At 9 p.m. there was a Brains Trust in which Sir Henry Cohen, Dr. R. M. B. MacKenna, Mr. Holmes Sellors, and Mr. N. L. Capener took part. On October 23 Mr. N. L. Capener lectured on "Backache," Dr. R. M. B. MacKenna on "Skin Eruptions as a Manifestation of Somatic Disorder," and Sir Henry Cohen on "The Genesis and Treatment of Peptic Ulcer."

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CHEMOTHERAPY IN THE TREATMENT OF MALIGNANT DISEASE*

BY

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The title of this discussion is a little unfortunate in that it would imply that there really is a chemotherapy of cancer. A less misleading title would have been something like "Empirical Attempts at Chemotherapy of Cancer." The term in its classical sense presupposes that one understands exactly the nature of the disease one is attempting to cure. The first example was the use of arsenicals by Ehrlich in the treatment of syphilis, terminating in the triumphant production of "salvarsan" in 1911. Here the mode of infection was known, the nature of the infective agent—the spirochaete—had been demonstrated, and the general pathology of the disease was completely understood. The same applies to the other successes in this field, such as the chemotherapeutic attack on malaria, generalized infections, and so forth.

It is not an overstatement to say that we have no knowledge whatsoever of the causation of the great majority of human cancers, nor have we really any proper understanding of the malignant process which enables cells to multiply and divide and so destroy the host. In certain types of cancer we do know the predisposing factor—for example, in the tar tumours or the tumours in the bladder caused by contact with certain chemical substances in the dyestuff industry. However, we do not know why these agents turn innocent cells into malignant cells, nor what the difference is between the malignant cell and the non-malignant, other than its power of unlimited growth. We cannot stop it once it has been started, except by some ablative form of treatment such as surgery or irradiation. We must therefore admit that anyone attempting chemotherapy is truly working in the dark, and that he must of necessity be an empiricist.

I shall not attempt to give anything like a complete list of the various substances and preparations that have been used in the chemotherapeutic attack on cancer. There is no satisfactory approach to the cancer problem in this way, and most of the preparations that have been used have had a very short vogue and then, with few exceptions, have been abandoned. It is with what can be saved out of the wreck, so to speak, that we are concerned.

Two Groups of Effective Substances

The substances which have an effect on malignant disease may be classified under two headings: (1) those which do not affect the cancer itself but which affect the host background in such a way that growth of the malignant tumour is either not favoured or is suppressed and held in abeyance; (2) those which exhibit a directly poisonous action on the cancer cells, acting preferentially on them as compared with the host tissues.

The former substances are well known and are not of fresh interest. One of the most striking examples is the use of stilboestrol, or synthetic oestrogens, in the treatment of carcinoma of the prostate. Stilboestrol is highly active when given by mouth and can replace the naturally occurring substances in every way. When Huggins and Hodges (1941) wished to damp off the activity of the anterior lobe of the pituitary in cases of carcinoma of the prostate they utilized this powerful orally active oestrogen. By cutting off the supply of gonadotrophic hormone to the testes the secretion of androgens is abolished, and carcinoma of the prostate is unable to flourish in a background that does not contain androgens. Stilboestrol therefore produces its good effect, we believe, not by a direct action on the tumour but by altering the background or environment of the tumour so that it cannot flourish. It would appear also that certain carcinogenic hydrocarbons, when given to tumour-bearing animals, alter the balance of some nutritional factor, and it would seem doubtful whether the observed inhibition is due to a direct action on the tumour.

Turning to the second group, we encounter those substances which possess what is known as cytotoxic action. It is well known that a number of chemical substances are capable of preventing mitosis and thereby hindering cell division. An example of these is colchicine. This substance, however, not only inhibits the division of malignant cells but also affects normal ones, and therefore cannot be used as a chemotherapeutic agent. The great toxicity to normal tissues of all the known cytotoxic agents makes their use so hazardous that it is doubtful whether they should be employed.

Two of the most important of the substances used are urethane and nitrogen mustards. The fact that urethane could be employed as a cytotoxic substance was first discovered by Haddow and Sexton (1946). Nitrogen mustard is an analogue of mustard gas, and the one most commonly employed is methyl-*bis*-β-chlorethylamine. It is known that mustard gas itself has a powerful action on the nuclear mechanism, and that it is able to produce mutation by affecting the chromosomes of the *Drosophila* (Auerbach, Ansari, and Robson, 1942, 1943). Careful clinical experimentation has shown that nitrogen mustard seems to have a slightly more toxic action on certain malignant cells than on normal cells.

Folic Acid and Allied Compounds

The greater part of my space will be devoted to the newest comers in this field of would-be chemotherapeutic agents—namely, the folic acid and anti-folic-acid gro-

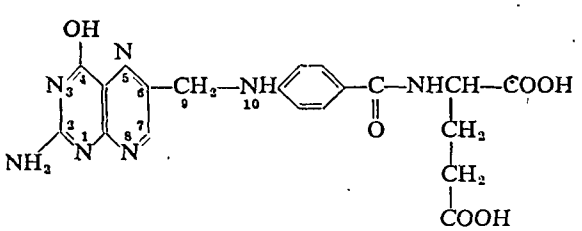
*Read in opening a discussion in the Section of Pathology and Bacteriology at the Annual Meeting of the British Medical Association, Harrogate, 1949.

It is very difficult for anyone who has not visited the United States to realize the tremendous concentration of both laboratory and clinical workers on this group of substances. As the literature on the subject is diffuse, a brief summary of the general position might help readers to get a better grasp of this admittedly complex subject. To indicate how the whole subject of folic acid and allied compounds and their application to the treatment of cancer actually arose it is necessary to review a series of simultaneous researches in relation to malignant disease.

From 1939 onwards appeared a series of papers by Lewisohn *et al.* (1940, 1941a, 1941b, 1942). This work described a search for substances capable of causing regression of spontaneous mammary tumours in female mice of Rockland Farm strain. It was claimed that regression occurred when these animals were treated with extracts from such varied materials as spleen and certain cereals. Attempts to isolate the substance common to all these various extracts yielded only inositol, and it was claimed that this was apparently responsible for the inhibition. These experiments were continued in 1944 (Lewisohn *et al.*, 1944, 1945) and were the subject of a certain amount of controversy. We must now turn to other researches.

A whole series of workers were studying the growth of bacteria on purified synthetic media. Growth of a number of organisms could be stimulated by the addition of extracts of various substances such as spinach, spleen, and liver. It is neither desirable nor possible to review this work here, but it can be stated that as a result of chemical investigations it became obvious that one factor was responsible for these effects, and that this factor also appeared to be identical with the one used by Lewisohn and his collaborators.

A further series of researches, started in 1935 by Day *et al.* (1938), showed that a certain type of anaemia induced by deficient diet in monkeys could be cured by the addition of extracts of liver, spleen, and green leaves. They called this substance "vitamin M." Again chemical investigation of this suggested that it was possibly the same substance as that mentioned above. A precisely similar story was disclosed in relation to the dietary factors responsible for the growth of chickens and the proper development of their feathers. The substance was identified as pteroylglutamic acid, and the name "folic acid" was adopted for it. The formula of folic acid is:



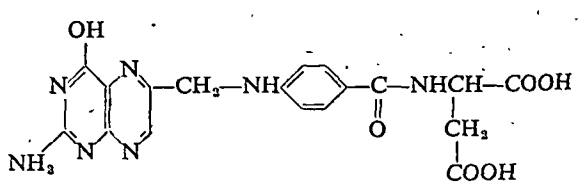
It has since been synthesized by SubbaRow and his collaborators (Angier *et al.*, 1945, 1946; Waller *et al.*, 1946), and possesses the following characteristics: it crystallizes as yellow pear-shaped platelets; it is sparingly soluble in water (the sodium salt is much more soluble); its physiological properties show that it has a very low degree of toxicity and that it is an essential growth factor for a number of bacteria, animals, and birds. Clinically, its most important action is in Addison's anaemia, in which it is able to cause a haematological remission in the same manner as the liver substance. It will be remembered that it does not protect against the neurological complications, and is therefore different from the liver substance. This we now know to be a crystalline cobalt-containing substance, known as vitamin B_{12}. This was isolated by Lester-Smith (1948) and also by workers in the Merck laboratory in the United States (Rickes *et al.*, 1948).

A further complication is that folic acid may exist free in the tissues or as a peptide. Two such peptides have been synthesized. Whilst folic acid is pteroylglutamic acid, there is pteroyldiglutamic acid, which has been called diopterin, and pteroyltriglutamic acid, which is known as teropterin. In the body these substances are digested, releasing folic acid. Therefore their administration to the human subject has the same effect as the administration of folic acid.

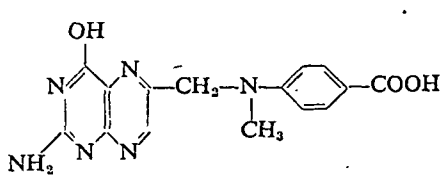
I now return to the researches of Lewisohn and his colleagues. They described the cure of breast carcinoma in three different strains of mice and showed that the active part of their extract was identical with the pteroyltriglutamic acid, or teropterin, referred to above. At a later date SubbaRow and his collaborators (Boothe *et al.*, 1948) synthesized both diopterin and teropterin, and these substances became available in relatively large quantities for clinical research. It is not necessary to review in detail the investigation of the anticancerous activity of these substances, but it can be stated that to-day it is admitted that they are without value in the treatment of both animal and human cancer. The good results obtained by earlier workers in human malignant disease were undoubtedly due to psychological effects, and when carefully controlled experiments were made with blank controls no specific anticancerous effect could be attributed to either teropterin or diopterin. This chapter can therefore be regarded as finally closed, and it must be admitted that neither folic acid nor its peptides are of any value in the treatment of malignant disease.

Modified Folic Acids

I must now turn to further chemical research. The synthesis of teropterin renders possible the preparation of a series of modified folic acids. The numbering of the atoms in the ring systems is shown in the folic acid formula above, and various substitutions can be made. Thus instead of glutamic acid it is possible to make a compound in which aspartic acid replaces the glutamic acid. The compound, which is known as an-fol-A or R, has the following formula:



Similarly, it is possible to take the pteroic acid and prepare methylpteroic acid, which is known as met-fol-B and whose formula is as follows:



Another compound is obtained by substituting an amino group in the 4-position, giving 4-aminopteroylglutamic acid, or "aminopterin." Similarly, in addition to substitution of an amino group at the 4-position, a methyl group

can be attached, as in methylpteroic acid, giving 4-amino-methylpteroylglutamic acid, or A-methopterin. Finally, the aspartic acid compound can be substituted at the 4-position by an amino group, giving 4-aminopteroyl-aspartic acid, or amino-an-fol.

When these substances were tested out physiologically it was found that they possessed very powerful anti-folic-acid activity. The modern conception is that folic acid is essential for the growth of normal cells. This is proved by tissue-culture experiments and by experimental feeding in animals, and of course it is well known to be essential for the growth of bacteria. It will be remembered that Fildes and Woods (1940) showed that sulphonamides act by replacing the normal constituent of the bacterial nutritional requirements—namely, *p*-aminobenzoic acid. It was felt that a similar type of experiment could be done with the anti-folic-acid substances, and that just as one could deceive the bacteria, so to speak, by feeding them with sulphonamides, which could be inhibited by *p-aminobenzoic acid*, so it would be possible to palm off one of these five anti-folic-acid substances on the cells, these substances becoming fixed in the cells so that they ultimately died. The folic acid antagonists act *in vitro* in tissue cultures and will also inhibit the action of folic acid on the growth of bacteria. In mammals they produce a powerful inhibition of the bone marrow, resulting in severe anaemia—effects similar to those seen in folic acid deficiency.

Since these substances interfere with the multiplication of cells, probably acting on the nuclear mechanism, their trial in malignant disease was obviously indicated. They have been investigated extensively for their action on spontaneous and transplanted tumours, and have been found to be effective against a number of them. They have also been used in the treatment of human malignant disease, and particularly in the leukaemias.

Conclusion

It must be pointed out that these bodies are extremely toxic and their use in the human subject is fraught with danger, as the toxic dose is so near the effective therapeutic dose. As Rhoads (1948—personal communication) has so rightly pointed out, it does not really matter from the experimental point of view how close the toxic dose is to the therapeutic dose, provided it can definitely be shown that these substances do exert a specific toxic action on malignant cells. The question of the moment is whether in this series we have the starting-point of a new set of compounds for the treatment of malignant disease; in other words, do these anti-folic-acid analogues occupy the same position in relation to the ultimate chemotherapeutic control of malignant disease as "atoxyl" did to salvarsan?

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CHEMOTHERAPY IN THE TREATMENT OF MALIGNANT DISEASE*

BY

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Treatment of malignant disease by medicinal means has been tried for many years, and the very multiplicity of the suggested remedies and their short-lived popularity serve only to indicate that none, so far, has proved of value. It must be emphasized that there is no specific remedy which destroys a malignant growth except surgical ablation or radiotherapeutic destruction of the tumour. Nevertheless, advances in biochemistry and biophysics have resulted in the production and use of chemotherapeutic substances which have an effect either on the tumour or on the host, and which so alter the natural course of the disease as to effect remissions, although these are only temporary. The importance of these chemotherapeutic trials lies in their scientific implication; they are pointers or indicators for further lines of research. They are not curative agents, and only a few can be said to be even of palliative value in the control of the disease. It is, however, important from time to time to review present-day knowledge.

The remedies under clinical trial to-day fall into two main groups: (1) those with a cytotoxic effect on the neoplasm, and (2) hormones which alter the "internal carcinogenic environment" of the patient. This expression we owe to Cramer and Horning (1939).

The most interesting substances of the group of cytotoxic poisons are the nitrogen mustards, urethane, and the anti-folic-acid compounds.

Nitrogen Mustard

Nitrogen mustard was first introduced in 1942, and has been used clinically as the "HN2" compound (methyl *bis*-(β-chloroethyl) amine); the "HN3" compound (*tris*-(β-N-chloroethyl)amine) being more toxic and producing widespread thrombosis. The dose generally used is 0.1 mg. per kg. of body weight, given intravenously up to a total of 0.6 or 0.8 mg. per kg. of body weight. It has been tried in many types of tumours—bone sarcoma, melanotic carcinoma, the reticuloses, Hodgkin's disease and lymphosarcoma, carcinoma of the lung, and testicular neoplasms. In some cases visible regression of large tumours, especially masses of enlarged lymph nodes, has been obtained, with a corresponding improvement in the general state of the patient. So far as I am aware there is, however, no recorded case of an apparent regression for prolonged periods. Nitrogen mustard is now used almost exclusively in the terminal stages of lymphadenoma and in cases of cancer of the lung untreatable by surgical or radiotherapeutic methods. It is of palliative value and may restore health for short periods of time—up to nine months in my own experience, but generally for three months only.

The fact that cures have not been obtained should not be a deterrent—on the contrary, it should be an incentive—to the research chemist and biochemist in their search for other mustard compounds more effective and possibly less toxic. Regression of neoplasms, although temporary, is nevertheless very dramatic. Thus in Hodgkin's disease, at a stage resistant to radiation, with fever of either the Pel-Ebstein intermittent type or even the sustained pyrexia type

*Read in the Section of Pathology and Bacteriology at the Annual Meeting of the British Medical Association, Harrogate, 1949.

in the terminal stages, the temperature drops to the normal level sometimes with dramatic suddenness and remains normal for many weeks. Enlarged lymph nodes shrink or disappear altogether. Occasionally even masses of abdominal glands shrink, but I have not seen any diminution in size of enlarged livers or spleens. In most cases there is a marked drop in the total leucocyte count following the injections, and even a greater corresponding fall in the haemoglobin percentage. One instance of each type of case will be given.

Lymphadenoma.—A woman aged 26; histologically proved case of lymphadenoma treated previously by *x* rays and controlled for two and a half years. Admitted to Westminster Hospital in a moribund condition. Enlarged glands in the neck and groin, large epigastric mass, infiltration of the skin of abdominal wall and left breast, wasting, anaemia, and fever. She was given three injections of HN2, 0.2 mg. per kg. of body weight. The injections were followed by nausea, severe vomiting, and a fall of blood pressure. The reaction subsided in 12 hours. The total white cells fell from 5,200 to 1,100; lowest lymphocyte count 35 per c.mm. Haemoglobin fell from 73% to 56%. There followed within 10 days a rapid and dramatic improvement. The upper abdominal mass almost disappeared; the glands in the neck and groins were no longer palpable, and the skin nodules had vanished. She left the hospital three weeks after admission in near-normal health, and during the subsequent two months her weight increased by 2 st. (12.7 kg.). The improvement lasted four months; recrudescence of symptoms then occurred, culminating in a flaccid paraplegia. Further treatment by nitrogen mustard and *x* rays produced little response, and she died three months later—that is, nine months after the initial treatment. Post-mortem examination revealed widespread disease in the mesenteric glands and around the aorta, and infiltration of the bodies of the fifth to seventh dorsal vertebrae, with compression of the spinal cord.

Carcinoma of the Lung.—A man aged 44. The clinical picture was as follows: cough; shortness of breath; repeated haemoptysis; clubbing of fingers; hard, clinically malignant fixed right supraclavicular glands. Dilated veins on the chest, indicating upper caval obstruction. Radiography of the chest showed a large tumour in the upper mediastinum, enlargement of right bronchial glands, atelectasis of the right upper lobe, and the oesophagus displaced to the left by the tumour. Six injections of HN2, 0.5 mg. per kg. of body weight (a total of 30 mg.), were given in a period of three weeks. The cough, anorexia, dyspnoea, and haemoptysis disappeared. The engorged veins on the front of the chest were no longer visible, and clubbing of the fingers was less marked. The supraclavicular glands were reduced in size to small hard nodules. A radiograph of the chest revealed a marked diminution in the mediastinal mass. So far this patient has remained well for eight months.

To summarize, nitrogen mustard is of value in the treatment of lymphadenoma and carcinoma of the lung as a palliative measure, producing temporary regression of tumour masses and improvement in health. It has no curative value. It is more accurate to say that it postpones death by a few months than that it arrests the disease. Its importance lies in the fact that it produces changes in some types of tumour not dissimilar to the changes produced by radiation.

Urethane

The experimental work of Haddow and Sexton (1946) led to the clinical trial of urethane in cases of leukaemia (Paterson *et al.*, 1946, 1947). This substance is given by mouth in doses varying from 2 to 4 g. daily. It produces a fall in the total white cell count and a return of the differential count to the normal proportion. The enlarged spleen diminishes in size. Most cases show a rise in haemoglobin. It is effective both in the myeloid and in the lymphatic types of leukaemia of the chronic form. It has no effect in acute leukaemias. There is a close similarity between the effects of radiotherapy and urethane; the advantage of the drug is that it is effective when irradiation no longer produces regression in the size of the spleen or lymph nodes. There is also sporadic evidence that a relatively small maintenance dose of 1.5 g. daily may be continued for long periods: doses up to 1,500 g. spread over 15 months have been tried. The patient with chronic myeloid leukaemia described by Piney (1947), and who became pregnant during a period of remission following urethane and was delivered of a healthy child by caesarean section, is still alive now, two years later. There is little doubt that urethane is an important addition to the available methods of treatment of chronic leukaemias. Effective although temporary palliation is obtained in the majority of cases. So far there is no indication that urethane can arrest the disease, and cessation of treatment is followed by recrudescence of all clinical manifestations. In therapeutic doses used the red count is not affected; on the contrary, there is a rise in haemoglobin.

Folic Acid Antagonists

Of the new chemotherapeutic agents, "aminopterin" (4-amino-pteroylglutamic acid) is of interest, as it has a marked leucotoxic action and hence has been tried in acute leukaemia. Temporary remissions of this rapidly fatal disease have been reported by Farber and his collaborators (1948). Aminopterin even in small doses of 1 mg. daily is toxic and causes acute lesions in the mucous membranes, ulceration of the mouth and lips, intestinal haemorrhage, haematuria, and purpuric haemorrhages. By courtesy of the Lederle Laboratories I have had the opportunity of putting this substance to clinical trial, so far, in four cases of acute lymphatic leukaemia and in one case of monocytic leukaemia. The first three patients died of their disease; the fourth patient with acute lymphatic leukaemia is under treatment at present.

The fall in the blood count is nevertheless very remarkable—in one case from a total of 76,000 (95% lymphocytic series) to 10,000 (42% lymphocytic and 36% early polymorphonuclear cells). In the case of acute monocytic leukaemia a brief period of great clinical improvement was obtained. All three varieties—lymphocytic, myeloblastic, and monocytic—showed the remarkable and rapid alteration in the blood count. The importance of this group of folic acid antagonists lies in their leucotoxic power. In their present form they are merely that—leucotoxic agents; they have so far shown no curative properties. It is pointed out, however, that further chemical studies and alterations in the molecular structure of these compounds might result in more effective and more prolonged action on the acute leukaemias.

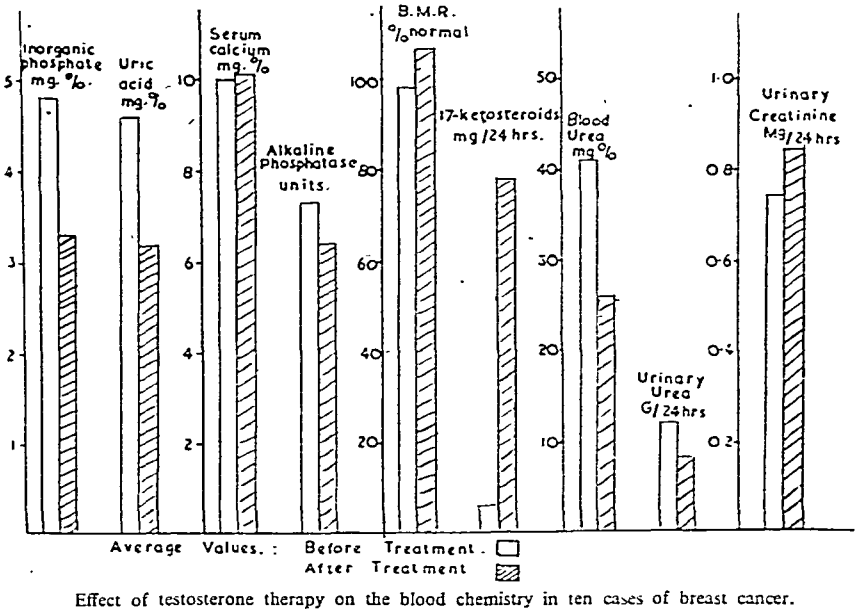
Hormones

The treatment of human cancer by hormones is at present applicable only to cases of cancer of the prostate and cancer of the breast—both organs being physiologically under the control of male and female sex hormones. The great landmarks in this vast, complex, and as yet only partially understood subject are Dodds's (1943–6) production of synthetic oestrogens, Laccassagne's observation on the development of cancer in mice following injections of oestrogens, and Haddow's (Haddow, 1935; Haddow and Sexton, 1946) observations on the effects of carcinogenic hydrocarbons on the rate of growth of spontaneous tumours.

Cancer of the Prostate.—Huggins *et al.* (1939) and Huggins and Clark (1940), of Chicago, after a brilliant experimental study of the physiology of the prostate, established the fact that oestrogens are beneficial in cancer

of the prostate. Stilboestrol has now been used for about nine years, and it is generally accepted that cancer of the prostate can be controlled by it. Survivals of five or more years are not uncommon. The points which may with benefit be emphasized here are as follows: (1) Castration produces effects similar to those obtained by stilboestrol. (2) About 10% of patients with cancer of the prostate do not benefit at all from this treatment. Careful study of this small percentage is more important than the mere recording of the spectacular improvement of the majority. (3) Although most cases receive about 15 mg. of stilboestrol daily, enormous doses—up to 1,000 mg. daily—have been given for several weeks in late cases, with an extension of periods of regression. (4) In no case can it be said that the disease is eradicated—it is checked or controlled. (5) The mechanism of the action of stilboestrol is still not determined, although much is known about it. (6) There is no accuracy in dosage—it is still a method of trial and error.

Cancer of the Breast.—Both oestrogens and androgens are used in breast cancer in women. In cancer of the breast in males oestrogens are of benefit and androgens are not; and in both men and women castration plays a part in the treatment of metastasis. The importance of hormones in the treatment of cancer of the breast lies in their effect on the terminal stages of disease. In early stages radical surgery is the method of choice; in more advanced cases in which the disease is still localized to the breast and its immediate lymph-drainage area the methods of choice are surgery and radiation. But hormones, both androgens and oestrogens, have given us a new weapon to control skeletal and visceral metastases. There is already a considerable and rapidly growing literature on this subject (Adair, 1948; Nathanson, 1947; etc.) I will merely give a brief general account of my personal experience with testosterone propionate in patients with widely disseminated metastases in the skeleton and viscera. There are 50 such patients, and the longest survival period so far in my personal series is two years. No extravagant claims must be made for hormones; neither must their clinical as well as scientific importance be under-estimated. It is indeed the very first time that medicinal means have been able to control some forms of cancer at a stage otherwise quite uncontrollable. The variations in response to treatment indicate that the patient's hormonal state more perhaps than the biological differences in the tumour is responsible for the effects obtained. The study of my personal series confirmed many points noted previously: it does not, however, confirm them all



Effect of testosterone therapy on the blood chemistry in ten cases of breast cancer.

Androgens

Briefly summarized, the observations are as follows:

Age of Patient.—Both old and young patients, pre- and post-menopausal, respond to androgens. The side-effects are more pronounced and less well tolerated by the younger group. These side-effects are hirsuties, change of voice, enlargement of clitoris, and change in appearance and temperament. The side-effects are not necessarily correlated with the dose of androgens. In some patients small doses produced very marked masculinization; in others very large doses produced minimal effects. The younger the patient the larger the dose required to obtain control of the disease.

Type of Metastasis.—Skeletal metastases respond more often, more quickly, and for longer periods than visceral metastases. Regression of lesions has been obtained in secondary deposits in the skeleton, the liver, the pleura, and the brain; also in soft-tissue recurrences—skin, subcutaneous tissue, and lymph nodes.

Effect of Treatment.—Pain from skeletal metastases is relieved in most cases. Ulceration of cutaneous lesions heals. Blood-stained pleural effusion, previously necessitating frequent tapping, no longer reaccumulates. Paresis of cranial nerves or from spinal compression has in a few cases been followed by recovery of power. Involvement of the base of the skull and of the pituitary producing polydipsia and polyuria has been controlled, and an intake of 2 gallons (4.45 litres) or more of fluid daily, with a correspondingly large urinary output, has been reduced to about 50–60 oz. (1.42–1.7 litres) a day. In many cases bedridden, morphinized, and desperately ill patients have been restored to apparently normal health. Thus one patient with widespread skeletal metastases returned for a time to her work as a lady almoner in a hospital and for a year could lead a normal life and take exercise such as dancing. Several patients in terminal stages have returned to a normal existence for periods up to two years so far. X-ray examination shows reossification of osteolytic lesions after three to six months, seldom earlier, and not in every case. In all cases there is an increase in weight, chiefly due to water retention, clinically manifested by diminished urinary output and subcutaneous oedema.

Dosage.—After a careful study of the available reports the dose tried was 150 mg. of testosterone propionate daily by intramuscular injection. Subsequently the dose was increased in about one-half of the patients to 300 mg. daily, till a total varying from 3,000 to 6,000 mg. was reached. In most cases when improvement was satisfactory at the end of this period an implant of 3,000 mg. was given. In a few cases much smaller doses, not exceeding 150 mg. weekly, were tried. There is at present no definite indication of the exact dose.

leucorrhoea, or which is the result of cervical infection, ever causes pruritus vulvae.

2. Glycosuria

The fact that eight of this small series of previously selected cases proved to have glycosuria is significant. The diagnosis of diabetes may easily be missed if at the time of examination the patient has not eaten for several hours and the urine is temporarily free from sugar. If there is any doubt about the cause of pruritus the only safe procedure is a glucose-tolerance test. In glycosuria without diabetes the pruritus is nearly always the result of *Oïdium albicans* infection, which thrives in the presence of a free supply of carbohydrate. The same is true of diabetes mellitus, but there is the added possibility of pruritus being the result of peripheral neuritis or of chemical changes in the skin. The vulva in these cases presents a typical appearance, the tissues being slightly swollen and oedematous with a characteristic dusky blue or purple coloration.

3. Psychogenic Causes

A close relationship between the mind and the skin and the part played by psychological upsets in causing skin diseases are recognized by all. Many psychiatrists emphasize the sexual basis of mental disturbances, so it is little wonder that the skin of the vulva can become the site for manifestations of psychoneuroses. Some hold that nearly all cases of pruritus vulvae have a psychogenic basis, but there is a danger of the importance of this factor being exaggerated. In general, mental and emotional upsets should be accepted as causing pruritus vulvae only when every other possibility has been excluded. When they are merely contributory factors, as they often are, they usually cease to operate when other causes are removed. Among the common psychogenic causes may be mentioned guilt over masturbation, cancerophobia, fear of venereal disease, marital disharmony with an underlying desire to avoid coitus, or a scratch habit.

4. Prolapse

Prolapse either of the uterus or of the vagina seems to be a rare but none the less definite cause of pruritus. Considering how common is prolapse, however, and how infrequently pruritus is a symptom, it is natural to doubt the association, yet a few cases seem to be cured completely by a repair operation. However, the possibility that the cure is due to something incidental to the operation, such as sterilization of the vagina, rest in bed, or a psychological effect, cannot be excluded.

5. Allergy and Drug Sensitivity

Skin sensitivity to various chemical constituents of toilet preparations occasionally cause pruritus vulvae. Sometimes acetarsol, silver picrate, and other drugs used in the treatment of trichomonas vaginitis are the cause of pruritus, or lead to its continuance after the original causal infection is under control.

Apart from urticaria associated with the same condition elsewhere it is doubtful how far allergy is responsible for pruritus vulvae. The possibility has been much discussed and investigated in recent years, and is the basis of empirical treatment with ergotamine and antihistamine drugs. Allergic reaction to the patient's own sex hormones has

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Skin-sensitivity tests either with endocrine with other possible antigens are rarely and in my experience antihistamine drugs tisfactory results.

6. Leucoplakia Vulvae

Our knowledge of the pathogenesis of leucoplakia vulvae and kraurosis vulvae is as confused and insecure as it was forty years ago, when Berkeley and Bonney (1909) attempted to define them. There is a renewed tendency to return to the older view that kraurosis is the ultimate atrophic phase of leucoplakia. If kraurosis is to be regarded as a condition of extreme atrophy affecting the introitus only and often associated with senile vaginitis, this can hardly be correct. Some writers even distinguish between leucoplakia and leucoplakic vulvitis, and Hunt (1943) regards leucoplakia as a form of lichen planus. The variation in views, few of them supported by convincing evidence, is borne out by Savill (1940) and by Miller and others (1947), together with the discussion which followed this latter paper.

In my experience kraurosis vulvae as originally described is very rare and does not cause pruritus but rather pain and dyspareunia; this feature, which was emphasized long ago by Berkeley and Bonney (1909), tends to be overlooked. Nevertheless senile vaginitis, possibly associated with vulval atrophy, is occasionally associated with pruritus, which responds to oestrogen therapy. Leukoplakia, at least in its hypertrophic phase, is not difficult to recognize. It affects the outer aspects of the labia and may spread to the perineum and around the anus, and is undoubtedly precancerous. It occurs at any age and does not bear any relation to ovarian function, so it is not improved by oestrogen therapy. There is good reason to believe that it may not be a specific entity but merely one type of skin reaction to many possible stimuli: prolonged scratching alone can produce somewhat similar skin changes. It is sometimes the result of vitamin A deficiency, and is also seen occasionally in various types of anaemia and in diabetes. One of the most typical cases of "leucoplakia" I have ever seen was in a doctor's wife who suffered from vitamin B deficiency as a result of a diet which consisted almost entirely of a few water-biscuits a day. The administration of riboflavin quickly restored the vulval skin to normal. The nine cases of leucoplakia shown in the list were "iodiopathic" in the sense that an underlying cause was not demonstrated; there were five other cases in which the leucoplakic skin changes were considered secondary to other causes, and they appear under other headings.

One of the most obscure types of pruritus is that in which the irritation is localized to a very discrete area of thickened pale skin usually situated on one labium majus. It may be mistaken for leucoplakia, although hyperkeratinization and cracking are not pronounced features. It responds badly to treatment—even to excision—and is probably a form of localized neurodermatitis with lichenification.

7. Deficiency States

One of the greatest advances of recent years is the recognition that various deficiency states can cause pruritus vulvae, and the development and details of this knowledge are set out in papers by Swift (1932, 1936), Wright (1944), Stannus (1944), Hughes (1946), and Whitfield (1947). These authors are concerned mainly with the effect of vitamin A and various members of the vitamin B_2 complex. Other agents may operate, however, and among these may be mentioned iron, liver factors, and possibly other vitamins. Pruritus vulvae is therefore occasionally a manifestation of hypochromic or hyperchromic anaemia; it then responds quite dramatically to the specific treatment of these conditions. The lesions produced in the vulva vary from slight

reddening or pallor and oedema to typical leucoplakia. As might be expected, other evidences of deficiency states, such as glossitis, cheilosis, and angular stomatitis, are often found in these cases. It is of interest to note that the scrotum, which is homologous with the labia majora, is also the seat of "dermatitis" in ariboflavinosis (Frankland, 1948).

If obvious local causes such as trichomonas infection are excluded, deficiency states can be shown to be responsible for approximately 20% of the cases of pruritus vulvae. In this country they rarely arise as a result of gross dietetic errors, but such should be looked for, especially in elderly women living alone. More often they are due to some disturbance of the alimentary tract which interferes with biosynthesis or with absorption. The most important factor in this respect, and one whose significance was first pointed out by Swift (1932, 1936), is achlorhydria, which is presumed to act by interfering with the absorption of vitamin A and iron.

Achlorhydria

During the last ten years the investigation of cases of obscure and intractable pruritus seen in private or hospital practice has included a fractional test meal, and the details of 46 women (including the 13 mentioned in the private series) with histamine-fast achlorhydria are available. The mere finding of achlorhydria, which is common in women of advancing years, does not of course prove that it was the cause of pruritus, but the response to treatment suggests that in the majority it was. In four of the cases the skin lesion was typical leucoplakia; in others there was pallor or reddening of the labia majora with secondary changes due to scratching. Although the vulva was the main site of the pruritus the perianal skin was also involved in some cases. A significant degree of hypochromic anaemia was often present. All these patients were given acid. hydrochlor. dil. by mouth, and iron preparations when necessary, but no other general or local treatment, and the immediate results were as follows: cured, 34; slight relief, 1; unknown, 4; no response, 7.

Leucoplakia was present in two of the seven failures, and excision was required; in another case monilia infection explained the itching. It seems reasonable to conclude that in some of these seven and in the one with only partial relief the achlorhydria was probably merely coincidental, because the usual response to treatment is striking, even dramatic. Women who have had intolerable itching for years get complete relief within one to two weeks. One constant feature, however, is that an associated pruritus ani is not relieved to the same extent.

In order to determine the ultimate effect all of the 34 "cured" cases have been followed up. The findings are as follows:

Permanent cure for 1 to 8 years	25 cases
Died from intercurrent disease	1 case
Not traced	2 cases
Relapsed and did not respond to further treatment	6 cases

Some of those permanently cured report that they need to continue taking hydrochloric acid, otherwise the itching returns at once; this is what one might expect. Others, however, after regular treatment for a few months have been able to discontinue taking the acid for long intervals—even years—without a return of pruritus. This is an extraordinary phenomenon which is not explained by present knowledge but is confirmed by Hyams and Bloom (1947). Also interesting are the six women who were initially cured but did not get relief from the same treatment when symptoms recurred. One of these was ultimately cured by an operation for prolapse; another can be kept comfortable only by periodic blood transfusions. In her case hypochromic anaemia persists or recurs despite the administration of hydrochloric acid and iron.

Opinions differ about the relative importance of achlorhydria as a cause of pruritus vulvae. Swift (1936) originally stated that it is responsible for *all* cases of leucoplakia and kraurosis; Haultain (1948) says that it is present in 30% of cases of leucoplakia; while Hyams and Bloom (1947) put the figure at 60%. Miller *et al.* (1947), however, deny it any significant place in the aetiology of leucoplakia vulvae. In my experience it accounts for approximately 20% of cases of "pruritus" for which there is no obvious local cause, and is present in about one-third of women who have what I regard as real leucoplakic changes in the vulval skin. In these the vulval lesion is not always reversed by the administration of hydrochloric acid. Moreover, and despite the statement of Hyams and Bloom (1947) to the contrary, *hypo*chlorhydria is rarely, if ever a significant finding in pruritus vulvae, and the acid deficiency must be complete if it is to operate. The fact that leucoplakia in association with achlorhydria is often not cured by administering acid raises the question whether it represents a skin reaction which has progressed so far as to be irreversible. Such a concept is in keeping with the observations of Stannus (1944) to the effect that in ariboflavinosis the essential pathology is capillary damage, and that the vascular disturbance may lead ultimately to permanent skin changes.

Even when dietetic errors and alimentary upsets are excluded there still remains the possibility of a local tissue deficiency to account for some cases of pruritus vulvae. This might occur, for instance, if the blood supply is inadequate; and the question then arises whether surface ischaemia in leucoplakia is the cause or the result of poor nutrition to that area. Deficiency states, vascular disturbances, and pruritus have some close association. A vascular upset is often the basis for itching, as, for example, in urticaria and in varicose veins of the legs, the latter being accompanied by faulty nutrition to the skin. It is tempting to suggest that venous stasis is the significant lesion when pruritus vulvae seems to be caused by prolapse. The view that some local circulatory factor may cause pruritus vulvae is also supported by the fact that when the vulva is excised for leucoplakia healthy skin brought from other sites to cover the area often undergoes leucoplakic changes.

Even when the supply of essential factors is normal the local tissues may be unable to utilize them, and in this connexion it is interesting to note that it has been suggested that diabetes mellitus can produce pruritus by interfering with the utilization of vitamins by the skin or by promoting their rapid excretion. Carrying the argument further, it may be pointed out that when senile states cause pruritus vulvae the nutritive factor which is absent is oestrogen.

The only types of pruritus which are difficult to account for on the basis of a general or local nutritional deficiency are those due to trichomonas and fungus infection. It may be postulated, however, that, since these infections are so specific in their pruritus-producing character, perhaps the organisms concerned have a special metabolism which deprives the host tissues of some vital factor. They or their metabolic products may act as antivitamins or toxamins; this suggestion is purely hypothetical, but its validity deserves serious inquiry.

One of the difficulties in accepting the concept of poor nutrition of the tissues as the basis of pruritus vulvae is

that, with the exception of those cases which show a positive therapeutic test, there is little concrete evidence to support it. In some of our cases Professor R. A. Morton kindly carried out estimations of the amount of carotene and vitamin A in the plasma, and in none was any significant decrease demonstrated. This agrees with the findings of Porter and Godding (1945) in relation to various skin disorders, and with those of Miller and others (1947) and Hyams and Bloom (1947) in respect of leucoplakia vulvae. The last-named workers were also unable to demonstrate any biochemical evidence of vitamin C and vitamin B_2 deficiency. The negative findings in regard to vitamin A, however, are not necessarily conclusive, because it is now known that the plasma content of this vitamin remains normal for very long periods after it has been completely withdrawn from the diet (Glover, Goodwin, and Morton, 1947) and is not easily altered by administering vitamin A. Moreover, local deficiency states, if present, cannot be demonstrated by examination of the blood and urine.

Management and Treatment

From the foregoing it is clear that the most important part of the management of pruritus vulvae is a thorough investigation to find the cause. This necessitates taking a very careful history and making a full physical examination, and the minimum requirements as regards special tests are: (*a*) repeated examination of *fresh* vaginal swabs for trichomonas and *Oïdium albicans* and other fungi; (*b*) fractional test meal; (*c*) full examination of the blood; (*d*) glucose-tolerance test; and (*e*) biopsy of vulval skin in selected cases. Unless a cause can be found treatment is mostly unsatisfactory.

Antipruritic ointments are of little use except as temporary measures and perhaps to break the scratch habit. The injection of local analgesics gives disappointing results, and the division of all cutaneous nerves is usually short-lived in its effect. The place of radiotherapy in the treatment of pruritus vulvae is very strictly limited and should be used only as a last resort and after very careful consideration. Although it may give relief by a mechanism unknown, the pruritus, if caused by a persisting factor, usually returns. Moreover, *x* rays and radium are apt to produce permanent skin damage, which can itself be the cause of intractable pruritus. Oestrogen therapy is useless except when there is clear evidence of failure of ovarian function, and it may even be dangerous in precancerous lesions such as leucoplakia.

Leucoplakia appears to be helped sometimes by emollients (including cod-liver oil) and also by the local application of heat as suggested by Savill (1940), the idea being to improve blood supply. Often, however, nothing short of vulvectomy is of real value, and this should not be deferred too long, because of the possibility of malignant disease. Excision is of limited value except for clearly demarcated lesions such as leucoplakia, and even then there is a tendency for the condition to recur in the surrounding areas. Unless there is evidence of achlorhydria, gross dietetic errors, or other lesions characteristic of a deficiency state, the empirical administration of vitamin preparations even in massive doses is rarely helpful, despite a few enthusiastic reports to the contrary. Moreover, if, as postulated above, any deficiency state in these cases is of local origin it is unreasonable to expect a response from such medication.

Throughout this paper the emphasis has been on the obscure and difficult cases of pruritus vulvae, and the same is true in regard to treatment. Lest it convey too gloomy a view of the general picture it is perhaps fitting to conclude by emphasizing that even in the present state of knowledge a definite organic cause amenable to treatment can be found in not fewer than four out of every five women who complain of pruritus vulvae, and in not more than 5% is it impossible to give real relief by one means or another.

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RELIEF OF POST-OPERATIVE PAIN AND ITS INFLUENCE ON VITAL CAPACITY

BY

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It has been recognized for many years that post-operative pulmonary complications occur much more frequently after surgical operations involving the upper abdomen than after those on other parts of the body (King, 1933: Campbell and Gordon, 1942). It is indeed significant that we are now more likely to hear the expression "post-operative chest" than the more old-fashioned "post-anaesthetic pneumonia."

In Table I is shown the incidence of post-operative pulmonary complications in a series of 5,869 anaesthesias. These were all personally administered and examined post-operatively by me, thus introducing a reasonably constant factor and ensuring that approximately the same minimum of abnormal physical signs in a chest qualified it for the label "pulmonary complications."

TABLE I.—*Post-operative Pulmonary Complications*

Site of Operation	No. of Cases	Pulmonary Complications
Upper abdomen ..	331	63 (19%)
Lower abdomen ..	1,334	145 (10·9%)
Outside abdomen* ..	4,204	29 (0·7%)
Total ..	5,869	

* Does not include thoracic surgery.

Why this high incidence of pulmonary complications following abdominal operations and especially those on the upper abdomen? Langton Hewer (1948) lists several main causes of post-operative lung complications, including "impaired respiratory movements after operation and

the patient to cough." It seems reasonable that the impaired movement and reluctance conditioned to a large extent by the pain of efforts.

Observation in the surgical wards will soon convince one that operations involving interference with the abdominal walls are much more productive of these conditions than are operations remote from the abdomen, and that the nearer the operation is to the diaphragm the more reluctant is the patient to cough and the greater is the impairment of respiratory movement, hence the greater likelihood of pulmonary complications.

Churchill and McNeil (1927) and later Powers (1928) showed that an upper abdominal operation lowered the vital capacity on the first post-operative day to 25–30% of the original volume, lower abdominal operations to 50% of the original volume, but operations on the limbs had little effect on vital capacity.

Table II shows some of the results obtained by me. They are quite typical of our usual findings. A portable spirometer (pneumometer) was used, and the patient was placed in approximately the same position in bed for all readings

TABLE II

	Operation	Sex	Age	Pre-operative Vital Capacity	Post-operative First-day Vital Capacity	Post-operative % of Pre-operative Vital Capacity
Upper abdomen	1. Subtotal gastrectomy	M	45	2,700 c.cm.	900 c.cm.	34
	2. " "	M	47	2,500 "	1,000 "	40
	3. " "	M	49	2,500 "	600 "	24
	4 Cholecystectomy	F	53	1,700 "	600 "	35
	5. Nephrectomy	M	12	2,000 "	700 "	35
Lower abdomen	6 Ileo-colic short circuit	M	66	2,000 "	1,200 "	60
	7 Uterine ventral suspension	F	21	2,500 "	1,600 "	74
	8 Millin type prostatectomy	M	68	2,000 "	1,000 "	50
	9 Gillie repair R.I. hernia	M	53	2,500 "	1,600 "	74
	10. Appendicectomy (para-median incision)	M	50	2,900 "	1,600 "	55
Extra-abdomen	11. Meniscectomy*	M	21	4,200 "	5,000 "	125
	12. Meniscectomy*	M	39	4,000 "	4,000 "	100

* It is interesting to note that the pre-operative vital capacity of Case 11 was recorded half an hour after his premedication with "omnopon," gr. ¼ (22 mg.), and hyoscine. gr. 1/150 (0.43 mg.), and that the post-operative readings of both Cases 11 and 12 were taken only ten hours after operation.

Lassen (1938–9) published similar figures. While he agrees that the fear of pain caused by coughing and deep breathing plays some part, he believes the chief factor is reflex muscle spasm, since the exhibition of morphine does not increase the post-operative vital capacity.

Morphine is still our great standby for the relief of pain, and in the absence of some strong contraindication no one would deny the drug to any patient after a severe operation. No doubt in vast numbers of cases it does a great deal of good and no harm. But morphine is well recognized as a respiratory depressant, so it cannot be an ideal drug to relieve pain when it is also desirable to increase pulmonary ventilation. With this latter factor in mind it was decided to try other methods of relieving post-operative pain, especially after upper abdominal operations. Apart from Lassen's work I have been unable to trace any literature dealing with the effect of sedative drugs on the post-operative vital capacity. In his article the only drug mentioned is morphine, and this very briefly. After some thought it was decided to use procaine in the form of an intravenous drip. Intravenous drip procaine had already become a recognized therapeutic measure (Lundy, 1942; Gordon, 1943; Graubard *et al.*, 1947, 1948). It was felt that the dilute solutions required to produce general analgesia would not produce any significant decrease in muscle tone, especially in view of the well-known fact that sensory anaesthesia is normally established before appreciable muscular paralysis occurs when dilute procaine solutions are used for nerve-blocking.

At first all that was sought was to produce a quick analgesia, then to encourage the patient to cough until sputum was produced, and then to carry out the routine breathing exercises as taught to him pre-operatively by the physiotherapist. This proved very satisfactory so far as it went. It was surprising, and most gratifying, to see the amount of sputum produced by a patient who had not previously complained of chest symptoms and had not experienced any desire to cough. It was felt that this routine of coughing followed by deep breathing must be preventing the onset of many potential areas of scattered atelectasis, and quite likely was clearing up some patches of collapse already established.

The technique used was a slow intravenous drip of 1% procaine in normal saline; the rate of the drip was carefully increased until the patient's pain was considerably relieved or until he complained of subjective symptoms such as "feeling light-headed" or "feeling dizzy." In practice these subjective symptoms always coincided with considerable relief of pain. In an average-sized adult this point was reached in about 5–10 minutes after the infusion of 15–20 ml. of the 1% solution. The drip was then slowed down and the coughing routine instituted. This technique necessitated the personal supervision of the anaesthetist, as it was obvious that the intravenous use of 1% procaine was not without its dangers and the well-known vagaries of intravenous drips precluded anything but continuous observation. In a hospital where anaesthetists are rather at a premium this technique could not be carried out on many patients.

The following three case reports are typical of the results obtained and indicate that the procedure is well worth while, despite the disappointing effect on the vital capacity after pain relief. As will be seen, the increase of vital capacity was not impressive.

Case Reports: Technique I

Case 1.—Man aged 45. Subtotal gastrectomy for chronic duodenal ulcer. Anaesthetic: soluble thiopentone, 1.7 g., N_2O+O_2, and *d*-tubocurarine, 25 mg. Duration: two hours and ten minutes. Pre-operative vital capacity: 2,700 c.cm. Post-operative vital capacity: first day, 900 c.cm. (34% of pre-operative value). He already had a "rusty" sputum, and rales were heard in all areas. There was considerable pain, aggravated by coughing or attempted deep breathing. The intravenous drip transfusion of 1% procaine completely relieved his pain, enabled him to cough up a considerable amount of rusty mucopurulent sputum, and apparently enabled him to take deep breaths in comfort, but the vital capacity was increased by only 400 c.cm. to 1,300 c.cm.—that is, only 47% of its pre-operative value, a gain of 13% on the first post-operative reading.

Case 2.—Man aged 47. Subtotal gastrectomy for chronic duodenal ulcer. Anaesthetic: soluble thiopentone, 1.5 g., N_2O+O_2, and *d*-tubocurarine, 30 mg. Duration: two hours and five minutes. Pre-operative vital capacity: 2,500 c.cm. Post-operative vital capacity: first day, 1,000 c.cm. (40% of pre-operative value). Pain was fairly severe, and was much aggravated by attempted deep breathing. Intravenous transfusion of 1% procaine almost completely relieved his pain. Strong but painless coughing produced thick viscid sputum. Vital capacity increased by 200 c.cm. to 1,200 c.cm., or 48% of the pre-operative value—a gain of 8% on the first post-operative reading.

Case 3.—Man aged 49. Subtotal gastrectomy for chronic duodenal ulcer. Anaesthetic: soluble thiopentone, 1.75 g.,

N_2O+O_2 (minimal cyclopropane during closure of peritoneum), and *d*-tubocurarine, 35 mg. Duration: two and a half hours. Pre-operative vital capacity: 2,500 c.cm. Post-operative vital capacity: first day, 600 c.cm. (24% of pre-operative value). Great deal of pain, much aggravated by attempted deep breathing. Intravenous transfusion of 1% procaine greatly relieved the pain. Vital capacity increased by 200 c.cm. to 800 c.cm., or 32% of pre-operative value—a gain of 8% on the first pre-operative reading.

No serious subjective symptoms were encountered while using this technique. The initial drip is given very slowly, so that a patient with an idiosyncrasy to the drug would show mild warning symptoms before enough had been infused to do him real harm. Johnson and Gilbert (1946) have shown that reactions to procaine occurring during drip transfusions of the drug are easily controllable and need not be alarming. Using a 1% solution of procaine to obtain obstetric analgesia, they carry a patient into a semiconscious state for the actual delivery. Such dosages as "8 g. in 6 hours, 9.5 g. in 8 hours, and 9.7 g. in 8½ hours" illustrate the distance we have travelled since the time when intravenous injection of a local analgesic was looked upon as a serious accident occurring occasionally during the production of regional analgesia.

Since the publication of Barbour and Tovell's (1948) experiences using a 0.1% solution of procaine, with an average adult dosage of 1 g. in one hour for the treatment of many different pathological conditions, I have used a similar technique for the relief of pain after upper abdominal operations. The advantages are that subjective symptoms of overdosage rarely occur and the patient need not be under personal supervision after the first few minutes. Actually, despite the greater dilution, the patient receives a much bigger dose, which appears to be a good deal more effective. The relief from pain is more lasting. With the use of Technique I (1% procaine) the patient obtains good relief for two to three hours. With Technique II (0.1% procaine) the relief lasts as long as six to eight hours.

The solution used is procaine, 1 g. in 1,000 ml. of 5% dextrose in normal saline. The procaine should not be mixed with the dextrose saline until required, as the resultant solution becomes discoloured after a few hours. The effect on the vital capacity is still disappointing, but is rather better than that achieved by Technique I, as the following typical case reports indicate.

Case Reports: Technique II

Case A.—Man aged 36. Subtotal gastrectomy for chronic duodenal ulcer. Anaesthetic: soluble thiopentone, 1·7 g., N_2O+O_2, and *d*-tubocurarine, 22.5 mg. Duration: two hours. Pre-operative vital capacity: 3,000 c.cm. Post-operative vital capacity: first day, 1,100 c.cm. (37% of pre-operative value). Not severe pain—complete relief after 1 g. of procaine, given in one hour by intravenous drip transfusion. Vital capacity increased by 500 c.cm. to 1,600 c.cm., or 53% of pre-operative value—a gain of 16%. Post-operative vital capacity: second day, 1.800 c.cm. (60% of pre-operative value). After 1 g. of procaine by intravenous drip, vital capacity increased to 2,100 c.cm., or 70% of pre-operative value—a further gain of 10%.

Case B.—Man aged 46. Subtotal gastrectomy for recurrent gastric ulcer following partial gastrectomy three years previously. Anaesthetic: soluble thiopentone, 1.5 g., N_2O+O_2, and *d*-tubocurarine, 30 mg. (+minimal cyclopropane during maintenance to overcome hiccup). Duration: three hours. Pre-operative vital capacity: 3,000 c.cm. Post-operative vital capacity: first day, 1,100 c.cm. (37% of pre-operative value). Not severe pain, but complete relief after 1 g. of procaine in intravenous drip over one hour. Vital capacity increased by 400 c.cm. to 1,500 c.cm., or 50% of pre-operative value—a gain of 13%. Post-operative vital capacity: second day, 1,500 c.cm. (50% of pre-operative value). After 1 g. of procaine the vital capacity increased to 1,800 c.cm., or 60% of pre-operative value—a gain of 10%.

Case C.—Man aged 52; a case of jejunal ulcer and gastro-colic fistula. Operation: undoing of 20-year-old gastro-jejunostomy, closure of gastro-colic fistula, and subtotal gastrectomy. Anaesthetic: soluble thiopentone, 1.75 g., N_2O+O_2, and *d*-tubocurarine, 30 mg., with occasional small doses of cyclopropane to secure quiet respiration during difficult surgical manipulation. Duration: three hours and ten minutes. Pre-operative vital capacity: 2,400 c.cm. Post-operative vital capacity: first day, 1,000 c.cm. (41% of pre-operative value). Rather severe pain much aggravated by attempted deep breathing. No desire to cough. Good relief obtained by procaine, 1 g., in intravenous drip over one hour. No sputum produced by coughing. Deep breathing now almost painless. Vital capacity increased by 500 c.cm. to 1,500 c.cm., or 62% of pre-operative value—a gain of 21%.

Case D.—Man aged 67. Repair of perforated duodenal ulcer. Anaesthetic: soluble thiopentone, 0.5 g., N_2O+O_2, and *d*-tubocurarine, 15 mg. Duration: 25 minutes. Pre-operative vital capacity: unknown. Post-operative vital capacity: first day, 1,000 c.cm. Severe pain. Great relief after 1 g. in intravenous drip over one hour; coughing then produced copious sputum. Vital capacity increased to 1,200 c.cm. Post-operative vital capacity second day, 1,400 c.cm. No abnormal physical signs in the chest. There can be little doubt that this patient would have developed major pulmonary complications if he had not been able to expectorate freely on his first day.

For each case a vital capacity chart (a specimen of which is illustrated) is filled in, as well as the usual "Copeland-Chatterson" record card.

Conclusion

From the work done so far it would seem that Lassen (1938–9) is right when he asserts that the post-operative lowering of vital capacity is not altogether due to the fear of increase of pain on deep breathing. If this were the whole story, then complete relief of pain should restore the vital capacity to its normal volume, but this by no means happens. If, as seems likely, Lassen's assumption that reflex muscle spasm is the chief factor is correct, then something more than the abolition of conscious pain is required. In fact, it is likely that only by interrupting the reflex arc on its afferent side can we abolish this muscle spasm and still leave the muscles under full voluntary control, thus enabling the patient to take the deep breath required to produce his normal vital capacity.

Since writing the above I have had the opportunity of reading an article by McCleery, Zollinger, and Lenahan (1948) in which they have shown that a significant increase of the post-operative vital capacity can be achieved, after upper abdominal operations, by injection of the sixth to the eleventh intercostal nerves with a slowly absorbed solution of 1:1,000 "nupercaine" in peanut oil. They claim that injection in the mid-axillary line does not interfere with the motor supply to the intercostal muscles. This procedure should not only relieve pain but should also break the reflex arc on the afferent side, yet the average increase of the vital capacity was still only 16 to 17%, which is not much above the average increase obtained with intravenous procaine (12 to 13%).

It seems not unreasonable to conclude that if we could hold a post-operative vital capacity at its pre-operative volume we should considerably reduce the incidence of post-operative pulmonary complications. But that this would not complete the story was shown by Rees-Jones (1941), who demonstrated that during the first 24 hours after an abdominal operation either the diaphragm on the

ipsilateral side was fixed or its excursion very much reduced, while on the contralateral side movement was free; yet the only case in his series to develop pulmonary complications produced a lower-lobe atelectasis on the contralateral side

Summary

The incidence of pulmonary complications following upper abdominal operations remains high.

After an upper abdominal operation the vital capacity is regularly decreased to the region of 35% of its pre-operative volume.

Intravenous drip procaine is an excellent method of relieving post-operative pain in cases in which it is important not to decrease pulmonary ventilation.

There is evidence that some increase of vital capacity follows the relief of post-operative pain by this method in abdominal cases. This increase, however, is so small that it is suggested that other theoretical causes for the lowered vital capacity need investigation.

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LOW-SALT DIET IN TREATMENT OF HYPERTENSION AND HYPERTENSIVE HEART DISEASE*

BY

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AND

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The treatment of heart disease and hypertension has of late attracted much attention, thanks especially to papers by Allen and Sherrill (1922), Schroeder (1941), Schemm (1942), and White *et al.* (1946). Kempner (1944) claimed to have seen an exceptionally favourable response of hypertension to his salt-poor "rice diet." The favourable effect on these diseases was, however, observed far earlier by Karell (1866), Achard and Loeper (1901), and Widal and Lemierre (1903). In Denmark, Finsen (1904) proposed a low-salt diet in diseases associated with oedema. According to recent American experiences a rigorous restriction of the salt content of food (under 0.75 to 1 g. of NaCl daily) is necessary, at least in the case of hypertension.

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Present Investigation

Our object has been to test the above American results. In particular we have tried to prove that sodium chloride alone is the deciding agent and that the possible favourable response to the dietary treatment is not due to other factors, such as confinement to bed and rest in hospital.

Diet.—Originally we used a diet containing about 2,500 calories, but we soon had to reduce it to about 2,000 calories, the patients being unable to eat it all. The solid food consists of :

Morning: 45 g. white bread (salt-free), 10 g. butter (salt-free), 5 g. sugar, 1 g. tea.

Either simultaneously or later in the morning: 25 g. oatmeal (as porridge, cooked without salt), 5 g. sugar, 125 g. stewed fruit.

Supper: 100 g. white bread (salt-free), 30 g. butter (salt-free), half an egg, 50 g. tomato (or 100 g. apple or 10 g. cucumber), 25 g. fresh meat (or 20 g. fish), 10 g. lemon juice with 10 g. sugar (or 50 g. juice in water).

Dinner consists of fruit jelly as the first dish (without milk), and boiled or fried (in salt-free butter) fish or meat, with vegetables and potatoes afterwards. The composition of the diet per day, calculated after Sherman's tables, appears to be : sodium 262 mg., chlorine 385 mg., calcium 254 mg., iron 7.9 mg., with protein 50 g., fat 88 g., and carbohydrate 258 g., giving 2,019 calories. The diet is insufficient with regard to calcium, and perhaps vitamin B and iron. During the experimental periods we added daily doses of vitamins A and D and gave a weekly injection of a vitamin B preparation.

Material.—The series consisted of 26 patients, all admitted to the Municipal Hospital, Copenhagen. They presented such a degree of hypertension that after a fortnight's confinement to bed they still had a systolic blood pressure above 180 mm. Hg and/or a diastolic pressure above 120 mm. Hg. Seven of the patients were men and 19 women, with ages ranging between 45 and 71 years (average 59). Their hypertension had been recognized from well over 1 year up to 14 years previously. None of the patients seemed to suffer from the rapidly progressive malignant form of hypertension The hypertension was in most cases complicated by heart disease (possibly with insufficiency), retinopathy, or nephropathy. In the accompanying table the patients have been grouped according to diagnosis, with the uncomplicated cases at the top, and then the different complications in order of increasing severity. Patients whose urea clearance was less than 50% of the normal value have been entered under a diagnosis of nephropathy. None of the patients had had syphilis or rheumatic fever.

Experimental Period.—During the preliminary fourteen days the blood pressure was measured frequently, and patients in whom it fell below the above limits were not submitted to treatment. A number of the less severe cases were therefore excluded. Four days before starting treatment with the low-salt diet we began to take the blood pressure of each patient in the morning; preferably this was done by the same physician, at least three times. The blood-pressure values are based on the lowest recorded for each day. The values stated in the table are means for the last four days. Column I gives means for the preliminary period, column II for the low-salt-diet period, and column III for the control period of high salt intake. During the preliminary period we measured the chloride and nitrogen excretion daily for two or three days. Ophthalmoscopy was carried out, as well as radiography of the heart, electrocardiography with precordial deflection,

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SYMPTOMATIC TREATMENT OF MYOTONIA ATROPHICA

BY

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The value of the antihistamine drugs in increasing mobility in Parkinsonism has been noted by various clinicians. This spasmolytic action of the antihistamines is probably due to lengthening of the refractory period of muscle, which then becomes unable to maintain a tetanus. Such an action has been demonstrated on isolated rabbit auricle for quinidine, pethidine, procaine, and other local analgesics (Dawes, 1946). It was later shown that "anthisan" ("neoantergan") was twice as potent as quinidine in this respect (Dews and Graham, 1946).

In the case described below this action of the antihistamine drugs was applied to the treatment of myotonia atrophica.

Case Report

The patient, a Derbyshire farmer aged 49, presented the classical features of myotonia. The facial expression was woebegone, with bilateral cataract and receded frontal hairline. The neck was so wasted that his collars had become unserviceable, and on special occasions he resorted to a neckerchief. There were weakness and wasting in the arms, legs, and small hand muscles, with a delay of several seconds in release of the handgrasp. He was unable to cut up his own food at meals or to do heavy work. He managed, however, to run a small poultry farm, clumping around with a noisy stamping gait, and carrying buckets of water or poultry meal on the crook of his best forearm. The testicles were atrophied and bronchiectasis was present. He had had four attacks of pneumonia in recent years. Although friendly enough with his doctor, others found him moody and difficult.

Symptoms began in 1943, but the condition escaped diagnosis until 1946, when quinine was given with benefit. Treatment lapsed after the first few weeks and had not been resumed.

He was the only member of the family to show the full picture of the disease. His grandfather and father both suffered from senile cataract. His grandfather was a powerful man of great physical stature, who narrowly missed recruitment into the Life Guards. Both his grandfather and his father had been exceptionally heavy beer-drinkers. The patient's brother, a middle-aged man, and the brother's two daughters were said to suffer from short sight. All three wore glasses with lenses of startling thickness. The patient himself had two healthy sons in their teens.

Treatment was started in June, 1949, with 50 mg. of "benadryl" three times a day. After one week the patient was able to use a knife and fork and to cut up his own food for the first time for two years, and he began to carry buckets of water in the normal way by hand. There was objective improvement in the myotonia of the hands, and the small hand muscles became firmer to palpation. He was then given 200 mg. of anthisan three times a day for a further two weeks. Improvement continued, and he was able to fork dung and "sweep out" with greater effect than before. The myotonia of the hands was not, however, altogether abolished.

Discussion

The patient was not a good subject for assessment of a therapeutic remedy. The severe wasting placed a limit on the value of spasmolytic drugs, while the mental condition introduced a big subjective factor. If the value of antihistamines in myotonia is confirmed, they might be employed in two ways: the antihistamine drug could be given with quinine to obtain a summation effect, or the two drugs could be given alternately, say for a week each, to avoid the unpleasantness of cinchonism.

In considering the treatment of myotonia atrophica it is well to take account of the relationship between this disease and myasthenia gravis. A pharmacological antithesis is recognized between these two diseases, drugs which benefit the one causing an exacerbation in the other (Goodman and Gilman, 1941). It was thought possible that this antithesis might operate in the case of the thymus gland. Tumours of this gland are sometimes found in myasthenia, and a remission in the disease sometimes follows thymectomy. Accordingly, after three weeks' antihistamine treatment in the above case it was decided to try the effect of thymus-gland administration. For a fair trial it would be necessary to give fresh gland extract, by injection. As fresh extract is not readily available, dried thymus tablets were given by mouth for a month—10 gr. (0.65 g.) thrice daily. There was no objective change. The patient, however, reported continued subjective improvement, with increase of the myotonia in the hands after withdrawal of the tablets. This may have been a psychological effect, and owing to the preceding antihistamine treatment the experiment was considered inconclusive. It did, however, succeed in showing that thymus gland by mouth does not provide a replacement therapy for the disease

Further work on the antihistamines is required to establish whether antihistamine and spasmolytic action run parallel. If this is so, the newer and more potent antihistamines should repay trial in myotonia. It is also possible that some of the local analgesic substances possessing a quinidine-like action on rabbit auricle (Dawes, 1946) may prove suitable for clinical use in myotonia.

In general it is to be expected that drugs such as quinine which benefit myotonia would also be beneficial in the rigid type of Parkinsonism.

Summary

A pharmacological basis for the action of spasmolytic drugs in Parkinsonism and in myotonia atrophica is described.

On this basis a spasmolytic agent which is active in one of these diseases should also be active in the other.

A case of myotonia atrophica is reported. Benadryl and anthisan both produced striking symptomatic improvement.

The possible role of the thymus gland in myotonia atrophica is discussed.

I wish to express my thanks to Professor Wayne for helpful criticism and for permission to treat the case.

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Mayfield and Hedrick present in the United States *Journal of Nutrition* (1949, **37**, 487) a study of the nutritive value of protein in foods and how it may be affected by the various processing procedures. The effect of varying the type of cattle feed and subsequent changes of roasting and corning on the digestive and biological value of beef protein were studied. Canning caused a lowering in the biological value and digestibility of the beef, but roasting and corning produced no change.

AN UNUSUAL CASE OF SIMMONDS'S DISEASE

BY

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True cases of Simmonds's disease due to lesions of the pituitary other than a post-partum necrosis are rare. One essential part of the syndrome is some destructive lesion of the anterior pituitary, and in many of the cases reported erroneously as Simmonds's disease there has been no such lesion.

The case reported below fulfils all the requirements for a diagnosis of this disease, and the primary lesion was a carcinoma of the pituitary gland. There are several interesting features in the case.

Case Report

The patient, a man aged 54, was admitted in October, 1947, to the Lake Hospital, Ashton-under-Lyne, following a haematemesis of 1 pint (570 ml.) of blood. He continued to vomit clots of blood immediately after admission. He was very apathetic and a good history could not be elicited from the patient himself. His wife said that he had been in poor health for years and had lost a lot of weight. He had been having severe attacks of neuralgia in the face and head. The previous year he had undergone tonsillectomy and an operation upon his nose.

In February, 1947, he had been admitted to the neurosurgical department of another hospital because the head pain was persistent. It was then thought that the ill-defined pain in the left side of the face and ear was due to a lesion in the central grey matter for which little could be done. As the pain was so severe, however, operation was undertaken to relieve it: intracranial division of the ninth nerve, the upper fibres of the tenth nerve, and the lower part of the fifth root was performed. He improved somewhat and was discharged in March, as all investigations to find a cause for the pain were negative. It was thought at the time that a deep secondary deposit could possibly have accounted for the pain, but no lesion was demonstrated.

For two months previous to admission to this hospital for haematemesis he had been having epigastric pain almost immediately after food. He was given the usual treatment for haematemesis, and vomiting ceased 48 hours after admission, but he continued to have melaena for 10 days and was given blood transfusions of 2 pints (1.14 litres) and 1 pint. He began to improve, and the haemoglobin rose from 38% on Nov. 3 to 80% on Nov. 18. He suffered from epistaxis on several occasions in the last half of November, but said this had occurred at intervals since the nasal operation. It did not affect the blood picture appreciably. Despite the improved blood picture the patient continued to be very apathetic and took little interest in things. All efforts to increase his weight failed.

He came under my care in April, 1948, when the picture was much the same. The main symptoms were wasting, apathy, lassitude, and anorexia. He appeared much older than his years: his skin was dry and inelastic and his face wrinkled and creased. His hair was fine, blond, and scanty on the head, in the axillae, and in the pubic region. The pain in the head was still present but was less troublesome. He had pronounced arteriosclerosis and his blood pressure was 85/55. The only other findings on examination apart from considerable wasting and asthenia were weak heart sounds, an inactive left pupil, and some brownish pigmentation on pressure areas of the back. There was no pigmentation of the skin or mucous membranes elsewhere. The diagnosis seemed to lie between Addison's disease and Simmonds's disease.

Investigations at this stage showed: blood urea, 21 mg. per 100 ml.; urinary chlorides, 2 g. per litre. Cutler's test: urinary chlorides, 288 mg. per 100 ml. Glucose-tolerance curve: fasting, 74 mg. per 100 ml.; half-hour after glucose, 74 mg.; 1 hour after glucose, 109 mg.; 1½ hours after glucose, 127 mg.; 2 hours after glucose, 118 mg. Serum chlorides, 280 mg. per 100 ml.; serum sodium, 316 mg. per 100 ml. The Wassermann reaction and Kahn test were negative.

In view of the positive Cutler's test and low serum chloride he was given desoxycortone acetate, 10 mg. daily, and sodium chloride by mouth from April 22. There was an initial improvement, the patient becoming mentally more alert and his blood pressure rising to 128/70 mm. Hg. As the response was not as satisfactory as had been hoped for, the desoxycortone acetate and salt were discontinued on May 3 pending further investigations, as it was still doubtful whether the diagnosis was Addison's disease or Simmonds's disease. He became drowsy and his appetite was poorer when the desoxycortone acetate was discontinued. On May 7 the serum sodium was 276 mg. per 100 ml. On May 8 Kepler's test showed: serum chloride, 280 mg. per 100 ml.; urine NaCl, 175 mg. per 100 ml.; urine urea, 1.9%; blood urea, 26 mg. per 100 ml.; largest morning specimen, 2 oz. (57 ml.); night urine, 8.4 oz. (234 ml.). Therefore factor A = 27.8, giving positive Kepler's test I and doubtful Kepler's test II.

Desoxycortone acetate and salt, 10 g. daily, were restarted, but the patient's condition became rather poorer. The systolic blood pressure dropped to 95 mm. and he had to be fed because of extreme apathy. His anaemia was increasing, and the blood picture on May 20 was: red cells, 3,650,000 per c.mm.; haemoglobin, 74%; colour index, 1.03; white cells, 9,900 per c.mm.

Despite the evidence of adrenal insufficiency it was considered that this was not enough to account for the whole clinical picture, and that there must also be pituitary insufficiency. The 17-ketosteroids were estimated and found to be 1 mg. per 24-hour specimen. On June 5 it was considered that in view of his downward progress and the doubt about the diagnosis it would be justifiable to give 5 units of soluble insulin subcutaneously immediately before glucose and a meal in an effort to increase his weight; but pronounced hypoglycaemia resulted. Intravenous glucose was given and the patient apparently recovered. One hour later he again became hypoglycaemic, requiring further intravenous glucose. His blood sugar on this occasion one hour *after* the first and apparently sufficient injection of glucose was 13 mg. This was taken as definite evidence that there was also pituitary insufficiency.

The evidence for involvement of both pituitary and adrenal glands was: positive Cutler's test, positive Kepler's test I, doubtful Kepler's test II, low blood sodium, very low 17-ketosteroids, marked insulin sensitivity, and hypotension.

The patient was also given 200 units of "antuitrin S" daily and ½ gr. (32 mg.) of thyroid three times a day, as some clinicians consider this has been of clear benefit in occasional cases of Simmonds's disease.

Nine days later the patient could not be roused in the morning and was found to have a left facial hemiparesis with gross dilatation of the left pupil and a left extensor plantar response. Glucose was given intravenously immediately (after taking a specimen of blood). The patient recovered consciousness and lost the focal signs. He was soon himself and the blood-sugar result received later showed a level of 13 mg. per 100 ml. Despite glucose, 20 g. three times daily, this was only the forerunner of several spontaneous hypoglycaemic attacks, and he died on July 26. The last blood count, on July 19, showed an increase in the anaemia: red cells, 3,110,000 per c.mm.; haemoglobin, 62%; colour index, 1; white cells, 8,300 per c.mm. (polymorphs 82.5%, lymphocytes 10%, monocytes 5%, eosinophils 1.5%, basophils 1%).

I performed a necropsy, and there appeared to be a growth of the pituitary gland and some atrophy of the adrenals. There was a chronic ulcer on the lesser curve of the stomach which was probably the cause of the haematemesis. The pituitary gland, the adrenals, and a portion of the pancreas were sent for section; the report on these was as follows: "The *pituitary*

by mixing the grated coconut with hot water and manually squeezing out the oil. To reduce the fat content, the mothers were instructed not to add the milk obtained by the initial squeeze, but to discard this and add hot water to the grated coconut. This weaker coconut milk was used for the preparation of the child's curry. The fat-deficient diet was continued for a few weeks after the stools became normal.

Summary

Forty cases of pathologically proved *E. histolytica* infection in infants in Colombo and its environs are presented. Of 291 cases of infantile diarrhoea in children under 2 years of age 15.9% were infected with *E. histolytica*. Fourteen cases were 1 year of age and 26 between 1 and 2 years. Twenty-nine of the cases were infected with *E. histolytica minuta* and the others with the larger type. Half the cases were of the acute and half of the chronic and relapsing variety. Treatment given was by emetine parenterally and carbarsone orally. Of the cases followed up 80% indicated satisfactory results.

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ACUTE PHLEGMONOUS CAECITIS

BY

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Acute phlegmonous caecitis is not described in any of the standard textbooks of surgery or pathology. Although it is rare it is possible that the small number of cases reported may be due to the condition's not being recognized at laparotomy, or it may be that some cases thought to be of "appendix abscess" which subside on conservative treatment are in reality cases of acute phlegmonous caecitis. The subject was discussed in an excellent article by Spivack and Busch (1943), who reviewed 35 cases recorded up to that time and described two cases of their own. A few more have since been reported.

The purpose of this article is to draw attention to this condition and to describe two cases met with at this hospital. Both patients presented with severe continuous abdominal pain which started in the epigastrium and later shifted into the right iliac fossa. They were not seen until the disease had been in progress for 48 hours, and in each of them a well-defined and extremely tender mass was present in the right iliac fossa. A provisional diagnosis of acute appendicitis was made, but it was felt that the early appearance of such a tender mass was an atypical feature. Operation revealed acute phlegmonous caecitis, with a normal appendix in both cases. In Case 1 the disease was of the diffuse form, the whole of the posterior wall of the caecum being affected and the borders of the phlegmon merging imperceptibly with the normal bowel. Case 2 is of the circumscribed form of the disease, a localized phlegmon of the posterior wall of the caecum being differentiated fairly sharply from the normal bowel. The two cases correspond well with the diffuse and circumscribed forms of the disease described by Spivack and Busch.

Case 1

A married woman was admitted to hospital on March 6, 1948. She had walked to the doctor's surgery in the morning, and on admission gave a 58-hours history of abdominal pain which started in the upper abdomen and later shifted into the right iliac fossa. She vomited once at the onset. The bowels had not been opened since the onset of the pain, and an aperient had been taken without result. She had slight scalding pain on micturition, which was otherwise normal. There was no previous history of similar pain.

On examination her temperature was 100.4° F. (38° C.), pulse 112, and respirations 18. Her tongue was dirty. Herpes labialis was present. An extremely tender mass was palpable in the right iliac fossa in the position shown in Fig. 1, while the remainder of the abdomen seemed normal. Rectal examination revealed no abnormality. The chest and cardiovascular systems were normal, as was the urine. With a provisional diagnosis of acute appendicitis operation was performed under general anaesthesia.

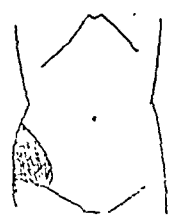


Fig. 1.—The position of the tender mass in Case 1.

The abdomen was opened through a grid-iron incision. There was no free fluid in the peritoneum. A firm mass the size of a golf ball was found in the posterior wall of the caecum, which was very inflamed. It was grossly oedematous and its surface had a grey necrotic appearance. The edges merged imperceptibly with the normal bowel. The appendix was macroscopically normal and was removed. A small fragment of the caecum was taken for microscopical examination. There was no evidence of obstruction due to the mass and there were no enlarged glands. A corrugated rubber drain was placed down to the mass and the incision closed.

Post-operative Course.—Intramuscular penicillin, 40,000 units three-hourly, was started and continued up to a total of 1,750,000 units. A course of 24 g. of sulphamerazine was also given. There was very little discharge from the drain, which was removed on the fifth day. The patient made an uninterrupted recovery, the wound healing by first intention. White blood cells on March 17 numbered 10,350 per c.mm. (polymorphs 63%, lymphocytes 29%, monocytes 6%, eosinophils 2%). After two weeks scarcely any mass could be felt in the right iliac fossa, and when she was discharged from hospital on March 31 nothing abnormal was palpable.

The pathologist (Dr. W. W. Walther) reported: "This appears to be an acute pyogenic infection. There is no evidence of tuberculosis or streptothrix after prolonged search." During the next year the patient was seen at intervals. She remained perfectly well, and had put on weight; nothing abnormal was palpable in the abdomen. On April 26, 1949, after an opaque meal and follow-through, the radiologist (Dr. P. Tettmar) reported: "Nothing abnormal detected in the stomach and duodenum. In the follow-through the caecal region appears normal."

Case 2

A boy aged 15 walked into the out-patient department on February 16, 1949, giving a history of severe continuous abdominal pain for the last 48 hours, which had begun in the epigastrium and later shifted into the right iliac fossa. There was no nausea or vomiting. The bowels had been opened twice since the onset of the pain. Micturition was normal. There was no previous history of similar pain.

On examination his temperature was 98.4° F. (36.9° C.), pulse 100, and respirations 18. His tongue was dirty and foetor oris was present.

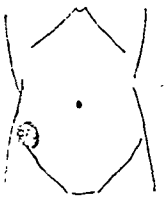


FIG. 2.—The position of the tender mass in Case 2.

An extremely tender mass was palpable in the right iliac fossa in the position shown in Fig. 2, with no resistance or rigidity or any other abnormality in the rest of the abdomen. Rectal examination revealed nothing abnormal. The chest and cardiovascular systems and the urine were normal. A provisional diagnosis of acute appendicitis was made and operation was performed under general anaesthesia.

The abdomen was opened through a Battle's incision. The mass previously felt externally was found to be an area of considerable thickening and acute inflammation, with oedema and petechial haemorrhages in the posterior wall of the caecum the size of a hen's egg. The area was fairly sharply demarcated from the rest of the bowel. The appendix, which was macroscopically normal apart from a few faecaliths, was removed. There were several firm glands with oedema in the ileo-caecal angle, and one of these was removed for microscopical examination. The abdomen was closed without drainage.

Post-operative Course.—Intramuscular penicillin, 100,000 units four-hourly, was given up to a total dosage of 6,000,000 units. A course of 32 g. of sulphamerazine was also given. On February 18 the white cells numbered 8,400 per c.mm. (polymorphs 75%, lymphocytes 20%, monocytes 4%, eosinophils 1%). On February 23 they numbered 4,000 per c.mm. (polymorphs 60%, lymphocytes 30%, monocytes 3%, eosinophils 7%). Stool examination revealed nothing abnormal.

The patient made an uneventful recovery and the wound healed by first intention. No abnormality was palpable in the abdomen a week after operation, and he was discharged from hospital on March 7.

The pathologist (Dr. W. W. Walther) reported: "The gland shows changes similar to those seen in glands draining areas of established inflammation. There is no evidence of tuberculosis. The appendix shows no evidence of acute inflammation."

The patient has since been seen at intervals, and has remained perfectly well and put on weight; nothing abnormal has been palpable in the abdomen. On April 28, after an opaque meal and follow-through, the radiologist (Dr. P. Tettmar) reported: "Normal stomach and duodenum. The caecum and ascending colon are well filled. No abnormality is seen. Normal rate of passage through the small intestine."

Comment

Two cases of acute phlegmonous caecitis are described. They are essentially similar to those previously reported in the literature as the diffuse and the circumscribed forms.

The condition, though rare, should be borne in mind in the differential diagnosis of acute appendicitis, from which it can be distinguished only by operation. The presence of a well-defined very tender mass in an apparently early case of acute appendicitis should give rise to a suspicion that it may be one of acute phlegmonous caecitis.

In both cases no harm followed appendicectomy and the caecitis resolved rapidly. The masses disappeared rather more quickly than in the cases of Spivack and Busch, probably because of chemotherapy. In the older literature a fatal outcome was recorded in some cases subjected to elaborate procedures such as resection, exteriorization, and lateral anastomosis. On the other hand, some cases recovered after appendicectomy only. Appendicectomy seems to be without special risk in these cases, and removal of the lesion must be regarded as unjustifiable, since resolution may be expected.

No further light is shed on the aetiology of the condition. The theory of abrasion of the mucous membrane, such as by a foreign body, followed by spreading inflammation of the bowel wall seems to be a reasonable one. The condition is probably essentially similar to the better-known acute phlegmonous gastritis. In this condition, also, radical surgery is no longer recommended (Maingot, 1948), but resolution may be expected with chemotherapy.

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Medical Memoranda

An Unusual Case of Infectious Mononucleosis

The report by Eckstein and Peeney (1949) of a case of rectal haemorrhage associated with infectious mononucleosis prompts me to think that the following case is interesting enough to record. It is a case of infectious mononucleosis which presented with haemoptysis, subconjunctival haemorrhages, severe abdominal pain, and, later, meningitis.

Case Report

A previously healthy male farm-worker aged 17 was admitted to hospital in August of this year; he attributed his illness to a kick on the left side of his chest from a cow one week previously. He had no symptoms immediately following this occurrence, and was able to continue with his work normally. There had been no bruising of the chest wall.

On admission he gave a three-days history of feverishness and shivering attacks. At the onset of fever his legs felt weak and he developed a continuous central abdominal pain, which was sharp in character. One day later he had a slight unproductive cough and a constant severe lower retrosternal discomfort. From then onwards the abdominal pain became worse and was accompanied by vomiting. On the evening of admission he started to cough up blood, and at the same time his family noticed he had "red eyes." This was exactly seven days after his encounter with the cow. There was no past or family history of undue bleeding episodes.

On examination he was ill and apprehensive, though well built. The temperature was 103° F. (39.4° C.), pulse 120, and respirations 44 a minute. The tongue was furred and the fauces appeared normal. There was no anaemia, purpura, or icterus, and no glands were palpable. He was coughing up blood-stained sputum, and had bilateral subconjunctival haemorrhages covering the whole of each sclera.

He was afraid to move because of pain, and it was difficult to gauge whether it was the pain in the chest or in the abdomen that was the worst. However, there were no physical signs in the chest apart from the rapid respiration rate. The abdomen was held tight, and there was generalized guarding, with complaints of pain on palpation, particularly suprapubically. It was impossible to feel the spleen, but there was resonance over the left costal margin. Bowel sounds were present, and rectal examination was negative. There were no signs in the nervous and cardiovascular systems, and the blood pressure was 115/65 mm. Hg. The urine contained no albumin or sugar.

The chest was normal on radiography, and there were no fractured ribs. The haemoglobin was 95% (13.15 g. per 100 ml.), platelets 150,000 per c.mm., and white cells 13,500 per c.mm. (polymorphs 77%, lymphocytes 16%, and monocytes 7%). The blood urea was 70 mg. per 100 ml. The sputum, which was heavily blood-stained, contained no acid-fast bacilli.

Forty-eight hours after admission he was still very ill. The temperature was 100° F. (37.8° C.), and it was noted that the pulse was in the sixties. The vomiting was persistent, and he now had severe headache with neck stiffness. Lumbar puncture revealed opalescent fluid under increased pressure, containing 45 mg. of protein per 100 ml., a trace of globulin, and 102 cells per c.mm. Of these cells 60% were polymorphs and 40% lymphocytes. The chloride and sugar content was normal and the culture was sterile. Some small glands were palpable in the neck, axillae, and groins. A Paul–Bunnell heterophil antibody reaction showed agglutination at a dilution of 1 in 448. The spleen was never palpable and he developed no rash.

From this point onwards the patient improved. The headache and vomiting gradually eased up, and the abdominal pain and guarding subsided. He no longer coughed up blood. White blood counts after the initial one showed no abnormality or changes of glandular fever, but the heterophil antibody reaction revealed agglutination at a dilution of 1 in 896 a week after the first test. Lumbar puncture showed a gradual improvement, and the cells became practically all lymphocytes.

The patient made an uneventful recovery and was discharged from hospital three weeks after admission. He has reported again since, and is remarkably fit, with no abnormal signs.

Comment

On admission the case presented difficult problems. Not least was the history of a kick on the ribs a week previously. It seemed difficult to account for haemoptysis resulting after seven days from a kick that had caused no bruising of the skin, permitted him to continue normal work, and produced no fractured ribs or radiographic changes in the lungs. Similarly, it was difficult to explain the subconjunctival haemorrhages, particularly as his cough was mild and there had been no intense paroxysms of coughing before admission. The coincidence of the onset of meningeal signs with the development of superficial glandular enlargement prompted us to carry out a Paul–Bunnell test.

As to the mechanism of the various presenting symptoms, we can do no more than theorize. Pfeiffer (1889) in his original description recorded a slight irritating cough and pain in the lower abdomen in the majority of cases. The latter pain, in his experience, was nearly always felt midway between the umbilicus and the symphysis pubis. He suggested that swelling of the retrotracheal, retro-oesophageal, and mesenteric lymph glands was responsible.

Eckstein and Peeney have already referred to haemorrhagic manifestations as being among the rarer complications of infectious mononucleosis, and in their own case they demonstrated active bleeding from the mucous membrane of the bowel without any obvious cause.

It might be that this tendency to bleed accounted for the subconjunctival haemorrhages, the haemoptyses, and possibly the abdominal pain in the case here described, either of its own accord or in conjunction with glandular enlargement as envisaged by Pfeiffer.

The meningeal complications have already been described by Thelander and Shaw (1941).

I wish to express my thanks to Dr. T. H. G. Shore, consultant physician, for permission to publish this case.

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Anginose Type of Glandular Fever Requiring Tracheotomy

Serious complications in the course of monocytic angina are uncommon. Tidy (1937), in an exhaustive review, states that "bronchopneumonia has caused one or two fatalities, but, apart from this, recovery is complete." Although Johnson (1944) described a severe case of anginose type in a 10-year-old negro boy, when "tracheotomy seemed almost necessary at times," a number of clinical accounts do not mention a case severe enough to warrant the operation (Fuller, 1941; Barber, 1941; Stevenson and Gow Brown, 1943; Smith and Shaw, 1945).

Case Report

Three weeks before admission to this hospital the patient, an agricultural student aged 22, had noticed a swelling of his neck, and at that time he had an enlargement of both tonsils, with pyrexia. Throat swabs were negative for diphtheria, and he was given a short course of sulphonamides. He did not improve, and he was admitted to an isolation hospital, where he received 12,000 units of diphtheria antitoxin on his first day, and 2,000,000 units of penicillin during the following week. His temperature remained up continuously, and although the faucial swelling was incised under local analgesia no pus was obtained. He became more dyspnoeic, and was transferred to this hospital with the diagnosis of acute leukaemia.

On admission on December 13, 1948, he had considerable oedema of the throat but no membrane formation or ulceration. Numerous glands in the cervical chain were enlarged and tender, but he had no general lymphadenopathy and his spleen was not palpable. He was very dyspnoeic and distressed, but not cyanosed.

The pathologist reported that the blood film was typical of glandular fever, with 79% mononuclear cells out of a total of 14,600 white cells. He was given N.A.B., 0.3 g., intravenously and three-hourly penicillin, with continuous intranasal oxygen, but in spite of this his condition deteriorated, and in the evening of the day of admission the necessity for tracheotomy was carefully considered in consultation with the laryngologist. We then decided against the operation, but during the night his condition became so grave that we felt it necessary to relieve his respiratory distress. At 5 a.m. on the following day tracheotomy was performed by Mr. John Roberts under local analgesia. The patient's condition improved immediately and his dyspnoea and distress rapidly lessened.

Three days after admission the Paul–Bunnell reaction was positive 1 in 2,224 (and to the same dilution after absorption). When repeated 10 days later this was positive at 1 in 256.

Four days after admission his blood count still showed an increase in mononuclear cells (75% of a total of 8,000 white cells). The blood Wassermann reaction and Kahn test were negative.

The tracheotomy tube was removed seven days after the operation and the wound healed satisfactorily. On December 29 (15 days after admission) the patient became unduly drowsy, and during that night he was restless and confused. The next day he became delirious, but, apart from a positive Kernig sign and mild neck rigidity, no localizing signs were found on examination of the central nervous system. Lumbar puncture was performed and the fluid was not under pressure; the cells were increased to 28 lymphocytes per c.mm., protein 70 mg. per 100 ml. (with increase of globulin), and chlorides 660 mg. per 100 ml.

This confusion and restlessness continued for some days, and later his general demeanour became vague and distant, with retardation of thought. These symptoms were transient, and a month later he had completely recovered. He was discharged on January 26, and when reviewed three months later was free from symptoms.

Comment

Tracheotomy in this case of severe mononucleosis was undoubtedly a life-saving measure, and the change in the condition of the patient after operation was remarkable. The administration of intravenous arsenicals was of no avail in reducing the faucial oedema.

A further interesting feature of the case was the occurrence of mild meningo-encephalitis during convalescence. Cerebrospinal manifestations of glandular fever are more widely recognized since Epstein and Dameshek (1931) first drew attention to them, and Landes *et al.* (1941) reported such a case in which the general behaviour was very similar to that of the patient described here.

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Treatment of Bismuth Stomatitis with BAL (British Anti-lewisite)

BAL (British anti-lewisite, 2:3-dimercaptopropanol) has been soundly established clinically as an effective antidote in acute poisoning by the salts of gold, mercury, and arsenic, but a search of the literature has not revealed any report of its application in the complications of bismuth therapy. The following case illustrates the rapid action of BAL in acute bismuth stomatitis.

Case Report

A man aged 34 years attended the Special Department, Ashford Hospital, Middlesex, on January 19, 1948, for continuation of treatment for early generalized syphilis which he had acquired in Manchester 12 weeks previously. He had there received injections of arsphenamine (0.45 g.) and bismuth oxychloride (0.20 g.) at weekly intervals for two weeks.

On examination he had a healing indurated ulcerative erosion on the coronal sulcus near the frenal base, a generalized adenitis, and a fading maculo-papular rash limited to the trunk. There were no condylomata and no specific oral lesions, but a mild degree of pyorrhoea was present, and the second and third right upper molars were carious. The Wassermann and Kahn reactions were strongly positive.

His occupation (lorry driver) and hours of work precluded penicillin therapy for the time being, and the original treatment was therefore continued. After the importance of oral hygiene had been brought to his notice he decided to have dental treatment from his own dentist, whom he attended twice during the period January 19 to March 19, 1948, treatment on each occasion consisting of scaling and cleansing of the gum pockets. The carious molars were not extracted.

On March 18, 1948—i.e., at his ninth weekly attendance at the department and after the eleventh week of treatment—he showed some evidence of gingivitis. In addition, a faint blue line was present on the anterior lower gum margin adjoining the four lower incisors, and also on the upper gum margin behind the four upper incisors. Bismuth therapy was stopped, but weekly treatment with the arsenical was continued. A mouthwash containing 5% potassium chlorate was prescribed, and instructions given about the care of the mouth. Under this conservative treatment the gingivitis improved, but the blue line persisted. There was no albuminuria.

On April 7, 1948, he again attended his dentist, who repeated scaling and also extracted the two carious upper molars under local anaesthesia. On April 11 (four days later) he attended the department with all the signs of an acute bismuth stomatitis. There was considerable fetor, lividity, and turgid oedema of the alveolar tissues with submucosal haemorrhages, and extensive heavily marked blue lines on the upper and lower gum margins. Heavy bismuth deposits were seen on the buccal and lingual mucous membranes, the soft palate, and the left tonsil, and there was necrosis of the cavities of the extracted molars. A small painful bismuth-pigmented ulcer was present on the buccal mucous membrane adjoining the cavity of the third right upper molar, and he had had a painful, tender bilateral submaxillary adenitis. There was slight pyrexia (99.2° F. : 37.3° C.), oliguria was present, the urine showed a cloud of albumin, and on microscopic examination a few red cells and epithelial casts were seen. The differential blood count showed a mild leucopenia (5,000 per c.mm.) and thrombocytopenia (90,000 per c.mm.). Dark-field examination of the detritus of the ulcer on the buccal mucous membrane revealed masses of *Treponema vincenti* and *Fusobacteria plauti-vincenti*.

Arsphenamine therapy was stopped, and the patient was admitted to hospital. The presence of organisms of fuso-spirillary type in the mouth was an indication for penicillin, but this was withheld because it was not known if BAL had any effect on the action of penicillin, and in addition the case offered an excellent opportunity to study the unaided action of BAL. Treatment with BAL was begun at once, the preparation used consisting of a 5% solution of 2:3-dimercaptopropanol in arachis oil containing 10% benzyl benzoate. He was given 2 ml. (by intramuscular injection into the gluteal region) thrice daily for two days, twice daily for four days, and once daily for four days, after which (i.e., 14 days after the onset of the complication and 10 days after beginning treatment with BAL) the condition had completely resolved, except for residual alveolar lividity, painful lingual oedema, and intense salivation. The bismuth deposits and the blue lines had vanished.

Local treatment of the complication was entirely palliative, and consisted of frequent cleansing of the teeth, gum massage, and use of a mouthwash containing ¼% zinc chloride.

Clinical response to BAL was evident almost from the first day of treatment, and improvement was continuous and rapid. On the seventh day of therapy the urine was albumin-free and microscopically showed no abnormality, and the temperature and differential blood count were normal. Fourteen days after onset of the stomatitis he was discharged from hospital, and seven days later arsphenamine therapy was resumed.

The toxic reactions to BAL were comparatively mild. The patient complained of headache, nausea, a burning sensation in the eyes, lacrimation, and some local pain at the site of injection. Salivation and painful lingual oedema persisted for several days after cessation of therapy. The blood pressure remained constant throughout.

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The Woods School, which is a school for mentally and physically retarded children at Langhorne, Pennsylvania, U.S.A., has been given by its founder, Mrs. W. M. Hare, to a board of trustees. The school was founded in 1913 with the aim of teaching children with behaviour problems and those with reading or speech difficulties to meet the problems of everyday life.

Reviews

OPERATIVE AND LABORATORY OBSTETRICS

Die Geburtshilflichen Operationen. By Professor H. Martius. Sixth edition. (Pp. 287; illustrated. M. 15.60.) Stuttgart: Georg Thieme.

Greffe Ovarienne Intra-oculaire chez la Lapine Castrée: Application au Diagnostic de la Gestation. By J. Vors. (Pp. 71. No price.) Paris: Vigot Frères.

Morphologie et Histologie des Corpsprogestatifs et Gestatifs (Corps Jaunes) de l'Ovaire Féminin. By G. Dubreuil and M. Rivière. (Pp. 102; illustrated. No price.) Paris: Vigot Frères.

Martius's *Obstetrical Operations*, first published in 1934, has now reached its sixth edition, and its popularity is well deserved. In 275 pages, with the help of 281 illustrations, Martius has given a comprehensive description of the art of operative obstetrics. The text is practical and the style is dogmatic, so that the reader is never in doubt of the author's meaning The subdivisions are excellent, and the arrangement of headings allows the salient features to be picked out without difficulty. The illustrations show Martius's usual judgment and ingenuity, and particular mention must be made of those depicting episiotomy. Although many of the diagrams are copied from old favourites, there is not always acknowledgment; it is well known that obstetrical illustrations are copied from book to book, and it is a matter of regret that the originators of some of the classical diagrams have been forgotten.

Like Pater in his essay on da Vinci, with its subtle emphasis on La Gioconda, Martius contrives to create the same emphasis on forceps delivery, and his description has seldom been equalled. Willet's forceps are mentioned, but there is no recognition of the modern English methods employed in breech delivery. Lovsett's manœuvre is not described, nor is the Drew Smythe catheter. The German classification of flexed and deflexed vertices has never been favoured in Great Britain, though it is found in the text-book of Jellett and Madill. The practical application of this method should not be completely ignored. It is probable that the work will be translated and published in America, and it is hoped that Martius will incorporate in the next edition the valuable contributions to operative obstetrics which have been made there and in Great Britain.

Grafting of tissues into the anterior chamber of the eye has been practised for many years, and important work has been done with this technique, particularly by Allen and Preist and by Markee. Vors describes in detail the transplantation of a homologous graft from a young rabbit into the anterior chamber of a castrated doe of adult age. The reaction of the graft to injected gonadotrophins can be accurately studied, and the author suggests that the method can be used to replace the Friedman test for the diagnosis of pregnancy. It is possible that the technique will be widely used in the future, and it might be employed to determine the concentration of gonadotrophins in the blood and urine of patients suffering from endocrine diseases.

Dubreuil and Rivière's short publication gives a general account of the histology of the corpus luteum of pregnancy and of the corpus luteum of menstruation. The authors endeavour to distinguish between the two types of corpora lutea in a way which is not altogether convincing. A valuable description of the cystic forms of the corpus luteum of pregnancy is given, and the retrogressive forms are described with some accuracy. The views of the authors on the colloid bodies are not likely to be accepted by many who have worked on the corpus luteum. The references are good, but it cannot be said that the publication is outstanding.

WILFRED SHAW.

PUBLIC HEALTH IN THE U.S.A.

Public Health in the World To-day. Edited by James S. Simmons. With foreword by James Conant. (Pp. 332. $5 or £1 7s. 6d.) Massachusetts: Harvard University Press. London: Geoffrey Cumberlege. 1949.

During 1947–8 a series of public health forums conducted by distinguished guest speakers was added to the regular curriculum of the Harvard School of Public Health. The papers presented at 22 such conferences are reproduced in this book. There is a foreword by the President of Harvard University and an introduction by James Stevens Simmons, who edited the volume.

The book, like the papers on which it is based, is intended primarily for our American colleagues, and it goes without saying that the need it will meet on this side of the Atlantic is entirely different from that in the United States. For the professional reader, or the intelligent non-medical reader in the States, the work provides a readable factual account of many aspects of American public health and its history and objectives—subjects which will obviously attract only a small number of readers here. Were these the only topics discussed, the book's main purpose in England would be to furnish a means of comparing American problems and the American outlook with our own. From this standpoint the English reader will be left in no doubt that there are big differences in matters of detail between the two countries, notwithstanding a close similarity of fundamental outlook. This is instanced by the relatively greater emphasis given in the U.S.A. to statistical researches into the need for medical care, the place of voluntary agencies, and the statistical evaluation of the efficiency of health programmes.

On the other hand, papers from the pens of C. Winslow, Professor Emeritus of Public Health at Yale, Hugh J. Morgan, and Louis I. Dublin—discussing respectively the evolution of public health and its objectives, public health, preventive medicine, and the practising physician, and public health and the diseases of old age—bring out resemblances between the evolution of public health thought, current practical problems, and aspirations for the future of preventive medicine on both sides of the Atlantic.

The topics covered by this stimulating symposium are too diverse to permit of any short summary of their scope, but chapters on subjects like world health, and public health problems connected with aviation and the atomic era, clearly have an interest which transcends national boundaries.

This is not a book which most people will read from cover to cover, at all events in this country. But almost every reader will find sections of great interest—some factual, and others somewhat philosophical. For the Englishman who is already acquainted with the public health services of the United States the book will have a special appeal, as it will also for teachers of preventive and social medicine and for the reader who wishes to have an American account of certain aspects of international medicine. The book should find a place on the shelves of medical libraries because of the facts, ideas, and appraisals it contains.

FRED GRUNDY.

STUDY IN NEUROSIS

The Neurosis of Man. By Trigant Burrow, M.D., Ph.D. (Pp. 428; illustrated. £1 8s.) London: Routledge and Kegan Paul. 1949.

This is not a book for holiday reading and it is difficult to understand even by patient study. I agree with a criticism of his views which the author himself quotes (p. 19): "It is not only that I find them hard to read because of the unfamiliar vocabulary and locutions; . . . I experience a positive feeling of opposition every time I read his work."

It is stated by the publishers that the book "sets aside discussion and opinion respecting human maladjustments and introduces a much-needed science of human relations." But the first few chapters are full of dogmatisms without shadow of proof or clinical illustration—indeed, the views are described as "a development away from clinical psychiatry."

The attitude adopted in the book may be illustrated by a few quotations. The author says (p. xiv): "In a moment of evident vexation, Freud once remarked to a mutual colleague of ours, 'Does Burrow think he is going to cure the world?' to which my unequivocal reply was, 'I most certainly do.'" "Our whole purpose . . . was to discredit all there was of man's behaviour prepossessions—all the inherited mental and social constructions habitually cherished by us—and to build anew." And on p. xvii: "It is a supreme effort to put into the hands of man what belongs in the hands of man, and not in the hands of a few absurd mental healers."

Some basic principles of his study are fully justified—the belief in the "oneness" of human life, for example, which he describes as its most powerful instinct. Again, he considers that attention is not an isolated mental function but a reaction of the whole organism to the environment by which it performs its "instinctive" functions. His effort to carry the reader back to biological principles is also welcome, for he studies man as such, especially in his primitive relations and reactions to the environment. Hence the author's criticism of Freud in his individual analysis, and his resort to "phylo-analysis—the analysis of the psycho-organism of man." Many mistakes in psychology and psychopathology could have been avoided if we had kept "close to nature" and based our psychological speculations on biological principles. I am also pleased to see his criticism of social standards of "right" and "wrong" as our infallible guide to human conduct. But Freud has already made us aware of the danger of blindly accepting "super-ego" standards which may do violence to our own nature and so cause neurosis.

The author refutes the idea that abnormality consists in the fact that the "patient does not think and feel as the community thinks and feels" (p. 232) on the grounds that the community itself which passes such judgment is only pseudo-normal. For this he substitutes the idea that the neurosis of man consists in a "maladaptation in the functions of man's brain in respect to its environment."

The author bases his concept of the organism reaction to life on what he terms "cotension," which is "the neurodynamic relation of organism to environment as it exists natively and indifferentiated within the cerebro-sympathetic system" and "relates the organism kinesthetically to the outer world" (p. 216). Cotension, for instance, enables us to perform the extremely complicated process of balancing with our eyes closed. Just as the skeleton is the organism's structural framework, so is cotension the organism's functional support (p. 247). But this primary tensional pattern has been superseded by ditension, one of the main causes of which appears to be the imposition of social patterns upon the individual, with its false dichotomy of "right" and "wrong" giving rise to a pseudo-identity or "I"-persona, so that it is difficult to recall the original submerged pattern. The real conflict in man is between the "I"-persona and this organism. Cotension means integration, co-ordination, and health, ditension means disintegration, disorder, and disease (p. 247). Neurosis appears to consist in the denial of this primitive adaptation of man to his environment in favour of the "I"-persona. This is not a problem of this or that individual, but a problem of man as such, and requires the reorientation of all our values, moral as well as social.

In practice the author protests against the teaching of parents who have been "brought up in the meshes of moralistic dichotomy," and who therefore inculcate in the child the vacillating law and vague shibboleths we call right (p. 83). Instead of this he proposes to "inculcate in the child a sense of its relation as an organism to its environment."

J. A. HADFIELD.

FUNCTIONAL PATHOLOGY

Die Permeabilitätspathologie. By Professor Hans Eppinger. (Pp. 755; 145 figures; unbound, £7 2s. 6d.; bound £7 7s.) Vienna: Springer. 1949.

According to Eppinger the general theory of pathology requires three concepts—cellular pathology, humoral pathology, and permeability pathology, which is the logical completion of the other two. For most pathologists, at any rate in the English-speaking world, the concepts of cellular and humoral pathology have lost their importance, the phenomena which gave rise to them having been vastly extended and regrouped. Humoral pathology has been transmuted into a separate group of disciplines, including physical chemistry, serology, and haematology, and the cell is now thought of as a complex biochemical system rather than as a little ball with a smaller one inside it. Modern pathologists are perhaps more physiological in outlook than they themselves realize, for they regard the histological section as simply a snapshot of one phase in a series of processes, clinical or experimental; they are all in varying degree functionalists, and the boundaries between cellular and humoral pathology have vanished.

Eppinger's book is a discussion of the role of membranes in disease, of physical chemistry applied to pathology. Most of it is concerned with general pathology, and among the many phenomena discussed are tissue fluids and cell metabolism, electrical phenomena at cell surfaces, oedema, albuminuria, histamine poisoning, and anaphylaxis. The last third of the book describes the special pathology of the kidneys, liver, and circulatory and alimentary systems.

The author's outlook is that of the nineteenth century, and the giants of German pathology so fascinate him that he neglects his contemporaries. The references are often very old, and the work of the past decade is hardly noticed. Much miscellaneous information is given, but in the main the book is platitudinous and extremely verbose. This is not the fault of the German language, which can be as crisp and clear as the best English; it is due rather to looseness of thought that might possibly be put down to advancing years or the stress of war. The book may well serve as a reminder that even the ablest writers pass the meridian, and that a time comes when it is best to be silent. The most attractive feature of the book is the author's affection for Rokitansky; in this many pathologists will be at one with him.

RAYMOND WHITEHEAD.

THE CHEMISTRY OF FOODSTUFFS

Elements of Food Biochemistry. By William H. Peterson, Ph.D., John T. Skinner, Ph.D., and Frank M. Strong, Ph.D. (Pp. 259; 34 figures. 21s.) London and New York: Staples Press. 1949.

In nutrition, you cannot be said to have your cake until you have eaten it. Many popular works on food stop short at the mouth of the consumer, but the purpose of this book by the Professor of Biochemistry and his colleague at the University of Wisconsin, and Dr. Skinner of the Kentucky Agricultural Experiment Station, is "to emphasize the chemistry of the constituents of food and the chemical changes that these constituents undergo in the process of metabolism." The exposition throughout is clear and precise, and a large amount of information is neatly arranged and tabulated in a relatively small volume. Separate chapters describe each chief class of nutrient; economic as well as dietetic factors are considered; important chemical reactions are specified; and each section is equipped with a short bibliography and a list of questions that will be helpful to busy examiners.

The figures are mostly selected from previously published photomicrographs of crystalline nutrients. While these have their value in showing the student that the substances have been isolated and "really exist," none of the illustrations gives any indication of the scale of magnification—the budding yeast cells in Chapter II are nearly as large as the nutritionally deficient rat, of unspecified age or weight, in Chapter VI.

In a book designed to emphasize the dynamic as well as the static aspect of food chemistry no mention is made of Frazer's important work on the mechanism of fat absorption, nor the use of tracer isotopes in metabolic studies, nor the applications of chromatography and microbiological assay to the estimation of the individual amino-acids and vitamins in the blood. This may be related to the fact that the bibliographical references do not go beyond 1942. The appendix of 22 pages contains extensive tabulations of the composition of foods, and includes valuable hitherto uncompiled data for the vitamins of the B group, based on work done in the Biochemical Laboratories at the University of Wisconsin.

W. R. FEARON.

The departments of Child Health and Medical Illustration, Guy's Hospital, are to be congratulated on the design of a card depicting breathing exercises for children from 5 to 10 years of age (*Special Breathing Exercises for Children*; 9d. each; Guy's Hospital, London). The card is constructed so that it can be stood on a mantelpiece to catch the child's attention. The amusing illustrations will undoubtedly attract the notice of all who enter the room, the brief directions are explicit, and the exercises entertaining. It still remains doubtful, however, how much good (or harm) breathing against resistance can do, so that the balloon exercise might with advantage be omitted.

The greater part of Dr. C. Berg's *Clinical Psychology* (pp. 503; £1 5s.; London: Allen and Unwin, 1948) is made up of graphic accounts of cases in the process of analysis. The theoretical background is substantially orthodoxly Freudian in character, but the more recent theories of depression, destructive impulses, and introjection-projection mechanisms in early childhood are not given sufficient weight. The complex pre-oedipal life of the child is very sketchily conveyed. This is a serious omission, as it would have enhanced the author's thesis of the tenuous frontiers separating psychosis from neurosis. The treatment section is very fair, and Dr. Berg adopts the more catholic technique of restrained interpretation as against the early sallies into interpretation by the more advanced or Kleinian wing of Freudian psychopathology. For those embarking on a psychiatric career this book is well worthy of study, and by the experienced analyst it will be read as a stimulus to lively discussion on points of technique and theory.

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

British Surgical Practice. Edited by Sir Ernest Rock Carling, F.R.C.S., F.R.C.P., and Sir James Paterson Ross, K.C.V.O., F.R.C.S. Vol. 6. (Pp. 554. 60s.) London: Butterworth. 1949.

Operative Technic in Specialty Surgery. Edited by W. H. Cole, M.D., F.A.C.S. Introduction by A. O. Whipple, M.D., F.A.C.S. (Pp. 725. $14.) New York: Appleton-Century-Crofts. 1949.

Mästung durch Steigerung der Nebennierenrindenfunktion. By I. G. Fazekas. Introduction by J. Baló. (Pp. 213. No price.) Szeged, Hungary: Szeged Stadtische. 1949.

Morbus Caeruleus. By S. Eek and others. Edited by E. Mannheimer. Bibliotheca Cardiologica. Fasc. 4. (Pp. 332. No price.) Basle and New York: Karger. 1949.

Trial of Nikolaus von Falkenhorst. War Crimes Trials Series. Edited by E. H. Stevens, O.B.E., LL.B. Foreword by the Rt. Hon. Sir Norman Birkett, P.C. Vol. 6. (Pp. 278. 18s.) London: William Hodge. 1949.

Visual Development. By J. H. Prince, F.R.M.S. Foreword by Professor H. Hartridge, M.D., F.R.S. Vol. 1. (Pp. 418. 50s.) Edinburgh: Livingstone. 1949.

A General History of Nursing. By L. R. Seymer, M.A.Oxon., S.R.N. (Pp. 332. 21s.) London: Faber. 1949.

A Year with Osler. 1896-1897. By J. H. Pratt. (Pp. 209. $4.) Baltimore: The Johns Hopkins Press. 1949.

Ultraviolette Strahlen. By A. E. H. Meyer and E. O. Seitz. 2nd ed (Pp. 390. M. 34.) Berlin: Walter de Gruyter. 1949.

The Portraiture of William Harvey. By G. Keynes, M.D. Cantab., F.R.C.S.Eng. (Pp. 42. No price.) London: The Royal College of Surgeons of England. 1949.

Tristezas do Manicomio. By G. A. de Rezende. (Pp. 94. No price.) Rio de Janeiro: Henrique M. Sondermann. 1941.

Mysterious Marriage. By E. G. Howe, M.B., D.P.M. (Pp. 320. 15s.) London: Faber. 1949.

Der Liquor. Untersuchung und Diagnostik. By H.-H. Meyer. (Pp. 191. M. 24.) Berlin: Springer. 1949.

Étude Semiologique du Tonus Musculaire. By André-Thomas and J. de Ajuriaguerra. (Pp. 844. 2,000 francs.) Paris: Editions Médicales Flammarion. 1949.

Photoradiography in Search of Tuberculosis. By D. Zacks, M.D. (Pp. 297. 40s. or $5.) London: Baillière, Tindall and Cox.

Transactions of the Sixty-Seventh Meeting of the American Surgical Association. Edited by J. H. Gibbon, Jun., M.D. Vol. 65. (Pp. 695. No price.) Philadelphia and London: Lippincott. 1947.

A Synopsis of Obstetrics and Gynaecology. By A. W. Bourne, F.R.C.S., F.R.C.O.G. 10th ed. (Pp 522. 21s.) Bristol: John Wright. 1949.

The Infancy of Speech and the Speech of Infancy. By L. Stein, M.D., F.C.S.T. Foreword by E. J. Boome. (Pp. 209. 21s.) London: Methuen. 1949.

Catalogue of an Exhibition of Books, Manuscripts and Relics Commemorating the Bicentenary of Edward Jenner. (Pp. 36. 2s.) London: The Wellcome Historical Medical Museum. 1949.

Diabetes and its Treatment. By J. H. Barach, M.D., F.A.C.P. (Pp. 326. 50s.) London: Geoffrey Cumberlege, Oxford University Press. 1949.

Blood and Plasma Transfusions. By M. M. Strumia, M.D., and J. J. McGraw, Jun., M.D. (Pp. 497. $7.50.) Philadelphia: Davis. 1949.

Green's Manual of Pathology. Revised by H. W. C. Vines, M.D. 17th ed. (Pp. 1,200. 42s.) London: Baillière, Tindall and Cox. 1949.

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GENERAL PRACTITIONERS' REMUNERATION

Rejecting the claim of general practitioners for higher total remuneration, the Secretary of the Ministry of Health argues,[1] first, that in view of the amount now being paid "no reasonable case can be made for any increase," and, secondly, that the economic state of the country prohibits an increase at present. The profession's claims were set out in a report[2] prepared by the General Medical Services Committee and approved by the Special Conference of Representatives of Local Medical Committees on March 3. They were sent to the Ministry on March 4, and on March 29 the Representative Body supported them.

The Ministry meanwhile sought information from executive councils on how much had been paid to general practitioners. It was unable to present the results of its inquiry until August 18, and on September 23 found itself ready to discuss them with a deputation from the General Medical Services Committee. At that meeting the deputation drew attention to a number of inaccuracies in the document, and the Ministry admitted them; some seemed to be mistakes in arithmetic; others were due to disregard of one or two highly relevant factors. The Ministry promised to correct its mistakes, but that, in the Ministry's words,[3] "involved a good deal of research." Therefore on October 27 the Conference of Representatives of Local Medical Committees, after deploring the Ministry's delay in the matter, resolved that, as the central pool could be properly calculated without redrafting the Ministry's document, the calculation should now be made in agreement with the representatives of the general practitioners. Sir William Douglas's letter is the response to this demand.

The size of the central pool depends in the first place on the Spens recommendations, which were formulated in terms of the 1939 value of money, and the Ministry agreed with the B.M.A. that the pool, in those terms, should be £31.24 million. In order to convert this sum into one that reflects the higher cost of living to-day the Ministry assumed that practice expenses—taken as 40% of gross remuneration—have increased by 55%, and it added 20% (determined in 1946) to the net income. The betterment factor on gross incomes compounded from these calculations is 34%, and this brings the pool up to £41.46 million. Since the population of the country was estimated to have increased since 1939 by 3%, £1.24 million was added, making £42.7 million. The profession agreed with the Ministry that 95% of the population might be expected to use the Service, so the pool was reduced to £40.57 million. When the present population of the country is accounted for, the central pool for the financial year 1949–50 becomes £41.3 million.

An increase of 34% clearly does not reflect the change in the value of money since 1939. The B.M.A. took the advice of an expert economist, who concluded[4] that the cost of living of the professional classes had in 1948 risen by 85% above the 1939 cost. In putting its claim before the Ministry the B.M.A. argued that it was justifiable to ask for an increase of 70%, and, after other minor adjustments had been made, the Association's claim differed from the Ministry's estimated central pool by about £16.5 million.

The Ministry has tried to bridge this gap from both ends, though the structure does not quite meet in the middle. In the first place it has added to the central pool of £41.3 million the sum of £7.5 million derived from various additional sources such as payments for maternity medical services, provision of drugs, training assistants, and the Exchequer superannuation contribution. It thus brings the total amount to be paid to general practitioners in the financial year 1949–50 up to the sum of £48.8 million. Working from the other end, and assuming that there are 18,936 principals in general practice instead of the 20,000 estimated by the B.M.A., the Ministry has calculated the central pool in accordance with the Association's betterment factor of 70% to be £53.5 million. The difference between the two totals is £4.7 million, or about two shillings on the capitation fee. The Ministry points out that there are some other sources of income derived from the Exchequer to be considered also, such as payments for dental anaesthetics and work done for local authorities.

The General Medical Services Committee will meet on December 1 to consider these figures, and no doubt its members are aware, as the Minister of Health is said to be, of the "vital national need to avoid any unjustified raising of remuneration in any field." Had the same figures been discussed six months ago—as they would have been if the Ministry had been less dilatory—a decision could more simply have been made. Again, the situation may be easier—or more difficult—in six months' time. But on December 1 the committee will have a harder choice before it than the Minister's opinion quoted above would suggest. For it is not a

[1] *British Medical Journal Supplement*, 1949, 2, 218
[2] Ibid., 1949, 1, 83.
[3] Ibid., 1949, 2, 200
[4] Ibid., 1949, 1, 31.

question of an "unjustified" increase being claimed but one that is related to the Spens Report, which the Government accepted in principle.

UNDERNUTRITION IN EUROPE

Opportunity to study the effects of prolonged undernutrition on the human body was all too frequent in Europe during and after the war, and several observers have published books on the subject. The findings of Brull and his assistants[1] are particularly interesting, for they were obtained by detailed studies on the general civilian population of all age groups over 14 years during the German occupation of Belgium. Their work is selective in that the individuals investigated were those who presented themselves at the Medical Clinic of the University of Liége. They undertook also special studies of small groups of school-children and heavy workers. Body weights were reduced by about 12% by the middle of May, 1941. During the following 12 months a further slight fall (12.9%) was observed. Between May, 1942, and the end of January, 1944, body weights rose slowly and were 7.8% below normal on the latter date. Disorganization of transport in the spring of 1944 caused a sharp decline to the level of May, 1941. In spite of these weight losses plasma-protein concentrations remained within the normal range: the mean value (3,137 observations) was 6.99 g. per 100 ml. Blood pressure fell (systolic and diastolic) on an average by 20 mm. Hg for a weight loss of 10 kg. There was no significant fall in haemoglobin concentrations between January, 1940, and October, 1944 (9,794 patients). In the adolescent group normal weights and heights were recorded in February–April, 1942: no signs of anaemia or of avitaminosis were found, but a slight fall in plasma-protein concentration, blood cholesterol, and phospholipids was noted. The heavy workers lost weight, but this was not sufficient to bring the level below that taken as the lower limit of normal for the age and height of the individual. This relatively small loss of weight was due to the effect of food grown in allotments or obtained through the black market. Famine oedema occurred mostly in males over the age of 40, but its frequency in the general population has not been recorded. Oedema was present even when the plasma-protein concentration was above that regarded as the "oedema level." The amounts of vitamins A, B_1, and C in the blood were estimated, and no signs of avitaminosis were found. As might be expected, the incidence of bone demineralization was extremely low: among 30,000 patients, five had osteoporosis which could be attributed to calcium and phosphorus deficiencies. Four of the five were females over 59 years of age; one case occurred in a young man who had suffered from severe undernutrition. Gastro-duodenal ulceration increased in frequency during the first year of the occupation; this was attributed to emotional factors.

Simonart[2] investigated undernutrition in prisoners in Louvain Gaol. As the reduced ration could not be supplemented, the effects of known diets could be observed and the results of various therapeutic measures assayed with accuracy. The classical work of Benedict on starvation was amply confirmed. Simonart, however, studied in some detail the role of vitamin B_1 (aneurin) in water and carbohydrate metabolism. Apparently the intake of this vitamin was below the normal requirements, for signs and symptoms of beriberi appeared: he found that intravenous injections of aneurin not only increased muscular power but when oedema was present they assisted the kidneys to eliminate water. He confirmed Brull's finding that famine oedema is not related to the plasma-protein concentration. In several of his cases the globulin fraction of the plasma protein was increased above normal, but a constant finding was that the serum albumin was reduced. When refeeding was possible, he was of the opinion that vitamin B_1 increased the rate of albumin regeneration. An interesting observation was that the blood pyruvate was raised; he related this to the vitamin B_1 deficiency. This is important for the light it throws on the intermediary metabolism of carbohydrate in man. Most of Simonart's clinical observations agree with those made by Brull and his colleagues, but the signs and symptoms were much more severe in the Louvain patients. Sudden heart failure was the usual cause of death. Coma, indistinguishable from diabetic coma, occurred and was treated by infusions of glucose solution.

The condition of the Louvain prisoners was intermediate between the undernutrition observed by Brull and the extreme emaciation of the majority of the 296 patients who came under the care of a team of Swiss workers headed by Hottinger.[3] Body-weight losses of 40–50% were common in this group. The similarity between the clinical conditions found and those described by Mollison[4] in the inmates of the Bergen-Belsen concentration camp is close. Many of the patients had skin infections, typhus and typhoid fevers, or tuberculosis. The Swiss workers have provided much information about the value of different methods of treating these starved persons. They also report in detail the pathological findings in 53 necropsies. These records are accompanied by a critical survey of the literature on every aspect of the starvation state. They began treatment with a "transition" diet, which was

[1] *Les États de Carence en Belgique pendant l'Occupation Allemande*, 1940–4, 1945. Liége: Editions Solidi. Paris: Hermann.
[2] *La Dénutrition de Guerre*, 1947. Brussels: *Acta medica belgica*. Paris: Maloine.
[3] *Hungerkrankheit, Hungerödem, Hungertuberkulose*, 1948. Basle: Schwabe.
[4] *British Medical Journal*, 1946, 1, 4.

given in small frequent meals (5–6 per day). This diet was rich in protein and contained only a small amount of fermentable carbohydrate and of fat. It amounted to approximately 2,500 calories per day. After 4–5 days a diet containing 4,500–5,000 calories was given: this, too, was rich in protein, low in fat, and contained little fermentable sugar in its carbohydrate fraction. Cases of anaemia and hypoproteinaemia were treated with blood transfusions and plasma infusions. Where necessary, cardiac weakness was treated with the usual cardiac stimulants. As avitaminoses were common, vitamin supplements were given. These provided vitamins A, B complex, C, D, and E (tocopherol) in quantities equal to about double the daily requirement of a normal adult.

INFECTION IN THE NURSERY

With the increasing demand for maternity beds the medical and nursing staffs of maternity departments have a heavy responsibility to ensure that proper precautions are taken to protect both mother and baby against the risk of infection. The newborn baby has little capacity to withstand infection even by bacteria of low pathogenicity, and a loose stool or pimple on the skin may be the danger signal of an outbreak that will cause havoc in the nursery, particularly among premature and artificially fed infants. However, most of the infections, the incidence of which has varied in recent reports from 3 to 30%, are relatively mild and, as Dr. Janet D. Roscoe pointed out in last week's *Journal* (p. 1144), affect principally the eyes ("sticky" eye) and the skin, with the staphylococcus as the most frequently found organism. Coagulase-positive staphylococci are common in the maternity nursery; they have been found in the noses of half the staff and 80–90% of the babies, in the throats and faeces of 20–50% of the infants, and in the dust and on bottles, towels, napkins, and the like. What is not yet known is whether these potentially pathogenic staphylococci vary in their capacity to initiate infection. Serological and phage typing of the staphylococcus may help to give the answer, and already there is some evidence that certain phage types are particularly associated with outbreaks of pemphigus.[1] Certainly when an outbreak of pemphigus is bacteriologically investigated it is usual to find a widespread dissemination of the infecting type, but more studies are needed on the distribution and types of staphylococci in non-epidemic periods. It might well happen that one type will establish itself in the nursery in the absence of infection, and this is likely to occur when penicillin is being used indiscriminately, with the emergence of a penicillin-resistant strain. Should an infant's skin be made more susceptible to attack by the use of a rough towel or cheap soap or the conjunctiva by prophylactic silver nitrate, the prevalent staphylococcus becomes the infecting strain and may thus be wrongly identified as an "epidemic" type. It is possible that invasiveness—the power to attack healthy tissues—is particularly associated with certain types of the staphylococcus, as seems to be the case with the pneumococcus. It has already emerged that the capacity to produce enterotoxin is limited to two or three types of the staphylococcus—in particular types 6/47 and 42D[2]; but, as Dr. G. Martyn demonstrated in a paper appearing in last week's *Journal* (p. 1146), the mere finding of enterotoxic staphylococci in the faeces of infants does not mean that these types are aetiologically associated with infantile enteritis.

With the coliform group of organisms, too, there may be "epidemic" and "endemic" types, for two serological types of *Bact. coli* have been recently found in association with outbreaks of gastro-enteritis. The studies of Drs. A. M. McFarlan, P. B. Crone, and G. H. Tee, whose paper on the normal bacterial flora in infancy also appeared in last week's issue (p. 1140), indicate that the opportunities for the spread of coliform organisms, as shown by their presence in the throat, are much greater in artificially fed infants, among which outbreaks of diarrhoea or vomiting mostly occur, than in breast-fed babies. However, the value of such studies would be considerably enhanced if the staphylococci, coliform organisms, or faecal streptococci found on the mucous membranes could be precisely identified by serological or phage typing, so that the introduction of a new strain, perhaps with pathogenic properties, could be recognized and related to any infective episode that might occur.

Meanwhile the wide variation in the amount of nursery infection suggests that conditions could be improved in many maternity departments. Pupil midwives and nursery nurses need to be taught that babies require very different handling from adults, and they should be instructed in the dangers of cross-infection in hospitals and the means of controlling it, as outlined in the Medical Research Council's Memorandum[3] on the subject. The new Ministry of Health film entitled "Tracing the Spread of Infection" would be a useful introduction to such instruction. The use of small units of four to six beds which can be filled within 1–2 days and cleaned between each new "intake" may also be recommended as a method of reducing hospital cross-infection[4] and has other advantages. The large often overcrowded nursery is fast becoming an anachronism, while the need for special units for premature babies is being increasingly recognized. Above all, breast-feeding with the minimum of supplementary feeds should be the objective in all maternity departments.

[1] Allison, V. D., and Hobbs, B. C., *British Medical Journal*, 1947, 2, 1.
[2] —— *Proc. Roy. Soc. Med.*, 1948, 42, 216.
[3] *The Control of Cross Infection in Hospitals*, Medical Research Council Memorandum No. 11, 1944. London: H.M.S.O.
[4] Fraser, M. J. L., *Arch. Dis. Childh.*, 1948, 23, 107.

INTRAVENOUS PROCAINE

Although procaine was discovered by Einhorn in 1905 its intravenous use is comparatively recent, for standard textbooks on anaesthesia have pointed out for over 40 years that delirium, convulsions, and death might result from the injection of procaine directly into the vascular system. This is indeed true if a large dose is rapidly given, as many have testified since the drug was introduced. The first deliberate intravascular injection appears to have been given by Leriche and Fontaine[1] in 1935 for the treatment of endarteritis obliterans. During the war, following Lundy's observation that it relieved the pruritus of jaundice,[2] intravenous procaine was used to secure analgesia for the dressing of burns and wounds, and it was observed that it caused far less respiratory depression than morphine. It soon became clear that comparatively large amounts of procaine could be administered intravenously with safety if given slowly. The drug has been used in the last few years for a surprisingly large number of clinical conditions, ranging from "allergy to angina and pruritus to parturition."[3] There is no doubt that intravenous procaine can relieve pain without causing loss of consciousness or respiratory depression; this makes the drug particularly useful in the management of traumatic, inflammatory, and spastic conditions, and for the relief of pain in peripheral vascular disease. Not only is it analgesic but it causes peripheral vasodilatation. Fraser[4] and Mackersie[5] have supplemented thiopentone anaesthesia with intravenous procaine, and other workers have used it, with apparent success, to obtain analgesia in labour.[6-8]

There is evidence that cardiac irritability is reduced by procaine, which, in fact, is nearly as active as quinidine in this respect. It is now the practice of some anaesthetists to give procaine in an intravenous drip throughout thoracic operations because it not only prevents cardiac arrhythmias but abolishes the cough reflex, minimizes bronchospasm, relieves post-operative pain for several hours, and enables adequate analgesia to be maintained with smaller amounts of other agents.[5 9] Siddons and Landau[10] have recently used it in the treatment of post-operative atelectasis; the patient is given an intravenous injection which enables him to cough violently without pain. In a paper appearing elsewhere in this issue Dr. H. E. Pooler refers to the high incidence of pulmonary complications after operations on the upper abdomen. He used procaine by intravenous drip as a method of maintaining the vital capacity after an operation at its pre-operation level, and concluded that though this greatly relieved pain the increase in vital capacity was comparatively small. Good results with intravenous procaine have been reported in allergic states, such as serum sickness, drug and antibiotic sensitization reactions, asthma, and urticaria, though it has not been shown pharmacologically that it possesses an antihistaminic action.

Great care must be exercised in administering procaine intravenously owing to the danger of convulsions and respiratory failure, and facilities for the treatment of these complications should be at hand. Graubard and his coworkers[11] recommend a dose of 4 mg. of procaine per kilogramme of body weight; this is injected in a 0.1–0.2% solution over a period of 20 minutes. This calculated dose is usually tolerated without toxic effects. The rapid administration of a 1% solution is sometimes used for the treatment of cardiac arrhythmias or status asthmaticus. If convulsions occur as the result of the injection they are treated with an intravenous barbiturate such as thiopentone, and circulatory and respiratory depression with ephedrine or *d*-desoxyephedrine and controlled respiration.

1 *J. Chir., Brux.*, 1935, 34 537.
2 Lundy, J. S., *Clinical Anesthesia*, 1942, Philadelphia.
3 Mushin, W. W., and Rendell-Baker, L., *Lancet*, 1949, 1, 619.
4 *Curr. Res. Anesth.*, 1949, 28, 203.
5 Ibid., 1949, 28, 213.
6 Allen, F. M., *Amer. J. Surg.*, 1945, 70, 283.
7 —— *et al.*, *Curr. Res. Anesth.*, 1946, 25, 1.
8 Johnson, K., and Gilbert, C. R. A., ibid., 1946, 25, 133.
9 Bittrich, N. M., and Powers, W. F., ibid., 1948, 27, 181.
10 *Lancet*, 1949, 2, 419.
11 *Curr. Res. Anesth.*, 1948, 27, 222.

TOTAL CYSTECTOMY

Tumours of the bladder vary considerably in their malignancy, but even benign growths tend to undergo malignant change if inadequately treated. While local removal or destruction is satisfactory in some cases, there are many in which the size, multiplicity, or situation of the growths makes more radical treatment necessary. In a number of these cases the tumours are of low-grade malignancy and can be removed in their entirety by excision of the bladder. The need for diversion of the urinary stream before cystectomy no doubt partly explains why this operation has not found greater favour with surgeons in the past. With cutaneous ureterostomy a double urinary fistula is an unpleasant necessity, and the method of choice is transplantation of the ureters into the colon. The fear of ascending infection of the kidneys is largely unfounded, for, as Ferris and Priestley[1] have pointed out, a kidney which has good drainage whether to the bowel or the skin seldom becomes seriously infected except by the blood stream. Once the technique of transplantation can be successfully mastered the removal of the bladder presents a less serious problem, unless there is gross infiltration. Ferris and Priestley reported a fatality rate of 13% in 119 cases treated in hospital; over a 10-year period they have reduced the number of stages of the procedure from three to two, and finally, as they acquired familiarity with the operation, to one in selected cases. They have adopted the intraperitoneal rather than the safer extraperitoneal operation, since they found that it could be accomplished with reasonable expectation that leakage at the site of anastomosis would not occur. The relative safety of the extraperitoneal operation has been pointed out by Riches,[2] who reported a fatality rate of 8.3% in 60 cases in which transplantation was carried out; in 49 of these the operation was undertaken for new growth of the bladder or urethra.

The results of cystectomy were further improved by Jewett and Lewis's[3] finding that curability in deeply infiltrating tumours was very low, but that it increased when only the submucosa or the superficial muscle layer was infiltrated. They also showed that the degree of infiltration could be assessed before operation by bimanual examination under full anaesthesia—the detection of a rubbery or stony mass almost invariably indicating deep infiltration. This is the most important single clinical method of distinguishing between the cases in which operative treatment is

1 *J. Urol.*, 1948, 60, 98.
2 *Brit. J. Urol.*, 1949, 21, 51.
3 *J. Urol.*, 1948, 60, 107.
4 *British Medical Journal*, 1949, 1, 221.
5 *Proc. R. Soc. Med.*, 1933, 26, 1214.

likely to be successful and those in which the growth will recur after total cystectomy. Sworn[4] has recently reported in this *Journal* six cases in which he performed cystectomy with no operative mortality; he transplanted the ureter by embedding it in the bowel wall in continuity before its division. This method was described by Winsbury White[5] in 1933; it has the advantage of establishing firm union between ureter and bowel before either is opened, but it is no less liable to produce constriction at the anastomosis than other methods, and late results must be judged by renal function and by the appearance or otherwise of pelvic dilatation. Sworn's second case, in which the growth was fixed to the pelvic wall, would have been included in the unsuitable group by Jewett and Lewis, and the early recurrence was to be expected. It is a sign of progress that more surgeons are successfully undertaking this extensive operation; there would be even greater cause for satisfaction if more patients were examined with the cystoscope at an early stage of the disease, when such a formidable undertaking is less likely to be necessary.

CANCER AMONG DIABETICS

The proportion of diabetics who have cancer has been placed at from 1–9% by various workers, but the evidence on which their findings have been based has not been conclusive. The problem of discovering whether cancer occurs more frequently among diabetic patients than among the rest of the population appears to be quite simple at first sight, but objections can be raised to several procedures that have been used in attempts to produce a solution. Mortality data are readily available, but the use of cancer deaths to measure the association with diabetes may be unreliable owing to the absence of concurrent conditions on the death certificates. With an accepted major cause of death such as cancer the physician may not report associated conditions, especially if they did not contribute to death. It seems unlikely, therefore, that a study of the associated causes of death on death certificates will lead to an unbiased answer. Objections to the use of clinical data can be raised on several grounds, but chiefly because the patients may not be representative of the general population of diabetics.

Jacobson[1] has reviewed the work of previous investigators and has analysed the data collected by the National Health Survey of the urban population of the United States during the winter of 1935–6. This survey included 2,500,000 persons, among whom there were 2,912 males and 5,278 females (aged 25 and over) reported as diabetic. Cancer was recorded for 18, or 0.6%, of the diabetic males and 37, or 0.7%, of the females. The diabetics had more cancer than the general population questioned during the survey, and the ratio of the observed to expected cases was 1.26 for males and 1.43 for females. The excess among males could have arisen by chance, but for the females and for both sexes combined the excess was statistically significant. The possibility that this excess was due to cancer of the pancreas was examined. Analysis of the mortality and morbidity data showed that this hypothesis was not a complete explanation. An apparent excess of cancer of the pancreas among diabetics might, of course, be explained by the greater likelihood of diabetes being reported when this organ is affected than when cancer occurs elsewhere. The evidence brought forward by Jacobson supports the hypothesis that the incidence of cancer is higher among diabetics than among non-diabetics, but information obtained by canvass of households is subject to possible bias and may perhaps be diagnostically inaccurate. Despite these difficulties, this method avoids some of the objections that can be raised against data collected from death certificates or hospital records.

[1] *Milbank mem. Fd Quart.*, 1948, 26, 90.

AUTOTRANSPLANTATION OF JOINT CAPSULE

In the aetiology of the rheumatic diseases allergic reactions have been regarded by many investigators as of great importance. Desensitization has therefore been the aim of several methods of treatment, but the results have not been always successful. In 1931 Forbes Mackenzie[1] published the case of an elderly woman with arthritis who fractured the neck of her femur. From the time of admission to hospital her arthritis steadily improved, she became much more active, the fracture united well, she lost her rheumatic pain and anaemia, and in her own words became a "new woman." Impressed with this result, Forbes Mackenzie decided to operate in certain cases of severe arthritis, including cases of Still's disease, by trephining the shafts of long bones, and obtained encouraging results. He found rarefaction and decalcification of the bone, and that the marrow had undergone a degenerative change, running out of the bone as a thin oily fluid, cultures of which were negative. These results were reported in the *Australian Medical Journal* in 1931 and in the *British Medical Journal*[2] in 1936, but afterwards seem to have been neglected. It is probable that the improvement obtained with this method of treatment rarely lasted long, as was the experience with treatment by injection of the patient's own blood.

Temporary improvement has often been noticed in rheumatic patients after operation on bones or joints and has been attributed to the entry into the circulation of antibodies from the damaged tissues. Novotny,[4] a Norwegian surgeon, was impressed with this effect, which often lasted for months, though most patients eventually relapsed. As injection of the patient's own blood was so commonly ineffective, he concluded that the improvement after operation might be due to the liberation of sessile antibodies from the damaged rheumatic tissues. Bray[5] had already suggested that the mobilization and introduction of sessile antibodies into the circulation might have a desensitizing action. Novotny therefore sought for a means of prolonging this effect, and about ten years ago he decided that it might be achieved by the excision of a piece of capsule from an affected joint and its subsequent transplantation. He has now reported the results in twelve cases of an operation in which he removed pieces of the capsule of the knee-joint and transplanted them in the abdominal wall in close contact with the deepest layers of the skin to take advantage of the active desensitizing power of the skin. In some cases he sought to prolong the effect

[1] *Med. J. Aust.*, 1931, 1, 441.
[2] Ibid., 1932, 2, 690.
[3] *British Medical Journal*, 1936, 1, 306.
[4] *Acta med. scand.*, 1948, 129, 524.
[5] *Recent Advances in Allergy*, 1937, London.

by the subcutaneous injection of an extract prepared from a section of the capsule, but he has not yet made a large enough number of observations to report on this.

Results of the operation have been encouraging so far. Novotny describes some of his cases in detail and discusses the underlying pathology: the series included one of gout and one with a history of gonorrhoea many years previously, though it was probably a rheumatoid rather than a gonorrhoeal arthritis. He recognizes that unless the source of the allergen is sought for and removed, or unless it has died out over the course of years, the effect of treatment may not be of long duration. While the number of cases investigated is insufficient to justify any final conclusions, this method of treatment deserves further study.

NEW HOUSES

The well-being of the population, as reflected in the vital statistics, continues to improve in spite of the fact that many still live in conditions in which even to achieve cleanliness is a triumph. A few years ago it was estimated that about one-third of the houses in this country had no bathroom, and recent building will not have greatly increased the proportion. It is of course still a commonplace for three members of a family to share a small bedroom. Whatever may be thought of the speed with which new houses have been built since the war, or of the restrictions which limit the building of privately owned houses, the care which is now being taken by local authorities in the planning and construction of houses is a great improvement on the haphazard methods of the nineteen-twenties. To see what advances have been made it is only necessary to look at the excellent photographs in the Ministry of Health's new *Housing Manual*,[1] which is a credit both to the Ministry and to the Stationery Office. In the 1944 *Manual* the emphasis was primarily on the provision of three-bedroom two-storey houses. In the new *Manual* local authorities are advised to branch out and provide homes for the elderly, for the single man or woman, for the larger family, and even for the "high-income groups," and shown how to blend site planning and house design. The larger floor area permitted since 1945 (900–950 sq. ft. compared with 800–900 sq. ft.) has given architects a chance to design houses which, though they could hardly be called spacious, do allow a family some scope to expand, especially if space heating is used to make all the rooms habitable in cold weather.

Mackintosh[2] defines the essential purpose of housing "as the provision, so far as structure and equipment can do so within limits of cost in capital and maintenance, of the conditions of comfort, health, and enjoyment needful for making a home and for the nurture of a family." He adds that this calls for a new and progressive outlook in those responsible for providing the homes of the future and the abolition of traditional and conventional ideas and methods. It now seems to be accepted that every family, and many individuals, are entitled to a separate dwelling, whether it be a house or a flat, but before this can be achieved several million more houses will have to be built, and at the same time a great many will, we hope, be pulled down. It is therefore of the greatest importance that the form of houses and towns should not, in Mackintosh's words, prove a weakness in the structure of society, and on this the Ministry's *Manual* has much useful advice to offer. In this connexion it appears from the suggested lay-outs that the interests of the community in a residential area are grouped around the following: day nursery, school, shops, church, community centre, allotments, and public house. In *Charter for Health*[3] the British Medical Association made known its views about the importance of housing in relation to health, putting good housing first among the environmental factors which determine a people's health. Only by the application of new ideas and methods will it be possible to counteract the sense of frustration voiced by Clough Williams-Ellis,[4] who asked a few years ago: "Why have to waste energy of body and of spirit in fighting all our lives against inconvenience, ugliness, dirt, overcrowding, noise, traffic delays, lack of sunlight, lack of open-air amenities, lack indeed of all or most of the basic things needed even for a merely tolerable existence, when by reasonable forethought and planning we could secure them all?"

[1] *Housing Manual*, 1949. London: H.M.S.O.
[2] *Modern Trends in Public Health*, 1949, edited by Massey, A., p. 249. London.
[3] *A Charter for Health*, 1946. London.
[4] *Plan for Living*, 1941. London.

NEW MINISTRY APPOINTMENTS

Sir Wilson Jameson, Chief Medical Officer of the Ministry of Health and of the Ministry of Education, will retire on May 11 next year on reaching the age limit. Dr. J. A. Charles has been appointed to succeed him, and Dr. G. E. Godber succeeds Dr. Charles as Deputy Chief Medical Officer. When Sir Wilson Jameson followed Sir Arthur MacNalty as Chief Medical Officer in November, 1940, he entered a period of office that was to be more arduous than any his predecessors had experienced. His energy and ability were conspicuous during the war years, when great responsibility lay on those who administered the nation's medical services, sometimes with barely adequate resources. Since the war the controversy about the National Health Service Act has put him in the difficult position of serving a Government often in conflict with the representatives of his own profession, but he has continued to serve both the Ministry and the profession's needs with distinction. Wilson Jameson, as he then was, became Dean of the London School of Hygiene and Tropical Medicine in 1931, and he was also Professor of Public Health in the University of London. In 1942 the Royal Society awarded him the Buchanan Medal for distinguished administrative service to the science and practice of hygiene. He received his knighthood in 1939, being created K.C.B. four years later; he was appointed G.B.E. this year.

Dr. Charles brings to the office a wide knowledge of medical administration gained as Medical Officer of Health of Newcastle-upon-Tyne and in his present post of Deputy Chief Medical Officer at the Ministry, which he entered in 1944. During the past few years he has paid official visits to all the Scandinavian countries—where he made a special study of the hospital and public health services—and to the U.S.A. Dr. Godber was appointed a medical officer of the Ministry of Health in 1939 and first served in the Nottingham Region. In 1946 he was appointed a senior medical officer and in 1948 became a principal medical officer. Before joining the Ministry he was Assistant County Medical Officer of Health for Surrey.

ORIGINS OF THE ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

BY

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The Royal Faculty of Physicians and Surgeons of Glasgow owed its birth to a growing appreciation of communal responsibility in matters relating to health and disease. It often happens that popular opinion, amorphous and inarticulate, suddenly crystallizes out in the enterprise and energy of one man. Such a man was Peter Lowe, the Founder of the Faculty. No reliable information exists regarding his origin and early education, but we know that he spent 30 years of his professional life on the Continent—mainly in France, where he was successively surgeon to Henry III and Henry IV, Kings of France.

As Duncan aptly remarks on the period 1566–96: "During all these 30 years France was a prey to fierce internecine religious wars . . . There could certainly be no period better fitted for a military surgeon to practise all points and operations of surgery." There is indirect evidence that Lowe was an educated man and apparently a Master of Arts, though his university was never mentioned. Characteristically ahead of his time, Lowe published his professional writings in English rather than the learned tongue. When the occasion demanded it, however, he resorted to Latin with equal facility; and his publications were liberally seasoned with references to classical authors.



MAISTER PETER LOWE

Founder of the Royal Faculty of Physicians and Surgeons of Glasgow

Peter Lowe's Campaign

Immediately after his translation from Seine to Clyde, Lowe began his campaign for the organization of medical practice in the West of Scotland; and there is abundant evidence that he used the Paris institutions as his model. In 1598 there occurred in the Kirk Session a sudden ebullition of interest in the credentials of medical practitioners, and this resulted in the inauguration of an examining board. That the exertions of Master Peter Lowe were primarily responsible for these stirrings on the waters cannot be doubted. Not content with this, however, he memorialized King James VI on the subject, and in the second edition of his work, *A Discourse on the whole Art of Chyrurgerie*, he recalls this in the following words:

"It pleased his Sacred Majestie to hear my complaint about some fourteen years ago upon certain abusers of our Art, of divers sorts and ranks of people, whereof we have good store, and all things failing, unthrifts and idle people do commonly meddle themselves with our Art, who ordinarily do pass without either trial or punishment. The matter being considered, and the abuse weighed by his Majestie and Honourable Council, thought not to be tolerated, for the which I got a privilege under his highness privy seal, to try and examine all men upon the Art of Chirurgerie, to discharge, and allow in the West parts of Scotland, who were worthy or unworthy, to profess the same."

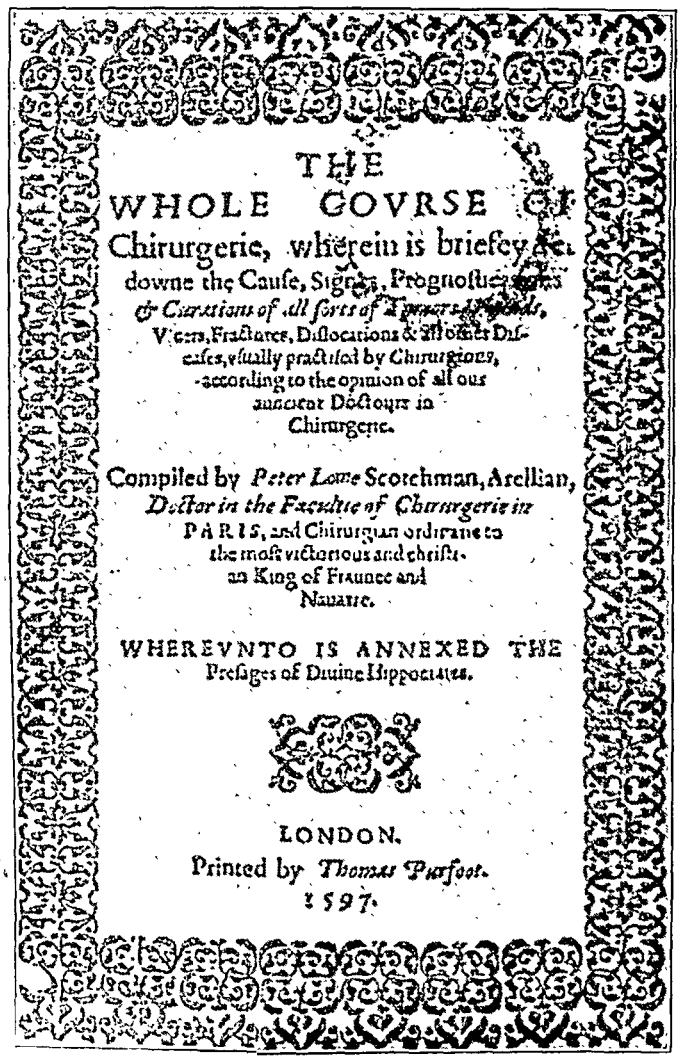
The Faculty's Charter

The Charter bears the date the penult day of November, 1599. After a brief reference to the lamentable state of medical affairs in the West of Scotland, it proceeds to confer on "Maister Peter Low, our Chirurgiane and Chief Chirurgiane to our dearest son the Prince [Prince Henry, heir apparent, who died in 1612 at the age of 19], with the assistance of Mr. Robert Hamiltone, professoure of medicine, and their successors, indwellers of Citie of Glasgow . . . full power to call before them . . . all persons professing or using the said Art of Chirurgerie."

"The Visitors"—the official designation of Peter Lowe and Robert Hamilton—were to "visit every hurt, murdered, poisoned, or other person taken away extraordinarily" and to report to the Magistrates. As regards the practice of medicine (as distinct from surgery), their powers were limited to inhibiting therefrom all but persons possessed of "a testimonial of a famous university where medicine be taught. . . ." Only drugs which had been approved by the Visitors, assisted by one William Spang, an old pharmacist of the burgh, could be offered for sale, and poisons which included "arsenick" and "sublemate" were to be sold, under pain of a fine of 100 marks, only by apothecaries, who were also charged to take caution

of the purchasers. Other duties of the Visitors are thus summarized by Duncan: to give monthly advice gratuitously to the diseased poor, to make provision for continuity of succession in the office of Visitor, to make by-laws, and to ensure the exemption of the members from taxation and personal service of specified kinds.

The comprehensive nature of the charter as an instrument of practical policy touching medical and pharmaceutical practice provides additional light on the character of the surgeon who inspired it, for it is evident that Peter Lowe returned to Scotland as a man with a mission. The distinction made between members practising as physicians and those practising as


THE
WHOLE COVRSE OF
Chirurgerie, wherein is briefely &c.
downe the Cause, Signes, Prognostications
& Curations of all sorts of Vlcers, Wounds,
Vlcers, Fractures, Dislocations & all other Dis-
eases, vsually practised by Chirurgions,
according to the opinion of all our
ancient Doctours in
Chirurgerie.
Compiled by *Peter Lowe* Scotchman, Arellian,
Doctor in the Facultie of Chirurgerie in
PARIS, and Chirurgian ordinare to
the most victorious and christi-
an King of France and
Navarre.
WHEREVNTO IS ANNEXED THE
Presages of Diuine Hippocrates.
LONDON.
Printed by *Thomas Purfoot.*
1597.

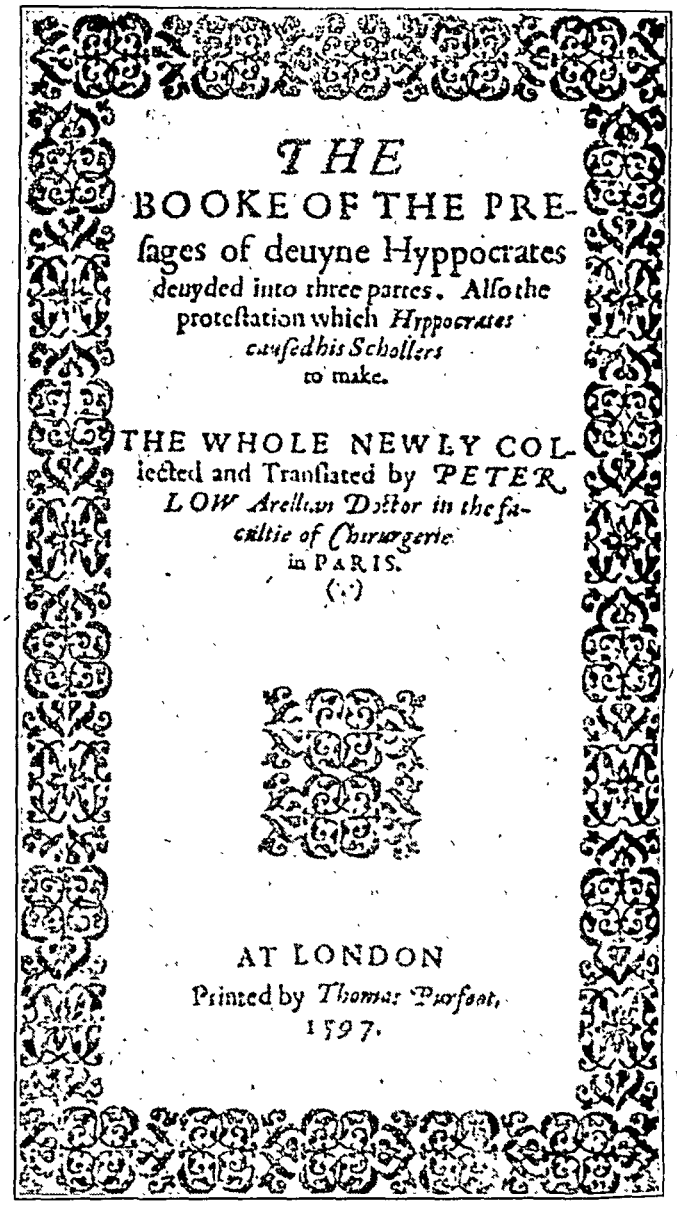
Title page of *The Whole Course of Chirurgerie*, by Peter Lowe

surgeons was in accordance with the custom of the times. Surgery was a handicraft to be learned in the same way as any other manual art. Medicine was recognized as a subject of academic study; but in 1599 none of the Scottish universities had given a proper place to the teaching of medicine (Duncan), and accordingly the physicians were obliged to take their degrees at Continental universities.

Notwithstanding this difference of professional status and training, it was clearly Peter Lowe's firm intention to bind into a single fellowship those who represented the two great branches of the healing art. At the same time he carefully excluded the barbers from any mention in the charter, selecting for his surgical colleagues in the Faculty only those who did not "barbourize." In his *Chirurgerie* Lowe is unsparing in his contempt for the barbers: "Usurping the name of Chirurgion . . . they have scarce the skill to cut a bearde, which properly pertaineth to them." Nevertheless, and almost inevitably, the barbers were admitted to the Faculty within a year or two—but as dependants and not as crafts-brethren, being described in the Minutes of June 22, 1602, as "a pendecle of chirurgerie."

Problems and Anxieties

In a brief note on the origins of the Faculty space does not permit of adequate reference to the major problems and


THE
BOOKE OF THE PRE-
sages of deuyne Hyppocrates
deuyded into three partes. Also the
protestation which *Hippocrates*
caused his Schollers
to make.
THE WHOLE NEWLY COL-
lected and Translated by *PETER*
LOW Arellian Doctor in the fa-
culte of Chirurgerie
in PARIS.
AT LONDON
Printed by *Thomas Purfoot,*
1597.

Title page of *The Presages of devyne Hyppocrates*

anxieties which the incorporation had to resolve in the three and a half centuries to follow the granting of the charter. These vicissitudes included the formulating of proper conditions for apprentices, the inauguration of systematic teaching, the contest between the surgeons and the barbers, and protracted differences of opinion between the Faculty and the Town Council and the University respectively. Details of some of these phases are available in Duncan's classical work, *Memorials of the Faculty of Physicians and Surgeons of Glasgow, 1599–1850.* The memorials also reveal the constant concern of the Faculty to foster the objects of its charter, protecting the public from the depredations of the charlatan while maintaining the honour and dignity of the profession of medicine.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

MANAGEMENT OF ACUTE PNEUMONIAS IN ADULTS

BY

J. G. SCADDING, M.D., F.R.C.P.

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Since the introduction of chemotherapy most patients with pneumonia have been treated in their own homes. This means that therapy is often begun without the establishment of a specific diagnosis by laboratory methods; and, indeed, from the practical standpoint such a procedure is unnecessary in most cases, even though in a minority it is an essential guide in therapeutics. In the practical management of pneumonias, therefore, it is desirable to adopt a procedure which, while not leading to unnecessary calls on laboratory facilities for the general run of patients, makes available the maximal degree of help from the laboratory for the minority in which such aid is required. For working classification acute pneumonias may be divided into three main groups

Acute Bacterial Pneumonias

Of these, pneumococcal pneumonia is the most frequent, constituting 70 to 80% of the group. Haemolytic streptococcal, staphylococcal, and Friedländer's bacillus pneumonias are the most important other members. The pneumococcus and haemolytic streptococcus are, in general, sensitive to sulphonamides, and most strains of staphylococcus show some sensitivity. All three are sensitive to penicillin, though resistant strains, especially of the staphylococcus are encountered. Friedländer's bacillus is not responsive to either of these agents, but is fully sensitive to streptomycin; fortunately, acute pneumonias due to Friedländer's bacillus are rare in this country.

Virus Pneumonias

This is a group to which much attention is being directed at present. It may be subdivided as follows:

1. *Pneumonias Associated with Epidemic Influenza.*—There is good evidence that these are due to the combined effects of the influenza virus and a variety of independently pathogenic bacteria, the relative contribution of the virus and the bacteria to the pathological picture varying from case to case. These pneumonias are essentially of mixed origin, and it is certainly misleading to regard them as characteristic of virus pneumonias. It is probable that the bacterial component of the infection is susceptible to treatment by appropriate specific agents, but there is as yet no satisfactory evidence about the specific treatment of the group as a whole.

2. *Psittacosis–Ornithosis Group.*—Viruses of this group may give rise to illness in, or be carried by, birds of the parrot family, pigeons, certain other birds, and possibly by some small mammals. There is some evidence that the human infection is susceptible to very large doses of penicillin, but the newer antibiotic aureomycin appears to be fully effective.

3. *Pneumonias Due to Other Viruses.*—There are certainly other viruses which can cause pure virus pneumonias in man. The identification of these viruses has hitherto proved very difficult, and is a research project rather than a practical clinical procedure. Pneumonias due to viruses of this group generally show no response to sulphonamides, penicillin, or streptomycin; they may respond to aureomycin and possibly to chloromycetin.

Aspiration Pneumonias

Under this heading are included all those pneumonias which are occasioned rather by a breakdown of the normal mechanical defences of the lower respiratory tract than by the presence of specific invasive organisms. The most obvious examples are the hypostatic and terminal pneumonias, in which the prognosis is that of the underlying condition. Many other pneumonias belong to this group, notably some of those which occur in persons who have excessive secretions in the respiratory tract for one reason or another—e.g., the chronic bronchitics, sufferers from chronic nasal catarrh, and patients with acute respiratory catarrhs of various sorts. These pneumonias may be diffuse or localized. The former will present as basal bronchopneumonias in bronchitic subjects; the latter often do not present clinically as acute pneumonias at all, and will therefore not be further discussed here. In this group as a whole the organisms most frequently found in the sputum are *Str. viridans*, non-haemolytic streptococci, pharyngeal neisseriae, Pfeiffer's bacillus, and possibly some of the less invasive types of pneumococcus—in fact, a flora similar to that of the upper respiratory tract

Treatment

With these considerations in mind we may consider the management of a patient who presents with acute pneumonia. In such a case the invading agent will not be known at the beginning of treatment. Hence the most reasonable procedure is to obtain material for the later establishment of an aetiological diagnosis if required; to treat immediately on standard lines; and to modify treatment later, if necessary, in the light of any information which may become available about the aetiology. This standard treatment may be considered under two headings: general and symptomatic measures, and specific treatment.

General Measures Applicable to all Pneumonias

The patient with acute pneumonia must be kept in bed with adequate nursing care. He should occupy a well-ventilated room maintained as far as possible at an equable temperature of about 65° F. (18.3° C.). Patients are often more comfortable if kept slightly propped up with pillows, but some prefer lying flat, and the patient's comfort should decide the position in which he is nursed. In gravely ill patients slight changes of position should be made every few hours in order to avoid hypostatic effects. Physical examination should be done carefully, but not more frequently than once daily. If there is difficulty in diagnosis, either of the primary disease or its complications, bedside radiography imposes little strain on the patient and should be employed. It should be remembered that all drugs

used in symptomatic treatment can have undesirable effects, and no such drug should be prescribed unless there is a real indication for it.

Diet

In the acute stages of pneumonia the patient usually has complete loss of appetite, and as the duration of the disease is short there is little point in attempting to force unwanted food upon him, provided an adequate intake of fluid and carbohydrate is maintained. For an adult, a total fluid intake of about 4 pints (2,500 ml.) daily is suitable. Part of this may be given in the form of drinks sweetened with as much glucose or cane sugar as his taste will permit, flavoured with any suitable fruit juice, and made up in plain or soda water. Milk may be given, hot or cold, preferably with extra sugar and flavoured in any acceptable way. If the patient does not like sweet drinks lactose may be used instead of glucose or cane sugar; lactose may also be useful in cases with abdominal distension, as it gives rise to less intestinal fermentation. Eggs, cereals, custards, thin buttered bread or toast, fish, minced lean meat or chicken, mashed potato, and vegetable *purées* can be added when the patient's condition permits.

Relief of Pain

Pleuritic pain may be relieved by a kaolin poultice. Care should be taken that this is applied in such a way as to avoid interference with respiratory movement. If pain is severe, morphine or other opium derivatives, or pethidine may be required (see below). Occasionally the pleuritic pain may be extreme, and if in such a case it is well localized the injection of 5 to 10 ml. of 2% procaine just external to the parietal pleura in the painful area may be helpful.

Sleeplessness

The combination of restlessness, pleuritic pain, and irritating unproductive cough often demands the use of morphine or one of its analogues to secure sleep. The only danger of these drugs arises from their depressing action on the respiratory centre and the intestinal motility. They should not be given to patients with cyanosis due to a complicating bronchitis, or to those with any signs of abdominal distension. In all other patients morphine, 1/6 to ¼ gr. (10 to 15 mg.), or pethidine, 50 to 100 mg. hypodermically, can be used if necessary to secure sleep. If ineffective cough is the chief obstacle to sleep, codeine phosphate, ½ to 1 gr. (30 to 60 mg.), may be sufficient. Should it be necessary for the relief of pain and to secure sleep to administer morphine to a cyanosed patient, oxygen must be given by an efficient method. If there is so much complicating bronchitis or severe abdominal distension that morphine and its analogues are contraindicated, paraldehyde is generally the most useful hypnotic. It may be given by mouth in a dose of 2 drachms (7.5 ml.) in a suitably flavoured mixture, or in ½ oz. (30 ml.) of whisky or brandy; or by rectum, 4 drachms (15 ml.) in 6 oz. (180 ml.) of water.

Delirium

This complication may require treatment. Reduction of temperature by tepid sponging and the relief of anoxia by oxygen administration may be effective. Phenobarbitone soluble, 1 to 2 gr. (60 to 120 ml.) subcutaneously, or paraldehyde by rectum as suggested above may be helpful. In patients known to be alcohol addicts, whisky or brandy, ½ oz. (30 ml.) four-hourly, should be given if there is delirium. Apart from this, alcohol is of no value in the treatment of pneumonia.

Cough

Distressing and ineffective cough should be controlled with a suitable linctus containing codeine or, in more troublesome cases, diamorphine (heroin). A productive cough is to be encouraged by supporting the patient during bouts of coughing, by simple postural methods if the general condition permits, and by the relief of pleural pain.

Meteorism

Abdominal distension may become troublesome. In such cases treatment should be started with a simple soap enema and the passage of a flatus tube. If these measures are not sufficient, turpentine or bile enemas and the subcutaneous injection of pituitary extract, 0.5 ml., or of prostigmin, 1 mg., may be effective. The administration of oxygen in a concentration as near 100% as possible from a B.L.B. or similar mask may lead to diminution of the distension by causing absorption of the gases into the blood stream.

Oxygen Administration

The anoxaemia of pneumonia is probably responsible for many of the so-called toxic symptoms. It is due to many factors, some of which can be relieved by oxygen administration. In any cyanosed patient, therefore, oxygen should be administered by an effective method. This applies particularly to those forms of pneumonia which are complicated by much bronchitis. An efficient mask of the B.L.B. type or a tent should be used.

Cardiovascular System

Pneumonias mainly affect the heart indirectly, through the peripheral vascular system and by anoxia, though there may be some direct toxic effect on the myocardium. There is no justification for the routine use of drugs alleged to have an effect on the heart. In particular, digitalis should be given only if there is pre-existing cardiac disease for which its use is indicated or if an abnormal rhythm develops. The form of circulatory collapse most commonly seen in patients gravely ill with pneumonia presents a picture of falling blood pressure with rising regular pulse rate. Digitalis and similar drugs have no effect in cases of this sort. Analeptics such as camphor, nikethamide, and "cardiazol" are widely used to combat this condition but since the essential cause is a peripheral vasomotor failure, and any stimulating effect that may be produced by these agents is of central origin, their value is doubtful. Adequate oxygen therapy and the administration of glucose are the most rational procedures.

Specific Treatment

In the case of apparently primary pneumonias of lobar extent the pneumococcus is so frequently the causative organism that, pending an aetiological diagnosis, it is reasonable to treat all cases of this sort in the first instance as if they were caused by the pneumococcus; but whenever possible material should be obtained for bacteriological examination before beginning treatment. Sputum is the best material, if a good specimen is available, and this can generally be produced by encouraging the patient to cough. If sputum is unobtainable a throat swab may give useful information, but is less reliable. Lung puncture is justifiable only for special purposes. In any gravely ill patient a blood culture should also be taken before treatment is begun.

Sulphonamides

In a case of average severity, after a specimen of sputum has been obtained for culture sulphonamide treatment should be instituted. Of the commonly available sulphonamides, sulphamezathine causes relatively little nausea and vomiting and, having an acetyl derivative of high solubility, very rarely gives rise to renal complications. It is therefore

suitable for routine treatment. Adequate dosage is essential: for an adult an initial dose of 3 g. should be given, followed by 1 g. four-hourly, or in severe cases 1.5 g. four-hourly. This dosage should be continued for two or three days; if there has been a favourable response it may then be reduced to 0.5 g. four-hourly. In the average case treatment should be continued for five or six days, giving a total dose of 25 g. to 30 g. Adequate fluid intake should be ensured while sulphonamides are being given.

If there is a poor response to treatment, with no improvement in the patient's condition after 48 hours, the cause should first be sought. If material for bacteriological examination has been obtained at the beginning of treatment, the reports should then be available and may provide a clue to the failure to respond. It may be that the organism is poorly sensitive or not sensitive at all to the sulphonamide in use—e.g., infection with *Staph. aureus* or Friedlander's bacillus. The possibility of acute tuberculous pneumonia, or of the pneumonia being secondary to some underlying lesion of the lung, such as a carcinoma obstructing a bronchus, should also be considered. If all these possibilities can be excluded, local complications, especially the early development of empyema, should be suspected; if there is any suspicion of empyema the chest should be needled over the area most dull to percussion. If none of these factors is present and the organism is sensitive both to sulphonamides and to penicillin, or relatively insensitive to sulphonamides and sensitive to penicillin (such as *Staph. aureus*) penicillin treatment should be instituted.

Penicillin

Penicillin is not only indicated in cases which have failed to respond to sulphonamides or which are caused by organisms resistant to these drugs, but in certain instances is required from the beginning of treatment. Penicillin is indicated in cases of staphylococcal infection and those in which sulphonamides are contraindicated—for instance, in patients known to be sensitive to sulphonamides or in whom there is antecedent renal disease. In addition, in patients who are severely ill at the time when treatment is begun, who are severely dehydrated, or who have troublesome vomiting, penicillin from the beginning is a preferred form of treatment to sulphonamides in spite of the greater difficulty of its administration. In some severe cases it may be advantageous to give sulphonamide and penicillin treatment simultaneously. The most reliable way of giving penicillin remains the three-hourly intramuscular injection: 15,000 to 25,000 units three-hourly will maintain an effective blood concentration in most cases of pneumonia due to penicillin-sensitive organisms. The inconvenience of such frequently repeated doses may be avoided by giving larger amounts of soluble penicillin less frequently—e.g., 100,000 to 200,000 units six-hourly—but the maintenance of a constantly effective blood concentration is not entirely certain by this method. The most convenient way of administration of penicillin is by using one of the slowly absorbed preparations, such as procaine penicillin in oil. Of this, 100,000 to 200,000 units every 12 hours will usually, but not certainly, maintain an adequate concentration.

Treatment of Virus Pneumonias

The diagnosis of virus pneumonia is unlikely to be made in practice except as a result of exclusion of other diagnoses or in the presence of an epidemic.

Pneumonias Associated with Epidemic Influenza.—These should be treated on the lines applicable to the bacterial component of the infection. There is no indication at present of any agent effective against an influenza virus itself.

Pneumonias of the Psittacosis–Ornithosis Group.—These cannot be diagnosed with certainty clinically, but may be suspected when the illness starts with severe constitutional symptoms, when there is the later development of signs of consolidation, and if there is a history of contact with parrots or pigeons. Proof of the diagnosis will generally rest upon a positive complement-fixation test in blood taken during convalescence. If the diagnosis is suspected, very large doses of penicillin (up to 2,000,000 units a day) may be effective. Aureomycin appears to be curative in oral doses of 0.5 g. six-hourly, and should be used if available. Chloromycetin may also be effective.

Pneumonias presumably due to unidentified pneumonotropic viruses ("primary atypical pneumonia") may be suspected clinically when the illness starts with constitutional symptoms, the signs of pneumonia appear late (about the third to fifth day), the leucocyte count remains low, and there is no response to sulphonamides or penicillin. The suspicion would be supported by the occurrence of similar cases in the neighbourhood and by the development of a high titre of "cold agglutinins" in the blood during convalescence. In such cases aureomycin has been reported to be of value. It would be reasonable to give it by mouth in doses of 0.5 g. six-hourly to a severely ill patient, but the great majority recover after a relatively brief illness, and the drug is at present scarce and expensive.

Treatment of Aspiration Pneumonias

The mildest pneumonias of this group are unlikely to be recognized clinically without the aid of radiography: the most severe occur as complications of other serious illnesses. The types which are most likely to present clinically as "pneumonias" are the patchy basal bronchopneumonias of the bronchitic subject and some of the post-operative bronchopneumonias. In these, as in all pneumonias of this group, there is a considerable mechanical factor, early attention to which may cause rapid alleviation of the condition before there has been any severe invasion by bacteria, although infection by specifically invasive organisms may occur at any stage. It is therefore wise in such cases to start as with apparently primary pneumonias by obtaining material for bacteriological examination and instituting standard sulphonamide or penicillin therapy. At the same time the mechanical factors should receive careful attention. The patient must not be allowed to remain constantly in the unfavourable posture which he will naturally tend to adopt. He will most often be found lying in the position which prevents him from coughing—i.e., that in which the affected area of lung is least favourably placed for the expulsion of secretions. He should be made to change his position into a more favourable one and encouraged to cough. Deep breathing is helpful; administration of 7% carbon dioxide in oxygen may have a comparable effect in uncooperative patients. In post-operative cases no tight bandages which might obstruct full respiratory movement should be permitted. Abdominal distension, if present, should receive attention. Only in special circumstances will more drastic measures be required, such as bronchoscopy or bronchial suction. If these steps to deal with the mechanical factor result in rapid relief of symptoms and disappearance of physical and radiological signs it is usually safe to discontinue sulphonamide or penicillin treatment. If, however, this happy result does not ensue, it may be assumed that infection by an invasive organism has occurred, and investigation and treatment as suggested for apparently primary pneumonia are indicated.

Convalescence

Convalescence after pneumonia proceeds at a very variable pace. In a case of pneumococcal pneumonia of average severity the patient may be allowed out of bed after the temperature has been normal for seven days. In cases of greater or less severity appropriate periods of bed rest are needed. In pneumonias of the aspiration type the patient should be allowed out of bed as soon as his general condition permits. Breathing exercises, which should be applied as therapy in aspiration pneumonias, are helpful in convalescence from acute specific pneumonias by hastening the return to normal lung function, and should be started soon after the temperature falls. After resolution appears to be complete clinically it should be confirmed radiographically. An adequate period of convalescence should be enforced, the duration of which will depend upon the sort of life to which the patient has to return.

A SNOOP AT N.H.S.

Mass Observation, which since 1937 has been uncovering the opinions of the British people on such contrasting topics as juvenile delinquency, clothes rationing, and public houses, has now investigated their attitude towards doctors. In a report published this week[1] the observers conclude that the National Health Service is, so far, a welcome innovation, and record general appreciation and some surprise that the attitude of the family doctor underwent no noticeable change on the appointed day. "I called in the doctor to my baby son on the day of the inception of the new Service," said a young father who was interviewed. "I don't know what I expected, but I did feel mildly surprised when the doctor arrived at the house and behaved precisely as he had always done."

This survey not only records universal resentment against the size of the weekly contributions, but the inquisitors fall into the error of their witnesses in believing the entire sum of the National Insurance contribution to be paid into the Health Service. The reply from one housewife is typical: ". . . We never paid a doctor 5s. a week, but received the same attention from the hospital under the H.S.A. scheme for 4d. a week."

The report attempts to throw light on the ways in which patients occupy themselves in the waiting-room. All are resigned to a long wait, but appreciate that the doctor's slowness with each patient indicates a painstaking consultation for themselves. They complain they cannot afford to spend so long away from their own homes, and all condemn the person taking advantage of "free" treatment to worry the practitioner with a trivial complaint or a request for an unnecessary bottle of medicine. The conversation among the waiting patients is predominantly concerned with each other's pathology. An incidental disclosure of the report is the number of patent medicines still kept in British households despite the removal of the financial barrier to medical consultation. Three families in five maintain a medicine cupboard, the most popular contents of which are aspirins, laxatives, vitamin preparations, antiseptics, "tonics," and cough cures. The advantage offered by patent medicines is one of time—it is easier and quicker to swallow a dose in the house than to go out and visit the doctor.

The opinions of only two doctors are included in the survey, though a larger number of practitioners were interviewed by the authors. These two are anonymous partners with conflicting opinions about the N.H.S., but both are agreed on the increase in their medical and paper work since its inception, and on the inadequacy of the capitation fee.

The report is far from comprehensive and leaves the serious reader with considerable doubt whether it mirrors the true opinions of the public at all. It makes entertaining reading, however, and Mr. Ronald Searle's illustrations are scrupulously fair in their ungenerosity to the profession and the patients.

[1] *Meet Yourself at the Doctor's*, by Mass Observation, with drawings by Ronald Searle. (3s. 6d. The Naldrett Press, 1949.)

Correspondence

Alcohol and Cirrhosis of the Liver

SIR,—Your leading article entitled "Alcohol and Cirrhosis of the Liver" (November 5, p. 1030) raises several interesting points. There is evidence that in occupations which involve an excessive intake of alcohol there is a high mortality from cirrhosis of the liver. Thus the standard mortality ratio from cirrhosis of the liver in inn- and hotel-keepers is 1158—i.e., 11½ times the mortality from cirrhosis in the population as a whole. In barmen the standard mortality ratio is 600, or six times the rate in the population as a whole.

In inn- and hotel-keepers there is also a high mortality from diabetes, with a standard mortality ratio of 325, or three and a quarter times the rate in the population as a whole. The relationship between alcoholism and diabetes is an interesting one, and the association is partly explained by the fact that in many alcoholics the calorie intake is in excess of energy requirements. This will lead to obesity and hence a predisposition to diabetes. In diabetes, as in chronic alcoholism, there is often a fatty infiltration of the liver, as well as nutritional deficiencies caused, possibly, by deficient intake, defective absorption, or ineffective utilization of vitamins and amino-acids.

It has been pointed out that the addition of choline to alcoholic or saccharine beverages may be of benefit, but there arises the additional possibility that an excessive intake of sweets in children may lead to liver damage, as it would appear from the work of Professor C. H. Best and his colleagues (November 5, p. 1001) that alcohol and sugar are equally effective in producing cirrhosis of the liver, at any rate in experimental animals. There is a danger, therefore, that a child who is eating large quantities of sweets will have a diet which is unbalanced and defective in protective foodstuffs; this may lead not only to dental defects but possibly also to liver damage, a damage which may not show any immediate clinical effect but may possibly lead to a reduced resistance to hepatotoxic agents.

There is some evidence that an excessive intake of sweets during pregnancy may lead to an excess mortality in the infant. Thus the mortality is high among infants of mothers whose husbands are employed in certain occupations associated with sugar confectionery, as may be seen from the following table.

Code No.		Deaths of Legitimate Infants, 1930–2	Legitimate Births, 1931	Annual Rate per 1,000
375	Sugar confectionery makers, moulders, and coverers ..	24	101	79
671	Retailers of sugar confectionery (sweets)	79	252	105
701	Salesmen of sugar confectionery (sweets)	22	52	141
	Total ..	125	405	103

The combined rate of 103 per 1,000 legitimate live births, with a standard error about nine, must be regarded as significantly high in comparison with the national rate of 61.6 at that time. The adverse effects during pregnancy of an increased intake of sugar or alcohol may be due to liver damage and an increased liability to toxaemia. We know, for example, that there was a decreased mortality from toxaemia during the war years. It is interesting to note that during the period 1939–49, when sweets and sugar were rationed, there was a marked decrease in maternal and infant mortality, in dental defects in children, and in mortality from diabetes and cirrhosis. There are, of course, many factors involved in these decreases, but no doubt the diminished intake of alcohol and sugar was responsible for some of these effects.

If the suggestion of adding choline to alcoholic drinks is to be taken seriously, why not include sweets at the same time? At any rate mothers should be warned of the undesirability of giving large quantities of sweets to their children, a warning

which has often been given in the past, but to which additional support is given by this new evidence. It is possible that the rationing of sweets and sugar confectionery is a blessing in disguise.

All the standard mortality ratios quoted in this letter are statistically significant and refer to the experience in the years 1930, 1931, and 1932.[1]

—I am, etc.,

W. HOBSON.

Sheffield.

REFERENCE

1 *Registrar-General's Decennial Supplement, England and Wales*, 1931, Part IIa, "Occupational Mortality." London: H.M.S.O.

Uses of Streptomycin

SIR,—In your leading article (November 12, p. 1098) you state that the decision to use streptomycin is emphatically one for the expert only. This pronouncement would appear to preclude the general practitioner from using this valuable antibiotic, since he cannot claim to be an expert. General practitioners are however, by and large, sensible and responsible people who have received a careful scientific training and have satisfied their examiners that they are capable of carrying out treatment for their patients.

What is the use of spending time and trouble teaching students pharmacology and bacteriology and then preventing them from using the very substances they have been taught to use? What is the use of having scientific journals in which appear papers giving an account of the most recent discoveries? Are these papers intended to be read by experts only?

Now, Sir, every sensible practitioner will agree with the general tenor of your leading article and will concede at once that streptomycin is not a substance to be used indiscriminately, that it has serious toxic possibilities, and that the implications towards public health are not lightly to be disregarded. But surely it is not in the best interests of medicine that general practitioners should for all time be discouraged from using the potent remedies which science has placed at their disposal.

In this part of the U.K. the Northern Ireland General Health Services Board, acting on the advice of the Northern Ireland Ministry of Health, recently saw fit to prohibit the use by general practitioners of *para*-aminosalicylic acid, a relatively innocuous substance, on the grounds that it was "still in the experimental stage."

These prohibitions seem to imply that the general practitioner is a careless fellow, that he will take no trouble to find out the properties of a new substance, that he is sure to prescribe it in the wrong type of case, that he will either underdose or over-dose his patients, and finally that he is quite unfitted to be trusted with any new scientific discovery.

The point I want to make is that the general practitioner should be treated as an intelligent individual. He must be given the opportunity to use these new substances. To do otherwise would seem to be a further attempt to relegate him to the role he is fast assuming—that of a signpost to the nearest hospital.—I am, etc.,

H. J. CRONHELM.

Belfast.

SIR,—It would appear that the question of reinfection and reactivation in pulmonary tuberculosis is going to be one of even greater importance in the future than it has ever been. Development of resistance to a drug is due, I believe, to one of two causes: (1) the survival of a small number of "persisters" which continue to multiply when the vast majority of the sensitive organisms have been destroyed; (2) the exposure of the organisms to concentrations of a drug sufficient to retard growth but not to kill.

It is well known that live tubercle bacilli survive in a primary or other minimal tuberculous lesion which has long since ceased to show any evidence of activity, if it ever did, and that they can, years later, give rise to manifest disease. Will the streptomycin now released for general use, and the allied antibiotics which will in due course be available, leave in those people resistant strains of tubercle bacilli when the drugs are concurrently used for the many other infections against which they are potent?

Until someone demonstrates conclusively that they will not, I personally must agree with your leading article (November 12, p. 1098) that "streptomycin should be reserved for use only on the clearest indications and under the closest observation." In spite of the galaxy of talent apparently arrayed against your opinion in the columns of the *Sunday Express* (November 13)—some of it perhaps unwittingly—and in spite of forecasts of wonders yet to be in the same publication, it will be a very long time before we can dispense with the old-fashioned sanatorium routine, however carefully the drugs are used.—I am, etc.,

KENNETH MURRAY.

Eardisley, Hereford.

SIR,—I should like to pay tribute to the excellence of your leading article on streptomycin (November 12, p. 1098), arising from its general issue. Having pioneered the first trial in this country, I agree with all your points, and I only hope the medical reader will take to heart the sober advice given.

It was with great regret and misgiving that I read the bad press given to the article in some of the Sunday papers. Their reports were non-factual and irresponsible.—I am, etc.,

D. G. MADIGAN

Bromley, Kent.

Streptomycin in Ulcerative Colitis

SIR,—In your leading artucle on the uses of streptomycin (November 12, p. 1098) it is stated that in ulcerative colitis streptomycin is useless. This is true for the common type of so-called idiopathic ulcerative colitis, when no specific organisms can be isolated from the stools. In certain rare cases, however, Gram-negative bacilli, usually *Proteus* or *Ps. pyocyaneus*, can be grown from the stool. These organisms are probably secondary invaders, but if they can be eradicated, even temporarily, a remarkable cure of the ulcerative colitis may be achieved. Cases of ulcerative colitis harbouring these organisms often suffer from profuse rectal haemorrhages which ordinary treatment will not stop. A brief account of a case of ulcerative colitis treated with streptomycin might therefore be of interest.

A woman, aged 39, had been suffering from severe ulcerative colitis for 22 years. She had had periods of remission. Her present attack lasted six weeks before admission. She got rapidly worse and on admission was passing about 24 motions during the 24 hours. Her stools contained blood, pus, and mucus. Stool culture yielded a profuse growth of *Ps pyocyaneus* and *Proteus*. A blood examination showed bleeding time three minutes; clotting time four and a half minutes; prothrombin time 45 seconds; platelet count 300,000; haemoglobin 58%; R.B.C. count 3.0 m.; C.I. 0.9; W.B.C. count 18,000. She had a high, remittent pyrexia, and was markedly wasted and toxic-looking but mentally alert. Apart from tenderness over the colon no other evidence of organic disease was found. Sigmoidoscopy showed gross ulceration of the rectum and lower sigmoid colon typical of acute ulcerative colitis.

The patient was at first treated with a course of "sulphasuxidine" and penicillin injections, and was also given repeated blood transfusions. She had a high-calorie low-residue diet and added vitamins. On this treatment her diarrhoea did not clear up and her condition deteriorated rapidly. She continued to pass large quantities of pure blood per rectum, and the persistent blood loss required repeated blood transfusions. The patient's condition appeared hopeless. Another stool culture yielded the same two Gram-negative organisms, which in a broth culture were completely inhibited by streptomycin in amounts of 0.05 mg. per ml. of broth. I was fortunate in obtaining a small supply of streptomycin and started the patient on the following course of treatment: 2 g. of streptomycin was given dissolved in 12 ml. of saline; and 2 ml. of this solution was given intramuscularly four-hourly for two days, followed by 1 ml. four-hourly for three days. At the same time the patient was also given streptomycin by mouth: 2 g. of streptomycin was dissolved in 120 ml. of saline, and she was given 20 ml. of this solution four-hourly for two days, followed by 10 ml. four-hourly for three days. The patient thus received a total of 14 g. of streptomycin by mouth and intramuscular injections in five days.

This treatment had a remarkable effect. Within 36 hours of starting it the rectal bleeding had stopped, the patient's general toxic condition improved, and her pyrexia subsided. Her stools became less frequent, and two weeks after commencement of treatment she had only had one stool a day, and this was almost formed. Stool culture four days after commencement of treatment showed the

absence of the Gram-negative organisms, but they were found to be present again two weeks later, though at that time diarrhoea had ceased. She made an uninterrupted recovery. Seen four months after discharge from hospital she had gained 3 st. (19 kg.) in weight and had had no further attacks. A barium enema two months after commencement of streptomycin treatment showed appearances of the colon typical of advanced ulcerative colitis. It therefore appears that this rare type of ulcerative colitis responds dramatically to streptomycin.

—I am, etc.,

London, E.11. ERIC FRANKEL.

Medical Services of the Armed Forces

SIR,—May I hasten to reassure Dr. W. A. Bellamy (November 12, p. 1115) on the first of his two points? A field ambulance now includes one captain (non-medical) who is in fact, if not in name, an adjutant. I can support him from personal experience; the appointment is an extremely valuable one. But it does not free the commanding officer from his desk any more than does the presence of an adjutant in an infantry battalion. The amount of time spent with his men still depends, as it always did, more on the personal approach of the C.O. than on the establishment. Dr. Bellamy may rest happy on the subject of conferences. They are still fairly regularly attended. Their value is as problematical as ever.—I am, etc.,

Manchester. ROBERT G. W. OLLERENSHAW, Lt.-Col., R.A.M.C. (T).

Sudden Obesity and Psychological Trauma

SIR,—The article describing the sudden onset of obesity due to psychological trauma by Drs. H. J. Shorvon and John S. Richardson (October 29, p. 951) has prompted me to cite a case which I had in my own practice.

The patient, a woman aged 36, was married with one child. I had known her for many years. Her previous history was perfectly normal and her family history was of no significance. She was happy and well adjusted. In September, 1945, this patient underwent a dreadful experience. Her son, aged 7, was playing in the garden one afternoon. As it was becoming chilly, she called the child in and knotted a scarf round his neck. The boy returned to the garden to play and climbed a tree. He slipped while climbing, the muffler caught in a branch, and he was thus accidentally hanged. He was discovered by his mother. She immediately became hysterical, and I was called in by neighbours. Her husband at the time was serving overseas with the Army.

When I first saw the woman she was screaming and shouting and calling for her husband. I spent some time endeavouring to quieten her, and eventually gave her "nembutal," 4½ gr. (=0.6 g.). I made arrangements for her husband's immediate recall, and he arrived home within 24 hours. The patient was seen by me each day during the following week, during which time she was treated with sedation. At the end of that period she got up from bed, but refused to leave the house and spent most of her time in the garden gazing at the tree. She was depressed and became melancholic at times. For the next few months she suffered from insomnia, and took sod. phenobarb. (3 gr. = 0.2 g.) each night. Her sleep was disturbed by dreams of the accident. I may add that her husband did everything possible to help her. As he had been released from the Army, he was able to spend most of his time at home with her.

About January, 1946, I noticed that the patient was gaining weight, and she stated that she was developing a large appetite and was always hungry. In addition she had amenorrhoea, her last period being prior to the accident. On examination there was no evidence of pregnancy, and no abnormal signs could be found in any system.

I saw the patient regularly during the next six months. Her mental condition was showing some signs of improvement, but she still continued to dream about the boy each night. By August, 1947, her weight had increased to 13 stone (82 kg.) from her usual 10 stone (63 kg.). Her appetite was still voracious, and the amenorrhoea persisted. I considered that there was some relationship between the cessation of the menses and the shock, and was of the opinion that the whole clinical picture was due to some endocrine dysfunction. An estimation of her 17-ketosteroids revealed a normal figure.

Owing to the housing shortage it was impossible to remove her from her surroundings. I treated the patient with thyroid (4 gr. = 0.25 g.) daily, in conjunction with dienoestrol and progesterone. This therapy had no effect in reducing her obesity or in promoting the menstrual flow. She continued to see me periodically. She was considerably helped by the patience and sympathy of her husband, and she talked freely to me about the accident at each consultation. I considered this voluntary abreaction important and encouraged her confidences.

In October, 1947, the patient moved from her address, and away from the scene of the tragedy. Four months later menstruation restarted, and from that time her periods were regular and normal. She noticed that she tended to lose weight, her appetite became more normal, and her depression lessened. She was so much better, and her interest in life became so much more active, that in March, 1948, she obtained employment. Her progress has been maintained, and she is now restored to normal mental and physical health. Her present weight is about 10 stone, and she is most anxious to become pregnant.

There is no doubt that this patient suffered a severe psychological trauma, possibly complicated by a feeling of guilt, as she had tied the muffler which caused the accident. The immediate result was the appearance of signs and symptoms suggestive of a severe endocrine disturbance. In comparing this case with those described by Drs. Shorvon and Richardson, it will be noted that their patients all had a bad psychological history, and physical changes were only reversed after psychiatric treatment. Whereas my patient was normal, happy, and well-adjusted, and cure was effected by a simple change of scene. Her condition was probably naturally reversible.—I am, etc.,

Kingston-on-Thames. M. H. FRIDJOHN.

Congo-red Solutions for Intravenous Injection

SIR,—One of the reasons why the congo-red test for amyloid disease is little used is because the injection is often followed by severe reactions—sweating, headache, nausea, and sometimes vomiting. At least one death has been caused by its use. These reactions are due to the presence of particulate material in the injected solution. The particles cannot be brought into solution by heating, however long continued. Solutions prepared in the following way are free from particles, and can be injected rapidly (20 ml. per minute) without any subsequent reaction.

Ten millilitres of sterile water is heated in boiling water for five minutes and then transferred, using a sterile Pasteur pipette, to the ampoule containing 0.1 g. congo-red. The mixture is kept in the boiling water-bath for 1–2 minutes, then transferred to a sterile centrifuge tube, plugged, and centrifuged at 1,500 revolutions per minute for five minutes. The supernatant solution can then be cooled, removed with a syringe and long needle, and injected.

No preparation made in this way has caused a reaction, though it has been used on many patients. No doubt filtration of the solution would be equally effective, though less convenient for small volumes.—I am, etc.,

London, N.W.10. GEORGE DISCOMBE.

Use and Abuse of Vitamins

SIR,—One general practitioner must be allowed space to differ from Professor L. S. P. Davidson's views (November 5, p. 1036). Fully developed vitamin-deficiency states are not rare in this country (unless "this country" refers to Scotland). Two new cases of pellagra walked rather unsteadily into my surgery this week. I am able to select a number of cases from a series seen in the last 18 months to illustrate some unusual objective signs in frank vitamin-B-complex deficiencies to form a paper to be submitted for publication.

The altered extraction rate of flour has not solved the problem of vitamin-B deficiency. If this deficiency was of "such great importance in pre-war days" I should think it is important to-day, with the detrimental change of ratio between purchasing power and costs. Some housewives would find the following rather provocative: "If, however, after making the requisite investigations discussed above, the doctor concludes that there is a state of subclinical nutritional deficiency present, he should treat the deficiency by ensuring that the patient takes a properly balanced diet." In another place Professor Davidson emphasizes that "there is little doubt that all vitamin requirements can be adequately met at the present time from food

supplies readily available." Then follows a list of foods providing an adequate diet for a week. The list is satisfactory, but three of the items are seldom obtainable by many thousands of our people. The diet costs about 10s. per day, at a low estimate. Thousands of elderly people are living in roominghouses where the single room costs £2 per week.

If Professor Davidson and I see a similar sample of the country's population then I can only conclude that the relative rarity of vitamin-deficiency states in Edinburgh may have something to do with the higher intake of what I call porridge compared with its consumption in the deep South. Professor Davidson suggests that we should "discover and eliminate adverse social and environmental factors" and show the patient how to get an adequate diet. The factors are not difficult to discover. They make a long list added to the financial problem mentioned above, and their elimination is a complex problem occupying many worried politicians, economists, and world statesmen, as well as Lord Boyd-Orr, William Vogt, and a lot of other men and women in the street.—I am, etc.,

Hove, Sussex. JOHN F. BUCKMASTER.

Erysipeloid Treated with Penicillin

SIR,—Dr R. A. Bush reports (October 29, p. 964) a case of erysipeloid in which the identity of the infecting organism is without question. Professor R. S. Pilcher and his colleagues[1] mention briefly that eight cases of erysipeloid occurred in their series of finger and hand infections. Dr. Bush does not quote this authority; nevertheless, I believe that the University College Hospital experience is typical of many. Reports are few because "minor" conditions of the hand are still treated most frequently by house officers, and this one is unrecognized. I should like to submit to you the following observations.

1. In the last thousand septic hands seen by me a comparable clinical entity occurred eight times. One further case was suspected, but not definitely diagnosed. The severity varies considerably. The U.C.H. clinic had 8 cases in 388.

2. The very acute development Dr. Bush describes is unusual, but the virulence of infection in his case is unusual also.

3. Four of my cases only came to treatment in the second week, so that treatment of any sort was likely to be successful. In the normal course resolution occurs in two to three weeks.

4. Two early cases were treated with serum kindly provided by a veterinary surgeon. One responded promptly; the other did not, and was treated with penicillin four days later.

5. Cases seen late in the second week respond slowly to penicillin, and tend to carry over to the third when response to treatment cannot be assessed.

6. I personally use much bigger doses (1,000,000 units a day). I am not sure yet if this is necessary.

7. The commonest cause here, as in London, is minor trauma while handling fish.

8. The variability in response to penicillin and to specific serum makes one suspect that this is a picture which may be caused by a variety of related organisms. We have been unable to isolate any organism, as the cases never come to incision, and there is therefore no justification for obtaining material for examination.—I am, etc.,

Sunderland. THOMAS G. LOWDEN.

REFERENCE

1 *Lancet*, 1948, 1, 783.

Treatment of Early Syphilis

SIR,—With reference to the paper entitled "Treatment of Early Syphilis with Penicillin Combined with Neoarsphenamine and Bismuth" by Lieutenant D. H. Miller and myself (September 24, p. 672), it has been pointed out to me that the number of cases considered by James, Mackay, and Wright[1] was not as quoted. It was stated by us that the latter had calculated the cumulative relapse rates following four different schedules of treatment for early syphilis, but, owing to a clerical error, it would appear as if only 281 cases had been considered by them, whereas in fact this figure should refer only to the sero-positive primary and secondary cases treated by one of the schedules—namely, that consisting of 2,400,000 units of penicillin alone administered over a period of 7½ days, this schedule being the one for which we cited their results. The total number of cases of early syphilis considered by these authors for the four treatment schedules was 1,034, this number being made up as follows: by 2,400,000 units of penicillin alone, 395 cases; by 4,000,000 units of penicillin alone, 126 cases; by penicillin and "mapharside," 271 cases; by penicillin, mapharside, and bismuth, 242 cases. It is very much regretted that the above facts were not brought out in our paper.—I am, etc.,

British Military Hospital, Hamburg. J. W. EAMES.

REFERENCE

1 *Brit. J. soc. Med.*, 1948, 2, 18.

Post-operative Pulmonary Infections

SIR,—A recent typical medical coincidence with two cases prompts me to publish them together with a few conclusions and conjectures.

Case 1.—A woman of 43 had a total hysterectomy for fibroids, followed in 24 hours by an acute onset of pain in the left side of the chest accompanied by dyspnoea and slight pyrexia. There were crepitations and diminished air entry at the left base, and the condition resolved in three days with "sulphatriad" therapy. Following dilatation and curettage nine months previously she had experienced a similar attack about five days after operation.

Case 2.—A woman aged 35 had a total hysterectomy for anovular bleeding followed in 24 hours by an acute onset of pain in the left side of the chest with the same signs and course as in Case 1. In her past history a laparotomy was performed in 1941 for ectopic gestation. Evidence of chronic pelvic inflammation only was found, and it was followed by an identical chest condition.

The rarity of post-operative pulmonary complications in gynaecological surgery, together with the identical previous histories following minor surgical manœuvres—e.g., dilatation and curettage, a 15-minute procedure at a light plane of anaesthesia—prompts one to suggest the cause as embolic from the pelvic veins, and I therefore make the following suggestions.

Anatomically, the left pulmonary artery has a smaller deviation from the line of flow than the right and therefore any solid particle will tend to pass to the left lung, and, in the absence of evidence to the contrary, post-operative infections in the left lung are in the main embolic. Should the work along the lines propounded by Mr. G. W. Vause Greig (October 15, p. 845) ever bear fruit, patients liable to develop this complication could be recognized pre-operatively and the condition prevented.

Infection of the right base is a greater possibility from acute upper respiratory tract infection—e.g., otitis media, sinusitis, and coryza—as droplets and particles of infected mucus will tend to gravitate down the right bronchus owing to its straighter course, aided and abetted by gravity and the absence of the normal expulsive reflexes found during anaesthesia. In practice this type is the most severe, presumably owing to the absence of local pulmonary resistance to the invading organism. The bilateral post-operative infection tends to occur in already infected lungs and is found in the chronic asthmatic and bronchitic and in the heavy smoker.—I am, etc.,

Isleworth, Middlesex. D. F. REES.

Polythene Tubing and Blood Transfusion

SIR,—The article by Dr. W. A. L. MacFadyen (October 22, p. 925) on the administration of heparin by polythene tubing causes me to write to you to say that we have been using this tubing for the administration of blood and intravenous fluids for about twelve months with great success.

We pack up a small tin containing one rubber Record connexion to which is attached about a 3-in. (7.5-cm.) length of rubber tubing to fit on to the Record end of the connexion. Also in the tin is about a yard (0.9 m.) of stout thread wound on a piece of cardboard and a sharp 15-gauge donor-taking needle such as is used by regional blood transfusion teams. The polythene tubing just fits into these needles, and a suitable size can be bought from Messrs. Allen and Hanbury. I would point out, however, that these needles vary, and each needle should be tested with polythene tubing before packing for the autoclave to ensure easy access through the needle.

Before the infusion of blood the polythene tubing is washed well with saline to remove the sterilizing agent. Three ties of thread

are made on the rubber tubing attached to the Record end of the fitting, and the needle is then inserted in the vein in the usual way. The polythene tubing is passed through the needle about 6 in. to 9 in. (15 to 22.5 cm.) into the vein while gentle pressure is exerted by the thumb. The needle is withdrawn from the vein and from the polythene tubing, and after the polythene tubing has filled with blood to expel the air it is then inserted into the small rubber tubing on the Record attachment and the three thread ties are completed. The ties are left long to attach to the arm with strapping to prevent the polythene tubing from "creeping" (it has a tendency to "creep" inwards). The transfusion is then started in the usual way. Complete freedom of the arm is achieved without any alteration in the rate of flow.

I also find that, in the rare event of it being necessary to cut down on the internal saphenous vein, 6 in. to 8 in. (15 to 20 cm.) of tubing can be inserted into the vein like a cannula, and by applying pressure by bandage it is unnecessary to tie off the vein and it is often unnecessary to splint the leg. I would add that the smaller size polythene tubing is found to be unsuitable for blood, as a clot tends to form when infusing "packed cells."—I am, etc.,

Colchester, Essex. ALEC E. BLAXILL.

Pigmentation in Addison's Disease

SIR,—For years the pigmentation of Addison's disease has been explained by assuming that tyrosine, the precursor of adrenaline, accumulates in the skin in the absence of functioning suprarenal glands and is there converted to melanin pigment. This glib explanation, without a shred of evidence in its support, is copied from textbook to journal without questioning, and is repeated by Dr. B. Victor Jones in his paper on acute adrenal insufficiency (November 5, p. 1023). There seems reason to believe that the recent work of Stephen Rothman and his colleagues at Chicago on the mechanism of melanin pigmentation is not so widely known as it deserves.

Briefly it may be accepted that the melanin-forming enzyme in the skin is held in check by various reducing substances, notably sulphydrils and, possibly, ascorbic acid. In order that the enzyme might function it is necessary that the inhibiting action of these chemicals should first be overcome. Lea[1] found that the action of tyrosinase on tyrosine is inhibited partially by certain concentrations of sodium chloride, so it seems possible that the fall of blood chloride in Addison's disease might have some bearing on the pigmentation of this disease. Martini,[2] in a long-neglected paper, found a fall of the blood glutathione in adrenalectomized dogs, and Rivoire[3] and Leobardy and Labesse[4] claimed that by treating patients suffering from Addison's disease with cysteine they caused a marked alleviation of symptoms and a diminution of skin pigment. If these observations are of any significance it would seem that the hypothetical increased availability of tyrosine plays but a small part in a complicated story.

It is noted that the pigmentation of the case described by your contributor appeared within 48 hours of adrenalectomy and almost disappeared after eight days. The known facts about melanin pigmentation make it exceedingly improbable that the pigmentation could have been due to melanin formation. Under the impact of ultra-violet light melanin does not appear macroscopically for a matter of about five days and lasts for months or years. It is unfortunate that a skin biopsy was not taken to determine the nature of the pigment, for the phenomenon must have been a striking one warranting further investigation.—I am, etc.,

Truro F. A. WHITLOCK.

REFERENCES

1 *Nature, Lond.*, 1945, **155**, 428.
2 *Arch. Fisiol.*, 1934, **33**, 175.
3 *Pr. Méd.*, 1935, **43**, 1122.
4 Ibid., 1934, **42**, 599.

Gouty Arthritis

SIR,—Dr. Kenneth Stone in his review of the monograph on rheumatism by Professor Gunnar Kahlmeter (October 8, p. 796) writes: "It is surprising to read that the author has found colchicine of value in rheumatoid arthritis and in rheumatism of the menopause." It did not surprise me to read this. There are many cases resembling rheumatoid arthritis which are definitely gouty. The so-called "rheumatism of the menopause" is perhaps not investigated for uric acid and other clinical manifestations of acute or chronic gout because there is the fallacy, still prevailing, that gout is a rare disease, especially in the female sex.

Although it was accepted some time ago that every case of "rheumatism" should have blood tests for sedimentation rate, uric acid, and Wassermann, I wonder how many practitioners and even clinics perform these tests as a routine. In my experience in South Africa there are very large numbers of "rheumatic" cases in women with a normal or only very moderately raised sedimentation rate and only a small increase in their blood uric acid. In my opinion such cases are definitely gouty and not rheumatoid arthritis. These must be the cases which according to Professor Kahlmeter responded so well to colchicine—a drug which is regarded as a specific for gout.

The debatable point is the figure for normal blood uric acid. Unless we agree on a certain figure obtained by a certain method which may be regarded as normal (and the same must be said about the sedimentation rate) we cannot come to any amicable settlement at all. May I suggest that the next international rheumatic congress makes a serious attempt to agree on certain uniformity and criteria in laboratory and clinical investigations of the so-called "rheumatism and allied conditions"? This would be of definite benefit to our suffering patients.—I am, etc.,

Johannesburg. NATHAN FINN.

Prostatic Obstruction

SIR,—The article by Mr. H. Hamilton Stewart on prostatic obstruction (November 5, p. 1011) mentions calibration of the anterior urethra by direct measurement. I wonder whether it would be of interest to recall that a similar instrument was used by Otis in America towards the middle of the last century. He made the then very important discovery that the male urethra is of very much larger calibre than was realized, and his findings enabled Bigelow, then professor of surgery at Harvard, to make lithotrites and evacuating cannulae of sufficient size to put the operation of litholapaxy on a practical basis.

An illustration of a urethrameter is to be found in Sir Peter Freyer's book, *Stricture of the Urethra and Enlargement of the Prostate* (London, 1902, p. 18), and he comments that its use is made a little difficult by a tendency for the blades to catch in the urethral mucosa. In the same book (p. 13) is a reference to still earlier work on the subject, that of Sir Everard Home, who measured the urethra by making a cast of it in the cadaver, and an outline of one of these casts is reproduced.—I am, etc.,

Swansea. B. BRENDAN HICKEY.

Myoidema

SIR,—The article on myoidema by Colonel Geoffrey F. Taylor and Dr. P. N. Chhuttani (October 8, p. 784) interested me greatly. I feel that my experiences may be of interest, as they appear to support their contention as to the factors which lead to its production. I trust that I may be allowed to place them on record.

Until starting practice in South Africa I had always regarded the elicitation of the presence of myoidema (as defined in the article) as an indication for a careful clinical examination. It was a sign which I looked for early in my examination and which, when present, I regarded as an indication of ill health. Frequently I found it associated with tuberculosis, malignant growths, or other serious disease. Only when all other indications of disease were absent and I was satisfied did I dismiss it as of no serious import. On several occasions the sign has prevented my overlooking serious disease.

My clinical practice prior to arriving in South Africa had been restricted more or less to Europeans, mainly from Britain, whose diet was relatively good, even among the poorer groups of the population. I now practise in the Transkeii, a native reserve, and the bulk of my patients are natives. Malnutrition is general, pellagra of frequent occurrence, and nutritional oedema in children in times of drought and starvation common. The causes for malnutrition in the native are well known to all

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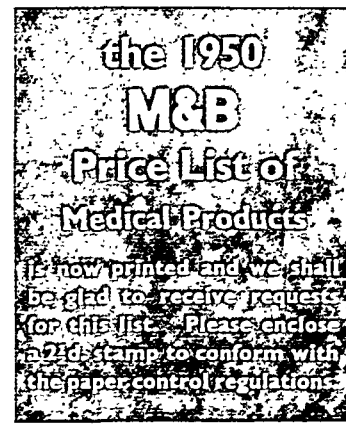
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administrative, medical, and welfare workers who deal with him. They embrace poor husbandry, soil erosion, ignorance and apathy, impact of civilization, economic disadvantage, etc. Maize forms the bulk of the native diet. Milk, meat, eggs, corn, and beans are also eaten, but in many cases the amount is small, especially during drought and starvation.

It was not long before I ceased to regard the elicitation of myoidema in the native as an indication of serious disease. It was present too frequently, and I tentatively put this frequency down to the native's nutritional state. The deficiency diseases which predominate in times of stress are those associated with the vitamin-B complex, and it is not unreasonable to attribute the high incidence of myoidema to a deficiency of one or more members of this complex.

Nevertheless the conclusion that myoidema is due to a local nutritional deficiency of muscle should not bring it into disrepute as a clinical sign. There may be more than one cause for this local nutritional state. Its presence in an individual known to come from a group normally well nourished should be regarded as a sign of possible serious disease until proved otherwise.—I am, etc.,

Tabankulu, South Africa. J. H. JACKSON.

The Acute Throat

SIR,—I notice in the *Journal* of November 5 (p. 1048) a letter from Mr. W. Stirk Adams with reference to the treatment advocated by Professor Wilkinson and himself in the *Birmingham Medical Review* (1947, 15, 170). As regards penicillin treatment, being a G.P. I have never used this by injection, nor have I seen any useful result from penicillin lozenges. Sulphonamides, especially sulphamezathine, have given good results, but in my opinion the treatment *par excellence* is by bismuth and sodium tartrate suppositories three times daily. I have employed these in between 40 and 50 cases, and with only one exception the improvement has been rapid and cure complete in two to three days.

In two cases where there was obvious pus formation in the peritonsillar tissues it was, of course, obvious that this would need to be evacuated, but I prescribed the suppository to see whether the pain was eased. In each case the patient informed me that relief was rapid and marked.

In ordinary cases of follicular tonsillitis several patients have remarked on the rapidity with which the suppository acts, stating that within half an hour the throat became much easier. Patients have been between 3 and 65 years of age. I have never seen any undesirable effects, even when suppositories containing 1 gr. (65 mg.) of the salt have been used in young children of 3 or 4 years. But for safety I have had suppositories containing gr. ¼ (16 mg.) made up for small children. In no case have more than six suppositories been needed, and the saving of pain and time to the patient and of time to the doctor make this to my mind a most valuable line of treatment.—I am, etc.,

Solihull, Warwick. C. T. MATTHEWS.

SIR,—Dr. T. Anderson (October 15, p. 860) has written a very practical and valuable article on the acute throat. There was an omission, however, which I feel merits recall. In discussing the treatment of the anginose type of glandular fever, no mention was made of the use of intravenous arsenic, which some years ago received high praise from Smith and Shaw[1] for its value in dealing with the occasional intractable and severe angina occurring in that infection. I have, since that publication, found a similar response in anginose glandular fever even in the absence of fuso-spirillosis and where there had been a failure to respond to other therapy, including penicillin. The drug is usually given in a single dose of from 0.3 to 0.45 g. intravenously, according to the weight of the patient.—I am, etc.,

London, S.W.6. W. HOWLETT KELLEHER.

REFERENCE

1 *British Medical Journal*, 1945, 1, 581.

A Long Gestation

SIR,—Dr. Madeline N. Gors (November 5, p. 1049) raises an interesting subject when she discusses the origin of folk tales dealing with long gestation periods. These myths are very common, and the suggestion that they arise from the practice of a man marrying his deceased brother's wife has been made before. This custom—technically known as the levirate—is widespread, but serious anthropological objections can be offered to the suggestion that it may be the origin of these myths. In the first place, other marriage systems such as the sororate or ghost-marriage of the Nuer type might equally well be advanced to account for such tales. Secondly, the expected results of this theory conflict with certain observed practices in various endogamous and exogamous groups. Thirdly, if this theory were correct certain significant correlations would be expected between the observed distribution of the levirate and the distribution of the bradycyesis myths. These correlations are not significantly found.

An attempt has been made to derive the myth from animal totem beliefs on the basis of the unknown length of many animal gestation periods. This attempt has not been very successful. Another theory links it with giant and longevity stories: where a culture-heroine is credited with a life of five hundred years she may reasonably expect to spend six years carrying a child. A further explanation has been sought in the occurrence of such conditions as foetus papyraceus and lithopaedion.

At present it does not seem possible for anthropology to offer a solution of this problem. Whatever the origin of the belief, however, there is no doubt that it is psychologically very acceptable to peoples of many different culture patterns.—I am, etc.,

Norwich. CALVIN P. B. WELLS

Treatment of Basal-cell Carcinoma

SIR,—It was with great interest that I read the paper on this subject by Sir Cecil Wakeley and Mr. Peter Childs (April 30, 1949). Most people now recognize that Australia has the unenviable reputation of having the highest incidence in the world of skin and lip carcinoma. The reason for this (chronic sunburn effect in a fair-skinned population largely engaged in outdoor occupations) has been discussed elsewhere by myself[1] and other Australian observers. Sir Cecil Wakeley bases his experience on 237 cases seen over the course of 35 years. During my tenure of office at the Royal Prince Alfred Hospital, Sydney, the total of 237 cases of basal-cell carcinoma was greatly exceeded each year, especially if the many cases seen and treated by me in private practice are included.

The distribution of lesions in Sir Cecil Wakeley's collection of cases (214 on the face, scalp, and neck to 23 on other parts of the body not exposed to sunburn) is understandable, as in England there will be a larger proportion of basal-cell carcinoma due to other causes than ionization by the ultra-violet component of sunlight. In Australia the proportion would be at least 100 on exposed to one on unexposed areas.

There are a number of points in Wakeley and Childs's paper upon which I must express strong disagreement. First, I wish to point out that surgical intervention is highly inadvisable as treatment for basal-cell carcinoma on the edge of the lower lid, in that awkward corner just medial to the inner canthus and over the lacrimal sac, and in comparatively advanced lesions over the course of the facial nerve. Yet by local anaesthesia in the conjunctival sac and the insertion of a lead spatula under the diseased lid, these lower lid tumours (which are not so uncommon) can be easily and most efficiently treated by *x* rays without any possible damage to the eye, leaving only a very shallow bay on the edge of the lid and without any impairment of the wiping apparatus. The technical difficulty in treating by radiation the deeper growing basal-cell carcinoma is trifling if the operator is reasonably experienced. Of course radiation treatment is not standardized in the strictest sense any more than surgery is. But to all competent radiologists the dose in r units with allowance for fading effects is standardized.

In my experience the number of recurrences after surgical excision by competent surgeons notably exceeds those after irradiation by competent radiologists. Moreover, a competent radiologist, like a competent surgeon, can easily appreciate the surface extent and depth of penetration of a basal-cell carcinoma and allow a sufficient margin of apparently healthy tissue round and beneath the growth.

I cannot agree that "irradiation produces radiodermatitis," at least in doses suitable for the cure of basal-cell carcinoma. In certain cases which have been rendered radio-resistant by previous timid and inadequate dosage requiring too many repetitions radiodermatitis may occur, but the competent and experienced radiotherapist will rarely undertake such cases after they have been spoiled by previous tinkering by some inexpert operator. If it does occur the surgeon can excise it and graft the area if necessary with little or no more difficulty than if he were operating on the original tumour.

The use by Wakeley and Childs of the phrase, "Only rarely need a patient be *condemned* to irradiation," surely proclaims an ineradicable prejudice against radiation on the part of the authors. Without the support of any authority they state, "Recurrences occur *consistently* in 5% of cases treated by *x* rays." By the context this must be applied to cases of basal-cell carcinoma. If this is their experience they must have been most unfortunate in their choice of radiologists. If one excludes very advanced cases such a figure is very misleading. In my experience recurrences are less than 1%, and one can say with confidence that nearly all these are marginal recurrences due to the inclusion of too small a margin of apparently healthy skin around the tumour. Such recurrences are quite easily manageable by further irradiation excluding the previously treated area. With proper technique and dosage there should be no recurrence of basal-cell carcinoma after *x* rays or radium treatment any more than after "adequate surgical excision."

With regard to "time lost to work, admission to hospital, and mental trauma," I am bound to insist that "the advantages" definitely lie with radiotherapy. There is a very potent psychological factor which is entirely overlooked by Wakeley and Childs. Before it is possible to make arrangements for "premedication of patients to diminish their worry" it is necessary to persuade them to submit to an operation. The early stages of basal-cell carcinoma and even of a squamous carcinoma are so insignificant to the layman's eye that if nothing but surgery is offered to him he will procrastinate, perhaps till too late. The operation which seems trivial and safe to the surgeon looms large in the mind of the patient. He and his friends will probably conclude that the doctor is an alarmist, and he will "wait and see." This was frequently observed in Australia when for the first five years of this century the only form of treatment available was surgical excision. I and my contemporaries in those days saw dozens of hideous cases with deep invasion of bone, exposed antra, etc. Since radiation has entered the field such horrible cases are no longer seen because the patient does not regard *x*-ray or radium treatment as an operation."

The secretary of the Royal Prince Alfred Hospital, Sydney, has at short notice located 1,247 cases of basal-cell carcinoma treated in the superficial *x*-ray department in the year 1947–8 besides 50 cases treated as in-patients and others treated in the radium clinic. Almost all of these are referred to the skin department, the doses being prescribed generally by the officers of that department. I realize that these figures will appear exaggerated in the eyes of practitioners in the British Isles. But if any one of these who is interested in skin carcinoma come out here and see for himself. I believe, after a close study of skin carcinoma and a huge experience of cases of this disease and its treatment, that the suggestion made by Wakeley and Childs that all cases of basal-cell carcinoma should be treated surgically means an attempt to put the clock of progress back nearly 40 years.—I am, etc.,

Sydney, Australia. E. H. MOLESWORTH.

REFERENCE

1. *An Introduction to Dermatology*, 1944, London.

Pulmonary Embolism in General Practice

SIR,—It is now widely accepted that the correct treatment for pulmonary embolism is immediate administration of heparin. Various other methods are advocated as additions to this treatment, but the heparin administration maintains its position as the sheet anchor. The earliest moment at which heparin can be given to a patient with recent pulmonary embolism is the best moment for its administration. I should like to make a strong plea for general practitioners to include heparin as part of their emergency kit, so that they may administer an intravenous dose of 10,000 units (international) of heparin immediately they see a case of suspected pulmonary embolism in their practice. In this way they would be able to cut short the retrograde thrombosis occurring after the embolism has reached the lung. They would also give themselves a great deal more satisfaction by feeling that the patient was not likely to develop any further extension of thrombotic phenomena during transit to hospital. Best of all, they would have the joy of seeing the initial severe pain checked in a most dramatic way in many cases. One such dose, even if the diagnosis was inaccurate, would do no harm and would be sufficient to cover four hours, during which the patient would become fit for removal as the initial shock phase passed off.—I am, etc.,

Mauchline, Ayrshire. G. J. CLELAND.

Synovial Osteochondromatosis

SIR,—The excellent article by Mr. J. F. Curr (November 5, p. 1020) in which he states that synovial osteochondromatosis is very rare in the shoulder-joint prompts me to record the following case.

A young married woman of 23 was first seen on August 25, 1947, complaining of stiffness in her left shoulder-joint for one year. The onset was slow, there had been no injury or rheumatism, and she was then unable to raise her arm above shoulder level. On examination she was a very healthy woman apart from the trouble in her shoulder. Behind the joint there was some fullness and a bluish discoloration of the skin. The movements were limited in all directions below 90°, but these were only slightly painful, and indeed pain had never been a prominent feature. Palpation of the diffuse swelling behind the joint gave the feeling of fine crepitus; and there was slight local tenderness. *X*-ray examination of the left shoulder showed a deformed left glenoid: "arthritic changes in joint due to large calcifying osteochondroma arising from the glenoid region." A radiograph of the right shoulder was normal, the lung fields clear, and the E.S.R. 10 mm. in one hour. A further stereoscopic radiograph showed that the tumour was lying almost entirely behind the joint and was displacing the base of the coracoid medially. A diagnosis of diffuse osteochondromatosis of the synovial membrane of the left shoulder-joint was made, and the patient was admitted for operation on February 13, 1948, having requested delay until her husband arrived from abroad. At this time there was almost complete absence of true shoulder movement (flexion 25°, extension 30°, abduction 15°). General muscle-wasting was present, particularly the deltoid, and fullness at the back of the joint due to a palpable firm tumour. There was still very little pain.

At operation a posterior approach was made and the deltoid reflected up, the incision being carried through the infraspinatus muscle. A firm tumour attached to the capsule of the shoulder-joint posteriorly was opened and multiple firm loose bodies about the size and consistency of dried peas were scooped out. Many were lying free, but others were attached by a short pedicle or were embedded in the synovial lining. Over 100 of these cartilaginous bodies were removed, together with the redundant synovial diverticulum, and the capsule was resutured. Section of one of the loose bodies showed rapidly growing cartilage cells.

Recovery was straightforward. The patient was given physiotherapy over the next four months, with considerable improvement in the range of movement (extension 125°, abduction 90°). A radiograph taken eight months after operation showed a few fragments of the osteochondroma high up in the joint below the acromioclavicular arch, and the osteoarthritic condition of the joint was unchanged. When last seen on October 20, 1949, she had almost full movements of her left shoulder-joint, which was painless and without evidence of any recurrence of her tumour.

I am indebted to Dr. W. A. Steel for the operative findings and permission to publish this case.

—I am, etc.,

Uxbridge, Middlesex. L. B. SCOTT.

The Nature of Lumbago

SIR,—Your annotation on lumbar "fibrositis" (September 24, p. 695), in dealing with the pathology of this condition, reflects the prevailing agnosticism on the subject. An excellent lead to the understanding of it is however given by Elliott,[1] who showed that myalgic nodules gave electrical discharges, as recorded by an oscillograph, identical with those given by muscle spasm.

The leading features of lumbago are that it is usually of sudden onset and is the result of a strain, either internal, such as coughing, sneezing, or parturition, or external, such as lifting a heavy weight when the body is bent forwards. Pain, often of great severity, then occurs in the erector spinae group of muscles, especially when movement is attempted, and these muscles are tender to palpation. Tenderness is also usually present over the sacro-iliac joints, and this may be elicited as follows: (1) by percussion over the posterior superior iliac spine; (2) by pressure upwards into the sciatic notch; (3) by deep palpation in the iliac fossa over the anterior border of the joint; (4) by palpation of the anterior border of the joint on pelvic examination.

The manipulation for low backache which I described in my letter (September 24, p. 710) is effective in cases of lumbago. In unilateral cases the manipulation is done on the one side only. In bilateral cases both sides are manipulated. In the past year the following results have been obtained by this method:

Cases manipulated (unilateral cases eight, bilateral cases 18)	26
Immediate abolition of the pain	26
No recurrence	14
Recurrence	12

The final state of the recurrent cases was:

Recovered after a second manipulation	2
Allowed to recover spontaneously	5
Considerable improvement	1
No improvement	4

Two cases had to be allowed to recover spontaneously because the manipulation failed when applied a second time. The four cases which did not improve had all had lumbago for many years.

That the manipulation acts on the sacro-iliac joints (*pace* Dr. Trevan Hambly, whose letter you published on October 15, p. 874) is suggested by the fact that the sacro-iliac joints are tender, that the condition is often bilateral and the two sides are manipulated separately, and that whenever crepitus or other noise or sensation accompanies the manipulation it appears to emanate from the sacro-iliac joints. The manipulation may possibly act also on other joints in the lower part of the back or may possibly reduce a herniated nucleus pulposus, since Burns and Young[2] demonstrated that such herniation may be pushed back at operation.

Lumbar fibrositis therefore appears to be nothing more than spasm in the erector spinae group of muscles, usually the result of a manipulable lesion in the sacro-iliac joints and is comparable with the spasm around a dislocated shoulder-joint, which also disappears at once when the dislocation is reduced without anæsthesia. The popular term "lumbago" includes the cases of lumbar "fibrositis" discussed above and also cases of severe low backache without marked involvement of the erector spinae muscles.—I am, etc.,

N. B. EASTWOOD.

Lowestoft, Norfolk.

REFERENCES

1 *Lancet*, 1944, 1, 47.
2 Ibid., 1947, 1, 623.

Botulism or Polio-encephalomyelitis?

SIR,—I was most interested to read of the case of botulism described by Dr. David Kendall (November 12, p. 1094). It seems to me, in the light of current events, that the combination of cranial-nerve palsies with bulbar involvement, pyrexia, vomiting, residual weakness of the dorsiflexors of the ankle, and even survival is more likely to be caused by an attack of polio-encephalomyelitis, which has now become so common, than by botulism, which is so rare.

I think that it is unfortunate that too much attention has been focused on the ingestion of canned tongue and that this has served only to mislead. The clinical picture so ably described by Dr. Kendall is to be seen all too frequently in those hospitals where acute cases of infantile paralysis are admitted. It is well known that the protein content of the cerebrospinal fluid rises during the third week of an attack of poliomyelitis: though Dr. Kendall saw the case at a late stage, I think that lumbar puncture might have revealed this phenomenon.—I am, etc.,

E. VIVIAN LAMBERT.

Uxbridge, Middlesex

SIR,—I have read with interest the report by Dr David Kendall of a case of "botulism" (November 12, p. 1094), but I feel that from the epidemiological point of view there must be some considerable doubt about the diagnosis. It seems to me to be very surprising that, if the tin of tongue contained botulinum toxin, only one of those who ate it should have had an illness involving the cranial nerves. Botulism is the nightmare of manufacturers of canned foods, and in commercial canning processes great care is taken to ensure that foods which are a suitable medium for *Cl. botulinum* are heated to a temperature which will kill the spores.

I hesitate to enter into a discussion of the clinical features of the case, but have just re-read the official account of the outbreak at Loch Maree in 1922, and it does seem to me that the clinical picture was very different in this case from that described in the report. I suggest that the possibility of some other diagnosis should be considered.—I am, etc.,

A. H. GALE.

London, S.W.1

Death by Hanging

SIR,—It is often said that death by hanging is "instantaneous." What is the evidence for this statement? The following might be causes of unconsciousness: (1) Concussion when the rope breaks the fall. (2) By nervous impulses originating in or near the crushed cervical cord. Both (1) and (2) seem improbable. (3) By compression of both vertebral and both internal carotid arteries; this could hardly be predicted with certainty. (4) By immediate asystole; this, if it occurred, would lead to unconsciousness in about six seconds. It may not occur, for people have survived compression of the cervical cord. (5) By loss of vasomotor tone and consequent inadequacy of the cerebral circulation—a slower process than the last. (6) Fall of oxygen tension in the blood; this factor by itself would produce unconsciousness in a matter of minutes.

Many medical men besides myself must have an uneasy suspicion that the last two factors are the cause of unconsciousness and death from hanging, and that the subject may remain conscious for many seconds after the drop.—I am, etc.,

F. A. RICHARDS.

Rochester, Kent.

Memorial to Sir John Fraser

SIR,—Some months ago (August 13, p. 389) you granted us the courtesy of your columns to announce the opening of a fund to establish a memorial to the late Sir John Fraser, Bart., K.C.V.O., formerly regius professor of clinical surgery and principal of Edinburgh University.

It is our intention to close the fund on December 3, and those who may still wish to contribute are reminded that subscriptions should be sent before that date to the treasurer, John Bruce, Esq., C.B.E., F.R.C.S.Ed., Department of Surgery, The University New Buildings, Edinburgh.—We are, etc.,

EDWARD V. APPLETON.
JAMES M. GRAHAM.
FRANK E. JARDINE.
JAMES LEARMONTH.

Edinburgh.

Firework Injuries

SIR,—Shortly after reading the annotation entitled "Burns and Bonfires" (November 5, p. 1033) I was called, on Guy Fawkes' night, to operate on a boy of 12 who had a severe injury to his right hand. Another boy had lit a firework; it fell over, and this boy picked it up and it "exploded" in his hand. Half the thumb was blown off; the metacarpal, with its muscles hanging loose, was held by a flap of skin. The index finger was badly injured and fractured, and the palm opened up right down to the carpal bones, at least one of which was fractured. Muscles and tendons were torn and charred. One hopes that conservative surgery may save most of the hand and give some, but not normal, function. Such injuries to the thumb and index finger of the right hand in a boy are a big price to pay for an evening's enjoyment.

Your annotation rightly mentions that most of these firework accidents could be prevented if common-sense precautions were taken, but children in the excitement of the moment do not always remember these. Also the instructions on the firework cannot be read in the dark. I would suggest that the makers might distribute two distinct classes of firework: harmless ones for children, and a more powerful type for adult use. The children's fireworks would be such that no serious damage could occur even if they "go off" in the hand, and it would then be up to the parents to see that their children purchased this type only.

Your annotation also states that the medical profession, since it is aware of the dangers, has a responsibility to make them known and so prevent these injuries occurring. My impression is that these injuries are much more common than we imagine, but I have never seen any statistics about Guy Fawkes' night casualties. I should be interested to hear of similar accidents to this one (where some permanent disability is likely to remain) which have occurred this year, and would be obliged to any surgeon who could send me brief details of such cases. In this way we may be able to do something to prevent these rather unnecessary war-like injuries.—I am, etc.,

L. A. H. SNOWBALL.

Wakefield House,
Compton Street, Eastbourne.

POINTS FROM LETTERS

Pronunciation of Chemical Terms

Dr. W. BRYCE ORMB (Hove, Sussex) writes: Doctors and chemists are aware that difficulties occur in reaching consistency in the pronunciation of certain chemical terms, such as benzene and benzine, but generally it is conceded that the former should be rendered as ben'zēn and the latter ben'zin. It was, however, a shock to hear several highly qualified and distinguished chemists at a well-known pharmaceutical laboratory all referring to the radical CH_3 as mēthyl. I had the temerity to correct them and pointed out that the term was derived from the Greek μεθυ = wine + ὑλη = wood. . . . Neither Dorland's *Medical Dictionary* nor our old school friend, Liddell and Scott's *Lexicon*, refers to any latitude in the pronunciation of methyl.

Recovery of Drugs from Urine

Dr. G. D. WILD (Derby) writes: The cost to the nation of such drugs as penicillin, streptomycin, and P.A.S., etc., must still be very great. I believe they are all very largely excreted by the kidneys, either unchanged or only very slightly modified. There appears to be no revulsion from the use of drugs prepared from urine of pregnant mares. I consider the recovery of valuable drugs (costly even when they cease to be in short supply) from the urine of human and veterinary patients affords a chance to economize which should be seriously considered at times like these present.

Cigarette Cough

Dr. D. A. HERD (Leeds) writes: I was pleased to read the letter (October 15, p. 876) on cigarette cough by Dr. B. J. Gallighan. When discussing this very important subject with patients, they frequently tell me, "But I never inhale." Now this statement is sheer nonsense, for although they do not pull the smoke through the cigarette they, and others in the vicinity, are compelled to inhale the surrounding contaminated atmosphere. This fact is proved beyond doubt by the intense discomfort experienced by victims of asthma and bronchitis. I entirely agree with his remarks about the cinema and theatre, but are not the majority of smokers inconsiderate?

Obituary

T. P. McMURRAY, C.B.E., M.Ch., F.R.C.S.

We announce with deep regret the sudden death of Professor T. P. McMurray, President-Elect of the British Medical Association. Professor McMurray, who died at Ealing Broadway station on November 16, at the age of 61, had been Professor of Orthopaedic Surgery in the University of Liverpool since 1938. He had been staying with his son-in-law and daughter and had intended to go on a visit to South Africa.

Thomas Porter McMurray was born in Belfast on December 5, 1887. He was educated at the Belfast Academy and at Queen's University, where he graduated M.B., B.Ch., B.A.O. in 1910. In 1919 he proceeded to the degree of M.Ch. and he took the F.R.C.S.Ed. in 1923. He was elected F.R.C.S. by the English College in 1948. Soon after qualifying McMurray was appointed house-surgeon, and later surgical tutor and registrar, at the Royal Southern Hospital, Liverpool. There he came under the influence of the late Sir Robert Jones and decided to devote himself to orthopaedics. He was appointed honorary orthopaedic surgeon to the David Lewis Northern Hospital in Liverpool in 1913, and in 1914 he was commissioned as a captain in the R.A.M.C. He had, however, only a brief period in France. He was recalled to spend most of the war at the Orthopaedic Centre at Alder Hey, where Sir Robert Jones was responsible for the treatment of cases and for the training of English, Canadian, and American surgeons. McMurray's connexion with Alder Hey Hospital, which began in 1915, was to continue for the rest of his life. He served for an even longer period the Royal Liverpool Children's Hospital, with which he was associated just before the outbreak of the 1914–18 war. Originally appointed as an honorary surgeon, he became honorary orthopaedic surgeon to this hospital in 1919. He acted as consultant for the Ministry of Pensions from 1920 onwards, and from 1933 he was orthopaedic consultant to the Lancashire County Council.



[*Bacon, Liverpool*

McMurray was appointed lecturer in orthopaedic surgery at the University of Liverpool in 1924. In 1933 he became director of orthopaedic studies, and when a chair was established in 1938 McMurray became Liverpool's first professor of orthopaedics. He had been president of the British Orthopaedic Association in 1940–1 and president of the Liverpool Medical Institution in 1948. He was president of the Section of Orthopaedics at the Cambridge meeting of the British Medical Association in 1948. He was awarded the C.B.E. in 1946.

Professor McMurray published many papers and a number of books, of which perhaps the best known were his *Life of Hugh Owen Thomas*, which appeared in 1935, and *A Practice of Orthopaedic Surgery*, which followed two years later. All his writings are simple and clear to the

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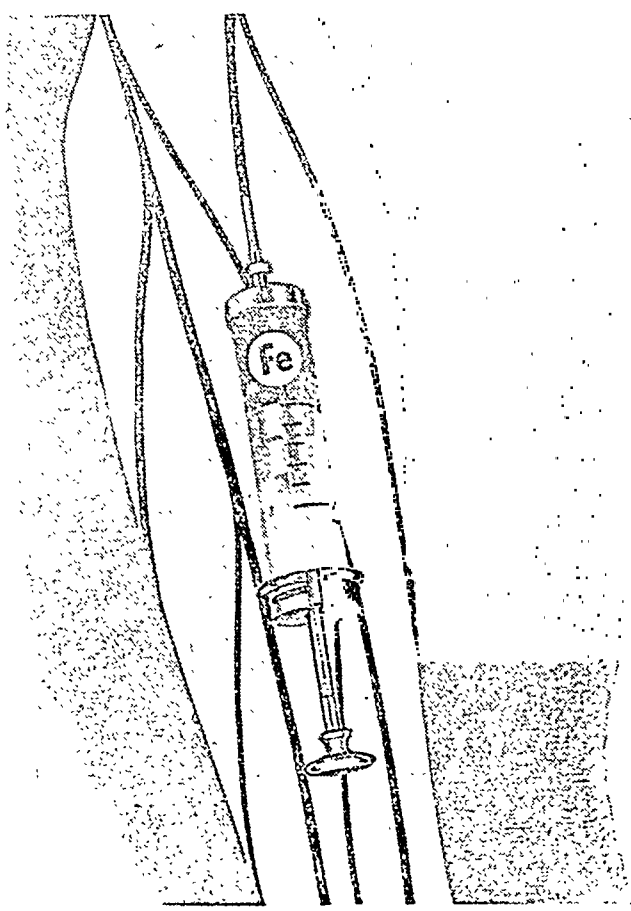
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point of being dogmatic. They reflect his teaching methods, which were direct and penetrating, though not unrelieved by humour.

A glance at McMurray's record will convey some idea of his experience, but it cannot reveal the uncanny instinct which guided him in diagnosis, in treatment, and also in knowing where to draw the surgical line. For instance, some of his colleagues will recall, in the early days of his displacement osteotomy, an occasion when the first blow of the osteotome shivered into bits the whole upper end of the femur. "That," said McMurray, "will be fine," and he stitched up immediately. The end-result was perfect. Watching him operate induced mixed feelings of pleasure and humility. A surgically beautiful pair of hands, perfectly co-ordinated with the directing brain, carried out operations the approach to which was as direct and purposeful as the performance was clean and swift.

It was typical of McMurray that in May, 1941, the destruction of 11, Nelson Street with all its orthopaedic treasures provoked no more than a snort of irritation. The German bomb destroyed his rooms, his instruments, and his unique mementos of his predecessors, but its only effect on McMurray's implacable spirit was to harden it. Although the list of honours accorded to him by his fellows indicates his status in the medical profession, distinctions were not sought by him. Two years ago many of his former students were gathered together to pay tribute to McMurray on his retirement from the chair of orthopaedic surgery at Liverpool University and to present him with a hand-made book containing signatures and portraits of his old students. To those who knew him well it often seemed that McMurray derived more pleasure from this book than from the many distinctions that came his way. The words inscribed by the donors of this book are worth recalling: "This book is signed and presented by your old students as a symbol of their respect and affection and to record for ever the debt they and their country owe to you. By your skill and by your teaching you have enhanced a great tradition this is now our treasured heritage and by our deeds we will preserve it."

Sir Henry Cohen writes: The rise of orthopaedic surgery to a major specialty in this country owes much to two world wars and to the increasing mechanization of industry and transport, but it owes most to the calibre, vision, and zeal of those who have been pioneers and leaders in this field. Among these we in Liverpool recall with gratitude and pride Hugh Owen Thomas, Robert Jones, and T. P. McMurray, whose sudden passing a few days ago stunned us with grief. It is over a quarter of a century ago that, as a dresser, I first met this tall young surgical teacher, of attractive and imposing presence, intent on imbuing his students with the importance of orthopaedic surgery. In didactic method he favoured the dogmatic and was somewhat impatient of the Socratic. He criticized fearlessly the incompetence in the treatment of fractures and skeletal injuries of many of his "general" surgical colleagues. Indeed, his outspokenness freed him from the dangers of that peril of which, on high authority, we are warned to beware, when all men speak well of us. But it was as a colleague, both in practice and at the University, after he succeeded his master and mentor, Robert Jones, as director (and later as professor) of orthopaedic surgery that I came to know him best in the intimacy of his home and his family and in University and hospital administration. He mellowed but little as the years advanced. He still exposed our faults and errors, though with complete sincerity, and I believe he would have been both hurt and surprised if he had known that some of his remarks were taken amiss. In committee he sometimes provoked by a veneer of cocksureness, but his views were generally right. He was not a polished orator, but he had a ready wit and could rebut the small facetiousness with a pungent thrust.

To his orthopaedic students and colleagues he was at once an example, a stimulus, and an inspiration. He handled the injured part with meticulous care and extreme gentleness. He never failed to preach that he was a servant, not the master; that in his hands lay the power not to heal but to help healing; that Nature was the great healer. No one exemplified more perfectly the precepts of Ambroise Paré. He was impatient of those who introduced operations hoping for eponymous fame when he knew that simple measures in his hands yielded even better results. No one applauded more heartily the quip that many orthopaedic surgeons published operative "cures" in 100% of cases in an apologetic tone which suggested that they hoped to do better next time. For him the aim of therapy in orthopaedics was to get the best out of the natural defensive mechanisms and healing powers of the body, and to eschew the spectacular and dramatic. Yet he was himself a superb craftsman; he had no superior in operative skill and no one could make an operation look more like a work of art.

His associations with Robert Jones and the Liverpool school, and his outstanding skill, brought him a very large practice. But he did not prostrate his gifts to the service of Mammon; he used them for the benefit of his fellow men in all stations of life, and by that measure of a man's height in the sight of humanity McMurray's stature was indeed great. Others will write with greater knowledge of the gifts which he brought to the principles and practice of orthopaedic surgery, but I believe that history will record that his greatest contribution lay in his keeping brightly burning the torch handed down by Robert Jones, so that through the hundreds of students trained in the Liverpool school, many of whom now adorn the major teaching centres and great hospitals not only of this country but of the world beyond, the crippled and the disabled have been given greater hope. Of him it can with truth be written that "his way was known upon earth and his saving health among all nations."

Sir Harry Platt writes: The sudden and unexpected death of T. P. McMurray has come as a shock to his friends and contemporaries, and his passing will be mourned by a great concourse of pupils now scattered throughout the Commonwealth. For "Mac," or "T.P.," as we called him, bore his years lightly; his youthful appearance was always a source of comment wherever orthopaedic surgeons met together in conference. His death marks the end of a chapter in the story of the evolution of orthopaedic surgery in Great Britain, and, indeed, in the English-speaking nations. Since the retirement of McCrae Aitken, McMurray had represented the last direct and intimate link with the teaching and practice of Sir Robert Jones. McMurray was Robert Jones's private assistant during that period of amazing activity which characterized the seventh decade of the life of that great master surgeon. It was for "Mac" a time of quiet self-effacement, but during those years of unique experience he laid the foundations of that clinical wisdom which later was his outstanding attribute as a teacher and leader of young men. McMurray, as a true son of Ulster, was unswerving in his devotion to a cause, and he felt impelled to enunciate the truths in which he believed; like Luther, he "could do no other." In his later years what appeared on first acquaintance as an uncritical and uncompromising acceptance of the doctrines of H. O. Thomas as self-evident and eternal verities repelled many of the restless spirits among the younger generation of orthopaedic surgeons on both sides of the Atlantic. His resistance to the ever-increasing practice of wedding metal to bone, and to the urge to cut short the long-term diseases of the skeleton in the evolutionary stage by early operative intervention, had persuaded them that he had become an old-fashioned and doctrinaire advocate of outworn principles. Few realized that the dogmatic Ulsterman was essentially a tolerant man, and that his philosophy was "Live and let live." He taught the value of conservative methods not because he himself was indifferent to the lure of the operating theatre—few surgeons of his generation in any field could compete with McMurray in sheer manual dexterity. His innate skill as an operator was manifest at a very early stage in his career. I well remember an occasion at the Alder Hey Military Hospital during the first great war. He was then in

his thirty-first year, and in the large audience in the operating theatre there were many experienced surgeons from the Dominions and the United States. McMurray picked up a scalpel, poised it for a moment in the air, and with one artistic sweep made a long incision accurately over the line of the ulnar nerve in the upper arm. This was followed by a second perfectly executed cut which divided the deep fascia covering the nerve trunk above and below the site of lesion. There was a murmur of admiration from the spectators.

In a long unbroken friendship with McMurray, with our careers running parallel in university cities not more than thirty-five miles apart, I cannot recall any occasion of misunderstanding or any feeling that we were rivals. When Robert Jones turned to me for help in the formidable task of preparing a second edition of Jones and Lovett, "Mac" showed no trace of resentment. He recognized with his essential generosity of spirit that others could also serve our great leader—each in his own fashion. McMurray's lasting personal contribution to his surgical generation was the building up of the great postgraduate school of orthopaedics in Liverpool associated with the M.Ch.Orth. degree of that University. The recognition of that great achievement by his elevation to professorial status was a source of pride not only to him but to his many colleagues and former pupils. Before I bring this tribute to the memory of my colleague to a close, I must refer to his uprightness and above all to his courage. He bore the tragic death of his first wife with great stoicism; and for some years he was a very lonely man. His second marriage brought him a new contentment, and in their country home in Denbighshire many years of happiness in retirement seemed to stretch out before him.

Sir Reginald Watson-Jones writes: Until recent months T. P. McMurray was still teaching postgraduate orthopaedic students and saying: "Feel it, laddie"; "I think you're splendid"; "Get on with it, laddie"; "You're a credit to us." Last week at the Hugh Owen Thomas Lecture in Liverpool he welcomed "a lost sheep" back to the fold; and in London he was planning his presidency of the British Medical Association. The suddenness with which we have lost an alert vitality, a boyish good humour, and a tall, handsome presence is difficult to believe. His manner was abrupt and brusque, but the kindness of it was warmed with a sentimentality that he himself would have denied and of which he would almost have been ashamed had he known that we recognized it. His original contributions to surgery were important and he was astonishingly quick and dexterous as an operator; but it is by his teaching that he will be remembered. He was forceful, dogmatic, and even intolerant if the principles of Hugh Owen Thomas and Robert Jones were denied. It is difficult to measure the full extent to which he maintained and enhanced a great tradition. In Australia, Canada, and South Africa, as well as in this country, many young surgeons will remember a brilliant clinician, a great teacher, and a friend whose affections lay deep.

Mr. Bryan McFarland writes: It is difficult to believe that from what was to have been a visit to South Africa McMurray will never come back to Liverpool again. He seemed so young and vigorous a few days ago, still working and still taking his place in our councils and our celebrations. He was full of interest in his presidency of the B.M.A., and had already planned part of his presidential address, which incidentally would have left his listeners in no doubt about his opinion of merit awards. He was never inclined to "pull his punches." And he would disapprove most strongly if we were to allow our sorrow to interfere with the work which he has left us. Rather would he expect us with increased determination to devote ourselves to the threefold purpose which, up to the moment of his untimely death, had absorbed all his energies. To prevent and relieve crippling defects, to teach and to train orthopaedic surgeons, and to stimulate research constituted his whole *raison d'être*. The high tradition of skill, of experience, and of teaching handed on by Hugh Owen Thomas to Sir Robert Jones and in turn by him to McMurray was strikingly maintained. Through the Liverpool School there passed innumerable men who are now practising orthopaedic surgery in all parts of the world.

McMurray was essentially a good companion. Whether playing a game of golf (in which with hardly a glance at the ball he would sink ridiculously long putts), or playing cards (at which he invariably won), or throwing at coconuts in a fair, he was great fun. I never saw him happier than at a fair in Chester in 1940 when he smashed a whole stand of crockery for an outlay of half-a-crown. When he was doing nothing he did it just as thoroughly, and to see him sitting in the sun at Ystrad Cottage, gazing peacefully at the distant Denbighshire hills, the inevitable day-old newspaper on his knee, was an education in relaxation. He was a big man in the full sense of the expression. Just as there was nothing fiddling about his surgery and nothing mean in his dealings with men, so also there was nothing paltry in his reactions to the blows of fate. The death of his first wife caused neither a pause in his work nor an alteration in his manner, and only those who were very close to him knew how hard he was hit. We were overjoyed when his second marriage healed a wound to which he never admitted but of which we had begun to despair. He was very happy for the succeeding six years. Now we have lost one of our great men, and it will seem lonely in Liverpool without McMurray. But there is consolation in the knowledge that in all parts of the world there are men and women whose achievements will render immortal the personality and the work of Thomas Porter McMurray.

Mr. K. W. Monsarratt writes: Thirty years' friendship with McMurray has left chiefly in memory how completely and simply his vigorous activities were devoted to the work he chose for his own. He chose early, not long after he qualified, when good fortune brought him into association with Sir Robert Jones. This association was typical of all his loyalties; it was not only unbroken but never relaxed. It began with a house appointment at the Royal Southern Hospital; its last phase was when his name-plate was fixed on the door of 11, Nelson Street, Liverpool, under those of Sir Robert Jones and Hugh Owen Thomas. On the morning in May, 1941, the morning after 11, Nelson Street had been reduced to rubble by a bomb, he called at the Medical Institution. "I've lost my home," he said. About the beginning of the first world war he was appointed to a new department of orthopaedic surgery at the Northern Hospital, and he stayed on its active staff until he reached retiring age, two years ago. He was operating in the hospital the day before he died. He remained at home during the 1914–18 war, but what it cost him to stay at home only his intimate friends knew. The development of an organization for the treatment of the crippled soldier was in Robert Jones's hands, and McMurray was told he could not be spared to the Army. The first orthopaedic hospital in this country was established in Liverpool and he was put in charge. Seven or eight years after he had been appointed orthopaedic surgeon to the Northern Hospital he was pressed to join the staff of the Royal Infirmary. The Northern Hospital had been wise enough to give him the beds he wanted; his answer to the invitation from the senior hospital was characteristic. He said, "Thank you, I have what I want where I am." It was in the Northern Hospital that most of his adult orthopaedic work was done, but he had a full share in the development of this work among children, particularly in the Open Air Children's Hospital at Heswall, Cheshire, and in the Municipal Children's Hospital, Alder Hey.

In the University, recognition of orthopaedic surgery as a major specialty seemed to some unduly slow; it was represented by a lectureship only up to 1939, when a chair was established and McMurray became the first professor. His leadership among the younger men was worthy of the tradition of his chief, Robert Jones; perhaps he even exceeded his chief in the personal interest he took in those who passed through the school to work elsewhere. He was sparing of emotional expression, but his friends were not surprised by his grief at the loss in North Africa of his brilliant young disciple, Eastwood, in 1942. During the recent war he worked himself hard, as his many consultant appointments testify. Many young men will remember the courses of instruction in military orthopaedics

he organized and conducted, in place of the normal courses for the M.Ch.Orth., for whose high reputation he was principally responsible.

Those who were most closely associated with him wondered sometimes how little the ways to honours seemed to matter to him. Year in and year out it was the quality and perfection of the work he did, and saw done, that occupied him, but he was not too preoccupied to indulge freely in a sense of humour. He loved to "pull a leg." In 1941 a medical superintendent, much tried by a flood of air-raid casualties and not given to enthusiasms, said, "Professor McMurray's visits are an entertainment," then, after a moment, "and an inspiration." It may be said that the whole medical profession of Liverpool welcomed the opportunity of nominating him President of the British Medical Association. To him this meant that he would have a chance of helping to decide how the present changing conditions of medical practice might be directed to greater public benefit. He had already chosen this subject for his presidential address.

Professor G. R. Girdlestone writes: The sudden death of T. P. McMurray is a great loss to orthopaedics and a very sad blow to his friends and admirers all over the world. His achievements, distinctions, and eminence speak for themselves; but I would like to add a few words of personal appreciation, for I have known him intimately for thirty-five years, and we had many happy times together. His gifts of ability and temperament and his long association with Robert Jones enabled him to perceive by what procedure he could best help his patients; and to them he gave his unrivalled knowledge, experience, and skill with generosity and great kindness. He had an admirable confidence in his own judgment, but recognized in himself a certain capacity for nonconformity, so that when he brought out his excellent, if brief, textbook he was careful to call it *A* (not *The*) *Practice of Orthopaedic Surgery*. Unassuming, warm-hearted, and very friendly, his company was always delightful, with a wholesome appetizing flavour peculiarly his own. We mourn a great craftsman, and a great man, wise, direct, gay, and serene.

Dr. DALTON MALLAM died suddenly on October 23 at the age of 64. His early life was spent in the neighbourhood of Oxford, where his father was in practice. After qualifying at the London Hospital in 1913 he served as house-surgeon at Addenbrooke's Hospital, and it was there that he first practised his later well-known and very successful technique for tonsillectomy. He came to Redhill in 1919 and remained in general and surgical practice until 1947, when he retired owing to ill-health. During this time he was a member of the surgical staff for 25 years, and later consultant surgeon, at the East Surrey Hospital. He was always a sound, safe, and able general surgeon. During the 1914–18 war he served in France and the Middle East with the R.A.M.C. Dr. Mallam was associated with the development of the East Surrey mobile physiotherapy unit. He was chairman in 1939–41 of the Reigate Division of the B.M.A. In his spare time and holidays he loved birds, boats, and plants. He was a man of high principles, from which he never wavered; and this, combined with a meticulous attention to detail, a natural tidiness and punctuality of habit and mind, made him much valued as a trusted friend, a very able practitioner, and a colleague whom it was a pleasure to have known. To his widow and two sons the sympathy of all their friends will be extended.—W. W.

The Services

The Efficiency Decoration of the Territorial Army has been conferred upon Majors H. J. Heathcote, A. H. M. Richards, and J. T. Wybourn, Captain (Honorary Major) J. H. Whittles, and Captain T. R. W. Millar, R.A.M.C., T.A.

Colonel K. B. Fraser, R.A.A.M.C., has been appointed Honorary Surgeon to the King in succession to Brigadier (Honorary Major-General) R. W. W. Walsh, D.S.O., retired.

Medical Notes in Parliament

NATIONAL HEALTH SERVICE (AMENDMENT) BILL

The House of Lords on November 17 went into Committee on the National Health Service (Amendment) Bill.

Lord SHEPHERD, for the Government, accepted minor amendments to Clause 7 after the first six clauses of the Bill had been agreed without discussion. The first important Government amendment was a new clause to be inserted after Clause 14 as follows:

> Regulations made under Section 34 of the Act of 1946 and regulations made under Section 35 of the Act of 1947 may confer or impose on the Medical Practices Committee or, as the case may be, the Scottish Medical Practices Committee such additional functions in relation to arrangements for the provision of general medical services as may be prescribed.

Medical Practices Committee

Lord Shepherd said the purpose of the clause was to add to the authority of the Medical Practices Committee. The functions of that committee were, at present, technically limited to granting applications for inclusion in a medical list by doctors not yet on a medical list. The Government thought it important that the committee should have authority to look at all applicants for appointments. When a doctor on the list desired to appoint an assistant but the executive council for his area refused the appointment, the doctor should be able to appeal to the Medical Practices Committee, who could hear and determine the case. That was an illustration of the kind of extra authority which the new clause would give to the committee. The same powers would also be applied in Scotland by reference to the Act of 1947.

Lord LLEWELLIN said the new clause met a point made by the British Medical Association and had been agreed upon between that body and the Minister. He asked Lord Shepherd to see whether there ought not also to be consequential amendments to Sections 33 and 34 of the original Act. The advisers of the British Medical Association were not satisfied on that point. Section 33 expressly directed that regulations should be made requiring executive councils and not the Medical Practices Committee to arrange for the distribution of patients. Perhaps there ought to be some amendment to include the Medical Practices Committee in those regulations. Section 34 might require amendment in the same way, because as it stood it limited the functions which devolved on the Medical Practices Committee. He hoped Lord Shepherd and his advisers would look into these points before the report stage.

Lord SHEPHERD promised to respond to Lord Llewellin's suggestion, and the new clause was then agreed to.

Charge for Prescriptions

Lord Shepherd then moved to insert another new clause providing for the recovery of charges in respect of pharmaceutical services.

> Section 38 of the Act of 1946 and Section 40 of the Act of 1947 (which provide for the making of arrangements for pharmaceutical services) shall be amended by the addition at the end of each of those sections of the following subsection:
>
> (3) Regulations may provide for the making and recovery, in such manner as may be prescribed, of such charges, in respect of such pharmaceutical services, as may be prescribed, and may provide for the remission or repayment of the charges in the case of such persons as may be prescribed.

Lord Shepherd said this clause gave the necessary statutory authority for the proposal already announced by the Prime Minister in the House of Commons to make a charge for prescriptions under the National Health Service. The clause was drafted in general terms because the exact nature of the arrangements to be made had not been settled. The Prime Minister had announced that the charge would in any case not exceed one shilling and that old-age pensioners would be relieved of it. The Minister of Pensions had explained that

war pensioners would continue to receive free treatment for their pensioned disabilities. No further particulars could be given at this stage.

The object of the amendment was twofold. It was to act as a deterrent to excessive or unnecessary resort to doctors and chemists and to reduce expenditure. Eventually it might be possible to tackle these problems on other lines. The Central and Scottish Health Services Councils had set up a Joint Committee to advise whether it was desirable and practicable to restrict or discourage the prescribing by doctors in the National Health Service of medicines of doubtful value or of unethical character, and of unnecessarily expensive brands of standard drugs. This Joint Committee consisted of members suggested by the Standing Medical and Pharmaceutical Advisory Committees of England and Wales, the Scottish Medical, Pharmaceutical, and General Practitioner Services Advisory Committees, the three Royal Colleges and the Scottish Corporations, the British Medical Association, the British Pharmacopoeia Commission, and the Society of Apothecaries. It was too early to say what might be found possible on those lines, but it was conceivable that in the long run the better way of handling the problem might be by general acceptance of a list of drugs of recognized value, with the corollary that a doctor would be expected to justify the prescribing of any not so recognized or unnecessarily expensive brands of recognized drugs. The clause would be applied to Scotland by the necessary reference to the Act of 1947. It was of a permissive character and would enable the Minister to vary conditions governing these practices.

Lord LLEWELLIN said he was glad that the Minister of Pensions had ensured that disabled ex-Servicemen would not have these charges placed upon them. That provision would give general satisfaction. He did not understand one sentence used by Lord Shepherd. He had not the faintest idea what an "unethical" medicine was. He noted that the new clause was a wide one. It gave general power to the Minister to make regulations to make charges. The House would have to watch what those regulations did when they came out. He did not know whether the principle of one shilling per prescription originally adopted by the Government would work in practice. He was told that 70% of the prescriptions which were made under the National Health Service were not handled by the pricing bureau. He was informed that a charge of one shilling for every prescription would require a much larger staff in the pricing bureau than there was at present, unless the intention was to make an average adjustment, as had apparently been done so far under the Health Acts. He asked whether the price was to be per prescription or per item on the prescription. A number of prescriptions given by doctors included more than one item. In addition to the provision for old-age pensioners and ex-Service people, some provision should be made so that people who had to take regularly a drug such as insulin did not have to obtain a fresh prescription each time and thereby have to pay for each issue of a drug which they must have.

Lord HAWKE asked when the financial effects of this scheme would be seen. Could Lord Shepherd give some forecast of when the charge would be imposed?

Lord SHEPHERD agreed that the time for discussion of many of these details would arrive when the regulations came before Parliament. This new clause merely gave the Minister power to prescribe regulations which would, he hoped, see the light of day before long. There would have to be consultations about them. Not only would the question of prescribing be reviewed by the Joint Committee, but there would also be consultation with the professional organizations about the details of the scheme for the recovery of charges. Many of the points which were causing disquiet in certain quarters would undoubtedly be considered by the Minister before the regulations were drafted.

He found it difficult to answer Lord Llewellin's inquiry. A suggestion had been given to him that "unethical treatment by the supply of drugs appears to be something that stimulates the emotions." As to the statement that 70% of the prescriptions were not handled by the pricing bureau, Lord Shepherd said that an attempt was being made to secure the system which under a fairly inexpensive administration would give the results which the Ministry required. The point Lord Llewellin had raised about the repetition of prescriptions for a given complaint would receive consideration. He might be able to give definite replies to Lord Hawke when the regulations were brought before Parliament. A certain amount of the financial effect would be in this year and the full fruits in a full year.

The proposed amendment was then agreed to.

Checking Abuse by Foreign Visitors

Lord Shepherd moved to insert another new clause on the recovery of charges from persons resident outside Great Britain.

.—(1) The powers of the Minister to make regulations under the Act of 1946 shall, notwithstanding anything in Section 1 of that Act, include power to make regulations providing for the making and recovery, in such manner as may be prescribed, of such charges, in respect of such services provided under the Act of 1946, as may be prescribed, being services provided in respect of such persons not ordinarily resident in Great Britain as may be prescribed; and such regulations may provide that the charges are only to be made in such cases as may be determined in accordance with the regulations.

(2) This section shall apply to Scotland with the substitution for the reference to the Minister of a reference to the Secretary of State and for the reference to the Act of 1946 of a reference to the Act of 1947.

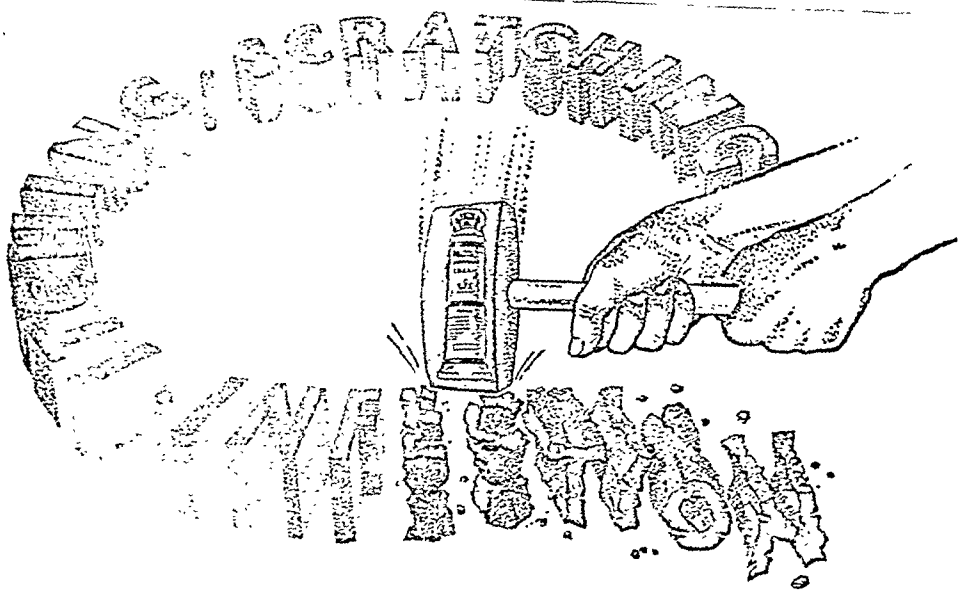
Lord Shepherd said the proposed clause gave power to make regulations for the making and recovery of charges for any use which might be made of the National Health Service by persons not ordinarily resident in this country. It was not the intention to exclude all foreign visitors from the benefits of the Health Service. Reasonable use of those services by those who fell ill when visiting this country was, in Mr. Bevan's view, a part of hospitality. Abuse by people who perhaps came to the United Kingdom mainly to take advantage of a free service was another matter. This clause was meant to give power to check abuse. Any regulations which might be made would not debar any person in this country from using the National Health Service but might require him to pay a charge for so doing. Subsection (1) of the new clause provided that the regulations made under the clause should specify to what services the charges would apply and what the charges were to be. The regulations would also lay down to what classes of persons not ordinarily resident in Great Britain the charges would apply. Owing to the difficulty in framing regulations which would not prove too rigid in their application to individual cases it was provided that the charges should be made only in cases where the Minister so determined.

Lord LLEWELLIN said the clause imposed on the Minister the responsibility for making regulations to recover from overseas visitors a charge for the use of health services. He recalled that Mr. Bevan, speaking in the House of Commons about an amendment on almost identical lines, had said that for him to accept such a responsibility was "absolutely and utterly impracticable." He was glad that on second thoughts the Minister had changed his opinion. He recalled that when the National Health Service (Amendment) Bill first came before the House of Lords he had remarked that it fulfilled promises three and a half years after suggestions on the same lines had been made in that House during discussions on the principal Act. He congratulated the Government that this time the suggestions of the House of Lords had been adopted within three and a half weeks.

The proposed new clause was agreed to.

On Clause 15, which concerns the superannuation of officers of certain hospitals, Lord Llewellin said that any hospital management, before availing itself of the facilities under the clause, would have to appreciate that as an employer it would place round its neck an unknown and unlimited liability in the matter of a deficiency contribution to the Minister's superannuation account. The same thing had happened under the Local Authority (Superannuation) Acts.

Lord SHEPHERD said he found that if there were an actuarial deficiency in the scheme of any particular hospital, the payments into the fund for that hospital might be increased. It would not be a question of making good a deficiency over the



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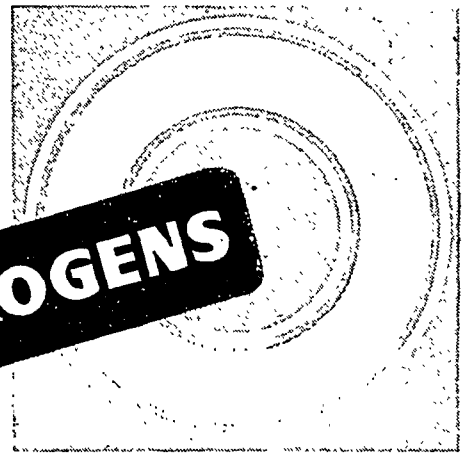
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general body of hospitals. He promised to talk with Lord Llewellin about the point.

Clause 15, together with the remaining clauses and schedule, were then agreed to and the committee stage concluded.

Dispensing Doctors

Mr. SKINNARD on November 17 asked what proportion of medicines prescribed under the National Health Service was dispensed by doctors; and how payment for the drugs was made in such cases.

Mr. BEVAN said no precise information was available, but the estimated proportion supplied by doctors under Part IV of the National Health Service Act was one-tenth. Doctors giving general medical services and maternity medical services supplied medicine to their patients in the following circumstances, and it was paid for in the following ways.

1. Prescribing doctors were required to supply drugs and appliances needed for immediate administration or before a supply could be obtained from a chemist. For this they received payment at the rate of 2s. 6d. per hundred patients on their list, with additional payment for expensive drugs in a Special List.

2. Prescribing doctors might themselves supply any drug normally administered by a doctor in person—e.g., an injection. For this they were paid the value of the drug plus a fee.

3. In country districts where no chemist was readily available, doctors might be required to supply all drugs and appliances needed for the treatment of their patients. For this they might be paid in two ways: (*a*) at the rate of 6s. 6d. per dispensing patient with additional payment for expensive drugs in a Special List, or (*b*) on the basis of the Drug Tariff for all drugs and appliances actually supplied.

Cost of Prescription

Dr. BROUGHTON asked on November 17 what was the average cost of National Health Service prescriptions; how much of that amount was dispensing fee; and how much the cost of container.

Mr. BEVAN in reply said the average cost of National Health Service prescriptions in England and Wales was at present about 3s. Of that amount one shilling and one-third of a penny represented the average dispensing fee and a penny farthing the average cost of containers. He had no changes in mind in these forms of expenditure.

Mr. PIRATIN asked Mr. Bevan, before introducing his regulation on payment for prescriptions, to consider reducing the average price of prescriptions, even if this involved lowering the profits of certain firms.

Mr. BEVAN replied that these matters had been looked into and the profits of the firms had already been reduced.

Diphtheria.—Local authority returns show that in England and Wales 2,431 children under the age of 15 were reported as suffering from diphtheria in 1948, and that 783 of them had been immunized. Of 126 children who died from diphtheria only six were immunized.

Hearing Aids.—Asked what assistance he gave to deaf persons to whom the Medresco deaf-aid was of no use but who could hear with the aid of other appliances, Mr. BEVAN replied on November 1 that non-electrical aids were provided in suitable cases. Steps were being taken to develop a new Medresco aid for the small minority who needed it.

Invalided Out.—The average yearly number of men who have been invalided out from the Army since August, 1945, is 32,616. This figure excludes 9,518 men who were invalided out as a result of wounds between August, 1945, and December, 1946.

Items Prescribed.—Mr. SKINNARD on November 17 inquired what percentage of the prescription forms dealt with by the pharmaceutical pricing bureaux carried a single prescription, and what percentage more than two. Mr. BEVAN said that precise data were not available. Evidence before him suggested that the average percentages were about 60% and a little under 10%, respectively.

Professor Crighton Bramwell, professor of cardiology in the University of Manchester, has recently gone to Italy for a lecture tour sponsored by the British Council. He is lecturing in Turin, Milan, Padua, Bologna, and Rome on "The Normal Heart," "Heart Disease and Pregnancy," "Phonocardiography," and "Subacute Bacterial Endocarditis."

Universities and Colleges

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

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[1]With honours. [2]Distinguished in pathology. [3]Distinguished in hygiene and forensic medicine. [4]Distinguished in medicine. [5]Distinguished in applied pharmacology and therapeutics. [6]Distinguished in surgery. [7]Distinguished in obstetrics and gynaecology.

UNIVERSITY OF MANCHESTER

The Council has appointed Sir John Stopford, F.R.S., as representative of the University on the Court of Governors of the University College of North Staffordshire.

The Council has decided to apply the gift of £1,699 made by the parents of children who during the 1939–45 war were evacuated to Canada in the establishment of a fund to make grants to Canadians wishing to conduct postgraduate studies and/or research in the University, a preference being given to students who shall have graduated in the University of Toronto.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended November 5. [No. 44

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949					1948 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	18	2	20	2	1	21	4	14	2	2
Deaths		—	—				2	—		
Diphtheria	86	8	34	4	2	171	17	54	9	4
Deaths	—	—	—	—	—	1	—	—	—	—
Dysentery	83	2	70	1	3	55	7	59	—	2
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—	—	—	—	—	—	—	—
Deaths		—					—			
Erysipelas			29	12	8			39	13	4
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				64					60	
Deaths	29	2	5	14	4	34	6	—	4	2
Measles*	1,082	33	32	80	68	6,177	123	166	124	75
Deaths†			—	—	—			—	—	1
Ophthalmia neonatorum	35	4	4	—	—	42	5	9	—	1
Deaths										
Paratyphoid fever	7	—	2 (B)	—	1 (B)	3	1	6 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	419	21	3	1	5	496	30	8	2	6
Deaths (from influenza)‡	17	2	2	—	—	4	1	1	—	1
Pneumonia, primary			179	24				187	20	
Deaths	197	38		7	8	208	32		5	8
Polio-encephalitis, acute	12	3				2	—			
Deaths										
Poliomyelitis, acute	318	47	3	4	5	73	6	4	1	—
Deaths§	35	5				4	2			
Puerperal fever		—	15				—	14		—
Deaths										
Puerperal pyrexia‖	65	8	5	1	3	106	12	3	—	2
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	2,048	161	269	162	174	1,471	91	314	206	35
Deaths†			—	1	—			—	—	—
Smallpox	1	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	11	—	—	—	—	4	—	—	2	2
Deaths	1	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	898	26	51	35	38	2,240	111	89	72	10
Deaths	2	—	1	—	1	5	1	—	2	—
Deaths (0–1 year)	249	30	34	30	12	293	42	43	18	13
Deaths (excluding stillbirths)	5,309	930	569	180	116	4,771	811	618	185	109
Annual death rate (per 1,000 persons living)			11·4	11·2				12·5	11·6	
Live births	6,912	1103	886	401	213	7,501	1274	875	396	227
Annual rate per 1,000 persons living			17·8	24·8				17·7	24·8	
Stillbirths	193	19	28			169	23	22		
Rate per 1,000 total births (including stillborn)			31					25		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

Notifications in England and Wales in the week ended November 12 were: poliomyelitis 293 (318), polio-encephalitis 23 (12). Figures for the previous week are in parentheses. Thus the slow decline in incidence continues.

Multiple cases were reported from the following counties. London 50 (55), Bedford 6 (2), Berkshire 7 (3), Buckingham 2 (4), Chester 16 (10), Derby 3 (2), Devon 3 (3), Dorset 7 (3), Durham 3 (2), Essex 24 (26), Gloucester 6 (9), Hereford 4 (2), Hertford 4 (9), Huntingdon 5 (0), Kent 15 (16), Lancaster 26 (32), Leicester 12 (3), Lincs, Lindsey 5 (13), Middlesex 14 (17), Norfolk 7 (5), Northampton 4 (1), Northumberland 4 (2), Nottingham 9 (8), Oxford 2 (2), Salop 2 (0), Somerset 2 (11), Southampton 9 (13), Stafford 7 (3), East Suffolk 2 (2), Surrey 6 (14), East Sussex 5 (9), West Sussex 1 (3), Warwick 7 (8), Westmorland 3 (1), Wiltshire 2 (1), North Yorks 2 (2), West Yorks 36 (50), Glamorgan 4 (7).

Discussion of Table

In *England and Wales* increases were recorded in the notifications of whooping-cough 149, acute pneumonia 116, measles 87, and scarlet fever 76, while decreases were reported for dysentery 56 and diphtheria 15.

The incidence of scarlet fever is about three times the level of 10 weeks ago, and the notifications give the largest weekly total for almost two years. This rise in the incidence of scarlet fever during the week was contributed by the northern section of the country; in the southern section a small decrease was reported. The largest of the local increases in notifications was Cheshire 44.

The chief feature of the returns for diphtheria was a decrease of 6 in the number of notifications in Staffordshire and in Lancashire. In only a few counties was any variation recorded in the trend of measles. The only increase of any size in the incidence of measles was Durham 81, due to a rise from 16 to 70 in South Shields C.B.; the largest decreases were Kent 31 and London 30.

The largest variations in the incidence of whooping-cough were a decrease of 26 in Lancashire and a rise of 32 in Durham, mainly due to Hetton U.D., where the notifications rose from 3 to 21.

The only large return for dysentery was 43 notifications in Lancashire (Liverpool C.B. 17, Ince in Makerfield U.D. 10).

In *Scotland* increases were recorded in the notifications of acute primary pneumonia 46, scarlet fever 45, dysentery 15, and cerebrospinal fever 13. The largest rise in the notifications of scarlet fever was 20 in Zetland county. An increase of 7 in the notifications of dysentery was recorded in both Edinburgh and Glasgow.

In *Eire* there was an increase of 63 in the notifications of scarlet fever with a decrease of 49 for measles. A rise in the incidence of scarlet fever occurred throughout the country; the largest increase was 31 in Dublin C.B. A fall of 68 in the notifications of measles was recorded in Waterford C.B. An increase of 14 in the notifications of diarrhoea and enteritis was reported from Dublin C.B.

In *Northern Ireland* there were increases in the notifications of measles 23 and scarlet fever 15. These rises were mainly due to the experience of Belfast C.B.

Week Ending November 12

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,163, whooping-cough 977, diphtheria 85, measles 1,055, acute pneumonia 534, cerebrospinal fever 20, acute poliomyelitis 293, acute polio-encephalitis 12, dysentery 92, paratyphoid fever 7, typhoid fever 18, food-poisoning 50.

Medical News

General Medical Council

Professor David Campbell, Regius Professor of Materia Medica in the University of Aberdeen, was elected President of the General Medical Council on November 22 in succession to the late Sir Herbert Lightfoot Eason.

New Dean Appointed

Professor Andrew Topping has been appointed whole-time Dean of the London School of Hygiene and Tropical Medicine. He will take up his duties in the middle of February, 1950. Professor Topping graduated M.B., Ch.B. at the University of Aberdeen in 1914, and served with the R.A.M.C. in Gallipoli and Mesopotamia during the first world war. For some years he was senior medical officer at Abadan in Persia and, on his return to England, became medical officer of health of Rochdale. After serving in the London Fever Hospital service he became deputy medical officer of health to the London County Council and lecturer in public health at Charing Cross Hospital Medical School. During the second world war he was deputy chief of the Relief Services of Unrra and subsequently director of health of the European division. He is at present Professor of Social and Preventive Medicine in Manchester University. As previously reported, Professor J. M. Mackintosh has resigned from the position of Dean, but will continue to teach in the school as Professor of Public Health.

Queen's Gift to Royal College

The Queen has given £1,000 to the Royal College of Obstetricians and Gynaecologists. This was announced by Sir William Gilliatt on November 22, speaking at a luncheon at the College's House to launch an appeal for £400,000. Of the sum required, £350,000 was for research, building, and general funds, and £50,000 for a travelling professorship.

B.C.G. Vaccination in London

The Health Committee of the London County Council is proposing that the Council shall participate in the local health authorities' arrangements for the prevention of tuberculosis under Sect. 28 of the National Health Service Act by providing for B.C.G. vaccination. The vaccination, in the terms of the proposal to be submitted to the Minister, will be provided "by, and at the instance of, physicians with specialist knowledge and experience of tuberculosis, as regards persons to whom it is judged medically expedient, subject to the necessary preliminary tests, to afford such vaccination in view of their known contact with tuberculous infection or selected groups of the population, as agreed by the Ministry of Health." It is considered advisable that all contacts, both children and adults, of tuberculous patients in London should be considered for vaccination. All the chest physicians in charge of the chest clinics in London will be nominated for the purpose. The person to be vaccinated may have to be segregated from known sources of infection while tuberculin testing and vaccination are being carried out, up to a total period of 12 weeks, or more if the vaccination is not at first successful. The Council itself may have to provide for the segregation of at least 150 children and, in special circumstances, a small number of adults at any time during the year. Copies of the proposal have to be served on every voluntary organization which, to the knowledge of the Council, provides services of the kind dealt with in the proposal, on the London Executive Council, the four metropolitan regional hospital boards, and the boards of governors of each teaching hospital in the county, and on every local authority within the administrative area. It is not proposed that the arrangements for B.C.G. vaccination of persons other than hospital staffs and medical students shall be brought into operation until after April 1, 1950.

Sheriffs

Dr. D. R. Lewis, of Swansea, has been nominated a sheriff for Breconshire and Dr. R. Davies Jones, of Llanidloes, a sheriff for Montgomeryshire for 1949.

Sickness Benefit Regulations

Under the National Insurance scheme increases of unemployment and sickness benefit may be paid to beneficiaries with dependants who fulfil certain conditions. The National Insurance Advisory Committee has been asked to consider and report on the preliminary draft of regulations which extend to one month from the date of entitlement the maximum time for claiming an increase of unemployment or sickness benefit for a dependant. The regulations also provide for extending the period of one month in cases in which good cause for delay in claiming is shown. Copies of the preliminary draft of these regulations (the National Insurance (Claims and Payments) Amendment (No. 3) Regulations, 1949) can be bought for 1d. from H.M. Stationery Office or any bookseller. The committee will consider written objections to them if sent before December 16 to the secretary, National Insurance Advisory Committee, 6, Curzon Street, London, W.1.

Analgesia Administered by Midwives

The total number of administrations of analgesia by midwives in the domiciliary midwifery service of London during the first six months of the present year was 5,204, being 61% of all the confinements taken by midwives. The figure for the previous six months was 3,611, or 42% of all confinements. The number has risen considerably each half-year since analgesia was introduced for their use in 1946. The figures given exclude maternity nursing cases in which analgesia or anaesthesia was given by doctors. Of the L.C.C. midwives, all but one of the 149 in the service are qualified to administer analgesia, and of the midwives employed by the district nursing associations and by hospitals on district work 88 out of a total of 93.

Institute of Medical Laboratory Technology

At the annual general meeting of the Institute held in Oxford on July 29 the following exemptions from Institute examinations were approved. Exemption from the final examination for associateship may be granted to those in possession of a science degree (or an A.R.I.C.—Associateship of the Royal Institute of Chemistry), in approved subjects with not less than one year's experience in approved pathological laboratories, on payment of the appropriate fee. These associates may qualify for fellowship by thesis after a further three years' experience. Exemption from the intermediate examination may be granted to those having not less than 15 years' experience in approved pathological laboratories prior to July 29, 1949, on payment of the appropriate fee. Copies of the Institute's memorandum and articles of association may be obtained from 76, Brewer Street, W.1. Price 1s., plus 2½d. postage.

William Hyde Award

The Research Board for the Correlation of Medical Science and Physical Education has awarded the William Hyde Award of £300 for 1948 to Dr. J. M. Tanner, of the Sherrington School of Physiology, St. Thomas's Hospital, in recognition of his work on somatotypes in medicine and his papers on the relation between physique and physical function. He states that he will use part of the gift for a monograph on "The Physique of the Human" which he is now writing. The award is made from funds provided by the Nuffield Trust in memory of William Hyde, who died in 1945, and whose concern for the future of the hospital services of the country to a large extent led to the establishment of the Nuffield Provincial Hospitals Trust.

Hospital Directory

The Ministry of Health has prepared a directory giving information about the hospitals and their boards and management committees in England and Wales. Addresses and telephone numbers are given, and the number of beds at the hospitals. Entitled "Hospitals Directory, England and Wales," it is obtainable from H.M. Stationery Office for 3s.

Wills

Sir Thomas Crisp English, who was for many years surgeon to St. George's Hospital, left £31,061. Dr. Henry Anstey Cookson, of Sunderland, left £21,266; and Dr. Frank Butterfield, of Blackburn, £7,745.

COMING EVENTS

Scientific Films

The Society for Cultural Relations with the U.S.S.R. has arranged to show two films in connexion with the Pavlov Centenary celebrations. The first, "Mechanism of the Brain," will be shown on Monday, November 28, at 5 p.m. at the Anatomy Theatre, Guy's Hospital Medical School, London, S.E.1, and the second, "Academician Pavlov," at the Hammer Theatre, Wardour Street, London, W.1. Admission to the first film will be by series ticket already issued, or by ticket (2s. 6d.) on application to the society at 14, Kensington Square, London, W.8. Admission to the second will be by series ticket or by the "Pavlov" issue of the *Anglo-Soviet Journal* (2s. 6d. from the society).

Osler Club

The next meeting of the club will be at the Medical Society of London, 11, Chandos Street, W.1, at 8 p.m., on Thursday, December 1. Professor J. Z. Young will speak on Pavlov and the work following his pioneering research, and Mr. R. Scott Stevenson will speak on Sir Felix Semon and his work in laryngology.

Bolton Royal Infirmary

Mr. Harold Balme, Medical Officer in Charge of Rehabilitation, Ministry of Health, will open the extensions to the Department of Physical Medicine and Rehabilitation at the Bolton Royal Infirmary on Thursday, December 1, at 3.15 p.m.

The Victor Horsley Memorial Lecture

The Victor Horsley Memorial Fund, which was raised in 1920 to commemorate the services of Sir Victor Horsley to science and the Empire, is devoted to the giving of a lecture triennially in London entitled the "Victor Horsley Memorial Lecture." By invitation of the trustees (the Presidents for the time being of the Royal Society, the Royal College of Surgeons of England, and the British Medical Association, the Senior Physician of the National Hospital, Queen Square, and Mr. Stanley G. Robinson, son-in-law of Sir Victor Horsley) the eighth lecture will be delivered by Sir Hugh Cairns, Nuffield Professor of Surgery, University of Oxford, in No. 1 Lecture Room, University College Hospital Medical School, University Street, Gower Street, London, W.C.1, on Thursday, December 8, at 5 p.m. The title of the lecture is "Disturbances of Consciousness with Disorders of the Brain Stem," and the chair will be taken by Dr. F. M. R. Walshe, F.R.S. Admission to the lecture is free on presentation of visiting-card.

SOCIETIES AND LECTURES

Monday

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, London, W.—November 28, 8.30 p.m., Discussion: "*Impotence*," to be introduced by Drs. S. L. Simpson and E. B. Strauss.

ROYAL SOCIETY OF ARTS, John Adam Street, Adelphi, London, W.C. November 28, 6 p.m., "*Bread*," Cantor Lecture, by Mr. D. W. Kent-Jones, Ph.D.

UNIVERSITY COLLEGE, Gower Street, London, W.C.—November 28, 4.45 p.m., "*Bacterial Toxins*," by Dr. W. E. Van Heyningen.

Tuesday

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—November 29, 5 p.m., "*Lupus Erythematosus*," by Dr. W. N. Goldsmith.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—November 29, 3.45 p.m., "*The Virus Theory of Cancer in the Light of Recent Work*." Imperial Cancer Research Fund Lecture by Dr. C. H. Andrewes, F.R.S.

Wednesday

BRITISH PSYCHO-ANALYTICAL SOCIETY.—At Royal Society of Medicine (Barnes Hall), 1, Wimpole Street, London, W., November 30, 8 p.m., "*Poetical Truth and Scientific Truth in the Light of History*," by Professor Arnold Toynbee.

ROYAL INSTITUTE OF PUBLIC HEALTH AND HYGIENE, 28, Portland Place, London, W.—November 30, 3.30 p.m., "*The Need for Smoke Abatement*," by Sir George S. Elliston.

SOCIAL PSYCHOTHERAPY CENTRE, 7, Fellows Road, London, N.W.—November 30, 5 p.m., "*Shorter Methods of Child Guidance*," by Miss J. Balls and Mrs. S. Kras.

Thursday

HONYMAN GILLESPIE LECTURE.—At Anatomy Theatre, University New Buildings, Teviot Place, Edinburgh, December 1, 5 p.m., "*Observations on Cirrhosis of the Liver*," by Dr. D. M. F. Batty.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—December 1, 5 p.m., "*Ulceration of the Mouth*," by Dr. L. Forman.

INSTITUTE OF PSYCHIATRY, Maudsley Hospital, Denmark Hill, London, S.E.—December 1, 4.30 p.m., "*The Visual System*," by Professor W. E. Le Gros Clark, F.R.S.

LONDON UNIVERSITY.—At London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., December 1, 5.30 p.m., "*Some Problems of Old Age*," by Dr. J. H. Sheldon.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—December 1, 5 p.m., "*Intracranial Abscess*," Otolaryngology Lecture by Professor Geoffrey Jefferson.

ROYAL PHOTOGRAPHIC SOCIETY: MEDICAL GROUP.—At 16, Princes Gate, London, S.W., December 1, 7 p.m., "*Criticism of Lantern Slides from a Medical Point of View*," Surgeon critic, Mr. Hedley J. B. Atkins; Medical critic, Professor G. W. Pickering.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—December 1, 4.30 p.m., lecture-demonstration: "*Neurology*," by Dr. A. Feiling.

Friday

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL, Denmark Hill, London, S.E.—December 2, 4.30 p.m., Legg Memorial Lecture by Mr. Geoffrey Keynes

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES MEDICAL SCHOOL, Maida Vale, London, W.—December 2, 5 p.m., clinical demonstration by Dr. H. E. Dimsdale.

ROYAL MEDICAL SOCIETY, 7, Melbourne Place, Edinburgh.—December 2, 8 p.m., "*Disseminated Sclerosis*," by Mr. J. J. MacCabe.

WHIPPS CROSS HOSPITAL MEDICAL SOCIETY, Whipps Cross Hospital, London, E.—December 2, 8.30 p.m., "*Recent Advances in Therapy of Mental Diseases*," by Dr. T. P. Riordan.

Saturday

KENT PAEDIATRIC SOCIETY.—At Children's Hospital, Woodland Way, West Wickham, December 3.

YORK MEDICAL SOCIETY.—At 17, Stonegate, York, December 3, 8.30 p.m., "*Deformities of the Jaw*," by Professor M. A. Rushton.

APPOINTMENTS

BROWN, GEORGE GORDON, L.R.C.P. & S. Ed., L.D.S., D.P.M., Medical Superintendent, St. Mary's Mental Defective Institution, Newport, Isle of Wight.

CHARLTON, E. P. H., M.D., D.P.M., Consultant Psychiatrist and Deputy Physician Superintendent, Graylingwell Hospital, Chichester, Sussex.

MAYES, JOYCE B. M., M.B., B.S., D.P.H., Medical Officer of Health, Blandford Borough, Blandford Rural District, Wimborne Urban District, and Wimborne-Camborne Rural District, and Assistant County Medical Officer of Health and Assistant County School Medical Officer, Dorset County Council.

WILLIAMS, T. M., B.M., B.Ch., F.R.C.S., Consultant General Surgeon at West Suffolk General Hospital, Bury St. Edmunds, East Anglian Regional Hospital Board.

WILSON, WILLIAM D., M.D., D.P.H., Medical Officer of Health, Burgh and County of Inverness.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Russell.—On November 14, 1949, at 9, Baring Crescent, Exeter, to Stephanie, wife of P. M. G. Russell, F.R.C.S., M.R.C.O.G., a daughter—Susan Gordon.

Tweedie.—On October 25, 1949, to Isobel (née Cochrane, M.B., B.Ch.), wife of W. M. Tweedie, 56, Richmond Hill, Richmond, Surrey, a son.

Welch.—On November 18, 1949, at Elvet House, Dean Road, South Shields, to Dr. and Mrs. H. D. Welch, a son.

DEATHS

Blank.—On November 16, 1949, at 38, Mapesbury Court, Shoot-up-Hill, London, N.W., Dagobert Blank, M.D., aged 69.

Braithwaite.—On November 10, 1949, at Whitehaven, Henry Mounsey Braithwaite, M.D., Surgeon Captain R.N., Ret., aged 67.

Evison.—On November 13, 1949, at Brook Lodge, Huxley, near Chester, Hanson Cotton Evison, M.B., C.M.

Felce.—On November 14, 1949, at The Cedars, Lingfield, Surrey, Stamford Grant Felce, M.D., aged 83.

Finlayson.—On November 18, 1949, at Edinburgh, William Thomas Finlayson, O.B.E., L.D.S., L.R.C.P.&S.Ed., Lieutenant-Colonel, R.A.D.C.

Hall.—On November 14, 1949, William Scott Hall, M.B., Ch.B., late of Scunthorpe, Lincs.

Husband-Clutton.—On November 19, 1949, at Crowland, Peterborough, Frank Husband-Clutton, M.R.C.S., L.R.C.P., J.P., aged 78.

Mackay.—On September 27, 1949, at Edmonton, Alberta, Canada, Joseph Bogue Mackay, M.B., Ch.B., aged 64.

McMurray.—On November 16, 1949, suddenly, in London, Thomas Porter McMurray C.B.E., F.R.C.S., Emeritus Professor of Orthopaedic Surgery, University of Liverpool; President-Elect, British Medical Association, aged 61.

Price.—On November 18, 1949, at St. Bartholomew's Hospital, London, E.C., David Cromwell Price, F.R.C.S.

Thomson.—On November 16, 1949, at the home of his niece, Andrew George Anderson Thomson, M.B., C.M., of Bridport and Bournemouth.

Weaver.—On November 15, 1949, after a short illness, Alfred Ernest Remmett Weaver, M.D., D.P.H., of 55, Beach Road, Weston-super-Mare.

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Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Alcohol after Infective Hepatitis

Q.—*For how long after an attack of "jaundice" should a patient keep off alcohol? What form of alcohol might he start off with?*

A.—It is difficult to lay down any hard-and-fast rule about the period for which a patient who has had infective hepatitis—it is assumed that this was the cause of the jaundice in question—should abstain from alcohol. There is no experimental evidence that alcohol has any direct toxic action on the liver, and the paper by Best and his colleagues in a recent number of the *Journal* (November 5, p. 1001) shows how improbable such an effect is. Nevertheless, a relapse of hepatitis has followed the taking of alcohol shortly after the primary attack, and it is well known that the tolerance for alcohol of patients who have had hepatitis is often diminished for weeks or even months afterwards. Headache, anorexia, flatulence, and abdominal discomfort may be the result of taking even one or two drinks, particularly after severe attacks. For these reasons most physicians advise their patients not to drink for a time after infective hepatitis. The period stipulated varies with the individual physician, and experience alone can decide what it should be. The writer always suggests six weeks without alcohol after a mild attack, but if the attack has been more severe than the average, and particularly if there has been a relapse, the time is increased to three months. It must be admitted that there are only empirical grounds for this recommendation. Experience suggests also that extreme moderation is advisable when alcohol is taken, and that indulging in heavy wines and taking drinks before meals are unwise.

Intranasal Oil and Cancer of Lung

Q.—*Preparations of vasoconstrictors in oil are increasingly used intranasally in the treatment of a number of conditions. Is there any evidence that the use of mineral oils for this purpose is a factor in the increased incidence of pulmonary carcinoma?*

A.—There is certainly no evidence that the administration of vasoconstrictors in oil is a factor in the increased incidence of pulmonary carcinoma, although any further answer to the query is necessarily limited by absence of information on the oils themselves (and particularly whether they are in fact carcinogenic), and by lack of data concerning the extent to which these medicaments are employed and for how long. The only possible way of arriving at an answer to the question is by consideration of the intrinsic carcinogenic effects of the oils concerned. Although it is known that in certain circumstances some of the oil introduced into the nose in this way will reach the lungs, the duration of its contact with the bronchi is very brief, and, if it is not removed by the normal defences, it comes to rest in the terminal part of the broncho-pulmonary tree, far from the site of origin of the vast majority of bronchial carcinomata. Also, if these oils are carcinogenic, one would expect the effect to be much more noticeable in the case of malignant disease within the nose itself; so far as is known there is no evidence that the incidence of this is increasing. These considerations aside, it is improbable that we have here a likely factor. On the general problem the query assumes the recorded increase of pulmonary cancer to be real—a conclusion which is increasingly accepted and almost certainly correct. While any new facts or even hints as to causation must always be welcome, the prevailing tendency is to regard the increased consumption of cigarettes which has occurred in most communities over the past 30 years as a major factor, though there is so far no conclusive statistical evidence of cause and effect.

Proguanil as a Malaria Suppressant

Q.—*What is the efficiency of proguanil as a malaria suppressant? What incidence of clinical attacks of all types of malaria might one expect on leaving an endemic area if suppressive administration of proguanil (0.1 g. daily) is continued for a period of seven to 10 days? Can any other measures be taken to ensure that clinical attacks are reduced to the absolute minimum?*

A.—Proguanil is a relatively efficient and non-toxic malaria suppressant, although certain African strains of *Plasmodium falciparum*, when compared with Pacific strains of the organism, appear somewhat resistant to the drug, and instances where the drug has failed against such resistant strains have been recorded. Few attacks of falciparum malaria should be expected after leaving an endemic area if suppressive proguanil 0.1 g. daily is continued for 10 days, but vivax malaria may of course relapse despite such treatment. The frequency of relapses of vivax malaria may be reduced by taking one of the 8-aminoquinoline drugs—for example, pamaquin, 0.01 g. thrice daily for 10 to 14 days; with each dose of the drug it may be more effective to combine quinine 0.6 g. or mepacrine 0.1 g.

Osgood-Schlatter Disease

Q.—*What is the latest treatment for Osgood-Schlatter disease?*

A.—There have been no recent developments in the treatment of Osgood-Schlatter disease of the epiphysis of the tibial tubercle. Although the exact cause is still unknown, the condition is thought to be a form of osteochondritis; the underlying cause may be some disturbance of the blood supply of the epiphysis. The treatment depends on the severity of the symptoms. When pain and local tenderness are severe the best treatment is to immobilize the limb for eight to 12 weeks in a plaster cylinder. After this the symptoms as a rule are no longer troublesome, and the disease gradually becomes resolved in the ensuing months. When the initial symptoms are slight, plaster may be dispensed with without risk to the knee.

Idiopathic Epilepsy

Q.—*What investigations are called for in the case of a man who at the age of 34 has for the first time an attack of sudden unconsciousness with marked cyanosis and convulsions? On examination later there appeared to be no obvious neurological abnormality. What are the possibilities?*

A.—It is unusual for idiopathic epilepsy to manifest itself first at the age of 34, but this is a possibility. If the patient has resided in the Tropics cysticercosis would need to be considered. Although recently published figures show that intracranial tumour is the cause of epilepsy beginning in adult life in only about 12% of cases, nevertheless steps must be taken to exclude it. Syphilis also requires to be thought of, and inquiries should be made about any history of head injury. This list includes all the most probable causes. Investigations must begin with a complete clinical examination of the patient, especially of the ocular fundi and the nervous and cardiovascular systems. An electroencephalogram should be obtained. It may prove normal, but modern methods yield a positive result in a high proportion of cases even in adult life—a diffuse dysrhythmia would suggest idiopathic epilepsy, and a focal dysrhythmia, either of irregular spikes or of delta rhythms, would support a focal cause. A blood Wassermann test and a complete examination of the cerebrospinal fluid should be carried out. These procedures would serve to exclude syphilis, while a raised protein level as the only abnormality in the cerebrospinal fluid would favour a diagnosis of tumour. A complete radiological examination of the skull should be made, and of the soft tissues around the shoulders and hips for the presence of cysticerci. In some cases it may be necessary to carry out air encephalography and cerebral angiography.

Treatment of Asthma

Q.—*A patient claims that she was cured of asthma by taking large doses of a preparation containing theophylline on going to bed. Is this result possible, and what dosage is called for in a young adult?*

A.—Theophylline is an effective bronchodilator, and is often used in the symptomatic treatment of asthma. It is most effective when injected intravenously, but can be given in tablet form. When taken by mouth it is a gastric irritant. The usual dose by mouth is 0.2 g., or intravenously 0.25 g. It may control the symptoms of mild asthma, but is no more likely to lead to cure than is adrenaline, stramonium, or any other symptomatic remedy.

Distension of Gut

Q.—*(a) How does obstruction of the lower bowel cause ballooning of the rectum? (b) How does uraemia cause distension of the bowel? (c) How does strangulated omentum cause constipation?*

A.—*(a)* The rectum derives its nerve supply from (i) sympathetic fibres following the superior haemorrhoidal artery and derived from branches of the pelvic sympathetic plexus accompanying radicles of the middle haemorrhoidal artery, and (ii) the pelvic splanchnic nerves derived from the third and fourth sacral roots (sometimes also the second) with communicating branches from the second and third lumbar roots. Obstruction of the lower bowel, either by distension or by direct involvement of the wall, paralyses the sympathetic fibres in the coats of the bowel, the nerves being motor to the circular muscle. At the same time the spinal nerves, which are not usually involved until a late stage, are unopposed in their inhibiting action on the circular muscle. Both effects lead to passive ballooning below the obstruction—this being most marked in growths of the lower sigmoid colon and pelvi-rectal junction.

(*b*) Although of recent years a great deal more has been discovered concerning uraemia, the actual by-products of inefficient filtering by the kidney are unknown; but it is a reasonable assumption that one or more of these are toxic substances which when circulating in the blood stream lead to irritation of the intestinal mucosa. The entero-colitis of the terminal stages of uraemia is a well-known entity. The inflammatory reaction causes a pouring out of fluid into the gut, thus accounting for a certain part of the distension. The fact that this fluid contains large numbers of gas-forming organisms accounts for yet further distension, and it is possible also that a circulating toxin may have an inhibitory effect on the sympathetic nerve supply of the gut and so lead to paresis.

(*c*) If strangulation is taken to imply vascular obstruction, then it is unlikely that the patient will remain long enough without surgical treatment for constipation to develop.

High-pitched Voice in Adult Male

Q.—*What are the commonest causes of a high-pitched voice in an adult male? Is it possible for the speaking voice of a man so affected to be lowered—that is, to be made more masculine? If so, what is the treatment?*

A.—Physiologically the voice breaks at puberty, and this is due to the increased secretion of androgens, which stimulate enlargement of the larynx. If puberty is late, the break in the voice is correspondingly delayed. In eunuchoids the break may be delayed until the third or fourth decade, or may never occur. In women who develop virilism due to an adrenal tumour or adrenal hyperplasia there is an increased secretion of androgens with deepening of the voice. This may also occur when testosterone is given to a woman for various reasons—for example, in the treatment of menorrhagia or carcinoma of the breast.

The above clinical considerations indicate that testosterone may be effective in lowering the man's speaking voice if there is other evidence of androgen deficiency. However, there are cases in which the patient is otherwise completely normal, and we must postulate an abnormality in the construction of the larynx or an absence of sensitivity to the testosterone stimulus. In these circumstances no benefit would result from such therapy.

Specificity of Spa Treatment

Q.—*Is it true that the medical profession generally during the last few years has indicated that it does not believe that there is any specific medicinal value in any mineral or spa waters?*

A.—If the literature on rheumatic affections and other types of disease which are generally regarded as being suitable for spa treatment is examined the impression emerges that the physicians who practise in spas in this country no longer believe much in the *specific* attributes of their waters. The tendency nowadays is towards explaining the undoubted benefits of spa treatment on the basis of the physical methods employed. Medical hydrology ranks as an important branch of physical medicine; balneology has become rather "old-fashioned," except in one or two countries on the continent of Europe.

Stainless Steel Dentures

Q.—*What complications may follow the use of dentures with a stainless steel face, as compared with plastic dentures? Which type would normally be preferred?*

A.—Good stainless steel is an excellent material for use as a denture base, having the advantages that it is non-staining, clean, and heat-conducting. It has, however, the great disadvantages that it cannot readily be cast, so that it cannot be employed for skeleton dentures as can gold alloys; if it is used even as a base for full dentures powerful and expensive presses are necessary to mould it to the shape of the jaw. So far as is known no particular complications are likely to follow the use of stainless steel bases in the mouth when properly made and fitted, other than certain disadvantages inherent in all dentures. Electrolytic action if the stainless steel comes into contact with different metallic fillings—for example, gold and amalgam—is, however, a possibility. Acrylic resin is far easier to process, and greater accuracy in fitting can therefore be obtained more readily. Bulk for bulk it is lighter; its colour is a further advantage, and the attachment of acrylic teeth is easy. It does not, however, transmit heat in the same way, and must of necessity be more bulky in the mouth.

NOTES AND COMMENTS

Acute Nephritis and Sweating.—"RETIRED SISTER" writes: In reply to Dr. Charles Romer's remarks (November 12, p. 1128) I would like to state that we always nursed cases of both acute rheumatism and acute nephritis in blankets, the former because the patient sweated excessively and the blanket absorbed the sweat, and the latter to encourage the patient to sweat so that some of the toxins might be excreted through the skin, thus taking some of the strain off the kidneys.

Treatment of Tinea Pedis.—Dr. JOHN S. MEIGHAN (Bristol) writes: I have found the following treatment very efficient in refractory cases of tinea pedis. (1) Apply 6% silver nitrate in spirit once daily for one week. (2) Remove eschar. (3) Apply Whitfield's ointment for one week. (4) Apply silver nitrate as above for one week. (5) Apply Whitfield for one week. (6) If clear, continue with Whitfield for one month. Having tried the whole gamut of new remedies for tinea, I still think Whitfield the best.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY NOVEMBER 26 1949

THE SECRETARY REPORTS

THE REMUNERATION OF GENERAL PRACTITIONERS

The General Medical Services Committee will hold a special meeting on Thursday next, December 1, to consider the reply of the Ministry to the case approved by the Conference of Local Medical Committees for an increase in the medical pool for general practitioners. Pending the decision of the committee on the next steps to be taken, it may help to draw attention to the significance of some of the calculations in Sir William Douglas's letter published in the *Supplement* of November 19 (p. 218).

The letter began with a résumé of the calculations made before the appointed day. The total gross income of the 17,900 principals in general practice before the war was estimated by Professor Bradford Hill to be £28.14 million, of which £11.35 million was for practice expenses and £16.79 million was net income. The first step was to add the £3.1 million, the amount by which the Spens Committee thought that the remuneration of general practitioners before the war was too low. In fact, this means that the pre-war gross income of general practitioners should have been £31.24 million. To the practice-expenses element of the remuneration was added a betterment factor of 55%; to the net income there was added a betterment factor of 20%. This brought the total to £41.46 million.

As by 1948 the population had increased by some 3% over the figure for 1938, a further 3% was added to allow for this increase. This brought the total to £42.7 million. In other words, the £28.14 million, the figure for pre-war gross aggregate general practitioner income, was brought to a figure of £42.7 million by allowing for the betterment factors, the Spens recommendation, and the population increase.

But this sum of £42.7 million, being calculated from the gross pre-war general practitioner income, was earned from the whole of the community. As it was provisionally agreed for the purposes of the first two years of the Service that it should be assumed that 95% of the population would use the new Service, the sum of £42.7 million fell to be reduced by 5% so as to represent the money to be derived from public sources. Ninety-five per cent of £42.7 million is £40.57 million, which was estimated to amount to 18s. per head of 95% of the population.

So far no objection can be raised to this calculation as a matter of arithmetic *on the assumption of a 20% betterment factor on net income*. Having calculated the central pool in this way, the Ministry proceeded to add certain additional sums for maternity medical services, for the exchequer contribution to superannuation, and for the Inducement Fund. It was implicit in the Ministry's first calculation of remuneration that these should be regarded as additional to the main pool. In fact, it *offered* them as additions to the main pool. In the Ministry's present answer it takes quite a different line, for in effect it says that these (as well as others since received—e.g., increase in the mileage fund) should now be regarded as part of the total pool.

In the case to the Ministry it was asked that certain defects in the original pool calculation should be made good, notably the adjustments for betterment and for the increased number of doctors. In its reply the Ministry says that, even if these adjustments be made, our case amounts only to something in the region of £5,000,000 after taking into account the items not formerly included in the pool and, incidentally, after failing sufficiently to allow for the increased number of doctors. Having by this line of argument purported to reduce our claim to something in the region of £5,000,000. it proceeds to reject the claim.

Main Issues

Two main issues which arise from the calculations can be summarized as follows. First, having in the first instance proffered certain additional moneys over and above the pool calculation, is the Ministry entitled—now that we criticize the original pool calculation—to say that those additional moneys are really part of the pool? Secondly, has the proper adjustment been made in the Ministry's calculation for the increased number of doctors?

On the second point the Ministry has pointed out, quite rightly, that we cannot expect an adjustment both for population and the increased number of doctors. It has, in fact, allowed for an increase of 4.3% on grounds of population. It says that the doctors have increased only by 5.8% to 18,936, arguing that this amounts only to a claim for £600,000. We have asked the Ministry how it reaches the conclusion that the number of principals for the purpose of this calculation is only 18,936; on our calculation the number is 19,221.

The substance of the Ministry's reply is that, although *by the Ministry's own arguments* general practitioners are getting £4½ million less than they claimed, the Ministry tninks that no reasonable case has been made out. Lest its calculations should be successfully assaulted it proceeds to bring to its aid the argument of the national emergency. This suggests to one's mind that the Ministry is not so satisfied with the cogency of its statistical arguments as to rest its case wholly upon them.

Public Health Negotiations

At long last there are signs that the Whitley machinery for the medical profession will shortly be established. This will mean not only the translation of some of the current negotiations in the consultant and general practitioner field to the formal machinery of Whitley but—what is even more urgent—the opening of negotiations on the remuneration of the public health service.

We have seen what has happened to the school dental service as a result of the failure to adapt the remuneration of school dentists to modern conditions and to the remuneration in other branches of the same profession. We are determined that no such fate shall befall the public health service. In practice this means that every effort must be made properly to relate the remuneration of the public health service to the remuneration obtaining—as a result of the application of the Spens Reports—in consultant practice and in general practice. It is hoped that the negotiations may be opened by the end of the year.

HOSPITAL MEDICAL STAFF

Inquiries received at Headquarters reveal that there is still misunderstanding on some aspects of the terms for hospital medical staff. In anticipation of the offer of permanent contracts we shall discuss in this and succeeding issues the main points which seem to give rise to difficulty.

One matter which is not clearly understood is the way in which in certain cases the new salary scales will be applied to existing members of hospital staffs. The salary scales are as follows:

Main Scale for Consultants.—At age 32, £1,700–£2,750 by regular annual increments. Consultants appointed at 31 or earlier start at £1,550 or £1,400 respectively, and then proceed automatically along the main scale. Where a practitioner is first appointed to a consultant post after the age of 32, the board may, at its discretion, fix the initial salary at any of the four next incremental points in the scale by reason of age, special experience, and qualifications, or on age alone where seniority has been lost through service with H.M. Forces, provided that the salary may in no case be higher than the practitioner would receive on age alone.

Senior Hospital Medical Officers.—£1,300 (at 32)–£1,750.

Junior Hospital Medical Officers.—£700–£1,000.

Initial Salary

Where a member of an existing hospital staff now graded as a consultant has been continuously in consultant hospital work without a break, except one occasioned by war service (or National Service on call-up), the terms provide that the initial salary payable to him as from July 5, 1948, will be that which he would have been receiving at that time if the new scale had been operating since the date when he first obtained a hospital staff appointment with full clinical responsibility.

In practice the initial salary will be that which he would have attained on the anniversary of the date of first appointment immediately preceding July 5, 1948. Any period between those two dates which might amount to just under the 12 months is lost, because the next increment will not be payable on the anniversary of the appointment following July 5, 1948, but on July 5, 1949. This is made clear from the following illustration quoted by the Ministry:

A practitioner first appointed to a consultant post in August, 1945, at the age of 32 will start on the main scale £1,700–£2,750 on July 5, 1948, at the point £1,950, receiving his first increment on July 5, 1949:

August, 1945	August, 1946	August, 1947	July 5, 1948
£1,700	£1,825	£1,950	

Allowance for Age

Where the practitioner obtained his first consultant appointment after the age of 32, boards may exercise the same discretion that they have in the case of new entrants of fixing the initial salary at any of the four next incremental points in the scale.

Where the practitioner achieved consultant status in H.M. Forces, and obtained his first civilian hospital consultant appointment only after demobilization, the initial salary will be related to the date on which the civilian appointment was first held. But here again the employing authority has discretion to advance the initial salary where the practitioner was over 32 at the time he secured his civilian hospital appointment.

In the case of practitioners graded as S.H.M.O. there is no provision similar to that for consultants to secure that they shall receive the benefit of previous service in hospital appointments of the same level as the one now held or offered. It is in the discretion of boards to decide the point in the scale at which existing staff shall start. The only proviso is that the salary shall not be higher than it would be if based on age alone.

In the case of J.H.M.O.s, however, those officers who immediately before July 5, 1948, were receiving more than the minimum of the new scale will enter the scale at the salary they were previously receiving, rounded off, at the discretion of the board, to the next incremental point. Where the salary immediately before July 5, 1948, was less than the minimum of the scale, the officer will begin at the lowest point in the scale.

Registrars

No difficulty is likely to arise in the case of registrars or junior registrars, as in those cases the salary range covers only a two-year period at most. But it is understood from the Ministry that where a practitioner now graded as a senior registrar has held the same post and carried out the same duties since before the appointed day he would enter the scale for senior registrars as on July 5, 1948, at the appropriate point, having regard to his previous service in the appointment. There is no provision in the case of registrars for augmentation of the initial salary on grounds of war service, but if subsequently a registrar obtains a consultant appointment for the first time after the age of 32 his previous experience may then be taken into account by the board in determining the initial salary.

Transferred Officers

The terms of service contain special provisions safeguarding the position of officers who were transferred under Section 68 of the N.H.S. Act, 1946, who immediately before the appointed day were receiving salaries better than those now introduced.

PROBLEMS OF ASSISTANTS

The General Medical Services Committee has set up a subcommittee to look at the problems affecting assistants (other than trainee assistants) taking part in the National Health Service.

The subcommittee would be glad to consider any points or problems which assistants wish to put forward.

ENTRY INTO PRACTICE

MEDICAL PRACTICES ADVISORY BUREAU

At the beginning of this year the Association set up the Medical Practices Advisory Bureau to help doctors establish themselves in practice, and to advise them on personal problems associated with entry into, and the conduct of, medical practice. Its service is free to members of the Association. The London office is at B.M.A. House, and there are also branches at Manchester and Edinburgh. Inquirers should write to the Medical Director at the following addresses:

B.M.A. House, Tavistock Square, London, W.C.1 (Telephone: EUSton 2111); 33, Cross Street, Manchester (Telephone: Deansgate 3691); 7, Drumsheugh Gardens, Edinburgh, 3 (Telephone: Edinburgh 33531/3).

General Practice

The report of the Bureau presented to Council on November 16 gives an account of its activities for the first nine months of this year. A survey carried out at the London office suggests that the "standing pool" of doctors seeking openings in general practice is not as large as some have thought. About 600 have applied to the London office, but only about one-third of these are likely to be suitably placed in general practice. It is virtually impossible to find openings for about one-third, and difficult for the remaining one-third. Many doctors in the last group are over 40 years old, and, as in so many other professions, age is a handicap. Nevertheless, the Bureau has suitably placed 50% of those applying in the third quarter of this year.

Another difficulty arises because established practitioners seeking assistants with view or partners want doctors with fairly well defined qualifications. Conversely, many of those seeking openings require conditions which make it very difficult to find suitable introductions without long delay.

The report cites a case of a recent vacancy in a South Coast town. The practice was industrial, but beautiful country was easily accessible. A house on a corner site was offered for sale at a reasonable price, and a half share after a short assistantship. The Bureau sent the particulars to over 100 doctors; a fortnight later the principal had received only six applications.

It has been said that the National Health Service has encouraged general practitioners to employ a succession of assistants,

and deterred them from seeking partners. The Bureau has found this to be untrue, and there seems to be an increasing tendency for the retiring doctor to want to preserve the practice as an entity by securing the introduction of a "logical successor" or by taking a partner. The demand for locums is subject to seasonal variation. For nine months of the year it exceeds the supply, while for three months the reverse is the case.

Part-time Appointments

Many doctors want part-time appointments and sessional work—e.g., medical boards, industrial appointments, and evening surgeries. The Bureau has found it difficult to meet these demands, for, except in the big cities, it is seldom asked to introduce part-time assistants. In most regions there are large panels of practitioners waiting for vacancies on medical boards.

Hospital Appointments

Hospital appointments are always advertised, and the Bureau's work in this field has been to advise applicants rather than to introduce them to particular appointments. The report considers that there is likely to be great difficulty in providing locums for hospitals unless fees comparable to those paid in general practice are obtainable.

BRITISH MEDICAL STUDENTS' ASSOCIATION

The eighth annual general meeting of the British Medical Students' Association was held at B.M.A. House, Edinburgh, on November 11–13, when 63 delegates attended, representing all but two of the 25 affiliated schools. Dr. P. Eggleton gave an interesting address on "From Laboratory to Textbook." The association was also honoured by the presence of Professor J. H. Gaddum, F.R.S., Dr. I. D. Grant, chairman of the Scottish Committee, and Dr. E. R. C. Walker, Scottish Secretary of the B.M.A., at the formal dinner held at the Edinburgh University Union.

Student Health

The B.M.S.A. has undertaken, together with the National Union of Students and other interested bodies, to investigate the possibility of arranging special facilities for tuberculous students whereby they may continue their studies as a form of occupational therapy under the supervision of a university and at the discretion of the physician in charge of the case.

Further Education and Training Grants

Several anomalies in the administration of the grants have been corrected, and the Ministry of Education has agreed to make a special concession in favour of medical students and to continue some measure of financial support to the newly qualified ex-Service houseman who is supporting a family.

The meeting appointed a Grants Secretary, who will be responsible for matters concerning the ex-Service grants and advise students in receipt of other awards.

Medical Films

The B.M.S.A. has formed a film-viewing panel to review medical films from the student point of view.

Clinical Conferences

Successful clinical conferences were held at Cardiff, Manchester, Sheffield, and Glasgow. It was decided to encourage the holding of conferences for preclinical students, thus stimulating the interest of students of all stages in the work of hospitals in other parts of the country.

British Medical Journal

The reduction in price of the *British Medical Journal* to 10s. 6d. a year for students, a concession now extended to preclinical students, was received with enthusiasm.

Help from B.M.A.

The meeting expressed its gratitude to the British Medical Association for all its interest and help during the past session, especially for the services of Mr. Vince as permanent secretary at B.M.A. House, and for the hospitality shown by the B.M.A. staff at the Edinburgh B.M.A. House for the 1949 meeting.

Elections

P. L. C. Diggory, of University College Hospital, was elected president and Jane Stanley Evans, of Cardiff, as secretary for the session 1949–50.

Heard at Headquarters

B.M.A. Gold Medallist

The decision of the Council to award the Gold Medal of the Association to a leader of the profession in New Zealand is of special interest. Dr. J. P. S. Jamieson has been practising in Nelson for thirty years. When the Labour Government came into office in New Zealand in 1935, and it seemed likely that legislation would be introduced affecting medical practice, a National Health Insurance Committee was set up by the Association out there and formulated Association policy. On this body, and in the conduct of such negotiations as the profession had with the Government, Dr. Jamieson was the acknowledged leader, and it was largely due to him that the Branch maintained a united front against the Government's clear intention to nationalize the profession and eliminate private practice. The Branch itself states that "it is now clear that but for Dr. Jamieson's personal efforts, his courage in negotiation, and his untiring advocacy of a medical service with unlimited clinical responsibility for the practitioner, the entire medical service in New Zealand would really have become a State department."

News-letter

The secretary of the Stirling and Clackmannan Local Medical Committee has started an excellent news-letter that he sends round quarterly to his constituents. He has some interesting figures to give them. In the first year of the Service 16% of the doctors there earned under £1,000; 18.5% earned £1,000–£2,000; 39.3% earned £2,000–£3,000; 9.8% earned £3,000–£4,000; 14.7% earned £4,000–£5,000; and 1% earned £5,000–£6,000. These are gross incomes earned from the National Health Service alone. The doctors' pay compared poorly with the dentists in his area, the average gross National Health Service remuneration for single-handed dentists being £5,098 for the year, that for general practitioners £2,488. In spite of this there were 22 applicants for a rural practice in the area. The secretary starts off with an admonition that we have unfortunately often heard before—more doctors should attend the meetings that are held on their behalf.

Questions Answered

Private Consultation

Q.—*If an N.H.S. patient requests a private consultation with a specialist and asks me to arrange it, am I entitled to charge a fee for doing so and also for attending at the consultation? If an operation is advised, this type of patient often wishes to arrange admission to a private ward or nursing-home and contracts to pay a fee to the surgeon. I may be asked to assist or give an anaesthetic, and will certainly be expected to visit, even if I am not allowed to supervise after-treatment. Am I to receive nothing more than a capitation fee for these services from a patient who thus does not wish to use the free consultant and hospital services available to him?*

A.—The General Medical Services Regulations preclude a practitioner from charging a fee to one of his public patients except in certain defined circumstances. The circumstances set out in the above question are not included among these exceptions, and therefore no private fee may be charged.

British Medical Association

PROCEEDINGS OF COUNCIL

Wednesday, November 16, 1949

A meeting of the Council of the Association was held at B.M.A. House, London, on Wednesday, November 16, at 10 a.m., Dr. E. A. Gregg presiding.

Obituary

The Chairman referred to the long list of seven members of former Councils and one member of the present Council whose deaths had been reported since the last meeting. Many of them had given long and able service to the Association. The member of the present Council was Air-Commodore James Kyle, who since last year had represented the Medical Branch of the R.A.F. The others were Sir Crisp English, who was well known in the Metropolitan Counties Branch, Dr. W. G. Willoughby, President of the Association in 1931, Sir Richard Needham, Dr. D. E. Finlay, of Gloucester, Dr. William Lyle, of Belfast, Dr. P. T. Sutcliffe, of Stratford-on-Avon, and Dr. C. O. Hawthorne, one-time Chairman of the Representative Body. Many of them would recall in particular Dr. Hawthorne, who was distinguished by the degree of his personal service and the devotion of his great gifts to the work of the Association.

The members signified their regret by standing in silence.

Procedure at Annual Representative Meeting

Dr. Vaughan Jones moved, "That chairmen of committees presenting reports at the Annual Representative Meeting be given adequate time for the presentation to the Representative Body of such reports."

He said that this related to what took place at the end of the Harrogate meeting, but it involved no criticism of the chairman. He was convinced that some radical alterations were necessary if the Representative Body was to do its work properly. The Association had an increasing number of committees. Their number had been criticized by a correspondent in the *Journal*, but it was obvious that the writer knew nothing about committee work. The time allotted to the presentation of important committee reports in the last hour or two of the meeting was fantastic, especially having regard to the time allowed for the "pettifogging blather" which distinguished much of the business of the first two days. A proper amount of time must be allotted to the chairmen of committees. The Annual Report of Council was only a skeleton, and it was the chairmen in their presentation who gave it flesh and blood. The members and the public ought to be informed by a proper presentation of the vast volume of work which was undertaken in the Association committees.

The motion was supported by Dr. J. C. Arthur, Dr. O. C. Carter, and Dr. N. E. Waterfield, and was carried unanimously.

It was referred to the Organization Committee to consider how it could best be implemented on the understanding that the committee's considerations would be passed on to the Agenda Committee.

A Legal Co-ordinating Committee

Dr. J. A. Gorsky referred to the request from the Representative Body to the Council to consider, in view of the increasing complexity of legislation since the inception of the National Health Service, the advisability of appointing a committee of competent members to act as a legal co-ordinating committee. He commended this proposal to the Council. It was not desired or contemplated that the proposed committee should be charged with the discussion of legal matters pertaining to the work of the Association; that was covered by the terms of reference of the Legal Actions Committee of the Council and also by the memorandum and articles of association. Certain of the standing committees, including the Private Practice and the Central Consultants and Specialists Committees, had had already to discuss legal matters arising out of recent legislation, and it would be useful to have available for advice a Legal Actions Committee with enlarged membership and terms of reference. This body might appoint a subcommittee charged with the co-ordination of legal matters in the same way as a similar function in connexion with remuneration was discharged by a committee.

Dr. Wand considered that they had too many committees already; any co-ordination of this kind should be done by the Council itself.

Dr. Gorsky's proposal was lost.

The World Medical Association

Dr. J. A. Pridham, one of the Association's delegates to the recent assembly of the World Medical Association in London, said that the meeting had been singularly successful. Excellent work had been done on its behalf by the whole staff of the B.M.A. from the Secretary (Dr. Charles Hill), who was President of the Association, downwards. One fact brought out at the meeting was that nine-tenths of the finance of the Association was in dollars collected by the United States Supporting Committee, and of this a considerable proportion came from individual medical men and medical bodies in the States. He thought they would have to consider the question of a similar supporting committee in this country. It appeared that there was no machinery at present whereby the conclusions of the World Medical Association could be presented to the British Medical Association. Last year, for example, the WMA elaborated an ethical code which was called the Declaration of Geneva, but this had not come—and indeed there was no channel for it to come—before the B.M.A. He moved that it be referred to the International Relations Committee to bring before the Council proposals showing how best the Council could be informed of the work of the WMA.

The Chairman said that they were very proud of the fact that Dr. Hill was made president of the WMA, and he suggested that the Secretary be asked to prepare a memorandum on their relationship to the WMA and the ways in which they could support it and most efficiently participate in its work.

This was agreed to.

British Commonwealth Medical Conference

A report of the first meeting of the British Commonwealth Medical Conference, held at Saskatoon in June last, and attended by Dr. Dain and Dr. Hill as delegates of the B.M.A., was placed before the Council. Dr. Dain said that the Council would receive this report with considerable satisfaction. The Canadian Medical Association, which organized the meeting, had arranged a programme which made it certain that matters of interest to the various medical bodies in the Commonwealth would be discussed, and from the nature of the discussion a very large field of matters of common interest was covered. He added that the Association was becoming more and more international in its activities, and this would have to be seriously considered because it involved time and expense. But the British Commonwealth Medical Conference had made a useful start, and he hoped the B.M.A. would maintain its position as the "mother" of the Commonwealth Associations, and continue to encourage them to talk together about their problems.

Dr. Hill added that at the conference they learned a great deal from Dr. J. O. Mercer, of the New Zealand Branch, from Dr. Hunter, of Australia, and from Dr. Tonkin, of South Africa, and he thought the Dominion representatives learned a great deal about what was going on in this country. The conference was very efficiently conducted, for which thanks were mainly due to Dr. T. C. Routley and other Canadian colleagues.

The report was accepted, together with a proposal to support a similar meeting at Brisbane next year, though it was stated

that, owing to the expense involved, later conferences would probably be held only every two years.

The Nutrition Report

Lord Horder, chairman of the Committee on Nutrition, presented the report of his committee. He apologized for some delay in its presentation, but the job which the Council gave his committee was a prolonged and difficult one. It was necessary to analyse a great mass of material and to arrive at the greatest measure of agreement amongst the eminent experts on the committee. He added his own personal thanks and those of the committee to Dr. A. Macrae (Deputy Secretary), who had acted as secretary of the committee, and proposed that an acknowledgment of the value of his work should be appended to the report.

The Council approved the report of the Committee on Nutrition for publication, and endorsed Lord Horder's reference to Dr. Macrae. The Chairman said that the Council would desire to express its appreciation and thanks to Lord Horder and to his committee, and this was done by general applause.

Constitution of the Council

Dr. Pridham, as chairman of the Organization Committee, brought forward a report on the constitution of the Central Council. He reminded the Council that the last Annual Representative Meeting, while approving the principle of increased direct representation on the Council, had referred the detailed proposals back for further consideration. The committee had carefully considered the proposals again, but, apart from a proposed increase in the number of directly elected members by grouped Branches from 37 to 39, it did not suggest any modification of the plan submitted at Harrogate. The proposed number of members elected by the Representative Body remained at 13—a figure which the committee did not think should be exceeded. Occasion had been taken to put right two anomalies by increasing by one in each case the seats allocated to Yorkshire and to the Metropolitan Counties Divisions.

Dr. Wand moved that the recommendations be referred back. The Organization Committee had taken no note at all of the feeling expressed at the Representative Meeting at Harrogate. He was very anxious that some system should be devised whereby members who had been on the Council for a long time and had done excellent work, although perhaps they had not come into prominence as chairmen of committees, should not be subject to a chance defeat when they came up for re-election. To meet such cases—which would be only limited in number—some system of co-option or creation of "aldermen" should be devised.

Dr. Carter had hoped that the chairman of the Organization Committee would bring forward some new arguments to support his proposals. The only result of the debate in the Representative Body and the fresh consideration given to the subject by the committee was an increase of two in the directly elected membership. This was not an opportune moment for the cutting down of the membership elected from the Representative Body. The whole agitation which had led to these proposals started from the premise that the Association was predominantly medico-political and that members of Council must go round to their constituents talking medical politics. It would be regrettable if as a result of these changes the Council were flooded with medical politicians, to the detriment of other interests and activities.

Dr. Vaughan Jones supported the reference back for the one reason that the Organization Committee seemed to have decided that the size of the Council must be conditioned by the architecture of the council chamber; this was a wrong principle. Dr. F. Gray agreed that the size of the building should not be a governing factor, but it did serve to bring them up against the question, Was an increase in size desirable? If the view of the Organization Committee were accepted that the present size was sufficient, these proposals were the only way to tackle the situation. Dr. J. C. Arthur thought there should be some small number of seats—even if only three or four—available for co-opted members or "aldermen."

Dr. Pridham said that to refer the proposals back without any direction from the Council would be useless. In view of the great importance and growth of the autonomous bodies the Council should be broadly based on its constituency.

The Council agreed on the following proposals: that the number of members elected by members in the Branches in Great Britain and Northern Ireland be increased from 22 to 39; that the existing arrangement under which 12 members of Council are elected by grouped representatives in the Representative Body be discontinued; that two members be elected by the representatives of constituencies in Scotland, one by representatives of constituencies in Wales with Monmouthshire, and 10 by the Representative Body as a whole; that the members elected by Branches outside Great Britain and Northern Ireland be reduced from eight to seven; that the immediate past chairman of the Representative Body, the deputy chairman, and the immediate past treasurer cease to be members *ex officio*, and that the rule under which a member of Council is prevented from serving for more than six years by the same method of election be abolished.

Dr. D. R. Owen reminded the Council of a promise that the county of Cheshire should have a seat of its own. In the grouping now recommended the East Cheshire Branch shared two seats with Manchester. Dr. Pridham undertook that his committee would consider this and other adjustments in the grouping.

Dr. Wand then moved to refer to the Organization Committee the proposal that there should be provision for co-option by the Council to a certain limited number of seats, and this was agreed to. At the same time Dr. Dain pointed out that one of the reasons for reconsidering the constitution of the Council was to ensure that there should be a substantial majority of directly elected representatives. Under the present proposals, 39 out of 72 would be directly elected, and if there were only six "aldermanic" seats it would make the directly elected members only 50% of the Council.

Dr. Hale-White suggested that a Special Representative Meeting be called to discuss the constitution of the Council. This would lessen the load on the Annual Representative Meeting. At this stage in the Association's history he thought it wrong to leave the representatives out of the picture from one year's end to another. After a brief discussion, however, the idea was negatived (18 to 25).

Advertisement and Sale of Proprietary Medicines

Dr. O. C. Carter, as chairman of the Proprietary Medicines Committee, brought forward an interim report on the advertisement and sale of these preparations. He said that his committee, appointed a year ago, had had a difficult task. It had examined a British code of standards which had been devised for the guidance of newspaper proprietors to prevent the publication of advertisements which tended to mislead the public. The committee had been greatly assisted by some who were not members of the Council—notably, Professor A. A. Moncrieff. The problem had been discussed with a number of those closely connected with proprietary medicine advertising, and the committee had come to certain conclusions: that, whilst self-medication was a time-honoured habit, it was necessary to safeguard the public against its dangers and exploitations; that, although control of advertising of proprietary medicines by existing statutes was useful so far as it went, it might require to be extended in due course, and meanwhile further extension through voluntary organizations sponsored by manufacturers, advertisers, and the Press should be encouraged; and that there would be room for the appointment by the Council of a permanent medical advisory committee on proprietary medicine advertising to advise any medical adviser who might be appointed to the British Code of Standards Committee. Dr. Carter added that his committee had come definitely to the conclusion that there were now quite a number of influential men and organizations who were honestly and conscientiously trying their best to clean up what had been a reproach to the newspapers of the country. During the last eighteen months or two years, in spite of certain flagrant breaches of the code, the standard of advertising had improved.

The Council agreed to certain suggestions for transmission to the British Code of Standards Committee for amendment of the code, but rejected a proposal that the following words should be printed on every wrapper, container, or label: "If you do not obtain early and lasting relief of your symptoms, consult your doctor." Dr. Dain said that this appeared to suggest to the buyer, "Try this out, and if it is not satisfactory see your doctor." It was a dangerous suggestion. Lord Horder said that at the time he introduced a Bill into the House of Lords 10 years ago it was made perfectly plain that this anti-social campaign should either be tackled thoroughly or left alone. This was dangerous meddling and nothing more. Mr. Eric Steeler said that the proposed phrase might lend itself to a riposte: "If you don't get relief from your doctor, try —— pills."

A proposal that the British Code of Standards Committee be urged to consider the application of more stringent measures to ensure compliance with the code was agreed to, but a further recommendation—that the Council nominate an observer to attend meetings of the Code Committee, and thus ensure direct liaison between the committee and the profession—was rejected (12 to 22). On the suggestion of Sir Lionel Whitby a phrase in the report, "Self-medication by the general public is a time-honoured habit" was changed to ". . . ineradicable habit."

The chairman said that, whatever criticisms might be made of the report and the recommendations, the Council congratulated Dr. Carter and his colleagues on an excellent piece of work.

Annual Meeting Arrangements

Professor T. P. McMurray (President-elect) presented the report of the Arrangements Committee for the Annual Meeting, 1950, at Liverpool and Southport. He said that it was proposed to hold the first part of the meeting, consisting of the Annual Representative Meeting and associated Council meetings, with the Annual General Meeting and the Overseas Conference, at Southport, and the later scientific, social, and other functions at Liverpool. The Annual Representative Meeting would begin on Thursday, July 13, and end on Monday, July 17, and after Monday the meetings would be continued at Liverpool, the meetings of the Sections to cover four days. The proposals were agreed to and the sectional officers appointed.

Mr. Lawrence Abel urged that the time had come when clinical demonstrations of the kind organized in connexion with American Congresses should be introduced into the arrangements for the B.M.A. Annual Meeting. In America the medical man attending the congresses received within a few days a complete course of postgraduate education from experts in the respective subjects.

It was decided to set up a special committee to review and report on the arrangements for future scientific meetings.

Central Consultants and Specialists Committee

Mr. R. L. Newell presented a report from the Central Consultants and Specialists Committee, which, he said, had held four meetings since the last meeting of Council. The first recommendation concerned the factors to be taken into consideration in assessing merit in connexion with distinction awards. The committee had worked out a list of factors (*Supplement*, November 12, p. 212) and now recommended that these be conveyed to the Advisory Committee on Distinction Awards, and that the Advisory Committee be informed that neither the Association nor the Central or Regional Consultants and Specialists Committees wished to participate in the procedure for selecting individual consultants for merit awards. This was agreed to.

On a further recommendation, brought forward on the suggestion of the Spa Practitioners Group Committee, that a special committee should be appointed to prepare a report regarding hydrology and balneology as practised in Britain, with details of the nature and merits of each spa, the Council felt that the Group Committee itself should be the body to prepare the document, using powers of co-option, if necessary, for the purpose. Dr. R. G. Gordon suggested that the preparation of such a report might not be as easy as the recommendation made it appear.

Certain recommendations concerning amendment of the constitution of four of the Group Committees, generally to permit enlargement of representation, were agreed to.

Grading of Hospital Medical Staff

Discussion arose on the grievance of many practitioners with regard to their grading as senior hospital medical officers when they had expected to be given consultant status. One member mentioned several examples of apparent inequity which had come within his experience—a surgeon of 23 years' experience had been graded S.H.M.O., and his anaesthetist with five years' experience had been graded a consultant; of two ophthalmic surgeons the junior had been made a consultant, the senior a hospital officer.

Dr. Wand said that they had been informed that these perverse decisions were not the responsibility of the Ministry but of their own people. In his own region there was evidence that the decision in a given case did not depend upon the qualifications of the practitioner but upon the hospital at which he was working. It was the hospital which counted, and not the man at all. He suggested that a conference might be arranged to which members of grading committees would be invited.

Mr. Abel said that this matter was causing vexation throughout the country. It was a scandal that men who were doing first-class surgery, anaesthesia, or midwifery should be graded S.H.M.O.

Mr. Newell said that when this grade was first proposed it was thought of in terms of certain appointments, such as those of tuberculosis officer. Apparently there was no uniformity in the assessment. In his region much injustice had been done. He thought the remedy lay in local appeals committees, consisting of entirely independent persons.

Sir Lionel Whitby said that the Joint Committee had pressed this matter on the Ministry time and again, but had always been countered by the argument that it was their own kind who had done the grading. The facile argument had also been brought forward: "Are we to assume that the only mistakes are undergrading? If there was a review, might it not result in downgrading as well as upgrading?" The Ministry had stated that they would arrange for a review in two years' time.

After some further discussion it was agreed unanimously:

That in view of the widespread dissatisfaction reported to it as a result of the grading of those on hospital staffs on the appointed day, this Council expresses its strong approval of the action of the Joint Committee in pressing for an early review of the grading of such practitioners by new committees appointed for the purpose at the earliest possible date.

Part-time Work for Local Authorities

Dr. J. A. Gorsky presented a report from the Joint Committee (representing the Central Consultants and Specialists, Private Practice, and Public Health Committees) on a national agreement for fees for part-time work under local authorities. The report set out the original B.M.A. proposals for certain services, the original local authority offer, and the agreed fee. Dr. Gorsky said that they had got from the associations of local authorities almost all they had asked for, and their reception by the local authorities had been very cordial, but at the final meeting they were informed that the Minister had placed a veto on the date on which the national agreement might come into operation.

Dr. R. H. H. Jolly said that they had got 90% of what they originally asked for.

Dr. Vaughan Jones said that it would seem that the principle of sessional fee payment by hours for medical officers visiting establishments maintained by local authorities had been accepted. He complained that the scale of sessional fees agreed by the Council as recently as last June for industrial medical officers should have been departed from. This was likely to prejudice negotiations in other quarters. It was all very well to say that this was a national agreement and that there must be sacrifice, but why choose this particular victim?

Dr. Wand said that when the operative date for the agreement came into force it would be open to either side, one year from the commencement of the agreement, by giving three

months' notice, to have any particular aspect reconsidered. On that understanding he was prepared to let the whole thing go through.

Dr. Gorsky said that by giving way on a small point they had gained the good will of the local authorities.

The report was approved.

Relationship of Autonomous Bodies

Dr. Gregg, on behalf of the committee which was appointed by the Council to consider the situation created by the formation of autonomous bodies within the Association and their relationship to the Representative Body, presented a short report for submission to the Representative Body. The committee, after a careful examination of the subject, considered that no action should be taken at present which would disturb the position of the autonomous committees, although it might be necessary at a later stage to examine the constitutional position of these committees in relation to the Council and the Representative Body so as to ensure a single mouthpiece of the profession on common problems.

Mr. Steeler expressed some dubiety, and said that he could not help feeling that this autonomy was bad policy for the Association. The Chairman said that the history of the Insurance Acts Committee over many years did not bear out Mr. Steeler's misgivings. The report was approved.

Other Committee Reports

The report of the Building Committee, introduced by Mr. L. Dougal Callander, was largely concerned with alterations to the Scottish House. The Council agreed, subject to the approval later of the Finance Committee, to plans submitted by the Scottish Committee for the development and improvement of the house in Edinburgh at an estimated cost of £20,000.

Dr. I. D. Grant, chairman of the Scottish Committee, in moving his own report later, thanked the Council for this decision. The report of the Scottish Committee contained no recommendations, but noted a number of matters including the setting up of a joint subcommittee on the position of general practitioners in hospitals under the N.H.S.—a matter of serious concern in some areas of Scotland.

Dr. H. R. Frederick, for the Welsh Committee, reported on the steps being taken to secure an Association house in Cardiff. He added that the Welsh Committee was discussing future activities. It was anxious truly to represent the views of members in Wales and to be recognized as the central mouthpiece on general matters affecting them.

A report by the General Medical Services Committee also contained no recommendations, but recorded a very large amount of work covered in five meetings of the committee since the Council last met. Dr. Wand, the chairman, said that there had just been received a communication from the Ministry of Health refusing to grant the increase in the capitation fee which general practitioners had claimed. The question would be discussed at a special meeting of the committee on December 1.

The new chairman of the Public Health Committee, Dr. C. Metcalfe Brown, said that the committee was disappointed at the little progress which had been made in setting up Whitley machinery for the medical profession, and had taken what steps were open to it to put an end to the continued delay.

The Private Practice Committee brought forward a recommendation, which was agreed to, concerning fees for the completion of certificates under the Cremation Act—for Form "B" and for Form "C" a minimum of one guinea, plus mileage.

A memorandum of evidence, prepared by a special committee, for submission to the Committee on Industrial Health Services (the Dale Committee) was approved, and witnesses appointed.

It was agreed to set up an International Medical Visitors Bureau at Headquarters to assist practitioners from countries outside the Commonwealth when visiting the United Kingdom. Visitors from Commonwealth countries are looked after by the Empire Medical Advisory Bureau.

On the proposal of the Central Ethical Committee it was agreed that the pamphlet on "Ethics and Members of the Medical Profession" be circulated to all practitioners in the United Kingdom on qualification, to all members of the profession at present resident in the United Kingdom, and to all others who might wish to apply for it.

The Council approved a recommendation from the Colonies and Dependencies Committee that a member of the secretariat be sent to visit the West Indian Branches in the near future.

On the proposal of Dr. R. G. Gordon, for the Science Committee, it was agreed that a new Association prize be instituted to encourage research and interest in the field of industrial medicine, the prize to consist of a certificate and cheque to the value of £50, to be awarded biennially. The proposal was warmly supported by Dr. Vaughan Jones, as chairman of the Occupational Health Committee, and by Dr. H. B. Morgan, who said that it would be a happy gesture of recognition to a specialty so far grossly neglected by the medical profession.

Dr. Carter, for the Journal Committee, brought forward a proposal that the Association should take over the publication of the *British Journal of Ophthalmology* and certain associated publications, and this was agreed to.

A report by the Medical Director of the Medical Practices Advisory Bureau (Dr. L. S. Potter) was placed before the Council. (A short account of its work appears at p. 226.)

Dr. Mary Esslemont, chairman of the Committee on Nursing, introduced a report on action taken, especially in regard to the Nurses Bill. Representatives of the committee who had met members of the House of Commons had agreed that the compromise adopted in the House of Lords in regard to th finance of nurse training was the most satisfactory procedur and that it would be unwise to continue to urge the comple removal of responsibility for finance from the General Medic Council.

Two reports of considerable detail came before the Council at a late stage in its proceedings. One of them, introduced by Dr. James Fenton, was from the Joint Committee with the National Veterinary Association, and was concerned with the problem of providing safe milk of high quality. Dr. MacFeat urged that more publicity should be given to the harm wrought by unsafe milk. Only an enlightened public opinion would ensure the necessary action. It was agreed that the report should be submitted to the Government departments concerned.

The other report, placed before the Council by the Chairman, was that of the special committee set up in February last to consider the best methods of securing the applications of the recommendations of the Spens Committee to all full-time medically qualified salaried workers not remunerated wholly through the N.H.S. The report put forward a large number of recommendations which are to be made to the University Grants Committee, the Vice-Chancellor's Committee, and the Medical Research Council.

Routine reports were made by the Finance, Staffing, Office, and Public Relations Committees.

Personal

The Council resolved by a unanimous vote to award the Gold Medal of the Association to Dr. J. P. S. Jamieson, of Nelson, for his distinguished services to the profession and to the Association in New Zealand.

The Council unanimously resolved to recommend to the Representative Body that Dr. J. B. Miller, until lately its chairman, be elected a vice-president of the Association.

The thanks of the Council were conveyed to Sir Lionel Whitby, Immediate Past President, for the able and energetic way in which he had represented the Association at meetings of the Divisions of the Canadian Medical Association in the maritime provinces, and at meetings in Montreal, Toronto, Quebec, and Winnipeg.

Good wishes were expressed to Mr. Oswald Hempson on his retirement, and an appreciation of his many years of service as Solicitor to the Association. Mr. Hempson's father was Solicitor to the Association before him, and the appointment is being continued in his firm.

The Council learned with particular pleasure that on the previous day the mother of Dr. Dain had celebrated her hundredth birthday. A message of congratulations and good wishes was sent from the Council.

THE BRITISH MEDICAL GUILD

A meeting of the Board of Trustees of the British Medical Guild was held at B.M.A. House on the day of the Council meeting, November 16. Dr. E. A. Gregg was elected chairman of the Board and Dr. Frank Gray treasurer.

Dr. Hill (Secretary) gave an oral report on behalf of the executive committee. The Central Consultants and Specialists Committee had decided to establish a separate fund comparable to the National Insurance Defence Fund. The Society of Medical Officers of Health, while expressing sympathy with the general objects of the Guild, had decided not to establish a separate collecting machinery; it would advise members of the public health service to contribute directly to the Guild. The executive committee, faced with this situation, thought it would be wise, before finally deciding on the method of direct contributions, to consult with the Society of Medical Officers of Health with a view to the possibility of their falling into line with the other two main sections of the profession in themselves establishing a collecting fund from which contributions would go to the Guild. It was realized that the decision taken by the Central Consultants and Specialists Committee was one of some importance—namely, to collect their own money, in the same way as general practitioners had done in the former National Insurance Service and were now doing, no less well, in the National Health Service. The decision taken by the consultants and specialists might lead the committee to bring forward proposals for augmenting the trustees for the purpose of distributing the money.

The executive committee had finally instructed the office to prepare a draft memorandum on the subject of local organization for its consideration at the next meeting, and later it proposed to secure the establishment, at meetings of the profession called for that purpose, of local committees. It proposed, in short, not to await a crisis, but to have machinery in readiness.

The Board gave authority for certain action with regard to the banking account, and the meeting ended.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

Medical Ethics

Lay Hypnotists

The question has recently been asked whether a registered medical practitioner may properly associate in his practice with a lay hypnotist. To do so would amount to "covering"; it would therefore be unethical and infringe the Warning Notice of the General Medical Council. Association with certain auxiliary workers without medical qualifications—for example, physiotherapists—is in order because they work under the supervision of a registered practitioner, but when a lay hypnotist is employed the treatment is entirely in his hands.

FELLOWSHIP FOR FREEDOM IN MEDICINE

PROPOSALS TO AMEND ACT

The first annual meeting of the Fellowship for Freedom in Medicine was held at Caxton Hall, Westminster, on November 19. Lord Horder, who presided, said that the membership now stood at 2,940; there had been an average accession of 25 members a week since the last general meeting in February. Members had been enlisted in Australia, New Zealand, South Africa, and other Dominions. Eight resignations had been received.

Close relations had been formed with the French Association for the Defence of Free Medicine. From the American Medical Association we had received an expression of good wishes. A cheque accompanied a cordial letter, which was read, from the president of the Association of American Physicians and Surgeons. Another letter was from the chairman of the Medical Society in Madison County, Indiana, congratulating the Fellowship on "its noble stand for freedom," and enclosing a cheque for £50.

Lord Horder went on to say that when the Fellowship started he had said he saw in it the possible nucleus of a body which might at long last achieve the unity of the profession. That was an ambition which had not ceased to animate him. The body which might have been expected to be a shield against State domination of medicine had dissipated its powers. On the one hand it had formed autonomous committees which had power to negotiate with the Minister individually without any reference to the controlling body of the B.M.A.—namely, the Representative Meeting; and, on the other, it had set up a ghost of itself called a Guild, in the illusion that it would afford a legal cover.

Meanwhile things were happening. The Minister had stated in the recent debate on the amending Bill that if the 5% of patients who still went to private doctors increased it would soon sabotage the Act. "It looks to me," declared Lord Horder, "as though we have only to wait a little to see the Minister sabotage the Act himself." When he had warned the profession that under the Act the Minister could by regulation doctor the patients from Whitehall he was thought to be an alarmist. But a recent order issued to a hospital stated: "The use of penicillin in this hospital must be cut down as it is so expensive."

The Rights of the Practitioner

Dr. A. C. E. Breach, chairman of a committee of the Fellowship which has been considering changes in the Act which should form the substance of an amending Bill, said the first thing was to preserve private practice on a broad basis as an alternative to the complete control of medicine by the State. Two methods commended themselves to the committee. Everyone should have the choice between (1) remaining in the Service but receiving a grant-in-aid from the State if electing to occupy a private hospital bed, together with free provision of drugs and certain appliances, and (2) opting out of the Service and receiving a refund from the State, based upon the *pro rata* cost of the Service, to enable him to make a private contract for his medical needs. This principle was endorsed by the meeting and the committee was requested to pursue its work on these lines.

The next matter was ownership of goodwill. The committee recommended an amendment to give doctors now and in the future the option to recover ownership or to build up anew the goodwill of their practices, private or State. This would involve repayment of any compensation already received and restoration of the right to sell and buy. Dr. Breach said that if only 10% of practitioners availed themselves of such option the monopoly would be effectively broken.

The meeting approved the principle, the committee to go ahead in framing amendments to recover ownership of goodwill.

Powers of the Minister

Dr. Breach said that in the report of the committee there was fully set out what "this autocrat and his successors" might do. It seemed at first that nothing short of repeal of the Act would serve, but a careful study had suggested certain changes to curb

the more objectionable powers. It was also felt that there should be an arbitration authority under a chairman of the standing of a High Court judge with power to settle all matters arising in connexion with the Service in which agreement was not reached.

Dr. C. P. Wallace at this point referred to the Ministry's reply to the demand for correct remuneration of general practitioners. He felt that a unanimous demand should go from that meeting for an immediate reference of this subject to arbitration. Dr. H. H. R. Sutherland said that he hoped no one would think that the letter from Sir William Douglas, published in the *Supplement* of November 19 (p. 218), was the last word. The General Medical Services Committee would be dealing with the matter on December 1. There were at least two lines of attack open, one by arbitration and the other by the Whitley machinery.

The following resolution was put to the meeting and carried apparently without dissent:

That in view of the unsatisfactory nature of the Ministry's reply to the general practitioners' demand for adequate remuneration this meeting calls for the immediate establishment of a court of arbitration, the constitution of which shall be agreed both by the Minister and by the profession's representatives.

The chairman's suggestion that the resolution should be sent to the Minister and to the Secretary of the B.M.A. was agreed.

The proposals for curbing the powers of the Minister were endorsed, together with a proposal for a right of appeal to the courts from decisions of the tribunal. Dr. J. A. Gorsky pointed out that the tribunal was an administrative, not a judicial, one, and as such it was required only to give its decision, not the reasons for it. Further, under Sect. 42 complaint might be made to the tribunal by "any other person," which might include the Minister of National Insurance, who could go direct to the tribunal and not to the local executive council at all.

On the general question of remuneration the committee suggested, and it was agreed, that the main principles of assessing remuneration should be laid down in the Act; for consultants full-time posts should carry pre-determined salaries, and part-time consultants should be given every facility for the development of private practice, for general practitioners the recommendation that smaller lists should carry a higher capitation fee was accepted.

Consultant Status

Dr. E. C. Warner said that many letters had been received by the Fellowship about the system of grading. The Minister had done a clever thing by getting them to grade each other and disclaiming responsibility himself. There was no question but that there had been a great attempt to get as many people as possible into the S.H.M.O. category and degrade men who had been accepted as consultants and specialists by their colleagues for years.

Mr. Reginald T. Payne spoke strongly about distinction awards as one of the worst aspects of the Service. He could not have believed that the intellectual and moral atmosphere of the profession could have degenerated so rapidly. Many of them had looked to the Royal Colleges for real leadership, but the Colleges had neglected the opportunity and had lost the respect of the profession.

Another committee proposal, that patients using the Service should pay a small fixed fee to their general practitioners for each item, was referred back to the committee after some debate. Dr. Breach considered that the suggestion was more practical than the shilling on the prescription, but other speakers suggested, in the word of one of them, that it was "dynamite" and against the whole spirit of the Fellowship.

It was agreed to include among the proposed amendments one for the provision of compensation to owners of radiological and similar practices for the loss of the right to sell them.

The report, with other recommendations, was generally approved and the committee was instructed to get on with its job.

Among other business the meeting adopted a recommendation that medical students should be admitted to the Fellowship as associate members, with a nominal fee of 2s. 6d. The executive was also asked to give consideration to a proposal that a certain selected number of lay people be admitted as associate members, and further, on the motion of Mr. Norman Lake, that liaison should be established between the Fellowship and lay organizations of similar aim—for example, the Society for Individual Freedom.

Correspondence

"Inducement Grants"

SIR,—"Inducement" grants to "doctors practising in sparsely populated areas who can only attract a small list" fall into a category apart from the inducement grants properly so called. These latter were brought out to honour the fifth recommendation of the Spens Report, which deals with the needs of areas which are "unattractive" to doctors.

The grants to "doctors in sparsely populated areas who can only attract a small list," however, belong logically and properly to the fourth recommendation of "Spens." This recommendation lays down that "the difference which has existed between the incomes of rural and urban practitioners should be reduced," and recommends that the principles and methods of the Highlands and Islands medical scheme, which operated in Scotland for thirty years, should be applied to other sparsely populated areas.

This has been mainly done (on the lines which the Spens Committee recommended) by a very substantial increase in mileage payments. There remain, however, rural practices where mileage alone does not counterpoise the very heavy overhead costs due to the geographical character of the practice area. It is in such conditions that the grants to doctors in sparsely populated areas fulfil their purpose, and the condition for this award is not "unattractiveness" as in the case of the inducement grants proper.

Country practice is in fact very "attractive" to the great majority of doctors so engaged. That is why they are country doctors in nine cases out of ten. But "Anno Bevani One," the beginning of a new calendar in medical history, left the country doctor with his practice costs higher than ever, and his income greatly lessened by the fact that all his former private patients are now State patients. What he asks is not to be "bribed" or "induced," but to be "*enabled*" to carry on his practice by additional remuneration to meet abnormally heavy practice expenses.

It should further be noted that, in the words of the statutory regulations governing them, these grants to doctors in sparsely populated rural areas are "an entitlement." The amount of the grants is discretionary, depending upon the opinion of the Minister after consultation with his Medical Practices Committee; but in the defined circumstances the grants themselves are held forth as an "entitlement" in the same sense as the capitation fees and the mileage. In the words of Dr. Gregg, Chairman of Council of the B.M.A., these grants "are not a charity but a right."

Very unfortunately, however, many country doctors have fought shy of inducement grants. The story of the "basic salary" in its present form is not a happy one, and it does not belong here, except that its shadow has fallen athwart the "inducement grants" in the minds of many doctors. In January, 1949, Dr. McFeat, the chairman of the Scottish Committee of the B.M.A., reported that in Scotland "practitioners did not like to apply for Special Inducement Fund payments because they regarded it as the acceptance of charity." In other words the grants have become associated in the minds of these doctors with a "dole" and a "means test." Now what basis is there for these suspicions? Let us see.

At his press conference on October 6 the Minister announced that he had made 57 inducement grants up to date out of the central fund of £200,000. Now it must be clearly understood that the Minister has not, as yet, made his main and final allocation of this fund. All he has sought to do as an urgent emergency measure is to meet all cases of hardship, and it is known that what he has aimed to do is to bring the net annual professional income of the doctors concerned up to £1,000. Very properly, for this interim urgent purpose, he has asked for particulars of the applicant's total professional income from all sources. Few will cavil at that. But the question that now

arises is, Now that the task of final disbursement is being approached "in the light of the amounts of money still available in the Special Inducement Fund, and of all factors governing the cases," will the "means test" still be applied?

At any rate, as a preliminary to this final allocation the Minister has asked his executive councils for detailed particulars of the applicants' professional income from all sources. Why? And what are the implications?

The Spens Report has recognized that "any satisfactory system of remuneration must involve differentiation dependent on ability and effort." But a doctor may choose (or have the choice thrust upon him by his location) to direct his ability and effort into not one but two channels. He may have, say, a comparatively small general practice "in a sparsely populated rural area" and also be a part-time specialist at a small local hospital—perhaps the only man available in that specialty for 30 or 40 miles around.

Let it be agreed that his practice is "necessary." By virtue of his agreement with the local executive council he contracts to furnish a defined range of general medical services to all the persons on his panel. By virtue of that contract, also, he is in return entitled to a defined range of remuneration. In his case that entitlement includes not only capitation fees and mileage but an "inducement" grant.

In that event, is he to be told, "Oh yes, you are entitled to £200 inducement grant, and you are meeting all your commitments in your general practice. But you are making £400 out of your specialty. Subsidize your general practice out of that."

Or to put it in another way: if the doctor in the case considered chooses to spend his surplus time as leisure in the "local" or on the golf links, will he not then get his inducement payment? But if he spends his surplus time in the pursuit of a specialty, useful to his locality, will that inducement grant then be denied to him?

Again, would it not be against the whole trend of public policy to discriminate against "earned" income? Mr. Bevan has expressed his view (rightly) that in assessing eligibility for "basic salary" the private means of the applicant should be disregarded; and presumably this would hold good also in awarding "inducement" grants. If our doctor, therefore, had a large private income from investments (or, say, from farming) he would still get his inducement grant on his "sparsely populated rural practice with a small list." Surely *a fortiori* earned medical income from sources outside his general medical practice should not be counted unto him for unrighteousness.

What are the ethics of a "means test"? That question was answered by the Minister himself in the *Daily Express* of April 24, 1937, in an article entitled "Will Nobody Listen?" "The effect of the means test," Mr. Aneurin Bevan wrote then, "is to cheat its victims of the full benefit of such employment as they can get."

Will Mr. Bevan himself listen now and act upon his convictions?—I am, etc.,

Clynderwen, Pembs. E. ROLAND WILLIAMS.

Liability in Law

SIR,—*The Times* of October 27 contains a report of Lord Justice Denning's third lecture on "Freedom under the Law," in the course of which he is reported to have said that if doctors and dentists under the National Health Service injured their patients through negligence the State would be liable to pay damages.

My contacts with medical men and lawyers lead me to think that the learned Lord Justice's observations are being misinterpreted by many members of the medical profession and are receiving a far wider construction than they can properly bear. It is wrongly assumed that a liability in the State to pay damages means an exclusive liability, and that the doctor or dentist, being relieved by the State from the personal liability which would otherwise attach to him in case of negligence, need no longer take the precautions which have hitherto been customary to guard himself against the risk of being sued for damages.

I therefore desire to emphasize that, although in some cases there may well be a liability in the State, the doctor or dentist himself is also liable to be sued and probably will be sued concurrently, since the plaintiff gains certain technical advantage in having him as a defendant.

Unhappily the matter does not stop there, because the Ministry of Health have declared it to be their policy that hospital boards should, if it is sought to make them liable for negligent acts of a doctor, take such steps as are open to them under the Law Reform (Married Women and Tortfeasors) Act, 1935, to obtain a contribution from the doctor in respect of damages that may be recovered. (Under the Act such contribution may amount to a complete indemnity.) Whatever may be said for or against this policy, it is evident that common prudence demands in even greater measure than heretofore that medical and other practitioners, whether belonging to the whole-time staff of a hospital or otherwise engaged in the National Health Service, should guard themselves against the risks, both in respect of damages and costs, of actions for negligence. The professional man, whose reputation may be at stake, cannot safely rely for his defence upon a hospital board, whose interests will conflict with his own. Not only does the State not relieve him of the burden of liability in such cases, but it now seems likely to assume the role of an assailant.

This is not the place to discuss whether Lord Justice Denning's extra-judicial observations as reported were intended to refer to all doctors and dentists engaged in the National Health Service, including general practitioners, or whether they are directed only to such doctors and dentists as are employed under a contract of service. It may well be that the narrower interpretation is the correct one, but that is a matter which may hereafter fall to be determined by the courts.—I am, etc.,

London, W.C.2. ALISTAIR FRENCH, Secretary, Medical Protection Society.

SIR,—We have frequently been told that practitioners in the N.H.S. are not Civil Servants. Yet in discussing the Crown Proceedings Act, 1947, in his recent book *Freedom under the Law* (at p. 74) Lord Justice Denning states: "It certainly means that if doctors and dentists under the National Health Service do their work negligently so that their patients are injured, the State is liable to pay damages."

This presumably means that the fund out of which N.H.S. practitioners are paid is one coming within the scope of Section 2 (6) of the Crown Proceedings Act, and that hence such a practitioner is "an officer of the Crown."

Unless the learned Lord Justice has nodded, any further arguments as to whether doctors should become Civil Servants would appear to be within the class of the proverbial behaviour with respect to the stable door.—I am, etc.,

Chester. E. M. BISKE.

Cost of Sutures

SIR,—In view of the decision that the packing of multiple sterile sutures be prohibited, individual ampoules only of suture material are obtainable. The cost of these is at least 2s. These are not obtainable on prescription form E.C.10.

One has, therefore, the doubtful privilege of paying 2s. or more for each wound sutured. Until such supplies are available under the N.H.S. we are compelled financially to refer all such cases to hospital.—We are, etc.,

D. ST. J. BOWIE. D. M. DEAN.
A. B. DUMMERE. E. FOGARTY.
C. R. F. HEWLETT. J. V. HORGAN.
T. O. HUTTON. J. H. HUMPHRIS.
King's Lynn, Norfolk. A. G. LEAKEY. P. Q. M. SPAIGHT.

Representation of Hospital Medical Staffs

SIR,—The chairman of the Central Consultants and Specialists Committee in his letter (*Supplement*, November 5, p. 206) and in his remarks as reported (*Supplement*, November 12, p. 212) missed, in his anxiety to defend the Joint Committee, the chief point of our letter in the *Supplement* of October 22 (p. 185), which was published as the only means available in the time allowed of informing other regional committees and individual specialists of the position.

Our letter made the point that the staff side of the Specialist Whitley Council, which will be the permanent body for settlement of disputes or alterations of terms of service, to be effective

and acceptable and to accord with the meaning of a Whitley Council should be democratically elected from the hospital medical staffs of the country. This assertion of an obvious and practical point of democratic principle, which would be realized if the Central Committee, a properly representative body, were to act in appointing and instructing the staff members of the Whitley Council, has not been refuted. The Central Committee, however, has now by implication confirmed its agreement with the expedient of the *ad hoc* Joint Committee acting in this way. The Western Area Regional Committee remains dissatisfied with this position, but in view of the decision of the Central Committee will determine its attitude after reference to its constituents.—We are, etc.,

C. B. S. FULLER, Chairman.
N. ROSS SMITH, Acting Hon. Secretary

S.W. Metropolitan (Western Area) Regional Consultants and Specialists Committee

Whole-time Posts

SIR,—I should like to draw attention to the fact that almost all advertisements of vacancies for pathologists specify the posts as whole-time. This may be a precedent which will later apply to other specialties. In any case it seems not unreasonable to suggest that pathologists should have the same treatment as other specialists in the National Health Service.—I am, etc.,

Wolverhampton. A. G. MARSHALL.

Mileage Rate and Basic Salary

SIR,—Various committees are in a very difficult position in determining who shall and shall not receive the basic salary. It would appear probable that all rural practitioners have a valid claim to this salary, while urban practitioners have not. It is the borderline cases which must cause most difficulty and most criticism. It seems to me that in the case of all practitioners in established practices the basic salary could be, and should be, dispensed with, and the difference in earnings be adjusted by the mileage rate alone.

This would automatically adjust the salaries of those whose practices are partly rural and partly urban or wholly the one or the other. This would necessitate an adjustment of the mileage rate to make the payment under this head sufficient to balance the possible earnings of rural and urban practitioners.

I can see no possible objection to such a scheme, but the question of how much work is involved in attending a given number of patients in either type of practice would have to be determined. In this connexion I may mention that in my practice (a purely rural one) I have almost exactly twice as many mileage units as I have patients, and, as the unit is worth approximately 1s. 5½d., I receive 2s. 11d. per patient in addition to the capitation fee. Thus if the capitation rate is 17s. I should be capable of attending approximately 85% of the number of patients which could be attended by an urban doctor doing the same amount of work; so that if the urban doctor can attend 4,000 patients I should be able to attend 3,400 patients, which would manifestly be an impossible task.

It may be contended that the urban doctor can attend efficiently and with reasonable leisure for himself only 3,000 patients, in which case I should have to attend 2,550 to make the same income. But even this is far too many, and I would contend that a doctor in a rural practice such as mine could not possibly attend more than 2,000 patients and would then be working as hard as or harder than an urban doctor attending 3,000. If this proportion 2,000:3,000 be accepted, it will be seen that I ought to receive in mileage payments 8s. 6d. per patient (4s. 3d. per unit) in order to be on a par with the urban doctor ([2,000×17s.]+[2,000×2×4s. 3d.]=£2,550) and (3,000×17s.=£2,550).

If on the other hand it is considered better to continue with the allocation of basic salaries as at present, then on a 2,000:3,000 basis a doctor in a rural district like this would receive for attending 2,000 patients £1,757 3s. (£300+[2,000 ÷ ⅔ × 17s.]) while the urban doctor with 3,000 patients would receive £2,550 (3,000×17s.). The mileage unit in such a case (at two units per patient) would have to be about 3s. 11½d. to equalize earnings.

I submit there is a case for a considerable increase in the mileage rate whether or not it is coupled with the abolition of basic salaries to those established in practice, and that the foregoing gives a fair method of estimation of what this increase should be.—I am, etc.,

Richmond, Yorks. A. F. T. ORD.

Superannuation and Partnership Shares

SIR,—I feel there must be many general practitioners working in partnership who since the N.H.S. Act came into force have not instructed their executive councils to deduct superannuation contributions from the gross practice N.H.S. income in the same proportion as that in which the income from the practice is divided.

Quite obviously two partners holding a half-share each in a practice should have the same amount deducted from them, accruing towards their eventual pension. At the moment the deductions are based on each individual cheque. Therefore a partner who by chance or design has signed the greater number of "white cards" has the bigger pension awaiting him, regardless of his practice share.—*I am, etc.*,

Lancaster. R. A. BLYTH.

**** The N.H.S. remuneration of a general practitioner who is in partnership practice will be assessed for superannuation purposes on the basis of his share of the partnership, provided particulars of the partnership deed are disclosed to the executive council.—ED., *B.M.J.*

Eccentricities

SIR,—Not being a psychiatrist, I have been puzzled for some time by the incomprehensible mental eccentricities of our administrators.

The type who decided that a doctor's fee for giving gas depends on the number of teeth the dentist is dexterous enough to extract I now place as an ordinary practical joker, though I have not yet laughed at his joke. But I cannot place the neo-statistician who decided that making a special intermediate certificate last three months instead of two would have any effect at all on the certification menace. Like Dr. Johnson, I can only attribute it to pure ignorance.

Then again, there is the type who, while doubtless joining in the Ministerial consternation at the national drug bill, evidently cannot distinguish between dispensing and a sale over the counter, and so gives the chemist (who has my sympathy in other directions) 100% profit for selling an ounce of cotton-wool, and 1,000% profit when he sells 25 aspirins. Perhaps the fellow thinks the chemist makes the aspirins himself, singly?

The type who decided that a doctor can pay for all the dressings and drugs used personally in a year for 2,000 patients out of £2 10s. is pathetic; but even he is not quite so divorced from reality as the one who wonders why children are not being vaccinated—when no one is being paid to do it.

I regret I am not myself competent to treat these cases (much as I should like to try my hand at E.C.T.), but I do know a frightfully good mental hospital.—I am, etc.,

Ashtead, Surrey. W. EDWARDS.

General Practitioners' Remuneration

SIR,—Recent public utterances by responsible men indicate that the grim realities of our economic situation will become apparent to everyone during the course of the coming year. Whatever the steps taken to avoid financial collapse, a reduction in the standard of living is inevitable. Bearing this in mind, it seems folly to allow the G.M.S. Committee to press forward the claim for an additional £16,000,000 to implement the Spens Report. If, as we all hope, the value of our money is to be kept stable, then it surely follows that a cut in our present remuneration becomes unavoidable.

On these lines it may become urgent that the present sum of £43,000,000 now allocated to the general practitioners be divided in a more equitable manner. Hardship, due to a small

list and arising from factors outside the control and remedy of the affected doctor, should be relieved.

To do this, I would suggest as a first measure that lists should be limited to 3,000, and payment withheld for any number in excess of this maximum. The balance thus accrued can be applied towards helping the less fortunate and also assisting newcomers to establish themselves in practice.

This will go a long way towards securing a more even distribution of doctors, and by stimulating competition will ensure a reasonable standard of service to the general public.—I am, etc.,

Blakeney, Glos. J. M. ASHTON.

SIR,—I respectfully submit that there is no practical significance in the contention of your correspondent, Dr. W. A. H. Bell (*Supplement*, November 12, p. 213), that the demand for increase of salary of general practitioners is unjustified.

In the first place, your correspondent appears completely to disregard the very great difference in the value of the pound sterling at the time when (1922–37) he was a panel doctor and now when its value is in the region of 6s. Moreover, he argues from a false premise when, regarding private practice, he asserts, "There is still quite a lot available." This is simply not true, and his statement would certainly *not* bear unprejudiced investigation.

I cannot, therefore, see any point in this correspondent's letter unless it be to please our present Minister of Health, and in that case why not write—not forgetting to send a copy to the Ministry—and suggest that doctors' fees should be *reduced*? There is nothing like being thorough.—I am, etc.,

London, W.4. J. C. C. LANGFORD.

SIR,—This is undoubtedly not the most opportune time to ask for more money, but Dr. Bell (*Supplement*, November 12, p. 213) does not make it sufficiently clear in his letter that it is he, living in North London, who is satisfied. Obviously he is not sufficiently informed to speak for G.P.s as a whole.

Many are more or less satisfied with their remuneration, but many others have had their incomes considerably reduced. In many areas private practice does not exist, and the posts of school medical officer, infant-welfare medical officer, etc., have been taken over by full-time men.

Dr. Bell will not get much kudos by writing to the Minister, for I am sure Mr. Bevan thinks no better of the good boys than the bad ones.—I am, etc.,

Kidderminster, Worcs. P. D. GRIFFITHS.

SIR,—If it has taken Dr. W. A. H. Bell until September 4, 1949, to learn from the *Sunday Times* that the B.M.A. is pressing for a higher remuneration for general practitioners, surely his membership of this Association, which he claims, cannot have been a very active one. If he had taken an occasional glance at the *Journal* over the past 18 months he would know that the adequate remuneration of general practitioners has been, and continues to be, one of the chief bones of contention between the profession and the Minister.

Some of Dr. Bell's rural brethren would be very grateful to know of examples of the wide scope offered in part-time appointments (divisional police surgeons, industrial medical officers, etc.) which would apply in their districts. At the same time they would like to know how they could find time for such appointments at the end of a long country round.

No doubt there are some practitioners in industrial areas who are doing better under the new Act than previously. To suggest that for this reason we should all sit back and count our blessings is to carry the philosophy of "I'm all right—let the other man sink" to an extreme.

Unity in the profession is of paramount importance, and Dr. Bell's letter will not help it. No doubt some sections of the popular press will exploit the letter as showing that general practitioners are being treated generously. The vast majority of us know otherwise, and will continue to press our case until *all* sections of the profession are able to feel as happy about the Act as is Dr. Bell.—I am, etc.,

Lewes, Sussex. J. P. MATTHEWS.

Association Notices

PROPOSED TEES-SIDE BRANCH

Notice is hereby given by the Council to all concerned of a proposal that a new Tees-side Branch should be formed, consisting of the areas of the Cleveland, Darlington, Hartlepools, and Stockton Divisions of the present North of England Branch.

Any member or body affected by this proposal and objecting thereto should write to the Secretary of the Association by December 24, 1949, stating the objection and the ground therefor.

PROPOSED TRANSFER OF WESTMORLAND DIVISION FROM THE BORDER COUNTIES BRANCH TO THE NORTH LANCASHIRE BRANCH

Notice is hereby given by the Council to all concerned of a proposal to transfer the area of the Westmorland Division from the Border Counties Branch to the North Lancashire Branch.

Any member or body affected by this proposal and objecting thereto is requested to write to the Secretary of the Association by December 24, 1949, stating the objection and the ground therefor.

CHARLES HILL,
November 26, 1949. *Secretary*.

Diary of Central Meetings

NOVEMBER

25	Fri.	Committee on Psychiatry and the Law, 2 p.m.
29	Tues.	Ethical Rules Subcommittee, 2 p.m.
29	Tues.	Committee on Constitutional Position of Branches Overseas, 2 p.m.
30	Wed.	Committee on the Postgraduate Education of General Practitioners (adjourned from November 9), 10.30 a.m.

DECEMBER

1	Thurs.	Planning Subcommittee of Occupational Health Committee, 11 a.m.
1	Thurs.	Executive Subcommittee of the General Medical Services Committee, 11.15 a.m.
1	Thurs.	Remuneration Subcommittee of Occupational Health Committee, 2 p.m.
1	Thurs.	Joint Committee of the B.M.A. and the N.V.M.A., 2.30 p.m.
2	Fri.	Committee *re* Capital Punishment, 11.30 a.m.
2	Fri.	Colonies and Dependencies Committee, 2 p.m.
6	Tues.	Proprietary Medicines Committee (*Provisional*), 11 a.m.
6	Tues.	Orthopaedic Group Committee, 2 p.m.
9	Fri.	Medical War Relief Fund Committee, 2 p.m.
9	Fri.	Ophthalmic Group Committee, 2 p.m.
12	Mon.	Psychological Medicine Group Committee, 2 p.m.
15	Thurs.	Journal Committee, 2 p.m.
19	Mon.	Armed Forces Committee, 2 p.m.
22	Thurs.	Occupational Health Committee, 2 p.m.

Branch and Division Meetings to be Held

CAMBERWELL DIVISION.—At 12, Asylum Road, London, S.E., Tuesday, November 29, 8.30 p.m., Dr. S. Oram: "The Management of Heart Cases during Pregnancy."

CLEVELAND DIVISION.—At Sparks Café Royal, Middlesbrough, Thursday, December 1, 7 for 7.15 p.m., Supper followed by address by Dr. R. S. Bruce Pearson: "The Use of Antihistamine Drugs."

ISLE OF WIGHT DIVISION.—At Royal National Hospital, Ventnor, Sunday, November 27, 3.30 p.m., lecture by Dr. A. K. Miller: "Recent Advances in Treatment of Pulmonary Tuberculosis" (illustrated by films).

LANCASTER DIVISION.—At Lecture Theatre, the Storey Institute, Lancaster, Saturday, December 3, 8.15 p.m., general meeting; 8.30 p.m., B.M.A. Lecture by Dr. Stanley Alstead: "Pharmacology as a Clinical Science."

LEWISHAM DIVISION.—At Lewisham Hospital, High Street, London, S.E., Friday, December 2, 8.30 p.m., Dr. B. Gans: "Children under School Age."

SOUTH-WEST WALES DIVISION.—At St. David's Hospital, Carmarthen, Sunday, November 27, 2.30 p.m., Annual B.M.A. Lecture by Mr. D. H. Patey: "The Acute Abdomen."

SWANSEA DIVISION.—At Brangwyn Hall, Swansea, Friday, December 2, B.M.A. dinner-dance.

WEST DOWN DIVISION.—At Great Northern Hotel, Greenore, Thursday, December 1, 8.30 p.m., dinner.

BRITISH MEDICAL JOURNAL

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CAN A SCIENTIFIC SOCIETY BE STABLE?*

BY

BERTRAND RUSSELL, O.M., F.R.S.

I will begin with some explanation of the question with which I am concerned. I call a society "scientific" in the degree to which scientific knowledge, and technique based upon that knowledge, affects its daily life, its economics, and its political organization. This, of course, is a matter of degree. Science in its early stages had few social effects except upon the small number of learned men who took an interest in it, but in recent times it has been transforming ordinary life with ever-increasing velocity.

I am using the word "stable" as it is used in physics. A top is "stable" so long as it rotates with more than a certain speed; then it becomes unstable and the top falls over. An atom which is not radioactive is "stable" until a nuclear physicist gets hold of it. A star is "stable" for millions of years, and then one day it explodes. It is in this sense that I wish to ask whether the kind of society that we are creating is "stable."

I want to emphasize that the question I am asking is purely factual. I am not considering whether it is better to be stable or to be unstable; that is a question of values, and lies outside the scope of scientific discussion. I am asking whether, in fact, it is probable or improbable that society will persist in being scientific. If it does, it must almost inevitably grow progressively more and more scientific, since new knowledge will accumulate. If it does not, there may be either a gradual decay, like the cooling of the sun by radiation, or a violent transformation, like those that cause novae to appear in the heavens. The former would show itself in exhaustion, the latter in revolution or unsuccessful war.

The problem is extremely speculative, as appears when we consider the time scale. Astronomers tell us that in all likelihood the earth will remain habitable for very many millions of years. Man has existed for about a million years. Therefore if all goes well his future should be immeasurably longer than his past.

Science, as pure knowledge, began about 2,500 years ago, but as a force affecting daily life it began much later—with gunpowder and the mariner's compass. It did not begin to be a really powerful cause of social change until the industrial revolution, 150 years ago. To predict on the basis of such a very brief experience is evidently hazardous. All that can be done is to pick out certain aspects of the question with a view to causing awareness of dangers and possibilities.

Broadly speaking, we are in the middle of a race between human skill as to means and human folly as to ends. Given sufficient folly as to ends, every increase in the skill required to achieve them is to the bad. The human race has survived hitherto owing to ignorance and incompetence; but, given knowledge and competence combined with folly, there can be no certainty of survival. Knowledge is power, but it is power for evil just as much as for good. It follows that, unless men increase in wisdom as much as in knowledge, increase of knowledge will be increase of sorrow.

*The Lloyd Roberts Lecture given at the Royal Society of Medicine, London, on November 29, 1949.

Causes of Instability

Possible causes of instability may be grouped under three heads: physical, biological, and psychological. I will begin with the physical causes.

Physical

Both industry and agriculture, to a continually increasing degree, are carried on in ways that waste the world's capital of natural resources. In agriculture this has always been the case since man first tilled the soil, except in places like the Nile Valley, where there were very exceptional conditions. While population was sparse, people merely moved on when their former fields became unsatisfactory. Then it was found that corpses could be used as fertilizers, and human sacrifice became common. This had the double advantage of increasing the yield and diminishing the number of mouths to be fed; nevertheless the method came to be frowned upon, and its place was taken by war. Wars, however, were not sufficiently destructive of human life to prevent the survivors from suffering, and the exhaustion of the soil has continued at a constantly increasing rate right down to our own day. At last the creation of the Dust Bowl in the United States compelled attention to the problem. It is now known what must be done if the world's supply of food is not to diminish catastrophically. But whether what is necessary will be done is a very doubtful question. The demand for food is so insistent, and the immediate profit so great, that only a strong and intelligent government can enforce the required measures; and in many parts of the world governments are not both strong and intelligent. I am for the present ignoring the population problem, which I shall consider presently.

Raw materials, in the long run, present just as grave a problem as agriculture. Cornwall produced tin from Phoenician times until very lately; now the tin of Cornwall is exhausted. Light-heartedly, the world contents itself with observing that there is tin in Malaya, forgetting that that too will be used up presently. Sooner or later all easily accessible tin will have been used up, and the same is true of most raw materials. The most pressing, at the moment, is oil. Without oil a nation cannot, with our

present techniques, prosper industrially or defend itself in war. The supply is being rapidly depleted, and will be used up even more swiftly in the wars that are to be expected for possession of such supplies as will remain. Of course I shall be told that atomic energy will replace oil as a source of power. But what will happen when all the available uranium and thorium have done their work of killing men and fishes?

The indisputable fact is that industry—and agriculture in so far as it uses artificial fertilizers—depends upon irreplaceable materials and sources of energy. No doubt science will discover new sources as the need arises, but this will involve a gradual decrease in the yield of a given amount of land and labour, and in any case is an essentially temporary expedient. The world has been living on capital, and so long as it remains industrial it must continue to do so. This is one inescapable though perhaps rather distant source of instability in a scientific society.

BIOLOGICAL

I come now to the biological aspects of our question. If we estimate the biological success of a species by its numbers it must be admitted that Man has been most remarkably successful. In his early days Man must have been a very rare species. His two great advantages—the capacity of using his hands to manipulate tools, and the power of transmitting experience and invention by means of language—are slowly cumulative: at first there were few tools and there was little knowledge to transmit; moreover, no one knows at what stage language developed. However that may be, there were three great advances by means of which the human population of the globe was increased. The first was the taming of the animals that became domestic; the second was the adoption of agriculture; and the third was the industrial revolution. By means of these three advances men have become enormously more numerous than any species of large wild mammal. Sheep and cattle owe their large numbers to human care; as competitors with man large mammals have no chance, as appears from the virtual extinction of the buffalo.

In addressing a medical audience, it is with trepidation that I advance my next thesis, which is this. Medicine cannot, except over a short period, increase the population of the world. No doubt if medicine in the fourteenth century had known how to combat the Black Death the population of Europe in the latter half of the fourteenth century would have been larger than it was. But the deficiency was soon made up to its Malthusian level by natural increase. In China, European and American medical missions do much to diminish the infant death rate; the consequence is that more children die painfully of famine at the age of five or six. The benefit to mankind is very questionable. Except where the birth-rate is low the population in the long run depends upon the food supply and upon nothing else. In the Western world the fall in the birth rate has for the time being falsified Malthus's doctrine. But until lately this doctrine was true throughout the world, and it is still true in the densely populated countries of the East.

What has science done to increase population? In the first place, by machinery, fertilizers, and improved breeds it has increased the yield per acre and the yield per man-hour of labour. This is a direct effect. But there is another which is perhaps more important, at least for the moment. By improvement in means of transport it has become possible for one region to produce an excess of food while another produces an excess of industrial products or raw materials. This makes it possible—as for instance in our own country—for a region to contain a larger population than its own food resources could support. Assuming free mobility of persons and goods, it is only necessary that the whole world should produce enough food for the population of the whole world, provided the regions of deficient food production have something to offer which the regions of surplus food production are willing to accept in exchange for food. But this condition is apt to fail in bad times In Russia, after the first world war, the peasants had just about the amount of food they wanted for themselves, and would not willingly part with any of it for the purchase of urban products. At that time, and again during the famine in the early '30s, the urban population was kept alive only by the energetic use of armed force. In the famine, as a result of government action, millions of peasants died of starvation; if the government had been neutral the town-dwellers would have died.

Such considerations point to a conclusion which, it seems to me, is too often ignored. Industry, except in so far as it ministers directly to the needs of agriculture, is a luxury: in bad times its products will be unsaleable, and only force directed against food-producers can keep industrial workers alive, and that only if very many food-producers are left to die. If bad times become common, it must be inferred that industry will dwindle and that the industrialization characteristic of the last 150 years will be rudely checked

But bad times, you may say, are exceptional, and can be dealt with by exceptional methods. This has been more or less true during the honeymoon period of industrialism, but it will not remain true unless the increase of population can be enormously diminished. At present the population of the world is increasing at about 58,000 per diem, or about 20 millions per annum. War, so far, has had no very great effect on this increase, which continued throughout each of the world wars. Until the last quarter of the nineteenth century this increase was more rapid in advanced countries than in backward ones, but now it is almost wholly confined to very poor countries. Of these, China and India are numerically the most important, while Russia is the most important in world politics. But I want, for the present, to confine myself, so far as I can, to biological considerations, leaving world politics on one side

What is the inevitable result if the increase of population is not checked? There must be a very general lowering of the standard of life in what are now prosperous countries. With that lowering there must go a great diminution in the demand for industrial products. Detroit will have to give up making private cars, and confine itself to lorries. Such things as books, pianos, watches will become the rare luxuries of a few exceptionally powerful men—notably those who control the army and the police. In the end there will be a uniformity of misery, and the Malthusian law will reign unchecked. The world having been technically unified, population will increase when world harvests are good, and diminish by starvation whenever they are bad. Most of the present urban and industrial centres will have become derelict, and their inhabitants, if still alive, will have reverted to the peasant hardships of their mediaeval ancestors. The world will have achieved a new stability, but at the cost of everything that gives value to human life.

Are mere numbers so important that, for their sake, we should patiently permit such a state of affairs to come about? Surely not. What, then, can we do? Apart from certain deep-seated prejudices, the answer would be obvious. The nations which at present increase rapidly should be encouraged to adopt the methods by which, in the West, the increase of population has been checked

Educational propaganda, with government help, could achieve this result in a generation. There are, however, two powerful forces opposed to such a policy: one is religion, the other is nationalism. I think it is the duty of all who are capable of facing facts to realize, and to proclaim, that opposition to the spread of birth control, if successful, must inflict upon mankind the most appalling depth of misery and degradation, and that within another fifty years or so.

I do not pretend that birth control is the only way in which population can be kept from increasing. There are others, which, one must suppose, opponents of birth control would prefer. War, as I remarked a moment ago, has hitherto been disappointing in this respect, but perhaps bacteriological war may prove more effective. If a Black Death could be spread throughout the world once in every generation survivors could procreate freely without making the world too full. There would be nothing in this to offend the consciences of the devout or to restrain the ambitions of nationalists. The state of affairs might be somewhat unpleasant, but what of that? Really high-minded people are indifferent to happiness, especially other people's. However, I am wandering from the question of stability, to which I must return.

There are three ways of securing a society that shall be stable as regards population. The first is that of birth control, the second that of infanticide or really destructive wars, and the third that of general misery except for a powerful minority. All these methods have been practised: the first, for example, by the Australian aborigines; the second by the Aztecs, the Spartans, and the rulers of Plato's Republic; the third in the world as some Western internationalists hope to make it and in Soviet Russia. (It is not to be supposed that Indians and Chinese like starving, but they have to endure it because the armaments of the West are too strong for them.) Of these three, only birth control avoids extreme cruelty and unhappiness for the majority of human beings. Meanwhile, so long as there is not a single world government there will be competition for power among the different nations. And as increase of population brings the threat of famine national power will become more and more obviously the only way of avoiding starvation. There will therefore be blocs in which the hungry nations band together against those that are well fed. That is the explanation of the victory of communism in China.

These considerations prove that a scientific world society cannot be stable unless there is a world government.

It may be said, however, that this is a hasty conclusion. All that follows directly from what has been said is that, unless there is a world government which secures universal birth control, there must from time to time be great wars, in which the penalty of defeat is widespread death by starvation. That is exactly the present state of the world, and some may hold that there is no reason why it should not continue for centuries. I do not myself believe that this is possible. The two great wars that we have experienced have lowered the level of civilization in many parts of the world, and the next is pretty sure to achieve much more in this direction. Unless, at some stage, one power or group of powers emerges victorious and proceeds to establish a single government of the world with a monopoly of armed force, it is clear that the level of civilization must continually decline until scientific warfare becomes impossible—that is, until science is extinct. Reduced once more to bows and arrows, *Homo sapiens* might breathe again, and climb anew the dreary road to a similar futile culmination.

The need for a world government, if the population problem is to be solved in any humane manner, is completely evident on Darwinian principles. Given two groups, of which one has an increasing and the other a stationary population, the one with the increasing population will (other things being equal) in time become the stronger. After victory, it will cut down the food supply of the vanquished, of whom many will die.* Therefore there will be a continually renewed victory of those nations that, from a world point of view, are unduly prolific. This is merely the modern form of the old struggle for existence. And given scientific powers of destruction, a world which allows this struggle to continue cannot be stable.

PSYCHOLOGICAL

The psychological conditions of stability in a scientific society are to my mind quite as important as the physical and biological conditions, but they are much more difficult to discuss, because psychology is a less advanced science than either physics or biology. Nevertheless, let us make the attempt.

The old rationalist psychology used to assume that if you showed a man quite clearly that a certain course of action would lead to disaster for himself he would probably avoid it. They also took for granted a will to live, except in a negligible minority. Chiefly as a result of psycho-analysis this Benthamite belief that most men pursue their own interest in a more or less reasonable way has not now the hold on informed opinion that it formerly had. But not very many people, among those concerned with politics, have applied modern psychology to the explanation of large-scale social phenomena. This is what I propose, with much diffidence, to attempt.

Consider, as the most important illustration, the present drift towards a third world war. You are arguing, let us say, with an ordinary cheerful non-political and legally sane person. You point out to him what can be done by atom bombs, what Russian occupation of Western Europe would mean in suffering and destruction of culture, what poverty and what regimentation would result even in the event of a fairly quick victory. All this he fully admits, but nevertheless you do not achieve the result for which you had hoped. You make his flesh creep, but he rather enjoys the sensation. You point out the disorganization to be expected, and he thinks: "Well, anyhow, I shan't have to go to the office every morning." You expatiate on the large number of civilian deaths that will take place, and while, in the top layer of his mind, he is duly horrified, there is a whisper in a deeper layer: "Perhaps I shall become a widower, and that might be not so bad." And so, to your disgust, he takes refuge in archaic heroism, and exclaims:

> "Blow wind! come wrack!
> At least we'll die with harness on our back,"

or whatever more prosaic equivalent he may prefer.

Psychologically, there are two opposite maladies which have become so common as to be dominant factors in politics. One is rage, the other listlessness. The typical example of the former was the mentality of the Nazis; of the latter, the mentality in France which weakened resistance to Germany before and during the war. In less acute forms these two maladies exist in other countries, and are,

*Some may think this statement unduly brutal. But if they will look up newspapers of three or four years ago they will find, side by side, indignant letters saying that British labour could not be efficient on a diet of 2,500 calories, and that it was preposterous to suppose that a German needed more than 1,200 calories.

I think, intimately bound up with the regimentation which is associated with industrialism. Rage causes nations to embark on enterprises that are practically certain to be injurious to themselves; listlessness causes other nations to be careless in warding off evils, and generally disinclined to undertake anything arduous. Both are the outcome of a deep malaise resulting from lack of harmony between disposition and mode of life.

One cause of this malaise is the rapidity of change in material conditions. Savages suddenly subjected to European restraints not infrequently die from inability to endure a life so different from what they have been accustomed to. When I was in Japan in 1921 I seemed to sense in the people with whom I talked, and in the faces of the people I met in the streets, a great nervous strain, of the sort likely to promote hysteria. I thought this came from the fact that deep-rooted unconscious expectations were adapted to old Japan, whereas the whole conscious life of town-dwellers was devoted to an effort to become as like Americans as possible. Such a maladjustment between the conscious and the unconscious was bound to produce discouragement or fury, according as the person concerned was less or more energetic. The same sort of thing happens wherever there is rapid industrialization; it must have happened with considerable intensity in Russia.

But even in a country like our own, where industrialism is old, changes occur with a rapidity which is psychologically difficult. Consider what has happened during my lifetime. When I was a child telephones were new and very rare. During my first visit to America I did not see a single motor-car. I was 39 when I first saw an aeroplane. Broadcasting and the cinema have made the life of the young profoundly different from what it was during my own youth. As for public life, when I first became politically conscious Gladstone and Disraeli still confronted each other amid Victorian solidities, the British Empire seemed eternal, a threat to British naval supremacy was unthinkable, the country was aristocratic and rich and growing richer, and Socialism was regarded as the fad of a few disgruntled and disreputable foreigners.

For an old man, with such a background, it is difficult to feel at home in a world of atomic bombs, communism, and American supremacy. Experience, formerly a help in the acquisition of political sagacity, is now a positive hindrance, because it was acquired in such different conditions. It is now scarcely possible for a man to acquire slowly the sort of wisdom which in former times caused "elders" to be respected, because the lessons of experience become out of date as fast as they are learnt. Science, while it has enormously accelerated outward change, has not yet found any way of hastening psychological change, especially where the unconscious and subconscious are concerned. Few men's unconscious feels at home except in conditions very similar to those which prevailed when they were children.

Rapidity of change, however, is only one of the causes of psychological discontent. Another, perhaps more potent, is the increasing subordination of individuals to organizations, which, so far, has seemed to be an unavoidable feature of a scientific society. In a factory containing expensive plant, and depending upon the closely co-ordinated labour of many people, individual impulses must be completely controlled except by the men constituting the management. There is no possibility, in working hours, of either adventure or idleness. And even outside working hours the opportunities are few for most people. Getting from home to work and from work to home takes time; at the end of the day there is neither time nor money for anything very exciting. And what is true of workers in a factory is true, in a greater or less degree, of most people in a well-organized modern community. Most people, when they are no longer quite young, find themselves in a groove—like the man in the limerick, "not a bus, not a bus, but a tram." Energetic people become rebellious, quiet people become apathetic. War if it comes, offers an escape. I should like a Gallup poll on the question: "Are you more or less happy now than during the war?" This question should be addressed to both men and women. I think it would be found that a very considerable percentage are less happy now than then.

This state of affairs presents a psychological problem which is too little considered by statesmen. It is hopeless to construct schemes for preserving peace if most people would rather not preserve it. As they do not admit, and perhaps do not know, that they would prefer war, their unconscious will lead them to prefer specious schemes that are not likely to achieve their ostensible purpose.

The difficulty of the problem arises from the highly organic character of modern communities, which make each dependent upon all to a far greater degree than in pre-industrial times. This makes it necessary to restrain impulse more than was formerly necessary. But restraint of impulse, beyond a point, is very dangerous: it causes destructiveness, cruelty, and anarchic rebellion. Therefore, if populations are not to rise up in a fury and destroy their own creations ways must be found of giving more scope for individuality than exists for most people in the modern world. A society is not stable unless it is on the whole satisfactory to the holders of power and the holders of power are not exposed to the risk of successful revolution. But it is also not stable if the holders of power embark upon rash adventures, such as those of the Kaiser and Hitler. These are the Scylla and Charybdis of the psychological problem, and to steer between them is not easy. Adventure, yes; but not adventure inspired by destructive passions.

Conclusions

Let us now bring together the conclusions which result from our inquiry into the various kinds of conditions that a scientific society must fulfil if it is to be stable.

First, as regards physical conditions. Soil and raw materials must not be used up so fast that scientific progress cannot continually make good the loss by means of new inventions and discoveries. Scientific progress is therefore a condition, not merely of social progress, but even of maintaining the degree of prosperity already achieved. Given a stationary technique, the raw materials that it requires will be used up in no very long time. If raw materials are not to be used up too fast, there must not be free competition for their acquisition and use but an international authority to ration them in such quantities as may from time to time seem compatible with continued industrial prosperity. And similar considerations apply to soil conservation.

Second, as regards population. If there is not to be a permanent and increasing shortage of food, agriculture must be conducted by methods which are not wasteful of soil, and increase of population must not outrun the increase in food production rendered possible by technical improvements. At present neither condition is fulfilled. The population of the world is increasing, and its capacity for food production is diminishing. Such a state of affairs obviously cannot continue very long without producing a cataclysm.

To deal with this problem it will be necessary to find ways of preventing an increase in world population. It

absolute protection against the late development of jejunal ulcer has deterred us from using this very satisfactory combination more often. This fear is growing less, as we have continued to see completely successful results in following up the patients so treated. In cases where duodenal ulcers have become large and callous or have penetrated into adjacent organs, or where gross haemorrhage has occurred, we recommend vagotomy plus hemigastrectomy.

This operation is very different from the high subtotal gastrectomy now usually employed for duodenal ulcer, being neither so mutilating nor so dangerous; nor is it followed by the unpleasant small-stomach syndrome, the inability to eat a proper meal, and the progressive weight loss now commonly seen.

It is well known that, if only half the stomach is removed for duodenal ulcer, stomal ulcer subsequently develops in about one in ten patients (Rienhoff, 1945). Such recurrences respond well to vagotomy, and its use for anastomotic ulcer has gained distinguished supporters in recent years (Allen, 1947; Maingot, 1948). In employing a combination of vagotomy and hemigastrectomy in those duodenal ulcer cases unsuitable for vagotomy alone, it is our hope that the vagotomy will reduce the anastomotic ulcer rate to a figure at least as low as that for subtotal gastrectomy, while avoiding the unsatisfactory sequelae and greater mortality of the very high gastric resection. Vagotomy alone is a suitable operation for anastomotic ulcer after earlier gastro-enterostomy or gastrectomy in the majority of cases, and has the advantage of being a much less serious or dangerous undertaking than any alternative procedure available.

The vagi should not be divided in patients in whom at laparotomy no evidence of ulcer is found, unless this is deliberately undertaken for gross antral gastritis confirmed gastroscopically and accompanied by bleeding, or for recurrence of severe symptoms after gastrojejunostomy or gastrectomy when there is evidence of chronic jejunitis.

Results

Our series of vagal resections now numbers 215, 191 of them men and 24 women (Table I). Of these, 63 have been initially combined with hemigastrectomy and 21 with gastro-enterostomy; 20 have been undertaken for anastomotic ulcer. The earliest was performed five years ago, and 65 of them over two years ago.

TABLE I.—*Types of Operation*

	Cases	Operations
Duodenal ulcer	190	
		108
		21
		61
	5	
		5
	20	
		18
		2
All lesions	215	
Vagotomy alone		131
Vago		21
Vago		63
Re-operations		
Gastro-enterostomy		5
Gastrectomy		10
For duodenal fistula		1
Total operations		231

Vagotomy Alone

Early in our series we used vagotomy alone for all duodenal ulcers and anastomotic ulcers except one or two with well-established pyloric stenosis. We now realize that several of these subjects were unsuitable. None the less, a number of those in whom we would now consider a combined operation to be indicated still show first-class results with vagotomy alone.

Before we had become well practised at the operation we often failed to achieve complete denervation by the criteria of subsequent insulin tests. Dragstedt, who with his associates has done over 500 vagus resections, still draws attention to the very great difficulty of recognizing and dividing every fibre of both vagi. However, though there were 22 incomplete divisions among our first 100 cases, we have seen only six positive insulin responses among the next 100, and none at all among the last 50.

The results of these partial operations are altogether different and essentially unpredictable, for, though the percentage of failures is high, some of our most remarkable successes have been in this group, and the complications which sometimes follow vagotomy have been rare among them.

Of the 131 cases submitted to vagotomy alone (Table II), nerve section is believed to have been complete in 105.

TABLE II.—*Results of Operations Performed Over Six Months and Up to Five Years Ago*

Operation	No.	Still Symptom-free	Better but not Symptom-free	Failures
Duodenal ulcers and anastomotic ulcers after earlier operations for duodenal ulcers				
Vagotomy alone: "insulin negative" post-operatively	71	54 (76%)	13	4 (6%)
Vagotomy alone: "insulin positive"	26	9 (35%)	5	12 (46%)
	29	25 (86%)	3	1 (3%)
ing vagotomy for anastomotic ulcer after gastrectomy, and gastrectomy for failure after vagotomy	66	58 (88%)	6	2 (3%)
Combined gastric and duodenal ulcers				
Vagotomy alone	5	3	0	2

Of these 105 probably complete vagotomies, 82 were for duodenal ulcer, 5 for combined duodenal and gastric ulcers, and 18 for anastomotic ulcers. Eleven cases of duodenal ulcer in which operation was performed less than six months ago, though satisfactory, have been excluded from analysis. In the remaining 71 duodenal ulcer cases in which vagotomy is believed to have been complete and in which the operation was done over six months and up to five years ago, 54 operations (76%) have been entirely successful, 13 have been only partially successful, and 4 have altogether failed to relieve symptoms.

Of the four complete failures, one patient had pyloric stenosis and two others developed stenosis later. These three have been re-operated upon with success, two having had hemigastrectomies and one a gastro-enterostomy. The fourth patient was relieved for only a few months by vagotomy and was then as bad as ever. At re-operation the large duodenal ulcer appeared to be soundly healed, and though a mass of scar tissue was present there was no obvious stenosis. Hemigastrectomy was performed, but the patient is still only partially relieved of his symptoms.

Of the 13 partial successes, one patient who had had a long history of severe pain and several haemorrhages was completely relieved of symptoms. Nevertheless he had a further haematemesis twelve months later. On re-exploration he was found to have a healed duodenal ulcer and several superficial gastric erosions. There was also some stenosis of the pylorus with gastric retention. Five patients have

dyspepsia from time to time, though their symptoms are not so severe as those experienced before operation. There is no *x*-ray evidence of recurrence, and the symptoms are readily controlled by simple medical measures. Two patients have occasional vomiting but no other symptom. Three have attacks of colic relieved by passage of flatus or belching. Two have intermittent diarrhoea, and, though the earlier one has now been free from trouble for six months, it is too soon to say confidently that this symptom permanently settles sooner or later.

The last of these 13 patients was operated upon two years ago for repeated haematemesis from a large but otherwise symptomless duodenal ulcer. Since operation he has not had another haemorrhage, but has not felt so well as before operation. We would not now submit such a patient to vagotomy alone.

Of the 26 patients in whom vagus resection was inadvertently incomplete, eight have been altogether free from symptoms since operation, up to five years and an average of three years ago. Five have been improved but are not symptomless and 12 have relapsed. Four of these have been submitted since to hemigastrectomy, one of them having a healed duodenal ulcer but a very large active gastric ulcer. Two others whose ulcers healed developed stenosis later and required gastro-enterostomy. Another has since had a massive haemorrhage from which he died.

We do not recommend vagotomy for patients with gastric ulcer, as we hold that there is no sound rationale for vagotomy in this condition, nor have the results of others who use it been convincingly successful.

Of the five cases of combined gastric and duodenal ulcer, three have been altogether cured for up to two years. In the other two cases the duodenal ulcers have healed, but the gastric ulcers continue to relapse. One of these has since been re-operated upon. However, it is possible to select certain patients with combined ulcers as suitable for vagotomy on the basis of the special investigations into secretion which we now make. By our present criteria neither of the two failures recorded in this group should have been vagotomized, for they both had long hypotonic stomachs showing no evidence of hyperacidity or excess of interdigestive secretion.

Vagotomy plus Gastro-enterostomy

Twenty-six patients with pyloric stenosis and active ulcers have had gastro-enterostomy with or after vagotomy, seven subsequently proving to have incomplete nerve section. A further 10 have had vagotomies for anastomotic ulcers after earlier gastro-enterostomy, so that there are 36 patients with this ultimate combination in the follow-up, which ranges, in their case, up to 4½ years. The only failure in this group has been due to the persistence of vomiting in one patient in whom nerve section was incomplete. Three others, two of whom also had positive insulin responses after operation, have periods when they are not altogether symptom-free. We have not used vagotomy for patients with pyloric stenosis and healed ulcers.

Vagotomy plus Hemigastrectomy

Sixty-three patients with large callous or penetrating ulcers have had vagotomy plus hemigastrectomy, and 10 have had vagotomies for recurrent ulcers after earlier gastrectomy. A further 10 patients have had gastrectomies later for the failures after vagotomy described above—one for a gastric ulcer which did not heal, one for haemorrhage from gastric erosions, four for pyloric stenosis, and four who relapsed after incomplete vagotomy. In all, 83 have had gastric and vagal resection. The follow-up of this group is relatively short, only the earliest having been operated on more than two years ago. So far the results on the whole have been very satisfactory, though one patient who had had two partial gastrectomies and two other operations for ulcer before he came to us was not much benefited by vagotomy. Six other patients continue to have intermittent symptoms less troublesome than their earlier ulcer distress. No case of anastomotic ulcer has yet been seen.

Other Effects of Vagotomy

Vagus section has had the unexpected effect of relieving constipation. Of the patients in the series 50% complained of chronic constipation, and 90% of these have developed regular habits since operation. In two patients constipation has returned after a few months of initial relief. Diarrhoea lasting one week or sometimes two weeks has occurred in several patients, but in only four (under 2%) has it persisted for longer or been really troublesome, and these patients consider themselves better off than before the operation.

Gain in weight over the immediate pre-operative level has averaged 5 lb. (2.27 kg.) in the first six months after vagus resection alone. After vagotomy plus hemigastrectomy it has averaged 4½ lb. (2 kg.) in the same period This compares very favourably with the weight charts seen after subtotal gastrectomy (Johnson, 1948b).

Two patients who had suffered for several years from pulmonary tuberculosis as well as duodenal ulcer were operated upon at the request of their physicians because their nutrition could not be maintained at a satisfactory level for combating their infection. One has gained 14 lb (6.35 kg.) in three months and the other 16 lb. (7.25 kg.) in 12 months since operation.

Complications.—The complications specific to vagotomy are nearly always mild and transitory, but are of special interest owing to the difficulty of explaining them on physiological grounds. Some patients notice that the stomach and bowel contain an excessive amount of wind, causing frequent eructation and passage of flatus, and occasionally giving rise to bowel colic. This condition, in our experience, has nearly always settled in a few months. If patients are closely questioned many will admit having had several sudden attacks of weakness, sometimes accompanied by sweating and trembling, and lasting twenty minutes, during the first few weeks after operation. In three or four cases these attacks have persisted, occurring about once a week, usually about 3 or 4 p.m., and often after heavy exercise They were accompanied by low blood-sugar levels in two patients tested during attacks (Johnson, 1948b). Hypoglycaemia is a condition to which duodenal ulcer patients have a tendency without operation.

Mortality

There has been no death from vagotomy alone in this series (Table III). One elderly patient died from retention

TABLE III.—*Mortality*

	No.	Deaths	Mortality (%)
Vagotomy alone	131	0	0
Combined operations: Vagotomy plus gastrectomy or gastro-enterostomy ..	84	1	1·2
Re-operations .. .. (Gastrectomy, 10; gastro-enterostomy, 5; for duodenal fistula, 1)	16	1	6·2
All operations	231	2	0·87

of urine and uraemia following a combined hemigastrectomy and vagotomy, and a second died from an operation for closure of a duodenal fistula which developed after a difficult Billroth I gastrectomy with which vagotomy had also been combined. The overall mortality during the surgical treatment of these 215 patients has therefore been under 1%.

Commentary

The results of the investigations here recorded represent five years of study. During the first year little success was achieved beyond the development of a technique for complete vagus nerve section from below the diaphragm.

The percentage of failures among the early cases was high, but as the technique improved the proportion of incomplete vagotomies decreased, as did the proportion of failures. During the second and third years close follow-ups revealed the limitations of vagus resection as a therapeutic procedure in the treatment of duodenal ulcer, and some of the complications of vagotomy were recognized. Drainage operations were avoided at first, except when gross organic stenosis made it obligatory, until the effects of vagotomy alone had been studied. The observations made in this second period showed beyond question that complete vagotomy resulted in a marked fall in free acid, and that the low acid level was maintained in patients submitted to repeated secretion tests over a period of two years; but it also showed that in spite of a marked fall in free-acid level 25% of patients continued to complain of ulcer symptoms or suffered from recurrence after an initial period of well-being. Furthermore, it was noted that while 75% of vagotomized patients remained free from ulcer symptoms, certain side-effects of an unpleasant nature were apt to appear.

During the third and fourth years of study an analysis of good and bad results suggested that some of those who had been subjected to vagotomy were unsuitable subjects and that others presented too complicated a picture to be dealt with adequately by vagotomy alone, and combined operations were undertaken, such as vagotomy plus gastric resection or gastro-enterostomy.

The remaining period has confirmed that early uncomplicated cases of duodenal ulcer associated with high interdigestive secretion of free acid may be expected to obtain lasting benefit from vagotomy alone. For patients with a history of haemorrhage, perforation, scarring or deep crater formation—in other words, those most often presented to the surgeon—more radical operations are indicated. The results of these combined operations have been most gratifying, and the substitution of partial for high subtotal gastrectomy has done much to lower the post-operative morbidity and mortality of ulcer surgery.

Though resection plus vagotomy is the operation of choice at the moment, a prolonged follow-up of those patients who have had vagotomy plus gastro-enterostomy may prove that this is an adequate procedure with a minimal risk of stomal ulcer. Until this can be established beyond doubt, however, resection plus vagotomy must continue to be favoured. The scope of the resection is limited to removal of the ulcerated portion of the duodenum and enough of the pyloric half of the stomach to eliminate the secretory hormone element.

Summary

A series of 215 patients submitted to vagotomy over the last five years is reported. The results are satisfactory provided that the cases are skilfully selected and section of the nerves is complete. For large penetrating ulcers hemigastrectomy plus vagotomy has been tried, with, so far, promising results and avoidance of the "small-stomach syndrome" now becoming so common.

Despite our earlier fears, gastro-enterostomy plus vagotomy has continued to give excellent results in the small group in which it has been used.

The results of inadvertently incomplete vagotomy are variable and unsatisfactory, and only in the later part of our series did our technique become reliable in this respect

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THE USE OF PROCAINE PENICILLIN WITH ALUMINIUM MONOSTEARATE IN ADULTS

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Of the many attempts which have been made to prolong the action of penicillin the most successful up to the present time have involved the use of the insoluble salt formed by combining penicillin G and procaine. By the use of this salt in fine suspension in arachis oil it has been claimed that bacteriostatic levels of penicillin in the blood can be maintained for 24 hours. While there is no doubt that in many cases this claim is justified, we have found in common with other observers (Emery, Stewart, and Stone, 1949) that the titre in the blood at 24 hours is very variable and often falls below the usually accepted minimum bacteriostatic level.

The retarding effect of aluminium stearate on the absorption of procaine penicillin has been pointed out by Buckwalter and Dickison (1948). The aluminium ester, which is a water-repellent, seems to produce a unimolecular envelope over the crystals and to delay their absorption Observations on this preparation have been reported by Thomas, Lyons, Romansky, Rein, and Kitchen (1948), who found that a single injection of procaine penicillin in arachis oil with 2% (w/v) aluminium stearate maintained effective blood concentrations over a longer period than similar preparations without aluminium stearate. Robinson, Hirsh, Milloff, and Dowling (1948), using a similar preparation, found that the majority of cases had assayable blood levels after 24 hours and that one-third had assayable levels after 48 hours.

In this country Young, Andrews, and Montgomery (1949) have estimated the penicillin blood level after injection of procaine penicillin in oil with aluminium stearate. Estimations were made in 65 cases at 24-hour intervals

after a single injection of 300,000 units and in four cases at four-hour intervals. The effect of aluminium stearate in delaying absorption was confirmed. Eight patients received a single injection of 2,000,000 units of this preparation of procaine penicillin. This large dosage was tolerated well, and the indication is that very high blood levels can be obtained without incurring toxic effects from the large amount of procaine which must necessarily be administered at the same time. The prolongation of the effect of procaine penicillin by aluminium stearate has also been studied in children by Emery, Rose, Stewart, and Wayne (1949), who confirmed the advantage of the preparation over simple procaine penicillin suspensions in arachis oil.

The importance of particle size in prolonging the effect of procaine penicillin has been emphasized by Welch, Hirsh, Taggart, and Smith (1947). Thomas *et al.* (1948) likewise found that with preparations containing aluminium stearate the greatest prolongation was obtained where 95% of the particles were under 5 μ in diameter. On the other hand, Young *et al.* (1949) used preparations with a particle size of 5–20 μ with satisfactory results, and state that adequate blood levels were obtained with coarse particles of 60 μ, although such preparations tended to clog needles.

We have studied the penicillin blood levels in adults after standard doses of 300,000 units and 600,000 units of procaine penicillin in arachis oil with 2% aluminium stearate. Our estimations were carried out at relatively frequent intervals during the first 24 hours, and the blood levels were compared with those obtained after 600,000 units of penicillin in aqueous solution. We have also investigated the penicillin blood levels after daily injections of 600,000 units of the oily preparations, and in these observations preparations containing three different sizes of particle have been used.

Method and Results

Serum penicillin levels were estimated by dilutions in phenol-red-glucose-serum medium (May, Voureka, and Fleming, 1947) which were inoculated with *Streptococcus pyogenes* and compared with similarly inoculated dilutions of standard penicillin in the same medium. Injections were given to ward patients and to volunteers. Except in Cases 4, 9, 11, and 12 (see Tables I and II), to which attention will be drawn, we had no reason to think that the condition from which the patient was suffering would affect the blood levels reached.

Ten patients were given 300,000 units of the preparation, and the serum penicillin levels were estimated at frequent intervals for the first 24 hours and then 12-hourly for the next two days. The results are given in Table I. Two

TABLE I.—*Serum Penicillin Levels (u./ml.) Following the Injection of 300,000 Units of Procaine Penicillin with 2% Aluminium Stearate*

Case No.	Hours After Injection									
	1	2	3	6	12	24	36	48	60	72
1	—	—	0·5	0·25	0·125	0·125	0·06	<0·06	<0·06	<0·06
2	0·125	0·25	0·25	0·125	0·125	0·125	<0·06	<0·06	—	—
3	0·125	0·25	0·25	0·25	0·125	0·125	0·125	—	—	—
4	0·06	1·0	4·0	1·0	0·5	0·25	0·06	0·06	—	—
5	0·25	0·25	0·125	0·125	0·125	0·125	0·06	0·06	0·06	0·06
6	0·5	0·5	0·25	0·25	0·125	0·125	0·125	0·06	0·06	0·06
7	0·125	0·06	0·125	0·06	0·06	0·06	0·03	<0·03	<0·03	<0·03
8	0·5	0·25	0·125	0·06	0·125	0·06	0·06	0·03	0·03	<0·03
9	0·5	1·0	2·0	1·0	1·0	0·5	0·25	0·06	<0·03	<0·03
10	0·03	0·03	0·03	0·03	0·03	0·03	0·03	0·03	<0·03	<0·03

cases (Nos. 4 and 9) showed very high levels, which we attribute to impaired renal excretion, since Case 4 had congestive heart failure and Case 9 suffered from type II nephritis. These two cases have been excluded from the average figures, which are given in the composite graph, but they are of interest in showing the high levels reached when excretion is impaired. It will be noticed that we have taken as our minimum bacteriostatic level a concentration of penicillin of 0.06 u./ml., whereas many American observers accept a level of 0.03 u./ml. In making general statements about "bacteriostatic levels" the actual level accepted by a group of observers must clearly be taken into account.

Apart from Case 10, adequate serum levels were maintained for 24 hours, but it was realized that higher dosage might give consistently higher levels. A further 33 patients received a single injection of 600,000 units. The serum levels obtained are given in Table II. In Cases 11 and 12

TABLE II.—*Serum Penicillin Levels (u./ml.) Following the Injection of 600,000 Units of Procaine Penicillin with 2% Aluminium Stearate*

Case No.	Hours After Injection									
	1	2	3	6	12	24	36	48	60	72
11	8	8	16	8	2	1	0·25	0·125	0·125	0·125
12	16	1	1	0·25	0·5	0·25	0·25	0·125	0·125	0·125
13	—	—	—	—	—	—	0·5	0·125	0·06	0·03
14	0·25	0·25	0·5	0·125	0·25	0·125	—	—	0·06	0·03
15	0·5	0·5	0·25	0·125	0·25	0·125	—	—	0·06	0·03
16	0·25	0·5	0·5	0·5	0·5	0·125	—	—	—	—
17	0·25	0·5	0·25	0·25	0·25	0·25	0·25	0·125	0·125	<0·03
18	0·125	0·25	0·125	0·125	0·125	0·06	0·03	0·03	0·125	0·06
19	0·125	0·5	0·25	0·06	0·06	0·06	0·03	0·03	0·03	0·03
20	0·5	1	2	0·5	0·5	0·5	0·25	0·25	<0·03	<0·03
21	0·03	0·03	0·06	0·03	0·125	0·06	0·06	0·03	<0·03	<0·03
22	1	1	1	1	0·5	0·25	0·125	0·125	<0·03	<0·03
23	0·5	0·5	0·5	1	0·5	0·125	0·25	0·125	0·03	<0·03
24	0·5	0·25	0·25	0·25	0·5	0·25	0·125	0·125	0·03	0·03
25	2	2	4	0·25	0·25	1	1	0·5	0·125	0·06
26	0·25	0·5	1	1	1	1	1	1	1	1
27	0·5	0·5	0·5	0·25	0·5	0·125	0·5	—	0·06	—
28	0·5	0·5	0·5	0·5	0·5	0·25	0·25	—	—	—
29	0·5	1	0·5	0·25	0·25	0·25	0·25	0·125	—	0·03
30	0·5	1	0·5	0·5	0·5	0·125	0·125	0·06	—	0·03
31	0·5	0·5	0·5	0·5	0·5	1	0·25	0·25	0·25	0·25
32	0·5	0·5	0·5	0·5	0·5	0·5	0·5	0·25	0·25	0·125
33	1	1	1	0·5	1	0·5	0·25	0·25	0·125	—
34	1	0·5	0·5	1	—	0·25	—	0·03	—	0·03
35	1	1	1	2	—	0·25	—	0·125	—	0·06
36	0·5	1	0·5	1	—	0·06	—	0·03	—	0·03
37	1	—	0·5	2	—	0·125	—	0·03	—	0·03
38	—	1	1	—	0·5	0·5	0·25	0·25	0·125	0·125
39	—	0·25	0·25	0·25	0·25	0·125	0·125	0·25	0·125	0·125
40	—	0·25	0·25	0·25	0·25	0·25	0·25	0·25	0·125	0·03
41	1	0·5	1	2	0·25	0·25	0·06	0·06	0·06	0·06
42	1	1	1	0·5	0·5	0·25	0·06	0·06	0·06	0·06
43	0·5	0·5	0·5	0·5	0·5	0·25	0·06	0·06	0·06	0·06

the levels were so much higher than in the rest that they have been excluded from the composite curve. In Case 11 renal deficiency was present, but we could find no reason for the very high serum level at one hour in Case 12, which was a case of gout. From Table II and the composite curve it will be seen that serum levels at or above 0.06 u./ml. are present in every case at 24 hours and at or above 0.03 u./ml. at 48 hours. At 72 hours, out of 29 cases in which estimations were made, 24 had serum levels at or above 0.03 u./ml. The composite curve shows that the average level is above 0.06 u./ml. at 72 hours. For comparison, three patients were given 600,000 units of crystalline penicillin G in water; the composite curve is shown in the Chart.

We next investigated the serum levels attained with daily doses of 600,000 units of procaine penicillin and aluminium stearate for four days. For this purpose we used three preparations from different manufacturers, A, B, and C. Over 95% of the particles in preparation B were much below 5 μ in diameter and there were no large particles. This is the preparation which has been used in the investigations described above. Preparation A contained some rather large crystals, but the great majority were much below 5 μ in size. In preparation C the crystals were also

large—approximately 5–20 μ. The results are set Table III. With preparations A and B remarkably

III.—*Serum Penicillin Levels (u./ml.) After Daily Injections of 000 Units of Procaine Penicillin with 2% Aluminium arate for Four Days Using Preparations with Three Different es of Particle*

a-	Case No.	Hours After Injection					
		24 (Day 1)	24 (Day 2)	24 (Day 3)	24 (Day 4)	48 (Day 5)	72 (Day 6)
	44	0·5	0·5	0·5	0·5	—	—
	45	0·5	0·5	0·5	0·5	—	—
	46	0·125	0·125	0·125	0·125	—	—
	47	0·25	0·5	0·5	0·5	—	—
	48	0·125	0·25	0·25	0·25	—	—
	49	0·5	0·5	0·5	0·5	0·25	0·5
	50	0·25	0·25	0·25	0·25	0·125	0·03
	51	0·25	0·06	0·25	0·25	0·125	0·06
	52	0·25	0·25	0·25	0·25	0·25	0·125
	53	0·25	0·25	0·5	—	0·125	0·125
	54	0·25	0·25	0·125	0·06	0·06	0·06
	55	0·125	0·5	0·25	0·125	0·06	0·06
	56	0·25	0·06	0·06	0·03	0·03	—
	57	0·25	0·25	0·25	0·06	0·03	0·03
	58	0·25	0·25	0·125	0·06	0·03	0·03

nstant serum levels were achieved, so that the composite rve is practically level. With preparation C the levels ached were not so constant. Although the total number cases tudied is mall, we hink this esult is not lue to chance nd that small particle size is desirable. After the fourth day no further injections were given, but detectable quantities of penicillin were present in the blood 72 hours later in those cases in which estimations were made.

Serum penicillin levels were also estimated in one patient after 600,000 units of procaine penicillin with aluminium stearate both before and during the administration of caronamide in doses sufficient to give effective blood levels. The results are shown in Table IV. During caronamide administration significantly higher blood levels were achieved 36, 48, 72, and 96 hours after the penicillin had been given.

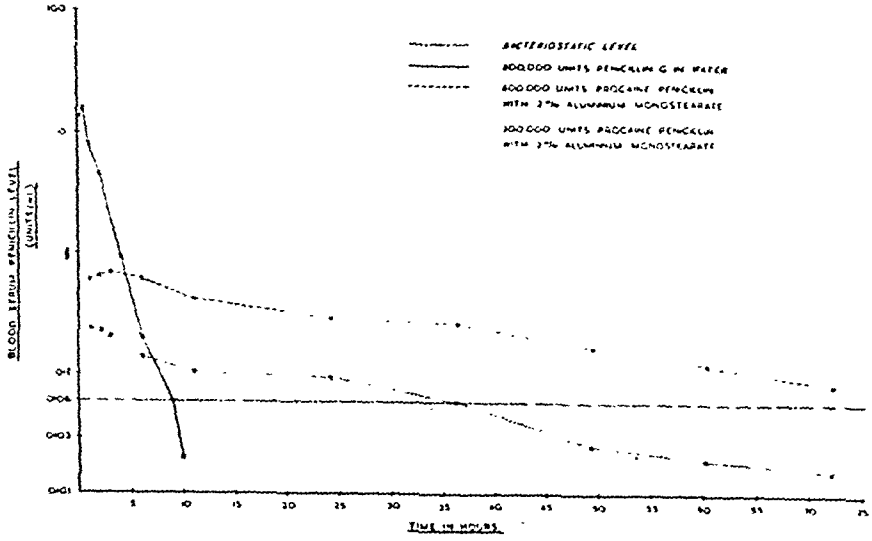


Chart showing the average serum levels of penicillin reached after single doses of 300,000 units (8 cases) and 600,000 units (31 cases) of procaine penicillin with 2% aluminium stearate. The average levels after a single dose of 600,000 units of penicillin G in water are shown for comparison. The concentration of penicillin is plotted on a logarithmic scale.

TABLE IV.—*Serum Penicillin Levels After Two Injections of 600,000 Units of Penicillin with Aluminium Stearate. One Before and One During the Administration of Caronamide. The Caronamide was Given in 4-g. Doses Four-hourly by Mouth for 96 Hours Starting 24 Hours Before the Second Injection*

Hours After Injection	Serum Penicillin Levels (u./ml.)		Serum Caronamide Levels (mg./100 mL)
	Before Caronamide Administration	During Caronamide Administration	
12	0·25	0·25	38
24	0·125	0·125	46
36	0·125	0·25	44
48	0·125	0·25	56
72	0·06	0·25	60
96	0·03	0·125	9

Discussion

When penicillin was first introduced it was assumed that the best clinical results would be obtained by maintaining a level of penicillin in the blood which was always above the minimum bacteriostatic level for the organism causing the disease. Consequently, continuous intravenous and, later, intramuscular drips were used. It then became abundantly clear that equally good clinical results could be obtained by the intermittent intramuscular injection of penicillin every three hours during the day and night. With the necessity for conserving the limited supplies of penicillin then available, this method was undoubtedly justified, but later, when it was possible to use much higher doses, it became the custom in general practice to give no more than two injections in each 24 hours. Indeed, it would rarely have been possible to treat patients in their own homes by any other system of dosage.

By this method clinically satisfactory results can be obtained in many minor disorders, such as those ordinarily treated in a casualty department, and we can ourselves vouch for the adequacy of six-hourly injections of 120,000 units of penicillin in water in the treatment of pneumococcal pneumonia. Similar clinical results have been reported by other observers (Wheatley, 1947, 1949; Barclay, 1949; Tompsett, Timpanelli, Goldstein, and McDermott, 1949). It should be remembered that it was originally assumed that the best results would be obtained by maintaining a bacteriostatic level of penicillin in the blood. It has been argued that an interval without penicillin in the blood may allow dormant organisms to undergo active multiplication; for it is only at this time, as Chain and Duthie (1945) have shown, that they are susceptible to the drug. It has also been argued that the very high levels obtained after a large single dose of penicillin in aqueous solution will enable penicillin to pass into relatively avascular tissue by diffusion. The bacteriostatic action of penicillin may indeed apparently persist some time after it can no longer be detected in the blood. The evidence in favour of the discontinuous use of penicillin has been reviewed by Marshall (1948).

Eagle and Musselman (1948) and Eagle (1948), on the other hand, have brought forward evidence which suggests

that the maximum bactericidal effect of penicillin is achieved by comparatively low blood penicillin levels of the order of 0.1 u./ml., and that there is no advantage in attempting to reach higher concentrations except in the case of relatively insensitive organisms. Indeed, there may be an actual disadvantage, since with some bacteria high concentrations reduce the bactericidal effect. It cannot be said that it is yet known with certainty whether discontinuous or continuous methods of administration are preferable. Tompsett *et al.* (1949) compared the effect of 300,000 units of aqueous penicillin given twice daily with that of a single injection of 300,000 units of procaine penicillin. Both systems of treatment gave satisfactory results in pneumococcal pneumonia.

It should be pointed out, however, that almost all the clinically satisfactory results reported have been achieved with methods which give a relatively stable blood concentration, and that, so far, there is no similar mass of clinical evidence in favour of discontinuous administration. Maintenance of a steady blood penicillin level is easy to achieve by a single daily dose of the preparation we have been investigating, and if a single estimation of the blood penicillin level is made it may be assumed that this will be constant from day to day. It is possible to impose a daily peak on this steady level by adding soluble penicillin to the injection if the theoretical arguments in favour of this procedure are felt to be impressive enough.

There is evidence that in the treatment of infections with sensitive organisms penicillin in oil with aluminium stearate is clinically effective (Boger and Flippin, 1949). Mahoney (1949) states that three injections of 600,000 units give as satisfactory results in the treatment of syphilis as the standard three- or four-hourly injections. There is no reason to doubt the efficacy of the preparation in any infection provided the sensitivity of the organism is estimated and the penicillin blood level is occasionally checked. The advantages of using this preparation of penicillin are the increased comfort of the patient, who need be subjected to but one painless injection a day at the most. There is also a great saving of time of the medical and nursing staff. The aluminium stearate tends to prevent sedimentation and make the preparation more fluid.

The advocates of discontinuous therapy with aqueous penicillin advise at least two injections in 24 hours, and oral administration of penicillin involves frequent dosage with not very palatable preparations. Our limited experience with procaine penicillin in oil in adults agrees with that of Emery, Stewart, and Stone (1949) in children. They found very variable blood levels. Emery, Rose, Stewart, and Wayne (1949), however, were able to maintain bacteriostatic levels in children when procaine penicillin in oil with aluminium stearate was used, and our results in adults are again in agreement.

We have used procaine penicillin with aluminium stearate in the treatment of several cases of urinary-tract infections with good results, also in a few other infections. It would be necessary, however, to treat a large number of comparable cases by this method and by standard three-hourly injections in order to make a statistically acceptable comparison.

We have seen no reactions in any patient, and the injections are almost painless. It seems probable that the preparation will become a standard form of penicillin administration except in cases in which resistant organisms are concerned.

Summary

Procaine penicillin in arachis oil with 2% aluminium stearate has been given in single doses of 300,000 units to 10 individuals and in single doses of 600,000 units to 33 individuals. The blood-serum penicillin levels have been estimated at frequent intervals. With the lower dose, bacteriostatic levels (above 0.06 u./ml.) were maintained for 24 hours in all but one case. With the higher dose, bacteriostatic levels were maintained for 24 hours in every case, and the average level remained above 0.06 u./ml. for 72 hours.

Daily doses of 600,000 units for four days were administered to 15 patients, using preparations with three different sizes of particle. Remarkably constant bacteriostatic levels were maintained while the injections were being given, especially with preparations containing many particles of small size. Detectable quantities of penicillin were present in the serum three days after administration had ceased.

One patient received caronamide before and after a single dose of 600,000 units of procaine penicillin with 2% aluminium stearate. Significantly higher levels were reached than when caronamide was not administered.

The arguments in favour of discontinuous administration of large doses of penicillin are reviewed, and it is concluded that the balance of evidence is in favour of a maintained steady blood penicillin level such as is attained by the daily administration of 600,000 units of procaine penicillin with 2% aluminium stearate.

We should like to thank Dr. H. Brody for permission to include in our series observations on some of his cases. The penicillin preparation used in most of the investigations was kindly supplied by Imperial Chemical (Pharmaceuticals), Ltd., Manchester.

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The results of an investigation to establish norms for heights and weights of infants and pre-school children has recently been published by the Department of Health of the Melbourne City Council. It is the standard practice at the health centres in the city to record and chart the weight of each child who attends, and the investigation was planned to provide information about average heights and weights in the years 1926, 1936, and 1946. The results are presented in a set of tables with accompanying graphs. The main features are: (1) The difference in the average height of males and females seems to be so great that separate norms are required. (2) There has been a considerable rise in the average height and weight of infants and pre-school children in the city of Melbourne between 1936 and 1946. Such evidence as was available suggested that there had been a smaller increase between 1926 and 1936. (3) The average weight of infants in the city of Melbourne is apparently about the same as that shown by the most recently available data from New Zealand. (4) The average weight of infants is considerably higher than that which is shown as normal on the printed graphs used at the infant-welfare centres in the State of Victoria.

HERPES ZOSTER AFTER IRRADIATION

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Since 1935 one of us (F. E.) has been of the opinion that clinically typical zoster occurring in patients who had received radiotherapy probably resulted from the treatment. The numerical incidence of zoster generally in the population is not known, so that statistically the point is difficult to prove; we believe, however, that there is presumptive evidence of such correlation.

Although the virus nature of zoster is now accepted, there is still a considerable difference of opinion on the importance of various factors predisposing to attack by the virus. Apart from the idiopathic type of disease occurring especially in adults, the infection may also arise after contact with a case of varicella, during the course of acute or chronic infections—e.g., influenza, pneumonia, or tabes—as a result of trauma to the skin (Klauder, 1947) or injury to the spine, and following poisoning by certain drugs—e.g., arsenic, mercury, or benzol In addition, there is some association between zoster on the one hand and various forms of reticulosis and cancer, and possibly radiotherapy, on the other. The discussion and analysis of cases which follow are an attempt to clarify this latter connexion.

Pathology of Zoster

In 1900 Head and Campbell carried out pathological examination of the nervous system at necropsy on 19 patients with zoster who died in an institution within 7 to 390 days of the appearance of the eruption. In all cases a lesion was found in the posterior spinal root ganglion corresponding to the skin area involved. In all cases of zoster of the face, either the Gasserian ganglion of the fifth nerve or the geniculate ganglion of the seventh nerve was involved. Wohlwill (1924), however, in a pathological examination of six cases of idiopathic zoster, and in four cases of secondary zoster, somewhat modified the classical conception. He demonstrated that, although involvement of the posterior root ganglion is the common lesion, in some cases the posterior root itself, the posterior horn, or the anterior branch of an intercostal nerve might alone be involved as a cause of the zoster. He thus suggested that the eruption might result from involvement of any part of the afferent portion of the reflex arc without specific involvement of the posterior root ganglion.

With reference to the evidence that the virus of varicella and that of zoster are probably identical, and bearing on the ensuing discussion, Sequeira *et al.* (1947) quote an interesting suggestion. They postulate that during an attack of chicken-pox the virus spreads throughout the body and possibly settles in the central nervous system. It lies dormant there, but may be aroused to activity by various factors, including trauma, infection, and drugs. Such a hypothesis would link together all the following factors.

Reticulosis and Zoster

Many pathological observations have been made on the development of zoster during the course of Hodgkin's disease, lymphosarcoma, and leukaemia (especially of the lymphatic type).

With regard to clinical observations, Craver and Haagensen (1932) quote seven cases in which zoster developed out of 329 cases of reticulosis treated. In five of the seven cases the zoster was preceded by exacerbation of the glandular or splenic enlargement in the neighbourhood of the ganglion involved. None of the cases showed clinical involvement of the spine by the reticulosis. These authors thus suggest the possibility that infiltration of the ganglia by the reticulosis leads to a sensitization of the nerve cells to the zoster virus. Irradiation is not suggested as a possible cause.

Halle (1930) assessed 16 cases from the literature of zoster occurring during leukaemia, and Pancoast and Pendergrass (1924) describe four cases of zoster occurring during Hodgkin's disease. The frequency of zoster in Hodgkin's disease has been variously described as 13.4% in a series of 46 cases (Baldridge and Awe, 1930) and as low as 0.64% in a series of 156 cases (Epstein and McEachern, 1937). By adding together all reported series where zoster was noted, a total of 15 cases of zoster are reported in 576 cases of Hodgkin's disease, a proportion of less than 3%. In lymphosarcoma and leukaemia the average incidence of zoster is less than 1% in a large group of cases. The variation in these figures has no definite significance, since varying numbers of cases developing zoster would be missed in each series.

Cancer and Zoster

The literature has fewer references to the association between cancer and zoster. A classical instance was noted by Charcot and Cotard (1865), who reported a case of cervical zoster associated with the presence of spinal metastases from a carcinoma of the breast. Pancoast and Pendergrass (1924) quote a case of carcinoma of the ovary with multiple metastases in which D11–L1 roots were involved by zoster. Wohlwill (1924) mentions a case of carcinoma of the stomach with involvement by carcinoma of the intercostal nerve and herpetiform eruption in the skin area supplied by that nerve. Carrière (1895) mentions a case in which zoster developed in the skin of the thigh in a case of carcinoma of the cervix uteri. Neuritis of the femoro-cutaneous nerve without infiltration by the neoplasm was shown at necropsy, and Carrière attributes the neuritis to the local action of cancer toxins. Head and Campbell (1900) and Hall (1923) mention the connexion between cancer and zoster.

The development of zoster may be the preliminary sign of the development of a tumour. Kamman (1928) describes a case of zoster of the sixth intercostal nerve which was the first sign of the development of an intradural cyst at the level of the sixth dorsal segment.

Pendergrass and Kirsh (1948), in an analysis of the results of irradiation in carcinoma of the breast, quote 16 cases of zoster in 406 patients with carcinoma mammae —a proportion of 4%. Of the 16 cases, 14 had received irradiation and 15 had zoster of the thoracic region (an interesting observation in view of the thoracic location of the primary growth). In 12 of the cases there was evidence of metastases before or after the appearance of the cutaneous disease (suggesting the possibility of involvement of the spinal ganglion by the disease), but, on the other hand, four of the patients survived for 4 to 12 years after the zoster with no signs of metastases. No hypothesis regarding the association of the zoster is hazarded.

Paracchi and Pricolo (1943) quote four cases of zoster developing in the course of carcinoma and one in the course of Hodgkin's disease. In three cases of uterine cancer the zoster involved the lumbar root area. The authors state that in all cases the herpetic eruption was on

the same side and in the same region as the spread of the tumour. All the cases had received irradiation. The follow-up in these cases is not reported, but the authors suggest that the development of zoster may be a preliminary to spread of the disease. Irradiation is not considered as a possible cause.

X Rays and Zoster

In most of the cases of zoster associated with reticulosis or with cancer previously referred to in this paper the patients had received irradiation treatment. Schreus (1926) reports a case of zoster arising within 40 days of irradiation of the neck for enlarged glands, and suggests that the effect of irradiation, resulting as it does in hyperaemia, may decrease the resistance of the root ganglia to infection with the virus or that a slumbering infection in the ganglia may be awakened. It is possible, however, that the effect of *x* rays on the skin may lead to zoster, as suggested by Klauder (1947) for mechanical injuries.

The implication of irradiation as an aetiological factor in the development of zoster may be deduced from the facts previously mentioned from Craver and Haagensen, Pendergrass, and Paracchi and Pricolo, although the authors did not accept this possibility.

With reference to the effect of irradiation upon the nerve tissue the observations of Mogilnitzky and Podljaschuk (1929, 1930) are important. They note that after irradiation of the brain of adult experimental animals by fractionated doses of *x* rays, substances such as trypan blue and saccharated ferrous oxide are able to pass from the blood into the brain tissue. This does not occur without irradiation, and the authors conclude that there is a breakdown of the haemato-encephalic barrier—the protective barrier of the brain against toxins and other poisons circulating in the blood. This experimental work supports the hypothesis of Schreus (1926).

Most reports on the effect of *x* rays on nervous tissue are based on animal experiments, but the general results of observation suggest to Warren (1943) that the direct effect of irradiation on the brain and spinal cord is very slight (nerve tissue being resistant), but the secondary effects—namely, endarteritis and thrombosis—may lead to complications. In fact, Janzen and Warren (1942), delivering up to 10,000 r of 200 kV *x* rays, showed as a result no pathological change in the peripheral nerves of rats.

An interesting observation is made by Greenfield and Stark (1948), who describe three cases of post-irradiation neuropathy occurring among 180 cases of seminoma testis treated post-operatively to the retroperitoneal region by 1-million-volt *x* rays. The patients developed a flaccid paralysis of the legs without associated sensory lesions, and there was no evidence of metastatic involvement of the region. The lesion is considered to have developed as a result of irradiation damage to the anterior horn cells, and the latent period of three to five months between completing irradiation and the development of the neuropathy suggests that the effect is not directly upon the nerve tissue but follows vascular deficiency and gliosis. The dose in the region was about 5,000 r.

This latent period of three to five months is almost exactly that which forms the peak incidence of the latent period between irradiation and zoster noted in our series of cases, thus suggesting that gliosis or late fibrosis may be associated with the development of zoster. It is of interest, however, that, in spite of the serious damage to the motor system, zoster did not develop, suggesting that some additional factor—e.g., an immunological factor—may be necessary for zoster to follow irradiation.

Analysis of Cases

The number of cases considered is 45, all developing zoster after previous irradiation. (A further 20–25 cases have been noted, but their records have been lost.) Of the total, 39 cases are of malignant disease (including 24 cases of carcinoma of the breast) and six of non-malignant disease.

Carcinoma of the Breast

This group of 24 cases provides the main and most instructive part of the study because of its homogeneity It includes two subgroups :

1. This consisted of 12 cases treated with radical mastectomy followed by post-operative deep *x* rays in all cases (Table I) In this group zoster developed some months after the prophylactic course of irradiation, there being no signs of recurrence of the disease. The group is thus a uniform series treated by a uniform surgical technique followed at an interval of two to four months by a uniform course of irradiation. In the absence of clinical signs of malignancy at the time of zoster, and accepting the evidence of the case histories that zoster was not a premonitory sign of spread of malignancy, then the neoplastic process *cannot* be incriminated in the development of the zoster in this group of cases. The clinical evidence, however, tends to incriminate the course of irradiation, as is seen later. In this respect it must be noted that the area treated includes the skin of the chest wall affected (and also the medial part of the contralateral chest wall), together with the supraclavicular and axillary gland areas. It is of interest that, with the technique used, areas of the skin supplied by roots C3–D8 (approximately) are irradiated. The upper dorsal vertebrae at the level D1–3 (approximately) are included at the edge of the field of irradiation and in some cases the spinal roots on *both* sides in this region may be irradiated (see Fig. 1). Of the 12 cases, 10 were histologically proved carcinoma, and in two the evidence was clinical only.

2. This subgroup comprised 12 cases which were treated by various methods primarily and in which different techniques of

TABLE I.—*Carcinoma of Breast—Subgroup 1. Twelve Cases of Carcinoma of Breast Treated by Radical Mastectomy and Prophylactic Irradiation*

No.	Age	Sex	Side of Neoplasm	Site of Zoster	Relationship	Interval	Follow-up after Zoster	Diagnosis
A 304	50	F	Right	Right C	Ipsilateral	13/12	NSR 25/12	Histological
A 1077	61	F	,,	Left D4	Contralateral	3/12	NSR 30/12	Clinical
C 75	44	F	Left	Left D6	Ipsilateral	10/12	No F.U.	Histological
C 618	49	F	,,	?	?	9/12	No F.U.	,,
C 620	62	F	Right	Right D11, 12	Ipsilateral	8/12	NSR 9/12	,,
C 690	73	F	Left	Left C3, 4	,,	13/12	NSR 7/12	,,
C 781	58	F	,,	Right D2	Contralateral	6/12	NSR 11/12	,,
C 1135	51	F	Right	Left D4	,,	3/12	NSR 9/12	Clinical
A 20	61	F	Left	Left D (upper)	Ipsilateral	3/12	Died 11/12 Met. liver	Histological
B 378	59	F	Right	Right D (upper)	,,	4/12	26/12 Met. femur	,,
B 624	69	F	,,	Right C1–3	,,	12/12	NSR 16/12	,,
B 1162	47	F	,,	Left D10, 11	Contralateral	16/12	NSR 10/12	,,

NSR = No signs of recurrence. No F.U. = No follow-up.

irradiation were practised when metastases or recurrences were clinically evident or suspected (Table II). This is a much less uniform group than the previous one, but is analysed for its confirmatory relation to the other group. The presence of active neoplasm at the time of the irradiation (and possibly at

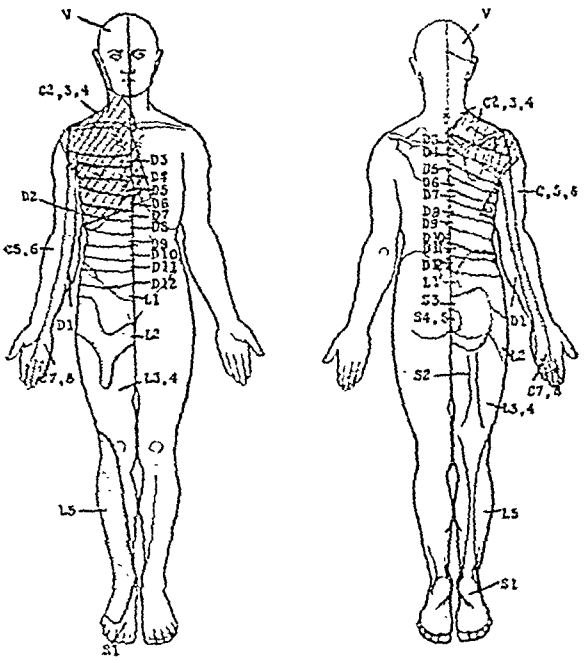


FIG. I.—The cutaneous areas supplied by the posterior nerve roots; showing skin areas irradiated in standard breast technique.

the time of the zoster) is an additional factor that may be involved in the development of zoster. Of the 12 cases in this group 10 were proved either histologically or at the death of the patient, and two were established clinically.

The analysis is carried out under four headings for the group as a whole.

I. *Site.*—The following table shows the site involved. In each subgroup separately and for both together the upper dorsal region shows the peak incidence for zoster, and in fact represents the majority of all the cases. In

	Fifth Nerve	Cervical	Upper Dorsal	Lower Dorsal	Lumbar	Not Specified	Total
Subgroup 1	—	3	6	2	—	1	12
" 2	1	1	7	1	—	2	12
Total ..	1	4	13	3	—	3	24

idiopathic zoster the dorsal region generally shows a greater involvement than any other site. In our group of cases, however, the large preponderance of the upper dorsal site (and also the cervical site) suggests a relationship between the zoster and the site involved by the malignant disease and treated by surgery or irradiation. In Pendergrass's series of zoster in carcinoma mammae, of the 16 cases 14 had received irradiation, and in 15 cases the dorsal region was involved. In Paracchi and Pricolo's series, of the three cases of carcinoma of the uterus, all developed zoster in the lumbar area, and all had been treated by irradiation.

II. *Side.*—There is some preponderance of involvement by the zoster on the side of the malignant lesion. Even

	Ipsilateral	Contralateral	Site not Specified	Total
Subgroup 1..	7	4	1	12
" 2..	5	3	4	12
Total ..	12	7	5	24

when the cases involving the upper dorsal region are considered there is again a slight preponderance of ipsilateral involvement, as here shown. Thus if the possibility of

	Ipsilateral	Contralateral	Total
Upper dorsal zoster, subgroup 1	3	3	6
" " " " 2	5	2	7
Total ..	8	5	13

TABLE II.—*Carcinoma of Breast—Subgroup 2. Twelve Cases of Carcinoma of Breast with Various Treatments*

No.	Age and Sex	Treatment	Site of Zoster	Relationship	Interval	Notes	Follow-up after Zoster	Diagnosis
A 695	52 F	DXR L chest DXR R breast	Right V	Contralateral Ipsilateral	16/12 11/12	Varicella same time as zoster	ISQ 24/12	Histological
251	52 F	DXR L chest	Right D1, 2	Contralateral	47/12 9/12	Effusion after 10/12	Died 14/12 metastases pleura	Clinical
A 352	72 F	DXR LSC"	?	"?	15/12		Died 5/12 ? cause	Histological
407	58 F	DXR R chest DXR RSC and axilla	Right D6	Ipsilateral "	8/12 3/12 1/12		Died 7/12 metastases lungs	Clinical
C 119	48 F	DXR L chest and spine	?	"?	6/12	Metastases D4 and 5, 6/12 before zoster	Died 8/12 metastases liver	Histological
C 80	65 F	DXR R chest	Right D3,	Ipsilateral	9/12		ISQ 10/12	"
B 1097	65 F	DXR dorsal spine	Right D11	—,	2/12	DXR for Paget's disease. Varicella in contact 1/12 later	NSR 21/12	Clinical
35	46 F	DXR pelvis	Left C2, 3	—	20/12		ISQ 40/12	"
O 42	46 F	Excision and radium L breast DXR L chest DXR spine DXR ribs	Left D2, 3	Ipsilateral " — —	144/12 84/12 24/12 12/12	Metastases spine 24/12 before zoster	ISQ 4/12	Histological
185	48 F	Excision and radium L breast DXR L axilla	Left D3–6	Ipsilateral "	28/12 12/12		ISQ 48/12	"
O 192	64 F	DXR L breast DXR LSC"	Right D (upper)	Contralateral "	44/12 8/12		Died 1/12 metastases lungs	Clinical
D 795	65 F	DXR R breast DXR R chest	Right D1, 2	Ipsilateral "	3/12 9/12 6/12		ISQ 1/12	Histological

DXR = Deep x-ray therapy. ISQ = *In statu quo*. NSR = No signs of recurrence. LSC = Left supraclavicular fossa. RSC = Right supraclavicular fossa.

metastatic involvement of the spinal roots is negatived by consideration of the follow-up notes and also by the absence of any other clinical symptoms, then the effect of *x* rays on the root ganglia or on the skin of the opposite side must be considered to account for contralateral involvement. It has already been pointed out that the spinal roots of *both* sides at the level of D1–3 may be included in the field of irradiation in the post-operative breast-irradiation technique, and in addition the skin of the contralateral chest wall supplied by spinal roots D2–6 (approximately).

In this connexion Pendergrass observes that nine of the cases of zoster were on the same side as the neoplasm of the breast and three were on the opposite side.

III. *Interval Between Zoster and Previous Irradiation.*—The time interval between the last irradiation and the onset of zoster was :—subgroup 1 : 3, 3, 3, 4, 6, 8, 9, 10, 12, 13, 13, and 16 months ; subgroup 2 : 1, 2, 3, 6, 6, 9, 9, 11, 12, 12, 15, and 20 months.

It will be seen that 19 of the 24 cases developed zoster within 12 months of irradiation, and that the peak incidence is from three to nine months. This observation is even more marked when the latent intervals in the cases of upper dorsal zoster only are examined. The figures for the 13 cases in this combined group are 1, 3, 3, 3, 3, 4, 6, 6, 9, 9, 10, 12, and 12 months. It is noteworthy that all 13 cases occurred within 12 months of irradiation.

Pendergrass notes that in his series of zoster cases the incidence was from 5 to 36 months after treatment for carcinoma of the breast (none before five months). Craver notes for seven cases of zoster after irradiation in reticulosis latent intervals of 1, 3, 6, 7, 9, 18, and 36 months after treatment. Paracchi and Pricolo note for five cases of zoster after irradiation in cancer and reticulosis latent intervals of 2, 3, 5, 21, and 48 months respectively. Greenfield and Stark, in three cases of irradiation neuropathy following seminoma testis, note latent intervals of three to five months

For the malignant (other than breast) cases described later the latent intervals were 1, 2, 3, 4, 5, 5, 5, 5, 6, 8, 10, 18, 18, 43, and 60 months and for the non-malignant group described later 6, 6, 8, 11, 26, and 36 months after irradiation.

When all groups are added together the distribution is as follows :

Zoster Development

Months after treatment:	1	2	3	4	5	6	7	8	9	10	11	12	13–24	25–36	36+
No. of cases	3	3	7	2	5	7	1	3	4	2	2	3	9	3	3

The peak incidence in 57 cases of zoster after irradiation is seen to be at three to nine months (see Fig. 2). These figures apply to the time interval from the last treatment. In 16 instances previous irradiation was given, and in the graph the time interval from these treatments is shown separately.

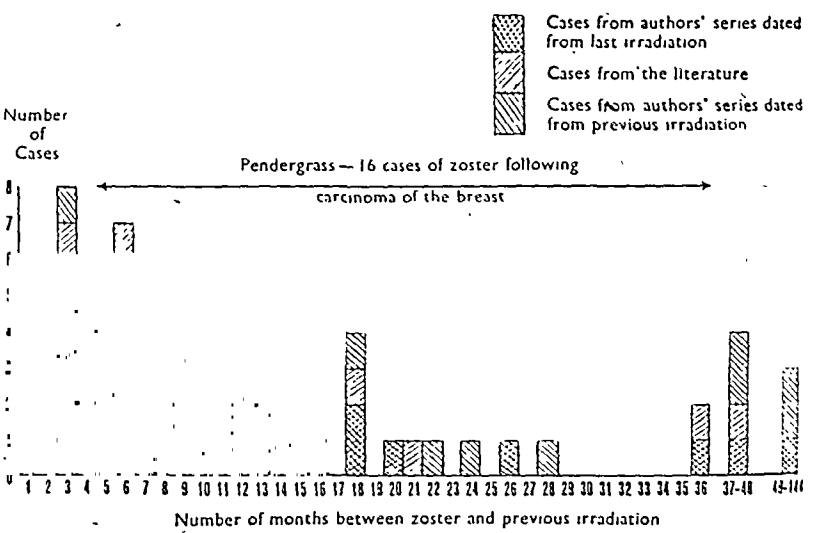


FIG 2.—The time interval between incidence of zoster and previous irradiation

IV. *Follow-up History.*—(1) Subgroup 1 :—In no case was there clinical evidence of spinal involvement either

TABLE III.—*Fifteen Cases of Various Malignant Diseases Treated by Irradiation*

No.	Age and Sex	Disease	Treatment	Zoster Site	Relationship to Tumour	Interval	Follow-up after Zoster	Diagnosis
A 114	56 M	Carcinoma bronchus (R)	DXR chest	Right D (upper)	Ipsilateral	14/12	Died 11/12 ? cause	Histological
		,, ,, (L)	,, ,,			3/12		
C 641	56 M	,, ,,	DXR chest and lumbar spine	Right D3, 4	Contralateral	1/12	Metastases L2 1/12 before zoster. Died 1/12 metastases liver	Clinical
C 777	63 M	,, ,, ,,	DXR chest	Right D9, 10	,,	10/12	ISQ 2/12	,,
D 605	55 M	,, ,, ,,	,, ,,	?	?	6/12	Died metastases spine with zoster	,,
C 642	62 M	,, ,, ,,	,, ,,	Left D6	Ipsilateral	18/12	ISQ 2/12	Histological
D 789	69 F	Carcinoma ovary	DXR abdomen	Left L3–5	—	5/12	ISQ 3/12	Clinical
C 592	50 F	,, ,,	,, ,,	Left L2–3	—	18/12	ISQ 3/12	,,
B 24	52 M	Teratoma L testis	,, ,,	Right D8	Contralateral	5/12	Died 8/12 bronchopneumonia	Histological
247	51 F	Carcinoma uterus	Radium and DXR abdomen	Right D6, 7	—	60/12	ISQ 2/12	,,
D 1252	83 F	Carcinoma bladder	Radium bladder	Left C5, 6	—	4/12	ISQ 2/12	Clinical
118	33 F	Carcinoma nasopharynx	DXR nasopharynx	Left V	—	18/12	VI palsy 3/12 later; ISQ 4/12 later	Histological
			DXR L neck		—	14/12		
			DXR nasopharynx		—	5/12		
1350	18 M	Lymphosarcoma neck	DXR R and L neck	Right D2	—	43/12	ISQ 6/12	,,
C 1507	74 M	Carcinoma cervical glands	DXR L neck	Left D10–12	Ipsilateral	2/12	NSR 9/12	,,
O 47	60 F	Polycythaemia	DXR spleen and trunk	Left D9	—	8/12	ISQ 60/12	—
C 303	59 M	Epithelioma L forehead	Contact *x* rays	Left V	Ipsilateral	5/12	NSR 11/12	Clinical

DXR = Deep *x*-ray therapy. ISQ = *In statu quo*. NSR = No signs of recurrence.

before or after the zoster. Eight cases showed no signs of recurrence of the disease at intervals of 7, 9, 9, 10, 11, 16, 25, and 30 months after zoster (equivalent to 12, 17, 17, 20, 26, 28, 33, and 38 months after irradiation). One case developed metastases in the femur 26 months after zoster. One patient died 11 months after zoster with liver metastases. Two cases have no current follow-up record. (2) Subgroup 2:—Two cases had radiological evidence of spinal metastases, one six months and the other two years before the development of zoster. In the first case the site of the zoster has not been established, and nor could it be correlated in the second case, in which bone metastases were multiple. In the remaining 10 cases there is no evidence of spinal metastases before or after the zoster, although four patients died of metastases 1, 5, 7, and 14 months after the zoster. The remaining six patients are still alive 1, 10, 21, 24, 40, and 48 months after zoster (equivalent to 7, 19, 23, 35, 60, and 60 months after irradiation).

Malignant (Other than Breast) and Non-Malignant Cases

The 15 cases of malignant disease (Table III) vary in character and include five cases of carcinoma of the bronchus, two of carcinoma of the ovary, and one case each of lymphosarcoma of the neck, lympho-epithelioma of the nasopharynx, teratoma testis, carcinoma of the cervix, carcinoma of the bladder, secondary malignant glands of the neck, epithelioma of the forehead, and polycythaemia.

The six cases of the non-malignant group (Table IV) consist of two cases of spondylitis, two of osteoarthritis, one of syringomyelia, and one of tuberculous adenitis of the neck. Both groups are analysed together for simplicity.

I. *Site*

	Fifth Nerve	Cervical	Upper Dorsal	Lower Dorsal	Lumbar	Not Spec.	Total
Malignant ..	2	1	4	5	2	1	15
Non-malignant	—	1	—	3	1	1	6
Total ..	2	2	4	8	3	2	21

The lower dorsal region shows the maximum incidence.

II. *Side*

	Ipsilateral	Contralateral	Unspecified	Total
Malignant ..	4	3	8	15
Non-malignant ..	—	—	6	6

III. The interval between zoster and previous irradiation has been discussed under "carcinoma of the breast," above.

IV. *Follow-up History.*—In the malignant (other than breast) group there is evidence of spinal involvement concurrently with the zoster in one case and spinal involvement one month before the zoster in a second case. In the latter case, metastases involved L2 and the zoster involved the upper dorsal region at the level of which the patient had received deep *x* ray therapy. In the residual 13 cases there is no evidence of spinal metastases before or after the zoster, although two of these patients died at intervals of 8 and 11 months after the zoster. The 11 remaining cases were alive at intervals of 2, 2, 2, 2, 3, 3, 4, 6, 9, 11, and 60 months after the zoster (equivalent to 6, 8, 9, 11, 12, 16, 20, 21, 49, 62, and 68 months after the last irradiation). The case of the nasopharyngeal tumour with fifth-nerve zoster developed sixth-nerve palsy three months after zoster, suggesting an infiltrative basis for the zoster.

TABLE IV.—*Six Cases of Non-malignant Disease Treated by Irradiation*

No.	Age and Sex	Disease	Treatment	Site of Zoster	Interval	Follow-up
A 972	25F	Spondylitis	DXR spine	Right C5, 6	26/12	ISQ 8/12
1258	27M	,, ,,	,, ,,	Right D10	9/12	ISQ 36/12
			,, ,,		6/12	(Bell's palsy 6/12 before zoster)
298	43F	Syringomyelia	DXR cervical spine	Left D9	36/12	ISQ 24/12
A 421	43F	Tb adenitis neck	DXR L neck	D6–9	22/12	ISQ 7/12
			,, ,,		11/12	
C 291	73F	Sacro-ileitis	DXR lower spine	?	6/12	ISQ 11/12
B 307	62F	O.A. knees	DXR both knees	Left L5, S1	8/12	ISQ 10/12

Conclusions

The analysis of our cases shows: maximal incidence of zoster at the somatic level of the neoplasm, and thus of the site of irradiation; involvement by the zoster of either the same or, to a lesser extent, the side of the body opposite to that irradiated; a maximal incidence of zoster at between three and six months following the treatment, with a gradually diminishing incidence up to two years; and no evidence of malignant involvement of the posterior-nerve root within the period of observation except possibly in four cases with vertebral involvement.

The first question to be considered is whether the irradiation may be implicated as a factor in the aetiology of zoster in these cases. We consider that the time relationship between the development of the zoster and the previous irradiation, as shown in Fig. 2, provides strong evidence that this is the case. There is some interest in the fact that late irradiation reactions in all parts of the body, associated with the relative ischaemia and fibrosis which follow endothelial proliferation, usually tend to develop at an interval of three to six months after treatment. A delayed vascular deficiency and gliosis in the spinal root ganglion or delayed fibrosis in the skin with involvement of the nerve endings might cause activation of a latent zoster virus.

The second question to be considered is the way in which the irradiation may possibly be concerned in the aetiology of herpes. In this connexion we may note (especially by consideration of the breast cancer series, where the disease is primarily unilateral that: (1) The incidence of zoster in a minority of cases is on the opposite side to that treated. (2) The level of zoster in a minority of cases does not correspond with the somatic level treated. (These two findings correspond with those of Pendergrass.) (3) One or two of the upper dorsal posterior root ganglia, on *both sides*, are sometimes directly irradiated in the routine technique for irradiation in carcinoma of the breast. Even when this is so, the zoster does not necessarily correspond in level with the posterior root ganglia irradiated. (4) The skin area (and thus the cutaneous nerves also) corresponding to the level involved by zoster later has in the majority of cases been irradiated. The technique of treatment often includes a portion of the skin on the opposite side of the midline anteriorly.

In view of our first conclusion and these observed facts, it would seem that zoster may result either from a systemic mechanism following the release of substances set free by irradiation, or possibly from an effect at the level of the cord concerned, through the afferent nerves of the irradiated area. No further speculation is justified, unless in all cases a correlation were established between the site or nerve tissue irradiated and the subsequent site of zoster. (The

TABLE II

Volume in ml.					
Range	Under 1·5	1·5–3	3–5	5–8	Over 8
No. of cases ..	4 (3·2%)	48 (38·4%)	48 (38·4%)	22 (17·6%)	3 (2·4%)

Density in millions per ml.						
Range	Under 5	5–20	20–50	50–100	100–200	Over 200
No. of cases	3 (2·4%)	11 (8·8%)	21 (16·8%)	46 (36·8%)	33 (26·4%)	11 (8·8%)

Total Ejaculate in millions of Spermatozoa						
Range	Under 15	15–60	60–150	150–300	300–600	Over 600
No. of cases	4 (3·2%)	10 (8%)	21 (16·8%)	39 (31·2%)	38 (30·4%)	13 (10·4%)

Basic Motility%					
Range	Under 20	20–40	40–60	60–70	Over 70
No. of cases ..	15 (12%)	57 (45·6%)	45 (36%)	7 (5·6%)	1 (0·8%)

Morphology: Total Abnormalities %						
Range	Under 10	10–20	20–30	30–40	40–50	Over 50
No. of cases	1 (0·8%)	6 (4·8%)	36 (28·8%)	39 (31·2%)	21 (16·8%)	22 (17·6%)

by the fact that the 125 pregnancies include a number which ended in early abortion. From evidence so far acquired I believe that pregnancy produced by morphologically unsatisfactory semen carries a distinctly increased risk of ending in early abortion. For the time being this can be put forward only as an opinion awaiting confirmation. A series of such cases is being collected and the findings will be published as soon as an adequate group of "normals" has been examined.

Findings in Routine Semen Tests

In 5,400 semen analyses of 3,182 men we found that 791 (24.8%) were normally fertile; 423 (13.3%) borderline; 1,711 (53.8%) *distinctly subfertile*; and 257 (8.1%) had total azoospermia. Although, as pointed out above, these figures do not represent an average sample of the population, they demonstrate the very substantial part played by male subfertility in the barren marriage.

The wives of many men in the "distinctly subfertile" and even "total azoospermia" groups had previously been subjected to prolonged investigations, and frequently attempts had been made to help matters by dilatation and curettage, ventrosuspension of the uterus, and a variety of hormone administrations. One childless woman had had two "D. and C." operations, a tubal insufflation, a salpingogram, an endometrial biopsy, and a host of injections, tablets, and douches, extending over a period of two years and costing a considerable sum, before someone thought of examining her husband. His semen contained no spermatozoa on repeated examination.

Some Common Fallacies

A considerable number of patients referred to this laboratory reported that previous attempts to investigate and treat their condition had been made and that often these had failed to clarify the situation or to improve matters. Certain types of mistakes were encountered so constantly that their discussion would seem desirable. As a rule the failure is accounted for by *inadequate* seminological technique.

Condom Specimens

For several years seminologists have been unanimous in condemning the examination of condom specimens for routine fertility assays. The rubber of condoms is known to contain substances injurious to spermatozoa, which may immobilize them quite rapidly. Nevertheless, even at the present time several laboratories accept such specimens and give reports on them. In some cases condoms are sent by post overnight.

It cannot be too emphatically stated that a specimen collected *under such conditions cannot possibly show normal features* and that any verdict on the quality of such a specimen—except that of total azoospermia—is bound to be mere guesswork. The motility of spermatozoa is one of the most important indices of their quality, and distinctly poor motility on repeated examinations would brand a specimen as subfertile no matter *how good the other features might be.*

Two patients whose semen showed normal volume, density and morphology but persistently low motility figures (1–4%) had previously been pronounced highly fertile on the evidence of condom specimens. No impairment had been found in their wives, and their marriages remained barren after four and seven years' trial.

Direct Microscopical Examination of Semen

Sometimes a patient will answer the request for a seminal specimen by saying that his doctor had looked at his semen under the microscope and found him "perfectly all right." Sometimes the semen was taken from a condom. This method is approximately as accurate as a blood picture obtained by direct microscopical examination of a more or less fresh drop of blood. In my opinion any attempt to short cut a complete semen analysis is bound to delay the discovery of the cause of a couple's failure.

Minimum Normal Findings

Density.—It is often argued that, theoretically at least, the presence of only one spermatozoon in a man's ejaculate makes him a potential father. On the other hand, a patient recently brought a report from his local hospital stating that he was sterile, as his semen contained only 8 million spermatozoa—a quite unjustifiable prognosis. It is alarming to speculate on the possible consequences of such a statement. In my series of 125 pregnancies the minimum densities are: 1½ millions before and after conception in one case, and three-quarters of a million before and 1½ millions after conception in another. In 11 other men of this group the densities ranged from 5 to 16 millions before conception, but subsequent specimens were not obtainable. Harvey and Jackson (1948) report pregnancies with repeated counts as low as 1 million. Whereas such semen findings obviously cannot be taken to indicate normal fertility—i.e., an average expectation of pregnancy—it would seem equally unwise to tell a man suffering from oligozoospermia either that he is sterile or that he needs no help.

Motility.—It is not uncommon to find that a patient has been subjected to prolonged treatment because "his spermatozoa are weak" whilst in other respects the semen is said to be normal. Usually this verdict is based on findings in a condom specimen or on one several hours old. In my experience true asthenozoospermia—i.e., poor motility without gross impairment of other features, especially morphology—is uncommon. I have records of only four men whose semen showed normal volume, density, and morphology but whose sperm motility remained persistently between 1 and 8%. Between five and eight semen tests were done in each case over a period of one to three years, and most specimens were produced at the laboratory. Two of these cases were quoted above as having been classified "highly fertile" on condom specimens.

At the other extreme, I have seen many semen analyses reporting 90% or even 100% motility. Several laboratories dealing with routine semen examinations put 80% motility as the lowest figure compatible with normal fertility. So far as I am aware, the technique of the motility count in these instances consists in counting both motile and immotile spermatozoa in a number of restricted microscopical fields.

"Pregnancy" groups A and B (see above) show a maximum motility figure of 62% in the former, and only one of the 125 cases in the latter exceeded the 70% limit. Among the remainder of the material I have occasionally found motility figures approaching the 80% mark, and in one case even exceeding it. However, these are exceptional cases, and I feel that 50% can be regarded as fully adequate.

It might be argued that the discrepancy between our findings and those of other workers is simply due to a difference in technique, and that, provided each keeps to his standards, results can still be reliable. However, I suggest that it is undesirable to rely upon a method which can produce variable results even with the same observer, and which in the past has produced most unlikely findings.

The ultimate purpose of semen examinations is not only to diagnose possible defects, but also to provide reliable indications of the patient's progress under treatment. This requires strictly comparable results from one test to the next.

Morphology

Comparable to the motility figures quoted above, the same reports are often found to record findings of 90 or 100% normal spermatozoa, and the minimum figure indicating normal fertility is stated to be 80% of normal forms. The 15 normally fertile men (group A) show a range of 16–35% of morphological abnormalities, and 60% of group B have 20–40% of abnormal spermatozoa.

Many excellent descriptions and illustrations of the various types of abnormal spermatozoa have been published. It is difficult to understand how different observers can disagree in deciding whether, say, a sperm head has a normal oval outline or is deformed; whether there is a well-marked division between the clear anterior and the darkly staining nuclear half of the head or whether it is just a pyknotic mass; whether a "collar" of cytoplasmic material surrounds the middle piece; or whether this is straight or bent—to mention only a few common and obvious features.

The following case will illustrate the practical importance of what might be regarded as an academic point.

A patient presented himself with an unusual semen condition encountered by me in only two other cases. In a specimen of normal volume and good density 98% of the sperm heads were small, spherical, and pyknotic, and more than half of them were surrounded by cytoplasm—i.e., they presented the appearance of degenerate spermatids—and the motility was poor. Yet the same patient brought two previous semen reports from a hospital running a large subfertility clinic pronouncing him normally fertile. A slide of one of his previous specimens generously loaned to us showed the same grossly abnormal features.

Furthermore, I believe that pregnancy produced by a specimen showing impaired morphology carries an increased risk of early abortion; and, whether to prove or disprove this contention, it is obviously desirable to pay the utmost attention to accurate differential counts.

The above descriptions refer only to the commonest sources of error encountered. But over and above these there are many more disagreements amongst laboratory workers and clinicians. They all tend to vitiate the attempts to provide an accurate diagnosis on which rational prognosis and treatment could be based. It is necessary to emphasize the fact that the examination of semen requires adequate time and a highly specialized technique, and that there is an urgent need for standardization of methods if our past neglect of the subfertile male is to be remedied.

Treatment

I shall discuss in some detail only two substances in common use on which the material examined has enabled me to form an opinion—namely, vitamin E and testosterone. Research is still in progress upon other methods of treatment, and it is intended to publish the results in a future report.

Vitamin E.—Forty-two unselected subfertile men, excluding only cases of azoospermia, were treated with "ephynal," a synthetic analogue of vitamin E. The doses given were from 10 to 40 mg. daily over a period of from 6 to 24 weeks. Six cases showed some improvement, seven showed some deterioration, and 29 were unchanged. Five cases in this group received additional doses of 5 mg. of methyl testosterone on alternate days at one time during the above treatment, and they were all in the "unchanged" group at the end. Subsequently, 34 cases treated with corresponding doses of natural vitamin E ("fertilol") for periods of six to ten weeks showed similar inconclusive results; the series was abandoned at this stage. Although I am not in a position to deny that more prolonged treatment—one to two years has been suggested—might not prove of some value, I do not feel justified in advocating vitamin-E therapy on the evidence available. The above figures, in my opinion, could be found in a similar untreated group Detailed figures of the "ephynal" group are published in the *Proceedings* of the Family Planning Association Conference on Infertility held at Exeter in 1948.

Testosterone.—Fifty-three unselected subfertile men, again excluding cases of total azoospermia, were given methyl testosterone in doses ranging from 5 mg. on alternate days (21 cases) to 10 mg. a day over periods of from four to eight weeks. Two cases improved, 18 (mostly reduced density) deteriorated, and 33 were unchanged. In addition to this group many cases sent to me for examination have been treated with testosterone elsewhere and sent back for re-examination. They received doses similar to the above, or injections of testosterone propionate in doses of 10–25 mg. once or twice a week, for periods up to 12 weeks, or testosterone implants. The only fairly constant effect of the larger doses, and occasionally of the lower ones, on the semen picture is a reduction of sperm density. As a rule this effect is only temporary, and, even if it is alarming to see a case of oligozoospermia reduced to azoospermia, the semen picture can usually be expected to resume its original level a few weeks after the cessation of treatment. I consider that testosterone has no place in the treatment of semen deficiencies. However, provided the dose is not excessive, some cases might benefit from the temporary increase of libido it often produces.

Treatment with the gonadotrophins would still seem to hold out some hope, but reliable figures are not yet available.

Selection of Cases for Treatment

If it is difficult to assure the patient that any form of treatment will benefit him eventually, present-day methods of investigation can produce at least two definite and useful results: first, from the beginning to exclude from treatment those men whose fertility is damaged beyond repair; and, secondly, to eliminate those forms of treatment which are certain to prove useless in a given case.

The above refers mainly to cases of total azoospermia and oligozoospermia, and I consider it unwise to attempt treatment in such cases without first performing a testicular biopsy A biopsy is a minor operation which can be performed in a few minutes at the consulting-room, clinic, or out-patient department, and leaves the patient fit to return to work next day. It is an essential step in deciding whether a case of azoospermia is due to blockage of the epididymides or vasa, or to failure of spermatogenesis. In the former case only surgical treatment is likely to help: in the latter, either absence of spermatogenic cells will prove the patient hopeless or the finding of incomplete maturation may hold out some hope of stimulating the process Again,

in a case of oligozoospermia the presence of a few fully active seminiferous tubules with complete inactivity in the remainder indicates little prospect of improvement, whereas if most tubules are found to be active, but at a reduced rate, treatment is well worth trying.

Only 128 biopsies have been performed at this laboratory to date, and if nothing has been achieved beyond the fact that 27 patients could confidently be advised to abandon treatment, I feel amply repaid by the considerable time and expense thus saved.

The subject of testicular histology and its correlation with semen findings and with the effects of treatment is likely to prove of the greatest importance. It is mentioned here only briefly, as material is being collected for a more detailed report.

Summary

A survey is made of the semen findings in 3,182 male partners of subfertile marriages, 125 of whom produced pregnancies subsequently. A separate group of 15 selected normally fertile men is described. Cases are quoted illustrating the need for adequate investigation of the male and for standardization of seminological technique.

I am indebted to Roche Products Ltd., Vitamins Ltd., Ciba Laboratories Ltd., and Organon Laboratories Ltd for the generous free supply of their products for our experimental series.

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THUMB RECONSTRUCTION BY TRANSFER OF BIG TOE

BY

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This is an interim report on the treatment of a patient whose lost thumb we have restored by a method seldom used, and one not everywhere held in good repute. Nevertheless we believe the method has advantages which should be seriously considered in cases in which restoration of a missing thumb or finger is thought to be desirable.

Nicoladoni (1900) introduced the method in 1898, and he reported an instance of successful tendon function when a toe had been used to replace an injured thumb. Gueullette (1930) reported from the literature 12 instances of the transfer of the big toe and five of the use of the second toe: there were only three good results. Five of the toes necrosed and the remainder were stiff and useless (quoted by Bunnell, 1949). We can find no record of the use of the method in this country until 1947, when J. B. Cuthbert demonstrated a successful result in a man at the Plastic Centre at Rooksdown House, Basingstoke. Cuthbert stressed the fact that selection of this method depends on the size of the big toe. A massive bulky toe is of little use because of its unpleasant appearance. Bunnell, in condemning the method, writes: "The second toe is too narrow and weak and the great toe is too gross." He draws attention to the disappointing results up to 1930, but states that he has seen one case successfully operated on by H. Hoyle Campbell, in which suture of the digital nerves had been followed by some return of sensation but without stereognosis.

The possibilities of a successful nerve suture, restoring cutaneous sensibility, and the maintenance of motion in the transferred interphalangeal joint make the method attractive. A point of great importance with many of the younger patients, particularly girls, is the appearance of the new thumb. To look well, a repaired digit must have a nail of appropriate length and skin of colour and texture approaching the normal. Other methods of reconstruction will cater for length and, to some extent, skin texture, but only by digital transfer can a nail be restored.

Unless the new thumb is elegant and functional the patient will develop "cover-up" mechanisms and will avoid use of the laboriously produced digit, which is often of more satisfaction to the surgeon than either function or appearance can justify.

Case Report

The patient was a girl aged 9. When 2 years old she fell on to an electric fire and burnt both her hands. The burning was so severe that all the digits of the left hand were destroyed. The burns of the right hand were less severe, but there was sufficient scarring and ankylosis to impair function.

Fig. 1 shows the condition of her left hand at the age of 3, in 1942. The maximum loss is in the index finger and thumb, only the epiphyses of the proximal phalanges remaining. The middle finger is represented by most of the shaft of the proximal phalanx, and the fourth and fifth fingers have been similarly destroyed.



FIG 1.—The hand at 3 years of age. Only the stump of the proximal phalanx of the thumb remains. The stumps of the medial four digits are bound to the palm. At this stage the complete palm was replaced by a dermatome graft and the digital stumps mobilized by Sir Harold Gillies.

When the child was 3 Sir Harold Gillies replaced the palmar scar by a dermatome graft. Later he deepened the first cleft by a large dorsal rotation flap with a free skin graft to the secondary defect. These operations were completely successful.

Six years later it was clear that the child could not develop a proper pick-up mechanism between the thumb stump and any digit, as the thumb stump was too short to be opposed even to the longest finger stump. Choice of this method of repair was suggested by Sir Harold Gillies, in the light of Cuthbert's case, because of the age and sex of the patient, and was influenced by the fact that her big toes were neat and not bulky. The tactics of the surgical campaign were explained to the parents so far as was possible, also the discomfort to be borne and the fact that the method was one that had seldom been used. The foot on the same side was chosen, as the hand can comfortably lie on the foot on the proper axis with less strain. The digits of both hand and foot lie parallel, and zinc oxide strapping ensures adequate fixation. The technique of the operation is described below.

Subsequently the transposed toe was shortened, with obliteration of the volar groove. The cleft between the middle and index fingers was deepened to increase their active length and aid the development of a pick-up mechanism. The extensor tendons of the thumb and transposed hallux were joined. Figs. 2, 3, 4, 5, and 6 show the appearance and condition of the hand.



FIG. 2.—The attachment. The hand is shown inserted underneath the dorsal flap. This photograph was taken a month after the attachment.

Suture of the digital nerves has yet to be done, but an appreciation of deep pressure returned to the pulp three months after operation. After 10 months there was some appreciation of pin-prick all over the pulp. Appreciation of deep pressure, which is present everywhere in the pulp, may possibly be referred from the stump of the true thumb.

The patient already has the ability to pick up and hold fairly bulky objects, such as a pencil or a fork (Fig. 5), but is handicapped by the instability of the union between graft and host. Although stability is increasing it is almost certain that a bone graft will be necessary to produce union between the phalangeal fragments. At a very much later stage it may be practical to do a flexor tendon transplant or graft.



FIG. 3.—The big toe on the hand immediately after being detached from the foot. It is too long, too thick, and there is a deep volar groove.

The colour of the new thumb is more pink than a normal one, but there is a brisk capillary response to pressure. The pulp of the toe has shrunk since transfer, and this reduction in overall bulk has improved the cosmetic appearance and produced a thumb nearer to normal size. Further thinning by surgery may yet be desirable, and is certainly practicable.

The stump of the toe on the foot is soundly healed and stable; the patient runs, dances, and plays hockey without disability.

Technique of Toe-Thumb Transfer

Method of Attachment.—In order to get a broad attachment of raw surfaces, such as may be expected to nourish the toe when its digital vessels are divided, a large dorsal flap is necessary. This must be hinged distally, and for safety is therefore best delayed. A circular flap (Fig. 7), about 8 cm. in diameter and leaving the proximal and distal pedicles of 4 cm. intact, was elevated and then sutured back in position (a bigger and broader flap would have permitted the transfer of two or more toes). For the next two weeks the patient practised maintaining for increasing periods the posture that was to be necessary during the period of attachment. At operation the proximal pedicle was divided and the flap elevated up to its distal pedicle at the base of the big toe. The proximal phalanx of the big toe was divided through the middle of its shaft. The extensor hallucis longus was divided about 10 cm. from its distal attachment. The raw area on the dorsum of the foot was covered with a hand-cut split-skin graft. The scar on the thumb stump and an area of dorsal skin smaller than the foot flap were excised. This stump with its dorsal raw area was then inserted under the foot flap. The extensor hallucis tendon was sutured proximally under the dorsal thumb-skin. The foot flap was sutured to the margins of the thumb defect by interrupted fine serum-proof silk sutures.

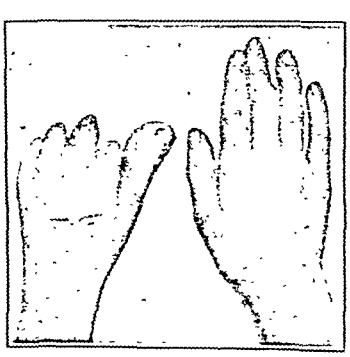


FIG. 4.—Photograph of the two hands eight months after the transfer, but before elongation of the third digit by deepening its webs.

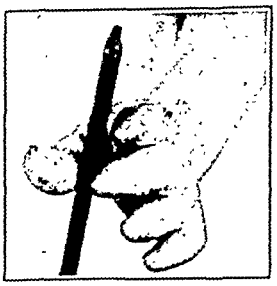


FIG. 5.—The pick-up mechanism present between the third digit and the reconstructed thumb ten months after operation.

Period of Attachment.—Zinc oxide strapping fixation between hand and foot was used. It was not completely effective, and some detachment on the lateral side of the flap occurred. For this reason the period of attachment of the hand to the foot was increased from four to six weeks. The posture caused continuous discomfort and pain for the first three or four days, during which time morphine was often necessary. Subsequently massage and changes in posture controlled most of the discomfort.

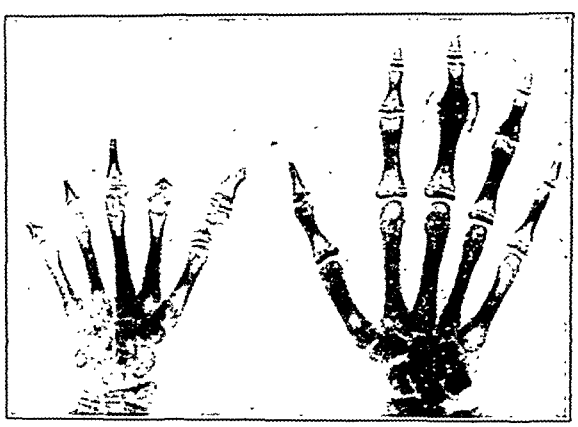


FIG. 6.—Radiograph eight months after the transfer of hallux to base of thumb. The new digit is decalcified compared with the bones of the right hand, but not so much in comparison with the phalangeal stumps on the same side. There is a gap between toe and thumb phalangeal fragments which is to be filled with a bone graft.

Method of Division.—At two weeks the medial digital nerve and vessels of the hallux were divided, and at four weeks the lateral vessels and nerve. It would have been better if the nerves had been divided

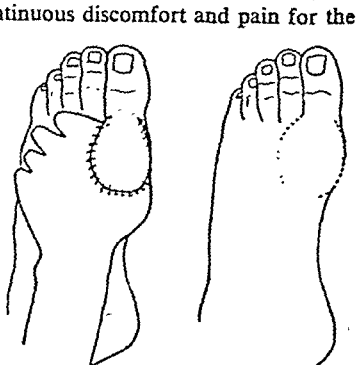


FIG. 7.—Diagram to show proportions of delayed flap (width of flap 8 cm. at widest point). In a subsequent case of complete adactyly at present under treatment a dorsal flap comprising the skin and subcutaneous tissues of the dorsum of the foot from 3 in. (7.5 cm.) proximal to the bases of the toes has been used.

well proximally, as the extra length so obtained would facilitate suture with the thumb digital nerves. At six weeks the remaining volar attachment of the toe and the flexor tendon were divided. The toe stump was covered with a split-skin graft, and some split skin was also spread on the volar defect of the thumb at the level of the attachment. Healing of thumb and foot was complete two weeks later.

Discussion

There are good points and bad points about all current methods of thumb reconstruction or elongation—that is, about pollicization of index, abdominal tubed pedicle plus bone graft, phalangization, and the Gillies "chapeau flap" with bone graft.

A successfully pollicized index, having full mobility and sensation, gives much the best functional result, but the appearance is that of a lobster claw and can be grotesque. Furthermore, in our experience a pollicized index has tended with time to fall back into its original plane flush with the other three digits. For these reasons the method may not appeal for certain cases, particularly young female patients.

An opposition post made of a tube pedicle plus bone graft is rigid unless borne on a mobile metacarpal stump. Its sensation remains poor and is always lacking in stereognosis. It is often of very poor appearance, and increasing mobility of the abdominal skin on the bone graft interferes with its usefulness as a gripping mechanism. It is, nevertheless, the alternative method of choice for adult males when, owing to loss of other digits, pollicization cannot be done.

In partial losses the thumb may have its apparent length increased and its function improved by deepening the first web—that is, the operation called by Bunnell "phalangization." The method is a useful one for cases with substantial remnants of the proximal phalanx.

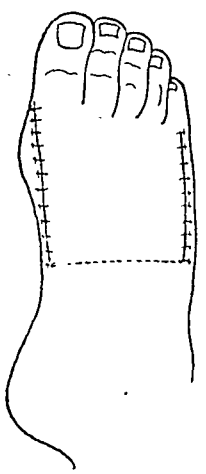


FIG. 8.—Diagram to show delayed dorsal flap used for transfer of five toes (in a case of congenital adactyly at present under treatment). The flap is elevated between two parallel incisions. After an interval of at least two weeks it is divided along the dotted line and elevated again up to the base of the toes. This large flap gives additional security to the pedo-carpal transfer.

The Gillies "chapeau flap," by which an additional 1 in. (2.5 cm.) may be added to a thumb stump, is an alternative method for similar cases. The flap contains most of the skin of the thumb stump and is based distally on the lateral side of the first web—a precarious attachment and one best delayed. When the flap is elevated and displaced distally, a 1-in. bone graft is inserted under it into the phalangeal stump to elongate it. A free skin graft covers the proximal secondary defect. A considerable return of sensation occurs in these stumps, as the repair is by hand skin which has touch corpuscles. This repair is most suitable for adult males, but it makes no attempt at restoration of normal appearance or of interphalangeal movement in the thumb.

It is reasonable to suggest, in view of the limitations of other methods of thumb repair in spite of their value, that the advantages of a hallux–thumb transfer should be given more consideration. This holds particularly for the young, who stand the posture best and who suffer most psychologically from the appearance of a missing digit or an ugly repair. The three cases (of which one is reported here) done in this country are known to have been successful. In the third case (Fig. 8), where all five toes have been transferred to the hand, all the transferred digits are viable (case under treatment at the moment). Previous experience (Gueullette) has probably exaggerated the hazards of the method.

Adactyly.—The method would seem to be of special value for trial in congenital absence of all digits. There are no greater surgical difficulties in transferring five toes than in transferring one—indeed, the dorsal flap for five toes is larger and therefore safer (Fig. 8). The toes with their nails provide the only repair which can give a reasonable match to normal fingers for these difficult and distressing cases.

It is a pleasure to acknowledge our thanks to Sir Harold Gillies, who referred this case to us both with the suggestion that we adopt this method and with much valuable advice on how it could best be done.

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Medical Memoranda

Prolapsed Intervertebral Disk After Lumbar Puncture

It would seem from the increasing number of cases of prolapse of the disk with a history of symptoms beginning after lumbar puncture that this hazard of the procedure is more common than is generally accepted. The case described below illustrates the normal sequence of events where damage has occurred to the disk. The condition was finally cured by operation, the laminectomy findings being in support of a possible rupture of the disk by a needle.

CASE REPORT

The patient, a young man aged 22, stated that he had had trouble with his back since November, 1945. At this time he was given spinal analgesia in a military hospital in order to carry out a radical cure of an inguinal hernia. Unfortunately this analgesia was unsuccessful, and, furthermore, while the needle was being inserted he felt a sudden sharp pain down the sides of both legs and they shot out into the extended position quite involuntarily. It is interesting to note that this was followed by a spinal headache for as long as 14 days after the operation. From that time he developed attacks of backache which could be brought on by such minor trauma as jumping down from a lorry.

When seen in the orthopaedic department of the Coventry and Warwickshire Hospital he was suffering from left-sided sciatic pain extending down the outer side of the thigh and into the ankle, which he had had for three months. This was the first attack of sciatica that he had experienced.

On examination he was found to have a slight degree of scoliosis convex to the left, which he stated had been much worse. Forward flexion of the spine was grossly diminished, but lateral flexion was fairly free. There was no evidence of disturbance of sensation or reflexes of the limbs. A radiograph of the lumbar spine showed a narrowing of the disk space between L4 and 5. It was decided to explore the above disk space, and the patient was admitted to hospital.

Laminectomy was carried out by Mr. N. W. Nisbet. The laminae of L4 and 5 on the left side were exposed and the ligamentum subflavum was removed. The dura was found to be pulsating but bulging. On retraction of the dura and the fifth lumbar nerve root medially a very marked protrusion of the intervertebral disk could be seen. This had obviously been producing pressure on the fifth root. Almost immediately the protrusion had been displayed disk material began to exude into the space behind the dura in a manner similar to the exudation of sebaceous material from the minute aperture in a sebaceous cyst. The whole of the disk material was removed in the usual manner.

Post-operative progress was uneventful, the patient's sciatic symptoms being completely relieved, although he complained of some coldness of the left foot. There was no evidence of any sensory disturbance.

There seems to be little doubt that this disk lesion was the direct result of a puncture of the annulus fibrosus of the intervertebral disk. The exudation of nuclear contents through a small aperture supports this causation.

I am indebted to Mr N W Nisbet for permission to publish this case.

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A Case of Human Myiasis

While acting as medical officer in charge of a German P.O.W. working camp in Buckinghamshire I saw a case of human myiasis. As this is unusual in England the case history seems to be worth recording.

CASE REPORT

The patient, a 27-year-old German P.O.W., had had a radical operation for left otitis media in 1940. He said there had always been a purulent discharge from the left ear since, combined with vertigo on thermic irritation. The patient was seen by British and German E.N.T. specialists, who recommended various kinds of treatment, but without any effect on the discharge. The ear was cleaned and iodine powder 1% insufflated regularly.

In the summer of 1947 he had an open-air job at a brick-works in a rural district. Late in September, 1947, he reported sick, complaining of intensified trouble with his left ear, a feeling of pressure, and some pain of two days' duration. There was also a slight discharge of pink-coloured matter.

Examination with the auriscope revealed the following picture. In the external meatus there were some larvae (obviously belonging to a kind of fly) moving in a lively manner. The interior parts—i.e., the former tympanic cavity —were filled completely by a moving mass. It was a solid block of larvae lying parallel and swimming in a pink serous fluid; the heads of the maggots were directed to the inner ear and only the bigger tails were visible.

As I knew the "normal" state of this ear very well and as a removal of all the larvae by means of forceps seemed to be impossible, I tried very cautious rinsing with normal saline. At first the larvae were removed quite easily and without any untoward effect; but it soon became clear that a number were still present in small sinuses stretching into the posterior wall of the tympanic cavity and of the external meatus. As they were very tightly packed and the entrances of the sinuses were rather narrow, the maggots had to be removed by forceps one by one. A final counting revealed that there had been 57 larvae within his ear.

Examination after complete clearance showed the ear to be quite clean, without any trace of pus. The sinuses into the posterior wall did not exist in the "normal" state; they were to be regarded as caused by the parasites. Close observation during the next few days showed that pus had formed again and that the sinuses had closed quickly. The further course of the case was uneventful.

COMMENT

Unfortunately it was impossible to save the larvae for metamorphosis into flies, so it was rather difficult to decide on the species. Dr. J. S. K. Boyd, of the Wellcome Laboratories of Tropical Medicine, stated that they belonged to "one of the species of the genus *Lucilia*, probably *L. sericata* or *L. caesar*."

The genus *Lucilia* (blow-flies) is the one most often encountered in human myiasis in Europe; but cases are very rare there compared with tropical countries. Myiasis due to larvae of the blow-flies is always superficial only. Sometimes the larvae are primary parasites—i.e., they attack healthy tissues. Mostly, however, the eggs are deposited on necrotic and putrescent matter (secondary parasitism), as in this case. Commonly the fly deposits its eggs in some quantity and the larvae get rapidly to work. In hot climates (the summer of 1947 was very hot) it takes 16 to 24 hours for the eggs to hatch; after four to seven days the larvae are fully grown and proceed to form the chrysalis.

Of practical importance is the fact that some of these parasites live on necrotic tissues only, while others, after starting from necrotic matter, secondarily attack living healthy tissues as well. *L. caesar* belongs to the former group, whereas *L. sericata* attacks living surroundings (the sinuses in the present case); both are therefore apt to cause very serious complications, such as perforation of the epitympanic bone and secondary infection of the meningeal spaces.

Contrary to surgical experience, the cleansing effect of the allantoin formed by the larvae was not lasting: a few days after removal of the maggots pus was present as before.

I am obliged to Drs. Lucas and Sherris, of the Central Pathology Laboratory, E.M.S., Stoke Mandeville Hospital, Bucks, for their kind help. May this short note be a token of my gratitude to all British colleagues, who, through 16 months, gave me so much help and assistance and showed that medicine does not know national barriers.

HELLMUT W. F. BRAUNECK.
Mayen, Germany.

A pamphlet by Marion E. A. Williams entitled *Focus on the Disabled* has recently been published by Michael Works, Ltd. The founders of this company were "a small group of people convinced that disabled persons, previously regarded as unemployable, could be trained and employed in producing useful goods which could be offered in the open commercial markets at normal prices." Michael Works, Ltd., began work in 1946, small articles of woodware and simple occasional furniture being produced. The supervising staff consisted of managing director, secretary, medical officer, physiotherapist, industrial psychologist, and foreman. Close co-operation was maintained with the local resettlement officer of the Ministry of Labour. The disabilities of the workers employed in the factory varied from spastic conditions to neuroses. It was soon found that the workers could be trained to produce articles with a standard of quality as good as anything existing on the market, and the company has been successful in tendering for such work as the repair of school desks for the L.C.C. and for making new furniture for old people's homes. Any falling off in the working capacity of an employee is the signal for immediate consultation between the medical officer, managing director, and foreman. "In this way the medical knowledge available has been applied in practice at the earliest possible moment, with great saving in ill-health and absenteeism."

Reviews

DOCTORS' DRUGS

The British Pharmaceutical Codex, 1949. (Pp. 1,562. £3 3s. Inland postage 1s.) London: The Pharmaceutical Press. 1949.

Early in the century medical treatment consisted largely in the elaborate prescription of medicines elegantly flavoured, meticulously bottled, and exquisitely labelled. If 80% of these bottles had been poured into the sea the fishes only would have suffered. In that age, therefore, a knowledge of the action and uses of drugs was of secondary importance. It is very different nowadays. Medical men, often of modest attainments, find themselves—Jovelike—hurling terrifying therapeutic thunderbolts, and it now behoves them to know more about these alarming weapons of their trade than can be gleaned from the pharmaceutical advertisements which litter their breakfast tables.

In the *British Pharmaceutical Codex* of 1949 can be found all—and a good deal more—information than the doctor can ever expect to master about the preparations, doses, actions, and uses of drugs. There are in addition sections on serums and vaccines, preparations of human blood, and surgical sutures; and a formulary of prescriptions—hardly a pocket prescriber, as it involves over 300 pages—some of which have a faintly nostalgic nineteenth-century flavour about them but which must provide for every possible therapeutic contingency.

If only for the descriptive paragraphs on the action and uses of drugs this work should appeal to medical men as well as to pharmacists. These descriptions are masterpieces of concise, accurate, and comprehensive information, and on occasion do not hesitate to point out the worthlessness of the drug under discussion. It is perhaps prophetic that the sections devoted to the preparation of human blood and to surgical ligatures contain no Latin names: it would have been a nice exercise to translate "Concentrated Human Red Blood Corpuscles" into the more humane letters.

Although over 300 drugs have been deleted from this edition of the *Codex*, yet the pruning knife might with advantage have been used even more drastically. If the volume has a fault it lies in its perpetuating some drugs and prescriptions which have long since had their day and been found wanting. The work is otherwise an invaluable and handsome encyclopaedia of pharmaceutical, pharmacological, and therapeutic knowledge which is a monument to the industry and erudition of the committee of the Pharmaceutical Society which has been responsible for its publication.

D. M. DUNLOP.

ILLUSTRATIONS OF MARROW PATHOLOGY

An Atlas of Bone-Marrow Pathology. By M. C. G. Israëls, M.Sc., M.R.C.P. Illustrations by D. Davison. (Pp. 79: 12 coloured plates. £1 10s.) London: William Heinemann Medical Books. 1948.

This book contains about 50 large pages of text and 12 plates, all printed on art paper and well bound. The text is excellent. It begins with a concise account of the nomenclature of the blood cells and their development. Brief details of technique are given, and the morphology of the marrow cells is described. There follow short descriptions of the blood and bone marrow in health and disease.

The book has already received the compliment of being accepted as the standard English manual of haematological nomenclature. It must nevertheless be confessed that the plates are disappointing. They are greatly inferior to productions in other countries—for example, Schulten's *Sternalpunktion*, or Blackfan, Diamond, and Leister's *Atlas of the Blood in Children*. The delineation of blood cells is as specialized an art as the painting of miniatures, and artists who are otherwise excellent often fail at it. Haematological nomenclature is so controversial a subject at the present time, and European opinion has been so unanimously opposed to the new terminology for the red cells and their precursors recently introduced by Osgood and others in the U.S.A., that it is unfortunate that Israël's fine text and diagrams are so inadequately supported by the plates.

L. J. WITTS.

THE AETIOLOGY OF MONGOLISM

Mongolism (Peristatic Amentia). By M. Engler, M.D. (Pp. 208; 28 illustrations. £1 1s.) Bristol: John Wright and Sons. 1949.

In his preface to this monograph Dr. Engler makes a two-fold claim, and it is upon the validity of this claim that his book must be judged. He writes: "This monograph is intended both as a summary of everything that has ever been published on the subject of mongolian idiocy and as an attempt to show that there can only be *one* explanation of its cause." The nature of this unitary cause he states to be "a congenital degeneration or malformation produced by the implantation of a normal ovum, not affected by any heredity taint, in a pathological, i.e., diseased, uterine mucosa, which is unable to supply the embryo with sufficient nourishment. . . . This damage to the mucosa . . . and *this alone*, is the basic cause of mongolian idiocy."

No other form of degenerative abnormality has received more attention than mongolism, and Dr. Engler has evidently read widely the literature of the subject and the large number of explanations of causation which have been put forward. These he reviews systematically, but, in spite of all the arguments which he adduces in support of his own, it is doubtful if his positive assertion quoted above will command general acceptance. There are many considerations which militate against this theory as a complete explanation, depending as it does on so many assumptions. Until it can be proved that a diseased uterine mucosa always precedes and predetermines the birth of a mongol but not that of other forms of congenital amentia, the argument must be considered as belonging to that type of faulty reasoning known to logicians as *Inductio per simplicem enumerationem*.

On the other hand, the extraordinary uniformity in physical and temperamental attributes shown by mongols, whatever their nationality, places the type in a clearly defined class distinct from all other forms of degenerative amentia. Another point which has some significance in this connexion is the well-attested class-selectivity, for mongolism occurs with far greater frequency amongst the professional classes and highly intelligent thoughtful craftsmen than in the unskilled labourer class. It cannot be argued that this disparity is due solely to a differential infant mortality rate which carries off all the mongolian infants at birth or before their condition can be recognized.

So convinced is Dr. Engler of the validity of his pathological explanation that he proposes it should be implicitly enshrined in the term "Peristatic Amentia," which he would substitute for that of "Mongolism." But this

proposal to change from a term which for 80 years has admirably described the condition and has been universally accepted is not likely to recommend itself to many physicians, whose verdict on the theory which Dr. Engler asserts so positively will be "not proven."

G. A. AUDEN.

ANATOMY OF THE NERVOUS SYSTEM

Neurological Anatomy in Relation to Clinical Medicine. By A. Brodal. (Pp. 496; illustrated. £2 2s.) Oxford: The Clarendon Press. 1948.

Functional Neuro-Anatomy. By A. R. Buchanan, M.D. (Pp. 242; 199 figures. £1 12s. 6d.) London: Henry Kimpton.

Dr. Brodal's book will be indispensable to students of clinical neurology and of the greatest value to those already in practice, for it is an authoritative neuro-anatomical textbook that emphasizes the clinical applications of the subject. It is a translation of *Nevro-Anatomi*, which was first published in 1943 in Norwegian and was so successful that the author was persuaded to produce an English translation.

Dr. Brodal's approach to the subject is clearly the result of much careful thought. Although he is a neuro-anatomist of wide reputation he does not allow anatomical details to obtrude excessively to the exclusion of physiological and clinical observations, and he has managed to avoid including anatomical minutiae which, though of interest, are irrelevant to the purpose of the book. Despite this, carefully selected references to original papers will enable those interested to acquire as much detailed anatomical knowledge as is available.

This book is not generally suitable for preclinical medical students. For one thing, it is too long. Secondly, it is in places difficult to read quickly, for the author has taken particular care when discussing controversial points to make no statements or assertions without giving the evidence upon which they are based. Dr. Buchanan's book, however, is intended primarily for the student. The author has set out to present the essential material in as few pages as are compatible with an understanding of the subject. In this he has succeeded, and his concentration on the functional aspect of neuro-anatomy will not only maintain the student's interest but also emphasize the importance of a sound knowledge of the anatomy of the nervous system in future clinical studies.

While most of the information contained in this book is an expression of current knowledge and opinion, there is a notable exception. The chapter on the rhinencephalon expresses views which are now known to be outdated. For instance, the hippocampus is still described as a cortical olfactory centre, whereas the work of Le Gros Clark and others has shown conclusively that there is no evidence for such a conception. It is possible that the manuscript of this chapter was completed some time before publication, and it is to be hoped that this section will be revised in the next edition. The references to the literature have intentionally been kept to a minimum, but those included have been judiciously selected from recent publications.

G. WEDDELL.

PSYCHIATRY: A FRESH VIEWPOINT

Human Personality and its Minor Disorders. By William Harrowes, M.D., F.R.S.Ed. (Pp. 260. 15s.) Edinburgh: E. and S. Livingstone. 1949.

This book is an exposition of the psychiatric concepts formulated by Professor Adolf Meyer, who made a great contribution to psychiatric thought in America, and whose teaching has come to this country with many British psychiatrists who studied under him at Johns Hopkins. It is refreshing to encounter a viewpoint detached from the psycho-analytical theory which pervades most psychiatric literature at the present time. Dr. Harrowes has achieved this, and his book will therefore not please the confirmed analyst, but to any reader with an open mind it will be intriguing and will provide a pattern into which clinical experience can be fitted and from which a psychiatric philosophy can be developed.

The author maintains there is nowadays too great a tendency to make a neurosis out of the ordinary ups and downs of everyday life and to imagine that every worried man is in an anxiety state. He develops the thesis that every personality is the resultant of mental and physical forces, and that by using these forces it adapts the environment to itself or itself to the environment.

To approach his patient correctly the psychiatrist must make an assessment of his own potentialities, attitudes, and emotional habits and those of a few others, who must be chosen as being different from himself. From this self-analysis and its comparison with the observations made on others a degree of insight can be attained and a scale formulated against which clinical observations can be assessed. This process is analogous in its aim to the training analysis of the more conventional analytical schools.

The use of Meyer's "Life Chart" is explained in detail. It is a method for recording under several headings the main episodes in the history and the bodily and emotional lives of the subject. It provides a simple graphic way of setting out the main points in a case history. Readers not conversant with the writings of Adolf Meyer may find the phraseology a little difficult and the introduction of the "ergasias" confusing and even superfluous, but a bibliography of Meyer's works will enable the interested student to follow up his reading.

It is unfortunate that only ten pages of the book are allotted to treatment, and in future editions a more detailed exposition of method would relieve the disappointment the reader feels after the detailed descriptive and diagnostic expositions. The work can be recommended as suggesting an interesting line of thought to all serious students of psychiatry.

WILLIAM MOODIE.

A GUIDE TO SPONDYLITIS

Ankylosing Spondylitis. Part 1 by F. Hernaman-Johnson, M.D., D.M.R.E. Part 2 by W. Alexander Law, O.B.E., F.R.C.S. (Pp. 200; illustrated. £1 5s.) London: Butterworth and Co. 1949.

Before the first world war ankylosing spondylitis was regarded as a rare disease for which there was no effective treatment. How far its apparently greater frequency now is due to war conditions and how far to improvement in diagnosis is difficult to say, but it is still a reproach that it is often not recognized until three or four years after the first symptoms appear, when the patient is crippled and the time for effective treatment has passed. This book may therefore be strongly recommended as a guide to the recognition and management of the disease, especially to doctors in general practice, as well as on its merits, which are considerable.

Dr. Hernaman-Johnson had an exceptionally wide experience of the disease and the methods of treatment, and it is a matter of great regret that he did not live to see the appearance of the book. Written in a clear and attractive style and with excellent illustrations, it describes the condition from its earliest stage and discusses fully the

pasteurization is carried out on a large scale in the towns and only to a small extent in the country districts. The annual report for 1948 of the medical officer of health of Manchester, typical of reports from other large centres, contains some interesting figures. In the case of pasteurized and heat-treated milk 92% of samples passed bacteriological and chemical tests satisfactorily, and all samples were negative for tubercle bacilli. Of ungraded milks 66% of samples were unsatisfactory, and 15% were positive for tubercle bacilli. The bad effect of the bulking of milk is illustrated by the fact that samples taken from tanker lorries coming into the city were all unsatisfactory bacteriologically, and 86% were found to contain tubercle bacilli on biological examination. This shows yet once more that housewives who cannot obtain pasteurized milk would be well advised to boil the family milk. The problem of providing the population with safe, clean milk from disease-free herds is by no means solved, but the report of the Joint Committee points the way to some much-needed improvements.

VISCERAL ACTINOMYCOSIS

In the Bradshaw Lecture, which we publish elsewhere in this issue, Mr. V. Zachary Cope discusses the subject of visceral actinomycosis. Among advances in our knowledge of this disease not the least concerns the origin of the infection, and authors who have not divested their minds of some of the more fanciful ideas entertained on this subject in the past may well take note of Mr. Cope's categorical assertion that this infection is autogenous. That grass or straw could be the source of a micro-organism of fastidious growth requirements which include anaerobiosis has never been credible, and actinomycetes found in such material are now recognized as distinct species. There remains one other hypothesis —that the disease can be acquired from cattle. The actinomyces which produces jaw lesions in these animals closely resembles the human organism in most of its characters, but according to Erikson[1] differs from it both in fermentation reactions and in antigenic constitution. Erikson's observations suggest that bovine and human actinomycetes are distinct, and, though it seems very unlikely that the human disease is commonly acquired from cattle, it cannot be taken as proved that this never occurs.

Among problems connected with this disease is one of nomenclature. The animal organism should clearly be called *A. bovis*, and there is a preference for calling the human *A. israeli*, though *A. hominis* has been suggested and is probably justified in its implication that the species found in man is distinct and peculiar to him. The study of these fungi would be simplified if they were pathogenic for laboratory animals, but attempts to reproduce the disease in this way, even when as persevering and varied as those of Rosebury and his colleagues,[2] have had only minor and inconstant results. The evidence that the usual source of the infection is the patient's own mouth, though in a sense circumstantial, is overwhelming. The close association with trauma in this region embraces not only dental extraction but compound fracture of the mandible, of which actinomycotic infection may be a consequence. Several workers have overcome the technical difficulties of demonstrating that actinomyces may exist in the gums of persons not suffering from the disease. It is significant that Rosebury[3] obtained the material on which his extensive studies of this organism are based mainly from a department of dental surgery.

The second problem connected with this disease is diagnosis, more particularly in its visceral forms. There is no disease of which the nature can be so obvious at necropsy when its features during life have been so obscure, and the physician or surgeon of long experience who has never seen an unexpected honeycomb abscess of the liver in the post-mortem room is fortunate. Disease in the appendicular region has the most insidious onset and is most likely to be unsuspected, since its only sign for many weeks may be the failure of a sinus following appendicectomy to heal. Responsibility in this matter rests on both surgeon and bacteriologist. Of the former Mr. Cope writes: "I purposely repeat that a final and important cause of failure to diagnose actinomycosis is that the disease may not be on the mental list of possible diagnoses which the observer goes through as a routine." The duty of the bacteriologist is similar: he must have this infection constantly in mind when examining pus from the neck, thorax, or right lower quadrant of the abdomen, particularly if it contains no other obvious pathogen. He must begin by using the naked eye in a search for granules, if he has been fortunate enough to be sent pus in a tube and not a mere swab. Finally, he must not be content with aerobic culture and what he may find in it. An actinomycotic lesion which has been draining is often secondarily infected; sometimes it contains other bacteria even in its earliest stages.

Mr. Cope's remarks about treatment are more encouraging than anything which could have been written more than five years ago. As was observed in these columns last year,[4] there has been a two-stage improvement in the treatment of this as of many bacterial infections. Sulphonamides, particularly sulphadiazine, have a marked suppressive effect: that of penicillin is clearly more potent and sometimes actually curative. The findings of Holm[5] on the effects of particle size on

1 *Spec. Rep. Ser. med. Res. Coun., Lond.*, No. 240, 1940, London: H.M.S.O.
2 *J. infect. Dis.*, 1944, 74, 131.
3 *Bact. Rev.*, 1944, 8, 189.
4 *British Medical Journal*, 1948, 2, 830.
5 *Acta path. microbiol. scand.*, 1948, 25, 376.
6 *Arch. Surg., Chicago*, 1948, 57, 202.

the results of penicillin sensitivity tests suggest that the intact colony or "granule" in the body may be more resistant than its constituent elements, merely because its size and compactness prevent full penetration. Hence it is probably advisable to use fairly large doses of penicillin from the outset, and it is certainly necessary to continue the treatment for a longer time than in most other conditions. All writers on this subject are agreed that the prognosis is now much improved. Campbell and Bradford[5] describe six cases exemplifying this change. Three of appendicular origin, occurring in pre-penicillin days and treated respectively with "promin," sulphonamides, and *x* rays, were all fatal. One other fatal case was a man aged 84 in whom surgery was inadvisable: the remaining two—one thoracic, the other involving the liver—owed their recovery to penicillin combined with sulphonamides and surgery respectively. In the case in which surgery was successful a spherical liver abscess was wholly excised—an unusual surgical feat. The sensitivity of different strains of actinomyces to penicillin has been shown to vary, and for those found more resistant streptomycin is now a possible alternative.

NECESSARY ADJUSTMENT

Deciding that the Ministry's letter[1] on the remuneration of general practitioners should not be taken as closing the matter, the General Medical Services Committee resolved at its special meeting on December 1 to send a deputation to the Ministry in order to discuss certain figures and to seek an assurance that the Government intends to fulfil the Spens Committee's recommendations—as it has promised to do. Throughout these negotiations the Ministry has carefully avoided stating its views in precise terms about what has come to be called the betterment factor—that is, the figure by which the total pre-war income of general practitioners must be multiplied to translate it into the present value of money. The remuneration that general practitioners receive at present has never been anything but provisional. What is agreed between the Ministry and the profession is the total amount that general practitioners ought to have earned in 1939—£31.24 million. This is an estimate based on the Spens Report. The Spens Committee also referred to the "necessary adjustment" that must be made to translate its recommendations into present-day terms. Though the Government has accepted the Spens Report, it has never seriously discussed this important proviso in the Report. While the B.M.A. has taken pains to find out by how much the cost of living has increased, and obtained an expert opinion on it, the Ministry has not committed itself on the issue.

After admitting[2] that the estimates of payments to general practitioners for the year 1949–50 fall short of the Ministry's own calculations of the profession's claim by some £4.7 million, the Ministry argues that the claim "compares . . . with the sum of nearly £49 million already being provided." Apparently the comparison seems to the Ministry to be a close one; to those who receive the money it seems more distant. The gap is wider still, in the view of the G.M.S. Committee, when the B.M.A.'s figures are compared with the Ministry's, and the accuracy of some of the Ministry's figures will be challenged when the deputation goes to the Ministry. The Minister's view is said to rest "on the sheer merits of the case." Merits are more difficult to compute than figures, and the profession is unlikely to be satisfied with an attempt to refute its case by means of less rigorous arguments than its representatives used when preparing it.

All would agree with the Minister that the country's economic state precludes "unjustified raising of remuneration." But in the first place the general practitioner's claim has been justified by a careful analysis of the figures, and in particular of the betterment factor, whereas the Ministry's attempted refutation has not. And, secondly, it is misleading to speak of raising remuneration when what is now being paid was never agreed except provisionally. The profession will be gravely disturbed if the G.M.S. Committee has not received satisfactory assurances before its next meeting early in the New Year.

YELLOW FEVER IN AFRICA

Knowledge of the distribution of yellow fever in Africa was not very different 20 years ago from what it had been 200 years earlier. Yellow fever was, it was thought, confined to the countries bordering on the west coast of Africa from the Senegal to the Cameroons, with possibly an extension to the mouth of the Congo. After the discovery that the infection could be transmitted to rhesus monkeys and then to mice it became possible to devise protection tests; these indicated the presence of virucidal bodies in the sera of those who had once had yellow fever, and, since the immunity to one attack of yellow fever is lifelong, it was not difficult to determine the extent of the immunity in different age groups. Even before 1939 the mouse-protection test had disclosed that there were children with immune bodies to yellow fever in Uganda and in the Anglo-Egyptian Sudan as far east as the Blue Nile. In the absence of proved clinical cases, however, it is not surprising that colonial Governments were loath to conclude that yellow fever was endemic in their particular areas. But the large outbreak of yellow fever in 1940 in the Nuba Mountains removed the last possible excuse for disregarding the significance of the mouse-protection test. Since then the area in Africa where yellow fever has been found to be present has slowly but surely extended. Positive

[1] *British Medical Journal Supplement*, 1949, 2, 218.
[2] *Loc. cit.*

[1] *Ann. trop. Med. Parasit.*, 1949, 43, 182.

mouse-protection tests in the south-eastern part of the Sudan were soon followed by recognition of a clinical case. The infection was found in Eritrea, Somalia, and Kenya, and to the south the Balovale district of Northern Rhodesia also was shown to be an endemic area.

Recent surveys by Smithburn and his colleagues,[1] carried out between 1944 and 1948, indicate that the limits of the endemic yellow-fever area have not yet been reached. In various parts of Kenya, especially in the Langata forest, tests on children's sera were positive. In Tanganyika immune children under 15 were discovered at Tanga, Lindi, and Moshi. At Lilongwe, among other infected areas in Nyasaland, 7 of 37 children under 15 were positive. In Northern Rhodesia positive results were obtained in all areas investigated, and there is little doubt that along the Zambesi infection is common, for of 789 children and 2,266 adults examined no less than 229 were positive. This is a higher rate than for any other country in the eastern half of Africa. Although Swaziland, so far as it has been examined, has given negative results, Bechuanaland is infected: at Mohembo 3 of 24 tests on children were positive. At Massanga in Mozambique positive results were obtained in tests on adults and children. Since the endemic yellow-fever zone already extends at least as far south as Tsau, in Bechuanaland, just south of the twentieth parallel of latitude, the Government of the Union of South Africa now has certain important sanitary problems to face. Every year many thousands of African labourers migrate, mostly on foot, to the mines on the Rand from the Rhodesias, Nyasaland, Mozambique, and Bechuanaland. It is possible that they may become the agents responsible for the spread of yellow fever over South Africa. Two possible courses are open to the sanitary authorities in the Union—the immunization of all labourers before they reach the Union, and the eradication of all yellow-fever vectors, especially *Aëdes aegypti*, within the borders of South Africa. Either course will be expensive and require careful organization.

Results of recent surveys elsewhere are also of interest. For some time past the Egyptian authorities have been seriously exercised over the importation of yellow fever: positive results have been obtained in tests on adults and children in Nuba, Luxor, Safaga, and Kosseir. Plainly further tests are necessary, but meanwhile it is obvious that the yellow-fever zone in Africa must be adjusted in accordance with the information now available.

PENICILLIN IN PURULENT PACHYMENINGITIS

The use of penicillin as an ancillary to the surgical treatment of intracranial infection has improved the prognosis in many cases which would otherwise almost certainly have ended fatally. Sir Hugh Cairns, Professor Dorothy Russell, and Dr. F. Schiller[1] have reviewed the results of the treatment of purulent pachymeningitis over a 20-year period, both before and after the advent of penicillin. Of 23 patients who received no penicillin or who were treated in the early period after its discovery when adequate supplies were not available, all died; while seven patients recovered out of 10 treated adequately with penicillin combined with surgery.

Purulent pachymeningitis, a condition "characterized by a film of pus of variable thickness in the subdural space spreading over part or whole of one or both cerebral hemispheres," is usually secondary to spreading osteomyelitis of the skull or facial bones, which itself is one of the rarer but most serious complications of infection of the accessory nasal sinuses or middle ear. The condition is recognized clinically by the onset of widespread paralysis due to cortical damage, associated with a rise in intracranial pressure, and before the advent of penicillin usually ended fatally within two weeks. Extradural abscess and thrombosis or thrombophlebitis of the venous sinuses and cerebral veins are frequent complications, and cerebral abscess may occur later. A remarkable finding in Cairns's series was that in the 27 cases in which bacteriological reports were available the causal organisms in 25 were streptococci of anaerobic or non-haemolytic types. This is contrasted with the findings in 22 cases of osteomyelitis of the skull not complicated by purulent pachymeningitis: in 14 of these the infection was due to staphylococci.

The treatment adopted by the authors was to administer penicillin by the systemic, subdural, and subarachnoid routes and to remove large collections of pus as they arose by minor surgical operations. Intramuscular injections of penicillin in doses of 100,000 units three-hourly were begun immediately on diagnosis, and were continued for at least eight weeks in all cases complicated by osteomyelitis, thrombophlebitis, or loculation of pus in the subdural space. Although penicillin was shown to diffuse readily into the subdural space, experience with two cases suggested the advisability of raising the local concentration by means of rubber catheters inserted through burr-holes. As much of a solution containing 500 units per millilitre as the space would hold was instilled at three-hourly intervals; this also had a mechanical action in preventing formation of local subdural abscesses. Subarachnoid or intraventricular penicillin was given if leptomeningitis was present or, as a prophylactic measure, if exploratory operations through an infected field were necessary; for the latter purpose injection of a single dose of 10,000–15,000 units into the ventricle was recommended. With this method of treatment the removal of large areas of infected bone was unnecessary, surgical treatment being confined to removal of sequestra or persistent foci of infection. Subdural abscess developed in seven of the 10 cases adequately treated with penicillin, and the authors stress the importance of early recognition and treatment of this complication. The commonest site was the posterior part of the falx cerebri and adjacent part of the tentorium, and on *x*-ray examination after the injection of "thorotrast" into the abscess cavity a characteristic shadow was seen, which facilitated the differential diagnosis from cerebral abscess. Daily instillation of 200,000 units of penicillin in 2 ml. through an indwelling catheter for at least five days was found to be necessary to secure healing.

The results of treatment in the six survivors who were followed for periods of from six months to five years were very satisfactory: functional recovery was complete in five, including four with aphasia. The authors stress that good

[1] *J. Neurol. Neurosurg. Psychiat.*, 1948, **11**, 143.
[2] Turner, A. L., and Reynolds, F. E., *Intracranial Pyogenic Diseases*, 1931, Edinburgh.

results can be expected only if treatment is begun in the early stages, before subdural loculation has occurred; but, since purulent pachymeningitis most commonly follows operations (even simple antrum puncture[2]) for chronic pansinusitis or mastoiditis, the authors suggest that in all such cases prophylactic penicillin should be given in order to prevent its development. The routine use of prophylactic penicillin in otorhinological practice will undoubtedly reduce the incidence of serious intracranial complications, which may follow any operative procedure however skilfully performed.

STRESS, FIBRINOLYSIS, AND ATHEROMA

Atherosclerosis is widely regarded as a stress disease which contributes to the premature ageing of arteries, randomly curtailing intellectual or physical capacity and commonly shortening the days of man. Converging lines of investigation—Duguid's on the fibrinous origin of atherosclerosis,[1-3] Macfarlane's on fibrinolysin activity of the blood during life,[4-7] and Mole's on fibrinolysin and the fluidity of the blood post mortem[8]—open up a new approach to this aetiological problem. There is the further promise of additional valuable information from the concept of "adaptation diseases" developed by Selye,[9-10] from his analyses of the body's defences against stress and strain. Comment on Selye's work has already been made in leading articles in this *Journal*.[11]

As a result of his histological study of coronary arteries and aortas Duguid concludes that mural thrombi on vascular endothelium can be transformed, by the interplay of fibrous organization, fatty change, and acquisition of fresh endothelial lining, into typical atherosclerotic nodules. The frequency with which this transformation occurs is not yet known, but the opportunities are plentiful: Duguid found that mural thrombi, either fibrinous or mixed, are common, and that at least some of them develop into atherosclerotic thickenings. He makes the deduction that these thickenings may depend not only on factors which act on the tissues of the vessel wall but also on those which govern fibrin formation in the circulating blood. In their investigation of the latter factors Macfarlane and his associates found that fibrinolysis activation in the blood during life may be the initial result of a variety of stimuli having in common the exposure of body or mind to unusual stress. This activation in normal blood may be a component of the initial shock phase of Selye's alarm reaction. Mole points out that during life there is a continual production of fibrinogen by the liver, that this must involve a continual removal from the blood stream, and that normally some deposition of fibrin would be expected. Having investigated the relation between fibrinolysin and the fluidity of the blood at necropsies, he considers that fibrinolysin is most probably produced by the vascular endothelium and that this may be the natural physiological means of preventing undue mural deposition of fibrin in health. Failure of fibrinolysis will promote the deposition of mural thrombi, which may form the initial lesion in atherosclerosis. Such failure, for example, occurs in infection and cachexia, conditions which favour thrombosis. Mole concludes that there is an obvious connexion between the presumptive failure of fibrinolysin to prevent mural thrombi and the view that atherosclerosis is a failure in the body's defence against stress and strain. The tentative concept which emerges from these investigations has wide implications—that failure of fibrinolysis is related to atherosclerosis and that both processes are threads in the variegated pattern of the body's responses to stress.

[1] *J. Path. Bact.*, 1946, 58, 207.
[2] Ibid., 1948, 60, 57.
[3] *Lancet*, 1949, 2, 925.
[4] Ibid., 1937, 1, 10.
[5] Ibid., 1946, 2, 562.
[6] Ibid., 1946, 2, 862.
[7] Ibid., 1947, 1, 402.
[8] *J. Path. Bact.*, 1948, 60, 413.
[9] *J. clin. Endocrinol.*, 1946, 6, 117.
[10] *Ann. Intern. Med.*, 1948, 28, 403.
[11] *British Medical Journal*, 1949, 1, 812, and 1949, 2, 1159.

RESPIRATORY DEPRESSION AND ATELECTASIS

One of the more important of the several factors concerned in the development of post-operative pulmonary atelectasis is the diminution of respiratory movements during the immediate post-operative period.[1] Some interesting information about depressed respirations in the absence of complicating factors has been obtained by Swank and Smedal,[2] who studied the pulmonary changes during deep sleep in 350 patients undergoing sodium amytal narcosis for the treatment of combat neurosis. It was found that respirations were shallow throughout the period of deep sleep, the tidal air being reduced from 550–750 c.cm. to 150–300 c.cm and the diaphragmatic excursion (observed by fluoroscopy) from 3 cm. to 1 cm. Periods of apnoea were noted during the induction phase, but the respiratory rate returned to normal as sleep deepened. Cyanosis was present almost invariably and responded to inhalation of pure oxygen. The depth of respiration increased on breathing 100% oxygen, and no further increase was obtained by the introduction of 5% carbon dioxide. Twenty-eight patients were examined radiologically before, during, and after the three days of narcosis. Ten of these showed changes which were considered to be the usual concomitants of deep sleep—namely, symmetrical elevation of the diaphragm and narrowing of the thoracic interspaces. In addition, cloudy patches appeared in the lung fields of 18 patients, together with greater elevation of the diaphragm and narrowing of the interspaces on the same side. These changes were regarded as sufficient evidence of pulmonary atelectasis. In four patients the atelectasis persisted for two to six days after the end of the treatment, and all these patients had fever and tachypnoea. The authors considered that the focal changes in the lungs were due to lobular or segmental atelectasis, and that the fever was secondary to the lung changes.

The occurrence of lobular atelectasis has often been disputed, since it is known that in normal conditions interalveolar gaseous interchange takes place via the pores of Kohn.[3] It has been shown, however, that when respirations are sufficiently depressed this gaseous interchange is absent.[4] Thus shallow breathing can contribute to the development of atelectasis in several ways: the bronchi.

[1] Brock, R. C., *Guy's Hosp. Rep.*, 1936, 86, 191.
[2] *Amer. J. Med.*, 1948, 5, 210.
[3] Van Allen, C. M., Lindskog, G. E., and Richter, H. G., *Yale J. Biol. Med.*, 1930, 2, 297.
[4] ——— *Arch. Surg.*, 1930, 21, 1195.
[5] Drinker, C. K., *Pulmonary Oedema*, 1945, Cambridge, Mass.

narrowed in the position of expiration, are easily obstructed by mucus; the upward thrust from bronchial peristalsis is minimized; and the occurrence of lobular collapse brings about a diminution of the effective tidal air and precipitates segmental collapse. An additional factor is that anoxia produces an increase in lymph flow and excessive bronchial secretions.[5] The knowledge that patchy pulmonary atelectasis arises from depression of breathing is important, for a number of clinical states are characterized by shallow breathing. Lobular atelectasis may well be the precursor not only of post-operative chest complications but also of the bronchopneumonia which occurs in old and debilitated patients and in those in coma due to any cause. The value of active or passive breathing exercises in the treatment of such patients cannot be too strongly emphasized.

LIVER PATHOLOGY AND FUNCTION TESTS

Although modern liver function tests have helped clinicians in both diagnosis and prognosis, their relation to hepatic histology has never been exactly determined. This is largely due to the difficulty of collecting a sufficient number of cases in which biochemical tests and histological examinations are performed at the same time. The possibility of inquiring into the relationship has now existed for some years, since liver puncture has become a common diagnostic procedure, and a number of workers have reported the results of their investigations.[1-2] These studies have disclosed a limited correlation in acute hepatitis between the extent of hepatic damage and the serum bilirubin and albumin levels, and also a relationship between thymol turbidity and regeneration combined with periportal infiltration. However, no conclusion which applies to all types of liver disease was reached, and many of the tests, such as the hippuric-acid test, could not be correlated with any definite histological feature.

More definite results have recently been reported by Franklin and Popper and their colleagues,[3] who carried out liver function tests and liver biopsy or puncture in 135 cases. The histological results were expressed in a numerical form, and the correlation between a number of definite histological features and liver function tests was determined by appropriate statistical methods. The most important of the significant correlations was that of diffuse liver cell damage with the albumin/globulin ratio, the cephalin-cholesterol flocculation, the thymol turbidity, and bromsulphthalein retention (the last only in non-jaundiced patients). Other correlations to be established were liver-cell regeneration with increased thymol turbidity, distorted reconstruction of the lobular pattern with cephalin-cholesterol flocculation, thymol turbidity and erythrocyte sedimentation rate, and Kupffer cell activity with serum bilirubin and the albumin/globulin ratio. No relationship was found between parenchymal damage and total serum protein, total cholesterol, the cholesterol ester ratio, urinary urobilinogen, stool urobilinogen, alkaline phosphatase in general (and markedly elevated alkaline phosphatase specifically), non-protein nitrogen, and the erythrocyte sedimentation rate. The mainly negative results with the serum alkaline phosphatase test are surprising, since this test can undoubtedly be correlated with biliary obstruction. It would appear that some of the functional changes in the liver cell in biliary obstruction cannot be shown histologically—a fact which demonstrates an important distinction between biochemical and histological investigations. These results give theoretical backing to a number of tests, such as the flocculation tests, which have usually been labelled "empirical." It has long been obvious from clinical studies that they were closely related to liver disease, but they can now be interpreted with more confidence against a background of liver histology. It is to be hoped that further similar studies will be undertaken for the purpose of correlating biochemical with clinical and pathological findings.

[1] Sherlock, S. P. V., *J. Path. Bact.*, 1946, 58, 523.
[2] Hoffbauer, F. W., Evans, G. T., and Watson, C. J., *Med. Clin. N. Amer.*, 1945, 29, 363.
[3] Franklin, M., Popper, H., Steigmann, F., and Kozoll, D. D., *J. Lab. clin. Med.*, 1948, 33, 435.

HOME FEEDING OF INVALIDS

The Invalid Kitchens of London is one of the few organizations which work to keep people well so that they do not need to be admitted to hospital. Started some years before the war, this service, which is still supported by voluntary contributions, prepares suitable diets for patients who would otherwise have difficulty in obtaining them. Kitchens (17 before the war) scattered over the Metropolitan area provide a six-day service of midday meals but only to patients whose doctor gives them a prescription. Each kitchen is managed by an experienced cook and all are regularly supervised by an expert dietitian. Meals are served at the kitchen to individuals who are ambulant, but some can be sent out to patients who are confined to house or bed. Extension of the latter service is difficult, because all the meals have to be dispatched within a short period of time, roughly between 11.30 a.m. and 2 p.m., and the number of vans or cars in use is limited. Some of the premises were damaged during the war, and now only seven kitchens are in use, but the organization is active and anxious to expand. Invalid Kitchens of London differs from other organizations serving meals by van—for example, the Red Cross "Meals on Wheels" or the W.V.S. meals service, which in the main benefit healthy old people—in that no patient can be served without a medical prescription. The meals cost 1s., and all the commoner forms of medical diet can be supplied—meals for patients suffering from gastric or duodenal ulcers, from diabetes, and for patients requiring a salt-free diet. The kitchens also undertake to prepare any special diet which may be ordered. This service helps patients—particularly those suffering from duodenal ulcer—to return to their homes and work after a short stay in hospital, for they can obtain an appropriate diet with little trouble to themselves. In the past there has been much waste of time and money and much disruption of home life because after a prolonged and costly stay in hospital a patient has often gone home and been unable to continue with the special diet ordered; consequently the illness has recurred and a further long stay in hospital has become necessary. The encouragement and expansion of activities similar to that of the Invalid Kitchens of London will certainly help towards freeing hospital beds; better still, such services have a positive value in preventing illness.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

THE MANAGEMENT OF DIABETES MELLITUS

BY

WILFRID OAKLEY, M.D., F.R.C.P.

Physician, King's College Hospital Diabetic Department

Diagnosis

The discovery of a reducing substance in the urine should always be regarded as abnormal no matter what may be the age of the patient. If the partial and atypical reductions produced by drugs such as aspirin, salicylates, and chloral are excluded—and this can easily be done by stopping all medicines for a few days—persistent glycosuria is almost always due to diabetes mellitus or to a lowered renal threshold for sugar (renal glycosuria). Symptoms such as thirst, polyuria, loss of weight, lassitude, or pruritus vulvae make the diagnosis of diabetes more than probable, but a definite diagnosis of this disease should not, if possible, be made without the confirmatory evidence of a raised blood sugar.

It is bad practice to prescribe a restricted carbohydrate diet for patients with undiagnosed symptomless glycosuria, as this may result in quite needless treatment of nothing more than renal glycosuria. The diagnosis of renal glycosuria should be suspected when the glycosuria is symptomless, occurs only after meals, and is unassociated with ketosis; a family history of this condition is not uncommon.

A blood-sugar curve or glucose-tolerance test is the most certain method of diagnosis of the cause of glycosuria, but is only necessary in a very small proportion of cases. It should be carried out after the patient has been on full diet for at least a week, as a low carbohydrate diet may produce misleading results. When glycosuria is associated with symptoms of diabetes a single blood-sugar estimation performed about two hours after a good carbohydrate meal will almost always confirm the diagnosis, figures of 180 or more indicating the presence of diabetes. In the absence of symptoms when the blood sugar lies between 130 and 180 it is more difficult to be certain, and a blood-sugar curve is advisable. The association of symptomless glycosuria with a blood sugar of 120 or less is strongly suggestive of renal glycosuria, especially if a normal figure is obtained on more than one occasion. It is important to remember that the single diagnostic blood sugar should be taken about two hours after a meal, not in the fasting state. A normal result may be obtained in fasting patients with mild diabetes.

Clinical Types

Clinically, diabetics may be subdivided into two main groups—moderately severe or severe, and mild obese.

Moderately Severe or Severe.—This group consists of all children and adults up to the age of about 45, and a number of old patients of 70 and upwards. They present the textbook picture of diabetes, with loss of weight as a marked feature of the disease. They are liable to develop ketosis and if untreated may die in diabetic coma.

Mild Obese.—This group consists chiefly of middle-aged and elderly women. Obesity is a striking feature, loss of weight being insignificant or absent. Ketosis and diabetic coma do not occur. Patients of this type rarely complain of the typical symptoms of diabetes, except pruritus vulvae. Medical advice is often sought on account of this or some complication such as retinitis or vascular disease affecting the toes or feet.

The subdivision of diabetics into these two main types is not of course a hard-and-fast one. Typical severe diabetes is seen at all ages, and young cases may be mild, but the clinical picture and treatment of each group differ sufficiently to make this classification one of considerable practical importance.

Diabetes may be treated by diet or by diet and insulin. The use of insulin without diet is generally unsatisfactory and often dangerous.

Diet

It is customary to allow diabetics average amounts of protein and fat, to the extent of the Ministry of Food ration for diabetics, and to restrict only the intake of carbohydrate. Comparatively few diabetics are willing or able to weigh their food, and visual methods of estimation, though less accurate, give reasonably good results. This does not mean that scales have no place in the treatment of diabetes, as they are of great value in teaching and checking visual measurements.

A convenient form of diet card is that devised by Lawrence and used in the Diabetic Department at King's College Hospital. In this the protein foods such as meat, fish, bacon, eggs, and cheese are listed, and allowed in average helpings. The fats such as butter, margarine, cream, and olive oil are similarly treated. Green vegetables except peas, tomatoes, mushrooms, and onions are allowed without restriction; so are sour fruits such as lemons, stewing gooseberries, red currants, and rhubarb. The foods rich in carbohydrate are listed in amounts containing 10 g. of carbohydrate, and each is called a "portion" or "black line." The number of portions allowed for each meal is prescribed, and the patient can vary his diet by selecting the portions from the list provided. Greater variety can be obtained by the use of 5-g. portions, but the 10-g. method is easier and more convenient. In my opinion the technique of dieting by calorie values is more complicated than the above, is rarely understood by patients, and is open to serious theoretical objections.

In mild diabetics who are not overweight it is wise to start treatment with a diet containing about 120 g. of carbohydrate (12 portions) evenly distributed over three or four meals. If the urine becomes sugar-free the carbohydrate can be gradually increased to 150 or even 180 g. Persistent glycosuria or progressive loss of weight means that diet alone is insufficient to control the diabetes, and that the diet should be raised and the patient given insulin (see below).

When diabetes is associated with obesity it is important to reduce the patient's weight, as this is usually the best way of controlling the diabetes. In such cases the diet should contain 80 to 100 g. of carbohydrate (8 to 10 portions), and fatty foods of all kinds should be reduced to a minimum. If this fails to reduce weight and control the

diabetes the patient may with advantage eat nothing but fruit, or abstain from food altogether, for one day each week. This method of treatment should be used only in mild obese diabetics who show no tendency to develop ketosis.

Diet and Insulin

In the absence of significant ketosis it is usually wise to start treatment with a restricted carbohydrate diet without insulin. This has the double advantage of giving the patient the benefit of any doubt that may exist about the necessity for insulin injections, and of allowing time for him to become familiar with the principles of dieting before learning how to inject insulin. In a week or two it is clear in the majority of cases whether or not insulin is necessary. The persistence of heavy glycosuria, especially in the fasting morning specimen, indicates the need for insulin, and a decision must be made on the type of insulin most likely to be suitable for each case. Three insulin preparations are in common use in this country: soluble insulin (S.I.), protamine-zinc insulin (P.Z.I.), and globin insulin (G.I.). S.I. is prepared in strengths of 20, 40, and 80 units per ml., and P.Z.I. and G.I. in strengths of 40 and 80 units per ml.

Single Injection of P.Z.I.

For relatively mild cases whose diabetes cannot be satisfactorily controlled by diet alone a single morning dose of P.Z.I. often gives excellent results. The diet should be evenly distributed over four meals, and a bedtime feed of 15 to 20 g. of carbohydrate given to prevent nocturnal hypoglycaemia, the danger of which makes it wise not to exceed a maximum dose of 40 units. If this method is adopted, the urine should be tested for sugar before breakfast, the bladder having been emptied on rising; this specimen, called the second morning specimen, should be sugar-free. If the blood sugar before lunch is less than 200 mg. per 100 ml. the control may be regarded as satisfactory. There may be some glycosuria in the evening, but this is usually transitory and can be ignored. If, however, heavy glycosuria persists throughout the day, a single dose of P.Z.I. is bad treatment, and the insulin dosage should be changed to a mixed injection of S.I. and P.Z.I., or to morning and evening injections of S.I.

Mixed Injection of S.I. and P.Z.I.

The mixed-dose method of treatment is suitable for diabetics who lead reasonably regular lives with regular mealtimes. It is less suitable than two injections of S.I. for those whose occupation makes this type of life impossible. The diet should be so arranged that the greater part of the carbohydrate content is taken in the earlier part of the day, while the S.I. is active. The following is a suitable arrangement of carbohydrate for use with a mixed injection of S.I. and P.Z.I.

Breakfast	40 to 60 g.
Lunch	40 g
Tea	30 g
Evening meal	30 to 40 g.
Bedtime	15 to 20 g.

Treatment may be started with a single dose of P.Z.I and S.I. added later, or a mixed injection may be given from the outset. It is well to remember that when these two insulins are mixed a certain amount of S.I. is converted into P.Z.I., and the dose of the former should therefore in most cases be equal to or larger than that of the latter A convenient way of starting treatment is to give equal amounts of S.I. and P.Z.I., 12 to 16 units being a suitable order of dosage in cases of moderate severity. The dose of S.I. is then adjusted until the urine test (or, better, the blood sugar) is satisfactory at the time of maximum S I action—that is, before lunch for doses up to about and before tea for larger doses. P.Z.I. should be a from the second morning specimen in the manner above. The persistence of heavy glycosuria bef evening meal, especially if it is associated with keto recurrence of diabetic symptoms, such as thirst or p may be treated by the addition of an injection of S.I tea or supper. In these circumstances, however, i to consider whether it would not be better to give the morning and evening injections of S.I. or the modif of this form of treatment described below.

Morning and Evening Injections of S.I.

This is the oldest and one of the best methods of tre diabetes with insulin. It has the advantage of simplicity and elasticity, it allows a relatively large breakfast and evening meal, and the time of the latter can be varied within reasonable limits. The times at which hypoglycaemia reactions are apt to occur are easily predictable, and suitable precautions can therefore be taken to prevent this important and potentially dangerous complication. The disadvantages are the necessity for a second injection and the tendency in severe diabetics for a relapse to occur before breakfast, owing to the relatively short duration of action of S.I. It is important to remember that the duration of action of S.I. or any other insulin is proportional to the size of the dose injected. A relatively large dose of S.I. can be given before breakfast, and any tendency to hypoglycaemia corrected by means of a mid-morning feed of about 20 g. of carbohydrate. In the evening it is usually not safe to give such a large dose, so there is a greater tendency for relapse to occur about 8 to 10 hours after

SCHEME OF TREATMENT

	Diet Alone		Diet and Insulin			
	Trial Diet*	Reducing Diet†	Single Injection of P.Z.I. →	Mixed Injection of S.I. and P.Z.I. →	Morning and Evening S.I. →	Morning S.I Evening S.I. and P.Z.I →
Breakfast	40	20–30	40	40–60	40–60	60
11 *a.m.*	—	—	—	—	20	20
Midday	40	30–40	30	40	40	40
Tea-time	—	—	30	30	0–20 →	0–20 →
Evening	40	30	30	30–40	40–60	40–60
Bedtime	—	—	20	10–20	10	20

All figures in grammes of carbohydrate. 10 g. carbohydrate = 1 " black line " (Lawrence). → = Time of insulin injection

*Increase to 180 g. daily if urine remains sugar-free.
†If weight still not reduced, order one fasting day a week.



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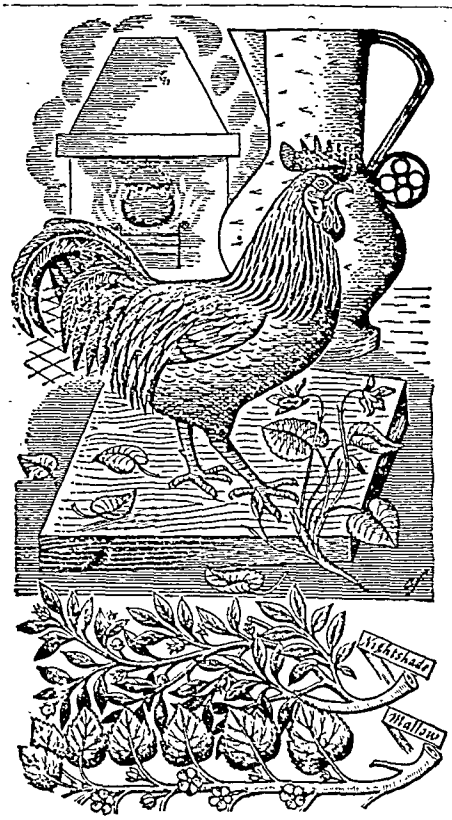
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the injection. The following modification of this method of treatment is usually successful in preventing this form of relapse, and is particularly suitable for the control of very severe diabetics, pregnant diabetics, and some children.

Morning S.I. and Evening S.I. with P.Z.I.

The addition of a small dose of P.Z.I. to the evening injection of S.I. tends to prevent early morning ketosis and controls the fasting blood sugar. The smallest dose of P.Z.I. which prevents morning ketosis should be given in most cases, and the best results are obtained when the mixed evening injection is given not later than 6 p.m. When given early in this way the S.I. has passed its period of maximum action by the time the patient goes to bed, and a buffer feed on retiring reduces the risk of hypoglycaemia during the night. The P.Z.I. acts relatively weakly but continuously throughout the night, and in consequence morning ketosis is abolished and the fasting blood sugar prevented from rising to too high a level. If too much P.Z.I. is added to the evening dose of S.I. the fasting blood sugar may be made so low that it is impossible to give an adequate dose of S.I. before breakfast without producing severe hypoglycaemia during the late morning. For both of these arrangements of insulin the diet should be prescribed in some such manner as the following.

Breakfast	60 g.
11 a.m.	20 g.
Lunch	40 g.
Tea	0 g.
(or 20 g. if the morning S.I. exceeds 40 units)	
Evening meal	60 g.
Bedtime	20 g.

Urine tests should be made before lunch or tea, whichever is the better. The time will depend largely on the size of the morning dose of S.I., more resistant patients often giving the better test in the afternoon.

Globin insulin (G.I.) may be used alone instead of P.Z.I. as a single injection method of treatment, or may be mixed with S.I. and given once or twice a day. Given alone before breakfast G.I. will often control relatively mild diabetes satisfactorily, but small doses tend not to maintain their action throughout the 24 hours, while large doses of 40 units or more are liable to produce severe hypoglycaemia before lunch or tea. G.I. is useful in those cases in which P.Z.I. fails to control hyperglycaemia by day but causes hypoglycaemia during the early hours of the morning. It gives good results in some difficult very insulin-sensitive cases also, in which it may be given by morning and evening injections, either alone or with a small dose of S.I. The diet for a single dose of G.I. is the same as that for a single dose of P.Z.I. with the omission of the bedtime feed.

Urine Tests

It is important to realize that urine tests should be made at the time of maximum insulin action, not after meals. Most diabetics, however good their treatment, are likely to pass sugar after eating. Attempts to render the urine sugar-free after meals may result in severe hypoglycaemia before the next meal. Always, therefore, test the urine before meals and at the time when the type of insulin used is known to be exerting its maximum action. In the case of P.Z.I. this will be before breakfast, and with S.I. about four to eight hours or more after injection, according to the size of dose. The bladder should be emptied half to one hour before the urine for testing is passed, so that the result is not confused by the presence of sugar secreted after the previous meal

Children

The treatment of children is similar in principle to that of adults, but insulin is required in almost every case. Children are usually very sensitive to insulin, with the result that there may be wide fluctuations in blood-sugar level, periods of heavy glycosuria giving place rapidly to hypoglycaemia. The aim of treatment should be to provide an adequate and reasonably attractive diet, to avoid ketosis, and to render the blood-sugar level normal, or nearly so, for some period of the 24 hours. Any attempt to keep the urine perpetually sugar-free is bound to result in hypoglycaemic reactions. If these aims can be achieved with a single injection daily, so much the better for the child and those caring for it. Very often, however, especially at or about puberty, it is necessary to change over to two injections. S.I. before breakfast and S.I. with P.Z.I. before tea is a particularly suitable method of treatment at this difficult period in the life of the child diabetic.

The diagnosis and treatment of ketosis, including diabetic coma, and hypoglycaemia will be considered in next week's article.

SIR FELIX SEMON*

HIS CONTRIBUTION TO LARYNGOLOGY

BY

R. SCOTT STEVENSON, M.D., F.R.C.S.Ed.

Felix Semon was born in Danzig on December 8, 1849, the son of a substantial merchant. He was educated at Heidelberg and at Berlin, and took the Berlin M.D. in the summer of 1874. His training had been interrupted by the Franco-Prussian War of 1870–1, when Semon served as a "one-year volunteer" in the Prussian Uhlan Guards, seeing some active service. After graduation he went on to spend a postgraduate year at Vienna and London, studying particularly the various specialties. In London he visited the chief teaching hospitals, finally attaching himself to the medical wards of St. Thomas's, where an old friend of his mother's, Richard Liebreich, was in charge of the eye department. Semon also attended the Brompton Hospital, Moorfields, and the Throat Hospital, Golden Square; at the last he had a letter of introduction to its founder, Morell Mackenzie, from an old friend of Mackenzie's, Fürstenberg, of Berlin. Laryngology was then a brand-new specialty, with exciting new methods of diagnosis and treatment presenting themselves almost every month, and Semon determined to embrace the opportunity presented in London, attending Golden Square Hospital with redoubled zeal.



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In March, 1876, Semon approached Mackenzie to know what his views would be if he were to stay on in London, and Mackenzie kindly promised him that as soon as possible he would get him appointed a physician to Golden Square Hospital—this less than a year after he had come to England. He passed the M.R.C.P. examination in October, 1876, was elected to the old Royal Medical and Chirurgical Society, and began private practice at 6, Chandos Street.

*A shortened version of a paper read at a meeting of the Osler Club on December 1.

In the peaceful and spacious days of Queen Victoria it was no disadvantage in London to be German. Queen Victoria herself liked to converse in German, as she had done with her dear Prince Albert, and it may be remembered that King Edward VII spoke with a marked German accent and numbered some Germans among his intimate friends. Musical London—and those were the great days of Melba and Caruso, Joachim, Rubinstein, and Paderewski—was dominated by the German element. Semon was a good pianist and a composer of ability, and made many musical contacts among his fellow countrymen.

Felix Semon undoubtedly made his mark as secretary of the Subsection of Laryngology at the great International Congress of Medicine in 1881. He was the most active of the secretaries and managed the affairs of the Subsection in a masterly manner, and by the time the Congress was over everyone in Europe or America associated with laryngology was well acquainted with his name. In 1882, backed by his friends MacCormac, Bristowe, and Ord, though not without some opposition, Semon was made head of the throat department at St. Thomas's Hospital, and was the first laryngologist to be appointed to any general or teaching hospital in this country. In 1884 he founded the *Centralblatt für Laryngologie*, published in Berlin, for many years the leading laryngological journal.

In any matter of laryngological interest he took a leading part. He was knighted in 1897, and when he retired from active practice in 1911 he was at the zenith of his career. The £1,200 that had been subscribed by friends and colleagues as a testimonial on his retirement he applied to endow the Semon Lectureship in Laryngology.

Cancer of the Larynx

Semon prided himself chiefly on his work on cancer of the larynx; in his autobiography he claims "the world's record for laryngeal cancer, 80% of lasting cures." But his idea of a "lasting cure" was a patient who survived for one year after operation. He includes in his cases patients whom he diagnosed but did not operate upon, and the 80% refers to laryngo-fissure patients only. Semon insisted that a malignant growth was more common in the posterior part of the vocal cords—this is quite wrong, and helped to mislead a whole generation. He said that a malignant growth caused greater hoarseness than an innocent growth, and that impaired mobility was an early sign of cancer of a vocal cord. All of these points Semon used to try to discredit Morell Mackenzie in his management of the case of the Emperor Frederick III—yet subsequent experience has shown that he was wrong in every one of them. It is true, however, that Semon's advocacy of the operation of laryngo-fissure did much to advance the surgery of cancer of the larynx. But it was Sir Henry Butlin, not Semon, who revived the previously discredited operation of laryngo-fissure, and Semon was wise enough never to attempt the operation without a skilled surgical assistant. Semon's contribution to advances in the study and treatment of cancer of the larynx is mainly that of an ardent propagandist, undoubtedly useful in the times in which he flourished, but his work in this field has had little permanent value.

Semon did good work in advocating complete vocal rest in the treatment of laryngeal tuberculosis. He read a paper, with a long and detailed report of seven cases, at the Berlin Laryngological Society in 1906, and subsequently published it in the *British Medical Journal*. But the idea dates back to Broussais in 1824, and Professor Moritz Schmidt, of Frankfort, advocated it in 1887, while others claimed to have done so about the same time.

Innervation of the Larynx

Before Semon laryngologists had quite chaotic ideas about laryngeal paralysis, and whether the abductors or the adductors were affected seemed to depend entirely on chance. Semon published many papers on the innervation of the larynx and laryngeal paralysis, and there is no doubt that he did clear up many misconceptions on this subject. He was not a trained physiological worker, and his early experimental work was unsuccessful, as he himself says, owing to deficiencies in technique; but after he made the acquaintance of Victor Horsley in 1884 he found a helpful collaborator, experienced in physiological investigation, and Semon's enthusiasm with Horsley's skill produced fruitful results. Semon's observation that in progressive organic lesions the nerves supplying the abductor muscles of the larynx are affected before those of the adductors has been termed "Semon's law." The name became attached mainly because Semon wrote so much and so vehemently on the subject when it was first promulgated. The idea had been in Semon's mind, he had said something about it at the Clinical Society of London in 1878, and in the German edition of Mackenzie's great textbook, *Diseases of the Throat and Nose*, translated and annotated by Semon, he elaborated this in a footnote, but Professor Otto Rosenbach actually published his own observation about the abductors and adductors in 1880 before Semon. The battle of priority was fought with considerable violence on both sides and a bitter controversy ensued.

Semon's main contribution to laryngology really lies in his having enhanced the status of the specialty. His published work, though much of it is naturally out-dated, was founded on personal observations and always carefully documented. He was an assiduous attendant at meetings of societies and conferences, and, at home and abroad, was in his generation looked upon as the representative English laryngologist—though in the end he preferred to print his collected papers (in two handsome volumes) in German. His geniality and courtesy, his generous hospitality and vivacious conversation, made him a conspicuous figure and a general favourite in the society of late Victorian and Edwardian London. He was undoubtedly vain and self-centred, but he was a hard worker and lived for the advancement of laryngology. The centenary of his birth well deserves to be remembered.

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Speaking on "The Need for Smoke Abatement" at the Royal Institute of Public Health and Hygiene on November 30, Sir George Elliston said that a report recently issued by the Federal Health Authority in Washington on last winter's fatal smoke fog in Donora—when over 20 people died and 40% of the population were made ill—showed that the chief culprit was sulphur dioxide, the corrosive constituent of our own fogs. "About the same time, here in London, a week of fog sent up deaths by 20 to 30% over the average for the previous four weeks, while the number of deaths from bronchitis was more than doubled." Those whose lungs were not as efficient as they might be should be warned to take special care of themselves and to remain indoors as much as possible during heavy smoke fogs. Discussing the remedies for the problem, Sir George said there was no simple panacea. The remedies were identical with the needs and programme for using our fuel supplies more efficiently and wisely and with the improvements that were so badly needed for warming our homes. He referred to the need for new legislation based on the prior approval of new fuel-burning installations, which was now standard practice in the U.S.A. and elsewhere overseas. The domestic smoke problem for a long time seemed to be insoluble. But in 50 years' time or less the old-fashioned coal fire would be as obsolete as the open sewer to-day. The abolition of smoke by stages through the setting up of expanding smokeless zones was preferable to any of the more spectacular ways that might be envisaged. Smokeless zones were areas where all smoke was prohibited, and though the central and administrative areas were an ideal starting point it was hoped that new residential districts, rebuilt blitzed areas, new industrial estates, and above all new towns would become smokeless zones. In time the separate zones would coalesce and whole cities and industrial districts become smokeless.

SCIENTIFIC TREATMENT OF DELINQUENCY

INSTITUTE'S ANNUAL MEETING

The eleventh annual general meeting of the Institute for the Scientific Treatment of Delinquency was held on November 18, with Dr. Edward Glover in the chair. Dr. Dennis Carroll, who presented the annual report, said that the year had probably been the busiest and most successful in the Institute's history. The clinic, on the council's recommendation, had become a part of the National Health Service, the Institute remaining a private society pursuing its other activities. This necessitated a division between the clinical and non-clinical work, and the placing of the clinic under the North-West Metropolitan Regional Hospital Board.

After mentioning a number of developments Dr. Carroll described one which had attracted a good deal of attention—namely, play therapy as a method of dealing with highly aggressive children between the ages of 8 and 11. Some of these children in ordinary life were dangerous, and all were aggressive enough to be regarded as uncontrollable. They were set to play in a specially designed room with materials that could cause no injury, and were allowed to be as aggressive as they liked; it took two adult play-therapists to control four aggressive children. The children also received individual treatment. After a few months they spontaneously became constructive instead of destructive, and were transferred to another room where they could be constructive to their hearts' content. This technique was still in the experimental stage in the sense that its limits were not yet known, but it was established that it was worth doing. Dr. Carroll complained that children were often not referred until they had a history of some years of delinquency, which made it necessary not only to overcome the original cause but to exorcise an extremely bad habit.

The Earl of Feversham said that the stage had been reached when the conscientious citizen was aware of the work which had grown up at the Institute. People were at last beginning to ask why children were naughty, and once the beginning of an answer to that question was made the problem of juvenile delinquency began to be solved. He thought it a great advantage that the work of the clinic had been taken over by the National Health Service and the Institute left free for research and education, even though its appeal to the public was now less dramatic.

ENCEPHALITIS AND ENCEPHALOMYELITIS

HUGHLINGS JACKSON LECTURE

The Hughlings Jackson lecture was delivered before the Section of Neurology of the Royal Society of Medicine on November 22 by Dr. J. G. Greenfield, whose subject was "Encephalitis and Encephalomyelitis in Man." Mr. Julian Taylor presided.

Dr. Greenfield, whose lecture was accompanied by many photomicrographs of brain sections, said that he could find no evidence that Jackson took a special interest in this subject. Perhaps acute cases of this kind did not lend themselves to the detached and protracted study which he gave to his cases, but if his working life had been twenty years later the sequelae of encephalitis would have fascinated him, and no doubt his keen analytical mind would have clarified the problems they presented.

Encephalitis had now largely passed into the hands of virus experts, and in this field the laboratory worker had recently outstripped the clinician. But the reverse side of the picture, that of the histopathologist, showed five or six different types of encephalitis which had so far resisted attempts at transmission to animals, or at least had given uncertain results. In the diagnosis of these cases the histopathologist retained an important place. The lecturer confined himself to the forms of encephalitis which were, or might be presumed to be, due to infection by a virus either directly or by reaction of virus and host in a manner not yet fully understood. He gave a short historical survey of encephalitis in man from the sixteenth century onwards. Towards the end of the nineteenth century the chief interest in encephalitis was in relation to influenza. Pfeiffer's bacillus was incriminated in many cases. Acute haemorrhagic encephalitis was almost synonymous with influenzal meningitis. The state of knowledge in England was well summed up by Frederick Batten early in this century. Batten recognized encephalitis following measles and other acute infectious diseases, and stated that influenzal meningitis might give rise to symptoms very similar to those of encephalitis. At that time there seemed to be little conception of encephalitis as an independent disease.

In the epidemic of encephalitis lethargica in 1917 the most curious symptom noted was the lethargy or light coma. Its sequelae of oculogyric crises and parkinsonism were not known to follow any other form. On the whole, the course of this disease was less acute than that of other forms of encephalitis, though many acutely fatal cases did occur. It seemed that we were still ignorant of the virus causing encephalitis lethargica, possibly because no suitable animal host had as yet been found. In this disease the white matter of the hemispheres was little if at all infiltrated; the basal ganglia often showed severe lesions.

Cases of encephalitis following vaccination against smallpox began to be observed in 1922. These were at first interpreted as a direct attack on the brain by a vaccinal virus. It was not long, however, before cases of encephalitis with a similar histological picture were observed following measles in the larger centres of population, and other cases following influenza, rubella, chicken-pox, and mumps were recorded. The aetiology of this condition had to be reconsidered. One possibility was activation of another virus that was capable of causing demyelination or necrosis. Another was an allergic response of the brain to the previous infection. By 1930 cases of post-vaccinal encephalitis had become rarer, but they became rather more numerous during the recent war. This post-infectious form of encephalitis, though rare, was still the most common type in the British Isles at the present time.

Meanwhile various epidemics had been happening, or were about to happen, some of them in the Far East and the Antipodes, others in America. Dr. Greenfield gave some account of the Australian X and Japanese B forms. In the late summer of 1933 an epidemic occurred in St. Louis, with a low death rate and practically no sequelae. It appeared to be carried by mosquitoes, probably from an animal or avian reservoir, in which it was probable that the disease was carried through the winter by mites or ticks. In 1938 outbreaks of equine encephalomyelitis were reported from the eastern seaboard and the western States of the U.S.A. That in the east was small, but with a high death rate in children. In the western States the epidemic was widespread and the condition had now become endemic. In all five of these forms the disease occurred only in the late summer, when mosquitoes were most numerous.

An outbreak of encephalitis in East Russia, occurring in spring and early summer and noticed about 1932, was found by a commission of investigation to have been carried by ticks from the wild animals in Siberia to the human population. Not uncommon also in the western area of Russia were cases of a progressive or relapsing type in which the peripheral musculature was more affected than the shoulder-joints and neck, which were most often affected in the Siberian cases.

Epidemics of the insect-borne forms of encephalitis were determined as to their seasonal incidence by the life habits of the insect vectors. But there were several other factors affecting the epidemiology, the first being the establishment of immunity both in the human and animal hosts. Just as in epidemics of poliomyelitis there were many cases without paralysis for every case of paralysis, so here there were many cases of fever only for each case which showed neurological symptoms. The phenomena of interference and exaltation of virulence, one or the other of which might occur when two viruses were combined, had also to be considered.

Encephalitis in the British Isles

Dr. Greenfield then passed to a specific consideration of the various forms of encephalitis in the British Isles at the present time. Some were quite rare, such as acute cases of the pan-encephalitic type, of which during the last eight years he had

examined only ten from different parts of the country. In most of these cases attempts were made to transfer the disease to animals, but without success. The cases were found generally in adolescents or young adults between the ages of 15 and 35. The intensity of the inflammatory changes in the brain varied remarkably.

Cases of acute haemorrhagic leuco-encephalitis had recently been reported in Boston, Mass., and in Norway. Some of them were interesting in that the disease was almost entirely in the pons or brain stem. Most of these cases came on after infections of the respiratory tract, such as sore throat, influenza, coryza, or acute bronchitis. In one patient he had personally examined the symptoms came on two days after an attack of urticaria, the history suggesting an allergic reaction of the brain tissue. The onset of the condition after influenza or an acute respiratory infection, sometimes with an interval of a few days of relative health, suggested a possible relationship between this condition and the commoner form of post-infectious encephalitis, and this was borne out by recent experimental work.

Subacute forms of encephalitis presented a rather distinctive clinical course. He mentioned eight cases of subacute inclusion-body encephalitis in children. The disease came on gradually, sometimes over a period of weeks, and pursued a ruthlessly progressive course to a condition of complete loss of mentality. At an earlier period of the disease, in all but one of the cases studied, myoclonic jerking movements or repeated spasms of the face or limbs or of the entire body had been observed. Death had occurred after an interval of from seven weeks to six months from the first symptom.

The subacute sclerosing form of encephalitis described by van Bogaert in 1945 was not easily distinguished from the subacute inclusion-body type on clinical grounds. In it also there was progressive dementia with involuntary movements, which might resemble those just described or might be of a writhing character. In both subacute forms the cerebrospinal fluid, though otherwise normal, might give a Lange reaction of paretic type. Histologically the sclerosing form showed neuroglial proliferation and early gliosis in the cortex and areas of partial demyelination with gliosis in the white matter. In both forms the usual evidences of inflammation were found in the cerebrum and brain stem.

The lecturer closed by saying that the belief that encephalitis might occur in a subacute progressive form, although suggested by some of the earlier cases, had only recently been fully documented. Few had worked in this field, but it was one which was full of interest and offered a rich harvest.

At the close of the lecture Professor Ludo van Bogaert, of Antwerp, offered a few observations. He agreed with the lecturer that the two subacute forms he had described were clinically indistinguishable. He had recently found several such cases in colonies of mental defectives. A vote of thanks to Dr. Greenfield was proposed by Dr. F. M. R. Walshe, who said that the Hughlings Jackson lectureship was the highest honour which British neurology could offer to anyone working in this field. The lectureship had always been filled by a most distinguished neurologist, but this was the first time that neuropathology had had the honour. Dr. Greenfield's contributions to neurology over the last thirty years were well known, and in moving the vote of thanks he had the double satisfaction of paying a modest tribute to Dr. Greenfield's distinction in his chosen field and of expressing his affection for a man whom he had known for so many years.

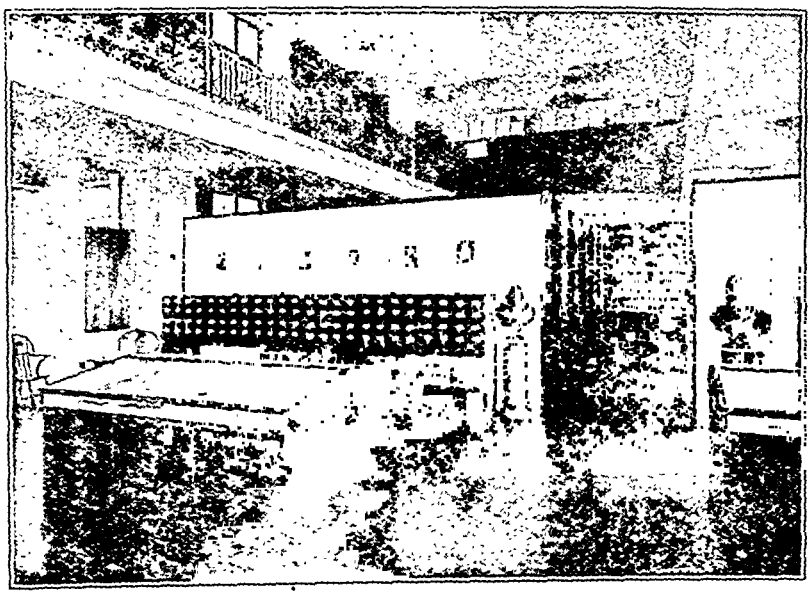
WELLCOME HISTORICAL MEDICAL LIBRARY

The Wellcome Historical Medical Library was formally opened on December 2. Welcoming the guests to a luncheon given by the Directors of the Foundation, Mr. H. E. Sier (chairman) said it was a great privilege to see there so many librarians, representing most of the large libraries in England. He spoke of the late Sir Henry Wellcome's great interest in medical history and archaeology, which had led him to build up the library. Dr. E. Ashworth Underwood (Director of the Library and Museum) recalled that Sir Henry had by 1900 acquired a considerable collection of museum pieces and books, and in 1913 he was able to provide a medico-historical exhibition at the International Congress of Medicine in London. Considerable progress had been made in the preparation of the library catalogue, and he paid tribute to the Librarian, Mr. W. J. Bishop, and his staff for their achievement in bringing the library to its present state of efficiency. Sir Arthur MacNalty and Sir Henry Thomas also spoke.

The Library

The library has been built up in the last 50 years on a scale comparable, in its own subjects, to that of the great national collections. It contains 200,000 books, pamphlets, and journals, 5,000 manuscripts, and 100,000 autograph letters. It includes 612 complete works and 22 fragments of books published before 1500, which is one of the largest collections of incunabula in the country. Among these are to be found Aristotle's *Problemata* (1500), of which there is only one other copy in existence, and his *De physico* (1500). The copy of Quiricus de Augustis: *Lumen apothecariorum* (1497) is the only one in any British library. Other titles include Avicenna's *Canon* (1489–90), Ferrarius de Gradibus: *Consilia* (1482), Gilinus: *De morbo gallico* (1497), the only copy in Britain, and Hippocrates: *De natura hominis* (1480).

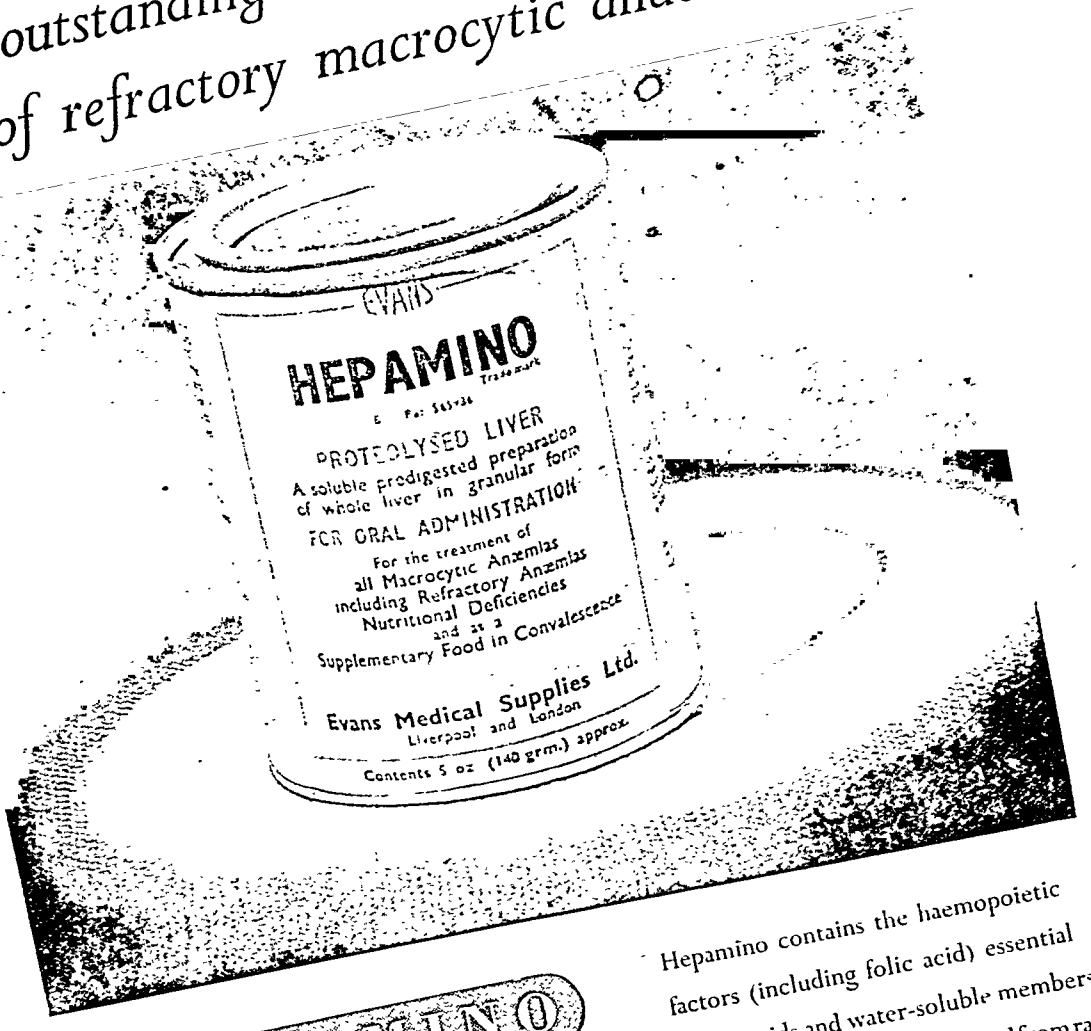
The sixteenth century is represented by 4,000 volumes, including the Renaissance editions issued by Aldus, Froeben, the Estiennes, Junta, Oporinus, and other scholar printers. The library contains all the editions of Vesalius and his forerunners, the works of Jerome of Brunswick, Hans Gersdorff, Ambrose Paré, Paracelsus, Della Croce, Pierre Franco, Vidus Vidius, Marianus Sanctus, and other pioneers of surgery. There are to be found on the shelves rare early herbals by Dioscorides and the well-known Mainz Herbal of 1491.



Among the 700 English books printed before 1640 are Gilbert's *De Magenti* (1600), Roesslin's *Byrth of Mankinde* (1540) and Vigo's *Surgical Works* (1586) autographed by William Clowes, the Elizabethan surgeon. The seventeenth-century collection contains 10,000 books, including not only such medical works as Harvey's *De Motu Cordis* (1628) but first editions of Bacon, Galileo, Kepler, Descartes, Newton, and Boyle.

The library contains special collections on, for example, alchemy, occultism, veterinary

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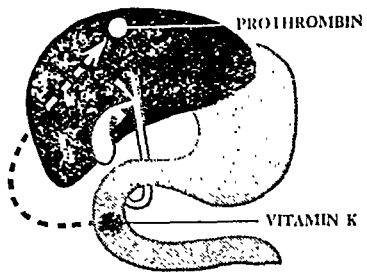
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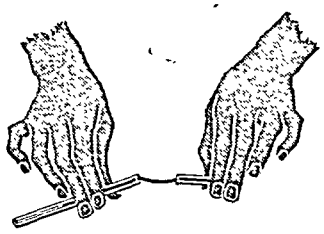
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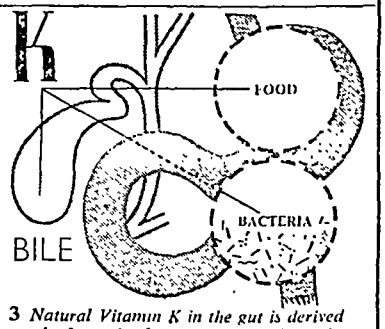
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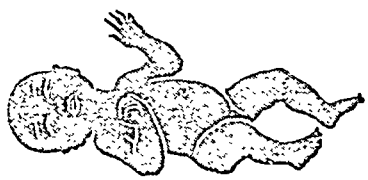
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Reports of Societies

METHODS OF PREVENTION IN PSYCHIATRY

Professor T. FERGUSON RODGER, of the Department of Psychological Medicine, Glasgow University, addressed a meeting of the Leeds Regional Psychiatric Association in Leeds General Infirmary on November 18. The meeting was arranged by the subcommittee on education and public relations of the association, and Professor D. R. MACCALMAN was in the chair.

Professor RODGER described his experiences as a member of the subcommittee on mental health of the World Health Organization and discussed the principles for mental health organization which this subcommittee had formulated. The committee was representative of psychiatry in Britain, the United States, China, Czechoslovakia, Brazil, and India. The facilities for psychiatric treatment throughout the world were surveyed and found to be generally inadequate to meet the demand—grossly so in Asiatic countries. In these circumstances the need for preventive measures was paramount; yet even in the advanced countries prevention was a relatively new field. The most suitable field for the development of preventive services was in the public health service, which would have to establish an organization equivalent to that already provided for dealing with the problems of communal physical health. Mental hygiene departments of the kind visualized would require the assistance of research workers in sociological and psychological aspects of the work. The international subcommittee regarded mental health work among university students as of great importance, since the majority of these individuals would hold responsible positions in the community.

In the course of the discussion which followed methods of prevention in psychiatry were described. The need for instruction in the aims and methods of psychiatry for influential laymen, such as industrialists, trade union officials, and teachers, was emphasized. The importance of the health visitor, her influence on parents, and her part in conveying knowledge on the management of children was stressed.

The U.S. Public Health Service has recently made grants amounting to nearly $1,000,000 to aid laboratory and clinical research. The awards were made by the National Cancer Institute to hospitals and universities in 21 States. With the aid of these funds several of the institutions will investigate the relationship of cancer and hormones. Drs. R. W. Rawson and H. J. Tagnon, of the Memorial Hospital, New York, will study the role of human liver in reducing the activity of oestrogen. The investigators will make use of sections of human liver which have had to be removed in the course of treatment for various diseases, including cancer, with a view to finding out if liver from patients with and without cancer differs in ability to make the hormones inactive. In earlier studies liver from patients with cancer of the uterus failed to inactivate oestrogen. Thus a damaged or diseased liver may contribute to the development of cancer in organs stimulated by hormones. A tracer study of "cortisone" will be supported through a grant to the St. Louis University School of Medicine. By tagging cortisone with radioactive carbon, the investigator, Dr. E. A. Doisy, will trace the drug through the bodies of laboratory animals, in order to learn its path and mode of action. Previous studies by Dr. Doisy, a Nobel Prize winner, have shown that less than 10% of administered cortisone is excreted in the urine, but the remainder has not been accounted for.

Correspondence

Silico-tuberculosis

SIR,—Dr. H. Midgley Turner and Dr. W. J. Martin's paper on mortality and survival rates in males with silicosis and silico-tuberculosis (November 19, p. 1148) is of great interest and value, but one essential piece of information is omitted. We are not told the grounds on which the two conditions were distinguished. It might be concluded from the tables that 50% of cases of silico-tuberculosis aged 40 have a chance of reaching the age of 58. If the diagnosis of silico-tuberculosis were based on positive bacteriological findings this is an astonishing conclusion, unless the majority of such cases were diagnosed long after the age of 40 and assumed to have been tuberculous since that age. Presumably, therefore, the diagnosis was based upon other grounds, which should be stated.

I am quoted as suggesting that in pneumoconiosis of coal-miners "clinically tuberculosis appears as an infrequent but often serious complication of the disease." It is the belief of myself and my colleagues that massive fibrosis in coal-miners' pneumoconiosis is nearly always the expression of tuberculous infection in a lung that is already affected by simple pneumoconiosis.[1] If this is correct, tuberculosis is a common complication of coal-miners' pneumoconiosis. It is serious in that it leads to considerably more disability than simple pneumoconiosis and ultimately in many cases to death from respiratory failure. A positive sputum in such cases is, however, uncommon: Stewart[2] found it in about 3% of her cases. When the sputum is positive the man is usually ill and seldom survives more than two years. Out of 13 cases with a positive sputum whom we have studied as in-patients up to two years ago, only one survives to-day. Thus, in coal-miners' pneumoconiosis at any rate, the diagnosis of "silico-tuberculosis" is a serious one. It only becomes grave when the sputum is positive.

Turner and Martin also state that the prognosis of silico-tuberculosis in coal-miners is better than the prognosis of comparable cases in grinders. It would again be interesting to know whether they mean comparable bacteriologically or comparable radiologically. Owing to the profound differences in the method of deriving the figures their tables are not comparable with those produced by Stewart[2] for the survival of certified cases of coal-miners' pneumoconiosis, but her figures suggest a very much graver prognosis for cases of coal-miners' pneumoconiosis after certification (which in most cases is the time at which symptoms lead the man to seek medical advice) than that given for all cases of silico-tuberculosis by Turner and Martin.

I feel there are grave disadvantages in Turner and Martin's method of deriving prognosis by extrapolation into the past and that Dr. Stewart's figures may be more helpful to medical men concerned with cases of coal-miners' pneumoconiosis.—

I am, etc.,

C. M. FLETCHER.

Penarth, Glamorgan.

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Treatment of Ringworm of the Scalp

SIR,—Dr. K. D. Crow, in his letter (November 19, p. 1175) in which he discusses local versus *x*-ray treatment of tinea tonsurans, lists a series of disadvantages of the latter method and quotes nine cases of incomplete regrowth after epilation that I have reported in 2,400 epilations. May I set some of these disadvantages in their proper background?

1. It is surely unusual for cases of ringworm of the scalp to have to wait 3–4 months for *x*-ray treatment. This certainly does not apply to London. We have no waiting-list at Goldie Leigh Hospital.

2. The risk of permanent alopecia is now extremely remote in properly organized radiotherapy centres. The nine cases I

reported all occurred in September and October, 1927, when the apparatus available was primitive, and the dosimeter still more so. Since then I have treated 2,350 cases at Goldie Leigh Hospital without a single mishap.

3. Dr. Crow is wrong in stating that *x*-ray epilation is unsuitable for young children. We treat children from one year upwards. Those who are too young to remain still of their own volition can be simply and safely restrained on the couch I described in 1931.

I agree that if the local applications advocated by Brain and his colleagues (April 17, 1948, p. 723, and September 17, 1949, p. 626) are successful they should be used in preference to epilation, but in assessing the alternatives the difficulties and dangers of the *x*-ray methods should not be presented as serious when in fact they are now negligible.—I am, etc.,

London, W.1. S. COCHRANE SHANKS.

Aureomycin in Treatment of Syphilis

SIR,—Dr. R. R. Willcox has shown (November 12, p. 1076) that this drug has some action in early syphilis. This was already known. I deprecate the unscientific trial of therapeutic agents in syphilis, and the premature publication of results.

In syphilis, more than other diseases, therapeutic trials must be planned and controlled, and deductions must be based on scientific tests and prolonged observation. The prevalent abuse of antibiotics in syphilis is fostered by unscientific trials and premature reports.—I am, etc.,

Manchester. ROBERT LEES.

Botulism or Polio-encephalomyelitis?

SIR,—I have read with interest the comments of Drs. E. Vivian Lambert and A. H. Gale (November 26, p. 1235). Certain features of this patient's illness made a diagnosis of poliomyelitis very unlikely: two members of the family had similar prodromal symptoms; the interval between onset of gastro-intestinal symptoms and paralysis was only a matter of hours; signs of meningeal irritation were absent; and an isolated internal ophthalmoplegia occurred. The course of the illness was therefore quite unlike poliomyelitis.

Dr. Gale rightly draws attention to the care taken by manufacturers of canned food. The tongue which came under suspicion in this instance was canned in South America.—I am, etc.,

London, W.1. DAVID KENDALL.

Inspection of Coarctation of Aorta with a Thoracoscope

SIR,—Under the heading of Medical Memoranda in the *Journal* of August 6 (p. 317) there was a report from Mr. J. R. Belcher and Dr. F. E. de W. Cayley of a case of direct inspection of coarctation of the aorta with a thoracoscope, in which they stated that there had been no previous description of a coarctation of the aorta seen through a thoracoscope or the use of this instrument as a means of identifying abnormalities of the great vessels in the thorax.

In August, 1947, a female patient aged 31 had been referred to me with a view to having Smithwick's thoraco-lumbar sympathectomy performed for hypertension. She had been married for eight years and had three children. She had been told that her blood pressure was high during her second pregnancy four years previously. Her present symptoms were referable to her hypertension, the blood pressure being in the neighbourhood of 225/110 mm. Hg when taken in the left arm. These symptoms had been present for about three years, and consisted mainly of palpitations of the heart and breathlessness on exertion, with throbbings in her throat. She had never had any headaches. Examination of her nervous system did not reveal any abnormality, but an early "silver wire" appearance was noted in the arteries of the ocular fundi. The patient's heart was somewhat enlarged, and there was a systolic murmur, best heard at the mitral and pulmonary areas. Marked pulsations were noted in the arteries of both posterior triangles of the neck, in the axillae, and at the back between the scapulae. The blood pressure in the right thigh was only 140/110 mm. Hg. Skiagrams of her chest were taken by Dr. B. P. Anderson Stuart, who reported that the aortic knob was present but that he could not detect any shadow of the aortic arch behind it, nor of the descending aorta. There was definite notching of the under-margins of many of the ribs, and radiologically the appearance was pathognomonic of aortic coarctation.

In order to be certain of the diagnosis and to determine whether the patient should be submitted to operation for this condition or not, in view of her age, it was decided to "let down" the lung on the left side by performing artificial pneumothorax on three occasions. Thoracoscopy was then carried out by inserting a Jacobeus thoracoscope through the fourth intercostal space at the anterior axillary line. The lung was seen to be collapsed and a huge subclavian artery noted, into which the arch of the aorta seemed to terminate. The internal mammary artery and the upper three intercostal arteries were seen to be about three times their ordinary size. As the lung was not completely collapsed, the descending portion of the aorta could not be seen, but the stricture appeared to be just beyond the origin of the left subclavian artery. The patient did not suffer any ill effects from this procedure and the lung expanded in a few days.

As I had had no experience with this operation, and as no other surgeon in Sydney at the time had had any either, it was decided not to advise any surgical measures then. Her case was subsequently discussed with Dr. O. T. Claggett, of the Mayo Clinic, and in view of the appearances seen at thoracoscopy and the age of the patient he stated that he would not advise any surgeon to operate on this patient as his first case. The position was fully explained to the patient and her relatives, and she is still leading a fairly normal existence and her symptoms have not progressed.

This thoracoscopy was actually performed on September 3, 1947, in the department of neurosurgery at the Royal Prince Alfred Hospital, Sydney, where the full records of the case are available.—I am, etc.,

Sydney. R. A. MONEY.

The Acute Throat

SIR,—I was very surprised at Dr. Thomas Anderson's reply (November 19, p. 1179) to the criticisms of his article on the acute throat. From the point of view of the clinician surely his own clinical observations must count for something. I agree that the majority of sore throats are mild and tend to subside naturally, but I am sure that many practitioners have seen these mild throats, treated them with aspirin, etc., and then have seen them, say, two or three days later very much worse. In these cases we have lost valuable days. The incidence of peritonsillar abscess in my practice has fallen enormously over the last few years, and I can only account for this by sulphonamide therapy instituted early on.

I would like to know just what preparation of sulphonamide was used by Dr. French in the investigation on scarlet fever mentioned by Dr. Anderson. I know that some similar researches were done with sulphanilamide years ago but have not been repeated with the recent and better preparations.

The majority of G.P.s do not make a positive diagnosis of *streptococcal* tonsillitis. There are other bacteria which are responsible for sore throats—e.g., pneumococci and staphylococci—and many strains of these organisms are amenable to the recent sulphonamides.

So far as the necessity of treating mild tonsillitis at all arises, I feel that the mild cases rarely come to the doctor at all. Would Dr. Anderson still agree that milk-borne tuberculous infection should be permitted because of the immunity it may produce? Surely if we have a potent weapon we should use it.

As regards drug rashes, these also can be caused by aspirin as well as the sulphonamides. Of polyarteritis nodosa I can say nothing, never having seen a case, but I certainly have not heard of any great increased incidence from my colleagues.—I am, etc.,

Dagenham, Essex. J. FINER.

SIR,—Dr. T. Anderson, in his excellent article on "The Acute Throat" (October 15, p. 860), repeats the traditional advice for the treatment of throat infections—"the administration of aspirin powder, which is allowed to melt slowly in the mouth before swallowing." The implication is that aspirin taken in this manner exerts its analgesic effect both locally and centrally. Dr. Anderson mercifully omits any reference to the common

but futile practice of gargling with a suspension of aspirin powder before swallowing it. The pain and irritation caused by the powder coming into contact with an already inflamed mucous membrane are the exact opposite of the effect intended—unless the intention be to bring about rupture of a peritonsillar abscess without surgical intervention by causing bouts of violent coughing. Is there in fact any evidence that aspirin exerts its analgesic effect by virtue of a local, as well as a central, action?—I am, etc.,

Kuala Lumpur, Malaya. G. SCLARE

Failed Forceps

SIR,—May I support the view of Mr. W. P. Hirsch (November 19, p. 1179) about the importance of transverse arrest of the head in difficult forceps deliveries? The so-called "persistent occipito-posterior position" is in most cases a transverse arrest of the head. Some figures which I am at present preparing for publication show that in forceps deliveries the transversely arrested head is far more common than the persistent occipito-posterior position and carries a much higher foetal risk. In the real occipito-posterior position a deliberate face-to-pubes delivery can and should be carried out in most cases, and the foetal risk is low, as a relatively safe cephalic grip is obtained with the forceps.

Mr. Hirsch rightly points out that there is quite inadequate mention of this position in the standard textbooks in this country. It is usually looked upon as an occipito-posterior position in which incomplete rotation has taken place. Mr. Hirsch mentions, however, that the head enters the brim in the transverse diameter in 40% of cases, and some American radiological studies indeed place the figure at 60% or more. If the transversely arrested head is not an occipito-posterior position, and in the majority of cases never has been one at any stage of labour, surely these two complications should be separated, especially as their treatment is so different.

The classical operation in these cases is that of manual rotation. I believe, however, that not only is this usually impossible but that attempts to carry it out are dangerous. The fault in these cases is not that the head has failed to rotate but that it has failed as a result of pelvic deformity to reach that level at which rotation normally occurs. The use of the Kielland forceps in these cases is highly satisfactory with practice, as deep general anaesthesia is unnecessary. A cephalic grip is obtained, and there is a minimum of manipulation. Spontaneous rotation usually occurs during descent.—I am, etc.,

Middlesbrough BRYAN WILLIAMS.

SIR,—Many years ago I attended a lecture on forceps deliveries in persistent occipito-positions and was amazed at the number of different theories and treatments suggested in the discussion that followed. Not being convinced by any one of these, I looked up all the available literature and found that practically the only agreement in the various descriptions was that the cause of the persistent occipito-posterior position was insufficient flexion of the head.

As a student I was taught to treat the cause of any condition, not the result. I have, therefore, since that time treated all my persistent occipito-posterior cases by flexion of the head. This is very easy to do with three fingers on the occiput, and as soon as the head starts to flex rotation takes place. This has been verified by the many house-surgeons and general practitioners to whom I have explained it.—I am, etc.,

Bristol. MABEL F. POTTER.

Sudden Obesity and Psychological Trauma

SIR,—The interesting report on three cases of "sudden obesity and psychological trauma" by Drs. H. J. Shorvon and John S. Richardson (October 29, p. 951) prompts me to ask for a very pertinent information which is lacking in the case histories. Is there a familial (hereditary) tendency to obesity in these three patients? If so, the interpretation of the pathologic mechanism involved would require some modification.—I am, etc.,

Los Angeles JULIUS BAUER.

An Unusual Murmur

SIR,—The following case history may be of interest to your readers, as it presents unusual and remarkable features.

A medical practitioner, aged 27, while sitting on a chair engaged in conversation, was suddenly seized with an attack of pain in the praecordium. The character of the pain was that of an ache, it passed from the praecordium to the inferior angle of the left scapula It was not very severe, but some five minutes later it became worse and changed its character to that of an acute sharp pain, which at times seemed to involve the left shoulder-joint. So severe was the pain at this stage that the patient decided to rest for a while in his bedroom. On arriving at his room he lay on the bed and, taking his stethoscope, listened to his heart. He heard a distinct clicking noise, and for a moment thought that the bell of the stethoscope was hitting against one of his shirt buttons. This was not the case. The noise was coming from his chest. He called for a servant, who fetched his assistant, who arrived after about 10 minutes. By this time the noise was so loud that it could easily be heard without a stethoscope; now however it was not clicking in character but harsh It was systolic in time, and absolutely regular. It would fail with every extrasystolic intermission, and return with every normal systole (the patient has had extrasystoles for years). At this point the patient noted that the pain was not continuous but throbbing. It too came with every systole, and failed during the extrasystolic intermissions. Thus the pain, the noise, and ventricular systole occurred together. A remarkable feature was that suddenly, and for no apparent reason, the noise would stop, only to return after an interval of about ten to twenty seconds. During these periods the heart sounds were normal.

Examination at this stage revealed a normal blood pressure, a heart rate of 80, and an apex beat which was strong and in its normal position. Apart from the peculiar noise, which by now could be heard some 12 ft. (3.5 m.) from the bed, and the pain there was nothing else abnormal discovered. Next day the pain had disappeared. The patient was examined by a surgeon, who excluded diaphragmatic hernia, and by a physician, who suggested as a diagnosis haemopericardium, pericarditis, or coronary thrombosis. On the next day various radiological examinations were performed, but no abnormalities were discovered except for a slight increase in the size of the left ventricle. An E.C.G., B.S.R., and blood count were performed: the E.C.G. showed extrasystoles, otherwise everything was normal Another physician was called to the case, and coronary thrombosis was diagnosed. Three days after the onset of the attack the noise disappeared.

On returning home the patient spent one month in bed, during which he felt well except for an occasional ache over the heart, and at times a sharp pain in the left elbow where the ulnar nerve crosses the medial epicondyle. After his month in bed the patient arose and on his second day up he had another attack, exactly as the first but not so severe. It disappeared after three days. The patient then saw another physician, who said that while he could not make a diagnosis he could exclude coronary thrombosis; he added that the heart was in no way at fault. On his advice the patient returned to work. Since then there have been two or three minor attacks, but so slight were they that it was not necessary for the patient to discontinue his work. Mediastinitis, with mediastinal emphysema, was the patient's ultimate diagnosis.

—I am, etc.,

St. Matthews Hospital, South Africa F. A. WARD.

Malignant Tertian Malaria

SIR,—With regard to Sir Philip Manson-Bahr's letter on the subject of malignant tertian (subtertian) malaria (November 5, p. 1044) I fail to see why criticism of textbook teaching on the subject should be regarded as "betrayal of truth." It is no reflection on early observers of malaria to suggest that they did not reach finality in the matter of symptomatology and diagnosis any more than they did in the matter of treatment and other aspects of the disease. For instance, the textbook I mentioned (October 22, p. 930), and most others, twenty-five years ago was teaching that it was necessary to take large amounts of quinine over long periods to cure a simple attack of malignant tertian malaria, a belief which presumably was also not arrived at "in a day," but which has been found to be fallacious since then.

The view of M.T. malaria as being an extremely "protean" disease—a great imitator of other diseases—which I believe has been emphasized by Sir Philip more than anyone else, is no more sacrosanct. My contention is that experience in the

Tropics in the past twenty to thirty years has proved it to be capable of modification, to say the least of it. The emphasis has shifted from credulity to scepticism about very unusual behaviour on the part of M.T. malaria. There has been a general increase of knowledge about malaria as well as other tropical fevers, knowledge of its epidemiology and immunology, particularly in relation to native races. Laboratory methods have improved. All this has had its effect on the clinical approach to M.T. malaria. Nowadays a native with M.T. parasites in his blood and pneumonic symptoms is not likely to be labelled "pneumonic malaria," when it is appreciated that most members of his tribe and district carry M.T. rings in their blood as part of their normal equipment, so to speak. It is surely not unreasonable to suppose that early textbooks and descriptions of the disease might have been affected by lack of this kind of knowledge.

Any views I have put forward would not be found at all remarkable or heretical by scores of practitioners in the Tropics to-day. They are, moreover, not based on "flitting" experience, but on twenty years' recent residence in malarious districts of Kenya, as good a "pitch" for observing the behaviour of the disease, I would think, as anywhere else.—I am, etc.,

Craven Arms, Shropshire. P. ROSS.

Angioneurotic Oedema Caused by a Wasp-sting

SIR,—We feel that the following account of angioneurotic oedema consequent on a wasp-sting may prove of interest, and we would welcome advice or comments with reference to the case.

The patient, a man of 48, in good health, received a sting on the scalp from a wasp. He informed the medical officer, who was in the same room at the time, and as an erythema of the face and neck was already developing he was given 75 mg. of "benadryl." He returned to his work and began to notice a marked irritation in his legs, moderate dyspnoea, and huskiness of the voice. From then onwards the condition progressed rapidly, his dyspnoea became pronounced, and he could only speak in a whisper.

When next seen by a medical officer (about 20 to 30 minutes after the original sting) he was markedly cyanosed and had urgent dyspnoea. His face, lips, fauces, tongue, and glottis were oedematous, his conjunctivae suffused, and his eyes watering copiously. He had clinical evidence of pulmonary oedema, and his respirations were "bubbling" in type. There was a uniform erythema of his body, and scattered urticarial weals were present in his skin. His pulse was 120 per minute and of a very poor volume. He could just speak in a husky whisper, and complained of a constrictive pain across the lower part of his chest and gross skin irritation.

The condition was treated by an immediate subcutaneous injection of 8 minims (0.5 ml.) of liq. adrenalin, followed by 1 minim (0.06 ml.) per minute thereafter. By the time 16 minims (1 ml.) had been given his symptoms were improving sufficiently for him to be moved from a chair to a couch. A marked limb tremor of a coarse type had developed at this time, and continued at intervals for 1½ hours. During the course of the next few hours he was given further subcutaneous injections of adrenaline (2 minims) at about 30-minute intervals, and also a further 50 mg. of benadryl and, later, "antistin."

He fell into a deep sleep, the respiratory obstruction having been dramatically relieved by adrenaline, and by evening (approximately eight hours later) had little in the way of abnormal physical signs other than a persistent oedema of the uvula, which was causing some retching. A further 4 minims (0.24 ml.) of adrenaline helped to relieve this. By the following day he was sufficiently well to return to light duty, his duties being of a sedentary nature.

The interest of this case lies in the fact that the patient had sustained a sting on the left ring finger three weeks previously. This was apparently from a bee, as the sting had to be removed from the skin. The reaction that followed this was entirely local, consisting of an oedema and urticaria of the dorsum of the hand and of the lower third of the forearm. This settled in about three days with benadryl, rest, and local treatment. The patient gave a history of always reacting rather severely to insect bites. He has been stung only once before by a wasp (on his foot); this was some years previously.

It would appear that in the present instance the initial bee-sting provided a sensitizing dose, and during the three weeks' interval hypersensitivity developed, the second sting (though apparently from a different type of insect) being the "shocking" dose. It is interesting in this connexion to note that there was no local reaction to the second sting, the manifestation being entirely of a general nature.

An alternative explanation is offered by the work of Feldberg and Kellaway,[1 2 3] who showed that certain bacterial toxins and snake venoms which damage tissues may cause histamine to be liberated when they are perfused through the lungs. As in this case the two stings were almost certainly from two different insects, the one a bee and the other a wasp, it is possible that some toxin in the sting of the latter caused a histamine reaction in the body. Otherwise one must postulate that there is a specific protein common to wasp- and bee-stings, or that the original sensitizing dose was the sting sustained on his foot some years ago.

The problem which clearly presents itself is that of possible prophylactic treatment. Whitby[4] states with reference to anaphylaxis following serum therapy that "it is as well to assume that all individuals become hypersensitive ten days after the injection of any foreign serum and remain so for the rest of their lives." Presumably in our patient there is hypersensitivity to some protein associated with the insect's sting, and in the event of it not being possible to desensitize him, as seems more than likely, the only alternative would appear to be for him to be constantly armed with a hypodermic syringe and some adrenaline if and when he is not near to medical aid and for him to be instructed how to inject himself should the need arise.—We are, etc.,

W. R. S. PANCKRIDGE.
C. Q. HENRIQUES.

Dartmouth, Devon

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1 *Aust. J. exp. Biol. med. Sci.*, 1937, 15, 441 and 461.
2 *J. Physiol.*, 1937, 90, 257.
3 Ibid., 1938, 94, 187.
4 *Medical Bacteriology*, 1944, London.

The Natural History of Asthma

SIR,—I feel that many of your readers must have shared my feeling of disappointment in the article entitled "The Natural History of Asthma" by Drs. Elsie O. Williams and G. E. O. Williams (October 22, p. 897). From the title I had, I think not unreasonably, expected to find therein the answers to at least some of the perplexing questions presented by this disorder. It was not clear to me whether their article was in fact based on a review of medical records or whether they had taken histories from, examined, and treated these patients themselves. If they have personal knowledge of these cases, it seems to me inexplicable that they have not been struck more forcibly by certain aspects of the natural history of asthma which have been widely described in the medical literature, and which have seemed to me inescapable. If, on the other hand, their paper was based solely on the examination of medical records, I submit that the natural history of any disease, and in particular any psychosomatic disease, cannot be adequately described by such a method.

I am primarily interested in the psychosomatic aspects of asthma, and I do not feel that this has been adequately dealt with in this paper. Asthma is only one symptom which occurs in individuals who through heredity or constitution exhibit the allergic diathesis. This diathesis manifests itself not only through the familiar somatic disorders, such as asthma, hay-fever, eczema, etc., but also through a particular personality pattern and the tendency to develop specific neurotic behaviour patterns. That such personality patterns and their associated neuroses occur in allergic subjects has been shown in the writings of many authors, notably French and Alexander[1] on asthma, Wittkower[2] on hay-fever, and Rogerson[3] on the asthma of childhood.

As long ago as 1913 Marcinowski[4] wrote the following, "Only the method of psycho-analysis, however, has enabled us to come nearer to the essential nature of asthma and see the absurdity of the old [*sic*] clinical distinction between bronchial and nervous asthma. The various successes of somatic therapy do not in any way argue against the psychogenic concept. The pedagogic value of other procedures, such as breathing exercises, can be denied as little as the sedative value of drug therapy by narcotics. But in the future we shall consider as the true causal therapy only the treatment of the basic anxiety hysteria." For my own part, I would not be prepared to go so far in dogmatism as Marcinowski, for I consider the allergic factor in the aetiology of asthma as beyond doubt. I

do believe, however, that the symptoms of the majority of cases, though commencing as allergic phenomena, are gradually replaced in part or in whole by neuroses of the anxiety type.

Rogerson[1] stated in his article on the asthmatic child that there was an unusual quality in the relationship between the child and one or both of the parents. I subscribe to this view, but I feel that the effective parent in the relationship is usually the mother. Asthmatic children are abnormally dependent on their mothers, who in their turn are abnormally over-anxious about the asthmatic child. That this is a special relationship between the mother and the asthmatic child is demonstrated by the fact that such mothers do not appear to be over-anxious about the siblings, and may indeed treat them with a scant regard which is beneficial to their mental health. A quite extraordinary relationship develops between the mother and the child, in which she suffers from anxiety and the child from asthma. So long as he remains the centre of the stage he appears to remain free from anxiety, but should the position of pre-eminence, largely achieved through his asthma, be threatened he will respond with either anxiety or, what is now an established conditioned reflex, the asthmatic attack. Gradually a situation develops between the child and his mother in which the child values his special relationship so much that he finds it impossible to surrender it in order to achieve his ultimate needs.

I have found it valuable in these circumstances to approach the problem primarily through an attempt at resolving the maternal neurosis, for I have found that if the mothers can achieve insight into their psychological position *vis-à-vis* the child their anxiety may be lessened and their treatment of the child modified with beneficial results. I feel that this simple therapy should preferably be carried out by the physician who has charge of the case, and that only more complex cases require expert psychiatric treatment. It could be argued that the physician may find the time required a limiting factor. If this is so, recourse might be made to treatment on group lines. Sixteen or so mothers would form a convenient group which could be introduced to the simpler psychological aspects of asthma and allowed latitude to discuss their problem in personal terms. I would further suggest that the first group meeting may be profitably devoted to the question of the physical over-protection to which asthmatic children are subjected. Any physician who is acquainted with an asthma clinic will recognize the unfortunate child in three woollen vests, pullover, overcoat, and scarves, who looks out of place in midsummer amongst his more suitably attired fellows. It should then be a simple matter to introduce the psychological over-protection.

One further feature of asthma which, it appears to me, was inadequately dealt with in the paper under discussion is its episodic nature. Many children appear to "grow out" of asthma. I think it remains unknown why there should exist such wide variation in this respect, but it has been in my experience a striking feature of the disorder. It is because I feel that these important considerations should not be overlooked when we consider the natural history of asthma that I have presumed on your valuable space.—I am, etc.,

London, E.11. D. H. IRWIN.

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. . . . . 'art 1, 1941.

Gangrenous Intussusception in Childhood

SIR,—Dr. D. J. Conway and Mr. R. L. G. Dawson (November 19, p. 1153) describe two cases of gangrenous intussusception treated by the Mikulicz method. Although both cases were brilliantly successful the authors mention certain disadvantages: (1) wasting; (2) excoriation of the abdominal wall; and (3) further operative procedures for closure. In order to obviate these I would most strongly advocate the manœuvre first suggested by Woodhall.[1] This consists in making a side-to-side anastomosis between ileum and colon just above the exteriorized gut. This adds little to the time of the operation and leads to a much smoother recovery.

I have recently done this in two successful cases and found that 90% of the intestinal contents was passed per rectum. This meant that there was very little dehydration with all its attendant difficulties in the infant and only slight excoriation around the wound. In addition, subsequent closure was easier than after the simple Mikulicz procedure.—I am, etc.,

Southampton L. A. RICHARDSON

REFERENCE

1 *Arch. Surg., Chicago*, 1938, 36, 989.

Chemistry of Trace Elements

SIR,—It has long seemed to me surprising that so little work has been done on the micro-chemistry of the rheumatic disorders. Yet we have much evidence to show that the trace elements, in excess or in deficiency, are important in many human and animal diseases in this group.

I have just read a note on cobalt poisoning, from which I learn that the toxic effects are attributed to interference with tissue metabolism due to fixation of sulphhydryl groups. It has been noted that the administration of cysteine lessens this toxic effect. A similar beneficial effect from the use of cysteine or of sulphur has been noted in rheumatoid arthritis. Clinical improvement occurs, coinciding with an increase in the cysteine content of hair and nails.

I have tried to find out whether the distribution of cobalt in the soils of this country coincides with that of rheumatoid arthritis. Hitherto I have been unable to get the necessary information. I do nevertheless suggest that investigations on these lines might prove fruitful, not only in reference to cobalt but also to many other trace elements.—I am, etc.,

Hadley Wood, Herts G. C. PETHER.

Splenic Puncture

SIR,—I was interested to read of Dr. E. Tuckman's method of splenic puncture (November 12, p. 1112), as it is almost exactly like the one I used in India for the diagnosis of kala-azar, except that I kept the plunger of the syringe withdrawn while removing the needle. This caused the splenic pulp to spatter into the barrel, which was then washed down with a millilitre or so of isotonic saline into a small tube and spun at a low speed. Thick smears were made of the deposit and stained by Simeon's method.

It was my experience that when parasites were scanty the spleen was more likely to reveal them than the sternal marrow. It was very important, though, to make a prolonged search for Leishman-Donovan bodies if other findings are suggestive. I remember particularly the case of an Anglo-Indian in whom marrow examination revealed no parasites, but a single Leishman-Donovan body was found in two of three thick smears of his splenic pulp.—I am, etc.,

Ashford, Middlesex. C. F. ROSS.

Paraffin Pneumonia

SIR,—I am prompted by Dr. M. Gelfand's article on paraffin pneumonia (November 19, p. 1151) to recall a case of an East African soldier who was under my care in a military hospital in Egypt in 1946.

A man of 24 was brought in as an emergency. He was in a deep coma. There was a total flaccid paralysis. No physical signs could be found in the respiratory system. Urine N.A.D. I noticed a strong smell of paraffin in the breath of the patient, and on inquiry among his tent mates it became clear that he had been drinking a fair amount of paraffin taken from his hurricane lamp and mixed with lemonade. A gastric lavage was carried out, and he was placed *in an upright position*. Within 24 hours he was conscious and his neurological signs had subsided. He then developed a high temperature and a productive cough. There were no definite physical signs in the chest, but the radiograph showed widespread broncho-pneumonic patches of "snowstorm" type His sputum was repeatedly negative for tubercle bacilli. A course of penicillin was given, following which he made an uneventful recovery, and the *x*-ray appearances became normal within a week.

This case would correspond to group 3 in Steiner's classification (*Amer. J. Dis. Child.*, 1947, 74, 32).—I am, etc.,

London, S.E.13. G. Z. BRETT.

Painful Experiments

SIR,—Most of us in the profession, myself included, have probably at some time or other derided the charges of cruelty made by antivivisectionists against the experimenters in our ranks. It has been the custom to ease our consciences, probably in genuine belief, by dismissing the charges as the outpourings of cranks who in any case were not aware that painful experiments were conducted only on the anaesthetized animal.

Within recent years, however, there has been genuine cause for disquiet, and the experiments on conscious rats described under the section headed "Effect of the Alarm Reaction" in the paper appearing in the opening pages of the *Journal* of November 19 (p. 1129) must surely arouse misgivings in the minds of some of us who were given to scoff.—I am, etc.,

Leighton Buzzard, Beds. M. C. ROTHCOPE.

Infestation with Trichostrongylus

SIR,—I have just read Dr. Ian S. Stewart's article (October 1, p. 737) on trichostrongylus infestation. I now believe this infestation to be a common disease among the Mauritians recruited into the British Army. I have kept no records, but treat about one case of "hookworm" a week. Personal experience in the examination of stools has convinced me that many more cases pass unrecognized through my hands. One may examine a stool carefully for over half an hour and find one ovum just as the search is being given up after numerous slides have been examined. And several stools may be negative before an ovum is found.

With one exception none of these men has been anaemic. Their symptoms have been abdominal; had they been otherwise stools would probably not have been examined. They were all treated with tetrachlorethylene and oil of chenopodium. No adult worms were recovered after treatment, though ova seemed to disappear, at least for a while. They were then discharged from hospital.

In one case adult worms were recovered after treatment. This man had a haemoglobin of less than 3 g., and subsequently recovered completely. In this case numerous ova had been found in the stools and their development into larvae had been typical. In the other cases ova were scanty and fully segmented. Their development neither resembled that of *Strongyloides* ova nor of *Ankylostoma*—certainly not the former.—I am, etc.,

Benghazi D. HAMILTON.

Death by Hanging

SIR,—When a malefactor was hauled up to the bough of a tree the presumption is death was by strangulation, although pressure on the jugular veins causing cerebral congestion may have induced unconsciousness before death supervened. A similar anaesthesia was induced before disembowelling in the sentence of hanging, drawing, and quartering.

But about a century ago the questions Dr. F. A. Richards (November 26, p. 1235) asks and the misgivings he feels—whether or not any of the rest of us share his ideas—arose for the very practical reason that too many criminals were being revived after execution, even though they had been left hanging the prescribed period. It was becoming common for the friends or relatives, or even an inquisitive surgeon, to have a hackney coach ready and whisk off the body immediately it was cut down, usually to a tavern, where a vein was opened and, if any blood flowed, restorative measures were applied. From these occurrences it was concluded that the drop used, in contradistinction to the more primitive method, was too short, and the present long-drop method was substituted with the direct object of breaking the neck. The ideal; I was informed as part of my medical education many years ago, is for the odontoid peg to break the odontoid ligament and drive into the medulla, destroying the vital centres.

Reports of post-mortem findings published in accounts of inquest proceedings frequently leave in doubt whether this is achieved; but fracture of two or three of the upper cervical vertebrae is invariably mentioned. Dr. Richards's crushed cervical cord appears in actual fact to be a much more complete destruction than anything which can be quoted as an example of compression of the cord; and if an actual pulping of the medulla is not achieved it is difficult to see how the vital centres can retain any activity when there is such widespread destruction and consequent direct violent alteration of pressure just below.

One would agree that the present method, or any conceivable method, of hanging does not cause instantaneous death, because the adjective is inapplicable to any mode of death known to man; but it approaches instantaneousness much more closely than any other method, even shooting, unless in that method a bullet actually traverses the medulla. And even in such a case the wound of entry presumably causes some momentary knowledge of injury before the vital centres are destroyed. Electrocution is sometimes considered to be as quick as lightning, but it is understood that early mishaps with this method, including some arising from using too high a voltage, have led to the use of three successive shocks, and, therefore, which causes death cannot with certainty be determined.—I am, etc.,

London, S.W.6. C. T. NORRIS

The G.P. and E.C.T.

SIR,—I believe that our hospital is the only place in Cornwall where E.C.T. is applied, thus I think it almost my duty to join in the controversy started by Dr. Donald M. O'Connor, of Launceston (October 29, p. 984). The percentage of relapses among my patients during the last five years is very small, I could say negligible, though I do not deny that some needed a second course of E.C.T., and still less few a third course. With this confession I should like to combine a citation from Dr. Robert Thompson's letter (November 19, p. 1178), with whose statement I am in complete agreement. He asks, "What is wrong with a second course of E.C.T., or even a third?" Here it is worth while to state that in the U.S.A. an average course of E.C.T. has 20 shocks (not 6–10), not to mention weekly maintenance doses lasting one year and longer.

The letter of Dr. J. Ernest Nicole (November 12, p. 1116) stresses an important point. It is true that E.C.T. alone is not always a cure in itself, and after-treatment is necessary in many cases. This brings me to a fact not fully appreciated yet. It is an established fact that patients—say, with an injury of a leg and some resulting disablement—are not only given time of convalescence but also, and what is more important, rehabilitation facilities, by means of which they are taught to rely again on their injured limb. Are patients who sustained an injury to the most sensitive organ in the body—the cerebrum—not in need of and entitled to rehabilitation?

I too believe that the impact of everyday life, without gradual preparation for it, is at least one of the main causes of many relapses. Much has been done and much is done in our hospitals; nevertheless under present conditions convalescent wards in many hospitals cannot replace convalescent homes and still less rehabilitation centres. There, apart from necessary maintenance doses of E.C.T., I visualize patients being taught to rely on themselves again. The return to everyday life and to the original conditions and circumstances—often a big part in the causal mosaic—will, properly guided, be done gradually and, I think, with lasting effect even in cases which at present tend to relapse.—I am, etc.,

Bodmin, Cornwall. ERNEST E. FELDMESSER

Poisoning by Ferrous Sulphate

SIR,—May I offer a footnote to the article by Dr. J. H. Prain (November 5, p. 1019) and to your annotation (p. 1034) on poisoning by iron pills? It is desirable that not only the patient who possesses tablets of the "fersolate" type but the doctor also who prescribes them should be aware of the danger.

In a recent case, when a child of 14 months swallowed 44 tablets, the practitioner was consulted within five minutes and again after an hour and a half: he said that there was no danger and that the baby would be perfectly all right. At the inquest he regretted his error, with the explanation that the tablets were

not listed in the textbooks as a poison, and no antidotes were recommended for an overdose. The makers' container itself, of course, bears a warning; it should be remembered that a pharmacist supplying them on prescription does so in a plain packet.—I am, etc.,

HENRY PORTER

POINTS FROM LETTERS

Asthma at Sea

Dr. G. L. ALEXANDER (Bristol) writes: It is commonly assumed that a voyage to the Antipodes is wholly good for health. Many find to their cost that this is not so, noticeably asthmatics on the large crowded liners. The first night out from Tilbury they are smitten with the worst attack they have ever had. This does not respond to their usual remedy, repeated large doses of adrenaline being required for even partial relief; and it is days before recovery is complete. On arrival at the Australian coast, down they go again, and they have a bad time crossing the Bight. Some have nearly died. Practitioners would do well to advise their asthmatic patients bound for Australia to fly if they can afford it; otherwise to consult the ship's surgeon as soon as they get aboard, as there are various ways in which he can help them.

Treatment of Rheumatic Fever with Antihistamine Drugs

Dr. L. A. QUIRK (London, W.1) writes: It is over two years ago that I first used the antihistaminics in a case of rheumatic fever—apparently with good results. I tried them in a second case, and again was impressed favourably. Later I was informed by a physician at a Vancouver (British Columbia) hospital that pyribenzamine was used routinely in cases of rheumatic fever admitted to that hospital. . . . As it would appear that theoretically the antihistaminics are the logical treatment for rheumatic fever, and because of the importance of this disease in general practice, may I urge you to let us general practitioners have some information on the results of investigations at an early date?

Confusion with Tablets

Mr. B. A. LEVINSON (London, W.1) writes: From the patient's standpoint I have frequently noted with apprehension the absence of warning or even identifying marks upon barbiturate and other dangerous tablets. A recent incident prompts me to address you on the subject. My doctor prescribed pethidine and "amytal." My chemist supplied them, each box being marked, in the words of the prescription, "to be taken as directed." How was I to know which was which? I guessed, and guessed wrongly. The chemist, to whom I went for identification, took a little time himself to distinguish between the two. . . . I do not intend any expression against either doctor or dispensing chemist, but I venture to suggest to physicians that when prescribing such tablets they should add a direction to the chemist to mark the container with the name of the contents or some other adequate indication of their nature.

Firework Injuries

Mr. F. KEITH HAYMAN (Sharnbrook, Bedford) writes: Having read Mr. L. A. H. Snowball's letter (November 26, p. 1236) may I suggest a very simple safeguard? A conspicuous "A" or "U" could be printed on the firework or, if too small, on a strong tab firmly attached to it, thus conforming to the already well-known cinema-film classification. An obligation could be laid on the manufacturers to mark their products in this way, and on shops to sell only "U" fireworks to children. This could easily be arranged by Government regulation, if the suggestion could be conveyed to the right quarter.

Health and the Soil

Dr. ANGUS CAMPBELL (Edinburgh) writes: I was very interested to read the letter (November 19, p. 1178) by Dr. G. T. Wrench entitled "Health and the Soil." My late teachers at Edinburgh, George Lovell Gulland, Professor of Medicine, Edinburgh, and Sir Edward Sharpey-Schafer, Professor of Physiology, Edinburgh, both described the work of Sir Robert McCarrison, and predicted that the work which he had begun would lead to very great changes in the lives and health of the people. These lectures are now some thirty years old, and very little seems to have been done in the way of following out this great work. It is difficult to see why this great work has not advanced as far as its merits indicate, but the secret seems to lie in the one word "fragmentation." Dr. Wrench describes the answer admirably as the "interdependent whole." To be fair to the Minister of Health one must admit that he is trying to spread the idea of healthy living rather than the bottle of medicine and that he follows out this idea by encouraging action. But I agree with Dr. Wrench that by concentrating on the present ailments of the people we will never reach perfect national health.

Obituary

JOHN ORR, M.D., F.R.C.P.Ed.

Dr. John Orr, who died at Edinburgh on November 28 in his 79th year, was for 21 years dean of the School of Medicine of the Royal Colleges in Edinburgh, where he taught the class of materia medica up to 1945. He was educated at George Watson's College, for which he retained a high affection during his whole life, being twice president of the Watsonian Association. He qualified M.B., Ch.M with honours from Edinburgh University in 1891, and in 1896 took his M.D. and was elected a Fellow of the Royal College of Physicians of Edinburgh. He chose general practice as a career, and after a long and busy life retired nearly 20 years ago. He was then free to devote his interest and energy to medical education and teaching, in which he had always been greatly interested. To gain wider experience and insight into these subjects he visited medical schools in the U.S.A., Canada, and India. He became dean of the School of Medicine of the Royal Colleges in Edinburgh in 1924. He was a member of council of the Royal College of Physicians of Edinburgh from 1926 to 1930, and acted as their representative on the board of managers of Edinburgh Royal Infirmary. He was a former senior president of the Royal Medical Society of Edinburgh. Dr. and Mrs. Orr celebrated their golden wedding early this year, and great sympathy will be extended to his widow.

Lieutenant-Colonel A. D. Stewart writes: By the death of Dr. John Orr in his 79th year the medical profession of Edinburgh has lost a very distinguished member—and not only the medical profession. Like many other doctors he had wide interests and activities outside his chosen career. He had a deep knowledge and appreciation of classical music, and he took a lively interest in the provision of symphonic music in Edinburgh. He was a keen and expert bowler and curler, and he had a real love of Classical and English literature. His administration of the School of Medicine of the Royal Colleges of Edinburgh was particularly successful, and it was largely due to his interest and ability that the school came successfully through difficult periods until it was taken over by the University in 1943. His interest and kindness and ready help will be remembered by many generations of students. He gave long and devoted service to the board of managers of the Royal Infirmary of Edinburgh, on which he served for over 20 years. The department of radiology strongly interested him, and he was largely responsible for the development of this important and essential side of the hospital's activities. The secret of John Orr's success lay in the sterling qualities of his mind and character. It is given to few men to live as long and as complete a life as his. Nature had gifted him with good health and an abundance of physical and mental energy, a clear reasoning mind, an acute intellect, and a cheerful and optimistic outlook on life. He had as a foundation a simple but high religious faith, and from this sprang many of the qualities of his character. Dr. Orr will be remembered by us as a great servant of the Royal Infirmary, as an outstanding example of one who used to the full the opportunities afforded by the voluntary principle to serve unselfishly and unstintingly a great voluntary institution, and through it a whole generation of his countrymen. Those who knew him and shared his friendship will remember him as one who was kindly, courteous, and wholly sincere.

Dr. JAMES DEWAR, who died on September 1, was born at Mullingar, in Southern Ireland, on November 22, 1883. His father was the late Elliot Paxton Dewar, Head Inspector of Schools in Ireland. James Dewar was educated at Lurgan College and at Queen's College, Belfast, where he graduated in 1907. In 1911 he came to Bury as assistant to the late Dr. France. In the first world war he served as medical officer to the 5th Battalion Durham Light Infantry, returning to Bury in 1919. He then took over the practice of Dr. France, one of the biggest in Bury, and carried it on until his death. He was police-surgeon to the county borough from 1919 to 1948. The cares of a large industrial practice allowed him little leisure, and latterly his only hobby was the collection of antiques. In his younger days he was interested in rugby, cricket, and rowing. James Dewar's charm of manner endeared him to all his many patients. His industry enabled him to carry on the large practice to which he had succeeded. His loyalty to his medical colleagues, his unassuming modesty, and his native Irish wit were notable. He died, as he would have wished to die, in harness, but he will long be remembered.

The Rev. Dr. GEORGE BROCKLESBY DAVIS died in Cambridge on November 5 at the age of 76. Dr. Davis was the son of the Rev. Brocklesby Davis, and was born in Allahabad in 1873. He was educated at Corpus Christi College, Cambridge, and later at Ridley Hall, where he read for Holy Orders. As a student of the London Hospital he qualified in 1904. After taking a curacy at Forest Gate he joined the Church Missionary Society in 1905, and from then until 1919 he served as a medical missionary at Amritsar, in India. He was in charge of the C.M.S. Hospital at Amritsar for many years, and he served many of the outlying village hospitals and dispensaries also. At the same time he continued his ministry as a priest of the Church of England in the little mud churches scattered over a wide district. Early in his career in India he learnt from the famous Colonel Smith the intra-capsular technique of cataract extraction, and he performed hundreds of operations on Sikh and other patients. He was also responsible for an extensive programme of inoculation against plague, and he taught scores of Indian dressers and dispensers minor medical and surgical procedures. Dr. Davis, perhaps on account of his equable temperament, was always known to his Indian patients as "Firishta Doctor Sahib," which means roughly "Angel Doctor." In 1911 he married the daughter of the Rev. Charles Howard. When he returned to England in 1919 Dr. Davis brought his wife with him and the first five of his subsequent family of eight children. He was in practice in Ely for 25 years, for most of them in partnership with Dr. K. S. Maurice-Smith. In 1931–3 he was chairman of the Isle of Ely Division of the B.M.A. He was medical officer and public vaccinator for Ely, Trinity, and Little Downham, and medical officer to the Ely Dispensary and Poor Law Institute. His health broke down in 1945, and thereafter he was partially paralysed and lived in retirement in Cambridge. He was much loved by the people of Ely and was never known to refuse to answer a call from the Fens, even in the worst weather. He was an able general practitioner and a skilled obstetrician, and he will be remembered as a man who gave invaluable service to the community in which he worked, both in India and in Ely.

Dr. WILLIAM BRANDER, who died on November 21 in London at the age of 73, graduated M.B., Ch.B. at Aberdeen in 1901. He proceeded M.D. with the highest honours in 1910 and Ch.M. with distinction in 1922. He took the M.R.C.P. in 1937. He served in Firvale Hospital, Sheffield, then a Poor Law hospital, for some years before becoming medical superintendent of Hackney Hospital in 1911. This post he held until October, 1929, when he was appointed principal medical officer in charge of the general hospitals division of the London County Council. He retired from office on account of ill-health in 1936. Soon after his retirement he went to Egypt. He was still there at the outbreak of war and was unable to return. Throughout the war years and for the early post-war period he wandered over eastern Africa, from Egypt to the Cape and back again, in an unavailing search for a climate that would suit him and relieve his bronchitis and emphysema. In due course, after the war, when transport became available and when he was well enough to travel, he returned to this country, but from the time of his return his health was such as to enforce on him a quiet and retired life. His absence in Africa for so many years and his seclusion after his return took him out of public life and away from professional contacts. Every period is in a sense a transitional period, but it fell to Brander in exceptional measure to deal with rapid changes and developments. He was at Hackney during the years after the first world war when many of the Poor Law hospitals made rapid advances in response to the increasing demands which were being made on their services. Hackney Hospital under Brander was in the forefront of these changes. Then with the Local Government Act of 1929 the London County Council assumed control of the Metropolitan Asylums Board hospitals and also of all the hospitals in London formerly controlled by the twenty-five Boards of Guardians. It was quite a big job to take over the M.A.B., but the M.A.B after all was already an organized hospital service. It was Brander's task to deal with hospitals, mostly general, which had been under twenty-five different managements, hospitals varying in size, in function, and in development. He was also concerned with epileptic colonies and nurseries and his duties included the administration of the district medical work, which until 1948 played such an important part in the medical care of the poorest people of London. He was responsible, too, for the supervision of the medical services in the Public Assistance Institutions. Brander bore the brunt of this stupendous task. He worked very hard and there is little doubt that this contributed to his ultimate breakdown in health. Without Brander's help Sir Frederick Menzies would have found very much more difficult the task, which he carried out so well, of moulding and developing the municipal hospital service of London. Dr. Brander's academic distinctions indicate his intellectual quality, and his clinical experience was exceptionally wide. He was a very good all-round doctor. It is true that much of his professional time was devoted to administrative problems, but he was a better and a wiser medical administrator because he had been first of all a good doctor. The interests of the patient were always his first interest, and it is noteworthy that he was especially concerned that the chronic sick should receive proper care and consideration. Brander was indeed a canny Scot—his opinions were formed slowly and hesitantly but once formed were always sound, and his advice was highly valued. As a man he was friendly, sympathetic, and generous, a charming companion and a loyal and helpful colleague. His loss will be mourned by all who worked with or for him. He leaves a widow who has devoted herself to his care, especially since his breakdown in health, and a son who is a banker in North Africa.—A. D.

Dr. WILLIAM MURRAY CAIRNS died on November 28 at his home in Wallasey at the age of 83 years. The son of a Liverpool cotton broker, he was born in that city in 1866 and educated at the Liverpool Institute and Edinburgh University. He qualified in 1891 and graduated M.D. in 1915. Shortly after qualifying he was for a time surgeon in charge of the English Presbyterian Mission Hospital in Formosa. He returned to Liverpool in 1896, where he established himself in practice and also took a great interest in local medical affairs. Dr. Cairns was a life member of the Liverpool Medical Institution, which he joined in 1897. During his membership he held the offices of secretary in 1919–21, vice-president in 1922–3, and he was made a trustee in 1922. He took a great and active interest in the work of the St. John Ambulance Association, being county surgeon to the Brigade and also chairman of the Liverpool Centre. During the 1914–18 war he was medical officer in charge of the St. John auxiliary military hospital in Liverpool. His services were recognized by the conferment of the C.B.E. in 1920, and ten years later he was made a Commander of the Order of St. John of Jerusalem. Among his other appointments was that of specialist medical officer to the local education committee in regard to the examination of physically defective children, and he was also an examiner in medicine to the General Nursing Council. He had been a member of the

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British Medical Association for the past 46 years, and up till recently he took an active part in its work.

Dr. E. S. A. Ashe writes: I was surprised to see that among all the appreciations of the late Professor T. P. McMurray (November 26, p. 1236) no mention was made of the fact that he was not only a brilliant orthopaedic surgeon but a brilliant general surgeon as well. I had the honour to be his house-surgeon, and my wife also, and we have vivid recollections of how on more than one occasion he would turn round at the end of a long operation list of orthopaedic cases and operate on a case of acute intussusception which had been brought in as an "emergency." It was fascinating to watch those surgically beautiful hands one moment wielding an osteotome to shiver a bone and the next, by the most gentle pressure, reducing the seemingly irreducible intussusception. Of McMurray it might be truly said: "He was a man who went about doing good and healing all manner of sickness."

Medico-Legal

LIBEL ACTION BY MR. MATTHIAS ALEXANDER

In March, 1948, an action for libel was brought by Mr. Frederick Matthias Alexander, of London, against three medical men: Dr. Ernst Jokl, Physical Education Research Officer to the Union Education Department, Dr. E. H. Cluver, Director of the South African Institute for Medical Research at Johannesburg, and Dr. B. Maule Clark, of Houghton, Johannesburg, editors of *Manpower*, a biannual scientific journal published in Pretoria by the Government Printer and circulating throughout the Union. The evidence in this case was reported at length in the *Journal* of March 20, 1948 (p. 575), and the written judgment of Mr. Justice Clayden was summarized in the issue of May 8, 1948 (p. 909). Mr. Alexander was awarded £1,000 damages and costs because of an allegedly defamatory article which appeared in the March, 1944, issue of *Manpower*. The defendants entered an appeal.

Judgment on Appeal

Dismissing the appeal with costs,[1] the Chief Justice said that because the trial court had found that it had not been proved that Mr. Alexander's system was entirely worthless, counsel for the appellant doctors had sought to use the evidence of the trial for the purpose of showing dishonesty on the part of Mr. Alexander. The sting of the defamatory matter which had to be justified was that Mr. Alexander knew that his technique was of no value to improve health or cure ill-health, and that he practised it dishonestly to exploit the rich. But, in view of the considerable body of evidence from medical practitioners and others who deposed to benefits derived by patients from his treatment, it was not possible to find that he knew that his technique was worthless and that he only used it to impose upon and exploit the rich.

Passing to the plea of fair comment, the Chief Justice said that there could be no fair comment upon facts which were not true. Counsel for the appellants relied upon the plea of fair comment only in respect of the passage in the offending article dealing with appendicitis. In that passage it was suggested that Mr. Alexander claimed to be able to cure acute appendicitis by means of his system, and the comment was that to give this type of advice was criminal. But the fact was that Mr. Alexander did not, in his books, claim that he could cure acute appendicitis.

As to the contention that in any event the damages awarded to Mr. Alexander by the Transvaal Provincial Division of the Supreme Court were excessive, the Chief Justice said that Mr. Alexander was entitled to compensation for his injured feelings and the hurt to his dignity and reputation. His reputation, in this case, included not only his good name from a moral and social point of view, but also his reputation as a teacher of his system of psycho-physical education. He was therefore unable to come to the conclusion that the damages awarded to Mr. Alexander for that injury were excessive.

[1] *Cape Argus*, June 3, 1949.

Medical Notes in Parliament

National Health Service (Amendment) Bill

The National Health Service (Amendment) Bill was read a third time in the House of Lords without debate on December 2. Consideration of the amendments made by the House of Lords in this Bill was set down for December 8 in the House of Commons.

The Nurses (Scotland) Bill

The Nurses (Scotland) Bill was considered on report in the House of Commons on November 30. On the first schedule (the General Nursing Council for Scotland) Mr. WOODBURN moved amendments to meet the wishes expressed during the committee stage that the Council should include a person with financial experience. Commander GALBRAITH thanked Mr. Woodburn for bringing forward the amendment, and it was accepted. The House then passed to the third reading of the Bill. In moving this Mr. WOODBURN said that on the committee stage he had been asked to give special consideration to the question of "fever nurse," including a nurse with tuberculosis experience. He had been unable to alter the Bill in any way, but he would take care to ensure that the members of the Nursing Council included a person with recent tuberculosis experience.

Sir THOMAS MOORE said the Bill would depend largely on its administration for its success. One of the ways by which nurses could be made happy and contented, and therefore efficient, was by the food they received. According to information from nurses who had received their training in hospitals which he would mention the food was disgraceful. That applied to Glasgow Royal Infirmary. Mr. WOODBURN submitted that the question of food in hospitals was not a question regarding training of nurses. Only training was dealt with in the Bill. If Sir Thomas had complaints of the kind which he had indicated he had better submit them to Mr. Woodburn for verification and not make a personal statement in the absence of verification.

The SPEAKER said the matter had nothing to do with the Bill.

Sir THOMAS MOORE said he did not withdraw his allegation which had been made to him by a nurse. He accepted the Speaker's ruling and would not pursue the matter further. He believed the Bill was a good one and would have all the success which the House desired it to have.

The Bill was then read a third time. It had already passed the House of Lords.

Leprosy

Mr. SORENSEN on November 15 asked what further steps were being taken to deal with leprosy in Nigeria and other West African Colonies.

Mr. CREECH JONES replied that it was not possible to estimate how much of the total expenditure on medical services was devoted to the treatment of any particular disease. No statistics existed which would show reliably whether the incidence of leprosy was increasing or decreasing in West Africa. In Nigeria there was a fully organized Leprosy Service. Arrangements were being made for this Service to extend its activities from the areas in the south, where previously its intensive operations had been carried out, to the whole territory. Missionary bodies, already extensively engaged in leprosy work, were being brought fully into the programme. An experienced leprosy research officer had recently been appointed. A comprehensive scheme for the future had been drafted and was under consideration. This scheme involved heavy expenditure. The extent to which it would be possible to implement it would depend on the relation this expenditure bore to the needs of other social services and the finances of the territory as a whole.

Mr. CREECH JONES added that in the Gold Coast there were five refuges for lepers. A full-time leprosy officer and ten lay assistants had been appointed and had taken up their duties. It was intended that three leprosaria should be established to cover the country. Each would have accommodation for 2,000 patients. Native authorities would be helped to establish leprosy villages where the inhabitants would lead a normal life

under medical supervision from the nearest leprosarium. The rate of progress in implementing these proposals would depend upon the availability of medical staff of all grades, many of whom must be trained locally. In Sierra Leone a permanent form of organization for the control of leprosy was being planned. The co-operation of the Evangelical Brethren United Mission and the British Empire Leprosy Relief Association had been assured, and a grant had been made from the Colonial Development and Welfare funds. In the Gambia plans for the reorganization of Leprosy Services were well advanced. These included the construction of a new Government leprosarium, which would function as a training centre for local staff and also serve as a valuable instrument in propaganda. In both Sierra Leone and the Gambia progress was at the moment hampered by the difficulty of obtaining suitably qualified staff.

Calories

Mr. STRACHEY stated on November 21 that for the year ended last June the calorie figure for the United Kingdom was 2,980 per head per day, which, he said, was not significantly different from the pre-war figure of 3,000 calories per head per day. He added that the figures for the present rate of consumption might prove to be above the pre-war figure by a significant number of calories. He agreed that once up to the pre-war figure the calories had a limited significance and that variety and quality of food came in as important factors. Distribution was more equitable than it had been before the war. Consumption of fats was 98% of pre-war, of eggs 91%, of cheese 110%, of bacon 49%, and of liquid milk 157%. These figures did not include the recent increase in the bacon ration.

Pneumoconiosis in South Wales

In the House of Commons on November 24, opening a debate on Welsh affairs, Mr. JAMES GRIFFITHS said that the Silicosis Board no longer suspended a man with pneumoconiosis unless that disease was accompanied by tuberculosis. Diagnosis of the disability could now be made at a much earlier stage. The Board could, and did, recommend that men could continue in underground employment in approved conditions, subject to re-examination at intervals of not more than 12 months. This was an improvement on the old system by which men were given a certificate once, after which nobody bothered. It was too early to say the new scheme was successful, but it was encouraging. Steady progress was also being made in the application of methods of dust suppression. Dr. Fletcher and his team, in consultation with the Silicosis Board and the Pneumoconiosis Research Unit at Llandough Hospital, Cardiff, were conducting research into the diagnosis and treatment of the disease and into rehabilitation. The future of the South Wales coalfield depended on pneumoconiosis being overcome. Experiments in certain of the North Wales slate quarries in laying dust, particularly in the slate-splitting sheds, showed encouraging results.

Restricted Use of Operating Theatres

Colonel LIPTON and Mr. SWINGLER asked questions on November 24 about the reported restriction of the use of the operating theatre in a hospital or hospitals to the hours 9 a.m. to 5.30 p.m.

Mr. BEVAN said he was making inquiries.

Colonel LIPTON asked whether Lord Horder had not yet had the courtesy or the courage to substantiate the allegation which, in the absence of supporting evidence, would be regarded as irresponsible and possibly malicious.

Mr. BEVAN said he had made inquiries, and so far as he could find out the Ministry of Health had received no information whatever from Lord Horder before or since he made his statement.

The SPEAKER said that Colonel Lipton's supplementary question was an attack on a member of the House of Lords and should not have been made. There was no need in the question to mention any name.

Mr. BEVAN pointed out that the statement had been made by a member of the House of Lords but not in his capacity as a member.

The SPEAKER said that a very offensive supplementary question had imputed malice and that it was not in order for questions to be offensive.

Mr. BEVAN asked leave to point out that the original statement complained of was exceedingly offensive.

Mr. SWINGLER asked Mr. Bevan to consult with the Law Officers of the Crown to find out whether hospital administrators as a group could be protected in any way from unsubstantiated charges against unspecified hospitals.

Mr. BEVAN replied that the only defence and protection which administrators had, or, indeed, which the country had, lay in questions and answers in the House of Commons and in the publicity which was given to them.

Mr. WILSON HARRIS asked whether it was unreasonable that what might be termed routine operations should be confined to set hours provided that emergency operations could take place at any hour.

Mr. BEVAN said there were many inquiries to be made and there were thousands of hospitals. In the absence of detailed information he now had to circularize all the hospital management committees. Certainly it was perfectly reasonable for operating theatres to be closed during certain hours if they were always available for emergency operations, but the implication which had been raised was a reflection upon the National Health Service.

Mr. HENRY STRAUSS asked whether it was not premature until Mr. Bevan had completed the inquiries promised by him in his original answer, to say whether the charge under discussion was substantiated or not.

Mr. BEVAN said that a responsible person, if he had thought that what he alleged was being done and was wrong, would have written to the Minister and given the name of the hospital in order that the Minister might make inquiries. Instead of that much anxiety, pain, and alarm had been unnecessarily given to many hundreds of thousands of people.

Replying to another question by Mr. SWINGLER, Mr. BEVAN said no instruction had been issued either by him or by any regional hospital board to any hospital to reduce the use of penicillin on the ground of expense. The matter was one entirely at the discretion of the doctor.

Mr. SWINGLER suggested that Mr. Bevan should courteously request a member of the House of Lords either to substantiate or to have the common decency to withdraw his allegation.

Mr. BEVAN said he did not propose to enter into any communication with the noble lord in this matter. If the noble lord would send him the precise information upon which he had based his very serious allegation Mr. Bevan would have inquiries made. In the absence of such information Mr. Bevan said he could only ask the country to take no notice of such irresponsible statements.

Mr. NICHOLSON said that some people were allergic to penicillin and that the administration of it did them harm. He asked whether any steps were being taken to see that doctors did not administer it when the patient told them that he was allergic to it.

Mr. BEVAN said that this was entirely a clinical matter with which he did not propose to interfere.

State Grants for Medical Students—On November 17 Mr. HASTINGS asked how many medical students were in receipt of scholarships and maintenance grants provided by the State and local authorities respectively, in England and Wales now and in 1938. Mr. TOMLINSON replied that 3,071 awards by his department to medical students were current, of which 2,634 were under the "Further Education and Training Scheme." The comparable figure for 1938 was 29, all of which were State scholarships. He was unable to state how many of the awards by local education authorities were for medical students.

Chloromycetin.—On December 1 Mr. ROLAND ROBINSON asked why chloromycetin was no longer available to patients under the National Health Service in cases where it was prescribed by their doctors. Mr. BLENKINSOP explained that, to ensure that this scarce and expensive drug was used to the best advantage, Mr. Bevan had arranged to purchase all available supplies and to distribute them through regional hospital board centres. The boards had discretion to make supplies available through the distribution centres to practitioners in domiciliary practice in exceptional cases.

Leprosy.—Mr. TOUCHE on December 1 asked how long the St. Giles Home near Chelmsford had been used for the treatment of lepers, and whether during that period any cases had arisen of this disease being contracted by people in the neighbourhood. Mr. BLENKINSOP replied that the home had been used for 35 years and that no cases of local infection with leprosy were known.

Hearing-aids.—Dr. BROUGHTON asked on December 1 how many Medresco aids had been issued. Mr. BLENKINSOP replied that, to November 5, 39,159 patients in England and Wales had been supplied with Medresco aids. The current average rate of issue was 1,015 a week. Waiting-lists totalled about 86,000. He added that Mr. Bevan was arranging for the staffs of the distribution centres to be increased and new centres to be opened as soon as possible.

Morphine for Mountaineers.—Mr. EDE told Mr. MARPLES on December 1 that representatives of mountaineering interests were invited some time ago to discuss with officers of the Home Office and of the Health Departments how suitable arrangements might be made for the administration of morphine to injured climbers. Mr. Ede hoped that a meeting would be arranged in the following week. He promised to announce his decision as soon as possible after this meeting.

School Dentists.—Mr. TOMLINSON stated on December 1 that for a complete service of dental inspection and treatment it is estimated that a ratio of about one dentist to 3,000 children would probably be required. In January, 1949, the number of school dentists employed by local authorities was equivalent to 868 whole-time officers. To give a ratio of one dentist to 3,000 children, an additional 975 would then have been required. Since then, there were indications that the number had seriously decreased.

Tuberculosis.—Sir ERNEST GRAHAM-LITTLE asked Mr. Bevan whether he was aware that, out of all the patients diagnosed during any one year as suffering from pulmonary tuberculosis, approximately 70% received institutional treatment in public sanatoria, and some 60% would have died from tuberculosis during the following five years. On December 1 Mr. BEVAN replied that he was not sure that an up-to-date long-term follow-up of patients would bear out Sir Ernest's figures. In any case the best hope of making curative treatment more effective lay in detecting the disease in its earliest stages. This was being increasingly achieved through mass radiography and supervision of contacts.

Tuberculosis Beds.—Answering Sir ERNEST GRAHAM-LITTLE on December 1, Mr. BEVAN reported that about 4,400 beds in sanatoria and tuberculosis hospitals were unoccupied on December 1 for lack of staff. Nursing staff in these institutions increased in the year ended June 30 by 774 full-time and 319 part-time, and in the same period 652 beds were reopened.

Hearing and Speech Defects.—The numbers of children suffering from hearing defects and speech defects noted at school medical inspections during 1948 were approximately 19,000 and 20,000 respectively. Ancillary part-time instruction in speech and lip-reading is desirable for some of these children and is provided by some local education authorities.

Epileptics.—The number of persons in epileptic colonies in England and Wales at the end of October, 1949, was 2,604.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on November 19 the degree of D.M. was conferred on W. B. Matthews (in absence).

UNIVERSITY OF CAMBRIDGE

In a Congregation held on November 26 the degree of M.D was conferred on P. Hugh-Jones.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following candidates have been approved at the examinations indicated:

M.D.—P. B. B. Gatenby, W. Houston.

M.B.—*B. A. McC. Thompson, *E. G. England, *Gwendoline G. L. Poots, W. D. H. Powell, Mildred Vilensky, E. V. Page, D. Miller, Marisa A. O'Keeffe, J. H. Ashmore, Margaret B. E. Ellis, F. H. Moore.

B.CH.—L. J. Clein, O. H Killen, Evelyn Browne, J. H. Ashmore, Ruth M. Perrott, Joan I. Buchanan, F. A. Walkey, E. G. England, R. C. Gray, Vyvyan I. K. Johnston, E. B. McHugh, R. ff. Jackson, T. T. E. Michael, B. J. O'Reilly, E. V. Page, Sheilagh M. McHugh, Margaret B. E. Ellis, W. A. McGaw, R. N. Siberry, W. D. McNaul

*With second-class honours.

UNIVERSITY OF LONDON

The University Court has re-elected Sir Henry Dale, O.M., F.R.S., as Deputy Chairman for 1949–50.

The following have been appointed or nominated for appointment or reappointed as representatives of the University on the governing bodies indicated in parentheses: Professor W. C. W. Nixon (Council of the Training College for Midwife Teachers); Dr. G. H. Newns (Hospital for Sick Children); Dr. A. Hope Gosse (Hospitals for Diseases of the Chest); Dr. J. C. Hawksley (University College Hospital).

Joseph Rotblat, D.Ph., has been appointed to the Chair of Physics tenable at St. Bartholomew's Hospital Medical College, from January 1, 1950.

The following have been recognized as teachers of the University in the subjects indicated in parentheses: *Guy's Hospital Medical School:* Dr. T. A. B. Harris, Dr. W. S. McConnell, and Dr. E. H Rink (Anaesthetics); Dr. T. H. Hills (Radiology); Dr. R. Kauntze (Medicine); Mr. R. S. Lawrie (Surgery); Mr. T. L. T. Lewis (Obstetrics and Gynaecology); Dr. R. C. MacKeith (Children's Diseases); Mr. J. W. Mansie, M.R.C.S., L.R.C.P., F.D.S. (Dental Surgery); Dr. T. A. Munro (Mental Diseases). *King's College Hospital Medical School:* Dr. F. S. Cooksey (Physical Medicine) *St. Bartholomew's Hospital Medical College:* Dr. G. J. Cunningham (Pathology (Morbid Anatomy and Histology)). *St. George's Hospital Medical School:* Mr. H. F. Anderson (Surgery); Dr. D. C. Shields (Physical Medicine). *St. Thomas's Hospital Medical School:* Dr H. J. Wallace (Dermatology); Dr. W. D. Wylie (Anaesthetics) *London School of Hygiene and Tropical Medicine:* Dr. J. A. Fraser Roberts (Hygiene and Public Health (Medical Genetics)); Dr. R. F Tredre (Hygiene and Public Health (Tropical Hygiene)). *University College:* Dr. J. Joseph (probationary recognition for two years from July, 1949) (Anatomy).

The Sanderson-Wells (Senior) Prize, of the value of £20, has been awarded to Dr. S. S. B. Gilder for his essay on "The Symptoms and Signs of Experimentally Induced Vitamin Deficiencies in Man," and the Sanderson-Wells (Junior) Prize, of the value of £10, has been awarded to D. F. Hawkins (University College) for his essay on "The Relation of Dietary Factors to Man's Performance of Muscular Work."

University Studentships in Physiology and in Anatomy have been awarded to R. J. Shephard (Guy's Hospital Medical School) and J. I. S. Robertson (St. Mary's Hospital Medical School) respectively

Applications are invited from members of the University for grants from the Central Research Fund to assist specific projects of research and for the provision of special materials and apparatus. Applications, which will be considered three times a year, must be submitted by March 31, July 31, and November 30 Forms of application and further particulars may be obtained from the Academic Registrar Senate House, London, W.C.1.

UNIVERSITY OF MANCHESTER

The Queen has graciously consented to visit the University on the occasion of the centenary celebration of the foundation of Owens College in May, 1951. Her Majesty will on that occasion be presented for an honorary degree. The date of the ceremony has not yet been agreed.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A series of lectures on otolaryngology, arranged jointly by the Royal College of Surgeons of England and the Institute of Laryngology and Otology, began at the College (Lincoln's Inn Fields, London, W.C.) on December 1, when Professor Geoffrey Jefferson discussed intracranial abscess. The remaining lectures will be delivered on the first Thursday in January, February, March, May, and July, 1950, at 5 p.m., and are open, without fee, to Fellows and Members and Fellows and Licentiates in Dental Surgery of the College. Details will be printed in the "Societies and Lectures" column of the *Journal* for the appropriate weeks.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Dr. C. H. Andrewes, F.R.S., will deliver the Dr. John Burns Lecture in the Hall of the Faculty (242, St. Vincent Street, Glasgow), on Wednesday, December 14, at 5 p.m. His subject is "The Common Cold." Medical practitioners are invited to attend.

ROYAL COLLEGE OF SURGEONS IN IRELAND

The following were admitted to the Fellowship of the College on December 2: W. G. Fegan, J. H. Johnston, W. R. Lamb.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended November 19. [No. 46

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	22	4	13	2	1	32	2	14	—	—
Deaths		1	—				—	—		
Diphtheria	96	12	32	3	6	154	14	58	11	3
Deaths	—	—	—	—	—	—	—	—	—	—
Dysentery	116	10	79	2	—	49	10	49	1	—
Deaths			—		—				—	—
Encephalitis lethargica, acute	—	—	—		—	—	—	—	—	—
Deaths		—					—			
Erysipelas			34	6	6			42	5	4
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				47					37	
Deaths	21	1	4	6	1	22	2	9	4	—
Measles*	1,301	23	33	51	76	6,923	135	153	69	54
Deaths†			—	2	—	—		1	—	—
Ophthalmia neonatorum	37	2	6		2	36	3	7	—	1
Deaths										
Paratyphoid fever	6	—	1(A)	2(B)	2	4	—	8(B)	—	—
Deaths		—	—		—	—	—	—	—	—
Pneumonia, influenzal	667	52	13	2	3	732	52	1	3	5
Deaths (from influenza)‡	19	2	3	—	—	15	3	2	1	—
Pneumonia, primary			216	32				225	23	
Deaths	268	59		19	11	249	46		7	7
Polio-encephalitis, acute	7	—				6	—			
Deaths										
Poliomyelitis, acute	219	29	5	4	—	46	4	5	3	1
Deaths§	13	1				3	1			
Puerperal fever			12		—			2		—
Deaths										
Puerperal pyrexia‖	112	12	6		1	100	9	8	1	1
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	2,563	186	269	161	276	1,835	117	325	174	41
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—		—	—	—	—	—	—
Deaths					—				—	—
Typhoid fever	21	—	—	1	—	9	2	1	4	1
Deaths	1	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	991	35	43	29	61	2,680	168	110	68	8
Deaths	2	—	—	—	—	3	—	—	—	—
Deaths (0–1 year)	239	33	44	24	7	323	47	43	18	7
Deaths (excluding still-births)	5,399	937	621	211	113	5,063	846	647	168	117
Annual death rate (per 1,000 persons living)			12·5	13·1				13·1	10·5	
Live births	6,804	1050	831	305	220	7,148	1107	880	346	237
Annual rate per 1,000 persons living			16·7	18·9				17·8	22·8	
Stillbirths	158	25	18			222	27	29		
Rate per 1,000 total births (including stillborn)			21					32		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

Notifications in the week ended November 26 were: poliomyelitis 176 (219), polio-encephalitis 17 (7). Figures for the previous week are shown in parentheses. The number of notifications of poliomyelitis and polio-encephalitis together is now a little higher than it was in the corresponding week of 1947—193 against 145. An extension of relatively high prevalence into the winter months has been reported from other countries of recent years, and when the next review of the world situation is published by WHO it will be interesting to see how far this trend is a general one.

Multiple cases were reported in the following counties: London 24 (29), Berks 3 (5), Buckingham 5 (3), Chester 6 (0), Derby 2 (1), Devon 2 (1), Dorset 3 (1), Durham 2 (2), Essex 16 (14), Gloucester 8 (8), Hereford 2 (1), Hertford 6 (4), Kent 14 (20), Lancaster 10 (10), Leicester 7 (3), Middlesex 11 (15), Norfolk 12 (3), Nottingham 5 (4), Southampton 4 (3), Stafford 3 (2), East Suffolk 3 (2), Surrey 6 (6), East Sussex 3 (4), Warwick 7 (13), West Yorks 17 (32), Glamorgan 5 (10).

Contacts Travelling to and from Eire

When a person who is under surveillance because he is suspected of having been in contact, either abroad or in this country, with a case of smallpox, cholera, typhus fever, plague, or yellow fever intends to travel to the Irish Republic, the medical officer of health who is responsible for the surveillance should send a notification direct to the Department of Health, Custom House, Dublin. If it is necessary to send a notification by telegram it should be addressed to "Health Dublin."

When a person who is under similar surveillance in the Irish Republic intends to travel to this country, the city or county medical officer of health who is responsible for the surveillance there will send, or if necessary telegraph, such a notification to the Ministry of Health (Division 5C), Whitehall, London, S.W.1. The Ministry will notify the medical officer of health for the district to which the person is travelling. For the time being these arrangements are restricted to the five diseases named—those to which the International Sanitary Conventions apply—but the possibility of extending them later to other infectious diseases is not excluded.

Discussion of Table

In *England and Wales* infectious diseases were more prevalent than during the previous week. Increases in the number of notifications included: scarlet fever 400, measles 246, acute pneumonia 133, dysentery 24, whooping-cough 14, and diphtheria 11. The only exceptions to the general rise were acute poliomyelitis and acute polio-encephalitis with decreases of 7 and 16 respectively.

The incidence of scarlet fever is now at its highest level for six years. During the week additional cases were reported from every region except Yorkshire; the largest local rises were Lancashire 100, Derbyshire 40, Warwickshire 35, and Middlesex 34. The incidence of measles declined slightly in the southern section of the country and rose in the northern, though it was only in a few counties that a large rise occurred. In the combined areas of London, south-east, south-west, and south-midland counties the notifications of measles were 76 fewer than in the preceding week, while the largest increases were Durham 147, Norfolk 127, and Staffordshire 45. The chief feature of the returns of diphtheria was a rise of 6 in the notifications in Lancashire. The local fluctuations in the trends of whooping-cough were small; the largest was a decline in notifications of 31 in Lancashire. A small rise in the notifications of acute pneumonia was fairly general throughout the country; the largest increases were London 34 and Yorkshire West Riding 27.

Of the 27 cases of typhoid, 10 were notified in Lancashire. The largest centres of dysentery were Lancashire with 29 notifications (Liverpool C.B. 12), Glamorganshire (Cardiff C.B. 17), and London 10. The largest reported outbreaks of food-poisoning were Dorset, Sherborne U.D., with 39 cases and Yorkshire West Riding, Batley M.B., with 29.



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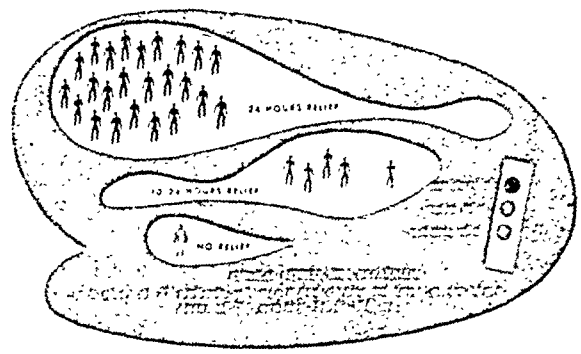
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In *Scotland* increases were recorded in the notifications of acute primary pneumonia 43, scarlet fever 16, and diphtheria 9, while a decrease of 12 was reported for whooping-cough. The rise in diphtheria was contributed by Glasgow, where the cases rose from 12 to 26. Of the 79 cases of dysentery 54 were notified in Glasgow.

In *Eire* falls occurred in the number of notifications of measles 29 and diarrhoea and enteritis 8, and a rise of 13 was recorded for scarlet fever.

In *Northern Ireland* rises occurred in the number of notifications of scarlet fever 83, whooping-cough 22, and measles 18. The rise in these three diseases was due to an increased prevalence in Belfast C.B.

Week Ending November 26

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,827, whooping-cough 1,035, diphtheria 121, measles 1,469, acute pneumonia 710, cerebrospinal fever 32, acute poliomyelitis 176, acute polioencephalitis 17, dysentery 144, paratyphoid fever 11, typhoid fever 11, food-poisoning 128.

Medical News

Nuffield Grants for Cortisone Research

The Nuffield Foundation has made a grant to Oxford University of £10,000 payable over three years for research on the synthesis of cortisone, and the following grants, also payable over three years, to Cambridge University: (1) £5,000 for research in the Chemical Laboratory under Professor A. R. Todd, F.R.S., on the convenient synthesis of peptides and their application in particular to problems of the adrenocorticotropic hormone, and for work on the synthesis of compounds with cortisone activity but simplified structure; (2) up to £11,000 for research in the School of Biochemistry under Professor F. G. Young, F.R.S., on pituitary adrenocorticotropic hormones.

Royal Society Elections

At the 287th anniversary meeting of the Royal Society, held on November 30, the following were elected as officers and council for the ensuing year. *President:* Sir Robert Robinson, O.M. *Treasurer:* Sir Thomas Merton. *Secretaries:* Sir Edward Salisbury and Sir David Brunt. *Foreign Secretary:* Professor E. D. Adrian, O.M. Sixteen members of council were elected, including the following medical men: Professor G. L. Brown, Dr. F. M. R. Walshe, Dr. V. B. Wigglesworth, and Professor S. Zuckerman.

World Health Organization Fellowships

The World Health Organization, in order to strengthen health services throughout the world, provides fellowships to medical practitioners who are engaged, or will be engaged, in public health services, medical education, or medical research. The amount of the fellowships varies from 200 to 300 dollars a month, plus cost of travel, tuition fees, books, and literature. The fellowships are open to members of the medical profession who have gained at least two years' experience in the field in which they will study under the fellowships scheme. In special circumstances consideration will be given to undergraduates and to non-national graduates employed by the governments of countries not possessing their own graduates suitable for fellowships, provided that such fellows agree to return at the end of their period of study in order to serve the country whose government sponsored their fellowship. Full details of the fellowships can be obtained from the General Secretary, United Nations Organization, Palais des Nations, Geneva.

Sheriff

Mr. E. Davies-Thomas, of Edgbaston, Birmingham, has been nominated a sheriff for Cardiganshire for 1949.

Dr. Morris Fishbein

According to *Time* of December 5, Dr. Morris Fishbein has now resigned from the editorship of the *Journal of the American Medical Association*. He has been editor since 1924.

No Health Centre for Festival

Early in the year the London County Council decided to erect a comprehensive health centre on a site in East India Dock Road, Poplar, in an area to be used for the purposes of the Festival of Britain, 1951. It was intended to give visitors to the Festival some idea of the architecture and facilities of such a unit. But the Minister of Health has been unable in present circumstances to approve of such a centre, though he has intimated that he would be prepared to approve a new building of relatively small extent to accommodate a group practice. The Health Committee of the County Council considers that a group-practice building could only be in the nature of an improvised transitional type of health centre, and as such would be hardly worthy of inclusion in the exhibition. Moreover, the erection of a group-practice building might prejudice the use of the site for a comprehensive health centre later on, and the purpose of closely associating the private practitioner with the other personal health services in the area would not be achieved. The Minister's suggestion will not therefore be adopted. The site is to be reserved until the economic situation has improved and further experience has been gained in the operation of health centres and group practice on a small scale.

Changes in Nurses' Examinations

The General Nursing Council for England and Wales has decided to make certain changes in its Preliminary and Final examinations held in June, 1950, and subsequently. The time allotted to the practical and oral examinations in nursing will be increased, and the oral examinations in anatomy and physiology, hygiene, medicine, and surgery will be discontinued. A section on "Introduction to Psychology" will be included in Part 2 of the Preliminary examination syllabus, and there will be optional questions on psychology in the papers for Part 2 of the Preliminary examination in June, 1950, and thereafter. Candidates for Part 2 of the Preliminary examination in October, 1951, and subsequently must have been instructed in the section on "Introduction to Psychology." The introductory instruction on psychology should teach the student to understand behaviour as it is affected and modified by changes in the environment and the body, by family and community influences, education, and so on. The council does not consider it desirable that instruction should be given on the investigation and diagnosis of abnormal conditions or on psychological methods of treatment.

Wills

Professor Stevenson Lyle Cummins, formerly of the Welsh National School of Medicine, left £8,804. Dr. Arthur Carveth Johnson, of Newport, left £13,697; Surgeon Rear-Admiral William Wallace Keir, of Bishop's Waltham, Hants, £3,676; Dr. Brian Rait-Smith, of St. Albans, Herts, £3,526; and Dr. Richard Aloysius Quinn, of Wigton, Cumberland, £2,820.

COMING EVENTS

Heberden Society

The annual general meeting of the Heberden Society will be held at the Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C., to-day and to-morrow (Friday and Saturday, December 9 and 10). On December 9, at 5 p.m., the annual general meeting will be followed by the Heberden Oration on "Classical Gout" by Professor F. Wood Jones, F.R.S., and at 8 p.m. the annual dinner will be held. On December 10, at 10.30 a.m., at St. Thomas's Hospital (Anatomy Lecture Theatre), London, S.E., Professor D. V. Davies will open a discussion on "Anatomical Aspects of the Rheumatic Diseases," and at 11.45 a.m. the discussion will be continued by Dr. W. A. Fell.

National Society for the Prevention of Blindness

The next annual conference of the National Society for the Prevention of Blindness will be a combined meeting with the Pan-American Association of Ophthalmology, to be held on March 26 to 30, 1950, at the Hotel Floridian, Miami Beach, Florida. Among the topics to be discussed at the conference are current blindness prevention programmes in the countries of the Western Hemisphere; trachoma; industrial ophthalmology; eye problems of school-children; and medical and social management of the glaucomas.

American Tuberculosis Meeting

The 46th annual meeting of the American National Tuberculosis Association will be held on April 24-28, 1950, at the Hotel Statler, Washington, D.C. The medical section of the association—the American Trudeau Society—and the National Conference of Tuberculosis Secretaries, an organization of public health workers, will meet at the same time. The medical sessions will be on the following subjects: the chemotherapy of tuberculosis, surgical aspects of tuberculosis, laboratory investigations, and non-tuberculous diseases of the chest. Further information may be obtained from the National Tuberculosis Association, 1790, Broadway, New York. 19. N.Y.. U.S.A.

SOCIETIES AND LECTURES

Monday

INSTITUTE OF LARYNGOLOGY AND OTOLOGY, 330-332, Gray's Inn Road. London, W.C.—December 12, 5.30 p.m., "*The Mechanism of Vestibular Reactions*," by Professor Gösta Dohlman (University of Lund, Sweden).

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, Cavendish Square, London, W.—December 12, 8.30 p.m., discussion: "*Bone Tumours*," to be introduced by Drs. J. F. Brailsford and H. A. Sisson.

Tuesday

CHELSEA CLINICAL SOCIETY.—At South Kensington Hotel, 47, Queens Gate Terrace, London, S.W., December 13, 7 for 7.30 p.m., discussion: "*Fashions and the Freudians*," to be opened by Mr James Laver.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—December 13, 5 p.m., "*Scleroderma*," by Dr. G. B. Dowling.

INSTITUTE OF PHYSICS: ELECTRONICS GROUP.—At 47, Belgrave Square, London, S.W., December 13, 5.30 p.m., "*The Nervous System as an Electrical Machine*," by Dr. W. Grey Walter.

Wednesday

CAMBRIDGE UNIVERSITY.—At Addenbrooke's Hospital, Cambridge, December 14, 2.30 p.m., "*The Ethics of Medical Practice*," by Dr. B. Branford Morgan.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—December 14, 5 p.m., "*X-ray Technique*," by Dr. C. W. McKenny.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.—At B.M.A. House, Tavistock Square, London, W.C., December 14, 8.30 p.m., "*Diseases of the Newborn, Recent Advances in Treatment*," by Dr. Victoria Smallpeice.

MIDDLESEX COUNTY MEDICAL SOCIETY.—At Ashford Hospital, London Road, Ashford, December 14, 3 p.m., general meeting. "*Some Endemic Diseases of Egypt*," by Dr. E. N. Callum.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW, 242, St. Vincent Street, Glasgow.—December 14, 5 p.m., "*The Common Cold*," by Dr. C. H. Andrewes.

ROYAL SANITARY INSTITUTE, 90, Buckingham Palace Road, London, S.W.—December 14, 2.30 p.m., "*Tuberculosis Infection and the Use of B.C.G.*," discussion to be opened by Dr. Frederick Heaf.

SOCIAL PSYCHOTHERAPY CENTRE, 7, Fellows Road, London, N.W.—December 14, 5 p.m., "*Social Psychiatry*," general discussion by Dr. Joshua Bierer and other members of the staff of the centre.

SOCIETY OF CHEMICAL INDUSTRY: FOOD GROUP.—At Burlington House, Piccadilly, London, W., December 14, 6.15 p.m., meeting of Nutrition Panel. "*Soups as Food*," papers by Messrs. H. S. Sarson and J. G. Huntley, and Miss B. R. Stanton. Visitors are invited.

Thursday

BRITISH INSTITUTE OF RADIOLOGY.—At 32, Welbeck Street, London, W., December 15, 8.15 p.m., Joint meeting with Radiological Section, Royal Society of Medicine, "*The Physical Properties and Performance of Fluorescent Materials and Amplification of the Intensity of the Fluorescent Image*," papers by Messrs. J. W. Mitchell, M.Sc., and G. N. Harding, B.Sc.

EDINBURGH CLINICAL CLUB.—At B.M.A. Rooms, 7, Drumsheugh Gardens, Edinburgh, December 15, 8 p.m., "*Varicose Veins and Thrombophlebitis of the Leg*," by Mr. T. McW. Millar.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, Hyde Park Corner, London, S.W.—December 15, 4.30 p.m., lecture-demonstration: "*Neurology*," by Dr. D. J. Williams.

Friday

BIOCHEMICAL SOCIETY.—At Guy's Hospital Medical School (Department of Biochemistry and Chemistry), London Bridge, S.E. December 16, 2 p.m., communications and demonstrations.

BRITISH INSTITUTE OF RADIOLOGY.—At 32, Welbeck Street, London W., December 16, 5 p.m., meeting of Medical Members.

BRITISH INSTITUTE OF RADIOLOGY.—At Royal Society of Medicine 1, Wimpole Street, London, W., December 16, 8.15 p.m., Joint meeting with Radiological Section, Royal Society of Medicine "*The Physical Properties and Performance of Fluorescent Materials and Amplification of the Intensity of the Fluorescent Image*," paper by Mr. F. I. G. Rawlins, M.Sc.

FACULTY OF RADIOLOGISTS.—At Royal College of Surgeons of England, Lincoln's Inn Fields, London, W.C., December 16 2.15 p.m., "*The Chest After Thoracic Operation*," speakers Mr P. R. Allison and Professor A. S. Johnstone.

MAIDA VALE HOSPITAL FOR NERVOUS DISEASES MEDICAL SCHOOL Maida Vale, London, W.—December 16, 5 p.m., clinical demonstration by Dr. J. W. D. Bull.

Saturday

YORK MEDICAL SOCIETY.—At 17, Stonegate, York, December 17 8.30 p.m., "*Disorders of Micturition*," by Mr. J. K. Willson Pepper.

APPOINTMENTS

HOCKEN, M. E., M.B., Ch.B., D.P.H., County Medical Officer and School Medical Officer, Isle of Ely County Council.

JACKSON, MALDWYN ISAAC, M.R.C.S., L.R.C.P., Consultant Chest Physician Newport and East Monmouthshire Group, Welsh Regional Hospital Board.

JOHNSTON, WILLIAM, M.B., Ch.B., Medical Officer, Royal Western Counties Institution, Starcross, Devon, South-Western Regional Hospital Board.

MAXWELL, J. A., C.V.O., C.B.E., M.B., B.Ch., F.R.C.S.Ed., Surgeon Rear Admiral, R.N.(ret.), Medical Superintendent, St. Mary's Hospital, Portsmouth.

PERRY, WILLIAM RODHAM, M.B., B.S., D.P.H., Medical Officer of Health to Basford Rural District Council and Eastwood Urban District Council, and Assistant County Medical Officer, Nottinghamshire.

SCOTT, GORDON ISLAY, M.B., Ch.B., F.R.C.S.Ed., Consultant Surgeon Moray Hospitals.

WALKER, JOSEPH, M.B., Ch.B., L.D.S., D.P.H., D.P.D., Divisional Medical Officer, Health Division 4, Lancashire County Council.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Cader.—On November 30, 1949, to Joan (née Thornborrow), B.D.S., wife of Marzook A. Cader, M.R.C.S., L.R.C.P., M.B., B.S., D.L.O., a son.

Lucas.—On November 30, 1949, at Strathlean Nursing Home, Muswell Hill, to Kathleen, wife of David R. Lucas, M.B., B.S., a daughter—Jacqueline Frances.

Scudamore.—On November 24, 1949, at Stapleford, Notts, to Mary Ruth (née Jones), wife of Dr. T. O. Scudamore, M.B., D.R.C.O.G., a daughter.

DEATHS

Anderson.—On November 29, 1949, William Anderson, O.B.E., M.B., F.R.C.S. of 28, Carnegie Crescent, Aberdeen.

Cairns.—On November 28, 1949, at 60, Seabank Road, Wallasey, William Murray Cairns, C.B.E., M.D., previously of 67, Catharine Street, and Parkfield Road, Liverpool, aged 83.

Cameron.—On November 25, 1949, at Midhurst Sanatorium, Robert Cameron, M.D., of 19, Fulbrooke Road, Cambridge.

Gordon-Munn.—On November 29, 1949, at Croys, Castle Douglas, Scotland John Gordon Gordon-Munn, M.D., F.R.S.Ed., J.P., aged 86.

Grimshaw.—On October 11, 1949, at 2, Holly Bank Road, Clifton Park Birkenhead, John Grimshaw, M.D., D.P.H., aged 82.

Humphrey.—On December 1, 1949, Leslie Alfred Humphrey, M.R.C.P. M.R.C.S., aged 32.

Hutchinson.—On November 24, 1949, at 20, Ramshill Road, Scarborough Robert Hutchinson, M.B., Ch.B.Ed.

Huxtable.—On November 23, 1949, Arthur Edwin Huxtable, M.R.C.S., of The Vicarage, Houghton Regis, Beds, aged 94.

King.—On November 21, 1949, at Southampton, Arthur King, M.D., aged 87.

McKiernan.—On November 21, 1949, at Falmouth, Thomas Hugh Robinson McKiernan, M.B., B.Ch., B.A.O.

Mahood.—On November 23, 1949, Allan Edward Mahood, M.B., F.R.C.S., of Haynford, Norwich, aged 86.

Nuttall.—On November 30, 1949, at Southern Hay, Llanerch Road West Colwyn Bay, Denbigh, Harold Nuttall, M.D., aged 78.

Orr.—On November 28, 1949, at Edinburgh, John Orr, M.D., F.R.C.P.Ed., of 6, Strathearn Road, Edinburgh.

Parry.—On November 19, 1949, at Caernarvon, William Hilton Parry, M.C. M.B., Ch.B., J.P.

Reeve-Flaxman.—On November 20, 1949, at Middlesex Hospital, London, W. Samuel Christopher Reeve-Flaxman, M.R.C.S., L.R.C.P., aged 69.

Sanders.—On November 20, 1949, at Gleniffer, Four Oaks, Warwickshire Arthur Addison Sanders, O.B.E., M.B., Ch.B., Surgeon Captain R.N., retired.

Smith.—On November 30, 1949, at Springfield, Hawkhurst, Kent, Herbert Austen Smith, C.I.E., M.B., B.Ch., M.R.C.S., L.R.C.P., Colonel I.M.S. Ret., aged 83.

Smith.—On November 29, 1949, at Pembury Hospital, John Smith, M.B., Ch.B. of Sutton Valence, Maidstone, Kent, aged 48.

Storey.—On November 24 1949, on way home from Singapore, Bryan Hamilton Storey, M.R.C.S., L.R.C.P., Colonial Medical Service, aged 27.

Stork.—On November 27, 1949, after a short illness, Ernest Stork, D.S.O. M.B., J.P., of Bury St. Edmunds, aged 79.

Sullivan.—On November 23, 1949, at The Elms, South Kirkby, near Pontefract Edward James Holmes Sullivan, M.D., aged 90.

Trethowan.—On December 1, 1949, at Stoke-on-Trent, Joan Durham Trethowan, M.R.C.S., L.R.C.P.

Wilson.—On November 28, 1949, at The Lindo Wing, St. Mary's Hospital London, W., Anna Justina Augusta Wilson, F.R.C.P.Ed., late of 11, Wimpole Street, London, W.

Wyatt.—On November 24, 1949, at Guy's Hospital, Harold Douglas Wyatt M.R.C.S., L.R.C.P., of the Ministry of Pensions.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Vasomotor Rhinitis

Q.—*(1) What is the modern opinion regarding the value of skin tests in a case of vasomotor rhinitis? (2) What hope is there of obtaining relief for this distressing complaint by desensitization? (3) Is cauterization of the nose of any value in treatment? The patient in question has a family history of allergy, and x-ray examination of the sinuses reveals a mucous polypus on the floor of the right antrum. (4) Could this polypus cause the symptoms, and what should be done about it?*

A.—(1) Allergy to foods and inhalants undoubtedly is the cause of some cases of vasomotor rhinitis, especially where there is a family history of allergic conditions. In this group inhalants account for the large majority and foods are relatively unimportant. Apart from pollens, which are seasonal, house dust is by far the commonest cause. In these cases morning sneezing is very common and a history of itching or irritation of the nose and nasopharynx is often obtained. The nasal smear in these cases contains eosinophil leucocytes but no pus. In such cases intracutaneous skin tests are helpful and must be done. But when skin tests are carried out by inexperienced persons as a short cut to the diagnosis and as the sole method of investigation they are more often than not misleading. Although positive skin reactions may be obtained to more than one allergen, clinically one allergen is usually found to be dominant. This can, with special techniques, be confirmed immunologically.

(2) Eliminative procedures aimed at reducing contact with house dust to a minimum together with desensitization give satisfactory results in these cases. The difficulty arises owing to the frequent development of superadded infection and the natural tendency of these patients to become allergic to their infection. The finding of pus in the nasal smear is an indication of infection. The presence of a polypus suggests that this patient has had some superadded infection to which he is allergic.

(3) Cauterization of the septal tubercle and anterior end of the inferior turbinate will in many cases relieve the symptoms. It does not, of course, remove the cause, and should not be too often repeated, as it destroys some of the ciliated epithelium.

(4) The polypus probably does not contribute appreciably to the symptoms. Removal could be effected only by opening the antrum through the canine fossa, with a risk of introducing further infection—a most undesirable complication in allergy. Therefore it should be left, unless it is growing rapidly and possibly blocking the ostium.

Treatment of Alcoholism

Q.—*What is the rationale of the treatment of alcoholism by "antabuse"? Is there a risk to the patient in the use of this drug, and also afterwards if he should take alcohol? Is this the best method of treatment available or are there any other drugs which are as effective and as easy to administer?*

A.—"Antabuse" (tetraethylthiuramdisulphide) interferes in some unknown way with the normal metabolism of alcohol in the body, giving rise to unusually high concentrations of acetaldehyde in the blood after alcohol has been taken. This causes unpleasant symptoms, such as congestion of the face and eyes, tachycardia, palpitation, giddiness, headache, and anxiety, which are nearly always alarming to the patient and are occasionally severe enough to be dangerous. In consequence it is wise for this treatment, in its early stages at least, to be undertaken in an institution until the patient's reaction to a test dose of alcohol following antabuse has been properly established. Antabuse is innocuous unless alcohol is subsequently taken. There is as yet no other sensitizing agent to alcohol which is as effective and as easy to administer as antabuse, but the latter in itself is not a short-cut to the cure of alcoholic addiction; it is only a valuable ancillary to the psychological and environmental rehabilitation of the patient, without which the ultimate results of treatment are almost always unfavourable.

Progressive Muscular Atrophy

Q.—*Has there been any recent advance in the understanding of the aetiology, and also in the treatment, of progressive muscular atrophy? What is the prognosis?*

A.—Unfortunately there has been no recent advance in the understanding of the aetiology or in the treatment of progressive muscular atrophy. The course of the disease varies considerably in different individuals, and the age of the patien seems to be the most important factor in influencing the rat of deterioration. When the disease begins in the early thirties there is usually a rapid downhill course and death often occurs within two years. In the elderly, on the other hand, the prognosis is usually better and the patient may live five years or even longer. The site at which the motor neurone degeneration begins is also important, for when the bulbar muscles are affected early the prognosis is worse than when the disease first shows itself in the wasting of the small muscles of the hands.

Tuberculosis Mortality Rate

Q.—*The death rate from respiratory tuberculosis is now only a quarter of that of 100 years ago. It would be interesting to know how much of this decrease is due to better treatment as opposed to general public health measures. Are there any figures available to show to what extent the cure rate in diagnosed cases of pulmonary tuberculosis has improved under modern methods?*

A.—This is too large a question to be answered shortly: in fact, the complete answer is not known. A number of factors have influenced the decline in the mortality rate from tuberculosis, and authorities differ in their estimates of the relative importance of these. It seems probable that improved living standards following industrialization have had the greatest influence. There is abundant evidence that changes in living conditions—for example, in wartime—are accurately reflected in the tuberculosis mortality. The campaign against tuberculosis and improvements in treatment have undoubtedly played a part, but it is impossible to assess their effect accurately. Bentley ("Artificial Pneumothorax," *Spec. Rep. Ser. med. Res. Coun., Lond.*, 1936, 215) showed that the number of patients whose lives were prolonged by artificial pneumothorax treatment was so small when compared with the whole tuberculous population that the use of this treatment would not alter materially the gross survival rates. The same applies to most other methods of treatment, which, although invaluable to a small group, have little effect upon the whole. Statistics are available to show that, within their limited field, modern methods of treatment have improved the chance of survival. Simmonds and Martin (*Amer. Rev. Tuberc.*, 1948, 58, 637) have demonstrated that the chance of survival is doubled by the use of collapse therapy in suitable cases, and the benefit to be derived from streptomycin in cases of tuberculous meningitis is even more obvious. For further discussion of the reasons for the general decline in the tuberculosis mortality rate the questioner is referred to Rich, *The Pathogenesis of Tuberculosis*, 1946, chapter 21, and Pinner, *Pulmonary Tuberculosis in the Adult*, 1945, chapter 19.

Testicular Grafts

Q.—*Is it possible to graft a testis in a case in which both testicles have been removed and, if so, is this likely to improve the general health?*

A.—Testicular grafts taken from other animals, and even from chimpanzees, are rapidly extruded by the host's body. Even when grafts are made from human testes removed because

they are misplaced, they are absorbed within a year. Fortunately there is no need to resort to grafting now that the male hormone has been discovered and synthesized. A patient can be prevented from becoming a eunuch by giving him injections of testosterone or by implanting pellets of this hormone. Under such treatment the signs of eunuchoidism disappear and sexual desire returns. Treated thus, a patient of the writer's has passed through the Divorce Courts as the guilty party and remarried. Sexual capacity has been maintained with weekly doses of 25 to 50 mg. of testosterone.

Oedema of Upper Eyelids

Q.—*Is there any treatment for persistent oedema of the upper eyelids? A boy aged 18 has suffered from this for more than four years—to such a degree that the pouches so formed hang over the ciliary margins. Renal function is normal, but skin tests show definite reaction to cow and dog hair. He had a severe tonsillitis when a child, but recent removal of the tonsils has not improved the condition. Salt-free diet, antihistamines, and specific and non-specific desensitization have had no effect.*

A.—Oedema of the upper eyelids may be secondary to inflammation, injury, systemic disturbance, or allergy. Sometimes blockage of the upper canaliculus causes oedema of the upper eyelids, but one would not expect it to persist for four years. It is unusual for allergic oedema to be confined to the upper eyelids. Since it is so persistent and constant in this case, one would tend to rule out inhalants and foods as causative factors and would search again for a focus of infection, such as teeth, sinuses, etc. Trichiniasis might be considered. The history would suggest that there is now a chronic lymphatic obstruction, and if a cause cannot be found the patient might be seen by a plastic surgeon.

Salmonella Typhi O Agglutinin Reaction

Q.—*Is it possible for a subject who had T.A.B. injections seven years ago, and none since, to give a serum agglutination of Salmonella typhi in high titre for "O" and less high for "H," unless he is actually infected now with Salm. typhi? When the test was repeated recently the reaction was found to be less strongly positive, but still above 1 in 100. I understand that an anamnestic Widal reaction shows an increase in H antigen but not in O where some other infection is concerned.*

A.—A positive reaction with *Salmonella typhi* O to a titre of more than 1 in 100 is strongly suggestive of an active enteric infection unless the patient has been inoculated with T.A.B. vaccine within the previous six months. The fact that in this case the O titre was higher than the H would not invalidate this general statement, although the inverse findings are more usual. It is true that the O agglutinins are not usually affected, as H agglutinins are, by non-specific stimuli (anamnestic reaction, such as a non-enteric infection), but if in this case there is no more definite laboratory evidence of infection, such as the isolation of *Salm. typhi* from blood or stools, a positive O agglutinin reaction cannot in itself be taken as proof of infection.

Post-encephalitic Parkinsonism

Q.—*As a child a man aged 40 had sleeping sickness, from which he recovered. He now complains of (a) upward rolling of the eyeballs with loss of vision, which returns after sleep; (b) a condition similar to paralysis agitans; and (c) a general slowing-up effect. What is the likely diagnosis, and what should be the treatment?*

A.—This patient is clearly suffering from post-encephalitic Parkinsonism and the attacks are oculogyral spasms, the latter being a manifestation of encephalitis lethargica, which was much commoner 20 years ago than it is now. The treatment is the usual treatment of Parkinsonism. In the past this has consisted in the administration of drugs of the belladonna group; of these, tincture of stramonium is the most effective. A suitable initial dose would be 10 minims (0.6 ml.) in water three times a day, and this could be gradually increased up to 30 minims (1.8 ml.) three times a day if the patient tolerates it well. Recently new substances have become available. The most effective of these seems to be "artane" (3-[1-piperidyl] 1-phenyl-1-*cyclo*hexyl-1-propanol hydrochloride), which is not yet procurable in this country but is being used in the United States. Next in value is "parpanit" (the diethylaminoethyl ester of phenyl*cyclo*pentane-carboxylic acid), the initial dose of which is 0.00625 g. If the patient tolerates it well, this can soon be doubled and then the dose more gradually increased up to the limit of tolerance. "Benadryl" is also worth a trial. Mental retardation and loss of energy often respond to amphetamine in 5-mg. doses.

Pruritus of Scrotum

Q.—*How should one treat pruritus of the scrotum, occurring mainly at night, in a man of 77 who has suffered from coronary disease for 12 years and still has occasional anginal attacks? There is no rash or sign of irritation. The itching is relieved by cocaine ointment, but each application has brought on an attack of dyspnoea and violent palpitation.*

A.—In pruritus of the scrotum in a man of this age it is important first to be certain that there is no irritation from a dribble of urine or from something in the urine, perhaps sugar occasionally or some other irritant. If any such factor is present and cannot be corrected, then some help may be obtained from the use of a waterproof barrier cream on the scrotum. The question of prostatic irritation may occasionally have some bearing in these cases, but in the absence of an organic or local cause the affection is not uncommonly neurogenic. Cocaine and similar analgesic ointments are not usually desirable and often give rise to trouble by causing irritation or sensitization. Crude tar in a paste or superficial *x*-ray therapy in fractional dosage, combined with phenobarbitone or "sodium amytal" at night, should be helpful.

NOTES AND COMMENTS

Carbachol for Migraine.—Mr. S. G. STEVENSON (joint assistant managing director of Messrs. Savory and Moore Ltd.) writes: In his letter concerning carbachol for migraine (November 19, p. 1177), Dr. J. H. Mellotte states that the German preparation "doryl" and the English one "moryl" are inferior to carbachol. I must point out that both "doryl" and "moryl" are proprietary names for carbachol B.P., and that there is no difference, chemically or pharmacologically, between them and the official preparation. Further, as is frequently the case, carbamylcholine chloride was available to the medical profession under these proprietary names before it was included in the B.P. as carbachol. Although "doryl" is no longer available, "moryl" is still the Savory and Moore branded name for carbachol B.P.

Correction.—Dr. EDGAR RENTOUL writes from the Forensic Medicine Department of Glasgow University: I regret that in the latter part of my article, "Rh Genotype Tests in a Trial under the Criminal Law Amendment Act, 1885," published in the medico-legal section of the *Journal* of December 3 (p. 1300), I was in error, when discussing the theoretical possibility of finding the true father, in stating that the true father must belong either to genotypes Cde/cde or Cde/Cde. While the true father may belong to one of these genotypes, this is not necessarily so. The real position is that the father must carry on one of his chromosomes Cde. There are several genotypes which satisfy this proviso in addition to those which I mentioned. The commonest of these is CDe/Cde; this occurs in 0.8016% of the population. The others are much less common. While, therefore, it might be more difficult to find the true father than I originally suggested, we still have in this case the theoretical possibility of being able to demonstrate paternity by blood

All communications with regard to editorial business should be addressed EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* unless the contrary be stated.
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SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY DECEMBER 10 1949

THE SECRETARY REPORTS

MEDICAL SUPERINTENDENTS

In this column on November 12 attention was drawn to the regrettable state of affairs which has arisen from the terms and conditions of service of future medical superintendents. The first anomaly is that it is possible under the Ministry's proposals for a specialist medical superintendent to receive less remuneration than a specialist deputy medical superintendent or a specialist medical officer who is neither a superintendent nor a deputy on the staff of the same hospital. The second grievance arises where the amount of administrative time absorbed by the duties is more than trivial as compared with the time devoted by the medical superintendent to clinical work. In my previous note a comment was made that at the worst a whole-time medical superintendent of a large hospital would be regarded for purposes of pay, and so of status, as exactly the same as the lay secretary of a hospital management committee. It was stated that this would mean remuneration somewhere between £640 and £1,700 a year inclusive, the actual remuneration being determined on a points system. But this rate of remuneration applies where the hospital is the only one administered by the hospital management committee. The position is even worse in cases where the hospital is one of a group under the same management committee.

The terms of service prescribe that medical superintendents and deputies will be paid, for that fraction of their time devoted to administrative work, the same fraction of "the appropriate rate for hospital administrative staff." The appropriate rate for hospital administrative staff (to quote the Ministry's own words from the explanatory memorandum which accompanied the terms of service) will be, "where the hospital is one of a group of two or more administered by the hospital management committee, the rate appropriate to an assistant secretary in charge of the hospital." The scale of salaries for assistant secretaries is set out in the Ministry's circular H.M.C. (48) 2 as follows:

Beds	Salary
Up to 399	£450 × £15–£495
400–499	£480 × £15–£525
500–599	£520 × £15–£570
600–699	£595 × £20–£660
700–799	£635 × £25–£710
800 and over	£710 × £25–£910

There is a weighting factor varying from £20 to £50 a year for officers employed in the London postal area. These salaries are inclusive of board, lodging, and accommodation, the value of these emoluments being deducted from the salary shown above. A future medical superintendent devoting half his time to administrative work of a hospital of, say, 450 beds in the circumstances described will receive for that work a starting salary of £240 a year, rising by three annual increments of £7 10s. to £262 10s. a year, and for his clinical work remuneration at the appropriate clinical rate. This is an intolerable state of affairs.

Public Health Medical Officers Employed by Regional Boards

From correspondence received here recently it is apparent that there is at the moment no uniformity in the arrangements for the remuneration of medical officers employed by local authorities who also undertake duties for regional hospital boards on a part-time basis.

This problem concerns medical officers of health and some members of their staffs who before the N.H.S. appointed day were whole-time officers of local authorities and whose duties included commitments as medical superintendents or medical officers of infectious-disease hospitals or similar institutions. Now that these institutions have been transferred to regional hospital boards, it appears that some medical officers who previously held whole-time local authority appointments are having those appointments converted into part-time appointments and are being asked to sign a separate contract in respect of a part-time appointment with a regional hospital board. In some cases a reduction in total remuneration may result, and, in general, repercussions may arise on such matters as security of tenure and superannuation. These problems are engaging the close attention of the Public Health Committee of the Association and are under discussion with representatives of the Ministry of Health.

For the time being local authority medical officers who are asked to accept such a contract in substitution for what was previously a whole-time contract are advised to defer action until the Association has completed its discussions with the Ministry.

Advertisements for Senior Hospital Officers

It will be recalled that the Joint Committee has been discussing with the Ministry the definition of the limited field in which senior hospital officers will be appointed in the future. Some progress has been made in devising a form of words, and the Ministry's final agreement is awaited. In the meantime, we have been endeavouring, whenever an advertisement for a senior hospital officer is submitted, to decide whether or not the successful candidate will be expected to undertake duties which should be undertaken by practitioners of consultant status. We do this because we cannot accept advertisements which invite practitioners to undertake full consultant work but which offer only a grading of senior hospital officer.

As a rule, we find that senior administrative medical officers are helpful in their replies, but some of them are not. The latest to be received is a model of brevity. In reply to the written inquiry, the senior administrative medical officer replies in the following terms:

"Thank you for your letter of November 18 regarding the advertisements we asked you to insert. I regret to say that it is not possible to differentiate between the duties of a senior hospital medical officer and a consultant, and hence to give the guarantee for which you ask."

Incidentally, the guarantee, or assurance, for which we asked was that "these posts do not involve duties which should be undertaken by a practitioner of consultant status."

If the senior administrative medical officer is right in stating that it is impossible to differentiate between the duties of a senior hospital medical officer and a consultant, the sooner the grade of S.H.M.O. is abolished the better, for it means that of the practitioners engaged on certain duties some are paid at one rate and some at another. It makes one wonder whether the only course which can reasonably be adopted is to reject all advertisements for senior hospital medical officers pending an agreed formula. If, on the other hand, it *is* possible to make the differentiation—and many have found it possible—it may be permissible to say that the reply quoted above is unhelpful, is intended to be unhelpful, and so does little to improve the relations between those responsible for organizing the hospital service and those who provide it.

HOSPITAL MEDICAL STAFF

TRANSFERRED OFFICERS

Section 68 (1) (*a*) of the N.H.S. Act authorized the making of regulations for the transfer to regional boards or boards of governors of officers employed immediately before the appointed day *solely or mainly* at or for the purposes of any hospital transferred to the Minister, subject to such exceptions and conditions as might be prescribed in the case of honorary officers. The regulations which were subsequently made under this Section did not contain any qualification as to honorary officers, and it therefore follows that any practitioner who at July 5, 1948, was occupied in his hospital work for the whole or most of his time might claim to be a transferred officer, irrespective of whether or not he was previously on a salaried basis.

So far as the terms of service for hospital medical staff are concerned, the safeguards provided in them for transferred officers are chiefly of interest to those holding appointments which carried a remuneration before the appointed day, as they are designed to secure that the conditions of these officers are not worsened by the new terms.

Thus, transferred officers may retain their previous salary scale and conditions of service, including emoluments, on a personal basis for so long as they remain in the same appointment, but must accept the new travelling and subsistence arrangements. Where a transferred officer exercises this option he will be required to conform to the terms of service on taking up a new appointment or on promotion, except in the case of a new appointment of equal or greater responsibility (measured by remuneration) than the post held at the appointed day, when he may again choose to continue on his old conditions.

In this connexion it is important to note that the conferment of a special distinction award will be regarded as a new appointment, for otherwise a transferred officer who had elected to retain his old terms would not have been able to receive a distinction award.

If a transferred officer decides to accept the new terms of service, his salary, including emoluments, before the appointed day being higher than that which he would receive on the new scale, he will enter the appropriate salary scale at his existing salary (including the monetary value of his old emoluments) and remain at that point until the new scale overtakes it. Charges for residence or other services provided will be deducted.

Superannuation

In the matter of superannuation, the question whether a practitioner is a transferred officer is of significance not only to officers in salaried posts on July 5, 1948, but to those transferred officers previously holding honorary appointments, and particularly to those over the age of 55 on July 5, 1948. The minimum qualifying period for a pension in the N.H.S. scheme is 10 years, but the Superannuation Regulations provide that transferred officers may reckon their previous service (after the age of 18), under any authority whose functions have been transferred, as qualifying service for the purpose of determining whether any benefit is due under the superannuation scheme. This might enable a practitioner who was over the age of 55 on entering the N.H.S. scheme, and who had no previous *superannuable* service, to qualify for a pension at 65 by counting—as a transferred officer—his previous hospital service, although the amount of the pension will be based upon his contributory service.

HEALTH CENTRES

WEST BROMWICH MEMORANDUM

The West Bromwich Local Medical Committee has recently prepared a memorandum on health centres and submitted it to the local health authority and the executive council. In this industrial town with a population of 86,000 about 99% of the population are on the lists of the National Health Service doctors. Of paramount importance, the committee considers, is the need for the average housewife and the mother of young children to have ready accessibility to her family doctor. The committee emphasizes the necessity for general-practitioner beds in hospitals to reduce the professional isolation of many general practitioners.

A disadvantage of health centres is that they may be detrimental to the patients' free choice of doctor. The memorandum points out that a patient's likes or dislikes are related to groups rather than to individuals—to the hospital rather than the individual specialist, and to the firm of general practitioners as a unit rather than to one member of it. "Grouping the doctors of a town who now practise as a dozen and a half firms from an even greater number of surgeries into four or five groups would seriously restrict the choice the patients would feel to be available, and would probably lead individual patients to feel that they had no choice."

RESEARCH IN HOSPITALS

PRIOR APPROVAL OF MINISTER

The Minister of Health has asked hospital boards and committees not to promote new research work needing additional expenditure from their original budget without his prior approval, so that he may consult the Medical Research Council and ensure co-ordination.

As to research financed from "free moneys," the Minister will not interfere with the discretion of boards and committees, but he asks them to indicate broadly the research projects on which this money is being spent and the amount of the expense.

WINCHESTER MEMORANDUM

The Winchester Division of the B.M.A. is seeking support, by means of a circular, for the requisitioning of a Special Representative Meeting to discuss the reorganization of the Association. The Division's two main contentions are: (1) That approximately 70% of members of Council should be directly elected, and (2) that the relationship of autonomous committees to Council must be clearly defined and their activities co-ordinated.

The requisition is asked for in accordance with By-law 46 (1) of the Memorandum and Articles of the Association, which states that a special representative meeting "shall be convened at any time by the chairman of the Representative Body on the requisition of the Council or on the requisition of not less than 20 constituencies."

A report of the Organization Committee on the constitution of the Council was discussed at the meeting of the Council held on November 16 (*Supplement*, November 26, p. 228).

DENTISTS UNITE

The three dental organizations have decided to amalgamate. They are the British Dental Association, the Incorporated Dental Society, and the Public Dental Service Association.

MINISTRY OF PENSIONS

MILEAGE ALLOWANCE FOR PART-TIME M.O.s

As a result of representations made by the Association the Ministry of Pensions has agreed that mileage allowances at the rate of 1s. a mile (or part of a mile) each way outside the radius of two miles, subject to a maximum allowance of 20s. for each return journey, will be paid to part-time medical officers employed on administrative duties. This is in addition to payments made for treatment and those already payable for attendance at medical boards. These allowances are payable with effect from October 1, 1949.

N.H.S. SUPERANNUATION SCHEME

OPTIONS FOR LIFE ASSURANCE POLICIES

When the National Health Service first came into operation, general practitioners who held life assurance policies and were on the lists of executive councils on the appointed day were, subject to certain conditions, given the choice of coming into the superannuation scheme or of "contracting out" and receiving the Government's 8% contribution towards the maintenance of their policies. The option had to be exercised on or before October 4, 1948.

This option was recently extended with effect from August 1, 1949, to practitioners who joined the Service on the appointed day for the performance of part-time specialist services and who at that time were also committed to paying substantial premiums on life assurance policies. The option was available until November 1, 1949, and any contributions paid into the superannuation scheme in respect of the period July 5, 1948, to August 1, 1949, by a part-time specialist contracting out of the scheme will now be refunded.

In making this new option available the Ministry laid it down that a part-time specialist who was also a general practitioner and had exercised the original option would now be automatically excluded from the superannuation scheme in his employment as a part-time specialist.

Following discussions with the Ministry it has now been agreed that a practitioner who has exercised either option will normally be regarded as outside the superannuation scheme for all future N.H.S. work. If, however, the practitioner so informs the appropriate employing authority by March 31, 1950, or within three months of taking up another appointment, he will not be excluded from the superannuation scheme for the work in respect of which he wishes to be in the scheme.

Any practitioner engaged in hospital work who is eligible for inclusion in the superannuation scheme, and who has not exercised either option, will automatically be subject to the ordinary provisions of the scheme.

Questions Answered

Fees for X-ray Examinations

Q.—*(1) Is a whole-time consultant radiologist entitled to charge and retain two-thirds of the fee paid by a private patient examined in a hospital x-ray department? (2) Is a whole-time consultant radiologist entitled to charge and retain two-thirds of the fee of persons examined under Category II in a hospital x-ray department?*

A.—(1) No. A whole-time officer is not entitled to undertake private practice. (2) Yes. The items in Category II are services which the Minister is not committed to provide under the Act, and it is laid down that full- and part-time officers are permitted to retain fees in this category, subject to the proviso that, where hospital, laboratory, and radiological facilities are used, one-third of the fee is retained by or remitted to the hospital.

Elderly Practitioner and Superannuation

Q.—*An elderly practitioner nearing the retiring age of 65 wants to employ an assistant (a) simply as an assistant, (b) with a view to partnership and ultimate succession, or (c) with a view to succession. In each case how will such employment of an assistant affect the practitioner's pension under the superannuation scheme, if the gross income of the practice is £2,000 per annum and the gross income of the assistant or partner £1,000?*

A.—A practitioner who enters the National Health Service near the retiring age of 65, and who intends to retire at that age, will not be entitled to a pension under the scheme. He will be required to contribute 6% of his net remuneration and 8% (i.e., the employer's contribution) of the assistant's salary. He will, on retirement, receive a return of any contributions he has himself paid together with compound interest thereon. If the assistant becomes a partner, he will be responsible for his own superannuation contributions.

Doctor's Wife and Superannuation

Q.—*My wife is qualified and younger than I am. At present domestic duties claim most of her time, but she assists me in emergencies and during rush periods. In the event of my death she would be forced to return to active practice and would presumably take over part of my present practice. Is there any means by which she can start contributing towards superannuation now? Apart from the question of death she will probably take part in clinical work when the children are older.*

A.—A doctor's wife cannot contribute towards the superannuation scheme in the circumstances stated unless she is officially recognized as an assistant or partner.

Choice of Optician

Q.—*Is a medical practitioner in the National Health Service permitted to recommend a particular optician in the Service?*

A.—Under the regulations a patient is entitled, on the recommendation of his general practitioner, to have his eyes tested by an approved ophthalmic medical practitioner or by an approved ophthalmic optician. Whatever advice the doctor may give, the choice lies with the patient.

Heard at Headquarters

Swollen Agenda

Business at Headquarters has accumulated vastly during the last year or two. The other day the General Medical Services Committee's agenda covered 90 items, and one item alone spawned 20 sub-items, almost every one of which called for a discussion. In addition there were reports from five sub-committees. The agenda of the Council the following week covered 94 closely printed or typed foolscap pages, embodying about 40 committee reports. Both chairmen of the two big "autonomous" committees—the Central Consultants and Specialists and the General Medical Services—on their re-election said that they had hoped this second year of their committees' existence would be easier than the first; actually it looks like being more difficult, both in the number and in the complexity of the subjects presented. The remedy is not easy to see. Meticulous care is given to every item, even to such items as have only a local importance or relate to one individual case. At all costs—and the costs are heavy—the democratic principle has to be preserved in reaching any decision. One of the reasons why dictatorship may have commended itself to some communities is that it is, by comparison, so cheap.

Multum in Parvo

The new *Annual Handbook* of the Association for 1949–50 is out, rather bulkier than before, but not increased in length or width, so that it sits easily in the secretarial or other pocket as usual. Few handbooks impart so much information in so small a space. In addition to the usual information about the Association itself, the names and addresses of secretaries of local medical committees, of clerks of executive councils, and of senior administrative officers of regional hospitals boards are all to be found within these orange covers, and a great many other names and addresses as well. The Medical Practices Advisory Bureau and the British Medical Guild are new activities to be recorded. Another new section gives the particulars of the regional offices which the B.M.A. Council has set up in various parts of the country—eight of them in England—with the names of the officers in charge and the local units they serve.

THE REMUNERATION ISSUE

G.M.S. COMMITTEE'S DECISIONS

A special meeting of the General Medical Services Committee was held, under the chairmanship of Dr. S. Wand, on December 1 to consider the letter from the Ministry of Health, dated November 14, intimating that any claim for larger total remuneration for practitioners in the National Health Service could not be entertained.

Before proceeding to consider the next step to be taken, the committee devoted some time to an examination of the computations set out in the Ministry's letter. The chairman estimated that on the basis of the figures given by the Ministry practitioners were receiving at least £7 million less than the sum to which they claimed to be entitled according to the proper constitution of the Central Pool.

Dr. Frank Gray said that, taking as a basis the Spens Report, the matter could be stated quite simply. The agreed figure of what the total income of general practitioners ought to have been before the war was £31.2 million. The claim for 70% betterment would give another £21.8 million, bringing the total to £53 million. This figure, however, was based on 17,900 principals. Taking the Ministry's figure of 18,936 as the present number of principals in the Service, an increase of 5.8% on 17,900, the amount would be brought up to £56 million. The Ministry calculated the money available for 1949–50 at £48.8 million.

Dr. Goodman pointed out that certain items which the Ministry had included in its estimate of the total available for the financial year were for matters which practitioners in 1939 would never have thought of financing out of their own incomes, as, for example, the Inducement Fund (some £400,000). The exchequer superannuation contribution (£2.4 million) should not be considered as implementing Spens. There were a number of items of extra money in this estimate which should not be used to boost up the Central Pool.

Dr. Rose said that the Ministry spoke constantly of "increase" in remuneration, whereas what the profession was asking for was a first settlement.

After further discussion the chairman mentioned possible ways of dealing with the situation: (1) withdrawal from the Service; (2) resort to arbitration; (3) further conversations with the Ministry and challenging of figures; (4) standing by claim but suspending further action until the economic position of the country had improved; (5) no action. He suggested that the line which the committee might desire to take in the first instance might be to approach the Ministry again with a critical examination of its figures, endeavouring to get agreement on the amount of the pool and at the same time seeking an assurance on the implementation of Spens. It followed implicitly from the Spens Report that the Central Pool should be continuously adjusted in relation to the number of doctors and the maximum on the list.

Dr. Dain said that it was essential to keep to the criterion of the number of doctors employed and not the population. They must insist on including in the estimates all doctors in practice, not only those in the Service, for the original calculation included all doctors. The proper assessment of the number of doctors at the present time was important, though when once Spens had been implemented they would be finished with Spens—that is to say, remuneration would not indefinitely be attached to the number of doctors but to the work done.

The following resolutions were adopted unanimously for transmission to the Ministry:

(1) That, in the view of the General Medical Services Committee, the reply of the Ministry (dated November 14) to the request of the Conference of Local Medical Committees for a recalculation of the Central Pool in the light of the facts now available is entirely unsatisfactory and that an interview be sought to demonstrate its inaccuracies, to calculate the sum by which the Central Pool is short, and to reiterate the demand for an adjustment of the Central Pool to meet this deficiency.

(2) That before the January meeting of the General Medical Services Committee an assurance be sought of the Ministry of Health that the Central Pool will be continuously adjusted so as to maintain in the future—whatever the changes necessitated by the heavy burden of work falling on general practitioners and whatever the increase in the number of doctors—the levels of remuneration recommended in the Spens Report and which were accepted by the Government.

In making public these resolutions the committee desired to emphasize that this was not a claim for more money over and above a sum previously agreed, but a demand for a first settlement, and a guarantee that the principles of the Spens Report would be applied to the remuneration of doctors in the Service.

The following were appointed to go to the Ministry with the resolutions: The Chairman (Dr. Wand), the Chairman of Council (Dr. Gregg), the Chairman of the Conference (Dr. Jope), Dr. H. G. Dain, Dr. Frank Gray, and Dr. W. M. Knox.

Medical Certification

In view of the forthcoming publication of the report of the Interdepartmental Committee on Certification under the chairmanship of Mr. Archibald Safford, K.C., the committee considered a letter from the Ministry enclosing a list of some fifty kinds of certificate required by the patient under or for the purposes of various enactments. The Ministry had indicated which certificates should and which should not, in its opinion, be included in the prescribed list of certificates which a doctor is required to issue free of charge to his patients or their personal representatives. The view of the Ministry was generally that certificates relating in any way to the social services, certificates necessitated by rationing and similar controls, and certificates which enabled a person to get other statutory benefits or exemptions fell into the category of certificates which the doctor should be expected to issue without charge, and that certificates which did not fall into these categories, such as those which apparently related solely to fitness for a particular type of employment, and certificates which are as a general rule given by doctors other than the patient's own general practitioner, came into the other category.

The General Medical Services Committee made a painstaking revision of the list, and its observations are to be sent to the Ministry.

Fees for Vaccination and Immunization

A communication from the Ministry was received stating that the Minister had been informed by the County Councils Association, the Association of Municipal Corporations, and the London County Council that they were prepared to agree that a fee of 5s. should be paid to a practitioner taking part in arrangements under Sect. 26 of the Act on receipt of a record in the standard form of the vaccination or immunization of a person on the practitioner's list. It was added that with regard to vaccination the fee would apply either where the first injection resulted in successful vaccination or where the record card showed particulars of a second attempt; and that a third attempt would carry with it an additional fee of 5s. With regard to immunization the fee would apply in respect of the complete process, normally involving two injections. Administration of a boosting dose of prophylactic at a later age would count as a fresh immunization.

The committee accepted the arrangement without prejudice to the question of simplification of the standard form.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby, Redditch (restricted to new appointments), Tyldesley.

Correspondence

Unreasonable Demands by Regional Boards

SIR,—Referees nominated by applicants for hospital appointments are being called upon at so late a date that it is always a matter of chance whether their replies will be received in time. Regional hospital boards fill in typescript forms with a date at the bottom that never allows a greater margin of time than seven days before the reply must be received back, which, allowing for postal delays, gives the referee not more than four days and sometimes less.

Many of us have commitments that may keep us away from our desks for longer than that. And, even when we get back, do the regional boards think that we have nothing else to do, and that everything can be dropped in order to cope with their precipitancy?

Perhaps the whole thing is such a formality that they do not expect a reply. Even that would give some satisfaction, because then we would know that if it had been quite impossible for us to write in time our silence had not been used as evidence against the candidate. But I know of at least one election where my failure to reply was given a most serious interpretation—and yet it was due solely to the thoughtlessness and discourtesy of the board itself.—I am, etc.,

London, W.1. REGINALD WATSON-JONES

Remuneration of General Practitioners

SIR,—We are all being told to work harder and not to ask for more money for so doing. The advice is unpalatable, especially to those who think they were ill-paid last year. Perhaps we are inclined to think the exhortation does not apply to us. Most men will, however, agree that in the interest of the country the advice is sound. The T.U.C. have accepted this view and acted upon it so far as is within their power.

In discussions with the Minister on questions of remuneration would it not be possible to register a protest, stake a claim, but agree not to press it until such time as the financial state of the country is more satisfactory?

I make the suggestion with some diffidence, as I am not in general practice, but with the conviction that the medical profession should not be the last to accept the realities of our present state.—I am, etc.,

Selling, Kent. C. MAX PAGE.

Tax on Prescriptions

SIR,—In the *Journal* of October 29 (p. 971) an annotation enthusiastically welcomes the proposed charge for prescriptions, though in the *Supplement* "The Secretary Reports" (p. 189) comments in a more non-committal way. This schism even in one issue of the *B.M.J.* probably reflects the divided feelings on this matter among doctors.

Mr. Attlee stated that the purpose of this charge was "to reduce excessive . . . resort to doctors." Clearly those who will be thus deterred are those who have to count every shilling—an increasing number of our population as the effects of devaluation and other aspects of the economic crisis develop.

Time was when we criticized patients for not coming to the doctor in the early stages of disease. Surely one of our functions is to see apparent trivialities where anxiety can be allayed and/or prompt measures taken to minimize damage. There cannot be large numbers of those who would be deterred by the 1s. payment who would have spare time to hang about a waiting-room for a matter which they themselves consider trivial.

One can fully understand the worry of a doctor with a busy surgery and much domiciliary and other work to be done, and it is not surprising such an overworked doctor should demur at consultation for apparent trivialities. But can we welcome relief from overwork at the expense of the poorest section of the community—those most likely to need our advice on account of their unhealthy environment? It has even been suggested that the doctor should collect and keep the fee in lieu of increased capitation. I would beg of anyone harbouring such an idea that he refer to the *Supplement* of June 4 and read a letter (p. 310) from Dr. Ian B.-K. MacGregor, who with suitable sarcasm has depicted the probable result.

There are other ways of relieving the burden of overwork on certain doctors. I would recommend the following:

(1) Reduce the maximum number of patients allowed on a doctor's list. I would suggest a reduction to 3,000 as an immediate target, to be followed by a further gradual reduction to 2,000 as more G.P.s are trained.

(2) Increase the efficiency of our work by the provision of health centres on a large scale. In these, with adequate ancillary staff, our treatment of patients, including all trivialities, could undoubtedly be greatly speeded up and made more efficient. Moreover, the whole scope of general practice could be so extended as to take quite a burden off hospital outpatients. Is this too expensive for a country which spends enough on a grossly swollen military machine to build 5,000 first-class health centres a year? If so, let us halve the expenditure on destruction and devote the money saved to construction.—I am, etc.,

Brighton. R. S. SAXTON.

SIR,—The profession seems to have forgotten two very important and elementary factors in giving official (albeit lukewarm) approval to the Government's proposed shilling-per-prescription tax. First, this will mean that payment is demanded before treatment is given, and if payment is not made treatment will not be given; and, secondly, it is inhuman to tax illness.—I am, etc.,

Sixpenny Handley, Wilts. PAUL HARRIS.

Two Alternatives

SIR,—With regard to the letter (*Supplement*, November 19, p. 218) received from the Ministry of Health, delivered with the obvious intention that the last word has been said on this vexed question of remuneration, I feel that now we know exactly where we stand in the matter we can do something. We can do one of two things.

(1) We can refuse to continue to operate the Service under the terms imposed on us. We can do so provided we have the solid backing of the majority of the profession, provided that now in this engagement we close our ranks and take the initiative. This solidity of opinion and of action is something which is necessary, but can we count on it? I think our weakness will rest in the ranks of those who have maximum lists or who have large lists with few if any family commitments—in short, people who are sufficiently well off under the scheme to be indifferent to the fate of their less fortunate colleagues, who are not prepared to jeopardize their relatively large incomes by supporting any resistance movement as a whole. This is our weak point and we must recognize it. Unless a majority of doctors are prepared to withdraw from the Service, nothing can be done to obtain better terms. This brings us to the second thing which we can do:

(2) Accepting defeat by the Minister, we can lick our wounds and make the best of a bad job. To make the best of this bad job we must have a redistribution of the funds provided. If we are to have no more, let us make the best use of what we have. We cannot with justice to all continue to provide a uniform capitation fee of approximately 18s. We shall have to do what we planned to do with the larger sum which we had hoped for and lessen the disparity of incomes between those with maximum lists and those who have small lists. We shall have to take the fund and arrange it so that we get, say, 25s. for the first 1,000 and 12s. for all the rest. This will result in a reduction of income in the case of those with the large lists, but it will very materially assist those who are deprived of the opportunity to earn a decent living, generally through no fault of their own. This is what we must do if we accept this rebuff from our Minister. To avoid unnecessary argument regarding the amounts to be paid, I must mention that the figures given are merely serving to illustrate the *method* of payment.

In short, the position is clear. We fight for our rights as a solid body of medical men at last asserting themselves, or we accept defeat and put our financial house in order.—I am, etc.,

Anstruther, Fife. M. D. S. ARMOUR.

Private Practice for M.Os.H.

SIR,—It is impossible to read without dismay the reply given by Dr. Kershaw (*Supplement*, November 19, p. 221) to my letter regarding the stagnation of negotiations on salaries for M.Os.H. It was surely obvious from the outset of my letter that the salary of £750 per annum was in no way related to the M.O.H. but to the overwhelming proportion of medical officers who form the public health service and having, of course, a status other than that of M.O.H. This terminological inexactitude, to use a Churchillian expression, can be assumed to be patently obvious to those well-informed persons who form the bulk of the readers of the *B.M.J.*, and I very much doubt, therefore, if it engendered any irrepressible desire on their part to ridicule this *lapsus linguae*.

Dr. Kershaw contends that I did not even trouble to get my facts right, and to support his contention he differentiates regarding £40 per annum. It is mathematically perplexing, however, to find that he finally agrees that even £850 per annum is deplorably low. However, I submit that my letter could not have been so "wide of the mark" as Dr. Kershaw tries to make out, as seven authorities—to wit, Rochdale, East Ham, Derby, Caernarvonshire, Southampton, Leeds, and Middlesex—advertise vacancies in the *Journal* of November 19 (in common with many previous advertisements of other authorities) with salaries of £735. Whether on the evidence Dr. Kershaw is any more within the mark with his value of £710 per annum against my £750 can be left to the discretion of the reader.

The incongruity of the conclusion drawn by Dr. Kershaw to the effect that, if I were right, the majority of assistant medical officers of health, etc., must needs have resigned in disgust within a year or so stands therefore on its merits.

Dr. Kershaw's attempt at mind-reading through the medium of my letter is indeed a "rendering," for his idea that I "admirably calculated to produce precisely the wrong impression" and advised an austerity-minded Government "to keep their salaries low, but make the lazy fellows stir themselves" is as ridiculous as the imputation that private practice in this case should be regarded as "earning money 'on the side.'"

I should like to make it quite clear that, as a member of that service, nothing was further from my mind than an attempt to belittle its great achievements. I am at a loss, however, to offer any lucid explanation of the motives of persons who, regarding themselves as authorities in public health and preventive medicine, find it necessary to indulge in superlatives about our own apparent achievements to the derogation of institutions of other nations.

It is remarkable how acidly and with what convenient facility Dr. Kershaw extracts a phrase from the context of my letter and brings about a transmutation of words to prove that I would have in my letter intentionally graded public health as a "second class" science to other branches of medicine, consequently concluding in questioning my suitability to remain within the scope of public health.

My contention that our salaries are frozen for good has in no way been affected by the patronizing and crusading reply given to you by Dr. Kershaw.—I am, etc.,

Accrington, Lancs. J. KATZ.

Prescribing of Appliances

SIR,—I enclose some brief notes which I recently submitted to my medical staff committee drawing attention to the unsatisfactory state of affairs in regard to the supplying of surgical appliances under the N.H.S. I feel that they may be of interest to general practitioners and also to those who have to conduct such a clinic.

It is a soul-destroying occupation requiring considerable diplomacy. A large proportion of patients, in my opinion, do not require surgical appliances, and quite a number have no sign of the complaint for which an appliance has been ordered by their doctor. This involves the risk of antagonizing large numbers of local G.P.s by refusing to endorse their prescriptions, or alternatively a policy of irresponsible acquiescence which is highly uneconomical.

I have had no guidance on the criteria by which these cases are to be judged. The vast majority of patients are fat old bodies, sent up with the quite incorrect diagnosis of "severe visceroptosis." These could quite well buy utility corsets such as they have worn for years, and I see no reason why the State should provide them with surgical corsets at considerable expense. There are quite a number of cases of ventral hernia, some of which can indeed be controlled by a belt or corsets specially designed. On the other hand many of them require operative cure, as they are of such a nature that an appliance would not control them.

There are usually two or three patients sent up for wigs. Some of them are young women with alopecia—fair enough. But I have seen middle-aged men, and in one case a woman with a full head of grey hair. These were refused. Senile patients have been sent up with a request for a mechanically propelled chair. They will presumably ask for a new Morris 8 next. People with oddly shaped feet of many years' duration are provided with free shoes made to measure. There must be countless thousands of these waiting to cash in and never buy a pair of shoes again.

It will thus be seen that this "appliances racket" is one which will grow like a snowball to dimensions quite beyond economical fulfilment. I consider that rules and regulations from the Ministry of Health are a necessary protection for those in the unenviable position of having to judge these cases.

The Ministry of Health has, indeed, issued an enormous schedule of appliances, many of which I am sure have never been heard of in a normal course of surgical training, but no advice is given about the indications for prescribing them at the taxpayer's expense.—I am, etc.,

Portsmouth. A. N. H. PEACH.

Domiciliary Midwifery

SIR,—It would appear that the Royal College of Gynaecologists and Obstetricians think so little of the general practitioner that they are making great efforts to preclude him from practising midwifery. To anyone really *au fait* with the problems of domiciliary midwifery it is obvious that, despite a few examples of incompetent G.P. obstetricians, by and large the G.P. who is frequently caring for midwifery cases, both normal and abnormal, is performing a great service to the mothers of this country. It would take up too much valuable space to enlarge on this point.

But, as the midwife still undertakes the care of the bulk of normal cases in this country, does the noble College condemn all mothers who are fortunate enough to be normal cases to be denied all sedatives other than pot. brom. c. chloral, and all other analgesics other than gas with a varying amount of air?

In my opinion the College would do better if it left the G.P. alone and saw fit to press for legislation allowing the midwife to prescribe—with suitable regulations—pethidine, and allow her, too, to use trilene analgesia. There are at least two machines on the market that are foolproof. I have no doubt that normal cases which are in hospital nominally under the care of a specialist in obstetrics have the benefit of these aids when delivered by the hospital midwife.—I am, etc.,

London, S.W.11. IAN SAMUEL.

Buy and Sell Practices

SIR,—Undoubtedly the time has now come when all doctors should stand firm together and should say to Mr. Aneurin Bevan: Dear Mr. Bevan, we have no further use for you, we will no longer work for or with you; we will revert to our ancient, time-honoured, and, for most of us, verminous practices. We will charge our patients for our services as of old, and we will buy and sell our practices as and when we like.—I am, etc.,

Bracknell, Berks. R. H. P. HICK.

"Need" and "Must"

SIR,—I understand that the terms of reference for the Sir Henry Cohen Committee are, briefly, to define those drugs and appliances for use by general practitioners beyond which they need not go. I hope that this committee will remember medical

history and so word their recommendations that the operative word remains "need" and cannot be changed to "must."—I am, etc.,

A. HENRY GREGSON.

Cromer, Norfolk.

Constitution of Council

SIR,—In his letter (*Supplement*, December 3, p. 247) Dr. Ronald Gibson accuses the Organization Committee and the Council of sloth, of ignoring the instructions of the Representative Body, and thwarting the will of the profession. All these strictures are based on erroneous statements.

The Organization Committee is, of course, a Standing Committee of Council and has been in existence for many years. It was not, as stated by Dr. Gibson, appointed at Cambridge in 1948 with certain "terms of service." No resolutions were passed at the A.R.M. at Cambridge requesting any alteration in the methods of election of members to Council.

After this meeting Council decided to review the B.M.A. constitution and machinery. The Organization Committee gave first priority to the methods of election to Council, and took note of the various Winchester Memoranda which were being circulated at that time, and invited representatives from Winchester to meet it. Early this year Council adopted proposals for a radical change in its constitution, and these were brought before the A.R.M. at Harrogate last June. The best part of one morning was occupied in discussing them, with the result that the R.B. passed one positive resolution—i.e., that the number of members directly elected to Council should be increased. The proposals of Council were referred back. The debate was controversial and showed that there was much difference of opinion on details. If a majority of Divisions agree with Winchester it is odd they did not make this apparent at Harrogate. Dr. Gibson says that Council has decided that there should be a certain number of co-opted members; in fact Council referred a suggestion to this effect to the Organization Committee for study and report. Council agreed on November 16 that there should be an increase in the number of directly elected members.

The Winchester Division has asked Divisions to support a demand for a Special Representative Meeting. Council considered a proposal that an S.R.M. should be held and decided against it by 25 votes to 18. The reasons that actuated the majority were not given in the necessarily abbreviated report in the *Supplement* of November 26 (p. 228). They were:

(1) The statement of the Treasurer that the cost of a Special Representative Meeting would be about £1,000.

(2) There will be a four-day meeting of the Representative Body next year instead of the usual three-and-a-half, and this should provide ample time for debate.

(3) It would be a hardship both to Division and to candidates if electoral areas are changed just before an election.—I am, etc.,

J. A. PRIDHAM.

Weymouth, Dorset

Urgent Admissions to Hospital

SIR,—Dr. I. Langdale Gregory's letter (*Supplement*, November 19, p. 222) gives expression to such an undesirable attitude on the part of hospital registrars towards their (frequently more experienced) colleagues in general practice that we feel compelled to intrude upon your columns in order to show that not all registrars think thus.

The percentage of G.P.s who may adopt the tactics mentioned in order to obtain admission of their patients is small, and Dr. Gregory must hold a poor opinion of the integrity of consultants if he thinks that they would be a party to this practice. In our opinion the great majority of G.P.s are honest in the details they submit about their cases.

The tendency to reduce the G.P. to the status of a not very competent first-aider is becoming all too common. He is expected to have a working knowledge of all the specialties; he has to bear with the suggestions and proposals of the patient and his relatives (nowadays often dangerously learned in medical matters by an ill-informed lay press). Think of what an overworked conscientious G.P. must feel when he contemplates a critical visit of a hospital registrar (one who all too frequently nowadays knows less in all branches of medicine other than in his own field than his experienced G.P. colleague), and whose virtual function will be to affirm or deny the G.P.'s assessment of the case. One cannot escape the conclusion that Dr. Gregory tends to classify G.P.s under two classes: (1) those who wilfully misrepresent the true picture, and (2) those who are so incompetent that they are unable to assess the true picture.

May we add that the idea of a lot of registrars milling about in the fog to find genuinely urgent cases warranting immediate admission is worthy of a Marx Brothers film, were it not for the horror of its cost in time and taxpayers' money and the pernicious reflection implied upon the medical skill and moral integrity of our G.P. colleagues?—We are, etc.,

K. G. GREEN.
F. P. O'SULLIVAN

London N 19

Unfortunate Position

SIR,—After the second plebiscite our representatives advised us to join the Service. Neither they nor the Government issued commands. "Principal" (*Supplement*, November 19, p. 223) could have continued offering his services to the patients who preferred his attentions to those of his six local competitors, but being shrewd enough to realize that their passive preference for him might change to active preference for someone else, with very obvious financial results, he joined the Service. The important point is that, knowing the conditions of joining of which "unspecified amounts" and "indeterminate date" were parts, he elected to do so. It was a personal decision, and the lesser of two financial evils. That he was manœuvred into such a position, which only allowed him a Hobson's choice, was unfortunate, but he can't blame the Government for it—much as we'd like to. He must blame his colleagues—roughly 60% of them—who could not trust each other to put principles above money.

Having voluntarily given up his capital (his practice) for an annuity (the "unspecified amount" at "an indeterminate date"), he now not only states that he didn't sell his practice, but wishes and is allowed as much control in its use and distribution as he rightly had before July 5. He should be very grateful to his fellow principals who represent the profession for arranging this. If they had looked after the unestablished doctors' interests as carefully the gratitude would be more general. I mentioned this point in my original letter from which the extracts were taken, and suggested a reason and a remedy for the negligence.

With your permission, Sir, I will leave the side-tracks which lead to basic salaries and relay races for another occasion.—I am, etc.,

D. G. SMITH.

Cambuslang, Lanark.

Size of Capitation Fee

SIR,—It is difficult to understand how anyone with even a smattering of knowledge of the policies of drift, extravagance, and expediency of our present rulers could have imagined that the profession had the slightest chance of securing a large increase in the capitation fee, however righteous our claim, unless the profession itself was prepared to take extreme measures to enforce compliance with its demands. On the other hand no realist who acknowledges that a great many doctors are better off than they ever were, or might have ever hoped to become, can envisage adequate support for extreme measures.

Is it altogether unreasonable to ask that our leaders and representatives should now desist from baying for the moon and turn their attention to the gross injustice implicit in the fact that the present capitation fee can vary by as much as 3s. 1d. as between one area and another? The explanation handed out *ad nauseam* by B.M.A. officials and by the Ministry is that the difference is to be accounted for by certain first charges on local pools. The Ministry is able to add that the method of distribution has been agreed by the profession. It seems that anyone who agreed to anything which would lead to such inequity should be willing to admit that a mistake had been made and that under a national health service there should be a national capitation fee.

I have gone to some trouble to analyse the last statement sent by the Executive Council for Cornwall, and so far as I can make out there is a sum of £25,000 in a full year which is not accounted for even if one deducts all the prior charges and compares with what the position should be to give us the highest existing capitation fee, 17s. 10d. per annum, even on the unlikely supposition that there are *no* prior charges on the local pool of the Shangri-La where that amount is paid.—I am, etc.,

Launceston, Cornwall. DONALD M. O'CONNOR.

SIR,—There seems to have been surprisingly little reaction to your recent publication (*Supplement*, October 15, p. 169) of figures which show that there is as much as 3s. per annum difference in the capitation fee paid to doctors in various parts of the country.

Here in Cornwall we are receiving quarterly emoluments equivalent to an annual payment of 15s. 6d. We are thus 2s. 3d. per head less well paid for our patients than doctors in relatively more fortunate areas—a gross sum of £36,514. We are told that the difference is to be explained by emergencies, anaesthetics, basic salaries, and so on, but according to the most recent statement these account for a net reduction for the quarter of £2,812 or £11,248 for a full year. This seems to leave £25,266 entirely unaccounted for even if one accepts in full the explanation put forth by both the B.M.A. Secretariat and officials of the Ministry.

If £25,266 can disappear into thin air in one area, there is little reason to suppose that the figures in others where the doctors are paid so much less than the 18s. which was originally mooted could stand up to very close scrutiny.

One seems not to need to look as far afield as the groundnuts scheme to find an odd financial muddle.—I am, etc.,

Polyphant, Cornwall. GEORGE MCC. ROBSON.

Fixed Capitation Fee

SIR,—I trust my ignorance of national economics may be excused. My simple mind fails to understand why general practitioners cannot be paid a fixed annual sum, say 18s., for each patient on their lists, instead of an indeterminate amount arrived at by dividing a computed figure representing a hypothetical percentage of the estimated population of the U.K. into an astronomical number of £m., which "global" sum is determined by a devious mathematical process involving so many unknown or conjectural factors that the answer can only be correct to within plus or minus *x*.—I am, etc.,

Stirling. J. E. MORRISON.

More Patients Now

SIR,—It seems to me fallacious to base the remuneration for general medical practitioners on total pre-war earnings.

The Minister of Health has stated in support of the health scheme that a large number of people previously unable to afford to get medical attention now get it and many more now get attention earlier. If these people had got medical attention before the war and got it earlier the total general practitioner remuneration would have been much more, in fact probably doubled or nearly so.

Therefore it is clear by the Minister's own statement that the present general practitioner remuneration is too low, for surely I as a general practitioner am to be paid according to the amount of work I am expected to do. If there were a panacea to prevent all forms of illness and given to all, I would have no work to do and would be paid nothing.—I am, etc.,

Leigh-on-Sea, Essex. A. H. LEVERS.

Registrar Group

SIR,—I for one was full of hope at the formation, within the B.M.A., of a Registrar Group. Having attended the inaugural meeting I am full of foreboding at the prospect and would be dishonest to myself not to express these misgivings.

Most will agree that the problems of the two types of registrar—teaching and non-teaching—are different. The new organization seems to contain very many members from non-teaching and very few from teaching hospitals, while the organizers do not seem such as make the teaching registrars feel that their interests will be adequately served.

The registrars from teaching hospitals must choose from two courses. Either they can follow their fears that their quiet voice will be drowned in the present conclave, and completely boycott the organization; or else they enter it with all the power they possess to re-form it. The first is a counsel of cowardice, the second a tiring tedious task.

The registrars from the non-teaching hospitals have an organization in which they can make their voice heard. Majorities can overthrow minorities, but in so doing sow the seeds of their own inevitable destruction. The caution of the teaching-hospital registrars to this group has been founded mainly on doubt and suspicion. Nothing happened at the inaugural meeting to disperse these feelings, whereas much happened to aggravate them.

The group must make determined efforts to gain the confidence of the teaching-hospital registrars. Only then can it claim to speak with one voice for the whole registrar class.—I am, etc.,

Stanmore, Middlesex. HAROLD E. THOMAS.

Supplementary Ophthalmic Service

SIR,—Dr. Charles Cockburn's letter (*Supplement*, November 19, p. 222) draws attention to the scope of the Supplementary Ophthalmic scheme, but, whilst agreeing with his main contention—namely, that the scheme provides for a "sight-testing" examination only—I feel that there is another side to the problem.

The cases of ocular pathology enumerated by your correspondent form only a small proportion of the total using the scheme, and even these are not always easy of diagnosis. It is difficult for the general practitioner to divide all ophthalmic cases into those which are "pathological" and those which are not. Most patients complain of symptoms—e.g., headaches, defective vision, etc. These may or may not be due to "pathological" causes. The great majority are not, but in many cases only expert examination can tell. The Supplementary Ophthalmic Service provides this.

Dr. Cockburn ignores the fact that the Supplementary Ophthalmic scheme is not mediated solely by "sight-testing opticians." The majority of ophthalmologists in this country participate in the scheme, either at medical eye centres or at their own rooms. Also, there must be many areas where hospital facilities are not so readily available as in large centres like Aberdeen, in which case the presence of a medical eye specialist operating the scheme is an immense boon.

It is rather hard on patients that they should be sent, perhaps quite unnecessarily to hospital to wai possibly for hours, possibly in discomfort, when they can be seen through the Supplementary Ophthalmic scheme in comfort and at a time convenient to them. It is also rather hard on the unfortunate hospital officer, who has usually quite enough to do coping with the work he has. I feel that the Supplementary Ophthalmic scheme performs a very useful function in saving the hospitals much unnecessary work with which they were formerly burdened. Also, it must be instrumental in sending to hospital many cases requiring hospital treatment which might not otherwise have been sent, and at an earlier stage than was formerly the case.

That the scheme has cost as much as it has is simply the expression of an unsatisfied need which far exceeded all expectations. It should not be condemned on the evidence of one example of what would appear to be excessive zeal. There should be machinery for dealing with that sort of problem. To my mind, it is one part of the Health Scheme which has justified its existence, and must have increased enormously the ocular efficiency of large numbers of individuals. And what greater contribution to national efficiency could a national health scheme be expected to devise?

It may be done more cheaply, possibly at the expense of the ophthalmic practitioner, and at great public inconvenience, but I doubt whether it would be done as well. It would probably not result in fewer glasses being prescribed. It is my belief that very few pairs of glasses are prescribed unnecessarily, and

there are many cases in which it is a matter of opinion whether they are necessary or not. The prescribing of glasses is not entirely a matter of correcting refractive errors.—I am, etc.,

R. U. GILLAN.

London, W.1.

POINTS FROM LETTERS

General Practitioners' Pay

Dr. S. SHUBSACHS (Manchester) writes: Dr. W. A. H. Bell (*Supplement*, November 12, p. 211), who is not a National Health Service G.P., is satisfied that the G.P.'s salaries are adequate—because they have other sources of income in many cases as he did before the war. Sir, what was Dr. Bell's income, and how did, and does, it compare with the present average of a G.P.? Dr. Bell tells us that there is still a lot of private practice. Most patients know that they have only to hand in their card to get the same treatment free, and most of them have done so. Private practice is dead. . . . Most of Doctor Bell's part-time jobs are now full-time with no private practice, and the G.P. specialists are in fact dying out. . . . What irks most is the sneer at the end of his letter about more money for less work. That is pure humbug, as even the Minister of Health is aware that the G.P.'s work has increased and claims that the shilling per prescription will help to reduce it. . . .

Dr. ALEC WATTISON (Crail, Fife) writes: . . . If he [Dr. Bell] were practising in this area he would find that there are no other methods of adding effectively to one's income. Extra appointments are non-existent; private patients can be counted on the fingers of *one* hand, and amount to 0.2% of the practice. There is no time to take on other specialist work and do it adequately. The nearest hospital for carrying out investigations is roughly 23 miles away over a ferry. . . . Has he any idea of the difficulties of, and the financial strain involved in, buying a share in a practice, buying a house, keeping a family in adequate comfort, and educating children decently in a country where his eight or nine shillings is equivalent to twenty or twenty-three present-day shillings? Or for that matter, after ten or so years' experience, found himself looking for appointments that were already filled by younger and less experienced people who had not done four or five years' service abroad with the Services? . . .

Association Notices

NATHANIEL BISHOP HARMAN PRIZE

The Council of the British Medical Association is prepared to consider the award of the Nathaniel Bishop Harman Prize in the year 1950. The value of the prize is approximately £100. The purpose of the prize is the promotion of systematic observation and research among consultant members of the staffs of hospitals who are not attached to recognized medical schools. It will be awarded for the best essay submitted in open competition. The work submitted must include personal observations and experiences collected by the candidate in the course of his practice. A high order of excellence will be required. No study or essay that has been previously published in the medical press or elsewhere will be considered eligible for the prize.

Any registered medical practitioner who is a consultant member of the staff or senior hospital medical officer of a hospital in Great Britain or N. Ireland and is not attached to a recognized medical school is eligible to compete. If any question arises in reference to the eligibility of a candidate or the admissibility of his essay the decision of the Council of the Association decide that no essay submitted is of sufficient merit, the prize will not be awarded in 1950 but will be offered again the year next following this decision, and in this event the money value of the prize on the occasion in question shall be such proportion of the accumulated income as the Council shall determine.

The writer of the prize-winning essay may be required to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate Section of the Annual Meeting of the Association. Each essay must be typewritten or printed in the English language, and must be distinguished by a title and a motto. The essay must not bear the name of the writer, which should be sent with the essay in a sealed envelope bearing only the motto on the outside.

The title of the proposed essay and the motto should have been notified in writing to the Secretary by December 1, 1949, on a form obtainable from the Secretary. Essays must be forwarded to reach the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, not later than March 31, 1950. The prize will be awarded at the Annual Meeting of the Association to be held in 1950. Inquiries relative to the prize should be addressed to the Secretary.

SIR CHARLES HASTINGS CLINICAL PRIZE

The Sir Charles Hastings Clinical Prize, which consists of a certificate and a money award of 50 guineas, is again open for competition. The following are the regulations governing the award:

1. The prize is established by the Council of the British Medical Association for the promotion of systematic observation, research, and record in general practice.

2. Any member of the Association who is engaged in general practice is eligible to compete for the prize.

3. The work submitted must include personal observations and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. It is to be noted that candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not be omitted when it bears directly on their results, their interpretations, and their conclusions.

4. Essays, or whatever form the candidate desires his work to take, must be sent to the British Medical Association House, Tavistock Square, London, W.C.1, not later than December 31, 1949. The prize will be awarded at the Annual General Meeting of the Association to be held in 1950.

5. No study or essay that has been published in the medical press or elsewhere will be considered eligible for the prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work. A prizewinner in any year is not eligible for a second award of the prize.

6. If any question arises in reference to the eligibility of the candidate or the admissibility of his or her essay the decision of the Council on any such point shall be final.

7. Preliminary notice of entry for this competition is required on a form to be obtained from the Secretary.

8. Each essay must be typewritten or printed, must be distinguished by a motto, and must be accompanied by a sealed envelope marked with the same motto and enclosing the candidate's name and address.

9. The writer of the essay to whom the prize is awarded may, on the initiative of the Science Committee, be requested to prepare a paper on the subject for publication in the *British Medical Journal* or for presentation to the appropriate Section of the Annual Meeting of the Association.

10. Inquiries relative to the prize should be addressed to the Secretary.

PRIZES FOR MEDICAL STUDENTS, 1950

The Council of the British Medical Association is prepared to consider the award in 1950 of prizes to medical students for essays submitted in open competition.

The subject of the essays shall be "Clinical Teaching in Relation to the Practice of Medicine."

The purpose of these prizes is the promotion of systematic observation among medical students. In awarding the prizes due regard will be given to evidence of personal observation No study or essay that has previously appeared in the medical press or elsewhere will be considered eligible for a prize. Any medical student who is a registered member of a medical school in Great Britain or Northern Ireland at the time of submission of the essay is eligible to compete for a prize.

If any question arises in reference as to the eligibility of a candidate or the admissibility of his or her essay, the decision of the Council of the British Medical Association shall be final. In determining the number and the value of the prizes to be awarded the Council will take into consideration the number of essays received. Should the Council decide that no essay entered is of sufficient merit, no awards will be made.

Each essay must be typewritten or legibly written in the English language, on one side of the paper only, must be unsigned, and must be accompanied by a form of application

separation of much less active fractions, there was a tendency to discredit the Norwegian workers. Thus they have never received proper recognition for genuine achievements that were not bettered during the next ten years. Moreover, their description of their most active fraction as a bright reddish-yellow substance acquires new significance in the light of present knowledge.

We were accorded the privilege of examining their case reports at the time; although in several instances the responses were inadequate with the very small doses given, there seemed no doubt that the fractions tested were very much more active than anything previously obtained. In addition, we were able to secure independent clinical tests on some of their less highly purified fractions, which proved fully active in single doses of less than 10 mg. It should be added that their methods of fractionation have provided an invaluable foundation for our own work. Karrer and his colleagues (1938) also reported the preparation of fractions fully active in doses of 10 mg., or rather less, by methods that were not described in detail.

It is difficult to assess the work of Jacobson, SubbaRow, and others published between 1935 and 1938 (see SubbaRow *et al.*, 1945). These workers claimed that successful treatment of pernicious anaemia called for the simultaneous administration of several factors. One of these was identified as *l*-tyrosine, but the others were not fully purified. Their theory was supported by a reasonable weight of clinical evidence, but it has not been widely accepted. Ungley has now presented ample evidence showing that the pure crystalline anti-pernicious-anaemia factor alone, in adequate doses, gives a classical response in cases of pernicious anaemia. One is inclined to suggest, therefore, that the supplementing action of Jacobson and SubbaRow's accessory factors may have been due to contamination with small proportions of their primary factor (presumably the anti-pernicious-anaemia factor in crude form); satisfactory responses might well have been obtained with larger doses of the primary factor alone.

No further significant advance was reported until 1945, when Emery and Hurran reported a concentrate fully active in a dose of 5.5 mg. In the following year Emery and Parker (1946) reported further concentration to a preparation active in a single dose of only 1 mg. These fractions were made by application of known techniques—in particular, repeated adsorption on charcoal, elution with phenol or with hot 65% alcohol, and salting-out with ammonium sulphate.

It is something of a tragedy to recall the considerable amount of analytical work that has been performed by some groups of investigators on material now known to have contained as little as 0.01% to 1% of the pure factor. It must be confessed that we fell into the same error ourselves in making preliminary chemical investigations on material containing only about 3% of the factor, under the impression that it must be approaching purity. It seemed appropriate at the time to carry out the various analyses, for there was no reason at all to anticipate the phenomenal potency of the crystalline factor. We now know that the human requirement is only about 0.001 mg. a day. The only substances known to be physiologically active in smaller amounts are such poisons as plutonium and botulinus toxin.

Partition Chromatography

Reviewing the situation in 1946 it seemed to us unlikely that any further advance would be made without the introduction of new techniques. There was also little doubt that the new approach required was some form of chromatography, preferably perhaps the recently introduced partition chromatography. This method employs a tube packed with an inert porous powder capable of soaking up a considerable proportion of water without appearing damp; the material to be separated is applied to this column dissolved in an organic solvent not completely miscible with water, and development is continued with the same solvent. These columns do not differ in appearance from the familiar adsorption chromatograms using alumina, for example, but the mechanism of separation is different: it depends on differences in the partition of the various substances present between water (held in the pores of the solid) and the solvent, instead of upon differences in adsorbability. Such partition chromatograms, using damp silica and butanol, fulfilled our expectations. Liver extracts, sufficiently purified by the methods already outlined, separated readily into three coloured zones. Yellow material travelled quickly down the column; a pink zone travelled very much more slowly; a brown zone remained near the top of the column, with a tendency to overlap somewhat into the pink zone. Nearly colourless material was also present between the pink and yellow zones.

It was an obvious step to use these colours as a guide in cutting up the chromatogram, but we were surprised to find it so effective, for nearly all the clinical activity was concentrated in the pink fraction. The same thing happened in other experiments. Nevertheless we expected that this would turn out to be merely an adventitious association of a red pigment with the active principle, and a faulty interpretation of some later experiments seemed to confirm this view. Already we had reached the stage of purification where a ton or so of liver was needed to provide a workable amount of material, and the lengthy procedures for preliminary concentration as well as inevitable delays in clinical testing made progress very slow.

About this time we received temporary discouragement from the announcements that folic acid was effective in pernicious anaemia, and that it could be made synthetically. It was soon clear, however, that our liver concentrates, though still impure, were weight for weight much more effective than folic acid. We were therefore dealing with a different substance, and its isolation was still of academic interest at least. Then, as the clinical shortcomings of folic acid gradually came to light, interest in the liver factor revived and indeed intensified.

The Active Red Factor

By now we were satisfied that colour and clinical activity were inseparable, but our pink material obstinately refused either to crystallize or to respond further to attempted purification by repeated partition or adsorption chromatography, fractional salting-out, or fractional precipitation by solvent mixtures. After a long period of frustration, further progress came suddenly from the observation that treatment with proteolytic enzymes like trypsin would break down persistent peptide impurities. On repurification by partition chromatography the product from the red band was eight times as intensely coloured as any previous fraction; it was later shown to be correspondingly more active clinically.

After a few more weeks spent in further purifying the minute amounts of red fractions remaining, we had the final satisfaction of watching the pure substance crystallize from aqueous acetone. But during those last weeks we were forestalled by the announcement that the Merck team under Karl Folkers had added one more vitamin to their conquests by isolating the same substance in crystalline form. Following proof of identity by exchange of

specimens (Lester Smith, 1949) we have now adopted the name vitamin B_{12} suggested by the American workers.

It is worth noting that the methods we have used for the isolation of the anti-pernicious-anaemia factor are almost exclusively physical rather than chemical (Fantes, Page, Parker, and Lester Smith, 1949). In other words, we have depended on such physical properties as solubility in salt solutions and solvent mixtures, adsorption on charcoal, alumina, and silica, and partition between water and solvents. The countercurrent principle, upon which both adsorption and partition chromatography depend, enabled us to exploit the small differences in such properties between the factor and associated impurities.

This has been necessary because the factor is singularly devoid of characteristic chemical properties. The only chemical precipitants that have been used with advantage are Reinecke acid and phosphotungstic acid, but these are not at all specific, as both will precipitate many basic compounds. Moreover, neither is essential to the isolation of the pure factor.

Here, then, is another reason why the pure factor could hardly have been isolated in earlier years before some of these physical methods were perfected.

Standardization of Dosage

One considerable advantage that will follow from this work is the ability to express the dosage of liver extracts and other concentrates of anti-pernicious-anaemia factor in accurate and logical terms. The microbiological assay method using crystalline vitamin B_{12} as a standard permits standardization in terms of vitamin B_{12} activity. There will no longer be any excuse for stating dosages as the number of millilitres of a liver extract or the milligrams of crude solids administered, or in "liver equivalents" or the weight of liver from which the dose is prepared. Clearly, all these are misleading on account of variations in the potency of the original liver, variable yields in the course of extraction and purification, and differences in the extent of purification as between one liver extract and another. On the other hand, the growing body of evidence that liver extracts owe their efficacy in macrocytic anaemias solely to their vitamin B_{12} activity, which can be accurately assessed microbiologically, puts this method of standardization on a very firm foundation.

Three Interesting Points

Interest did not slacken, even temporarily, with the isolation of crystalline vitamin B_{12}. For one thing, we were able to provide evidence (Lester Smith, 1948a), since reinforced (Cuthbertson and Lester Smith, 1949), for the existence of a second red factor, also clinically active in pernicious anaemia; indeed, it now appears probable that there are three such factors (Lester Smith and Cuthbertson, 1949). It is not known whether the others are more complex substances incorporating the molecule of vitamin B_{12} (analogous to the various conjugates of folic acid with glutamic acid) or whether they are chemical modifications of vitamin B_{12} (analogous to the various kinds of vitamin D or of penicillin).

The isolation of one of these factors in crystalline form has recently been announced from the Lederle Laboratories (Pierce *et al.*, 1949). It has been named vitamin B_{12b}, the name B_{12a} having already been used for an artificially produced hydrogenation product of vitamin B_{12}.

Secondly, the chemical nature of vitamin B_{12} is gradually being unfolded as supplies of this very scarce material become available. (See Lester Smith, 1948b; Rickes *et al.*, 1948b; Kaczka *et al.*, 1949; Brink *et al.*, 1949: Ellis *et al.*, 1949; and Brink and Folkers, 1949.) The most surprising discovery, announced almost simultaneously by the British and American teams, was the presence of an atom of cobalt in the molecule—the first time this metal has been found in a pure substance of biological origin. This has given rise to a crop of speculations on the function of cobalt in nutrition, and the relation (if any) between vitamin B_{12} and the already known need of ruminants for cobalt. The molecule of vitamin B_{12} contains some readily hydrolysable group essential to its microbiological activity, since it is slowly inactivated by cold acid or alkali. This might be a phosphate ester group, although the phosphorus present is completely split off only on long heating with acid. This treatment also liberates a substance giving a positive ninhydrin reaction, but leaves the greater part of the molecule intact and still retaining the cobalt, though with altered solubilities. This has been disrupted only by fusion with alkali, when pyrrolic substances are released, suggesting some structural relationship with chlorophyll and haem pigments.

A third point of interest is a promising new source of vitamin B_{12}. This arose from an entirely different research on the "animal protein factor" required by chicks and some other animals reared on a vegetable-protein diet. It now appears likely that this factor is identical with vitamin B_{12}, but meanwhile it had been established that the factor is synthesized by some intestinal bacteria. This raised the possibility of production by a fermentation process, and the Merck group, doubtless turning first to fermentations already established, found that the factor is produced by *Streptomyces griseus* and succeeded in isolating crystalline vitamin B_{12} from the metabolism fluid of this organism (Rickes *et al.*, 1948c). Whilst the isolation of the crystalline product remains at present a complex and expensive procedure, the industrial production in this country of a purified vitamin B_{12} concentrate from fermentation liquors is now at an advanced stage. It is expected to become generally available shortly.

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VITAMIN B_{12} IN PERNICIOUS ANAEMIA: PARENTERAL ADMINISTRATION

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The isolation of a red crystalline anti-pernicious-anaemia factor from liver was achieved almost simultaneously by Rickes, Brink, Koniuszy, Wood, and Folkers (1948) in America, and by Lester Smith and Parker (1948) in Great Britain. American workers were aided greatly by microbiological assays (Shorb, 1948), whereas in Britain attention was concentrated on testing each fraction in patients with pernicious anaemia in relapse. The 84 clinical tests begun in 1946* which guided Lester Smith's purification to the final stage of crystallization are of little medical interest and will not be described.

This report concerns only the pure crystalline material isolated by Lester Smith in Glaxo Laboratories, Greenford, which has proved to be identical with vitamin B_{12}. Chemical and physical properties are reported elsewhere by Lester Smith (1948), and by Fantes, Page, Parker, and Lester Smith (in the press).

Material and Methods

The 53 cases selected had the usual diagnostic features of pernicious anaemia, including megaloblastic marrow and histamine-fast achlorhydria. A few patients had relapsed after stopping treatment, but most had never been treated.

To limit the intake of extraneous haematopoietic factors during the initial test periods, meat, poultry, offal, meat products, yeast products such as "marmite," eggs, fresh fruit, and vitamin preparations were excluded from the diet, which contained white or National flour, processed cereals, sugar, jam or syrup, dried fruit, vegetables, butter and other fats, white fish, cheese, and 1 pint (570 ml.) of milk daily.

Reticulocytes were counted daily by a wet method using brilliant cresyl blue. Haemoglobin was determined by the cyan-haematin method of King and Gilchrist (1947). Red blood cells were counted every five days with N.P.L.-tested pipettes on a Bürker haemocytometer. Blood was diluted 1 in 200 with Hayem's fluid and at least six areas 1 by 0.05 mm. were counted. A test designed to measure the accuracy of counts by taking morning and afternoon specimens in 10 patients with anaemia showed that the standard error was ±6%.

For a control period of 7 to 10 days treatment was withheld so that patients showing signs of spontaneous remission could be excluded. A shorter control period was permitted if anaemia increased rapidly. A few cases were rejected because of intercurrent illness and one because of hypoplasia of the marrow. Also excluded were results rendered invalid by deterioration of vitamin B_{12} in very dilute solution (1 μg. per ml.)—a difficulty which has since been overcome.

Vitamin B_{12} was given intramuscularly as a single dose. Doses were graded logarithmically from 1.25 to 160 μg. An extra group was given 6.5 or 7.5 μg. (mean 7.2) because a level of dosage between 5 and 10 μg. was then believed to be critical (see later).

Patients with red blood cell counts above and below the mean level of 2,000,000 per c.mm. were, so far as possible, distributed equally in the groups receiving low, medium, and high doses.

Results

There were no unpleasant side effects, and sensitization to vitamin B_{12} was not encountered. The magnitude of the haematopoietic response was gauged partly from the reticulocyte crisis, but mainly from the rate of increase of red blood cells. A summary of 73 responses in 53 patients is given in Table I. An example is shown in Fig. 1.

TABLE I.—*List of All Responses*

	Dosage in μg.	Reticulocyte Response (%)	Red Blood Cell Counts (Millions per c.mm.) at Days Indicated						
			0	5	10	15	20	25	30
1	1·25	5·2	1·33	1·46	1·60	1·26			
2	,,	Nil	2·23	2·12	2·27	2·36	2·58	2·62	2·54
3	,,	Nil	2·61	2·56	2·49	2·45			
4	2·5	11·0	1·17	1·24	1·46	1·32			
5	,,	9·2	1·20	1·31	1·59	1·49	1·31		
6	,,	12·2	1·68	1·68	2·20	2·25	2·21		
7	,,	13·0	1·74	1·98	2·40	2·39	2·43	2·06	
8	,,	7·6	1·74	1·69	1·95	1·73	1·68		
9	,,	12·6	2·65	2·77	3·07	3·05	3·35	3·62	
10	5·0	P.T.	1·23	1·02	1·85	2·18	1·86		
11	,,	12·2	1·49	1·69	2·56	2·62	2·54		
12	,,	12·6	1·56	1·58	2·58	1·89			
13	,,	P.T.	1·57	1·93	2·30	2·80	3·12	3·36	
14	,,	10·2	1·88	1·84	2·93	4·02*	3·87		
15	,,	7·6	3·00	3·17	3·76	3·75	3·70		
16	6·5 or 7·5	17·8	1·21	1·52	1·93	2·28	2·28		
17	,,	29·2	1·31	1·37	2·77	2·71			
18	,,	P.T.	1·33	1·58	2·58	2·52			
19	,,	25·0	1·77	1·66	2·98	3·40	3·41		
20	,,	19·6	1·77	1·99	2·31	2·59	2·99		
21	,,	P.I. (12)	1·89	2·04	2·46	2·26			
22	,,	25·8	1·96	1·77	2·79	2·44			
23	,,	10·6	2·02	2·26	2·68	3·84	3·42		
24	,,	9·2	2·07	2·15	2·63	3·01	2·82		
25	,,	P.I. (34)	2·24	2·58	3·47	3·82	4·17		
26	,,	6·8	2·24	2·35	3·35	3·04			
27	,,	3·8	2·33	2·44	2·71	3·22	3·00		
28	,,	P.I. (17)	2·71	2·93	3·69	3·92	3·51		
29	,,	P.I. (27)	3·00	3·19	3·60	3·32	—		
30	10·0	P.T.	1·10	1·57	2·60	2·86	2·80		
31	,,	P.T.	1·34	1·46	2·08	2·06	—		
32	,,	30·6	1·40	1·62	2·68	3·16	3·00		
33	,,	38·6	1·43	1·80	2·78	2·98	3·05		
34	,,	P.I.	1·45	1·83	2·59	2·24			
35	,,	P.I. (31)	2·10	2·26	2·76	2·82			
36	,,	P.I. (21)	2·26	2·31	2·96	3·08	3·63	3·26	
37	,,	P.I. (22)	2·44	2·62	3·60	3·69	3·63		
38	,,	P.I.	2·54	2·32	3·80	3·75			
39	,,	P.I. (11)	2·54	2·73	3·09	3·12	3·01		
40	,,	P.I. (32)	3·00	3·18	3·75	4·12	4·01		
41	,,	P.I. (26)	3·04	3·23	4·18	4·13	3·96		
42	,,	P.I. (44)	3·05	3·24	4·10	4·37			
43	,,	P.I.	3·05	3·23	4·01	4·22	4·56	4·04	
44	20·0	41·8	0·97	1·26	2·26	2·66	2·96	3·17	3·15
45	,,	27·6	1·26	1·50	2·28	2·39	2·61		
46	,,	>15	1·46	1·55	2·49	3·26	3·50	3·61	3·45
47	,,	34·0	1·62	1·64	2·55	2·65	2·59		
48	,,	28·0	1·76	1·91	2·86	3·27	3·53	3·39	
49	,,	18·4	2·28	2·45	3·49	3·55	3·87	4·19	4·09
50	,,	P.I. (47)	2·59	2·73	3·19	3·59	3·51		
51	,,	P.I. (39)	3·01	3·38	3·71	3·76	3·81		
52	40·0	P.T.	0·98	1·45	2·44	2·78	—	3·53	3·45
53	,,	22·8	1·35	1·44	2·83	2·96	2·66		
54	,,	P.T.	1·45	1·40	2·53	3·17	3·21	3·33	3·72
								(4·54 at 49 days)	
55	,,	38·0	1·77	2·14	3·09	3·28	3·83	3·64	
56	,,	P.T.	2·02	2·31	3·18	3·57	3·73	3·90	3·74
57	,,	7·2	2·06	2·45	3·09	3·46	—	—	4·11
58	,,	5·2	2·19	2·38	2·90	3·44	2·86		
59	,,	P.I.	2·28	2·53	3·08	3·67	4·32		
60	,,	P.I. (53)	2·66	2·90	4·41	4·30			
61	,,	3·4	3·03	3·18	4·51	4·45			
62	80·0	P.I. (1)	1·22	1·90	3·03	3·46	3·51	3·57	
63	,,	P.I. (5)	1·31	1·99	2·76	3·00	3·17	3·53	3·23
64	,,	P.T.	1·32	1·79	3·23	3·66	4·22	4·30	4·22
65	,,	26·2	1·59	1·93	2·79	3·66	3·98	4·08	
66	,,	P.I. (8)	1·68	2·11	3·04	3·19	4·25	4·10	
67	,,	26·4	1·70	1·81	2·82	3·27	3·41	4·27	4·16
68	,,	P.I. (7)	2·06	3·41	3·52	3·87	3·33		
69	,,	P.I. (6)	2·13	2·31	3·12	4·14	4·11	4·20	4·52
70	,,	P.I. (3)	2·45	2·61	3·76	4·16	3·91	4·06	4·22
71	,,	16·2	2·66	3·03	3·34	4·17	—		
72	160·0	19·4	1·27	1·50	2·32	3·42	3·45	3·29	
73	,,	21·0	1·71	2·02	3·17	3·72	3·79	3·70	

The highest count is in black figures. In a few instances counts recorded at 20 to 30 days were made a day or so before or after the time indicated. P.T. = previous transfusion. P.I. = previous injection; a number in brackets indicates the previous response; where no number appears the previous injection was of material not referred to in this paper (see under "Increase of Red Blood Cells" below.

* This freak response is excluded from calculations for Figs. 4 and 5 and Tables II and IV.

*In the early stages of this investigation some additional tests were carried out in Stobhill Hospital, Glasgow, by Dr. J. R. Lauckner, whose co-operation is gratefully acknowledged.

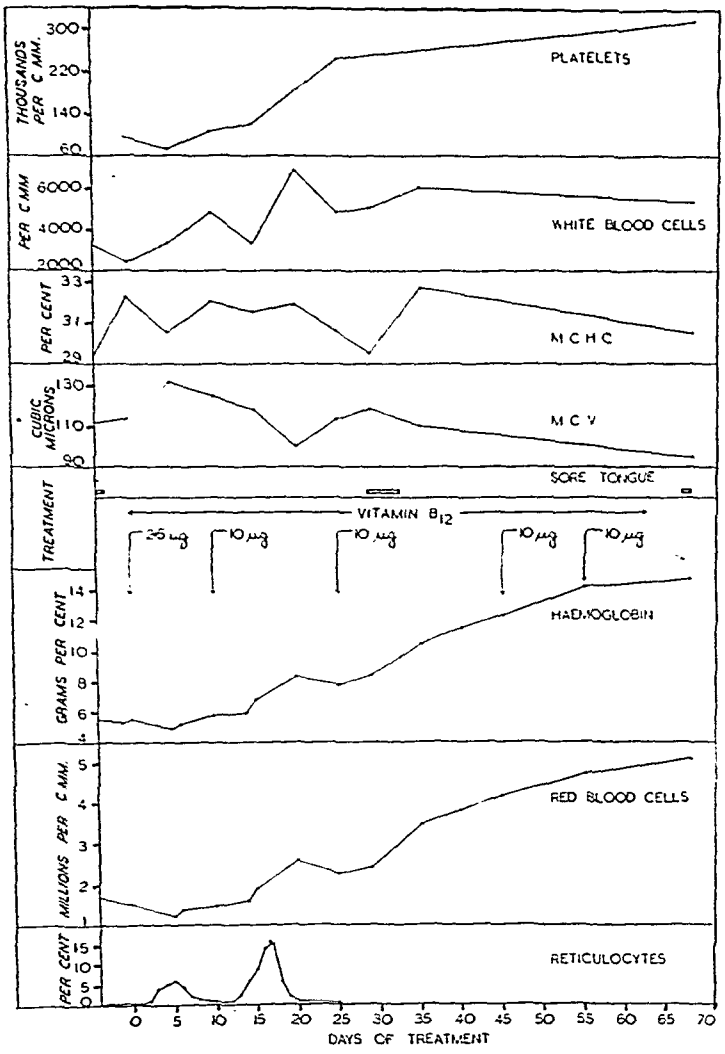


FIG. 1.—Response to repeated injections of Vitamin B_{12} in a patient with pernicious anaemia.

Reticulocytes

Reticulocytes usually began to rise on the second or third day, reaching a peak on the fifth or sixth day (counting the day of treatment as 0). There was a definite association between high dosage and early reticulocyte peak. *With large doses—20 to 160 µg.*—the peak usually occurred on the fifth day; with doses below 10 µg. the peak was usually on the sixth or occasionally the seventh day.

Reticulocyte responses of 39 patients, none of whom had had previous transfusion or injection, were compared with an "expected" response based on results to liver extract given intramuscularly (Isaacs and Friedman, 1938). Fig. 2 shows the actual responses at each initial red blood cell count. In Fig. 3 results are expressed as percentages of the expected response. Individuals varied widely in their response to a given dose. In more than 50% (10 out of 17) of the patients who received doses of 10 µg. and upwards the expected response was exceeded, whereas with smaller doses (1.25–7 µg.) this response was seldom attained (four times in 22 patients). A high reticulocytosis was not always the precursor of a satisfactory rise of red blood cells, confirming previous criticisms of the reticulocyte response as a measure of potency (Murphy, 1933; Ungley, 1936; Della Vida and Dyke, 1942; Fullerton, 1945).

Increase of Red Blood Cells

A better yardstick was the rate of increase of red blood cells. This depended not only on the dose of vitamin B_{12} but also on the initial count, and these factors varied independently of one another. Thus a formula became necessary to judge whether rates of increase were satisfactory or not.

For its construction we needed more data than were provided by the first responses in the 40 patients who had had no previous treatment. We had to decide whether to include certain additional data—namely, nine responses in patients who had been transfused with a small number of red blood cells, the survival of which could be followed by differential agglutination (Dr. Walker), and 24 responses in patients who had previously received small amounts of vitamin B_{12} (20 of them in the course of this trial). Such responses were not included unless there had been a satisfactory control period of seven to ten days of stationary or falling counts, as described under "Material and Methods" above. Where doubt existed a marrow puncture was performed and a further injection was given only if the marrow was megaloblastic.

In the nine transfused cases the average increase in the patient's own red blood cells in 15 days was 1,470,000, compared with an "expected" average increase of 1,400,000 calculated by the formula given below.

In the 24 patients who had relapsed after small amounts of vitamin B_{12} the average increase of red blood cells in 15 days was 1,220,000, whereas the expected average was 1,250,000.

In the 33 cases in these two groups the actual average increase was 1,290,000 compared with an "expected" increase of 1,290,000. Although, as described below, the "expected" increase has been calculated from a group of 63 patients which includes these 33, it is apparent from the above averages that the 30 patients who did not receive any previous treatment could not have differed significantly from the 33 patients who had had previous treatment. It was therefore considered justifiable to include the latter in the trial and to deal with them as normal cases. They are identified in Table I by P.I. (Previous Injection) and P.T. (Previous Transfusion). This neither assumes nor proves that such past treatment never has a serious effect on the rate of increase of red blood cells, but implies that such effects, if present, could be ignored in this series.

In all there were 73 satisfactory tests in 53 patients available for analysis.

Increase of Red Blood Cells in 15 Days

Increase of red blood cells in 15 days was the most useful criterion of response. Della Vida and Dyke (1942) have shown that the average weekly increase over the first two weeks of treatment depends on the initial level and varies inversely with it. Thus patients with fewer red blood cells at the beginning of treatment respond more rapidly than those who have higher counts, and conversely.

For each group of patients receiving similar doses a line was calculated by methods comparable to those of Della Vida and Dyke, and in every case, except for those receiving 2.5 µg., there was a marked relationship between the 15th-day increase and the initial count. But individually

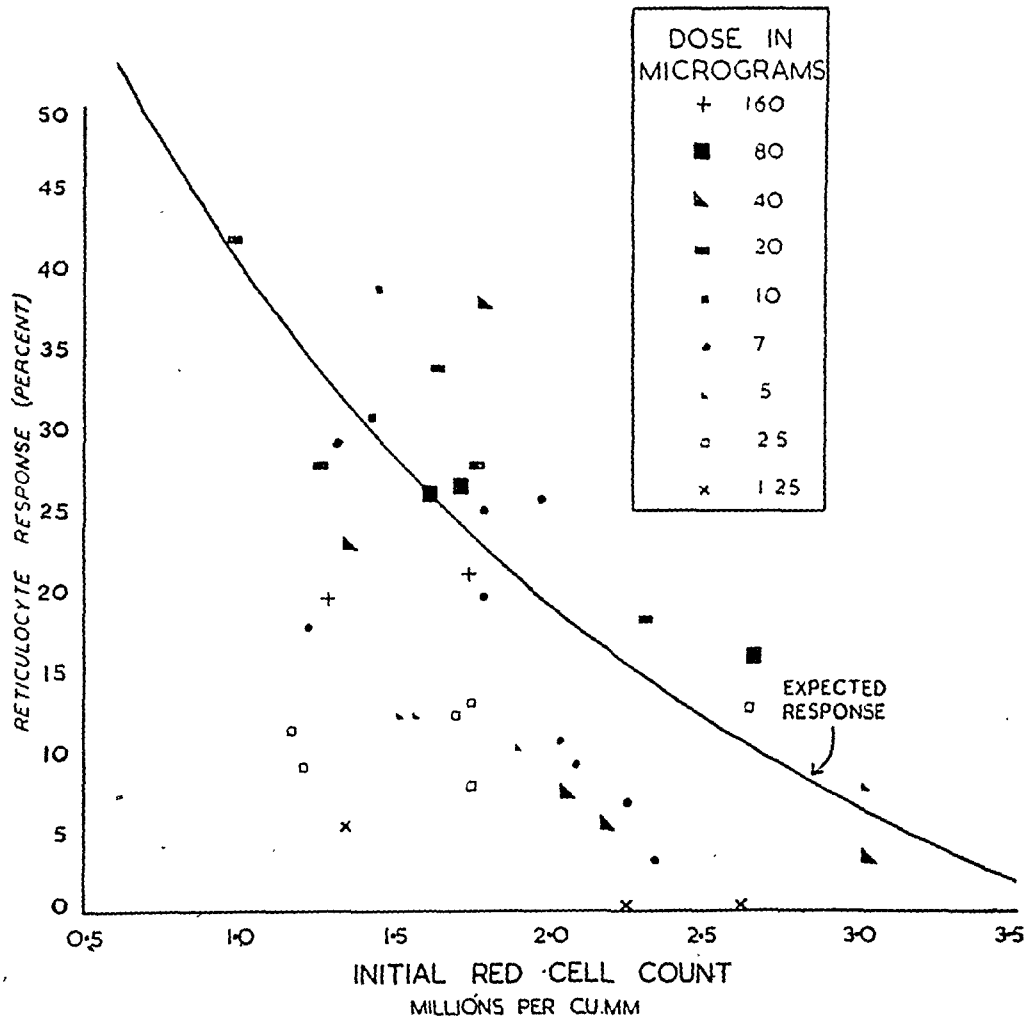


FIG. 2.—Reticulocyte responses (peak) in 39 patients to their first injection of vitamin B_{12} compared with expected response to liver extract calculated from formula of Isaacs and Friedman (1938).

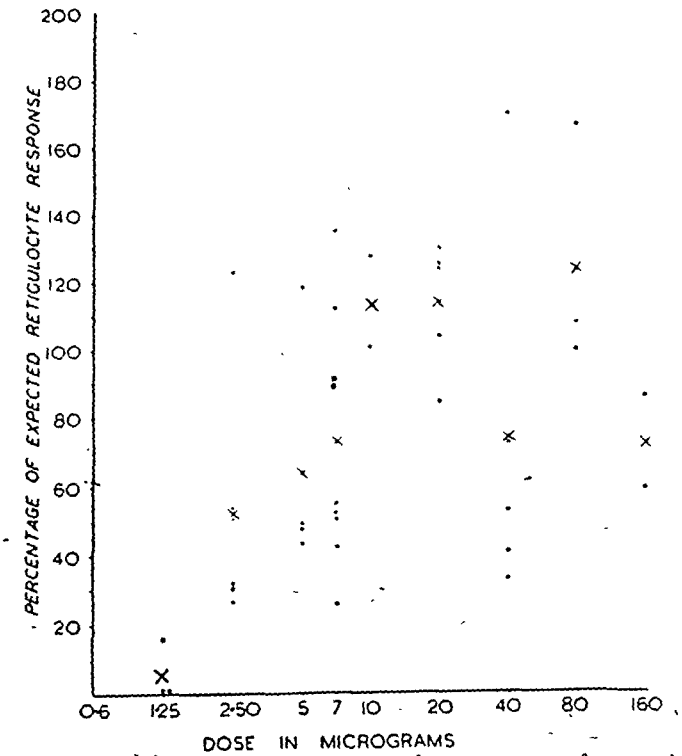


FIG. 3.—Reticulocyte response expressed as percentage of expected response. Crosses indicate the mean response at each level of dosage. Doses are spaced logarithmically.

none of these relationships could be considered statistically significant, because of the few cases involved, the largest group being 14. It was therefore necessary to calculate a formula making allowances for the differences in dosage and differences in initial blood counts at the same time.

The problem was simplified when it became apparent that over a certain range of dosage (5–160 μg.) the response varied according to the logarithm of the dose. (In practice this means that doubling the dose produces a constant increase in response.)

Out of 64 cases* receiving 5–160 μg. 63 were therefore used to calculate the formula by methods of multiple correlation, giving the following results:

$I_{18} = 1.008 - 0.153\ E + 0.245\ D - 0.017\ E \times D.$

Where I_{18} = Increase in red blood cells (millions per c.mm.) on the 15th day.

E = Initial red blood cell count (millions per c.mm.) on the day of injection.

D = Dose on a logarithmic scale—e.g. (5 μg. = 1; 10 μg. = 2; 20 μg. = 3; 40 μg. = 4)

The increases that may be expected according to this formula are given in Table II. and the lines have been superimposed upon Fig. 4.

This formula is applicable only for doses between 5 and 80 μg.—or possibly 160 μg.—and for patients whose initial

TABLE II.—*Expected Increase in 15 Days*

$I_{18} = 1.008 - 0.153\ E + 0.245\ D - 0.017\ E \times D$

Standard Deviation of $I_{18} = 0.33$

Initial Red Blood Cell Count (Millions)	5 μg.	10 μg.	20 μg.	40 μg.	80 μg.
1·00	1·08	1·31	1·54	1·77	2·00
1·10	1·07	1·29	1·52	1·75	1·97
1·20	1·05	1·27	1·50	1·73	1·95
1·30	1·03	1·25	1·48	1·70	1·92
1·40	1·01	1·23	1·46	1·68	1·90
1·50	1·00	1·21	1·44	1·66	1·87
1·60	0·98	1·19	1·42	1·64	1·85
1·70	0·96	1·18	1·40	1·61	1·83
1·80	0·94	1·16	1·38	1·59	1·80
1·90	0·93	1·14	1·36	1·57	1·78
2·00	0·91	1·12	1·34	1·55	1·76
2·10	0·89	1·10	1·32	1·53	1·73
2·20	0·88	1·08	1·30	1·51	1·71
2·30	0·86	1·06	1·28	1·48	1·68
2·40	0·84	1·04	1·26	1·46	1·66
2·50	0·82	1·02	1·24	1·44	1·64
2·60	0·81	1·01	1·22	1·42	1·61
2·70	0·79	0·99	1·19	1·39	1·59
2·80	0·77	0·97	1·17	1·37	1·57
2·90	0·75	0·95	1·15	1·35	1·54
3·00	0·74	0·94	1·13	1·32	1·52
3·10	0·72	0·92	1·11	1·31	1·50

E = Initial red blood cell count in millions. I_{18} = Increase in red blood cells on the 15th day. D = Dose on a logarithmic scale (5 = 1; 10 = 2; 20 = 3; 40 = 4; 80 = 5).

The error made in using these tables will be less than the Standard Deviation in about 68% of all individual cases.

*Case 14 was excluded, as the response was most exceptional.

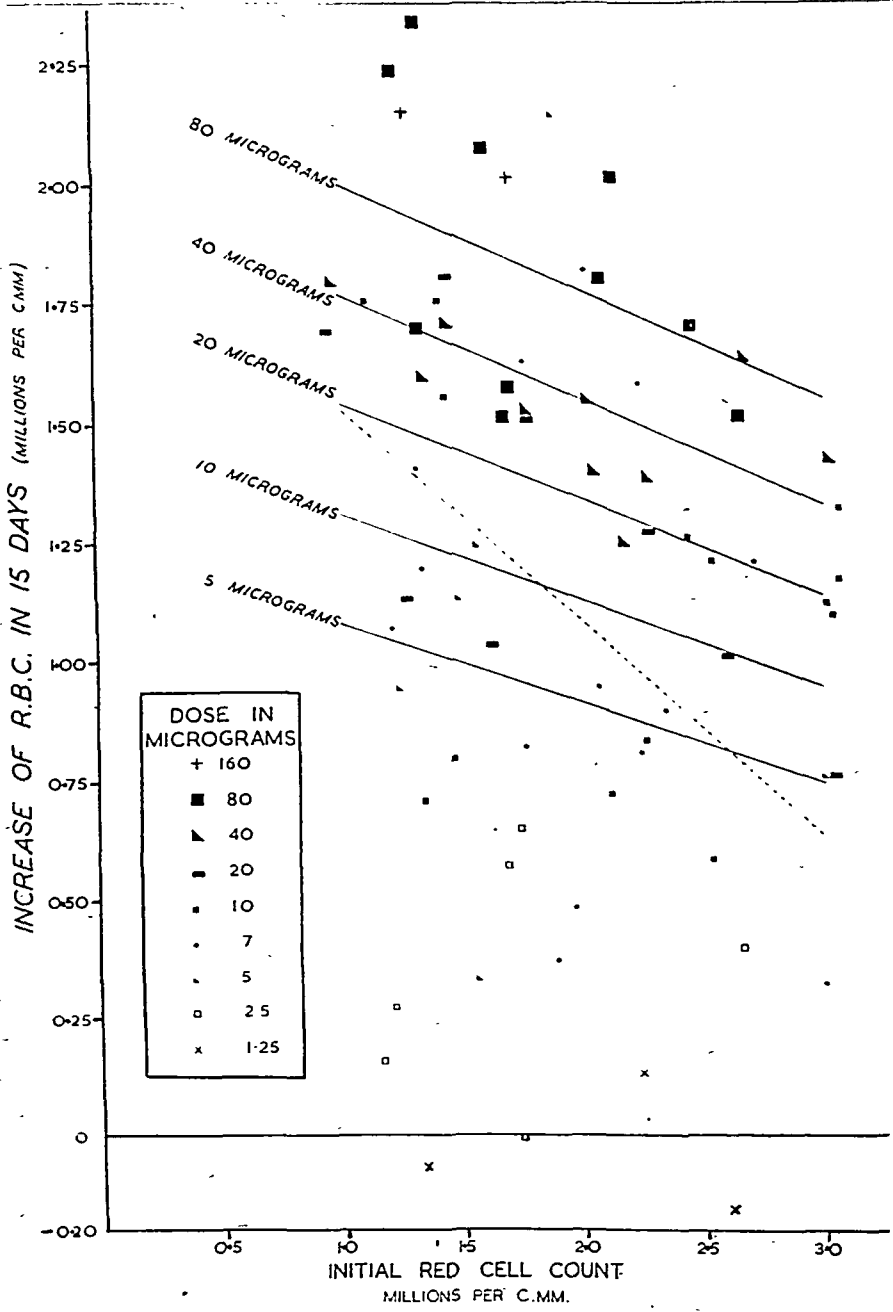


FIG. 4.—Actual increase of red blood cells in 15 days in 73 instances after vitamin B_{12}. The lines are calculated from a formula which takes account of dosage and initial red blood cell count. The dotted line corresponds to the formula of Della Vida and Dyke (1942) for "average" responses to liver extract.

red blood cell count lies between one and three millions per c.mm. Patients vary considerably in their response to treatment, but only 32% of responses will differ from the figures given in Table II by more than ±330,000. For groups of patients, however, the *average* increase of a group will be more accurate (e.g., for a group of 10 cases the average increase will usually be forecast by Table II with an accuracy of ±100,000).

The following is a brief explanation of the meaning of the formula, simplified by omitting the slight correction for the factor E×D. If a patient has an initial red blood cell count of 2,000,000 and is given an injection of 10 μg., the increase in 15 days will be about 1,120,000, making his actual count on the 15th day 3,120,000. For every doubling of the dose in the range 5 to 80 μg. there will be an additional increase of about 220,000, so that the increase in 15 days if the patient had received 20 μg. would be 1,340,000, and if 40 μg., 1,560,000. Similarly, for every million cells above 2,000,000 at the initial count the 15-day increase will be reduced by about 200,000, so that the increase for a patient with an initial count of 3,000,000 receiving 10 μg. is about 920,000. Similarly, for every million cells below 2,000,000 there will be an additional increase of about 200,000, so for a patient with an initial count of 1,000,000 the increase would be about 1,320,000 per c.mm.

The expected response found by Della Vida and Dyke for their "average" group was attained in our series by doses in the region of 10 μg., and only in this limited sense can amounts of this order be regarded as the "minimal effective dose" (Ungley, 1948b).

To check the validity of the formula the expected increases in 15 days were calculated for all 63 patients and compared with the actual increases obtained. The differences between these figures are given in Table III, where it will be noted that in over three-quarters of all the cases the error was less than 400,000. (The standard deviation of this table is ±320,000, which corresponds with that quoted in Table II.)

TABLE III.—*Differences Between Estimated and Observed Increase of Red Blood Cells in 15 Days*

Estimate	Difference in Million R.B.C.	Cases
Too small	0·60–0·79	2
	0·40–0·59	4
	0·20–0·39	12
	0·01–0·19	13
Accurate	0	2
Too large	0·01–0·19	12
	0·20–0·39	11
	0·40–0·59	5
	0·60–0·79	2
		63

Dosage Response Curve Based on Increase of Red Blood Cells in 15 Days

The basic assumption made in calculating the formula was that the mean response to a given dose was proportional

to the logarithm of the dose. While this is a justifiable assumption over a given range, it is unlikely to be true over the total range of possible doses.

It was therefore necessary to examine the assumption more closely to see if it was justifiable and at what stage it broke down. Accordingly, the difference between actual and expected increases was calculated for each case; for doses outside the range of Table II the formula was extrapolated. The mean difference for each dose group is given in Table IV and Fig. 5.

TABLE IV.—*The Mean Difference Between Observed and Expected Increase in 15 Days*

Dose in μg.	No. of Cases	Mean Initial R.B.C. (Millions per c.mm.)	Mean Difference (Millions per c.mm.)
1·25	3	2·06	−0·52
2·5	6	1·70	−0·40
5·0	5*	1·77	−0·07
7·0	14	1·99	+0·02
10·0	14	2·20	+0·05
20·0	8	1·87	−0·10
40·0	10	1·98	−0·02
80·0	10	1·81	+0·05
160·0	2	1·49	−0·02

*i.e., excluding Case 14.

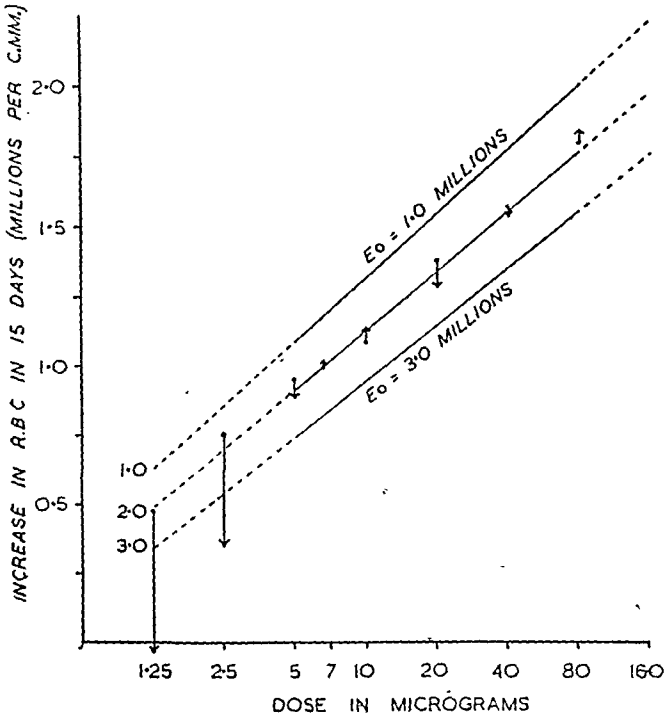


FIG. 5.—Dose response curve to graded doses of vitamin B_{12} (spaced logarithmically). Continuous lines = expected response according to formula in text. Difference between observed means and expected increase is shown by vertical lines. Dot = initial count; length of line = deviation from expected response; arrow shows whether deviation was above or below expectation. The relationship between response and log. dose did not hold for doses below 5 μg.

From Table IV it is apparent that doses below 5 μg. failed to produce a response proportional to the logarithm of the amount used. But for doses from 5 μg. to 160 μg. there is no significant departure from the logarithmic curve. Consequently, with the data available it may be concluded that between the stated limits the logarithmic is the most satisfactory approximation to the true dose response curve.

Below the stated limits a dose of 2.5 μg. produced fair reticulocytosis but a slow increase of red blood cells which was poorly sustained. The smallest amount given so far has been 1.25 μg., which produced slight reticulocytosis in one out of three cases with little or no increase in red blood cells in 15 days. Further tests are necessary to complete the curve and examine its behaviour for dosage levels at and above 160 μg.

An incidental finding is the considerable variation of the response, which is greater with small than with large doses (see Table VII). Variation in response might be due to a number of causes. Errors due to deterioration of vitamin B_{12} in solution and inaccuracy in measurement of dosage are believed to be small. Variation in the rate of absorption from the site of injection is probably significant only in so far as it affects the rate of excretion of vitamin B_{12} in the urine, itself probably an important factor. Individual requirements probably vary with such factors as age, sex, body weight, pyrexia, and metabolic rate. Another possible source of error is variable ingestion, utilization, and reserves of accessory haematopoietic factors, such as folic acid, which are present even in the restricted diet. The smaller variation in response after large doses suggests that they neutralize some of the sources of variability.

Increase at 5, 10, and 20 Days

Although the increase in 15 days was the most useful criterion for judging the potency of vitamin B_{12}, counts were also available for the 5th, 10th, and 20th days.

The increase in 5 days was slight—usually about 15% of the increase at 15 days (Tables V and VI). But precisely

TABLE V.—*Mean Red Blood Cell Counts During First 20 Days of Treatment*

Dose in μg.	No. of Cases	Mean Red Blood Cell Count at				Cases Followed 20 Days		
		0 Day	5 Days	10 Days	15 Days	No.	R.B.C. 0 Day	R.B.C. 20 Days
1·25	3	2·06	2·05	2·12	2·02	1	2·23	2·58
2·5	6	1·70	1·78	2·11	2·04	5	1·80	2·20
5·0	6	1·79	1·87	2·66	2·88	5	1·83	3·02
7·0	14	1·99	2·13	2·85	3·03	8	2·02	3·02
10·0	14	2·20	2·39	3·21	3·33	9	2·25	3·52
20·0	8	1·87	2·05	2·85	3·14	8	1·87	3·28
40·0	10	1·98	2·22	3·21	3·51	6	1·84	3·44
80·0	10	1·81	2·29	3·14	3·66	9	1·72	3·78
160·0	2	1·49	1·76	2·75	3·57	2	1·49	3·62

TABLE VI.—*Increases as a Percentage of that Reached in 15 Days*

Dose in μg.	5 Days	10 Days	15 Days	20 Days
5	7	80	100	109
7	13	83	100	114
10	17	90	100	113
20	14	77	100	112
40	16	80	100	105
80	25	72	100	111
160	13	60	100	103
All ..	17	81	100	110

the same characteristic variations were discernible, the increase varying with the logarithm of the dose and inversely with the initial count. The greatest rise was between the 5th and 10th days, by which time about 80% of the increase obtained in 15 days had occurred. Again, the same variables operated and had to be sorted out by a formula similar to that given above for the 15th-day counts. As a measure of response the 10th-day counts would have been nearly as useful as the 15th-day counts, but the chance of error was less with the greater increase in 15 days.

The 20th-day counts unfortunately were not complete in all cases, as some 21 patients who had not responded

well to treatment needed further injection before reaching the 20th day and had to be withdrawn from the trial. The remainder are therefore not a representative group, but are biased by the survival of the fittest. In this group the average increase by the 20th day was about 110% of the increase in 15 days.

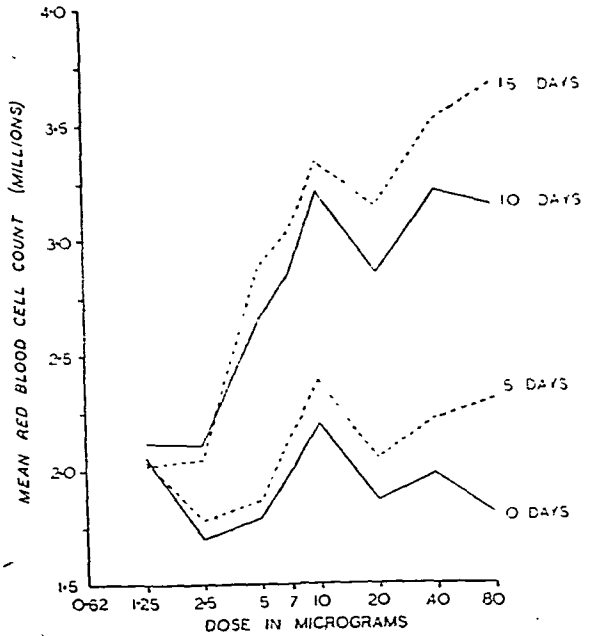


FIG. 6.—Mean red blood cell counts at fixed times after graded doses of vitamin B_{12} (spaced logarithmically).

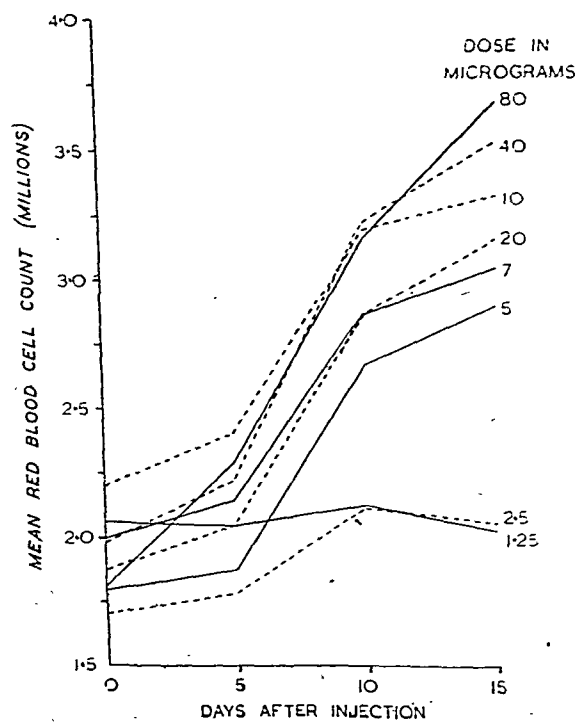


FIG. 7.—Mean response to graded doses of vitamin B_{12} (from same data as Fig. 6).

Fig. 6 shows the relationship between erythrocyte increase and dosage at various fixed intervals of time. In Fig. 7 the same data are arranged to show the behaviour of the erythrocyte counts over a period of 15 days for various fixed levels of dose. These figures show fairly clearly the relationship between time and dose and emphasize that higher doses produce responses which are not only greater but last longer. Fig. 8 shows the usual form of curve of increase of erythrocytes in the first three weeks after doses of 5–160 μg. (see Table VI).

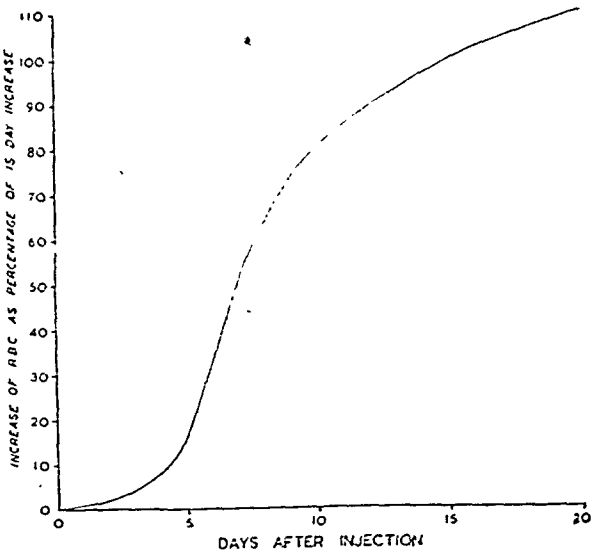


FIG. 8.—Proportion of increase of red blood cells which occurred in 5, 10, 15, and 20 days after a single dose of vitamin B_{12}. This form of curve holds true for most cases receiving doses of 5 to 160 μg. (see Table VI).

Total Dosage to Complete Remission

The amount of vitamin B_{12} required to raise the red blood cell count above 4,500,000 in 32 cases varied from 15 to 140 μg. and the time from 15 to 118 days. Individual findings are not recorded, since variations depended partly on the size and spacing of the doses. If red blood cell counts were allowed to fall before subsequent doses were given, then more time and material were required for complete remission. Moreover, remission was attained less economically with a single large dose than with the same amount of material given in divided doses at fortnightly intervals. Daily requirements for vitamin B_{12} could not be determined accurately from such data.

Other Findings

Changes in the *bone-marrow* from megaloblastic to normoblastic erythropoiesis after liver extract are described by Davidson, Davis, and Innes (1942) and after Lester Smith's non-crystalline red-pigmented material by Lorriman (1948). Similar changes following crystalline vitamin B_{12} were observed in the present series by Drs. G. Lorriman and R. B. Thompson (personal communication).

Initial *white blood cell counts* before treatment in 32 patients ranged from 1,500 to 8,300 (mean 4,300 ± S.E.260 per c.mm.). When remission was attained (red blood cells 4,500,000 per c.mm. or over) white blood cell counts in these patients ranged from 4,000 to 8,800 (mean 6,200 ±

170 per c.mm.). *Platelet counts*, too, usually rose to normal levels; Fig. 1 shows a typical response. Counts before treatment in 42 patients ranged from 20,000 to 283,000 (mean 105,500 ± 7,000). Counts 1 to 12 weeks later (mean 3.5 weeks) ranged from 120,000 to 560,000 (mean 305,500 ± 16,000). The difference between means both for white blood cells and for platelets is highly significant.

Within the first few days there was a dramatic increase in appetite and well-being, followed later by a gain in weight. Disturbances such as nausea, vomiting, and diarrhoea were relieved.

Soreness of the tongue usually disappeared within a few days, recurring only if the effects of an injection were allowed to wear off. Three exceptions are mentioned under "Maintenance." Clean smooth tongues became partially or completely repapillated and sometimes furred.

Neurological and certain other findings are discussed below.

Maintenance

Excluding cases with subacute combined degeneration, 21 patients were treated long enough (6 to 15 months) to give some indication of requirements for maintenance. The standard dose was 10 μg. every two weeks, although in two instances the interval was lengthened to three and four weeks, and in one the dose was increased because of sore tongue. To simplify further discussion the exceptions will be considered first.

Six women showed evidence of iron deficiency after 8 to 15 weeks, with low mean corpuscular haemoglobin concentration (M.C.H.C.); normality was restored by a course of ferrous sulphate.

Three of these women and one man mentioned below had isolated red blood cell counts of just below 4,000,000 per c.mm. in the maintenance period. In one of the women the low count followed an attack of influenza; the man had intermittently a sore tongue and some macrocytosis (mean M.C.V. 96.5 c.μ; range 90.4 to 101.6 c.μ), indicating that his requirements were not completely met by 10 μg. a fortnight.

Another patient complained of very slight soreness of the tongue at each attendance. A third had intermittently a red sore tongue, which was not relieved even when doses were stepped up to 80 μg. Neither of these two patients had abnormal blood findings during the maintenance period.

The mean values mentioned below were derived from the sum of all findings for each patient (including the exceptional cases) after red blood cells first reached 4,500,000 per c.mm.

Mean red blood cell counts ranged from 4,480,000 to 5,120,000 (mean 4,950,000). Mean haemoglobin values ranged from 11.1 to 14.7 g. (mean 13.8 g.) per 100 ml.

Except in the six women who developed iron deficiency, haemoglobin increased at a rate adequate to maintain a normal M.C.H.C. Mean values for M.C.H.C. for all cases ranged from 28.1 to 34.8% (mean 30.9%).

By the time the red blood cell counts had reached 4,500,000 the M.C.V. had usually fallen to normal (76 to 94 c.μ). Mean values during maintenance ranged from 81.1 to 96.5 c.μ (mean 89.6 c.μ). A few patients had isolated values of 96 to 99 c.μ, but only the one man already mentioned had any suggestion of persistent macrocytosis.

Findings in eight patients with subacute combined degeneration who received much larger doses of vitamin B_{12} (see below) are of interest. Mean red blood cell counts ranged from 4,850,000 to 5,550,000 per c.mm.; mean haemoglobin levels ranged from 13.8 to 15.4 g. per 100 ml M.C.H.C. was always within the normal limits; so was M.C.V., apart from one isolated reading of 96.7 c.μ.

Neurological Manifestations

Twenty-one patients in this series have been followed for six to 15 months and others for shorter periods; neurological manifestations improved or remained unchanged and fresh symptoms have not developed.

More direct evidence of the efficacy of vitamin B_{12} against the neurological manifestations of pernicious anaemia was obtained by treating established cases of subacute combined degeneration (Ungley, 1948a, 1949). The first patient began treatment with Lester Smith's red but not yet crystalline material in December, 1947, changing to crystalline vitamin B_{12} six months later. Now eight patients have received pure vitamin B_{12}—usually 40 μg. a week—for a minimum of 10 months. Using a quantitative method of assessing neurological status, significant improvement was demonstrated in each case. Comparison with 44 patients treated before the war showed that vitamin B_{12} was as effective as liver extract—crude or refined—in the treatment of subacute combined degeneration (Ungley, 1949).

Routine dosage of vitamin B_{12} must cover wide individual variations in requirement and maintain reserves. Uncomplicated cases without neurological involvement may be given 40 to 80 μg. initially, followed by 20 μg. weekly for three months and 30 μg. every three weeks thereafter Patients with subacute combined degeneration should receive weekly at least 40 μg. for six months and 20 μg thereafter. Some will need more: at the least sign of relapse—lingual, haematological, or neurological—or if infection develops, dosage should be temporarily doubled or trebled.

Our findings amplify earlier reports on the effect of vitamin B_{12} given parenterally in pernicious anaemia (West. 1948; Ungley, 1948a, 1948b, 1949; Hall and Campbell, 1948; Spies, Stone, Kartus, and Aramburu, 1948; Berk, Denny-Brown, Finland, and Castle, 1948; Bethell, Meyers, and Neligh, 1948; Spies, Suarez, Garcia Lopez, Milanes, Stone, Lopez Toca, Aramburu, and Kartus, 1949; West and Reisner, 1949).

Subsequent papers will describe the effects of vitamin B_{12} administered via the alimentary tract; its effect in non-Addisonian megaloblastic anaemias; its effect in certain cases of megaloblastic anaemia showing rapid elimination of transfused red blood cells; and the effect in pernicious anaemia of factors related to vitamin B_{12}, including thymidine and Lester Smith's slow-moving red component.

Summary

Seventy-three responses to single doses of vitamin B_{12} injected intramuscularly were observed in 53 patients with pernicious anaemia in relapse.

Doses were graded logarithmically from 1.25 to 160 μg Conclusions are based on the means of a number of responses at each dose level. Reticulocyte responses were compared with the "expected" response to liver extract according to Isaacs and Friedman (1938), but a better yardstick was the increase of red blood cells in 15 days.

While doses of 1.25 μg. had little or no effect, 2.5 μg. produced a definite but small response. Responses to 5 and 7 μg. were on average somewhat below, and to 10 μg. just up to expectation, both in respect to reticulocytes (Isaacs and Friedman, 1938) and to increase of red blood cells in 15 days (Della Vida and Dyke, 1942, formula for "average" group).

Only in this limited sense can 10 μg. be regarded as a minimal effective dose. Larger doses produced still greater increase of red blood cells in 15 days, the mean response being roughly proportional to the logarithm of the dose, at least in the range 5 to 80, or possibly even 160 μg. From a formula devised to express this relationship the expected response to any dose within the range was calculated. Most of the responses actually obtained did not differ from the expected response by more than 330,000 per c.mm.

Further tests at high and low levels of dosage are needed to complete the dose response curve, which will probably be sigmoid in form, rising gradually, then steeply, from the threshold dose, and flattening out to a horizontal level when supramaximal doses are reached.

Maintenance doses of 10 μg. of vitamin B_{12} every two weeks were satisfactory in 18 out of 21 patients followed for six to 15 months. The exceptions were three patients whose sore tongue was not completely relieved, one having macrocytosis in addition. Six women developed iron deficiency at eight to 15 weeks, relieved by ferrous sulphate.

Fresh neurological symptoms did not develop. Direct evidence of an effect in subacute combined degeneration is published elsewhere (Ungley, 1949).

I am indebted to medical, nursing, technical, and clerical members of the staff for their co-operation, and to general practitioners who referred untreated cases of megaloblastic anaemia: further progress in this field depends on their continued help. I am also indebted to Dr. E. Lester Smith and his colleagues in the Research Division of Glaxo Laboratories Ltd., Greenford, who prepared and supplied all the crystalline vitamin B_{12} used in these investigations.

APPENDIX

It was necessary to calculate from the data in Table I formulae which would give the number of red blood cells to be expected in a given patient after a given dose.

Regression lines were calculated between increase in red blood cells at 15 days (I_{15}) and the initial count (E) for each dose. These were as follows (Table VII):

Dose (μg.)	No. of Cases	Regression Line I_{15} in millions	Correlation	Std. Dev. of I_{15} in millions
2·5	6	$I_{15} = 0{\cdot}162 + 0{\cdot}101\ E$	+0·23	0.45
5·0	5	$I_{15} = 1{\cdot}039 - 0{\cdot}091\ E$	−0·18	0.50
7·2	14	$I_{15} = 1{\cdot}487 - 0{\cdot}226\ E$	−0·25	0.45
10·0	14	$I_{15} = 1{\cdot}432 - 0{\cdot}130\ E$	−0·26	0.34
20·0	8	$I_{15} = 1{\cdot}935 - 0{\cdot}339\ E$	−0·57	0.35
40·0	10	$I_{15} = 1{\cdot}824 - 0{\cdot}149\ E$	−0·55	0.14
80·0	10	$I_{15} = 2{\cdot}362 - 0{\cdot}285\ E$	−0·47	0.27

These lines indicate a consistent relationship between low initial red blood cells and high response at 15 days for all doses between 5 and 80 μg. There is, moreover, a suggestion that the dosage effect is on a logarithmic scale.

A fresh regression line was calculated for doses between 5 and 80 μg. for three variables I_{15}, E, and D, where D was the dose on a logarithmic scale—i.e., 5 μg.=1; 10 μg.=2; 20 μg.=3; 40 μg.=4; 80 μg.=5. (On this scale the intermediate dosage of 7.2 μg. corresponded to 1.5.) This gave formula 2:

$$I_{15} = 1.168 - 0.199\ E + 0.193\ D$$

Number of cases = 61

Corrected correlation between I_{15} and D = +0.60

" " " I_{15} and E = −0.31

Standard deviation of I_{15} = 0.33 millions

This formula, used for preparatory work on dosage response, compels the dosage lines to run parallel, whereas perhaps they should converge. To test this hypothesis another formula was calculated in which a fourth factor was introduced, C=D×E. If there was a tendency for the lines to converge this would be apparent in the value of C. At this stage further data were available for two cases receiving 160 μg., and as these appeared to fall accurately on the extrapolation of formula 2 they were included in the calculation of formula 3, which was as follows:

$$I_{15} = 1.008 - 0.153\ E + 0.245\ D - 0.017\ D \times E$$

Number of cases = 63

Standard deviation of I_{15} = 0.33 millions.

This is the formula used in the text.

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The drawing up of a series of measures designed to strengthen health administrations in underdeveloped countries in the fight against tuberculosis is one of the main results achieved by the Expert Committee on Tuberculosis of the World Health Organization, which recently concluded a five-day session in Copenhagen. The importance of training health personnel in underdeveloped areas was stressed repeatedly by the experts. They pointed out that the World Health Organization could be of great assistance in setting up centres to train local personnel in all phases of tuberculosis control work and to serve as demonstration centres for medical and auxiliary personnel of the area. The committee further suggested that WHO might give useful information on certain types of hospitals which could be set up in a relatively rapid and economical way. Health education was recognized by the committee as an essential tool in tuberculosis control. It was urged that WHO should encourage national and international voluntary organizations to inform the public on all aspects of the tuberculosis programme carried out in a particular country with the purpose of securing active support for it. The value of tuberculin-testing and of B.C.G. vaccination as the only practical way known so far of producing specific resistance against tuberculosis was reaffirmed by the committee. Further, it was emphasized that B.C.G. immunization could be fully effective only if used as a part of a general programme in addition to the application of other available preventive measures. Mass vaccination with B.C.G. was specially recommended for countries with high tuberculosis infection and mortality rates. In connexion with the B.C.G. programme the committee heard a report on the work and plans of the research office which has been set up by WHO in Copenhagen to evaluate the results of tuberculin-testing and B.C.G. vaccination. The results to be expected from this WHO research group will be of great value to future planning of anti-tuberculosis campaigns on a world-wide basis.

VITAMIN E IN THE MENOPAUSE*

BY

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Menopausal flushing and sweating can usually be controlled by oestrogens, but the stimulating effect of these hormones on the genital tract and breasts sometimes contraindicates their use—for instance, after radium treatment of cancer or before cessation of menstruation. Although oestrogens promote cancer development in animals there is so far no proof that they do so in man (Gemmell and Jeffcoate, 1939 ; Gardner, 1947). Nevertheless, "cancer-like" areas are quite often a troublesome finding in curettings from patients whose oestrogen-withdrawal bleeding has necessitated curettage (Gusberg, 1947).

Vitamin E was first used by Evan Shute (1937) to control flushings, and several confirmatory reports have followed (Shute *et al.*, 1938 ; Hain and Sym, 1943 ; Christy, 1945 ; Ferguson, 1948 ; Finkler, 1949). In this study special attention has been paid to the genital tract to ascertain if vitamin E is inert and therefore a substitute for oestrogens or stilboestrol in cases in which stimulation of the genital tract is undesirable.

*Read before the Birmingham and Midland Obstetrical and Gynaecological Society on March 31.

The Investigation

Clinical Material.—In view of the cost (£7 per case), treatment was given only to patients seriously disabled by drenching sweats, flushings, loss of sleep, and so on. The incidence of severe flushing after cessation of menstruation is about 17%, while after radium or surgical castration the figure is 50% (McLaren, 1941). Vitamin E in the form of alpha-tocopherol ("ephynal") was given to 47 patients with severe flushings ; these included four regarded as new cases, although in fact they had relapsed after successful treatment with vitamin E. Forty cases had not been previously treated, while three had resisted stilboestrol. The 47 cases fall into the following categories :

	Cases
Radium menopause (two years approximately)	25
Deep *x*-ray (one year approximately)	9
Hysterectomy and double oophorectomy	10
Hysterectomy and one ovary	2
Spontaneous menopause	1

As a control before vitamin E, 18 cases were treated as follows. After completion of her case history and pelvic examination the patient was given blank tablets and a card to record the number of flushes at each period of the day

TABLE I.—*Effect of Vitamin E on Flushing*

No. and Class	Vitamin E (mg.)	Days	Result	Blanks before Treatment		Blanks after Treatment		Spontaneous Relapse
				Days	Result	Days	Result	
778 Spont. M.	14,000	35	Fail					
732 *X*-ray	35,000	35	Part cure	12	Fail	28	Cure	Unknown
720 ,,	35,000	35	Fail	14	,,			
701 Castrate	35,000	35	,,	14	,,			
722 *X*-ray	28,000	28	,,	12	,,			
725 ,,	54,600	21	Cure	10	,,			Unknown (Case 3)
736 ,,	14,000	14	,,	14	,,	21	,,	Cure (Case 4)
743 ,,	25,200	35	Fail	12	,,			
730 ,,	35,000	35	Cure	14	,,	49	Relapse	
745 ,,	21,000	21	,,	19	,,	28	Cure	Relapse 4/52
734 Castrate	35,000	35	,,	14	,,	35	Relapse	
739 *X*-ray	28,000	28	Part cure	24	,,	35	Cure	Relapse 3/52
754 Castrate	28,000	21	,, ,,	19	,,	21	Relapse	
578 ,,	14,000	14	Cure	21	,,	28	Cure	Relapse 4/52
466 Rad. M.	17,500	49	,,					After oophorectomy relapse
573 1 ovary	30,700	65	,,			14	,,	Relapse 3/52
562 Rad. M.	12,600	26	Fail					
464 ,, ,,	8,300	35	Cure			106	,,	Unknown
{450 ,, ,,	13,500	56	,,			28	Relapse	
{585 ,, ,,	4,200	14	Fail					
452 ,, ,,	32,200	43	,,					
615 Castrate	42,000	42	,,					
668 Rad. M.	4,200	14	Cure	14	,,	28	Cure	Cure 14/52
{561 ,, ,,	15,400	42	Part cure					Relapse 4/52
{561B ,, ,,	14,000	14	Fail					
293 Castrate	28,750	98	Cure			21	Relapse	
46 Rad. M.	5,110	42	,,			63	Cure	Cure 10/12
112 ,, ,,	3,360	28	,,				,,	Unknown
{355 Castrate	5,600	14	,,			21	,,	Relapse 3/52
{355B ,,	10,000	21	,,	42	,,			Part relapse 4/52
263 Rad. M.	3,360	14	,,			14	,,	Relapse 4/52
307 Castrate	18,060	56	Fail					
269 1 ovary	6,860	49	Part cure			21	Relapse	
106 Rad. M.	4,200	28	Fail					
108 ,, ,,	60,600	83	Cure	40	,,	21	Cure	Relapse at once
176 ,, ,,	1,400	14	,,					Unknown
324 ,, ,,	17,300	42	Fail					
451 ,, ,,	9,450	56	Part cure			14	,,	Unknown
45 ,, ,,	8,400	63	Fail					
583 ,, ,,	12,600	21	Cure	21	Cure (40%)	28	Relapse	
172 ,, ,,	5,880	63	,,			21	Cure	Cure 12/12
227 ,, ,,	1,680	14	Part cure					Relapse at once
514 ,, ,,	21,000	41	Fail					
47 ,, ,,	4,116	38	,,					
149 ,, ,,	5,600	56	,,					
225 ,, ,,	10,640	47	Cure					Relapse at once
157A Castrate	15,750	80	,,			84	,,	Cure 5/12
647 ,,	—	—	—	32	Cure	—	—	—

Spont. M. = Spontaneous menopause. *X*-ray = *X*-ray menopause. Castrate = Hysterectomy and bilateral salpingo-oophorectomy. 1 ovary = Hysterectomy and unilateral salpingo-oophorectomy. Rad. M. = Radium menopause. Part cure = Patient not completely relieved. Bracketed cases = Relapsed and retreated cases.

After intervals up to 42 days (average 19 days) only one case was cured (No. 647), while another was somewhat improved but was still in need of treatment.

The results of treatment of flushing by vitamin E are shown in Table I : 23 were completely cured, 7 were markedly improved, and 17 were failures. The dosage given was as follows : lowest, 1,400 mg. ; highest, 60,000 mg. ; average 18,500 mg.

Effect of Placebos.—Of 23 cured or improved cases, 22 were given placebos for periods varying from 14 to 106 days (average 35 days). Fifteen cases (68%) maintained their improvement, while seven relapsed. Flushing reappeared in four and partially reappeared in two cases, while 16 (73%) maintained the cure. Of 17 cases questioned up to a year after completion of treatment 12 had relapsed partially or completely, but five were completely free from symptoms. No information was available from the remaining six cases.

Analysis of Failures.—There was apparently no special "type" of menopause resistant to treatment—viz., radium menopause, 10 cases; hysterectomy and double oophorectomy, three cases; deep x-ray, three cases; spontaneous menopause, 1 case. In an attempt to overcome the resistance to treatment doses up to 60 g. (average 20.745 g.) were given over an average period of 36 days, but without success. The 17 "failures," however, were quickly cured of their flushings by small doses of stilboestrol.

Vitamin E and Sex Function

A recent survey of the effect of the radium menopause on sex function led to the belief that it speedily causes many patients to lose their normal libido and the ability to achieve the orgasm. Ten out of 100 cases, moreover, suffered from dyspareunia after radium (McLaren, 1949).

It was impossible to interview every patient, and often the information was quite obviously inaccurate—e.g., when the patient alleged satisfactory coitus yet on examination proved to have a painful lesion of the vulva or vagina. Accordingly only 22 out of 43 patients were considered to be giving reliable evidence, but from this number we concluded that vitamin E had little effect in restoring libido or on the achievement of orgasm. As will be described later, vitamin E has a slow effect in curing painful senile lesions in the genital tract, and to this extent it must contribute to improved sexual relations, although in this it does not compare with stilboestrol.

Effect of Vitamin E on the Genital Tract

The clinical material was drawn from patients who some two years previously had had the menopause induced by radium. Senile lesions in the genital tract are then quite common—e.g., bleeding spots were observed in the vagina on speculum examination in 11 out of 68 patients whose ages averaged 45, an incidence which would not be unusual in normal women 15 or 20 years later (McLaren, 1941, 1949). We therefore had the opportunity of testing the curative effect of massive doses of alpha-tocopherol on these and other senile genital lesions. Cell-smears were also studied to ascertain if the drug was in fact inert or caused any cell division or differentiation.

Shute *et al.* (1938) and Shute (1942) have reported healing in a proportion of cases of senile vulvo-vaginitis after vitamin E, while Rubenstein (1948) and Finkler (1949) both comment on the inert or poorly developed type of vaginal smear which follows vitamin E as compared with the high degree of maturation of cells which follows stilboestrol.

In 28 to 112 days slow but definite healing was observed in four senile vulvar lesions, while two cases were unchanged (Table II). Case 134 will be reported under "toxic reactions," for dermatitis compelled us to stop treatment. In this case we first noted a remarkable softening of the indurated vulva, then a diminution in pruritus, and, finally, almost complete healing, which was still maintained a year later.

TABLE II.—*Effect of Vitamin E on the Vulva and Introitus*

No. and Class	Disease	Dose (mg.)	Days	Result
45 Radium menopause	Red introitus bled easily	8,400	82	Very much improved
134 Carcinoma of body	Vulvitis, pruritus, excoriation	38,680	112	Almost cured, but skin reaction. (See below)
269 Hysterectomy and 1 ovary removed	Red tender introitus	6,860	28	No improvement
293 Hysterectomy and bilateral salpingo-oophorectomy	Patches of red (raw) areas at vulvo-vaginal junction	28,750	110	Cured
355 Radium menopause	Red introitus, tender caruncle	5,600	35	No improvement
263 " "	Introitus red, tender periurethral oedema	3,360	35	Healed

Effect of Vitamin E on the Vagina

In all, 30 cases were examined by a Cusco speculum before and after treatment. Twenty-two normal cases were unchanged, showing no undue vascularity or "blueing" such as one normally sees after stilboestrol. The remaining eight cases (Table III) had senile vaginitis; of these,

TABLE III.—*Effect of Vitamin E on Senile Vaginitis*

No. and Class	Disease	Dose (mg.)	Days	Result
269 Hysterectomy and 1 ovary removed	Senile vaginitis	6,861	49	No effect; bleeding spots persisted
*45 Radium menopause	Senile vaginitis (acutely) inflamed	8,400	82	Healed; no red or bleeding spots
615 Subtotal hysterectomy and two ovaries removed	Senile vaginitis	42,000	42	Cervix healed; little effect in vagina
*46 Radium menopause	Mild vaginitis	5,110	102	Improved, but still several bleeding spots
*106 " "	" "	4,200	56	No effect
*112 " "	" "	3,360	28	Healed
263 " "	" "	3,360	35	"
293 Hysterectomy and two ovaries removed	Red vagina (split and bled with small speculum)	28,750	112	"

* "Spots" also present on the portio cervicis.

two were apparently the result of a simple speculum examination using 30% "dettol" cream. After prolonged treatment with alpha-tocopherol four were cured and four were only slightly affected. It is possible, however, that simple hygienic measures with sexual abstinence would also have affected a cure.

As in the case of the vulva, therefore, vitamin E has a slow healing effect, but in no way compares with stilboestrol as a healing agent in senile vaginitis.

Effect of Vitamin E on Vaginal Smears

Certain types of vaginal smears are capable of giving a fairly accurate forecast of the state of development of the underlying mucosa—for instance, after stilboestrol therapy in a 70-year-old woman adult flat squamae replace small immature cells and leucocytes. It is necessary, however, to set a limit on what can be "read" from vaginal smears. For instance, in a previous report 138 biopsies and smears were correlated, but only adult smears and senile (small-cell) smears gave an accurate forecast of the epithelial maturity or senility. The remaining and most numerous smears with large squamae, spinosum cells, and small (immature) cells could not be "read" with accuracy (McLaren, 1941). With these limitations in mind, and aware that only gross changes such as "stilboestrol effects" (or perhaps ovulation) (Papanicolaou and Traut, 1943) could be "read," 36 smears were taken. The classification III down to I represents grades of increasing senility.

Total number of vaginal smears	36	
Grade III, mainly squamae	1	Adult
Grade IIIM, menopausal clumping	12	Adult
" " mixed, spinosum, squamae, and deep cells	7	Increasing senility
" II (spinosum cells) (40 μ diam.)	9	Increasing senility
" I (small basal cells)	7	Increasing senility

TABLE IV.—*Changes in Vaginal Smears after Vitamin E*

No. and Class	Grade	Dose (mg.)	Effect
47 Radium menopause	IIIM (adult)	4,116	I—i.e., depressed
176 " "	III (full adult)	1,400	II?I—i.e., depressed
466 " " (*Figs.* 1, 2, 3)	Mixed	17,500	IIIM, "luteal clumps"—i.e., higher differentiation
736 *X*-ray menopause	II	14,000	IIIM—i.e., a higher differentiation
743 " "	Mixed	25,200	IIIM—i.e. (very full); almost stilboestrol effect; differentiated
615 Hysterectomy and both ovaries removed	II (vaginitis)	42,000	IIIM—i.e., a higher differentiation

Only six out of 36 smears therefore showed definite alteration in maturity, and this parallels the lack of clinical change after alpha-tocopherol. Case 47 (Table IV) had had dienoestrol up to the beginning of treatment with alpha-tocopherol, and the smears simply depict a sudden loss of ovarian hormone or its equivalent, dienoestrol. Case 466 is mentioned later, since here the development of an intensely clumped smear not only resembled a pregnancy smear but on laparotomy a luteal cyst was discovered (Fig. 4). The changes in Case 736 were quite sharp, so that a guess was hazarded that this patient might menstruate, and, as described below, this actually happened.

Effect of Vitamin E on the Cervix

Thirty-four speculum (Cusco) examinations following doses up to 60 g. of alpha-tocopherol failed to show any increase in bulk, softening of the portio, or increased mucus secretion. Four out of five cases with bleeding punctate spots on the portio, however, were cured by vitamin E; in three this was part of the general healing of the vaginal mucosa.

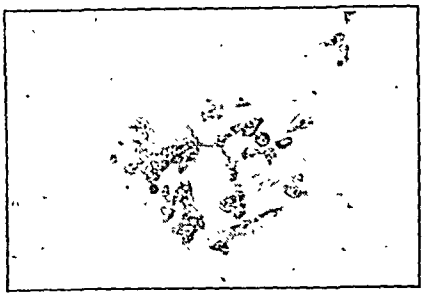


FIG. 1.—Case 466. Radium menopause one year. Small "castration" cells mixed with more mature squamae. *Stain:* Papanicolaou and Traut.



FIG. 2.—Case 466. After 4.5 g. vitamin E. Heaped up smaller cells with larger squamae emerging from deeper layers. This smear resembles mid-pregnancy or the "luteal" phase.

Twenty-six cell-smears were taken before and after treatment, but there was no sharp alteration with use of vitamin E. The motley collection of cells typical of a menopausal cervix persisted—namely, leucocytes, endocervical cells, long (120 μ) fibre cells, and so on. There was no sudden diminution in the number of cells and their replacement by clear mucus such as follows stilboestrol therapy.



FIG. 3.—Case 466. After 17.5 g. vitamin E. Haemorrhagic luteal cyst coexisted. Intermediate cells apparently being desquamated in sheets.



FIG. 4.—Case 466. After 17.5 g. vitamin E. Corpus luteum distended with blood.

It is clear, therefore, that neither the cervix nor its secretion or cytology is altered by massive doses of vitamin E. It may be, however, that just because it does not stimulate cell division and mucus secretion vitamin E may prove to be safer than stilboestrol in the control of flushings which follow irradiation of the pelvis.

Urethral Smears after Vitamin E

Although no patient had urinary symptoms, Hanley's (1944–5) work in menopausal urethritis and trigonitis, and Zuckerman's (1940) observations on the male macaque urethra, suggested that it might be worth while to observe the cytological changes in the urethra.

A dry swab often fails to pick up urethral cells, and only 21 specimens were obtained. A typical well-differentiated smear contains ovoid epithelial cells about 40 μ in diameter; free nuclei, leucocytes, and small clumps of flattened squamae complete the picture. Fourteen typical (differentiated) smears were not altered by vitamin E—i.e., there was no further building up or desquamation of the epithelium. The changes observed in seven smears are shown in Table V.

As in the vagina, therefore, there is no sharp reaction in all urethral smears, and it is possible that the changes observed were the result of faulty technique—e.g., in failing to pick up cells. Only in Cases 736 and 47 was a corresponding change observed in the vagina—namely,

TABLE V.—*Changes in Urethral Smears*

No. and Class	Dose E. (mg.)	Urethral Smear	
		Before	After
53 Radium menopause	3,360	Small undifferentiated cells	Larger, differentiated
45 " "	3,400	Degenerate epithelial cells (? poor fixation)	Loss of leucocytes (inflamed introitus also healed at this time)
47 " "	4,116	Normal smear	Degenerate epithelial cells. (Effect of loss of dienoestrol?)
736 X-ray menopause	14,000	Scanty cells	Abundant large differentiated cells
743 " "	25,200	Granular debris	Many adult transitional cells
754 " "	28,000	Scanty debris	Well-differentiated cells; free nuclei
466(b) Radium menopause	42,000	Debris	Adult cell smear

maturation, Case 736; senility, Case 47. From this small number of specimens, therefore, it seems possible that vitamin E may cause development and desquamation of the urethral epithelium, although in most cases no cellular alteration is detectable.

Case Reports

Dermatitis and Uterine Bleeding After Vitamin E

Case 1.—Mrs. A, aged 66, developed a generalized itching dermatitis which spared only her face. In the neck the skin became raised in silvery folds, but in the abdomen the rash was rather blotchy and red. Twelve years previously the patient had panhysterectomy with supporting vaginal radium for carcinoma of the corpus, and for a year previously she had suffered from intense pruritus. The vulva was excoriated and had many small areas of lichen simplex. Under vitamin E the vulvar condition almost completely healed. The labia majora and introitus became soft and elastic, but after 16 weeks (36,640 mg. alpha-tocopherol) the rash stopped treatment. The generalized skin condition took eight weeks to settle, but the vulvar pruritus and vulvitis did not relapse, and a year later the patient was practically symptom-free although on examination four very small areas of vulvar excoriation were present.

Post-menopausal Luteal Cyst

Case 2.—A widow aged 42 (No. 466) had radium menopause 10 months ago. Three months ago a 10-weeks course of stilboestrol (1 mg. b.d.) was completed with temporary control of flushing and no withdrawal bleeding. After 5.4 g. of alpha-tocopherol she had 12 days' uterine bleeding preceded by breast-tingling and dysmenorrhoea. Flushings, however, persisted almost unabated, and treatment was continued for 43 days, with control of her flushings. After 17 g. of vitamin E (49th day) she developed sudden right iliac pain with nausea and vomiting. Laparotomy revealed a normal appendix but a left luteal cyst distended with blood. The uterus on its peritoneal aspect resembled a coarse type of liver cirrhosis, being irregular and nobbly to the touch.

Histologically, the luteal cyst from the left ovary was of simple haemorrhagic type, measuring 2 in. by ¾ in. (5×1.8 cm.) (Fig. 4). The right ovary (10 months after radium) contained no recent follicles or corpora lutea but numerous corpora albicans. Vaginal smears: Figs. 1 to 3 show the movement in the cell pictures under vitamin E. No further uterine bleeding followed removal of the right and most of the left ovary, although flushings recurred and were once again controlled by vitamin E (31 g. in 35 days).

"Collapse" of the Breasts

Case 3.—(No. 725.) Aged 46. After 54 g. of alpha-tocopherol the patient complained that her breasts felt slack. Unfortunately we were unable to compare the size of the breasts before and after treatment, but it seems likely that little change in size had occurred. (They were small and pendulous.) No corresponding alteration in cell smear was observed.

Resumption of Menstruation

Case 4.—(No. 736.) Aged 44. *X*-ray castration one year ago. This patient began to menstruate five weeks after 14 g. of vitamin E. Unfortunately she also had completed a course of 20 mg. of amphetamine sulphate, so that it is doubtful which drug (if any) caused resumption of bleeding. Premenstrual curettings showed intense stromal vascularity and simple gland formation.

Comment

Vitamin E can apparently control severe menopausal flushing in more than 50% of cases, and, although not quite inert, its activity on the genital tract in no way compares with that of stilboestrol.

How vitamin E brings about its therapeutic effect on menopausal flushings is quite obscure, and will probably remain so until the mechanism which causes flushing is understood. This lack of knowledge of the therapeutic action of vitamin E applies to other fields of medicine (*Symposium on Vitamin E*, 1939; *Lancet*, 1949) where alpha-tocopherol has been on trial—e.g., in the treatment of primary amenorrhoea (Massenbach and Heinsen, 1948, 1949; Massenbach, 1949), cardiovascular disease (Shute *et al.*, 1948a, 1948b), abortion (Vogt-Moller, 1933), and so on.

When it is available in a cheaper form alpha-tocopherol may replace natural oestrogens and stilboestrol in the control of menopausal symptoms, for, even if only 60% of cases respond, the worry of oestrogen-withdrawal bleeding and the (theoretical) risks of genital cell-stimulation are avoided.

Summary

Vitamin E in the form of alpha-tocopherol temporarily relieved severe menopausal flushing in 30 patients (64%) and failed in 17. The dose required is variable, but averaged 18.5 g. over 37 days (£7 per cure).

Failures did not respond to prolonged and heavy doses, but were quickly relieved by stilboestrol.

Of 17 cases followed up after successful treatment 5 remained cured, 12 had further flushings.

Vitamin E is not an aphrodisiac, but dyspareunia may be relieved in time by the healing of senile lesions in the lower genital tract.

Vitamin E produces no sudden change in the clinical appearance of the lower genital tract, although prolonged and heavy dosage seemed to cause healing in 50% of senile vulvar and vaginal lesions.

Vaginal smears seldom alter, and no parallel exists between cell maturation and the cure of symptoms.

The cervix is not stimulated to mucus secretion.

Cell changes were observed in 7 out of 21 urethral smears.

Side-effects were few: one case developed dermatitis; two cases menstruated, one developing a haemorrhagic luteal cyst.

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TREATMENT OF DUPUYTREN'S CONTRACTURE WITH VITAMIN E

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Since the preliminary report (Thomson, 1949) on the effect of vitamin E in a case of Dupuytren's contracture further cases have come under review and have yielded promising results. In fact, the general response has been so good that to assert that vitamin E has a specific effect on Dupuytren's contracture does not appear to be unduly reckless. The mode of action is unknown, but the work of Steinberg (1946) on the action of the tocopherols on fibrous tissue renders a relationship a little less mystical.

Reports on the success of this treatment have not been unanimous but are inclined to be in its favour. Steinberg (1946) produced the first paper on this subject and described the effects of massive doses of vitamin E on seven cases of Dupuytren's contracture. In six of these cases the contracture disappeared and the sclerodermatous condition of the skin changed to a normal state. One case failed to respond, and this was attributed to the fact that the patient suffered from early portal cirrhosis. In such cases the blood vitamin E level has been shown to be low and large doses of vitamin E are not absorbed. All these cases were treated with a daily dose of 300 mg. of vitamin E orally over a period of 7 to 53 days. Scott and Scardino (1948) discussed six cases treated with 300 mg. of mixed tocopherols or 200 mg. of "ephynal" daily. One case showed marked improvement, three moderate improvement, and two no change. Wrigley (personal communication, 1949) treated three cases with 400 mg. of "ephynal" a day; there was a definite response in two cases and none in the third.

On the other hand, Langston and Badre (1948) treated five cases with the large doses of vitamin E recommended by Steinberg without any demonstrable result. Parsons (1948) treated one case with 300 mg. a day for over 100 days and reported no objective change, although the patient thought he could open one of his fingers a little more freely. Recently, King (1949) described 13 cases treated with 300 mg. of ephynal a day without result. Four of the cases developed hitherto unreported toxic manifestations, which made further treatment impossible. Four other patients were sure they had gained improvement, but none was seen. The longest period of treatment lasted eight weeks.

Present Series

In this series of 13 cases of Dupuytren's contracture involving 22 hands all cases except one were treated with ephynal, four 50-mg. tablets being the daily dose. The minimum length of time that any case has been under treatment is 12 weeks; the majority have been under treatment for 20 weeks. It was notable that the excepted case above and the one previously reported (Thomson, 1949) were treated with wheat germ oil in a weekly dose of 30 mg. and responded dramatically in two weeks, whereas in the cases treated with ephynal a response was unusual within six weeks and common at about eight weeks.

The initial response was usually subjective in character and the patients variably stated that "the bands feel softer," that "there seems to be a little more movement in the fingers," or that "the pain in the palm has gone." Thereafter improvement clinically started to take place, and progress was steady, with end-results as described below.

The hands were divided into three groups, according to the type and severity of the contracture.

Group A : Early Cases.—In these the disease was of short duration, the palmar bands and nodules were present to a moderate degree, and the fingers were not contracted closer than 90 degrees towards the palm. Ten such hands



FIG. 1.—Case 1 (*a*) before vitamin E; (*b*) after vitamin E.

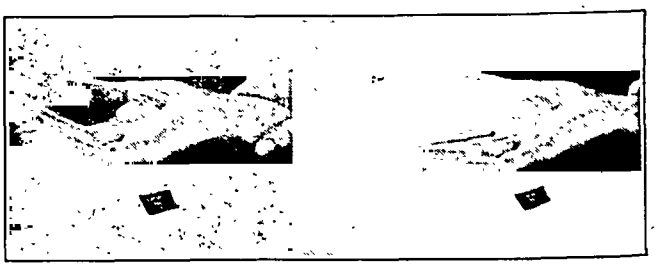


FIG. 2.—Case 3 (*a*) before vitamin E; (*b*) after vitamin E.

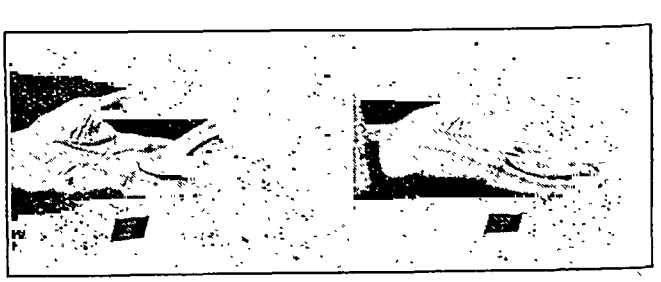


FIG. 3.—Case 6 (*a*) before vitamin E; (*b*) after vitamin E.

were involved. Five responded very well, and full extension of the fingers was restored after the hypertrophied palmar fascia had softened and almost disappeared. Three are still under treatment, and there is every indication that full extension will eventually be obtained in these as well. The remaining two hands had no loss of extension when first seen, and the administration of ephynal has caused some absorption of the palmar masses. The contractures in this group of cases have been so alleviated that additional or alternative surgery has not been considered.

Group B : Late or Chronic Cases.—Here the disease was of long duration, the thickening of the palmar fascia was gross, and the affected fingers were fixed in the palm. All eight cases in this group derived benefit from the administration of ephynal. The palmar masses softened and formed palmar bands running to the appropriate fingers. In addition there was increased movement of the fingers themselves which permitted closer inspection of the palms. The progress was slow, however, and it appeared that a considerable time would have elapsed before an acceptable result could be obtained by the use of ephynal alone. As the palmar bands now invited division, this was carried out in four hands with excellent results. The first hand was treated by simple division of the bands at the bases of the fingers, the medial three being involved. The final result (Fig. 4, c) was only fair so far as full extension was concerned. Nevertheless, the patient was pleased, as he had not used his hand for over two years and has now returned to his former occupation of shifting heavy packing-cases in a store. He has been kept on ephynal until the time of writing, and the sectioned bands have continued to absorb slowly. The other three hands were treated by sectioning the bands in two places—in the palm and at the base of the finger—with better results. Full extension was obtained with all fingers except where joint changes precluded this. The skin deficiency in the palm was made good by skin-grafting, and that at the base of the fingers by Z-plasty or skin-grafting.

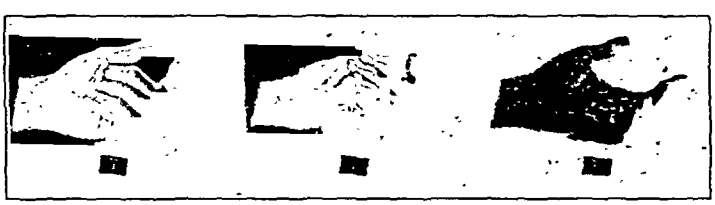


FIG. 4.—Case 7 (*a*) before vitamin E; (*b*) after vitamin E; (*c*) after division of digital bands.

Group C : Old Operated Cases with Recurrence.—Four of these cases were treated with the routine dosage of ephynal. In all, the process of recurrence was halted: in two cases some extension was regained, but in the other two degenerative joint changes and scarred skin have prevented much improvement.

Comment

The results obtained in this series correspond with those reported by Steinberg (1946), with the exception that the rate of response has not been so rapid. This is somewhat offset by the lower dosage of ephynal employed. It is noteworthy that the observers who obtained negative results on the dosage recommended by Steinberg (1946) did not get any objective response after two months' treatment in most cases. However, at the time the treatment was abandoned a number of cases reported symptoms of improvement identical with those recorded in this present series, and it is a matter for speculation that continued treatment might have produced more favourable results.

There was no doubt that the four cases in group B eventually operated on were of a gross type, and surgery alone presented a difficult problem; indeed, two of them had been offered amputation as the only practical method. Steinberg (1947) suggested that in the more chronic cases surgery might be required, with the oral administration of vitamin E in addition. This forecast has been well substantiated with these four cases so treated and already described. This method of treatment has much to commend it when compared with treatment by surgery alone, involving prolonged anaesthesia and wide skin undermining in order to remove adherent masses of palmar fascia.

None of the toxic effects noted by King (1949) were in evidence in this series. Most of the cases have had a routine daily dose of 200 mg. of ephynal for five months or more, and many of these patients have stated in opposition to the above that the drug has had a tonic effect upon them.

The relative merits of the natural wheat-germ oil and the synthetic ephynal have not been investigated, but the lone case treated with the former certainly reacted more quickly.

Although the mode of action of vitamin E in Dupuytren's contracture is not recognized, a specific action is at least suggested by two factors. First, in several cases treated acute pain was experienced in the palmar fascia, and in one case marked swelling and tenderness developed before the contracture began to respond. Secondly, Vogelsang *et al.* (1947), in discussing the effect of vitamin E in heart disease, came to the conclusion that, among other vascular effects, scar tissue was invaded by fresh blood vessels, whereby it became softened and relaxed. That a similar phenomenon may occur in Dupuytren's contracture does not seem outside the bounds of possibility.

I wish to thank Dr. Fred Wrigley for his interest and help with this investigation, and to Roche Products Ltd. for their kindness and generous supply of ephynal.

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The National Council of Social Service provides a useful guide to the Welfare State in the new edition of its book, *Public Social Services.* Information is summarized on the National Health Service, National Insurance, employment of disabled persons, education, and many other topics. The handbook includes an interesting chapter on the administration of justice and how free legal aid and advice are obtained. Addresses of the Ministries and organizations concerned with the various services are given throughout. The book may be obtained from the council at 26, Bedford Square, London, W.C.1, for 5s. (paper covers) or 7s. 6d. (cloth).

POLYCYTHAEMIA WITH LEUCOERYTHROBLASTOSIS

BY

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Few cases of leucoerythroblastic anaemia following on polycythaemia have been described in this country (Stone and Woodman, 1938; Vaughan and Harrison, 1939). The term "leucoerythroblastic anaemia," or, better, leucoerythroblastosis (as there may be no anaemia), is used to describe a condition characterized by the presence of immature red and white cells in the peripheral blood, and is due to or associated with replacement of the bone marrow by some other tissue. It is usually classified as follows.

Primary.—(*a*) *Infantile:* osteosclerosis fragilis generalisata (marble bones). This is congenital and may be familial.

(*b*) *Adult:* osteosclerosis; myelofibrosis; agnogenic myeloid metaplasia; and aleukaemic megakaryocytic myelosis. In all probability these last are different names for or different aspects of the same condition. If it were possible to examine a large enough sample of bone marrow during life it might be found that fibrosis and osteosclerosis, pronounced myeloid and erythroid activity, and megakaryocytic excess were all occurring coincidently at different sites. Splenomegaly and, less often, lymphadenopathy may be present.

Secondary or Symptomatic.—Carcinomatosis of bone; multiple myelomatosis; Hodgkin's disease; and lipoidoses. The anaemia may be normocytic or macrocytic. The white cell count may be high or low. The immature cells, the presence of which is an essential part of the disease, are said to be derived from the heterotopic foci in the spleen, liver, kidney, etc. These tissues, it is stated, are incapable of retaining the cells until complete maturation results. Thrombocytopenia may be present. The splenomegaly is due to myeloid metaplasia, although infarcts may add to the enlargement.

Radiographic changes characteristic of the disease have been described—i.e., irregular increased density of the spongiosa of long bones and throughout the flat bones, as well as decreased density of the cortex of long bones (Vaughan and Harrison, 1939). The interpretation of these radiographs requires some experience, and must be compared with controls of the same age and sex. The trephine biopsy will in many cases confirm the diagnosis.

The object of this paper is to record two further cases of leucoerythroblastosis, both of which presented with polycythaemia. The two patients are alive at the time of writing.

Case 1

A married woman with two children first attended hospital in May, 1936, at the age of 32, with a history of having noticed a lump in the left subcostal region one year previously. It had gradually increased in size and had been accompanied by pain on exertion during the previous five months. The only other illness was migraine for 20 years. Examination showed her to be of slim build, cyanosed, with the spleen enlarged to the umbilicus, and the liver enlarged two fingerbreadths below the costal margin. Blood pressure 120/90; van den Bergh indirect reaction faintly positive. A blood count confirmed polycythaemia (see Table I).

July, 1936.—Admitted to hospital; polycythaemia persisted; fractional test meal showed low-acid curve; red-cell fragility test revealed a commencing haemolysis in 0.55% saline, complete in 0.3%; occasional nucleated red cells seen. Course of deep *x*-ray therapy to spleen and lumbar spine.

TABLE I.—*Case 1. Blood Counts*

Date	R.B.C. (Thousands per c.mm.)	Hb %	W.B.C. (per c.mm.)	Varieties of Leucocytes %										Platelets (per c.mm.)	Remarks
				Myeloblasts	Premyelocytes	Myelocytes	Metamyelocytes	Unsegmented polys.	Polymorphs	Eosinophils	Basophils	Lymphocytes	Monocytes		
4/5/36	7,620	82	7,000	—	—	—	—	—	85·0	—	0·5	14·0	0·5		
18/7/36	7,405	116	30,000	—	—	—	—	1·5	81·0	1·5	0·5	13·0	2·5		50 normoblasts per c.mm.
5/8/36	8,000	136													Deep *x* rays
11/8/36	7,565	124													Deep *x* rays
6/4/37	5,560	116													
25/10/37	5,345	108	3,700												
9/5/38	4,965	98	12,600												
17/5/39	3,795	84	9,400												
31/7/40	3,845	92	14,600	—	—	—	—	1·0	70·0	2·0	0·5	20·5	6·0		Few normoblasts
16/10/42	3,775	78	12,000	8·5	—	4·5	—	4·0	68·5	1·5	—	13·0	—		Punctate basophilia 240 normoblasts per c.mm.
11/7/45	4,400	86	12,400	—	2·0	6·5	—	8·0	61·5	—	1·0	17·0	4·0		Some normoblasts
25/4/46	4,040	80	9,100	—	—	2·0	—	12·0	67·0	—	—	15·0	4·0		270 normoblasts per c.mm.
16/6/48	4,140	78	11,100	0·5	1·0	3·0	3·0	—	78·5	1·5	—	10·5	2·0	237,800	Occasional normoblasts. Reticulocytes 2·4%
29/6/48	3,860	74	12,100	1·5	2·0	3·5	9·5	21·5	50·0	—	0·5	9·5	2·0		4 normoblasts per 100 w.b.c.
11/8/48	4,220	71	19,500	1·0	1·0	6·0	4·0	13·0	61·0	2·0	1·5	8·0	2·5	256,000	2 normoblasts per 100 w.b.c.

April, 1937.—No serious symptoms; spleen smaller; haemoglobin 116%.

October, 1937.—Better; haemoglobin 108%.

May, 1938.—No symptoms; haemoglobin 98%.

May, 1939.—Following deep *x*-ray therapy, had amenorrhoea for two years, since when menstruation has been heavy and irregular. Pale; haemoglobin 84%. Seen by Sir Beckwith Whitehouse, who thought *x*-ray therapy may have produced defective luteinization, and recommended progesterone therapy.

July, 1940.—Slight continual uterine haemorrhage for three months; haemoglobin 92%, with a few nucleated red cells present; referred to gynaecology department, where no pelvic cause of bleeding was found.

October, 1942.—Recent pain over splenic area, worse on exertion. On examination: spare, healthy-looking; spleen enlarged to left iliac fossa; liver and glands not enlarged; blood pressure 130/70; leucoerythroblastic anaemia present.

July, 1945.—Health fairly good since October, 1942, but has noticed progressive enlargement of the spleen.

April, 1946.—Admitted to hospital with further aching pain in left flank; amenorrhoea for three years. Spleen enlarged to left iliac fossa and tender on bimanual examination; blood

pressure 160/90. Radiographs of bones of forearms show osteoporosis; serum calcium 8.6 mg. per 100 ml.; serum phosphorus 3.6 mg. per 100 ml. Leucoerythroblastic anaemia present. Surgical belt supplied to support huge spleen.

June, 1948.—Admitted to hospital. *Exacerbation of severe continual* pain over spleen for one month, made worse by movement or deep breathing. Pale; spleen enlarged to both iliac fossae and very tender on palpation; leucoerythroblastic anaemia present. Platelets 238,000; reticulocytes 2.4%; radiograph of long bones showed osteoporotic appearance of upper half left humerus; sternal-marrow puncture gave a picture not unlike that present in the peripheral blood. A diagnosis of myelofibrosis was made clinically, and sternal biopsy was performed with a view to confirming this, since radiographs of long bones were indefinite. The biopsy was reported on as follows: "These small fragments of sternal tissue show diffuse fibrotic changes with occasional isolated megakaryocytes—very suggestive, if this is representative, of myelofibrosis."

Case 2

A married woman aged 64 first attended hospital in 1924, complaining of pain in the splenic region; a diagnosis of polycythaemia vera was made and *x*-ray therapy given. Attended regularly for eight years and was free from symptoms until 1942. No records available up to this date.

August, 1942.—Pain in splenic region for two months; spleen enlarged to umbilicus and tender; blood pressure 155/90. Red blood cells 4,700,000: normoblasts present (see Table II).

It was considered that this indicated the development of either myelosclerosis or aleukaemic leukaemia. Sternal puncture was twice performed and the picture was essentially that of the peripheral blood; the bone seemed soft and gritty on puncture. These findings are typical of myelofibrosis. Bleeding time 5½ minutes; clotting time 4½ minutes; prothrombin 55% of normal. Serum proteins 6.52 g.%; serum uric acid 5.6 g.%; serum alkaline phosphatase 7 units; blood urea 27 mg. per 100 ml. A barium swallow radiograph showed some irregularity of oesophageal wall consistent with varices; radiographs of sternum and femora were normal.

On June 17, 1948, the patient left hospital against advice. The diagnosis was considered to be myelofibrosis following polycythaemia vera, with cirrhosis of liver.

Comment on the Cases

Case 1 presented as a case of polycythaemia rubra vera and was treated with deep *x* rays. The blood count gradually fell, and once below normal never rose again. This suggests that the case was one of primary myelofibrosis presenting as polycythaemia (see Vaughan and Harrison, 1939). It is of course possible that the patient had previously had polycythaemia rubra vera and had already developed myelofibrosis when first seen. Certainly, in June, 1948, the sternal biopsy demonstrated myelofibrosis The corpuscular fragility was increased (admittedly slight), which coincides with the findings of Vaughan and Harrison

TABLE II.—*Case 2. Blood Counts*

Date	R.B.C. (Thousands per c.mm.)	Hb %	W.B.C. (per c.mm.)	Varieties of Leucocytes %									Platelets (per c.mm.)	Remarks
				Myeloblasts	Premyelocytes	Myelocytes	Metamyelocytes	Unsegmented polys.	Polymorphs	Eosinophils	Basophils	Lymphocytes	Monocytes	
17/8/42	4,700	92	7,100	—	—	—	—	10·0	56·5	1·0	2·0	21·5	9·0		1,000 normoblasts per c.mm.
14/4/44	4,465	118	6,600												
15/9/44	7,970	110	10,900	—	—	—	—	10·0	66·0	1·0	2·0	15·0	6·0		Few normoblasts
2/10/44	8,500	99	11,100	—	—	—	—	7·5	74·0	—	—	14·0	4·5		Deep *x* rays. Phenylhydrazine
5/3/46	6,120	112	9,200	—	—	—	—	—	61·0	2·0	5·0	27·0	5·0		
2/6/46	4,340	84	3,100												
6/12/46	7,100	128	8,200												—
2/1/47	8,030	118	4,600												Deep *x* rays
8/1/47	6,210	110	6,200												
27/1/47	6,330	98	70,000												
21/4/47	5,300	92	60,000												
31/10/47	5,610	106	5,600	—	—	—	—	16·5	30·0	2·5	3·5	30·0	17·5	270,000	
29/11/47	6,470	116	4,900	—	—	—	—	—	58·0	1·0	—	36·0	5·0		Petechial rash
5/3/48	5,400	100	5,600	—	—	—	—	—	63·0	—	5·0	26·0	6·0	165,000	1 normoblast
7/3/48	5,370	90	60,000												
20/5/48	4,370	76	4,100	2·5	2·0	5·0	12·0	16·0	34·5	1·5	5·0	17·0	4·5	54,000	2 normoblasts per 100 w.b.c.
8/6/48	4,220	74	4,000	2·5	6·5	5·0	13·5	13·0	20·5	1·0	1·5	36·5	—	32,000	

April, 1944.—Slight ache over spleen for three weeks. Red blood cells 4,465,000.

September, 1944.—Patient noticed increasing size of left side of abdomen, but otherwise felt fairly fit; spleen enlarged as far as left iliac fossa; liver enlarged below umbilicus; red blood cells 7,970,000. Admitted to hospital and further course of deep *x*-ray therapy given to spleen, followed by phenylhydrazine therapy. Further *x*-ray therapy given in May, 1945.

June, 1946.—Blood count satisfactory, but in December, 1946, again markedly polycythaemic. Further deep *x*-ray and phenylhydrazine therapy given.

October, 1947.—Purpura on legs and arms; platelet count 270,000 per c.mm.; blood count satisfactory except for numerous unsegmented polymorphs.

May, 1948.—Admitted to hospital with eight weeks' history of lassitude, swelling of ankles, and noticeable enlargement of abdomen; rubicund facies; few petechiae of limbs; abdomen distended, with everted umbilicus and shifting dullness; spleen enlarged to right iliac fossa; blood pressure 145/95. Blood count showed mild hypochromic anaemia with numerous immature leucocytes, a few normoblasts, and 54,000 platelets per c.mm.

Case 2 was diagnosed as a case of polycythaemia rubra vera. From 1924 until 1947 this patient had a typical polycythaemic count. In May, 1948, she showed many of the features of leucoerythroblastosis associated with myelofibrosis—i.e., leucopenia, presence of immature red and white cells in the peripheral blood, gross splenomegaly, and a presumably non-functioning bone marrow. Myelofibrosis was suspected on the grounds that sternal puncture revealed a soft gritty bone, and the material, when examined, showed a picture not unlike that found in the peripheral blood. Such a terminal event in polycythaemia rubra vera has been recorded.

Discussion

The pathogenesis of the primary variety is obscure Vaughan (1934) suggested that the undifferentiated mesenchyme develops predominantly along one line to produce fibroblasts or osteoblasts. There is no attempt to explain why this should happen. Myelofibrosis and osteosclerosis have followed benzol and phosphorus poisoning. The

picture of osteosclerosis with leucoerythroblastosis can occur in fluorosis. *X* rays have been known to produce fibrosis of the marrow; and Joan Ross (1932) describes the effects of gamma radiation over a period of three years. The marrow showed hyperactivity of the myeloid and erythroid cells with a marked increase in megakaryocytes. The nutrient vessels showed endothelial thickening and intravascular thrombi. It is not beyond possibility that repeated doses of deep *x* rays over many years may produce the picture of myelofibrosis in polycythaemia rubra vera.

Thanks are due to Professor A. P. Thomson and Dr. O. Brenner for permission to publish these cases; and to Dr. J. L. Stafford for his report on the sternal biopsy.

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A CASE OF WEIL'S DISEASE, WITH TESTS FOR LIVER FUNCTION

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Familiarity with Weil's disease during the war has resulted in several publications in the English and American literature. Although jaundice is usually a marked feature of this disease, there is no record of liver-function tests. The following case is therefore described, together with the result of tests for liver dysfunction and for other biochemical disturbances. These were of great help in excluding the diagnosis of acute hepatic necrosis, which was made on admission. It is hoped that this will stimulate physicians who have greater opportunities for studying this disease to investigate its chemical pathology, and to deduce from their findings evidence concerning the site of tissue damage.

Case Report

The patient, a plumber aged 58, was admitted on April 13, 1949. Up to a week previously he had been working on a boiler in a meat-pie factory in which fat was rendered down. Seven days before admission he had a rigor; this was followed by another two hours afterwards. Four days later he noticed he was yellow, and he began to vomit incessantly. There was no abdominal pain.

On examination he was a very ill man, dehydrated, with subsultus tendinum, deep jaundice, and a generalized purpuric eruption. The mucosae were pale. He was afebrile; the pulse rate was 90, the blood pressure was 130/80, the heart sounds were faint, and there were basal crepitations. The liver was not palpable. There was some free fluid in his abdomen, and his stools were pale. Three days later he developed a swinging temperature up to 102° F. (38.9° C.), which was maintained for five weeks and subsided by lysis, and which did not respond to penicillin, 250,000 units six-hourly intramuscularly for 10 days.

He was given 5 pints (2.34 litres) of fluid by mouth, 3 pints (1.7 litres) of "casydrol" by intravenous drip transfusion, 6 ml. of "campolon" intramuscularly, 500 mg. of ascorbic acid, and 15 mg. of vitamin K daily. Later he developed a urinary infection with *Pseudomonas pyocyanea*, for which he was given 4 g. of streptomycin daily by injection for five days.

Subsequent Course.—His rash cleared up in three days; the jaundice had faded by the first week in July, but he was pyrexial for a month. However, he remained mentally in a state of stupor, with considerable clouding of consciousness, marked loss of memory for recent events, and disorientation in time and place. Some measure of recovery occurred, but when his wife took him on May 31 he was able to sit out in a chair, though he showed a good deal of mental deterioration, with lack of all initiative and poor memory. A letter from his wife on July 27 stated that his general condition had improved, but his legs were weak and useless and his mental state poor.

Investigations

Agglutinations.—*L. icterohaemorrhagiae:* April 20, 1:1,000; April 29, 1:1,000; May 5, 1:3,000. *L. canicola, nil. Salm. typhi, Salm. paratyphi* A, *Salm. paratyphi* B, and *Br. abortus, nil.*

Blood Counts.—Haemoglobin: April 14, 59%; May 9, 59%; May 23, 72%. Red cells: April 14, 3,750,000; May 9, 3,020,000; May 23, 3,500,000. White cells: April 14, 25,000 (P. 77%, L. 21%, M. 1%); May 9, 25,000 (P. 89%, L. 10%, M. 1%); May 23, 18,000 (P. 75%, L. 25%, M. 4%).

Serum Proteins.—April 24: total, 5.75 g.% (albumin 4.2, globulin 1.5; A/G ratio 2.7:1). May 5: total, 5.5 g.% (albumin 3.7, globulin 1.8; A/G ratio 2.05:1).

Liver-function Tests.—Alkaline phosphatase: April 24, 10.7 units; May 5, 16.3 units; May 23, 12.8 units. Thymol turbidity: April 24, 1.5 units; May 5 and 23, 1 unit. The Takata-Ara and colloidal gold tests were negative.

Urine.—April 19 and 25: specific gravity, 1010; albumin, sugar, and bile salts, *nil*; bilirubin was in excess on April 19 and urobilin was present on April 25. On April 25 there were 10 cells per field and *Ps. pyocyanea* was found. On May 30 there were many pus cells and *Ps. pyocyanea* was still present. There were no spirochaetes.

Haemolysins.—On May 30 no cold agglutinins were present, and Coombs's direct and indirect tests were negative.

On April 14 the serum diastase amounted to 320 mg. per 100 ml. (normal, 70–150 mg.). On April 22 the blood urea was 27 mg. per 100 ml., the alkali reserve 49 volumes, and the serum calcium 8.6 mg. per 100 ml. On May 10 the blood urea was 35 mg. per 100 ml. and the alkali reserve 43.9 volumes. On April 22 the blood sugar totalled 148 mg. per 100 ml., and the serum cholesterol 177 mg. per 100 ml. (free, 80 mg.; ester 97 mg.).

The diagnosis was based on the presence of jaundice, the rash, the patient's occupation, and the rising titre of agglutinins.

Comment

The morbid pathology of the liver in Weil's disease is described by Hutchinson *et al.* (1946). They say that the liver in their cases was usually of normal size, with masses of bile pigment in the biliary canaliculi of the centrilobar part of the liver lobules, and emphasize the absence of necrosis. On the other hand, Heringman and Phillips (1947) mention considerable disorganization of the liver pattern with moderate vacuolization and swelling of cells and the formation of continuous cords of liver cells instead of normal groups of two or three cells.

In the case described by Jackson and Oleesky (1946) there was no macroscopic hepatic necrosis; there were scattered areas of fatty degeneration and areas of regeneration, with enlarged binucleated liver cells. They mention that Walch-Sorgdrager (1939) refers to the frequent misdiagnosis of acute yellow atrophy, as happened in our case.

Our case on admission, being afebrile at the time and extremely ill and toxic, closely resembled the picture of acute hepatic necrosis. The finding of normal plasma proteins and Takata-Ara, thymol turbidity, and colloidal gold tests was therefore of distinct value in excluding this diagnosis, and would seem to rule out any overwhelming degree of parenchymal damage.

The absence of urobilin in the urine in the early stages would seem to point to an obstructive element in the jaundice such as might be caused by the bile pigment masses in the small canaliculi that Hutchinson *et al.* described; however, the alkaline phosphatase was never above 16.3 units. Unfortunately the Coombs tests were done too late to exclude a haemolytic factor. Apart from the complicating *Ps. pyocyanea* infection there was no evidence of renal damage. The blood urea remained normal, and there were no casts or red cells in the urine. The serum diastase value of 320 mg. per 100 ml. would appear to suggest disturbance of pancreatic function.

The mental state of the patient is worthy of passing comment. There was never any sign of meningitis leptospirosa. Three possible theories about causation are: first, that the condition was due to cerebral damage by the organism or its toxins; secondly, that it was due to the severe jaundice; and, thirdly, that the haemorrhagic state present at the onset in the skin was also present in the brain; this is, I think, the most likely.

Summary

A case of Weil's disease, with liver-function tests, is described.

An attempt is made to correlate these with previously described accounts of the pathology of this condition.

Other interesting features of the case are briefly dwelt on.

My thanks are due to Dr. A. G. Signy and the staff of the laboratories of St. Mary Abbots Hospital and the Archway Hospital for the pathological reports.

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PRIMARY LYMPHOSARCOMA OF APPENDIX OCCURRING IN CHILDHOOD

BY

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Lymphosarcoma arising in the appendix is rare; only seven cases occurring in childhood have been published. In a majority of such cases the children have had symptoms suggestive of appendicular disease. In the following case the patient had no such symptoms, and the clinical picture which presented was therefore of special interest.

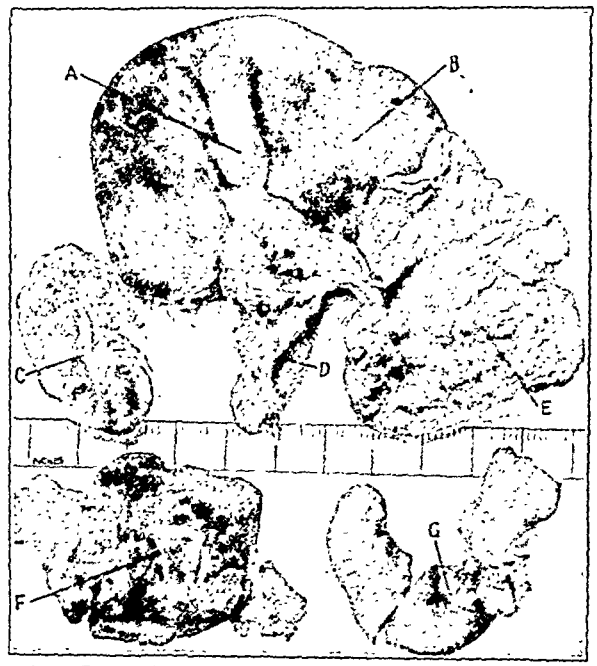
Case Report

A boy aged 6 years 9 months was admitted to hospital on October 1, 1948. The child had been well until four weeks before admission, when he was immunized against diphtheria. Since then he had been "off colour" but had attended school. Three days before admission he complained of pain in his chest and right thigh, and vomited once. His mother noticed a swelling on his left temple on the following day; but there had not been any loss of weight or other symptoms. There was nothing relevant in the family history or in the child's previous personal history.

On examination his temperature was 100° F. (37.8° C.), pulse 80, and respirations 20. The child's general condition was poor; he was very irritable and complained of pains in all his joints. A swelling on the left temple was noted and there were palpable glands in the left axillary and cervical regions. Abdominal examination revealed tenderness in both iliac fossae, but there were no palpable masses. Routine clinical examination did not show any further abnormal features.

For the first three days the temperature varied between 98.4 and 102° F. (36.9 and 38.9° C.). On the fourth day his temperature fell and remained normal until the eighth day, when it rose to 103° F. (39.4° C.). At this time the left knee-joint was slightly swollen. There was no cardiac enlargement, but a soft apical systolic murmur could be heard. The abdomen was rather large and doughy, with dullness in both flanks. The liver was enlarged one fingerbreadth below the costal margin and the tip of the spleen was felt. The kidneys were not palpable and no other abdominal masses were found. There were no abnormal signs in the central nervous system.

Radiographs of the chest, abdomen, and skull, a Mantoux test (1:10,000 dilution), blood culture, and Widal reactions



A = Gall Bladder; B = Liver; C = Kidney; D = Pancreas; E = Stomach; F = Ileal Mass; G = Appendix.

were all negative. The erythrocyte sedimentation rate was 50 mm. in one hour. The blood picture was: haemoglobin, 68%; red cells, 3,920,000; white cells 5,000 (polymorphs 54%, myelocytes 7%, metamyelocytes 14%, lymphocytes 20%, monocytes 3%, eosinophils 2%). An intravenous pyelogram, the blood Wassermann reaction, and a blood-urea estimation were all negative. No Bence-Jones proteose was present in the urine, and the stools did not contain either visible or occult blood.

The pyrexia was maintained despite penicillin and salicylate therapy. The liver increased in size to two fingerbreadths below the costal margin. The swelling over the left temple had increased in size and was now 1 in. (2.5 cm.) in diameter; it was tender and gave the impression of deep fluctuation. No further lymphatic gland enlargement developed. The child's appetite remained good, but despite this he was obviously becoming more wasted. His bowels were normal and he had no vomiting. An irregular soft mass, thought to be faeces, was felt in the right iliac fossa on the thirteenth day. The rectum was found to be loaded with soft brown faeces, but there was no palpable mass. Just below the ninth costal cartilage a small nodule was felt on the enlarged liver. There were no signs

of free fluid in the peritoneal cavity. The abdominal girth was 21¼ in. (54 cm.). The blood pressure was 130/70 mm. Hg.

The abdominal mass became progressively larger and firmer, but signs of obstruction were not observed. His pallor increased, and despite a blood transfusion he died 32 days after admission. Before he died the child developed proptosis of the left eye and a left-sided facial weakness.

Post-mortem Findings

The appendix measured 12 cm. in length and 4 cm. in diameter. It was horn-shaped, with a smooth white serosal surface (see Fig.). On section it consisted throughout of a uniform white homogeneous tissue in which the lumen could not be distinguished. This condition ceased abruptly at the root of the appendix. There were widespread deposits of a similar tissue throughout the body, affecting practically every organ.

Histology.—The greatly enlarged appendix consisted of sheets of cells resembling small lymphocytes which obliterated the lumen and destroyed muscle, leaving only traces of widely separated muscle fibres in the external layer. Occasional mitoses were to be seen. Silver staining showed very scanty reticulin fibres traversing the tissue, particularly in relation to small vessels: large tracts of cells were devoid of reticulin. The other structures containing obvious tumour showed similar histological changes. The spleen, pancreas, and thyroid, although normal to naked-eye examination, showed a slighter degree of infiltration.

Discussion

Knox (1945) gave details of a boy aged 4 years with lymphosarcoma arising in the appendix, and he reviewed 16 cases of undisputed primary lymphosarcoma of the appendix, of which five had occurred in childhood (Warren, 1898; Rohdenburg, 1919; Friend, 1926; Capecchi, 1927; Apitz, 1933). A further search of the literature revealed one other case in childhood (Carnelli, 1931). So far as can be ascertained no such case occurring in childhood has been reported in British literature.

In all reported cases, except that of Apitz, the presenting symptoms were suggestive of acute or subacute appendicitis. Laparotomy was performed and a tumour involving the appendix found and removed. The age, sex, presenting symptoms, duration, nature of operation and findings, and period of follow-up are shown in the accompanying Table.

In our case the uniform homogeneous appearance of the appendicular lesion, with complete replacement of the inner layers of the wall of the appendix by lymphosarcomatous tissue, suggests that the disease arose there, and is in contrast with another large mass in the ileum, which seems to have been formed by the fusion of several submucous lesions similar to those seen elsewhere in the intestinal wall.

Lymphosarcoma occurs more commonly in males, and in the reported cases the ratio of males to females was 3 to 1. Munson and Mann (Guthrie, 1948) believe that the outlook is good after surgical removal of a solitary tumour. Knox (1945) suggests that radiotherapy may be expected to be helpful in prolonging life and may even cure if the disease is localized. Sugarbaker and Craven (1940) state: "The occasion of a primary site in the gastro-intestinal tract regardless of sporadic reports of cures seems to carry an unfortunate outlook. None of the patients whose stomach or small intestines were involved lived for five years, the average survival period being 6.6 months."

Table Showing Details of Reported Cases

Reported By	Age in Years	Sex	Presenting Symptoms	Duration	Operation	Follow-up	Operation Findings
Apitz (1933)	8	Male	Died from uraemia	Approx. 6 weeks	None	None	Appendix 5 cm. in circumference and 17 cm. in length
Capecchi .. (1927)	8	..	Mild abdominal pain in right lower quadrant	1 month	Appendicectomy	None	Distal third of appendix tumour size of hen's egg
Carnelli .. (1931)	10	..	Pain in right lower quadrant	2 months	Appendicectomy, excision of left part of caecal wall	Asymptomatic 14 months later	Appendix with tumour at proximal end 2·5 cm. long by 0·5 cm. broad: the caecal wall was infiltrated
Friend (1926)	9	Female	Recurrent cramp-like abdominal pain in right lower quadrant	3–4 weeks	Appendicectomy (high unrotated caecum)	Death 1 month later	Hard, firm, thick appendix 15 cm. long
Knox (1945)	4	Male	Intermittent pain right lower quadrant with nausea, vomiting, and moderate diarrhoea	2 months	Appendicectomy	Asymptomatic 15 months later	Appendix 9·5 cm. long, 18 mm thick
Rohdenburg (1919, 1921)	4	Not given	History suggestive of acute appendicitis with pre-operative diagnosis of intussusception	No time stated, but apparently acute	Appendicectomy with partial removal of caecum	No recurrence after 10 months	New growth involving proximal third of appendix and extending into caecal wall
Warren .. (1898)	6	Male	Intermittent pyrexia and pain in right lower quadrant	1 month	Resection of part of ileum, caecum, and appendix	None	Appendix size of thumb
Present case	6½	..	Pyrexia and vague ill-health. No symptoms referable to abdomen	1 month	None	None	Appendix 12 cm. long by 4 cm. broad

We should like to thank Professor N. B. Capon for his help and advice; Dr. W. E. Crosbie, medical superintendent, Alder Hey Children's Hospital, Liverpool, for permission to publish this case; and Dr. E. G. Hall for the pathological reports.

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The National Insurance Advisory Committee has been asked to consider and report on preliminary draft regulations concerning students from outside the United Kingdom who during a vacation become temporarily employed in Great Britain. The effect of the regulations is that, in cases approved by the Minister of National Insurance, contributions under the National Insurance scheme will not be required unless the students are continuously resident in Great Britain for 26 weeks. Industrial injuries contributions remain payable. Copies of the preliminary draft of these regulations (the National Insurance (Residence and Persons Abroad) Amendment Regulations, 1950) can be bought for 1d. from H.M. Stationery Office or any bookseller. The committee will consider written objections to them if sent before January 3, 1950, to the Secretary, National Insurance Advisory Committee, 6, Curzon Street, London, W.1.

SURGICAL MANAGEMENT OF THE AGED

A SURVEY OF RESULTS OF MAJOR SURGERY IN 99 PATIENTS OVER 70

BY

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"The days of our years are threescore years and ten; and if by reason of strength they be fourscore years, yet is their strength labour and sorrow; for it is soon cut off, and we fly away."

The average age of the population is increasing, and is likely to do so. It therefore seems reasonable to survey the results of surgery in those patients who are over the age of 70 years, the one-time allotted span of life.

During the thirty months January, 1947, to June, 1949, 1,609 patients were admitted to the 32 surgical beds of one surgical unit at a London teaching hospital. Of these 1,609 patients 131 were over the age of 70—seven were not submitted to surgery, 24 were submitted to minor surgery, and 99 were submitted to major surgery. It is instructive to compare this situation with those existing 10 and 20 years ago. Table I shows in a comparable number of admissions the numbers of patients over 70 seen and the number of these patients submitted to major surgery. Applying the rules of significance to these figures, it will be apparent that more patients over the age of 70 were admitted in 1947–9 than was the case 20 years ago, and that more patients over the age of 70 were submitted to major surgery than was the case 10 years ago.

TABLE I

Period	Total Admitted	No. Over 70	No. of Patients Over 70 Submitted to Major Surgery
Jan., 1927, to Nov., 1929	1,609	82 (5·1%)	40 (49%)
Jan., 1937, to Sept., 1939	1,609	108 (6·7%)	61 (56%)
Jan., 1947, to June, 1949	1,609	131 (8·1%)	99 (75%)

It is the 99 patients in our series submitted to major surgery that we wish to discuss. Distribution between the sexes was almost equal—49 males and 50 females. Fifteen patients were admitted as emergencies; 17 patients (6 females and 11 males) died before discharge from hospital

Operations Performed

Operations on the Head and Neck

Section of sensory root, fifth cranial nerve	1
Hemiglossectomy	2
Block dissection glands of neck	1
Section thyroglossal cyst	1
Subtotal thyroidectomy	1
Excision of large rodent ulcer of nose and skin graft	5

Operations on the Trunk and Upper Limbs

Radical mastectomy	1
Lymphangioplasty	4

Hernias and the Scrotum

Incisional hernia	2
Inguinal hernia without strangulation	1
Strangulated inguinal hernia repair	8
Strangulated inguinal hernia with resection	1
Femoral hernia repair	2
Strangulated femoral hernia, resection, and anastomosis	2
Operations on scrotum and contents	2
Incarcerated umbilical hernia	7

Intra-abdominal Operations

Colostomy	4
Closure of colostomy	10
Laparotomy	5
Laparotomy and colostomy	1
Laparotomy, colostomy, repair of inguinal hernia, and dorsal slit	1
Laparotomy and cholecystenterostomy	1
Laparotomy and suprapubic cystostomy	1
Cholecystostomy	1
Cholecystectomy	1
Cholecystectomy and choledochotomy	1
Suture of perforated peptic ulcer	3
Gastrotomy	1
Gastrostomy	2
Subtotal gastrectomy	1
Subtotal gastrectomy and colectomy	1
Gastro-enterostomy	1
Transabdominal repair of diaphragmatic hernia	1
Transthoracic oesophago-gastrostomy	2
Appendicectomy	2
Caecostomy	1
Right hemicolectomy	1
Ileo-transverse-colostomy	1
Resection sigmoid colon	1
Resection sigmoid colon and colostomy	7
Perineal excision of rectum	3
Perineal excision of rectum and colostomy	1
Abdomino-perineal excision of rectum	
Perineo-abdomino excision of rectum	
Excision of ovarian cyst	2

Operations on Prostate and Anal Canal

Haemorrhoidectomy	2
Prostatectomy	5
Transurethral resection of prostate	8

Operations on the Lower Limbs

Above-knee amputations	1
Below-knee amputations	2
Manipulations of ankle	1
Excision of popliteal aneurysm	

A number of these patients underwent minor surgical procedures requiring further anaesthetics.

Preparation of the Patient for Operation

A full clinical examination was made, with special reference to the heart and lungs. After the age of 70 it is only natural to find signs of wear and tear in the cardio-vascular and respiratory systems. Of these 99 cases 60 showed clinical evidence of abnormalities in one or both of these systems:

Gross hypertension (i.e., B.P. 180/100 or more)	14
Hypertension or signs of myocardial insufficiency	13
Signs of myocardial insufficiency	6
Hypertension and/or myocardial insufficiency and signs and symptoms of respiratory disease	15
Respiratory disease alone	12

In addition, arteriosclerosis, anaemia, and wasting were very common findings.

Operation was delayed in 13 cases; the reasons for delay were:

Patient in bed too long	1
Poor nutrition	2
Dehydration	1
Dehydration associated with low percentage of haemoglobin	1
Low percentage of haemoglobin	2
Abdominal distension	2
Respiratory disease	4

Pre-operative Measures Taken.—The usual treatment for shock was practised according to the severity. Throughout this series of cases it has been customary to encourage

early rising after operation. Therefore, when a patient had been confined to bed for a period, operation was delayed while he was made ambulant so that he could be sat out of bed immediately after recovery from the anaesthetic. If possible, general nutrition was improved. In some cases it was necessary, as in a case of achalasia of the cardia, to give a high-calorie diet through an oesophageal tube. Vitamin intake was maintained when necessary by intramuscular injection of vitamin C and "heparglandol B," and "synkavite" was given as a routine in all cases undergoing surgery of the biliary system. Dehydration was corrected by intravenous saline or glucose-saline; blood transfusion was given pre-operatively in all cases which showed a low haemoglobin percentage. Distension increases the risk of operation and also the difficulty. Where the operation was not in itself likely to be a decompressing procedure, operation was delayed if distension was present while a Miller-Abbott tube was passed. A Ryle's tube was passed on all patients who were vomiting pre-operatively. All cases with respiratory disease and all cases about to undergo intra-abdominal operations were given pre-operative breathing exercises unless the case was an emergency. Coughing and postural drainage were encouraged in those who had productive coughs; penicillin inhalations were given and systemic penicillin and sulphonamides started. In some cases this treatment was carried out for one week before operation. Digitalis therapy was given to those with auricular fibrillation.

Premedication.—All cases received a hypodermic injection of 1/100 gr. (0.65 mg.) of atropine half an hour before operation. In addition, those with marked pain received 1/6 gr. (11 mg.) of morphine. Hyoscine (scopolamine) was purposely avoided because of its tendency to produce disorientation and restlessness in the aged, and morphine was avoided or kept to a minimum in order not to depress the vital capacity.

Anaesthesia

The choice of anaesthetic was determined to a large extent by the type of operation to be performed and the general condition of the patient. Of the 134 anaesthesias, 81 were for intra-abdominal and 53 for extra-abdominal procedures. The agents used for the various types of operation are shown in Table II.

TABLE II.—*Anaesthetic Used*

	Intra-abdominal (Including Intrathoracic)	Extra-abdominal (Including Intracranial)	Total
Curare and light anaesthesia	52	3	55
Spinal and local	10 (7 spinal, 3 local)	1 (spinal)	11
gas, oxygen, ether, oxygen, ether and cyclopropane	16	16	32
	3	7	10
Thiopentone, gas, oxygen, and trilene	—	20	20
Bromethol, gas, oxygen, and trilene	—	2	2
Thiopentone	—	4	4
Total	81	53	134

Thiopentone.—When thiopentone was used for induction it was injected very slowly, because the circulation time in the aged is prolonged. Also, owing to the low basal metabolic rate in the elderly, the elimination of thiopentone in the body is slower, and liver and kidney damage may be present. Hence only very small doses were used—rarely more than 0.5 g.

Curare.—Curare in the form of *d*-tubocurarine chloride was mostly used when relaxation was required. The initial dose was usually 10 mg., and the final total dosage depended on the agent used to maintain light anaesthesia; with ether, approximately half the usual dosage of curare is required. The closed-circuit carbon-dioxide-absorption technique was used as a routine for cases receiving curare; the basal oxygen requirement in the aged is low, but at the same time suboxygenation must be avoided. This often entailed assisted respiration for the whole of the operation, as some degree of stagnant hypoxia was already present owing to a poor myocardium and a sluggish peripheral circulation

Spinal Analgesia.—This method was used only if the site of operation was subumbilical, if the patient's blood pressure was within normal limits, and if the condition of the chest did not warrant an inhalational method.

Local Analgesia.—This method was used in three cases: in an emergency laparotomy with faecal vomiting, in an emergency caecostomy in a patient who was in cardiac failure, and in a patient with incarcerated incisional hernia who was in early cardiac failure.

Intubation.—Intubation of the trachea was carried out in all abdominal cases. If vomiting was a pronounced symptom, as in cases with bowel obstruction, intubation was performed with a cuffed intratracheal tube, and a sucker was at hand to keep vomitus clear of the larynx The Ryle's tube was kept in place throughout the operation and aspirated from time to time.

Position on the Operating Table.—Old people are prone to osteoarthritis, and their skins withstand pressure badly For these reasons their position on the operating table must be carefully supervised, a support provided for the back, shoulder-pieces well padded, and hands not placed under the buttocks.

Resuscitative Measures.—Patients suffering from pre-operative shock or dehydration continued with blood or saline throughout the operation. If a long operation was anticipated a slow blood drip was started at the beginning of the procedure. If signs of shock developed during an operation blood or plasma was administered. All such cases returned from the theatre to the ward with their intravenous drips still running.

Post-operative Measures

As soon as the patient was sufficiently recovered from the anaesthetic, he or she was sat up and encouraged to cough, to take deep breaths, and to move the legs. The services of a trained physiotherapist were found to be invaluable in this respect. Five-minute inhalations of carbogen every hour were a useful adjunct to physiotherapy. The patient was sat up in a chair within 12 hours of operation in all cases in which it was practicable. Where the likelihood of respiratory complication was great, even patients undergoing gastric suction and intravenous drip therapy were so treated. They sat in a chair for increasing periods each day from then on. Continuous gastric suction and intravenous therapy were practised for 48 hours after operation in all cases undergoing an intra-abdominal operation which might result in paralytic ileus. Intravenous therapy and suction were stopped only when intestinal movements were well established. Watch was kept over the bladder to ensure that retention with overflow did not occur. The usual measures to combat retention were practised up to 24 hours, after which catheterization was performed if necessary. Where retention was persistent and due to prostatic hypertrophy, an indwelling catheter was used until the patient was considered fit for a transurethral resection, and penicillin or a sulphonamide was administered. Routine testing of urine for chlorides was practised from the first post-operative day.

Post-operative Therapy.—All drugs administered pre-operatively were continued in the post-operative period—i.e., penicillin, sulphonamides, or digitalis. In all major abdominal procedures, and where sepsis was a danger, prophylactic penicillin and sulphonamides were administered. Where cardiovascular complications occurred digitalization was instituted. In all cases of respiratory complications and in those cases in which coughing was difficult owing to tenacious sputum, mistura sodii chloridi composita (*N.W.F.*) was found to be invaluable.

(*e*) *Retention of Urine.*—Four cases of retention of urine required transurethral resection of the prostate.

(*f*) *Pressure Sores.*—These occurred in three cases.

(*g*) *Cardiovascular System.*—Auricular fibrillation (electrocardiogram showed poor myocardium in one case), 3; auricular flutter, 1; incipient cardiac failure necessitating digitalis therapy, 1.

The 17 fatal cases are analysed in Table III.

TABLE III.—*The Patients Who Died*

	Case No.	Age	Sex	Operations Performed	Anaesthetic	Previous Condition	Cause of Death
Respiratory	1	82	F	Removal of carcinoma of ovary	Thiopentone, 0·2 g., N_2O, oxygen, ether	History of previous pneumonia and chronic cough	Bronchopneumonia
	2	70	M	Strangulated inguinal hernia with resection of gut (E.)	Thiopentone, 0·3 g., N_2O, oxygen, ether	B.P. 200/120; severe arterio-sclerosis	Intercurrent lobar pneumonia
Cardiac	3	74	M	(1) Laparotomy and colostomy (2) Perineo-abdominal resection of rectum	(1) Thiopentone, 0·5 g., curare, N_2O, oxygen (2) N_2O, oxygen, ether		Cardiac failure. Post mortem: brown atrophy of heart muscle
	4	74	M	(1) Laparotomy and colostomy (2) Perineo-abdominal resection of rectum	(1) Thiopentone, 0·25 g., curare, N_2O, oxygen, ether (2) Thiopentone, 0·2 g., curare, cyclopropane	B.P. 230/120; severe arterio-sclerosis	Hypertensive heart failure
	5	73	M	Repair of right inguinal hernia and orchidectomy	Thiopentone, 0·7 g., N_2O, oxygen, ether	B.P. 180/100; some cough; senile Parkinsonism	Hypertensive heart failure
	6	70	F	Lotheissen's operation for Richter's hernia (E.)	Thiopentone, 0·4 g., cyclopropane, curare	B.P. 210/110; asthmatic heart enlarged	" "
	7	85	M	Prostatectomy	Cyclopropane	Fibrillating under digitalis; moist sounds both bases	Cardiac failure
	8	72	M	Caecostomy (E.)	Local	Pulsus alternans; moist sounds both bases	" "
	9	71	F	Above-knee amputation (E.)	Thiopentone, 0·15 g., cyclopropane	B.P 190/115; mild diabetic	Fibrillated: congestive heart failure
	10	70	M	Gastrostomy	Thiopentone, 0·25 g., curare, cyclopropane		Cardiac failure; toxaemia from subphrenic abscess; carcinoma of oesophagus
Secondary Emergency Operations	11	71	M	(1) Gastro-enterostomy (2) Laparotomy (E.)	(1) Thiopentone, 0·65 g., curare, cyclopropane (2) Local	Previous history of pneumonia; scattered rhonchi	No cause for death; terminal bronchopneumonia
	12	70	M	(1) Perforated peptic ulcer (E.) (2) Subtotal gastrectomy (E.) (3) Resuture abdominal wound (E.)	(1) N_2O, oxygen, ether (2) Thiopentone, curare, N_2O, oxygen, trilene (3) Curare, thiopentone, cyclopropane	B.P. 130/70; severe blood loss before second operation	General peritonitis from leaking duodenal stump and terminal bronchopneumonia
	13	80	F	(1) Subtotal gastrectomy (2) Ileo-transverse colostomy (E.)	(1) Curare, thiopentone, 0·7 g., cyclopropane (2) Thiopentone, 0·5 g., cyclopropane	B.P. 190/95. B.P. 60/? before second operation	General peritonitis from leaking duodenal stump
Carcinomatosis	14	70	F	Cholecystostomy (E.)	N_2O, oxygen, ether	Obstructive jaundice, diabetic	Carcinomatosis secondary to carcinoma of pancreas. Died day after operation
	15	70	M	Laparotomy only	Thiopentone, 0·5 g., curare, N_2O, oxygen, ether	B.P. 140/94	Died six weeks after operation; carcinomatosis
	16	72	M	" "	Curare, N_2O, oxygen, ether	B.P. 160/115; severe arterio-sclerosis	Died 7 days after operation; carcinomatosis with paralytic ileus
	17	74	F	" "	Thiopentone, 0·4 g., N_2O, oxygen, ether	B.P. 260/100	Died 3 months after operation; asthenia due to carcinomatosis

(E.) = Emergency operation.

Post-operative Complications

(*a*) *Wounds.*—Mild sepsis, 10; severe sepsis, 2; haematoma, 9; disruption, 1.

(*b*) *Thrombophlebitis.*—Due to intravenous drip therapy, 4: not due to intravenous drip therapy, requiring anticoagulant therapy, 3.

(*c*) *Chest.*—Major respiratory complications: severe bronchitis, 5; atelectasis (one case of bilateral basal collapse following a spinal analgesic), 5; bronchopneumonia, 3; pulmonary embolism, 1. It is to be noted that all these patients underwent an abdominal operation, and 12 of the 14 had pre-existing respiratory disease.

Minor Respiratory Complications

Under this heading are included all patients who had a raised respiratory rate for not more than three days after operation and cases of mild bronchitis. There was no relation to the type of operation, and of the 17 who suffered this complication 15 had pre-existing respiratory disease.

(*d*) *Intra-abdominal Complications.*—General peritonitis due to leaking duodenal stump, 2; persistent vomiting producing a salt-lack syndrome, 1.

Disposal of the Aged Patient

With the present shortage of hospital and convalescent beds, disposal of the aged patient requires some consideration. Such patients are not so fit as younger ones to return rapidly to normal domestic routine. *Often they live alone* and have no relatives to go to. Discharge from hospital therefore has frequently to be delayed. The almoner's department can often help with such cases by providing home helps or making suitable alternative arrangements. However, this problem is a very real one, and will require serious consideration in the future. Convalescent homes already have waiting-lists. At the present time the patient with an inoperable carcinoma who has been in hospital for a laparotomy often occupies a hospital bed until he dies. This is an undesirable situation in view of the great demand on hospital beds.

Conclusions

More patients over the age of 70 are submitted to major surgery than was the case 10 years ago.

Age alone is not a contraindication to surgery of any magnitude.

Care must be directed especially to the cardiovascular and respiratory systems.

Sepsis is a greater risk, and for this reason penicillin and sulphonamide therapy should often be used as a prophylactic measure

The aged should never be allowed to lie in bed.

Disturbance of the electrolyte balance is not well tolerated. This is well illustrated in three patients who required second operations as emergencies: in all of them vomiting or blood loss had grossly disturbed the fluid balance. All three patients died.

The commonest cause of a major chest complication is pre-existing respiratory disease in association with an abdominal operation. These complications are rarely fatal.

The commonest cause of death is cardiac failure arising in a hypertensive patient irrespective of the type of operation.

Some steps must be taken in the future to facilitate the care of the aged post-operative patient who does not require further active surgical treatment in a hospital bed. A comprehensive medical service must make better provision for this.

Summary

The results of major surgery in 99 patients over the age of 70 are surveyed.

The types of operation performed are enumerated.

The pre-operative management is considered.

The choice and administration of anaesthetic are discussed.

The post-operative management is outlined.

The 17 fatal cases are considered in detail.

Conclusions are drawn concerning the practice of surgery in the aged.

A plea is made for more adequate provision for the care of the convalescing aged patient.

All these cases were admitted under Sir Cecil Wakeley and Mr. E. G. Muir, to whom we wish to express our thanks for permission to survey these cases and for their guidance at all times. We are grateful to Dr. Vernon Hall and other members of the anaesthetic staff who administered some of these anaesthetics. We also thank Miss Fern and her staff for the kind co-operation of the Record Office.

Of nearly 7 million dollars spent on tuberculosis research in the United States in a 12-months period during 1947–8, about two-thirds were expended for the study of drugs in tuberculosis treatment. A survey undertaken by the National Tuberculosis Association showed that the greatest expenditure on tuberculosis research was by official agencies, with a total of nearly 4 million dollars, of which 3 million were allocated to chemotherapy investigations. Following closely behind the official agencies were manufacturing firms, with appropriations of over 2 million dollars. Research by firms manufacturing x-ray equipment was also carried out. Universities expended nearly ,000 dollars on tuberculosis research, with only 4,500 dollars allocated to chemotherapy. It is pointed out, however, that a large part of the studies financed by other agencies are actually carried out in institutions with university affiliation. Dr. E. R. Long, director of the medical research and therapy department of the National Tuberculosis Association, has stated that if streptomycin had not appeared so promising a drug "it is safe to say that much less money would have been expended for chemotherapeutic research, and much less, accordingly, for all research," but he emphasizes that streptomycin research has disclosed the need for more fundamental research in tuberculosis. "Had streptomycin proved as successful as the most optimistic enthusiasts anticipated," he stated, "had it proved, for example, as effective as penicillin in certain types of pneumonia, it is probable that interest in basic investigation on tuberculosis would have declined. Actually, however, streptomycin research has raised more problems than it has answered, and the new problems, such as the nature of the antibiotic mechanism and the reason for bacillary resistance to the drug, can be solved only by fundamental laboratory research."

Medical Memoranda

Chronic Progressive External Ophthalmoplegia

The idiopathic form of chronic progressive external ophthalmoplegia is rare enough to warrant a brief description of the following case.

CASE REPORT

The patient was a man aged 39 who was born in Rumania and had wandered about Eastern Europe and the Middle East. The family history revealed nothing significant. He had been in England since 1947. In 1933 he developed suppurating cervical glands; in 1935 he had pneumonia, and in 1942 typhoid fever. While he was in Egypt, at the age of 36, he noticed drooping of his left eyelid. In April, 1949, he came to hospital complaining of dizziness, double vision, and cough. There was marked ptosis of the left eye. Asymmetrical external ocular palsies were present, and the movements of the eyes were as follows:

	Right Eye		Left Eye	
Outwards	8°	20°	14°	16°
Inwards	12°		2°	
Upwards	30°	55°	2°	27°
Downwards	25°		25°	

The pupils were equal and circular, and reacted normally to light. On ophthalmoscopic examination the fundi were normal; an error of refraction (vision: R. 6/12, L. 6/36) was easily correctable, and perimetry showed very slight symmetrical diminution of the peripheral parts of the visual fields in each eye. No abnormality of other cranial nerves was observed, and all reflexes and sensations were unimpaired. Examination revealed no other physical signs.

The cerebrospinal fluid was normal, and the blood pressure was 130/80. Radiographs of chest and skull were normal, and the blood Wassermann reaction and Kahn test were negative. To exclude myasthenia gravis a therapeutic test was done (2.5 mg. neostigmine + 1/100 gr. (0.65 mg.) atropine), but, as expected, no improvement in the eye movements was observed.

COMMENT

In 1900 Wilbrand and Saenger studied 32 cases of chronic progressive external ophthalmoplegia and considered the condition to be a distinct clinical entity. The characteristic features, as they described them, are as follows: The onset is gradual, usually beginning in childhood, but may be delayed. Ptosis may be the first sign of the disease for a considerable time; years may elapse before there are signs of paralysis of the external ocular muscles, and diplopia may or may not occur. The internal ocular muscles remain normal and the health of the patient is not affected. According to these authors, "It is a striking feature of the affection that no other signs or symptoms develop indicating implication of other organs or other structures of the nervous system." Since the beginning of this century very few cases have been reported which belong to this group.

Altland (1909) described a case in which ptosis of the right eye occurred at the age of 22, and which developed bilateral ptosis (left incomplete) and immobility of both globes at 51. McMullen and Hine (1921) reported three cases, but one was excluded from this group because a subsequent examination revealed disease of other parts of the central nervous system. There are also reports by Langdon and Cadwalader (1928) and Farias (1941).

Fuchs (1890) thought that isolated forms of bilateral ptosis might be cases of primary myopathy. Ayres (1896) reported the disease in a boy whose maternal grandfather also suffered from it. Beaumont (1900) had 12 cases, and not only was there a familial incidence but in some there was an associated weakness in the distribution of the seventh nerve. This involvement of the central nervous system beyond the confines of the oculomotor nuclei is not in conformity with the description given by Wilbrand and Saenger.

The case described by Sandifer (1946), a man of 29, had bilateral ptosis for fourteen years, a complete external ophthalmoplegia, weakness of the orbicularis oculi, and certain cardiovascular changes. Although there was no family history, the resemblance of this case to some of those described by Beaumont cannot be overlooked. Sandifer found that, histologically, biopsy of the external rectus revealed myopathic degeneration, and he suggested that the lesion in chronic progressive ophthalmoplegia separated by Wilbrand and Saenger may sometimes be in the muscle and not in the oculomotor nuclei. Langdon and Cadwalader (1928), in their case of a woman of 81 with bilateral ptosis and almost immobile globes, found that the oculomotor nerves were comparatively small, the cells of the Edinger-Westphal nuclei were normal (this accounting for the internal ocular muscles being spared), but the cells of the remaining portions of the oculomotor nuclei showed some chromatolysis, pigmentation, and shrinkage. It is of interest to note that similar left-sided degeneration in the more proximal levels of the third nucleus was reported by Siemerling (1891) in a case of left-sided congenital ptosis with normal internal and external ocular muscles. This may indicate that the same aetiological factors are operative, whatever these may be, yet the two conditions are clinically distinct. Gowers (1893) speaks of "deficient vital endurance of the structures concerned," and his theory of abiotrophy is generally offered in explanation.

At present there seems to be a tendency to group together all cases of chronic progressive external ophthalmoplegia. Some of these cases may be familial, or they may be of myopathic origin (Nikitin, 1929; Elliott, 1939; Martin, 1939), while others may show evidence of involvement of different parts of the central nervous system in addition to the oculomotor nuclei. But since the prognosis is favourable in the condition separated by Wilbrand and Saenger (so far as the disease remains confined to the oculomotor nuclei), I believe it deserves to remain a distinct clinical syndrome, at least until the pathogenesis is elucidated.

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My thanks are due to Mr. W. H. McMullen for his encouragement, and to Dr. W. H. Kelleher, physician-superintendent, Western Hospital, S.W.6, for permission to publish this case.

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An Unusual Case of Rickets (Fanconi's Syndrome)

There are several atypical forms of rickets, but perhaps that associated with glycosuria, hypophosphataemia, and mild acidosis is the rarest; hence the interest of this case.

CASE REPORT

The patient, a female child aged 11 months, was sent from a maternity and child-welfare clinic to the paediatric out-patient department of the City General Hospital, Stoke-on-Trent, on November 19, 1948, for investigation of glycosuria. The mother reported that the child had been normal and healthy until a few weeks earlier, when increasing thirst had been noted and she had ceased to gain weight. She had become constipated also and was inclined to vomit. The mother was especially concerned because a son had died in 1941, at the age of 6 years, from what was stated to have been "nephritis and uraemia." The mother volunteered the information that he had had "sugar in his water" from the age of 12 months, and that the onset of his illness had been associated with thirst and retardation of growth. Further questioning elicited that the father had died from a renal calculus, the mother herself being apparently normal, as is her only other child, a girl aged 7.

On clinical examination the patient was a pale fragile child, with two teeth, and was able to stand and to say a few words. Her weight was 16 lb. (7.26 kg.). There was evidence of recent loss of weight, and she appeared dehydrated. She had well-marked rickets, with bossing of the skull, rachitic rosary, and thickening of the lower ends of the radii. Her abdomen was distended, and faecal masses could be felt in the left iliac fossa. No abnormal findings were noted in her throat, ears, chest, or in the cardiovascular and central nervous systems.

Special Investigations.—Urine: This showed an acid reaction, a trace of albumin with 1% of sugar (proved to be glucose), an excess of amino-acids, and no ketone bodies; microscopy revealed a few red blood cells, scanty pus cells, and numerous granular casts. *Blood:* Urea varied between 34 and 42.6 mg per 100 ml.; sugar, 83 mg. per 100 ml.; serum phosphorus, 2 mg. per 100 ml. (normal 4–5 mg.); serum calcium, 9.3 mg. per 100 ml. (normal 9–11 mg.); serum alkaline phosphatase, 10.1 units (normal 3–13); serum acid phosphatase, 3.2 units (normal 0.5–5); plasma proteins, 4.75 g.%; alkali reserve, 50 vols. CO_2%; Wassermann reaction negative. *Radiology* A straight radiograph of the abdomen and radiograph of the skull and pituitary fossa showed no abnormality, and I.V.P. was deemed inadvisable owing to the child's general condition A radiograph of the wrists showed decalcification of the bones with rickets. A glucose-tolerance test confirmed the glycosuria to be renal in origin.

COMMENT

The association of rickets, glycosuria, hypophosphataemia, and mild acidosis is extremely rare. The first cases were reported in 1926 by Schier and Stern, others being later reported by Fanconi (1931), by whose name the syndrome is sometimes known, and De Toni (1933).

The aetiology of the condition is uncertain, but it is known to have a familial incidence. It is said to be due to a defect of the renal tubules which renders incompetent the reabsorption of glucose, amino-acids, and phosphates This explains the increased amino-acids in the urine, the often decreased blood proteins, the glycosuria of renal type, and the hypophosphataemia (the last-mentioned being sometimes the cause of renal calculus). The defect is said to be in the proximal renal tubules, where glucose and phosphates are normally reabsorbed in the form of phosphate esters. Stowers and Dent (1947) have demonstrated on post-mortem material that phosphatase, which is essential for the formation of these esters, is absent from the proximal renal tubules, where it is normally abundant, and

they believe this to be the major defect in Fanconi's syndrome.

The above case seems to be a classical example of the condition, and has several features of note. First, the family incidence : there seems to be no reason to doubt that the child who died in 1941 showed the main features of the syndrome, and it is probable that the father's renal calculus was related to the condition of his children. Unfortunately no notes of either of these cases are available. Secondly, in spite of the fact that the child had received adequate anti-rachitic treatment (fortified cod-liver oil) since birth, she had developed gross rickets by the age of 11 months. Finally, the early age at which diagnosis was possible is of interest.

The condition being a congenital and often hereditary defect of the renal tubules, treatment is unfortunately of little avail.

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Acute Psychosis Caused by Dextro-amphetamine

The following case is of interest because of the small amount of the drug taken.

CASE REPORT

A petty officer stoker mechanic aged 29 reported sick with a five-years history of headaches and depression. His M.O. found no organic cause for the headaches and, in view of the depressive element, prescribed dextro-amphetamine. The patient was given 14 5-mg. tablets and instructed to take two daily. At 6 a.m. on the following morning he was found stuporous on the bedroom floor. He had been incontinent of urine. He was able to state that before retiring he had taken 11 tablets (55 mg.) of dextro-amphetamine. When he regained consciousness in hospital he thought he saw a piece of paper going up the side of the door. He then complained that somebody was putting his finger on the top of the door and taking it away quickly. He also imagined he saw smoke coming through a partly open door, and later in the forenoon he stated that there were flashes of light going across the bed. He had auditory hallucinations at the same time, and he felt annoyed because nobody shared these experiences. Similar hallucinations continued during the remainder of the day. The next morning he was cheerful, co-operative, and relaxed. Consciousness was clear, his thought and conversation were coherent and relevant, and he was not at all depressed or irritable. He was still hallucinated and had come to the conclusion that someone had been arranging these phenomena in order to test his reactions to them. He lacked insight and could not accept any suggestion that he had been hallucinated. He had no further hallucinations after his first morning in hospital, and he developed good insight. His thought and behaviour rapidly became normal and he had no further symptoms except occasional headaches.

COMMENT

The dose taken by this patient appears to be the smallest on record to have precipitated a psychotic state. Probably a larger dose would have been required if he had taken the drug previously and had thereby gained some tolerance. Idiosyncrasy to small doses, resulting in circulatory collapse, is reported by Davies (1937), Norman and Shea (1945), Shorvon (1945), Mutch (1948), Sargant and Slater (1948), and others. Idiosyncrasy was evidently responsible for one of the two recorded fatalities—that of a student aged 25 who collapsed and died after taking 30 mg. of amphetamine sulphate daily for a few days (Smith, 1939). The other death occurred after the accidental ingestion of 40 mg. of amphetamine by a 1-year-old child (Hertzog *et al.*, 1943).

Eight cases are recorded of acute psychosis caused by amphetamine and its dextrorotatory isomer. Young and Scoville (1938) administered amphetamine to two narcoleptics, who both developed a paranoid psychosis after a few weeks. The amount of the drug taken was uncertain, but was of the order of 30 to 40 mg a day. Norman and Shea (1945) report the development of somatic, visual, and auditory hallucinosis in an alcoholic aged 49 who had been taking a daily dose of 250 mg. of amphetamine for five years. Monroe and Drell (1947) describe a further four cases of hallucinations and ideas of reference amongst prison inmates who had been ingesting strips of amphetamine from inhalers. One had taken 93 mg. and another 250 mg. The amount consumed by the other two is not specifically stated, but was probably of the same order, since each inhaler contained 250 mg. of amphetamine base. Schneck (1948) reported visual hallucinations and delusions in a man who had consumed one and a half amphetamine inhalers within 36 hours.

We are indebted to Surgeon Rear-Admiral J. A. Maxwell, C.V.O., C.B.E., F.R.C.S., K.H.S., medical officer-in-charge, R.N. Hospital, Haslar, for permission to publish this case.

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The important effect on stressed "perspex" windows of solutions used for the disinsectization of aircraft is described by Whittingham and Galley in the *Monthly Bulletin of the Ministry of Health and the Public Laboratory Service* (1949. **8**, 186). Some insecticide solutions facilitate the crazing of these windows, a process which manifests itself in the formation of cracks varying from a surface frosting to deep, highly reflecting fissures. This causes a weakness which in pressurized aircraft may lead to the window blowing out in flight—a serious matter for the aircraft and its occupants at high altitudes. Four common insecticides were tested in the laboratory for their effect on stressed "perspex," and a wide variation was demonstrated in the intensity of their action. One solution containing methylene chloride, for example, caused instantaneous crazing when sprayed on to the window material. Whittingham and Galley's findings indicate the importance of consulting aircraft constructors and experts on materials used in aircraft in the development of new insecticides for this use.

Reviews

THE CARE OF THE OLD

Geriatric Medicine. By E. J. Stieglitz, M.D., F.A.C.P. Second edition. (Pp. 773; illustrated. £3.) Philadelphia and London: W. B. Saunders Company. 1949.

Age is Opportunity. (Pp. 118; illustrated. 2s. 6d.) London: The National Council of Social Service, 26, Bedford Square, London, W.C.1.

The two books are symptomatic of the increasing interest in the care and welfare of the aged. In a sense they are complementary, for the first sets out to discuss the diseases from which the aged suffer, with their prevention and their treatment, while the second gives much useful advice and information to those who wish to see elderly persons given the greatest opportunity possible for their own happiness.

Unfortunately, Stieglitz and his 46 co-authors have not made up their minds on what they are attempting to do. As a result, their book does not completely satisfy any one criterion. It is not a textbook of medicine, because it presupposes much fundamental knowledge of medicine; yet it is not a handbook for the doctor who wishes to do something for his elderly patients, because it treats in too much detail of all diseases affecting all patients. It does not limit its lesson to modifications or improvements in the diagnosis and treatment of old people suffering from general disease.

One can except from this generalization the articles written by Stieglitz himself, both on the general approach to and on the philosophy of the medical care of the elderly, and on hypertensive arterial disease From these sections there is much that can be learned and much for the intelligent reader to ponder over. The author comments with a refreshing sanity on the interpretation of a raised blood pressure, pointing out the irrelevance of a single reading and emphasizing the importance of the time factor in prognosis. The instructions for treatment are clear and detailed, and show how the patient with early hypertension can enjoy a reasonable life without being a burden to himself or his relations by reason of a host of dietetic fads and restrictions. Similarly, Monroe's article on diseases of the joints comes near to being a model of clear thinking and wise treatment. His advice on the management of a patient suffering from early rheumatoid arthritis is excellent. He realizes that the hopeless deformities so frequently seen are not inevitable, and gives in some detail his own method of preventing their occurrence.

Few of the other authors go into sufficient detail to make this expensive book of much practical value to the doctor who wishes to do his best for his elderly patients. Old people certainly have their own problems: it is true that there are no major changes in the concept of treatment between the middle-aged and the aged, but the difference between success and failure in this specialty lies in the ability to devise means of overcoming the effects of lengthy illness and even longer deformity. Little attention is given in this book to considering how best to prevent the onset of illness among the elderly, and sufficient emphasis is not laid upon the remarkable capacity for rehabilitation possessed by these people, provided it is realized that the response to treatment will be slow and that much patience will be needed to obtain success. This does not need to be the patience of inertia; the treatment is of interest because of the infinite variety of detail needed to achieve a successful result.

Reference to the occurrence of pulmonary tuberculosis among the elderly is interesting and important, and one wonders how many children have been infected by a loving grandparent suffering from a "touch of bronchitis." But it is surprising to read suggestions for the treatment of Eustachian deafness with radium: experience gained in this country during the war has shown the dangers of this practice.

The handbook issued by the National Old People's Welfare Committee gives good advice to any body, voluntary or municipal, that wishes to take an intelligent interest in the welfare of the elderly. It deals systematically with their wants, and shows how these can best be satisfied. It gives, therefore, indications of how the elderly can be kept in good health, and how they can be prevented from becoming a burden to the community by sinking into a state in which they need to be admitted to hospital for long periods. Regular visiting and the establishment of clubs will not only combat the loneliness which is one of the great dreads of old age, but will enable disease to be recognized while it is remediable. Provision of meals will help to prevent the varied types of malnutrition which are found among the elderly. A useful occupation will keep the mind alert and active, and its provision should help finally to dispel the idea that the aged are incapable of learning new trades. Advice on the setting up of homes and other forms of housing will go far to ensure that the older members of the population shall be housed in as suitable surroundings as their younger countrymen, and will do much to keep them well. This is a useful book that should be widely read.

AMULREE.

HANDBOOK OF FRACTURES

Fractures and Dislocations in General Practice. By John Hosford, M.S., F.R.C.S. Second edition revised by W. D. Coltart, F.R.C.S. General Practice Series. (Pp. 288; 87 illustrations. £1 1s.) London: H. K. Lewis and Co. 1949.

Modern methods in the treatment of fractures, with the necessity for repeated radiographic examination, plaster work, physiotherapy, and other ancillary services, have made it inevitable that most fractures should be treated primarily in the fracture services of the hospitals. More often than not the general practitioner has neither the facilities nor the apparatus for the efficient handling of fractures, other than those of a minor nature. Nevertheless, it would be unfortunate if the family doctor were to lose touch with modern developments in treatment. He may no longer be responsible for the details of the local treatment of the fracture, but very often the general supervision of patients under treatment at the fracture clinic will fall to his care. His advice and opinion will often be sought; and he will be called in if unexpected symptoms should develop in the intervals between the patient's visits to the clinic.

The second edition of this book has been revised considerably to suit the changed conditions that now prevail. It does not set out to teach the practitioner how to treat a fracture: it is designed to give him an up-to-date account of the broad lines on which fractures and dislocations are treated in hospital. The book can be commended for its clear descriptions, accuracy, and conciseness. It should fulfil well the purpose for which it has been designed, and it may prove even more successful as a short handbook for students.

J. C. ADAMS.

NEONATAL MORTALITY

Fetal and Neonatal Death. By Edith L. Potter, M.D., Ph.D., and F. L. Adair, M.D. Revised edition. (Pp. 173; illustrated. £1 10s.) Illinois, Chicago: University of Chicago Press. Great Britain and Ireland: Cambridge University Press. 1949.

All those concerned with the care of the newborn baby have used "Potter and Adair" since it first appeared in 1940. A new and revised edition, which incorporates new work on the Rhesus factor and the effect of rubella upon the foetus, is therefore most welcome. It is of great importance to consider stillbirths as well as neonatal deaths to gain a complete picture of loss of life at this period, and the study of the problem in the necropsy-room or as an exercise in statistics is well described. It is inevitable that the references should be almost entirely to American literature, and it seems strange to find respiratory difficulties at birth discussed without any reference to Barcroft's work. It would be a fascinating task to relate the United States statistics to those of other countries, as Professor C McNeil did with his Scottish figures in 1942.

The authors' approach to a subject which still requires much exploration is essentially that of pathologists. As will be gathered, the effect of this monograph upon the reviewer is to make him eager to see it much enlarged: it is excellent as far as it goes. ALAN MONCRIEFF.

PATHOGENESIS OF INFECTION

Klinische Infektionslehre. By Professor Felix O. Höring. Second edition. (Pp. 245. M. 18.) Berlin: Springer. 1948.

Professor Höring's *Clinical Study of Infection* is an unusual book. It is an attempt to bridge the gap between bacteriology and immunity on the one hand and clinical medicine on the other. It is not a textbook or a monograph, but rather an essay with pathological physiology as its central theme. Health and illness are taken as abstractions; the host and the parasite are the only concrete realities. The author revolts from the concept of disease resulting from the blind operation of chance, something imposed on the host from outside. The individual cannot be thought of apart from his environment. The relation of the host to the parasite is not one of enmity but essentially an attempt at mutual adaptation with symbiosis as its goal. Medical bacteriology is therefore merely a branch of oecology.

Starting from this thesis, the author examines the different reactions of tissues to the parasite, classifying them into normal, anergic, and hyperergic. He then divides all infectious diseases into three categories: (*a*) the cyclical diseases characterized by a predictable course—incubation period, riod of generalization, period of localization in the gans; (*b*) the local diseases, characterized by a focus of inflammation that spreads only by direct continuity and pursues an irregular course; and (*c*) the septic diseases, characterized by an inflammatory focus that is in direct communication with the blood stream, thus enabling the particular types of parasite associated with these diseases to give rise to generalized manifestations. Further subdivision follows, and ten possible courses are described for the infectious process. Each of the infectious diseases is then briefly examined, and classified according to its pathogenesis into one or other of the numerous theoretical categories laid down.

This form of abstractive treatment is perhaps more congenial to the Teutonic than the English mentality, but both clinicians and bacteriologists may find something stimulating in the author's method of approach to a well-worn subject. G. S. WILSON.

BOOKS RECEIVED

Review is not precluded by notice here of books recently received

Sight Light and Efficiency. By H. C. Weston. (Pp. 308. 42s.) London: Lewis. 1949.

The Biology of Mental Defect. By L. S. Penrose, M.A., M.D. Preface by J. B. S. Haldane, F.R.S (Pp. 285. 21s.) London: Sidgwick and Jackson. 1949.

The Theory of Inbreeding. By R. A. Fisher, Sc.D., F.R.S. (Pp. 120. 10s. 6d.) London: Oliver and Boyd. 1949.

Living Through the Older Years. Edited by C. Tibbitts. Foreword by E. J. Soop. (Pp. 193. 16s.) London: Geoffrey Cumberlege. 1949.

Magnetism. By D. Shoenberg, Ph.D. (Pp. 216. 10s. 6d.) London: Sigma. 1949.

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VITAMIN B_{12} AND PERNICIOUS ANAEMIA

Vitamin B_{12}, a crystalline anti-pernicious-anaemia factor of great potency, was isolated almost simultaneously in 1948 in this country and in the U.S.A. We have already commented[1] on some of the reports describing its properties and uses. Intramuscular injections of a few microgrammes of this compound, which appears to possess all the activity usually associated with liver extracts, causes remissions in pernicious anaemia, sprue, steatorrhoea, and nutritional macrocytic anaemia. The only other substances which have such a powerful action in minute quantities, though in their case a harmful one, are the radioactive element plutonium and botulinus toxin. Calculation shows that not more than a few hundred molecules of vitamin B_{12} are necessary for the maturation of one red cell. Reports on the use of vitamin B_{12} have so far been confined to small series of patients treated with varied amounts of the vitamin and followed up for very short periods. In this issue of the *Journal* we publish two articles by workers who have played leading parts in the isolation and testing of this compound. That by Dr. E. Lester Smith gives the story of the work which resulted in its discovery. In the 22 years since Minot and Murphy first discovered the effectiveness of liver therapy in pernicious anaemia there has been a gradual advance in methods of purifying liver extracts, though it is now known that these purified extracts contained less than 1% of the active constituents. This was due to lack of a suitable method of separation from inert material (eventually overcome by partition chromatography), the extremely small quantity of vitamin B_{12} present (less than 1 g. in 4 tons of liver[2]), and the absence of convenient methods of assay. The success of Lester Smith's fractional crystallization depended upon the results of clinical trials of more than 80 samples carried out by Dr. C. C. Ungley, the author of the second paper in this issue. In this type of work the greatest care and patience are needed to avoid false results, and it is to the credit of the clinical workers that they were able to lead the laboratory workers along the correct path.

Dr. Ungley's carefully planned investigation of the treatment of pernicious anaemia by injections of vitamin B_{12} was carried out on 53 cases, the largest series yet published. He took great care to ensure that responses were not due to spontaneous remission or to factors in the diet, and he was able to offset the effect of variation in the initial red-cell count by the use of statistical methods. Having worked out a logical scheme of dosage Ungley is now able to say with greater certainty than any previous worker how much vitamin B_{12} is required to treat patients with pernicious anaemia. It seems that a single dose of 10 μg. produces as good a response, judged by reticulocyte increase or, better, by the rise in the total red-cell count over a period of 15 days, as is usually obtained with ordinary liver extracts. Larger doses give even better results, and the amount required to restore the red cells to 4.5 million or more in 32 cases ranged from 15 to 140 μg. These amounts led also to an increase in white cells and platelets and to clinical recovery. Twenty-one patients have been followed up for six to fifteen months while receiving 10 μg. every two weeks, and only three have not been maintained in an entirely satisfactory state. No fresh neurological symptoms appeared, and those already present improved or at least did not progress. Ungley considers the results of treatment of eight cases of subacute combined degeneration of the cord to be as good as those obtained with liver extract, either crude or refined. This contrasts strongly with the results of folic acid therapy reported recently in this *Journal* by Israëls and Wilkinson,[3] who concluded that folic acid should never be given to patients with subacute combined degeneration of the cord. Ungley suggests a dosage schedule consisting of 40–80 μg. initially, 20 μg. weekly for three months, and 30 μg. every three weeks thereafter for the uncomplicated case of pernicious anaemia, with double these amounts and more frequent administration when neurological symptoms are present.

The use of microbiological methods of assaying vitamin B_{12} activity, developed in the U.S.A. during the work which led to its isolation there, enables the strength of liver extracts to be measured in terms of a pure substance. Dosage will thus cease to be empirical. The isolation of vitamin B_{12} from the metabolism fluid of cultures of *Streptomyces griseus* (used in the manufacture of streptomycin) is referred to by Lester Smith, and commercial production from fermentation liquors is now practicable. The use of the pure vitamin may obviate the reactions which occasionally occur with liver extract and will certainly enable larger amounts of the anti-pernicious-anaemia factor to be administered. Thus the outlook for patients with cord changes may be improved. No doubt, however, further discoveries will soon be made. Already there are known to be

1 *British Medical Journal*, 1949, 2, 694.
2 Smith, E. L., *Nature, Lond.*, 1948, 161, 638.
3 *British Medical Journal*, 1949, 2, 1072.
4 Spies, T. D., Stone, R. E., Lopez, G. G., Milanes, F., Toca, R. L., and Aramburu, T., *Lancet* 1948, 2, 519.

two, probably three, active substances in the crystalline fraction, and their relationships and chemical structure are being studied. The part played by folic acid and thymine[4] still remains a mystery. On the clinical side, too, there are many unanswered questions. The nature of the "intrinsic factor" is still unknown. The source of vitamin B_{12}, whether dietary or the result of bacterial synthesis in the gut, is uncertain. There is no satisfactory explanation why some patients develop subacute combined degeneration of the cord when anaemia is only moderate or even absent and other patients with severe anaemia do not develop it, why spontaneous remissions occurred before liver was used in treatment, or why some patients are, or become, refractory to treatment with liver extract. The discovery of vitamin B_{12} has already helped the search for the answer to these and other questions.

THE EYES IN MALNUTRITION

It is not surprising, since the normal eye is a most sensitive and delicately poised optical instrument, that optical abnormalities should frequently occur as an effect of disease or that they should be given prominence when they are a characteristic feature of any particular illness. Besides being a secondary effect of disease, however, eye lesions may sometimes be the first signs of dietary deficiency. In recent years much new knowledge has been gained about nutritional requirements, and many books and papers have been written around clinical and experimental observations on the state of the eyes in various forms of malnutrition. Dr. Hugh Stannus's scholarly and critical essay on "Nutritional Eye Disease,"[1] for which he was recently awarded the Treacher Collins Prize, is therefore to be welcomed as a valuable review of this important subject. In his earlier chapters Stannus assumes that disorders of nutrition may result from senescence, inborn errors of metabolism, endocrine derangements, metabolic diseases, and various congenital deformities, dystrophies, and abiotrophies, and he discusses many pathological conditions, both common and rare, in which the eyes are affected, though it may be questioned whether nutritional factors are concerned in all of them. In his description of the biochemistry and metabolism of the various parts of the eye he points out that the lens is completely isolated from any blood supply and is believed to have its own internal auto-oxidation system, in which ascorbic acid and glutathione, both present in relatively large quantities, may be vitally concerned.

Stannus devotes most space to a discussion of the effect of either primary or secondary deficiencies of individual nutrients on the structure and function of the eyes, with particular emphasis on the effects of deprivation of vitamins. According to present evidence, vitamins A, B_1, C, and riboflavin seem to be more important than others for maintaining the health of the eyes, though Stannus briefly reviews the whole range of vitamins and the general effects of their deficiencies. As examples of the various ways in which nutritional deficiency may affect the eyes the four main lesions which can result from deficiency of vitamin A have special interest. In human beings and in rats avitaminosis A frequently gives rise to *xerophthalmia* and keratomalacia. These abnormalities are generally regarded as the classical signs of deficiency of the vitamin and frequently cause permanent blindness in Eastern peoples. In rats deficiency of vitamin A during pregnancy often causes ocular defects in the offspring.[2] In dogs deficiency of the vitamin may disorganize bone growth, and stricture of the optic nerve may result from occlusion of its foramen.[3] Deficiency of vitamin A also causes defective dark adaptation: the abnormality in this instance may be traced to a defective formation of visual purple, a photosensitive pigment present in the retinal rods. At least one form of this pigment, if Stannus's view is accepted that a group of pigments is involved, consists of vitamin A in combination with protein. Deficiency of a single vitamin, therefore, may lead to permanent blindness by three distinctly different anatomical routes. A serious functional disturbance also results if the same vitamin is not available to take part in the complicated mechanism of the retina; for this it takes on a form in which it is unknown in any other tissue.

Deficiency of vitamin B_1 causes similar optical lesions in diseases arising in widely different circumstances. Thus Wernicke's encephalopathy,[4] a disease in which sight is affected by lesions in the periventricular grey matter of the brain, with varicose deformities of the blood vessels and petechial haemorrhages, was described long ago in alcoholic patients, and was later considered to be associated with a secondary deficiency of vitamin B_1. Subsequently a very similar picture was observed in the "Chastek paralysis" which afflicted artificially reared silver foxes when they were fed upon raw fish. Research soon indicated that the fish contained a toxic substance capable of inactivating vitamin B_1, which was effective in the treatment of the disease. Finally, Wardener and Lennox[5] noticed a similar syndrome, often fatal, in a large number of prisoners of war at Singapore whom they considered to be suffering from "cerebral beriberi." Thus secondary deficiencies of

1 Stannus, H. S., "Nutritional Eye Disease." Manuscript copy presented by the author to the library of the British Medical Association.
2 Warkany, J., and Schraffen-Berger, E., *Proc. Soc. exp. Biol., N.Y.*, 1944, 57, 49.
3 Mellanby, E., *J. Physiol.*, 1940–41, 99, 467.
4 Wernicke, C., *Lehrbuch der Gehirnkrankheiten*, 1881, 2, 229, Berlin.
5 *Lancet*, 1947, 1, 11.
6 *Publ. Hlth Rep., Wash.*, 1940, 55, 157.
7 Burgess, R. C., *Proc. Nutr Soc.*, 1945, 5, 116.
8 Raadt, O. L. E. de, *Thesis*, 1947, Leiden.

vitamin B_1 caused by two different toxic agents, or by prolonged and severe dietary deficiency, all eventually lead to the development of similar syndromes. In riboflavin deficiency there is a heaping up of sodden epithelium on the palpebral commissures, in common with all orifices of the body, the typical signs having been observed by Stannus in malnourished individuals nearly forty years ago. The patients complain that their eyes itch and burn, and visual acuity is sometimes poor. Stannus, however, disputes the claims originally made by Kruse and Sydenstricker[4] that a deficiency of riboflavin may be diagnosed by slit-lamp examination of the vessels in the limbus, since other factors have to be taken into account. Dr. Stannus concludes his monograph with a comprehensive account of the optical abnormalities which were frequently observed in prisoners of war in the Far East subsisting on diets deficient in both quantity and quality. In these circumstances retrobulbar neuritis was often a prominent symptom, probably associated with riboflavin deficiency.[7] Nystagmus with oto-neurological symptoms was also common and believed to be an early manifestation of pellagra.[8] Pick's visions, or the so-called partial visual vertigo, were another disturbing feature; the patients saw jumbled print when they attempted to read, and sometimes had the impression that their companions left the room by walking through the wall.

VITAMIN E THERAPY

The difficulty of deciding whether vitamin E has any real value in the treatment of human diseases was emphasized by the contradictory opinions expressed at the International Conference on Vitamin E which was held in New York earlier this year and on which we commented at the time.[1] Massive doses of α-tocopherol were claimed by Dr. Evan Shute and others who belong to his school of thought to be effective in the treatment of cardiovascular diseases, chorea, ulcerations, burns, multiple sclerosis, urethral strictures, Dupuytren's contracture, Peyronie's disease of the penis, and even diabetes. Most of these claims, however, were contested by other investigators, who described carefully controlled trials in which they had failed completely to observe any benefit from vitamin-E therapy. In spite of these severe criticisms vitamin E has continued to be widely prescribed in Canada and the U.S.A.

Recent reports have increased doubts about the value of vitamin-E therapy. In the treatment of a small, carefully selected series of cases of angina pectoris Ravin and Katz[2] found that tocopherol was valueless. Bensley and his colleagues[3] were equally unsuccessful in a careful trial of its alleged beneficial effects in diabetes. To offset these disappointments, however, the use of tocopherol in two recent investigations, reported elsewhere in this issue, appears to have achieved a fair measure of success. Dr. G. Russell Thomson (p. 1382) has tested Steinberg's claim that Dupuytren's contracture is influenced favourably by massive doses of vitamin E. Most of his early cases responded well, and complete extension of the fingers was often restored. The vitamin was also beneficial in the later stages of the disease, but to expedite cures the palmar bands were divided by operation. These observations, however, are open to the criticism that no control cases were given placebos. though confirmatory evidence that the vitamin has a plainly recognizable effect on the diseased tissues might perhaps be inferred from the pain which was often experienced in the palmar bands before the contracture began to respond. Dr. H. C. McLaren (p. 1378) has studied the value of tocopherol in preventing flushing, sweating, and insomnia after artificial induction of the menopause by treatment with radium or deep *x* rays or by hysterectomy and oöphorectomy. Temporary relief was obtained in about 60% of his cases. Since the remaining 40% were relieved by stilboestrol, it is clear that tocopherol is less efficient than are oestrogens in preventing flushings, but it has the advantage of seldom causing the resumption of menstruation. Some of the patients were given placebos for a few weeks before their treatment with tocopherol was begun; only one out of eighteen was cured.

The results of these two investigations raise hopes that vitamin E may have real value in the treatment of certain diseases, even if the more extravagant acclamations of its virtues have to be discounted. Animal experiments have left no doubt that the vitamin is essential for most species, and that the lesions which result from its absence are remarkably diverse. Thus its role in maintaining gestation, which led to its discovery some 25 years ago, is only one of the many manifestations of its activity. Other lesions caused by deprivation of this vitamin are muscular dystrophy, brown coloration of the uterus and skeletal muscles, encephalomalacia, exudative diathesis, and dental abnormalities. Animals whose diets are deficient in vitamin E use and store vitamin A inefficiently, and their fat deposits are turned brown when large amounts of cod-liver oil are given. When the diet is deficient also in protein the animals are particularly vulnerable to liver injuries, whether occurring spontaneously or after the administration of chloroform or other toxic substances. The erythrocytes of deficient animals are unduly liable to haemolysis. From the results of animal experiments, therefore, it would not be surprising if deficiency of vitamin E were found to be associated

[1] *British Medical Journal*, 1949, 1, 949 and 951.
[2] *New Engl. J. Med.*, 1949, 240, 331.
[3] *Canad. med. Ass. J.*, 1949, 61, 260.

with several widely different human diseases. But there is still no evidence that concentration of vitamin E in the blood plasma is particularly low in any of the diseases which it is reported to benefit, or that the food eaten by the patients suffering from these diseases has been deficient in the vitamin. The doses claimed to be effective, moreover, are usually greatly in excess of what is thought to be the normal daily requirement. Shute has concluded that tocopherol in large doses has therapeutic effects which are distinct from its physiological effects at normal intakes. Another possibility is that defects in the tissues may increase requirements for tocopherol, so that the amounts normally supplied by the blood may become inadequate.

Perhaps the most regrettable feature of tocopherol therapy, at its present state of development, is its great expense. Thus in McLaren's investigation an average course of treatment consisted of 18.5 g. of tocopherol given over 37 days, and the cost was £7. For other diseases Shute recommends permanent dosing, which means a constant expenditure of over £1 per week. This heavy cost would obviously be justified for a drug clearly proved to prolong life or prevent disablement. but for a remedy whose efficacy is still in doubt the price seems far too high. For the present tocopherol might justifiably be prescribed in Dupuytren's contracture and in cases of menopausal flushings in which the administration of oestrogens is contraindicated. It may perhaps be worth a trial in Buerger's and Peyronie's diseases. Its value in the treatment of more common diseases is in most instances very questionable, and its prescription should await the verdict of carefully organized research

SPENS AWARDS TO BE CONFIDENTIAL?

The Council of the B.M.A. and the Central Consultants and Specialists Committee have formulated their views on the "Special Distinction Awards" in a statement published in this week's *Supplement*. They have decided that neither body, nor the Regional Consultants Committees, should have a hand in putting forward the names of suitable recipients of the awards. They recommend the Advisory Committee on Merit Awards to form, after consultation with hospital boards, selection committees in each region comprised of "distinguished practitioners of consultant status who are not themselves interested in merit awards (i.e., being already in receipt of the highest award or retired from practice)." The Council and the Consultants Committee have also suggested criteria for assessing merit.

One recommendation calls for comment: "It would be undesirable that any publicity should be given in the lay press to the practitioners who receive awards, but at the same time information regarding the awards should be available to the profession. If this principle is accepted it follows that there should be no publication of lists of recipients even in the medical press." If there is no publication the information cannot be available to the profession. It is recommended that this information shall be available to *part* of the profession—namely, the Joint Committee and its constituent bodies; boards of governors, regional boards. medical committees, and medical advisory committees "Apart from this the boards should be instructed to regard information relating to awards as confidential." It is not for the *Journal* to criticize this recommendation of the Council of the B.M.A. to the Advisory Committee on Merit Awards. The fact that it has seen fit to make such a recommendation is in itself a comment on the peculiar innovation in our professional life that has been introduced by this method of augmenting consultants' incomes.

These awards have often been described as prizes—even compared to Nobel prizes. Men like to honour those who win prizes and gain professional distinction for merit in their work. If the recommendation of partial secrecy is acted on, then something quite exceptional will have happened in the profession of medicine—and in the history of prizes and awards. The reasons for asking for partial secrecy are no doubt compelling; the fact that the Consultants and Specialists Committee demanded it is proof enough of this. Secrecy is a form of censorship, and if we countenance it ourselves it may be less easy to fight against it if others should attempt to impose it on us.

TRAUMATIC DIABETES INSIPIDUS

Diabetes insipidus has long been recognized as a rare sequel of head injuries.[1-4] Porter and Miller[5] have recently reviewed the subject, basing their observations on 18 cases. The condition was noted in 13 out of 5,000 cases of non-penetrating head injury at the Military Hospital for Head Injuries at Oxford. In all cases the injury was severe as judged by the length of the post-traumatic amnesia, which was less than two days in only one case The diabetes insipidus was well controlled by posterior pituitary extract in the 14 cases in which it was used: no case resistant to this treatment was encountered. Eleven patients recovered spontaneously within nine months; one was improving satisfactorily after 15 months; and in the other six there was no evidence of recovery at intervals of from 13 months to eight years after the head injury.

A point of special interest in this study is that the appearance of diabetes insipidus may be delayed. It is obviously difficult in patients whom the injury has made stuporose and incontinent to be quite sure when polyuria and polydipsia start, but the authors are confident that in the majority of their patients these symptoms developed from nine to 30 days after injury. This finding is in keeping with experimental diabetes insipidus in dogs,[6] in which there may be a considerable interval after traumatic hypothalamic lesions before diabetes insipidus occurs. If at the time of operation the pitressin-secreting tissue of the pituitary is also removed diabetes insipidus develops immediately, and it is thought that the delay is due to pitressin

1 Fbstein, W., *Dtsch. Arch klin. Med.*, 1873, 11, 344.
2 Kahler, O., *Z. Heilk.*, 1886, 7, 105.
3 Lhermitte, J., and Albessar, *Rev. neurol.*, 1935, 63, 716.
4 Warkany, J., and Mitchell, A. G., *Amer. J. Dis. Child.*, 1939, 57, 603
5 *J. Neurol Neurosurg. Psychiat.*, 1948, 11, 258.
6 Heinbecker, P., and White H. L., *Amer. J. Physiol.*, 1941, 133 582
7 Greene J. L., *Ann. de méd leg.*, 1938, 18, 226.
8 Hall, G. W., and Leroy, G. B., *J. Amer. med. Ass.*, 1936, 106, 431
9 Hendry, J., *Glasgow med J.*, 1921, 96, 147.
10 *Bull. Mém. Soc. Chirurgient, Paris*, 1921, 47, 685.
11 *Nouv. Iconograph de la Salpétrière*, 1916–18, 28, 185.
12 *Trans. Amer. neurol. Ass.*, 1939, 65, 63.

being secreted for a time by the denervated neurohypophysis. A record was kept of the concomitant intracranial damage in these patients; injuries of the optic chiasm, optic nerves, and olfactory nerves were frequent, but in one case only was there undoubted clinical evidence, apart from the onset of diabetes insipidus, of hypothalamic damage. This was a man who developed an adiposo-genital syndrome during the 15 months following his head injury. The adiposo-genital syndrome has been reported by other workers[7 9] as a symptom of hypothalamic damage following head injury, and also narcolepsy.[7 8]

No post-mortem studies could be made in Porter and Miller's series of cases, and, as is so often true in non-penetrating head injuries, the exact location and mechanism of the neurological damage is to some extent speculative. The authors think that the damage was probably in the pituitary stalk, due to stretching when the brain was displaced at the time of injury, and that some patients recover completely because not all the fibres in the stalk are completely severed. They suggest that the relative rarity of other hypothalamic symptoms is due to the early death of most patients who have severe hypothalamic injuries.

Two earlier case reports provide useful information about the site of the injury in traumatic diabetes insipidus. Reverchon and Worms[10] described the post-mortem appearances in a case in which the hypophysis was completely unrecognizable and was reduced to a nodular mass surrounded by a fibrous capsule. Unfortunately no special mention was made of the hypothalamus, presumably because the case was reported at a time when attention was directed to the pituitary rather than the hypothalamus in the pathogenesis of the condition. The case of Maranon and Pintos[11] is more instructive. A boy was accidentally shot by a pistol through the middle of his forehead from a distance of three metres; he did not lose consciousness, felt no pain, and actually went on playing. One month afterwards he developed excessive thirst and polyuria, and 16 months later an adiposo-genital syndrome. He died following an exploratory craniotomy, and at necropsy the bullet was found lying in the floor of the third ventricle with its point in the direction of the pituitary stalk. There was a fibrous capsule around the bullet involving the tissue of the stalk, but there was no evidence of damage to the pituitary. These findings are of particular interest, since they also were described before attention had been directed to the hypothalamus and pituitary stalk; they agree closely with the results of Magoun and Ranson's[12] experimental work on the cause of diabetes insipidus and the importance of the anterior part of the hypothalamus and the fibres running through the pituitary stalk from the supra-optic nuclei to the posterior pituitary.

ERYTHROCYTES IN LIVER DISEASE

The important role of the liver in haemopoiesis has been recognized since the classical work of Minot and Murphy,[1] and much information has since been obtained about disturbances of red-cell formation in patients with hepatic disease. The most frequently recorded deviation from the normal blood picture is an increase in the size of the red cells, the reported incidence of this abnormality varying from 25 to 100%. Much of this variation is probably attributable to differences in methods of observation used by different observers. Quite logically, therefore, Larsen[2] in Oslo, before re-examining the effect of hepatic disease on red-cell size, examined the whole question of the technique of cell measurement and the possible errors therein. The thoroughness with which he has tracked down and exposed sources of error is reminiscent of the meticulous work of the German pathologists in their heyday. The work is in fact but one more example of the leading part Scandinavian workers are playing in medical research. The author has not hesitated to apply every technique at his disposal, and his use of the statistical method is a model of its kind for the exposition of error and the elucidation of significance.

Among the errors which Larsen discusses, and then avoids in his own work, are those due to personal qualities in individual assistants. These are of great psychological interest. For example, some are apt to "draw towards the centre," which makes the frequency distribution curve too high and too narrow, thus greatly reducing the standard deviation. Others show a tendency to "measuring towards whole numbers"; this results in dentate instead of smooth distribution curves. Errors due to optical equipment, photographic recording, colour of the stain, and nature of the light source have all been assessed and so far as possible eliminated. Failure to exclude these sources of error may lead to variation in the mean cell diameter, determined on the same cells, by as much as 1.0 micron. One consolation to the investigator undertaking further work in this field is the conclusion that results of statistical significance are obtainable by measuring only 200 cells in any given case instead of the 500 stipulated by Price Jones.

Using this new and careful technique, Larsen has confirmed the high incidence of macrocytosis in parenchymatous hepatitis. In forty-two of fifty-eight cases a significant increase was observed in the mean cell diameter (M.C.D.) above the normal of 7.79 microns. No increase, however, was found in the mean cell volume, from which it is obvious that the cells are unusually thin. This interesting finding accounts for the difference in incidence of macrocytosis in hepatic disease recorded by different observers, for the results depend upon whether the size of the cell is estimated by the haematocrit or by actual measurement of cell diameters. Of greater interest, however, than the confirmation of increased M.C.D. in hepatitis is the further information obtained about how this occurs. Increase in size could result from peripheral causes in the circulation or central causes in the marrow. Larsen's results prove conclusively that it is the central causes which are of greatest importance. By a modification of a method of statistical analysis introduced by Mogensen[3] he demonstrates that the abnormal frequency-distribution curve of the red cells observed in hepatitis can be resolved into two normal curves—one with a normal M.C.D. of 7.81 microns, the other of 8.56 microns. This

[1] *J. Amer. med. Ass.*, 1926, 87, 470.
[2] *The Distribution of Red Blood Cell Diameters in Liver Diseases*, 1948, Oslo.
[3] *Studies on the Size of the Red Blood Cells, Especially in Some Anaemias*, 1938, Copenhagen.

implies that during an attack of hepatitis an abnormal generation of red cells is produced possessing a larger M.C.D. and a smaller mean corpuscular thickness but with a normal standard deviation.

These characteristics of the red cells in hepatitis are in marked contrast to those found in untreated pernicious anaemia. Analysis of the red-cell distribution curves shows that the blood cell population in the latter condition consists of at least three abnormal components—namely, a left-hand curve of microcytes, a middle curve corresponding to the large cells found in hepatitis, and a right-hand curve consisting of very large cells—as well as one component with normal blood cells. Most unexpected, however, is the finding that in treated cases of pernicious anaemia the distribution curves are still abnormal. The right-hand curve disappears and the left changes gradually to normal; but the middle curve corresponding to the large cells found in hepatitis apparently persists indefinitely. The cell population in pernicious anaemia is therefore quite different from that in liver disease, but becomes remarkably similar to it after treatment with the anti-pernicious anaemia factor in liver. The question why a generation of unusually large thin cells is produced in cases of hepatitis is not answered by Larsen's work. The most obvious explanation is a deficiency of a factor required for the maturation of macronormoblasts to normocytes. Trial of several nutritional factors suggests that nicotinamide is such a factor.

A further and unexpected result of this work is yet another liver-function test. Measurements of M.C.D. and M.C.V. would appear to be of diagnostic value, since an increase of the former without increase of the latter strongly suggests liver-cell damage, and the further changes in these indices are of prognostic significance.

HOW DOES E.C.T. WORK?

The value of electrically induced convulsions in the treatment of depressive psychoses is generally agreed, but how they benefit the patient is uncertain. Explanations and theories are confusingly numerous. For instance, it has been suggested that there may be an incompatibility between convulsions and schizophrenia. Convulsion treatment was originally based on the alleged absence of schizophrenic psychoses among epileptics. Again, E.C.T. may free the patient of unpleasant memories by causing temporary amnesia, or a depressed patient may subconsciously feel he deserves some punishment for his inadequacy and unworthiness, and so by interpreting the E.C.T. as a kind of penance he achieves a morbid satisfaction. Another suggestion is that the brain subjected to an electric shock may produce a substance beneficial to the psychosis. Cerletti[1] named this hypothetical substance "acroagonin" and claimed that extracts of brains of pigs killed by repeated electrically induced convulsions have a therapeutic effect on depressive psychoses which is much greater than the effect of brain extracts from pigs dying under happier circumstances. Attempts to explain the benefits of E.C.T. as the result of an "indirect" action on the autonomic nervous system are not convincing, for the autonomic system is concerned in most physical happenings and its exact part in them is by no means clear.

Whatever the explanation may be, there is general agreement that it may not be the convulsion but some product thereof which benefits the psychotic patient. Obviously it would be a great advantage to secure the improvement without the convulsion, and for this reason Ashby's[2] attempt to demonstrate a hormonal mechanism behind the benefit derived from E.C.T. deserves serious consideration It is now believed that as a result of "stress" the pituitary is stimulated (via the hypothalamus) to produce corticotropic hormones. It would therefore be reasonable to expect a change in adrenocortical activity after the stress of E.C.T. Ashby investigated the excretion of cortical steroids in fourteen psychotic patients submitted to E.C.T. and found that in most cases there was a brisk outpouring of both "sugar-active" cortins and "reducing" cortins during the first few days of treatment, but he could demonstrate no change in the rate of excretion of 17-ketosteroids Great care was taken to avoid errors in this investigation: the collection of urine was checked by creatinine measurements, and the biological assays were first carefully tested for their reliability. Ashby is rightly cautious about the significance of his findings. Granted that E.C.T. alters the excretion of cortical hormones, and also that it improves psychoses, the question remains whether it is the cortical hormones which are the cause of that improvement. Ashby found that the degree of clinical recovery was greatest in the patients whose excretion of adrenal cortical steroids was increased the most, but he admits that the evidence for this was suggestive rather than conclusive. Nevertheless his results are sufficiently convincing to justify further research on similar lines. If E.C.T. works by stimulating the secretion of cortical hormones then it would be reasonable to expect that the direct administration of the necessary hormones would eventually replace the present relatively unpleasant and dangerous method of producing them indirectly.

[1] *Lavori Neuropsichiatrici*, 1947, Rome.
[2] *J. ment. Sci.*, 1949, 95, 275.

PRESIDENT-ELECT

Sir Henry Cohen has been appointed President-Elect of the British Medical Association in place of Professor T. P. McMurray, who died on November 16. Professor of Medicine in the University of Liverpool—an office to which he was appointed in 1934 at the early age of 34—Sir Henry Cohen has an international reputation in medicine and bears an authority no less distinguished in the fields of medical education and ethics. He has rendered outstanding service to the Association and the profession as chairman of the Medical Curriculum Committee, which issued its report on "The Training of a Doctor" in 1948, and he is now chairman of the Committee on the Postgraduate Education of General Practitioners, whose report will be published early next year. Since 1946 he has been a Crown representative on the General Medical Council, and he was elected vice-chairman of the Central Health Services Council when it was set up last year. Sir Henry was knighted in the New Year's Honours this year.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

DIAGNOSIS AND TREATMENT OF KETOSIS AND HYPOGLYCAEMIA

BY

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KETOSIS

The presence of ketone bodies in the urine should be regarded as the initial stage of a process which, if allowed to progress, may result in diabetic coma. Whenever the urine is found to contain much sugar it should also be tested for diacetic acid, as it is in the early preclinical stage of ketosis that treatment is both simple and effective. Rothera's test with ammonium sulphate, sodium nitroprusside, and strong ammonia should be carried out first. If this is strongly positive, Gerhardt's ferric-chloride test should also be made. Rothera's test is by far the more sensitive, and may therefore be strongly positive when diacetic acid is present in concentrations too small to give a positive result with ferric chloride. An appreciation of this difference between the two tests will enable them to be used to give a rough quantitative idea of the intensity of the ketosis. A positive ferric-chloride test should always be regarded as indicating severe ketosis and the necessity for immediate treatment.

Causes of Ketosis

Ketosis is often present in untreated cases of moderately severe and severe diabetes, its presence being unassociated with any other morbid process. In treated diabetics ketosis may be the result of nothing more than inadequate control of the diabetes, but there is often some complicating factor present which causes an increase in the severity of the disease. This may be an acute infection such as gastro-enteritis, hepatitis, pyelitis, tonsillitis, or pneumonia, or a local condition such as an insulin abscess, carbuncle, or a septic condition of the feet, including gangrene.

Gastro-enteritis rightly heads the list, as it is one of the commonest causes of severe ketosis and diabetic coma. This is because it not only aggravates the diabetes but also produces a state of starvation and dehydration, both of which favour the development of diabetic coma. Added to this, in some cases, is the false assumption that inability to retain food constitutes a reason for withholding insulin, the patient having been taught that an injection of insulin must be followed by food. It is important in this connexion to remember that stopping food and insulin in a severe diabetic is one of the quickest and most certain ways of producing ketosis and diabetic coma. For this reason, if a diabetic receiving insulin is unable to eat his normal diet he should always try to take the carbohydrate portion as milk, alone or with a proprietary milk drink, fruit drinks sweetened with glucose or sugar, bread and milk, toast or biscuits, and the usual dose of insulin. If no food can be retained the patient should take half the usual dose of insulin and get in touch with his doctor.

Sulphonamides, penicillin, or other appropriate treatment should be given without delay in cases of infection, and local collections of pus should be drained whenever this may be done without a general anaesthetic. Major operations on patients with severe ketosis should, if possible, be postponed until the diabetic condition has received appropriate emergency treatment (see below).

Symptoms and Signs of Ketosis

These are anorexia, nausea, vomiting, abdominal pain, shortness of breath, and drowsiness. The only signs are a smell of acetone in the breath, furring of the tongue, and sometimes flushing of the face. All these symptoms and signs may be absent in the presence of a strongly positive Rothera's test, but if this warning is ignored they may develop with alarming rapidity, especially when the patient starts vomiting.

Treatment of Ketosis

The discovery of significant ketonuria indicates the need for insulin therapy or (if the patient is already having insulin) an increase in dosage or some other modification of the existing treatment. In untreated diabetics with moderate ketonuria a single dose of protamine-zinc insulin (P.Z.I.) will often correct the condition, even if it does not control the glycosuria. In severe ketosis, particularly if the ferric-chloride test is positive, the best treatment is the use of two injections of soluble insulin (S.I.), as described in last week's *Journal* (p. 1345).

A third dose may be given before the midday meal if heavy ketonuria persists for more than 48 hours. It is impossible to be dogmatic about dosage, but it is usually safe to start with about 16 to 24 units in the morning and a rather smaller dose in the evening.

When the patient is already taking insulin, treatment will depend on the type of insulin used and the arrangement of doses. For patients receiving a single injection of P.Z.I. the addition of some S.I. before breakfast is often effective, but if this fails to relieve the ketosis a second injection of S.I. may be given before the evening meal.

When a mixed injection of S.I. and P.Z.I. is being taken, the dose of S.I. should be increased by 8 to 12 units, and if ketosis persists an evening dose of 12 to 20 units of S.I should also be given.

Ketosis in diabetics receiving two injections of S.I. is relatively easy to treat by increasing the dose of both injections and, if necessary, adding 12 to 20 units of S.I before the midday meal. In all cases care should be taken to see that the daily carbohydrate intake does not fall below 150 g.; if possible, 180 to 200 g. should be given. If the patient is disinclined to eat, the protein and fat portions of the diet may be omitted and the carbohydrate given in the semi-solid or fluid forms described above.

Clinical Ketosis or Pre-coma

When symptoms and signs of ketosis are present the ferric-chloride test will usually be found to be positive, and the condition should be considered as a medical emergency. Treatment consists in giving injections of S.I. and carbohydrate feeds at regular intervals, the following method being both simple and convenient.

The patient's urine is tested four-hourly for sugar (by Benedict's test) and for ketone bodies, and after each test an injection of S.I. is given, the dose depending upon the

amount of sugar present in the urine. Thus, for a red or yellow test the dose may be between 20 and 40 units, for a green test with a yellow deposit 12 to 20 units, and for a blue test 0 to 8 units. Dosage will depend on the height of the blood sugar, if this is known, the severity of the diabetes, and the intensity of the ketosis, and the figures given must therefore be regarded as very approximate. Fluid feeds containing 20 g. of carbohydrate should be given after and midway between the insulin injections, and, if dehydration is at all severe and the patient is not vomiting, additional drinks of water or one-fifth normal saline may be taken with advantage. When there is any tendency for feeds to be vomited the stomach should be washed out with a solution of sodium bicarbonate. If this fails to relieve vomiting, fluids must be given intravenously in the manner described below. Although blood-sugar estimations are not essential in this form of treatment, they add greatly to the ease and speed with which ketosis can be corrected. An initial blood sugar is of particular value in helping to assess insulin dosage. The following chart was devised by R. D. Laurence and is convenient for the treatment of diabetics with severe ketosis or in pre-coma :

INSULIN DOSAGE IN PRE-COMA

Test urine four-hourly for sugar and ketones.
Inject S.I. after each test.

Colour after Benedict's test	Order of dosage of S.I.
Red or yellow	20–40 units
Green, yellow deposit	12–20 ,,
Blue	0–8 ,,

Give fluid feeds containing 20 g. of carbohydrate after and midway between injections.

Diabetic Coma: Diagnosis

As already stated, this condition represents the end stage of a process of progressive ketosis and is therefore never sudden in onset. The history, if available, will always be that of increasing malaise with symptoms of uncontrolled diabetes and ketosis extending over a period of days or, at least, many hours. In addition, there is often a history of intercurrent illness such as gastro-enteritis or some other infective process. On examination, the signs are a combination of those of ketosis and dehydration. The former produces acetopnoea, a heavily furred tongue, and the deep abdominal breathing—so-called air hunger—characteristic of diabetic coma. The latter is responsible for the lowered ocular tension, dry tongue and skin, low or falling blood pressure, rapid pulse, and cold extremities which together constitute the clinical picture of peripheral circulatory failure or shock. The urine is loaded with sugar and acetone bodies, and chlorides are absent or reduced. The blood sugar almost always exceeds 300 mg. per 100 ml. and may be over 1 g. per 100 ml. In making a diagnosis of diabetic coma it should always be remembered that this condition very rarely occurs in elderly obese diabetics, and that cerebrovascular accidents are not uncommon in such patients. In the absence of diagnostic signs in the nervous system diabetic coma can be excluded by finding ketone bodies absent from the urine, or present in traces only.

Treatment of Diabetic Coma

Patients in diabetic coma should be admitted to hospital as quickly as possible, as the longer the treatment is delayed the worse the prognosis. The patient should be put into a warm bed and kept warm with an electric blanket. A

EMERGENCY DIABETIC TREATMENT

Diet and Insulin Control by Urine Tests

DIET. Carbohydrate grammes.

10 g. C. in	Glucose :	⅓ oz.
	Sugar :	2 large lumps
	Orange juice :	4 oz.
	Milk :	7 oz.
	Benger's :	2 level teaspoons.
	Horlick's :	2 heaped ,,
	Ovaltine :	2 very full ,,
	Bread measure =	10 g. C. (⅔ oz.)

INSULIN. Test urine for sugar before each dose, passing catheter if necessary.
Give insulin hourly at

If Benedict's test is :	*Units*	*Marks on Syringe*
Red or yellow = + + + sugar.....		
Green with copper deposit = Trace.....		
Blue = O		

CHART RESULTS

Date	Time	Urine Sugar	Ketones Fe or R	Insulin Given	Carbohydrates Given As	Remarks

general examination should be made, without undue exposure, to exclude any general or local infection, and suitable treatment started without delay.

An injection of 80 to 100 units of S.I. should be given subcutaneously and an intravenous drip set up, if possible into a forearm vein and without cutting down. A catheter specimen of urine should be tested for sugar, ketone bodies, and chlorides, and blood taken for sugar estimation. The stomach should then be washed out with sodium bicarbonate solution. It is convenient to use normal saline for the early treatment of dehydration as it also corrects chloride loss and does not obscure the effect of the initial dose of insulin. The first two litres should be allowed to run in as fast as possible, and if the blood pressure remains very low a third litre may be given in the same way, provided that a careful watch is kept on the bases of the lungs for the onset of pulmonary oedema. Inability to overcome peripheral circulatory failure is the commonest cause of death in diabetic coma, and it is worth while giving 2 pints (1.1 litres) of plasma if saline fails to maintain the blood pressure.

By the time all these things have been done the result of the initial blood-sugar estimation should be known and a decision can be made whether to give more insulin at once or to wait three to four hours for the result of the second blood-sugar test. If the level is very high—over 800 mg. per 100 ml.—a further 80 units or more should be given at once, according to the degree of glycaemia, but for lower levels it is safer to wait and see the effect of the initial dose of insulin. Desperate late cases with a very high blood sugar and an extreme degree of ketosis and dehydration may require many hundreds or even thousands of units of insulin, but they are comparatively rare. The early cases of average severity seldom need more than a few hundred units to remove the ketosis and reduce the blood sugar to a normal level.

There is a tendency at present to give needlessly large and potentially dangerous doses of insulin at very frequent intervals to cases of diabetic coma which could be equally effectively and more safely treated with smaller doses given at intervals of three to four hours. After the second blood-sugar reading has been taken, 4% glucose in 1/5 normal saline should replace normal saline and be given by drip until the patient is conscious and able to take fluids by mouth without vomiting. From this stage onwards the treatment should be the same as that described under "Pre-coma."

Marked tachycardia often persists for several days after the patient has come out of coma, and during this period every care should be taken to throw no unnecessary strain upon the heart. Vitamin B by intramuscular injection in doses of 50 or 100 mg. daily has been advocated, on the assumption that deficiency of this vitamin may be one of the factors responsible for the myocardial weakness.

HYPOGLYCAEMIA

This condition is typically sudden in occurrence, and the patient is well up to the time of onset. The symptoms fall into two main groups. The early symptoms are similar to those produced by an injection of adrenaline, and include pallor, sweating, palpitations, and tremor. The later group are due to failure of oxidation of carbohydrate in nervous tissue, and include higher-centre manifestations such as depression, euphoria, inability to concentrate, deterioration in judgment, and amnesia. There may in addition be central nervous system signs, of which hemiplegia, monoplegia, ataxia, diplopia, and paraesthesiae are the most common. Hunger is a common symptom, and headache, nausea, and even vomiting are sometimes produced by hypoglycaemia, especially when it is due to P.Z.I. A recurrent morning headache relieved by breakfast is always suggestive of P.Z.I. overdosage. Loss of consciousness may be preceded or accompanied by epileptiform fits, and is a late manifestation of hypoglycaemia in all but those rare cases in which the earlier warning symptoms are entirely absent.

Hypoglycaemic coma should always be suspected when a diabetic taking insulin is known to have been in reasonably good health within a few hours of loss of consciousness. A good history will almost always serve to exclude diabetic coma, but a cerebrovascular lesion such as a haemorrhage, embolus, or thrombosis may present more difficulty, especially if the patient is elderly and has arteriosclerosis.

Patients in hypoglycaemic coma are pale, and the skin is moist; ocular tension and blood pressure are unaffected, respiration resembles that of normal sleep, and there is no acetopnoea. Signs in the central nervous system should not be relied upon in diagnosis, for reasons already given, but are more likely to be present in hypoglycaemic than in diabetic coma. The urine may contain sugar if the bladder has not recently been emptied, but if a catheter is passed the next specimen will be found to be sugar-free. Ketone bodies are absent; if they are present as the result of starvation they are insignificant in amount. The diagnosis may be confirmed by estimation of the blood sugar, which is always low and usually less than 60 mg. per 100 ml. Treatment should never be postponed to obtain the result of the blood-sugar estimation. The differential diagnosis of hypoglycaemia and cerebrovascular accident is rendered simple in most cases by the rapid response of the former to correct and adequate treatment, after which any signs in the central nervous system rapidly disappear.

There is a definite relationship between the time of onset of hypoglycaemia and the type and dose of insulin injected. Thus, small or moderate doses of S.I. tend to produce their maximum effect three to five hours after injection, and larger doses (of 40 units or more) six to ten hours after injection or later. In patients receiving morning and evening S.I., hypoglycaemia is therefore most likely to occur before lunch or tea, and again at bedtime or during the early part of the night, according to the size of dose injected. As P.Z.I. acts most strongly when the patient is fasting, it is most likely to produce hypoglycaemia during the late night or early hours of the morning. Mixed injections of S.I. and P.Z.I. may cause hypoglycaemia before the midday meal, in the late afternoon, and during the night. Globin insulin in some patients resembles S.I. and produces hypoglycaemia before the midday meal, while in others reactions are more common in the late afternoon. If globin insulin is given before breakfast it rarely causes hypoglycaemia during the night.

Prevention of Hypoglycaemia

The time relation between insulin and hypoglycaemia already described makes it possible to anticipate its onset and prevent it by the use of so-called buffer carbohydrate feeds. These should consist of 10 to 20 g. of carbohydrate. For a patient receiving S.I. they should be given at about 11 a.m. and 11 p.m. If a single morning injection of P.Z.I. is being used the feeds are taken at bedtime, and with a mixed injection of S.I. and P.Z.I. at 11 a.m. and on retiring.

Treatment of Hypoglycaemia

First give sugar, glucose, biscuits, bread, jam, chocolate, or some other food with a high carbohydrate value. All diabetics treated with insulin should carry sugar or glucose, and a card stating the nature of their complaint, their dosage of insulin, and the name of the hospital, clinic, or doctor they attend. Such a card can be obtained from the Diabetic Association. Treated early, while the patient can swallow, hypoglycaemia responds very quickly, but care should be taken to give enough carbohydrate to prevent relapse. Three or four lumps of sugar is usually a suitable amount to start with, but more should be given if there is not obvious improvement in 10 to 15 minutes. When consciousness has been lost and food can therefore no longer be given safely by mouth, one of the following methods should be used.

1. *Intravenous Glucose.*—This is the ideal method. If a 60% solution is available a sufficient amount of glucose can be given with a 20-ml syringe to bring all but the most advanced cases out of coma.

2. *Subcutaneous Adrenaline.*—The injection of 15 minims (0.9 ml.) of 1 in 1,000 solution of adrenaline will raise the blood sugar, produce a return to consciousness, and permit a solution of sugar to be given by mouth.

3. *Stomach Tube.*—This is a safe and good method, and allows a wide choice of carbohydrate food to be made.

The majority of cases of hypoglycaemia recover spontaneously, but some pass into an irreversible state in which they die, and others recover with permanent damage to the brain. It should always be remembered that frequent attacks of hypoglycaemia resemble persistent or recurrent ketosis in so far as they indicate a state of poor stabilization, but, of the two, they are probably the more dangerous. For this reason, whenever there is any doubt about the cause of unconsciousness in a diabetic taking insulin, always give sugar alone first; if the condition is due to hypoglycaemia recovery will result, and if it is due to any other cause, including diabetic coma, no harm will be done.

INTERNATIONAL CONGRESS OF SURGERY

MEETING AT NEW ORLEANS

The 13th Congress of the International Society of Surgery, held in New Orleans from October 10–15, was attended by about 500 participants from some 45 countries. All Europe, save Germany and Russia, sent delegates. As usual, France, Belgium, Spain, and Italy were well represented.

Throughout the week the weather was trying, for it was both hot and humid, with some heavy showers. The main activities were centred about the Roosevelt Hotel, which was the headquarters and is not far away from what might be called the medical centre. The huge Charity Hospital with its 3,000 beds is situated there, with the medical departments of the Tulane and Louisiana Universities adjoining.

Each delegate was presented with a useful handbook carrying portraits of the president and the venerable Professor Rudolph Matas, who is still hale and hearty at 89. Professor Matas, honorary chairman of the local committee, is beloved as the doyen of the profession in the South and the lodestar of all medical and cultural activities in New Orleans. The list of sponsors of the Congress was interesting and informative, for it included the State of Louisiana, the City of New Orleans, the Harbour Commissioners, International House, the Association of Commerce, the Public Services Incorporation, and the Universities of Tulane and the Louisiana State. Our own public bodies might take notice of the interest in the Congress shown outside the surgical world.

The people were well aware of our presence and took a lively interest in us, while newspaper publicity was keen and profuse, not only in New Orleans but in the United States generally. Everyone was kind and helpful, and imbued with a refreshing degree of civic pride. The city is spread over a large area, the wide boulevard Canal Street leading to an extensive residential district. The open canals, such a striking feature of the original city, are now covered and bordered with trees Drainage and water supply are good, and tropical fevers have been banished since 1905, which year marked the conquest of the "yellow jack" scourge and was a landmark of which the medical faculty has much reason to be proud.

The inaugural function took place on the evening of the first day at 8.30 p.m. This was a formal occasion, graced by the presence of the Hon. Walton Butterworth, an Assistant Secretary of State of the U.S.A.; the Hon. Earl L. Long, Governor of the State of Louisiana; the mayor of the city, the officers of the society; Dr. Sandblom, from Stockholm (representing the delegates); and Lord Webb-Johnson, representing the Royal College of Surgeons.

Dr. Arthur Allen, of Boston, vice-president of the society, presided over the meeting. As there were ten addresses to be made, mainly of a general and semi-political character, it was ten o'clock before Professor Grey Turner, the president of the Congress, was called upon to give his inaugural address. The evening was hot and stuffy, and many in the audience must have already reached the point of weariness, if not exhaustion During the address the president showed by projection pictures of the presidents since the first congress, which was held in Brussels in 1905. His main theme was the training of the surgeon, but in view of the late hour his address had to be considerably curtailed.

Scientific Work

The scientific work began next day. An operating session at Charity Hospital was held from 7.30 a.m. to noon, and the operations were televised to the ballroom of the Roosevelt Hotel. As the galleries for visitors at the hospital provided small accommodation and the floors of the theatres were occupied by many assistants, most delegates had perforce to be content with the television, which was generally agreed to be satisfactory. The screen was 8 ft. by 5 ft. (2.4 by 1.5 m.); the pictures were not in colour, but came out fairly well. Only the immediate operative field could be seen, so that a grasp of the general topography was difficult. There was a running commentary by the operator relayed from the theatres, with some interpolated remarks which were probably not intended to reach the air. The television of other operating sessions was conducted later, when Professors Alton Ochsner, Rives, and others were the operators.

The scientific discussions began on Tuesday afternoon, when Professor Paolucci, of Rome, gave the opening paper on the surgery of the parathyroid. In the discussion Leriche (Paris), Bastos-Ansart (Barcelona), Parsons (New York), Jung and Fontaine (Strasbourg), Mallet-Guy (Lyons), Manzanilla (Mexico), and others took part. Each opener was allowed 30 to 40 minutes and subsequent speakers only five minutes, and it was remarkable how the exertions of the president in the chair managed to keep the speakers pretty well to this schedule Another feature of the Congress was the installation of the headphone transmission, which worked well enough to give great hopes for its complete success in the future. By adjusting the apparatus each member of the audience could elect to listen to the speaker in the language employed or to hear a translation into French or Spanish. If interpreters familiar with technical terms are available the rendering is naturally better.

The next session, on the surgery of the pancreas, was opened auspiciously by Professor Ian Aird. He was assisted by an excellent series of lantern slides with captions in French. He dealt mainly with operative procedure and gave a detailed account of the exposure of the organ. In the discussion most aspects of the subject were dealt with by speakers from Mexico, Sweden, Bulgaria, North Africa, France, and the United States

The meeting on post-operative thrombosis and its sequelae was opened by Alton Ochsner and De Bakey, of New Orleans.

and their remarks were supported by imposing statistics graphically presented on the screen. There was a lively discussion, joined by nearly two dozen, speakers representing surgical experience from many parts of Europe as well as America. Three points came out very clearly: (1) that these conditions were still a serious menace in surgical practice; (2) that early rising after operation had not reduced their incidence; and (3) that no one method of treatment was generally agreed on.

Surgery of the pituitary was discussed by Paul Martin, of Brussels, in a masterly contribution that fully covered the subject. Fontaine, of Strasbourg, spoke on the suprarenal glands. He emphasized the prominent part played by his great master Leriche in the development of this branch of surgery. As he warmed to his task the speaker's eloquence increased, and it was obvious that in concluding after a good innings there was still much that he would have liked to say. An international discussion followed his address, but failed to produce any special pronouncement.

The evening session at 7.30 was on the causes of recurrences after operation on the biliary tract. The opening by Demel, of Vienna, was in German, and was characteristically emphatic and thorough. It was a great effort, a *tour de force*, much appreciated by those who understood or who had read the translation thoughtfully provided by the secretariat. Some latitude to the earlier speakers in the discussion gave an opportunity to Lahey, of Boston, Mirizzi, of Cordoba, Mallet-Guy, of Lyons, and Pribram, of New York, to illustrate their remarks by a fine show of lantern slides.

Later in the discussion the president drew attention to the reproach to surgery provided by the large numbers of cases in which injuries to the bile ducts had followed deliberate surgical intervention. He stated emphatically the necessity for constantly stressing the importance of prophylaxis. Lahey, with his large experience to draw upon, condemned all methods of intubation and was in favour of a deliberate search for the distal part of the duct followed by end-to-end anastomosis. He claimed that this plan gave the best results by far. The session came to an end about 11 o'clock, after a large number of speakers had made their contributions.

Experiment in Discussion

Friday and Saturday mornings were allotted to the presentation of a long series of 15-minute papers by the younger American surgeons. This session had been arranged by the United States branch of the International Society as an experiment and to offset the rather senior tendency in the general discussions. Although the communications were often of great interest, 12 papers before luncheon and 12 afterwards was a strain and a concentrated mental effort for the audience. A great variety of subjects were discussed, many in the fields of purely experimental surgery or advanced physiology. Several members agreed with the president, who, while extolling the experiment, suggested that it would have been more useful if there had been fewer presentations, with time for questions and limited discussion. The scientific meeting came to an end about 3 o'clock on Saturday, and brought a strenuous week to a happy conclusion.

Of the social functions, a harbour trip on the first day was a good way of getting visitors and hosts to meet and to break the ice. The evening reception in honour of the president, held at one of the fine country clubs, was a delightful occasion. The closing banquet at the Roosevelt Hotel on Friday night was also a colourful and enjoyable function. The president occupied the chair, and proposed the health of the President of the United States. There was no formal toast list, but several speakers were called upon to unburden themselves of appropriate messages. There was tremendous applause when Professor Matas came to the loudspeaker. Despite his years the choice was justified, for he spoke audibly and interestingly in English, French, Spanish, and Italian.

At the general assembly of the society, which once again was presided over by the mature Professor Verhoogen, several important decisions were made. It was agreed that, with certain precautions, both German and Japanese surgeons should again be received into the society. A committee was appointed to make suggestions on the reorganization of the journal. It was also decided that the next, the 14th, Congress should be held in Paris in October of 1951, and Professor René Leriche was elected president.

On Wednesday morning visits were made to the two schools of medicine, which occupy adjoining premises and carry out their clinical teaching in the adjoining Charity Hospital. At Tulane a special visit was paid to the Matas Library, where an interesting ceremony was carried out in honour of Professor Matas. The president, Professor Grey Turner, told the company something of the work of Matas and how much he was admired and respected in England. He also spoke of the uses of a medical library, and especially urged his younger listeners to follow the example of the doyen by the study of medical history, not only for its interest but as an assistance to their immediate studies and as a guide to the future. At this ceremony the president was presented with a silver plaque to commemorate the occasion, in honour of Professor Matas.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

ANNIVERSARY CELEBRATIONS

The celebrations of the 350th anniversary of the foundation of the Royal Faculty of Physicians and Surgeons began at the end of November. The origins of the Faculty were described by Professor Alstead in a recent issue of the *Journal* (November 26, p. 1223).

On Wednesday, November 23, the honorary librarian of the Faculty, Dr. Archibald L. Goodall, delivered the Finlayson Memorial Lecture. He, too, recalled the foundation of the Faculty by a grant from King James VI to Maister Peter Lowe in November, 1599. The history of Lowe and Robert Hamilton, the co-founder, he traced in detail, and he described the great events in the life of the Faculty.

On Friday, November 25, the Lord Provost and Corporation of the City gave a civic reception. The president of the Faculty, Dr. W. R. Snodgrass, in thanking the Corporation, reminded them of the long association of the Faculty with the town council, which had promised "to hold, have, concur, fortifie and menteine thame and thair successouris . . . in tyme cuming."

On the Saturday an exhibition in the art galleries was opened by the president. It is devoted to the history of medicine, with special reference to Glasgow and the Royal Faculty. This exhibition will remain on view until January 31, 1950. The Royal Faculty attended divine service in Glasgow Cathedral on Sunday, November 27, and afterwards marched in procession to the tomb of Peter Lowe, where a wreath was laid.

Honorary Fellowships

At a brilliant ceremony on Monday the Faculty conferred its honorary fellowship on Lord Moran, P.R.C.P., Sir Cecil P. G. Wakeley, P.R.C.S., Professor Hilda N. Lloyd, P.R.C.O.G., Dr. W. D. D. Small and Mr. Quarry Wood (presidents of sister corporations), Sir Hector Hetherington (principal of the University), Professor E. P. Cathcart, Professor G. B. Fleming, and Mr. R. Barclay Ness. Congratulatory addresses were presented by the Royal College of Surgeons of England, the Royal College of Surgeons of Edinburgh, the Royal College of Physicians of Edinburgh, and the University of Glasgow. The formal proceedings were followed by a reception.

On Tuesday, November 29, the actual anniversary of the foundation, the commemoration dinner was held. The health of the Royal Faculty was proposed by Sir Hector Hetherington, who made a plea for close co-operation between the Faculty and the University in the training of consultants.

The president, in reply, traced the history of the Faculty and noted that in the last century the State, with good intentions, had made matters more difficult for them. He promised that

in the next 50 years the Faculty would do all in its power to adhere to the principles and spirit of the charter.

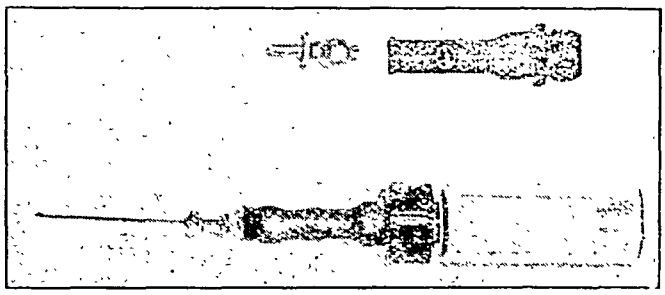
Professor Geoffrey B. Fleming proposed the health of the guests, and there were replies from the Lord Provost and Lord Moran. The former hoped that the Faculty would flourish and expand and that all the younger members of the profession would join it. Lord Moran referred to the position of the Royal Corporations as a bulwark against bureaucracy.

Preparations and Appliances

A SIMPLE VACUUM TUBE FOR COLLECTING BLOOD SAMPLES BY VENEPUNCTURE

Dr. R. H. MALONE, of the Regional Blood Transfusion Service in Sheffield, writes: The vacuum tube described here will be found of great value. It consists of a rubber tube ($\frac{3}{16}$ in.—0.48 cm.—bore), and a hollow rubber bung ($\frac{1}{2}$ in.—1.25 cm.—diameter) combined in one piece, a chromium-plated steel ball-bearing ($\frac{1}{4}$ in.—0.6 cm.—diameter), a male adaptor ($\frac{1}{4}$ in. diameter) slotted at the proximal end, and a glass phial of convenient size (approximately 5, 10, or 20 ml.) with $\frac{1}{2}$-in. neck and screw cap.

For sterilization and to produce a vacuum, assemble the unit, tighten the screw cap, and place in the autoclave for half an hour at 120° C. A test-tube 3$\frac{1}{4}$ by $\frac{1}{2}$ in. (8.75 by 1.25 cm.) is inverted on the unit to guard the needle, and on removal of the unit



from the autoclave it is pushed down over the bulge in the rubber tube to form a sterile airtight fitting. Before use inspect the unit to see that the portion of the tube below the ball-bearing is collapsed, indicating a vacuum.

The needle guard is then removed, the needle inserted into the vein, and the rubber tube squeezed at the level of the ball-bearing so that the tubing is pushed slightly on one side. This produces a canal between the inner surface of the tube and the ball-bearing through which the blood is sucked into the vacuum. The needle guard is then replaced.

This unit has the following advantages: (1) A vacuum is automatically produced by sterilizing in the autoclave. (2) Simple inspection shows whether there is a vacuum or not; if the vacuum has been destroyed it can be restored by immersing the unit for 10 minutes in boiling water and then cooling. (3) It can be fitted to any phial with a $\frac{1}{2}$-in. neck and screw cap. (4) It is easily cleaned and reassembled, and can be used many times before the rubber tubing loses its elasticity. (5) Blood samples are taken aseptically. (6) Multiple samples of blood can be taken from the same patient, without removing the needle from the vein, by disconnecting the unit at the adaptor and connecting a new unit. (7) The cost per sample of blood as compared with syringes or "venules" is low.

Any laboratory can assemble its own units once the rubber components have been obtained. The ball-bearings should be chromium-plated or made of stainless steel, since deposits of iron rust cause leakage of air and loss of the vacuum. The adaptor is slotted, because without a slot the ball-bearing, which is forced up by the pressure during autoclaving, seats itself firmly on the end of the adaptor and prevents the escape of air.

The complete unit or the combined rubber tube and bung can be obtained from Messrs. Wm. Freeman and Co., Ltd., Peel Street, Barnsley.

Reports of Societies

MANAGEMENT OF THE GLIOMATA

In the Section of Neurology of the Royal Society of Medicine on December 1, with Mr. JULIAN TAYLOR in the chair, a discussion took place on "Current Trends in the Management of the Gliomata."

Mr. JOE PENNYBACKER discussed in turn the various forms of intracranial gliomata that had come within his experience. Speaking in particular of ependymomata, he said that there was good evidence that these tumours were radio-sensitive, and if surgical measures did not remove them completely it should be possible to deal with any remnants by radiation therapy. He mentioned a case in which an ependymoma had been removed in 1941, the removal being followed by irradiation, and there had been no evidence of return up to the present. The outlook with a medulloblastoma was not favourable, though the literature seemed to show that when such a tumour occurred in adult life the prognosis might be less gloomy. In his series there was only one such case in the favourable group among adults. This patient had remained well for seven years after operation. It seemed possible, however, to approach these tumours with more optimism in the case of adults than in children. Surgery must be accompanied by radiotherapy, and the techniques held out some promise.

Turning to cases of spongioblastoma multiforme, he gave a summary of 89 cases in which a major intervention had been carried out. The operative deaths numbered 14 (16%). Of the survivors, 28 deteriorated within six months, and it was unlikely that any of these were useful survivals; 38 died within 16 months; six within 18–33 months; one at 48 months; and two at 51 months. The procedures undertaken ranged from decompression to complete removal. A rough standard of useful survival was capability for return to work or, in the case of a woman, to household duties. He stressed the unpredictability attending surgery of the gliomas. Surgery alone was powerless in the management of these types of tumours, and the combined efforts of the surgeon and the radiotherapist were essential.

Professor DOROTHY RUSSELL said that her part was to discuss where the pathologist came in in the question of treatment: this, of course, must be in the biopsy diagnosis. The surgeon naturally relied to a great extent upon the accuracy of the pathologist's report; therefore it was useful to discuss the difficulties that arose in the interpretation of the biopsy and the limitations that had to be acknowledged. The main difficulty in a biopsy arose from the admixture of different cytological types and the difference of architecture. On examining certain tumours a curious mingling of highly differentiated types might be found. The pathologist was often forced to use a portmanteau description. The speaker proceeded to review the biopsy material available at her laboratory over a 10-year period: astrocytoma, 119; spongioblastoma multiforme, 129; ependymoma, 30; medulloblastoma, 28; oligodendroglioma, 24. The two first were by far the most numerous types of tumour with which they had to deal. The spongioblastoma multiforme was for the most part derived from the astrocytoma by a process of dedifferentiation or anaplasia. All these cerebral astrocytomas should be viewed with a good deal of suspicion, and it must be insisted that astrocytomas in any part of the brain might behave in the same fashion. Those that occurred as diffuse tumours of the pons and those that occurred in the cerebellum behaved exactly the same. The pontine tumour by reason of its situation, could not be attacked surgically, but in the cerebellum the surgeons could get at the tumour. One met occasionally with cerebellar astrocytomas in which the same changes could be demonstrated. These and many other matters had to be taken into consideration in assessing a biopsy.

Analysis of Results of Treatment

Mr. D. W. C. NORTHFIELD mentioned 58 cases of spongioblastoma multiforme in which a full follow-up had been available. The results were very much as Mr. Pennybacker had

described. Occasionally patients survived for over a year; four had survived for over two years. One patient who was operated on in 1943 was still alive. The tumour in this case was a small one, and the operation was followed by *x*-ray treatment. The patient recovered and returned to work. Four years later there were signs suggestive of recurrence, but these disappeared and no further evidence of deterioration was seen.

The next group consisted of 39 cases of astrocytoma, several of them having long pre-operative histories. In seven of the patients death occurred without any operation or biopsy, and in another seven death followed major craniotomy. The late results appeared unaffected by the operative procedure. There had been a few cases of long survival, up to a maximum of seven useful years. Three patients had lived for over five years; six for over four years. Two patients were still alive. He emphasized the long natural history of some of these tumours.

Of oligodendroglioma there were 15 examples, all subjected to craniotomy. Three died, and the surviving 12 received *x*-ray treatment. One of these was still alive after an apparent total removal eight years ago, but he was handicapped by epilepsy. Another patient had lived seven years after an incomplete removal of the growth.

Only five cases of ependymoma were seen during the period under review, and here the results had been bad. Altogether the treatment of gliomata was a gloomy business. The surgeon was apt to believe, when he removed a compact mass of tumour, that he had taken away a benign growth; but nothing was further from the truth. Astrocytoma was a diffuse infiltrating tumour extending microscopically far beyond the confines of the macroscopically visible growth. The surgeon needed ancillary aid which would inform him at operation whether he had got well beyond the tumour. Any method of showing up tumour tissue would be very helpful. In the surgery of the gliomata, when a tumour happened to be localized the surgeon should endeavour to extirpate it.

An increasing number of gliomata were being treated by radiotherapy. It was difficult to obtain a parallel series of cases with and without irradiation, for no two cases were alike; but they had all seen individual patients in whom, judging by clinical methods, there was no shadow of doubt that irradiation had caused regression. But radiotherapy had its disadvantages and left much to be desired: radio-necrosis was a positive danger.

Sir HUGH CAIRNS said that the general impression to be gathered from the discussion was gloomy, but it seemed important to him to emphasize that the "good" cases came from a group consisting of perhaps twice as many as they had heard about, including cases which had been thought to be gliomata before histological verification was made, and some of these would be benign lesions. With radiographic methods available the needle ought to be able to get right into the region of the tumour almost every time.

No speaker had said very much about the particular situations in the brain in which the tumour was found, but this, of course, very much conditioned the surgery. Mr. Northfield had suggested that they ought to be more radical in the frontal lobe and perhaps in the right occipital lobe. He (Sir Hugh Cairns) did not think there was a case for being more radical, and on the whole he felt that for the more malignant types of glioma the immediate future must be with the radiotherapist. One would like to see some radiotherapist in this country really devote himself to this work. At present the cases were so distributed that no radiotherapist had a really comprehensive experience.

Dr. W. RUSSELL BRAIN said that no doubt modern investigatory methods might miss some tumours of the brain when they were present, but some of these patients who might not have a glioma now were possible candidates for a glioma in the future, and should be followed up, not just written off as cases of cryptogenic epilepsy.

Dr. DENIS WILLIAMS was inclined to think that the electroencephalogram had no value at all in helping towards the exact diagnosis of tumour type. It was only of value in studying what had happened to the brain around the tumour, and the difficulty was that at the time there might be a meningioma, for example, affecting the surrounding brain.

Mr. JULIAN TAYLOR, in winding up the discussion, mentioned the consistency with which the cases seemed to correspond to the clinical picture. When they were looking at cerebral tumours they were not looking at a disease at all, but probably at the results of a disease or of more than one disease; and if that was so, in some of these tumours, as in malignant tumours in other parts of the body, periods of advance, stationary periods, and periods of regression were to be expected.

MEDICAL TREATMENT OF AURAL VERTIGO

A discussion on the medical treatment of aural vertigo took place at a meeting of the Section of Otology of the Royal Society of Medicine on December 2, Mr. GAVIN YOUNG presiding.

Mr. G. H. BATEMAN restricted his paper to the triad of symptoms known as Ménière's disease, which he held to be the vestibular manifestation of a constitutional disorder. He gave the results of a form of treatment used in the ear, nose, and throat department of St. Thomas's Hospital. In this work he had been in collaboration with Dr. J. Kodicek and Mr. L. R. S. Taylor. The treatment which was expounded by Miles Atkinson at the summer meeting of the Section in 1946 was not a perfect one. The patient could not be said to be cured any more than a patient with heart disease could be spoken of as cured when he was controlled by digitalis. Vertigo was caused by a vascular disorder of the small vessels of the labyrinth, resulting in excessive formation of endolymph. The disease might be primary vasodilatation with excessive transudation, or primary vasoconstriction of the arterioles, causing anoxia of the capillaries, which in turn led to excessive transudation through the capillaries when the vasoconstriction passed off. The two groups might be distinguished by a histamine skin test. Cases which gave a negative reaction were treated with nicotinic acid (as a vasodilator). Doses up to 250 mg. t.i.d. had been necessary to relieve the symptoms in some cases. Positive cases were treated by histamine desensitization; 0.05 ml. of a 1:10,000 solution of histamine was injected subcutaneously, and the treatment was continued by doubling the injections on alternate days, increasing the dose by one-half on each occasion. The dose might be increased to about 0.4 ml. of a 1:1,000 solution, but it was rarely possible to maintain the dosage at this rate throughout the course, which lasted about four weeks. By the use of this treatment it had been possible to maintain in active work nine out of ten of the patients who presented themselves.

Mr. L. R. S. TAYLOR added some details of the cases treated at St. Thomas's. Patients who gave a negative reaction to intradermal histamine were given 100 mg. of nicotinic acid three times a day before meals. The patient was told to expect a warm flush 10 minutes later, which would last for 10 minutes. If no flush occurred he was told to chew the tablets before swallowing. After a week he was seen again, and if nothing untoward had occurred 100 mg. t.d.s., a.c., was given for a month. In severe cases intramuscular injections of 50 or 100 mg., once or twice weekly, or even daily at first, might be given. A small maintenance dose must be continued when the symptoms were controlled. Attacks must still be expected, and at the first warning sign—for example, an increase in tinnitus—an intramuscular dose of 50–100 mg. and an extra 100 mg. daily by mouth might be given for a few days. The histamine-positive subjects, after completion of histamine desensitization, had remained well for varying periods up to 18 months, but all had required a second course, and it seemed that a monthly or fortnightly maintenance dose was necessary.

A total of 53 patients had been treated at St. Thomas's, 15 of whom showed a positive histamine skin reaction and 38 a negative one. Vertigo was relieved in 32 and improved in another 20. Tinnitus was relieved in 12 and improved in 22. Both subjective and objective improvement in hearing was noted in 10 cases, the average gain in speech range being about

10 decibels. Headaches, which had been a marked feature in 25 cases, were relieved in 17 and improved in respect of duration and severity in a further six. The cases had been followed up for a period of 18–30 months, and the number of favourable results had far exceeded those following any other non-operative treatment which had been tried.

Mr. I. A. M. MACLEOD gave an account of treatment along similar lines carried out in a series of 50 consecutive cases at Nottingham General Hospital. All the cases were unilateral in type and exhibited the triad of acute vertigo, tinnitus, and deafness in varying severity. Treatment was carried out according to the results obtained from the histamine skin test. The salt used for skin testing and for therapy was histamine acid phosphate.

An initial sensitive reaction was given in 32 cases; 14 were insensitive and the remainder intermediate. The sensitive patients were treated by weekly subcutaneous injections of histamine. The initial dose was 0.1 ml. of 1:10,000 solution of histamine base. This was increased by 0.1 ml. weekly, working up to a concentration of 1:1,000 solution until a reaction was shown by the patient in the form of flushing and headache following injection. This dose was repeated or increased thereafter on three occasions so that four consecutive reactions were produced, and treatment was then stopped. Most patients felt better by the time they had received 0.3 ml. of 1:10,000 solution, as their attacks of vertigo decreased or ceased altogether.

Of the 32 histamine-sensitive cases, 23 had remained free from vertigo since the end of their course (minimum, six months, and maximum, two years eleven months); six cases had relapsed and had further attacks of vertigo, and three cases showed no improvement. The histamine-insensitive group had been treated by nicotinic acid. Initial intramuscular injections of 25–30 mg. were given daily, combined with oral administration of 50–200 mg. Most patients were stabilized on an oral dose only of 50 to 400 mg. daily. Of the 14 cases treated 9 remained free from vertigo; 4 had relapsed, and 1 had not improved. Freedom from vertigo and its accompanying nausea and vomiting had been taken as the criterion of improvement in this series. Improvement in tinnitus and deafness did not take place so frequently.

Mr. C. S. HALLPIKE said that Ménière's disease was in some respects a very satisfactory condition to treat, because the majority of cases did well with little more than a moderate degree of sedation with phenobarbitone, and patients who did not do well on this easy treatment might be referred for the more specialized chemical methods, and again a proportion of them did well. What was unsatisfactory was the rationale of the special treatment, such as histamine therapy. It was sometimes stated that Ménière's disease was an allergic condition, but the manifestations of allergy were multiple, and that did not apply in Ménière's disease. Again, these manifestations of allergy appeared early in life, whereas Ménière's disease appeared later. Finally, there was family history in allergy, which was not seen in Ménière's disease.

With regard to skin tests, they had been told that the cases sensitive to histamine on skin test were the cases in which histamine should be given, and that nicotinic acid should be administered in the insensitive cases. But in his experience, if patients were negative to histamine there was not the slightest reason why histamine should not be given, and vice versa. Histamine and nicotinic acid were chemically quite different, but they had this in common, that they produced an increased vascularity, possibly in the labyrinth, and it did not seem to matter very much which was given. He hoped that more work would be done in investigating the circulation of the fluids in the internal ear.

Mr. I. SIMSON HALL said that each of the various systems of treatment claimed a considerable proportion of successes. The difficulty was to assess the value of each treatment as it was introduced. In an attempt to assess the progress in medical treatment he had studied the medical failures—in other words, the cases referred for operative treatment. In a series of 150 to 200 cases a few years ago he discovered that 20% had been so referred, and in a later series 15%, so that it seemed some advance could be claimed for the new methods.

Mr. GILROY GLASS said that in watching the results, especially those of Mr. Macleod, he had been impressed by the sense of well-being and confidence of the patients. He referred to two cases, alarming at the time but interesting in retrospect. By an error in dispensing a batch of histamine was made up to 1:10 instead of 1:10,000, and two patients received the injection. Both became unconscious, with severe shock, but both recovered. The point of interest was that neither of them had had any vertigo since. Both the patients had been extremely deaf, but on regaining consciousness both had normal hearing, which was maintained in one case for six months and in the other for one month. It was not an experiment to be repeated, but the fact remained that something happened which restored their hearing, at least temporarily.

Mr. TERENCE CAWTHORNE said he had found that, whatever medical treatment was advised, about 50% of patients seemed to be benefited, and if one carried on from one medical treatment to another medical treatment a further 25% might be put in the satisfactory group, leaving about 25% in which more drastic surgical treatment might be required. He had been impressed by the fluctuation of the hearing in hydrops of the labyrinth. One day the hearing would be down, particularly in the dense tones, and another day it would be up.

Mr. H. V. FORSTER mentioned certain compounds which were being tried out in treatment in the United States, and Dr. M. G. GOOD described certain cases of vertigo not dependent on the ear but related to a condition of idiopathic myalgia. Mr. BATEMAN, in reply, said that he did not altogether agree with Mr. Hallpike that most of these patients could be relieved by sedation. He also disagreed with him when he suggested that it did not matter whether the two groups were differentiated by skin-testing or not. If one started therapy without doing a histamine skin test one would be able to predict with great accuracy from the results what the skin test would have shown

Nova et Vetera

OSLER REDIVIVUS

A Year with Osler: 1896–1897. Notes taken at his Clinics in The Johns Hopkins Hospital. By Joseph H. Pratt. (Pp. xxi + 209. $4.) Baltimore: The Johns Hopkins Press. 1949.

This book is an interesting and valuable addition to Osleriana, appropriately published in the centenary year of Osler's birth. It opens with an attractive introduction and preface, but the bulk of the text is a reproduction of notes made over fifty years ago, when the author was a pupil of Osler at the Johns Hopkins Medical School. Osler spoke slowly enough for his statements to be taken down verbatim—"his students cherished his words"—and one of his pupils has now reproduced them for transmission to others.

Such *pietas* is as praiseworthy as the accurate taking-down of some sixty thousand words or more during a single year is remarkable. The would-be reader will ask, Is there value to-day in this detailed, half-century-old record of a clinical teaching session? Will he find it more than an interesting historical document illustrating an era that is now long past, never to return? The answer is, without any doubt, that these notes have been justifiably preserved and published for the benefit of present-day practitioners and teachers of medicine, and that it is impossible to read any page without being stimulated. In particular, the teacher will benefit by the detailed demonstration of a master's way of instructing the young student. But all will learn from the book, and the amount learned will be far from small.

As Dr. Pratt himself writes, "Although these clinical lectures and demonstrations were given fifty years ago, they possess their original freshness in large measure"; and "they show how much can be learned at the bedside by the inquiring mind, the seeing eye, and the trained hand, even without the aid of modern laboratory methods."

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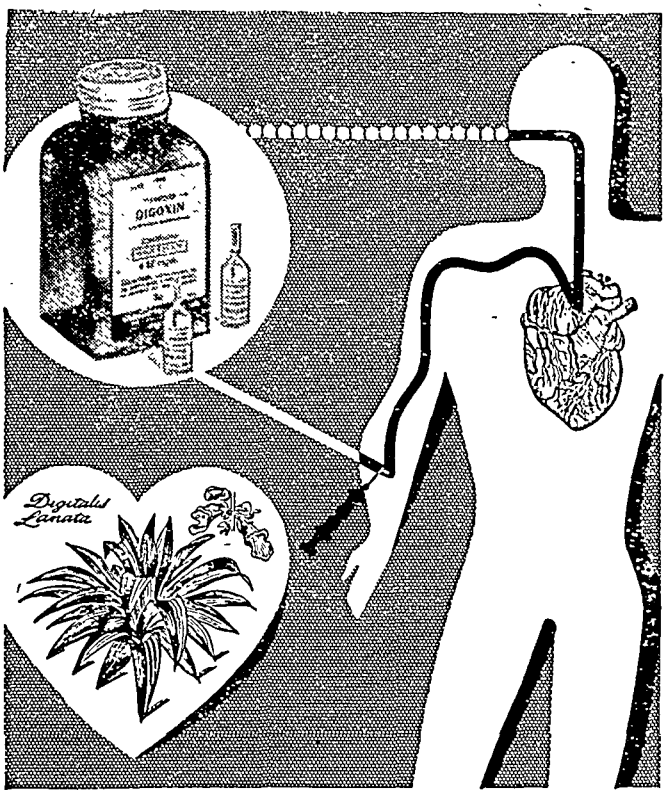
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Correspondence

Erysipeloid

SIR,—I was interested in the medical memorandum by Dr. R. A. Bush (October 29, p. 964) and I agree that most cases of erysipeloid are penicillin-sensitive, though during the past few months I have seen two cases which have dragged on for a month or so in spite of adequate doses. I do not agree with the statement that the disease is by no means common. I believe it is more correct to say that it is by no means commonly recognized. At a recent examination for a higher surgical diploma I found that only about one candidate in ten was familiar with the condition.

Erysipeloid is more common in certain localities, and is seasonal—June to October being the optimum months. The reddish-purple area on the hand, which follows a prick by a fish-scale or poultry bone, is very typical. Untreated, this intradermal, *not* subcutaneous, inflammation slowly extends over the adjacent palm or fingers and subsides in from four to six weeks, during which period disability results from itching and stiffness. Regional lymph nodes are occasionally enlarged, probably as a result of the initial skin puncture. I have never seen lymphangitis as described by Dr. Bush.

It is important that this disease should be recognized, both from the point of treatment and maltreatment. The majority of cases respond to penicillin but are resistant to sulphonamides, and surgery is contraindicated—in spite of which I have seen two cases which were incised as indolent whitlows. It is interesting to recall that erysipeloid was described as long ago as 1873 by Morrant Baker, who termed it erythema serpens, and it is now commonly referred to as "fish-handler's disease."—I am, etc.,

London, W.1. R. J. MCNEILL LOVE.

SIR,—Mr. Thomas G. Lowden has made several observations on erysipeloid (November 26, p. 1231) and I am prompted to add my comments on this interesting and often undiagnosed condition, since I treated a fairly large number of cases during a period of 18 months at the Royal Northern Hospital. I would agree that the incidence is in the region of 1% of septic hands seen, that the cases vary in severity, and that the diagnosis is of necessity made clinically, as incision is not required and thus no material is available for pathological study.

"Untreated" cases—i.e., those patients who have only attended for treatment after self-medication with poultices, etc., for several weeks—do not resolve readily in spite of penicillin, taking 2–3 weeks further to clear (i.e., as long as 5–6 weeks from the original date of onset). The condition sometimes spreads slowly on to the hand but is often surprisingly stationary. Although the majority of cases respond to penicillin (250,000 units b.d. for seven days), the response is often slow, and there are a number of cases that do not respond at all but tend to linger on for weeks like the "untreated" cases. These may have not come for treatment until the second week, but early cases too may react in this way. Sulphonamides appear to be entirely ineffective, as shown by cases referred by general practitioners who have tried sulphonamides without success, and by personal clinical trial.

The commonest cause appears to be a minor prick with a fish, meat, or rabbit bone, but pricks with a variety of sharp objects have been seen to cause this condition. I have also seen one case which followed a small burn of the finger, there being no history of any obvious source of contamination. The burn had healed before the patient attended hospital, so there was no opportunity of isolating the organism, but clinically the appearance was quite typical. For some reason the disease appears to have a seasonal incidence, and I have noticed a very definite increase in spring and autumn. I have been told that the disease has a definite topographical distribution, and I would be very interested to hear of its incidence in other parts of the country, in order that this contention may be proved or disproved.—I am, etc.,

London, N.12. CYRIL BORODA.

Lymphoid Hyperplasia and Rheumatoid Arthritis

SIR,—Professor Hans Selye (November 19, p. 1129) discusses possible reasons for the favourable modification of "formalin arthritis" by ACTH, "cortisone," the "alarm reaction," and the worsening effect of LAP and DCA. He suggests that the inhibitory action of ACTH and cortisone may be due to their antihistaminic or anti-hyaluronidase properties.

For some time past I have felt that the lymph-gland enlargement found in rheumatoid arthritis (and some cases of "fibrositis") might be an important factor in the production of the disease, rather than secondary to chronic inflammation in the joints as was formerly believed. Selye's paper on the general-adaptation syndrome[1] encouraged me to pursue this hypothesis, particularly as it lent some support for a basic psychogenic aetiology which I believe to be present in many cases. It is known that the synovial cavities of joints are at least in part drained by lymphatics,[2] and Indian ink injected into these spaces may be found very soon in the appropriate lymph nodes. Professor E. W. Walls and I[3] have recently worked on lymphograms obtained by putting "thorotrast" into the synovial cavities of cadavers and moving the joint concerned. This fills the lymph channels and outlines the nodes in a few minutes. My object has been to gain some idea of the normal, to compare with cases which have previously suffered from rheumatoid arthritis. The snags will be obvious, and the scope of the work has been limited to the cadaver owing to our unwillingness to put thorotrast into the joints of living subjects, though this has been done abroad.

Now the photographs (Fig. 7, p. 1133) and description of what happened to the lymph nodes in Professor Selye's experiments have prompted me to put forward tentatively an alternative mechanical theory—that the changes in the joints are due to lymphatic oedema caused by a partial obstruction by lymphoid hyperplasia. In the experiment referred to the rat's glands are small under the influence of ACTH, and the deep staining shows that absorption of ink was rapid. When the glands were hyperplastic from LAP little ink had reached them. Applying the hypothesis to the aetiology of "formalin arthritis," formalin solution is irritant and is probably dealt with subcutaneously by the lymphatic system. It may well be that the system becomes overloaded or damaged, thereby rendering the mild and uncertain "arthritis-producing" property of DCA and LAP more clear-cut. The intensity of local skin reaction could also depend on the speed of removal of formalin.

Finally, Selye's unexpected finding in his rat experiments of main involvement of the ankle-joint, though it was some way from the site of injection, is also capable of explanation by mechanical block of lymphatics. Clinical observation, too, shows that it is the peripheral joints that are mainly affected in rheumatoid arthritis, and perhaps those in which the periarticular tissue is lax are affected most—e.g., proximal interphalangeal points, as opposed to distal interphalangeal. It should not be difficult, given facilities for animal work, to show whether lymphoid hyperplasia can in itself impede lymph drainage.—I am, etc.,

Ipswich, Suffolk J. W. PAULLEY.

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[1] *J. clin. Endocrinol.*, 1946, 6, 117.
[2] Davies, D. V., *J. Anat., Lond.*, 1946, 80, 21.
[3] Ibid., in the press.

Autotransplantation of Joint Capsule

SIR,—With reference to your annotation (November 26, p. 1221) on this subject, it may be of interest to note that in 1938 we trephined a small controlled series of cases of rheumatoid disease and osteoarthritis at the Royal National Hospital for Rheumatic Diseases, Bath.[1] In the rheumatoid cases no significant improvement was noted, but in those suffering from osteoarthritis there was some relief from the bone pain certain patients experience at night. We felt that some reduction of tension might be the explanation of this improvement in symptoms.—I am, etc.,

Bath. G. D. KERSLEY.

REFERENCE

[1] *Reports on Rheumatic Diseases*, 1938, 4, 68.

Dermatitis and Stomatitis due to Streptomycin

SIR,—I read with interest the article by Dr. R. A. Pallister on dermatitis and stomatitis during streptomycin treatment (December 3, p. 1271) and wish to state that I have seen a similar syndrome in an imbecile child aged 12 years, who also exhibits tuberose sclerosis and whom I had treated for chronic pyelitis with streptomycin.

I started treatment on October 27, 1949, with one gramme of streptomycin daily in divided doses. On October 28 the temperature dropped to normal and on the 30th the urine was much clearer and temperature was normal. On October 31 the temperature rose to 100° F. (37.8° C.). On November 1 the temperature was 100.4° F. (38° C.). The patient was extremely restless and appeared to be complaining of his throat. On November 2 the temperature was 100.2° F. (37.9° C.). The patient was very restless, scratching his abdomen and trunk. His lips were red, and sore and the mucous membrane of the mouth was inflamed and sore. Streptomycin was continued. On November 3 the patient, when examined, was found to have a mild stomatitis and later in the day developed a well-marked generalized erythematous rash which was marked on face, trunk, and limbs. The palms and soles were clean. On November 4 the rash and stomatitis were more marked, and I diagnosed the condition as due to sensitivity of the patient to streptomycin, a total of 9.25 g. having been given. I stopped the streptomycin treatment on November 4 and ordered calamine lotion to be applied to the rash, which appeared to be extremely itchy, and "benadryl" tablets (50 mg.) to be taken three times a day. The mouth was treated by mouth washes and gentian violet. On November 5 the patient appeared to be slightly better (temperature normal). On November 6 the rash appeared to be fading and the stomatitis was clearing up (temperature still normal). On November 7 the rash was gone and the stomatitis was much better. A vitamin preparation was prescribed. On November 9 the rash and stomatitis had cleared up. Examination of the urine showed the chronic pyelitis to have cleared up also.

The symptoms of this patient were similar to those described by Dr. Pallister as the symptoms of sensitivity to streptomycin —i.e., fever, stomatitis, and rash. In this case the patient reacted to benadryl. I do not think that there is any doubt that the symptoms were due to streptomycin.

I wish to thank Dr. D. J. Rose for his advice and permission to write up this case.

—I am, etc.,

Brockhall, Blackburn, Lancs P. O. O'REILLY.

The G.P. and E.C.T.

SIR,—The correspondence on E.C.T. emphasizes the great difficulty in selecting the right cases for it if one wishes also to reject unsuitable ones. It appears that the criteria to some extent cut across the ordinary diagnostic categories, and it is, of course, inherently likely that they should, since the classification was not designed with E.C.T. in mind. While we may agree in principle that the G.P. can often provide valuable information on the subsequent career of the patient, it will be quite useless if the psychiatrist does not happen to have noted those features of the patient and his environment which are really critical. They may indeed be so subtle as inevitably to escape notice unless specially looked for.

In a case like this, where only a small part of the theoretically available information can, in practice, be extracted, it is necessary to make an intelligent guess. I suggest that a consideration of the nature of a treatment such as E.C.T. *vis-à-vis* the nature of the disease might aid in this direction. How, in short, might such a treatment be expected to benefit such a disorder? In the first place neurosis has, as the statisticians say, many degrees of freedom, while the treatment has very few. We may speak of neurosis as a failure of integration, a maladaptation, a confusion, or many other things. The point here is that every respectable neurosis is a case of not one or two, but a large number of things being wrong more or less independently. To say that they are wrong independently does not conflict with the fact that we can often see how one thing has led to another to make the patient what he is to-day; the environmental story is an integral part of the causal chain, and it might have unfolded far otherwise than it did.

Now E.C.T. in common with suggestion, drugs, psychosurgery, and environmental adjustment cannot of itself put right more than a few things that are independently wrong. The reason is simply that it is not variable in more than a few independent ways. (Of course it might be in theory; there is an enormous number of distinguishable combinations of current, duration, etc., but it will be agreed that in practice the choice is made from quite a small number.) In other words the treatment cannot be exactly matched to the structure of the neurotic personality. Indeed, no known treatment can, although deep analysis may be said to be an attempt, as far as is practicable.

Nevertheless these relatively non-variable procedures do from time to time result in what seems to be permanent cures; and occasionally so-called spontaneous cures occur. The only way we can account for these happy events is on the supposition that the treatment or, in the latter case, a fortunate concatenation of circumstances has, so to say, "started something." The actual cure must be attributed to the psychological environment continuing to "play up" in such a way and for such a time as to allow the psyche to settle down after the disturbance in a new, and better, stable equilibrium. Clearly in some cases it will have to play up in such a manner so specific and unlikely as to be beyond hoping for. Then, or whenever it fails to play up, we must expect the "brittle mask of cheerfulness," as Dr. D. M. O'Connor (October 29, p. 984) aptly calls it, to crack.

The general criterion of selection, therefore, is whether the temporary disturbance will enable the patient to learn what he has to learn from the best obtainable subsequent environment (which may include a psychotherapist). It is a strategical problem in which diagnostic categories can play only a limited, though not unimportant, part and in which no amount of care will ensure success every time.—I am, etc.,

Cambridge. W. E. HICK

SIR,—I feel that Dr. Donald M. O'Connor (October 29, p. 984) has raised an important issue by his letter on E.C.T. and one which should not be dismissed casually. Innumerable papers are published giving statistics of cure by various physical treatments—E.C.T., insulin (modified or deep), prefrontal leucotomy, narco-analysis, and so on—but the degree of cure is assessed by the physician who has given the treatment and not by the G.P. who sees the patient every day. It is obvious that anyone using a therapy for which he has a strong enthusiasm will consciously or unconsciously be prejudiced in its favour. The only person who can give one valuable information is the G.P., and he is never quoted in statistics.

In my opinion physical treatments are useful, but only in a very limited way. For example, E.C.T. will produce excellent results in certain cases, as in menopausal depressions, but this does not mean that all depressions should be put through a "sausage-machine" routine as is so often the case. I know, for instance, of a young man who was homosexual and depressed as a result. He was given E.C.T. without even an inquiry regarding any sort of cause for his condition. In the same way I feel that insulin therapy produces occasional cures, but these are not nearly so frequent as its exponents would have us believe. At almost every one of my out-patient sessions I encounter cases of schizophrenia which have had insulin therapy without any beneficial effect and have even been given E.C.T. (which the statistics of the New York State Hospital show is harmful for such cases). I need not describe the failures from prefrontal leucotomy—they are all too evident. The enthusiasts give us a high rate of cure for such treatments, but what does the G.P. think of them?

There is a strong urge from official bodies that patients should be treated rapidly and inexpensively, so that statistics of cures may be produced and good results may be quoted. I have even heard of one medical superintendent in a mental hospital who discharged all of his doubtful cases just before the time to assess statistics of cure. He could thus show a high recovery rate—although most of those discharged returned the week after. Careful studies in America show that the best results come from clinics where patients are treated as people with anxieties and troubles and not as machines which need a

good jolt to get them going again. I would therefore plead most strongly that we need the observation of the G.P., who does regard his patients as human beings, to correct the mechanistic vision of the enthusiasts for physical regimes.—I am, etc.,

London, W.1. CLIFFORD ALLEN.

SIR,—Dr. Donald M. O'Connor (October 29, p. 984, and December 3, p. 1297) is very right to stress the intense fear and dread expressed by a considerable number of patients. I have frequently discussed this with them when back in their own homes and secure. Most say they cannot say what it is they fear—there is no pain, no unpleasantness, and yet they cannot face it again. Many say they have heard the previous patient cry out and the sound has frozen them with fear—I even had one patient who saw her predecessor being wheeled out unconscious. I have, like Dr. O'Connor, found a curious lack of appreciation of this phenomenon among institutional psychiatrists.

As to sequelae, the patients, the relatives, and many doctors are very distressed at the amnesia and confusion so many show on returning home. In very few cases does it last for more than a few weeks. One of my cases developed a full-blown hemiplegia which cleared up in a week or two. Sometimes there is complaint of backache or soreness of joints (hip, knee, ankle). I think this is why the hysterical type does so badly—they get a displacement of their symptoms, they do not lose them.

In reply to Dr. D. N. Hardcastle (December 3, p. 1297) I think a very great deal of information would be gained by the psychiatrist if the mental hospitals had a really good follow-up team. Here in Bristol, for instance, if a patient has had any form of radium or contact x-ray treatment, one receives a regular and standard form of inquiry year after year. I do not think I have ever received a similar query about a psychiatric case, and only an occasional one on a surgical or medical case.—I am, etc.,

Bristol. J. L. FAULL.

Medical Administrators

SIR,—Dr. John Sleigh (November 19, p. 1180) has properly understood my meaning, which, briefly, is that medical men and women should primarily be engaged in the practice of their profession so as to avoid waste of medical man-power at this critical time. Training for administrative work is far less arduous and time-consuming than it is for medicine, calls for relatively few technical qualifications, and is largely intuitive. A layman can do the work if he has common sense, tact, some knowledge of house planning, essential services, housekeeping, and the ability to get along with other people. By attending the meetings of the medical and lay committees he and they are in touch with all requirements and have technical advice available.

Any well-designed administration with a minimum of staff runs by itself. One such that I took over at short notice and ran for seven weeks was, I believe, improved by the change. The so-called work took me from 9 a.m. to 9.15 a.m., and I attended from 6 p.m. to 6.30 p.m. to receive complaints, look over and sign letters, etc. My round was made between these times. Motto—keep the staff small and have an occasional meeting.

The contrast between the health of the community when I was a student and now, especially among the young, is astonishing. In those days rickets, anaemia, and skin diseases were rife, rheumatic fever and venereal disease common, and undernutrition the rule. The children were pale and wan. To-day, with sun-balconied flats, scientifically adjusted food, cleanliness, better school premises, and better feeding, the children are fine and healthy. All this is primarily due to lay planning with medical and scientific advice and to the prevention of infection.

In former times a doctor with the D.P.H. was regarded as a sort of cross between one who wished to avoid practice and a plumber. Being of a mechanical turn and interested in science, building lay-outs, sewage farms, and the like, I nearly went in for it. To-day the bacteriology alone would be far beyond me.

By all means have medical superintendents, but let them also practise as consultants in their own institutions and do a full day's clinical work. Many do, and sometimes dislike the administrative duties that have been thrust upon them.—I am, etc.,

London, W.1. G. H. COLT.

Use and Abuse of Vitamins

SIR,—Professor L. S. P. Davidson (November 5, p. 1036) points out that frank deficiency diseases are rarely encountered in Great Britain to-day. In this connexion I should like to mention a case of mine, a girl of 18 years, whose skin would not stand sunlight. She was seen by an experienced consultant physician and by a leading dermatologist, neither of whom accepted my diagnosis of pellagra. The only suggestion made as to treatment was to carry a sunshade. In the end she was persuaded to eat ½ oz. (14 g.) of raw yeast daily, and when last seen was quite well.

It may be argued that this is a very unusual case, but most doctors must have come across cases of herpes labialis. This condition arises from nicotinamide deficiency and can be quickly relieved by giving nicotinic acid in suitable doses. Herpes simplex can also be produced at will, for instance, by giving a course of sulphapyridine followed by an artificial pyrexia from T.A.B. vaccine.[1] I will not say anything about surgical incisions failing to heal from lack of vitamin C, as this particular difficulty seems to be getting less troublesome.

The answer seems to be that a frank deficiency to one doctor may be a sealed mystery to another. I well remember being told as a student in the pharmacology class that "cod-liver oil was only useful as a source of calories," and must confess to a certain distrust of academic medicine ever since.—I am, etc.,

Shipley, Yorks. HENRY S. RUSSELL.

REFERENCE

1 Van Rooyen, C. E., Rhodes, A. J., and Ewing, A. C., *British Medical Journal*, 1941, 2, 298.

Menstrual Histories

SIR,—The importance of accurate information concerning the menstrual functions of women has long been recognized by physicians, surgeons, obstetricians, and gynaecologists alike. The uncertainty and indifference to accuracy exhibited by the average woman (even among the better-educated classes) in describing these functions are proverbial. The time wasted by the medical profession throughout the world in arriving at accurate data when trying to get a menstrual history must be phenomenal.

After 22 years' experience in hospital and private practice of this unsatisfactory state of affairs, I should like to put forward a solution to this problem. For the past six years I have consistently handed to nearly every woman between 15 and 50 years old under my care a card which I devised for the purpose and which I have found invaluable in my work. The headings on the card, which is printed on both sides, are reproduced below.

DATE NAME AGE PARA: SMWSDR 12.

TEL.: ADDRESS MISCARRIAGES: OCCUPATION

Date of ONSET (a.m. or p.m. and Day of Week)	Duration Profuse, Normal, or Scanty	Pain: (Present or Absent and When)	Number of Days Since Previous ONSET	Changes in Health or Routine of Life	Remarks (e.g., Emotional Upsets) and Treatment (if any)

The patient needs only to make an entry approximately once a month on the card, which is designed to last in most cases for one year. When complete it can be returned to the medical adviser to be filed with his records of the case. The ready

and willing co-operation of the average patient in this simple method I have found most gratifying, and the importance of the information thus obtained (with the minimum of effort on the part of the doctor) is great.

The objection might be raised (as it has been in some quarters) that it is undesirable to let women, particularly certain introspective types, pay so much attention to what should be considered a normal physiological function. But my experience over many years is that it does not encourage preoccupation with the "periods" and has no undesirable psychological effect. Details have to be recorded only about once a month, and the card merely takes the place of the private jottings in the patient's diary or calendar.

SMWSDR 12 at the top of the card stands for single, married, widow, separated, divorced, remarried, once, twice, etc.

—I am, etc.,

London, W.5. L. CARLYLE LYON

ACTH and Colchicum in Gout

SIR,—It would seem that the only hope of making wide clinical use of the anti-arthritic effects of "cortisone" and ACTH lies in the development of analogues which would be reasonably easy to manufacture. To this end research to ascertain the chemical mechanism whereby the drugs work is under way.

Unfortunately the rate at which this work can progress is also greatly restricted by shortage of the drugs, especially in Britain. A possible line of approach to the problem utilizing freely available material has occurred to me. According to Selye[1] gout is as much a "disease of adaptation" to stress as arthritis. Might it not be worth while then to investigate the mechanism of the specificity of colchicum against gout? It seems that nothing is known about how this agent produces its effect. In fact, only recently has the chemical structure of its main ingredient, colchicine, been investigated.[2]

When injected into patients with gouty arthritis, ACTH increases uric acid excretion with a concomitant fall in serum uric acid level.[3] Presumably colchicum acts by producing the same effect. Exact knowledge of how colchicum works might therefore provide useful clues to the development of the required analogues.—I am, etc.,

London, E.C.4. CHAPMAN PINCHER

REFERENCES

1 *Practitioner*, 1949, **163**, 393.
2 Tarbell, D. S., *Science*, 1949, **110**, 446.
3 Hellman, L., *Science*, 1949, **109**, 280, and see leading article in the *British Medical Journal*, 1949, **2**, 692.

Pruritus Vulvae

SIR,—Professor T. N. A. Jeffcoate in his comprehensive paper on pruritus vulvae (November 26, p. 1196) rightly stresses that the general practitioner, the gynaecologist, and the dermatologist tend to see different aspects of the problem. The dermatologist is mainly concerned with those persistent cases that remain after the elimination of those that are more amenable or due to internal gynaecological conditions. He finds that one simple cause is rarely responsible but that more often these cases result from blends and combinations of the "big seven" of contact irritants, emotional, endocrine, infective, metabolic, and nutritional disorders and skin diseases.

A good history is the *sine qua non* for accurate diagnosis, and an illuminated text, *Qui bene interrogat, bene diagnoscit*, would make a good reminder if suspended over the examination couch. A full psycho-physical assessment is necessary, and the unmasking of one cause must not lead to relaxation of the search for others.

The physical signs may indicate the cause or only reveal the added effects of physical, chemical, or microbic damage, which vary both according to the patient's type of skin reaction and the nature of the irritant. These secondary physical signs include lichenification, excoriation, furunculosis, impetigo, infective dermatitis, and eczematous dermatitis. Infection suggests a greater probability that diabetes may be present, but it also arises from nutritional deficiency or from scratching. Even if psoriasis is the local manifestation it must be borne in mind that this disorder does not usually itch and, further, that its presence in the flexures may show the psoriatic's skin reaction to scratching rather than the cause of the pruritus. For this reason the investigation of psoriasis of the vulva must be on similar lines to other obscure cases of pruritus vulvae.

Physical signs due to nutritional deficiency include seborrhoeic eruptions, dermatitis confined to the labia majora, leucoplakia, and intertriginous (monilial) dermatitis. The latter most commonly occurs with diabetes or pregnancy, and in other cases avitaminosis (usually conditioned) must be considered, because monilia may be found on the skin of many women without pruritus as a harmless skin contaminant. Avitaminosis may arise from achlorhydria, gastro-intestinal disorders, fads in dieting, or from insufficient food in elderly women, possibly edentulous, living alone. Drug intoxications, as from gold and arsenic, can also cause a nutritionally based seborrhoeic type of pruritus vulvae, but the condition is usually more generalized in these circumstances.

The diagnosis of a psychogenic cause must only be made, as with any other diagnosis, on positive evidence and not from the negative basis of absence of obvious material cause. Any of the skin reactions mentioned above due to physical, chemical, and microbic trauma may be present, or there may be no physical signs. These cases are related to disgust for coitus or dread of its consequences, including unwanted pregnancy and venereal disease or, extramaritally, the fear of possible family, financial, social, and moral harm that may result. In any case where a psychogenic basis is suspected it is wise to obtain the help of a psychiatrist both for confirmation of the diagnosis and for treatment.

When Professor Jeffcoate states that psychogenic causes are often merely contributory factors he raises the "egg and chicken" controversy again, because it also happens that the "egg" of psychogenic pruritus only too often hatches out the "chick's" chemical and infective dermatitis and lichenification, which cause aggravation of the pruritus and make it seem to be on superficial inspection related only to a local material cause.

A primarily psychogenic or nutritional pruritus vulvae often comes before the dermatologist in an aggravated and eczematized condition from the use of local analgesic agents (particularly benzocaine derivatives), fungicides, and germicides. These complications may be relieved by bland local treatment, but the underlying cause, if it remains, will still have to be relieved. The use of antiseptic and fungicidal applications is rarely necessary, as the infection is usually secondary. A breakdown of the skin's power of self-disinfection may result, so that in fact by their use the very condition is produced that it was hoped to prevent.

X-ray treatment has a very small part to play. It should never be used on moist, infected lesions but should be reserved for a few cases where chronic eczematization or lichenification creates a vicious circle of friction and aggravation of itching. Vulvectomy is only indicated in some cases of leucoplakia and in Bowen's disease, both of which may cause severe pruritus. In "idiopathic" cases it is as illogical as would be the excision of the tongue for tongue-biting in epilepsy. Nerve-undercutting operations and anaesthetic-injection procedures are equally irrational and are likely to lead to increasing despair when the symptom recurs.—I am, etc.,

BRIAN F. RUSSELL.

Parturition after Pneumonectomy

SIR,—Stimulated by the letter of Mr. F. Kellerman and Dr R. Sauvan Smith (October 1, p. 758) on this subject, I hasten to add another case to the one they have recorded.

A woman aged 29 had been an epileptic since 1942. Early in 1948 she developed a lung abscess on the left side for which pneumonectomy was performed on April 30, 1948. In December, 1948, she was referred to our antenatal clinic and was found to be about two months pregnant. Termination of pregnancy was advised by the chest physician, but was refused by her husband (not on religious grounds). She had previously had two normal confinements in 1946 and 1947, with male infants each weighing 7½ lb. (3.4 kg.). The antenatal period was completely normal, apart from external version being required. Labour began spontaneously on June 20, 1949, and delivery was accomplished easily after three hours in the first stage and twenty minutes in the second stage of labour. The puerperium was uneventful. On August 29, 1949, she was sterilized by vaginal hysterectomy, which is the method of choice in a multipara with a cervical or corporeal lesion such as cervicitis or subinvolution.

As pneumonectomy is a relatively new operation it is likely that there are few women who have undergone a pregnancy subsequently. However, it seems probable that their numbers will increase. While therapeutic abortion can easily be justified in these cases, yet there will be many patients who wish to proceed to term.

The antenatal period appears to be unaffected by pneumonectomy. The course of labour must be watched carefully, any delay in the second stage being terminated by forceps extraction. In multigravida with a history of previous easy labours the outcome is likely to be favourable. In a primigravida, however, with the uncertainties of the length of labour and the patient's reaction, the prognosis must be more guarded. Should there be any complicating obstetrical factor caesarean section would be almost obligatory.

My thanks are due to Mr. A. H. Siddons, who performed the pneumonectomy, and to Mr. C. M. Gwillim, who performed the vaginal hysterectomy, for their advice and assistance in this case.

—I am, etc.,

London, S.W.1. J. L. WRIGHT.

Treatment of Ringworm of the Scalp

SIR,—Dr. K. D. Crow (November 19, p. 1175) indicates that he has completely missed the point of our criticism (October 8, p. 815) of the report on the treatment of scalp ringworm with local applications, by Drs. H. Haber, R. T. Brain, and Mr. J. W. Hadgraft (September 17, p. 626). We endeavoured to draw the attention of practitioners to the fact that *x*-ray epilation is still by far the best treatment for *Microsporon audouini* scalp infections, and that the results of the treatment regime used by Dr. Brain and his colleagues were assessed on an uncontrolled series of six cases. We believed that the superiority of *x*-ray epilation was not sufficiently stressed in their recent article, though reference was made to a previous article[1] on a related experiment, and here the value of *x*-ray therapy was freely admitted. In a subsequent letter (October 29, p. 980) Drs. Brain and Haber kindly acknowledged our criticisms and endorsed the emphasis which we place on the value of *x*-ray epilation.

We do not suggest that the literature confirms our contention that 25% of cases of *M. audouini* infection of the scalp undergo spontaneous cure in less than six months. These were our own figures based on several hundred cases, but it is becoming increasingly apparent that future literature on this important point may well substantiate our claim. For example, Shaffer[2] recently stated that 70% of a random sample of 129 cases from an epidemic in Detroit which involved about 7,000 children were found to be free of infection when subsequently examined three years after the original diagnosis had been made.

We laid stress on the fact that Dr. Brain and his colleagues had only six cases of *M. audouini* scalp infection, yet they included in their trial twenty of *M. felineum* infection. We considered this to be misleading, since spontaneous cure within months is well known to occur in the great majority of cases of the latter infection.

Four cases of contact dermatitis from the total of fourteen cases assessed at the time of writing our last letter is admittedly a very high percentage. We agree that we must have been very unfortunate, but, on the other hand, we felt in duty bound to draw attention to the possibility. We can assure Dr. Crow that they were examples of sensitization dermatitis. We used 4.5% salicylanilide in a carbowax preparation kindly supplied by Imperial Chemical (Pharmaceuticals), Ltd., and essentially the same as that used by Kinnear and Rogers.[3] Dr. Brain and his colleagues mentioned local reactions presumably due to mechanical friction, but they did not mention the possibility of eczematized dermatitis.

With regard to *x*-ray epilation, Dr. Crow states that at many specialized centres there is a wait of sometimes 3–4 months before treatment can be commenced. If this is indeed the case then there exists a most unhappy situation, and it is not surprising that tinea capitis is now epidemic in many areas. On discovering our own epidemic we were quite unable to deal with all the cases which were found, but by borrowing a second *x*-ray therapy unit, and with the whole-hearted co-operation of the county medical officers concerned, we were able eventually to carry out epilations at the rate of ten cases per day. We would like here to acknowledge the help, direct and indirect, which we received from Drs. J. Kinnear and John Rogers when planning our programme.

Dr. Crow admits that the method of treatment advocated by Brain and his colleagues is suitable only when facilities exist for examination under Wood's light and, preferably, for cultures of the organism. But there must be very few such centres nowadays which do not also possess or could not borrow a superficial *x*-ray apparatus. He suggests that local treatment should be employed: (1) in all cases of pre-school age (we prefer *x*-ray epilation for all children of 3 years and over, if necessary under general anaesthesia, and we believe that cases of tinea in children under 2 years of age undergo cure with suitable local treatment in the majority of cases, and that in any event at this particular age they are seldom as likely to be a source of infection as older children); (2) when facilities for *x*-ray epilation are not available within a very short time (we agree here), and especially during epidemics (it is just in these circumstances that *x*-ray epilation is of the greatest possible value); and (3) in all cases of infection with the animal microsporon (we believe that, taking the average total duration of untreated infections as at the most about six months, all cases have to be treated on their merits; usually a quick cure in four weeks with *x*-ray treatment is preferable to a wait of some months involving laborious local therapy, as advocated by Dr. Brain and his colleagues, for in the latter event the children have to have their hair cut very short and kept short throughout treatment).

We repeat our reminder to practitioners that *x*-ray treatment is still the only reasonably certain method of cure, and we believe that great harm can be done by attempting local treatment for *M. audouini* scalp infections in any place other than an investigative centre.—We are, etc.,

J. MARTIN BEARE.
Belfast. IVAN H. MCCAW.

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1 Brain, R. T., Crow, K., Haber, H., McKenny, C., and Hadgraft, J. W., *British Medical Journal*, 1948, 1, 723.
2 *Arch. Derm. Syph. Chicago*, 1949, 60, 355.
3 *British Medical Journal*, 1948, 2, 854.

Importance of Preventive Medicine

SIR,—It is now many weeks since a leading article in your educational number (September 3, p. 524) proclaimed that "the prospects of a career in public health have never been better." And then a few lines later you wrote, "Financially the rewards . . . will always be less than clinical medicine can offer." In the interim only one or two voices have been raised to query this pronouncement, and I think that the time has therefore come to try to make the profession face the implications which it has so far accepted by remaining silent.

First I ask, Is it the considered opinion of the Association that preventive medicine is of so little importance that its remuneration shall compare unfavourably with that of therapeutic medicine? The triumphs of preventive medicine in Britain in the last century have been in their way at least equal to those of the therapeutic branch. Smallpox, typhus, cholera, enteric, and lastly diphtheria have gone or are going. The wastage of infant life has been reduced by about two-thirds. These achievements are not dramatic in the way that successful therapy may be, but they are no less real on that account. Is preventive medicine therefore of so little importance?

If the answer to my first query is in the affirmative, the second must be squarely faced. Does the medical profession claim a vested interest in sickness? The only justifiable ground for casting aside preventive medicine is that it is ineffective. If it is conceded to be effective then it must be given adequate encouragement of all kinds. If they consider it to be effective but not worth equal financial encouragement it is then a legitimate criticism of the therapeutic branch that they want the public to be ill in order that the doctor's livelihood shall not suffer. If, on the other hand, the profession as a whole agrees with preventive medicine in theory and practice, what are they doing to see that the necessary encouragement is given?

It took a year to wring agreement to negotiate from the local authority associations, and after four further months the machinery for negotiation is not ready. Our colleagues in the Civil Service have the necessary machinery, but apparently it cannot be made to work, and they are as badly off. This is not good enough, and calls for an awakening of the medical conscience of every Division and Branch of the Association as

well as in B.M.A. House. If prompt and effective action is not forthcoming the medical services of the central and local authorities will go where the school dental service has already gone—down the drain. The economic pressure is just as great on the doctor as on the dentist, but the opportunity to transfer from prevention to cure less easy to find.

If the local-authority medical services go the way of their dental counterparts there will be the immediate risk of the return of diphtheria on a substantial scale and also of the reappearance of the other epidemic diseases. As a parting shot I want to ask if any of my general-practitioner friends want to have to cope with an outbreak of smallpox without the help of their local health department.—I am, etc.,

Elgin, Moray. I. C. MONRO.

SIR,—How very refreshing to read of Professor R. H. Parry's frankness on proposing the toast of the guests at the Society of Medical Officers of Health Annual Dinner (*Journal*, December 3, p. 1289). Most of us in the public health service are getting just a little tired of the soft soap and treacle regularly handed out to us by every non-medical functionary in the land from the Minister downwards. Everyone loves us, everyone says we are doing a grand job, everyone is awfully sorry for us —and no one does a thing about our status except, of course, talk about it endlessly.

Week after week we read of practitioners struggling for increased remuneration. Good luck to them. But is it really realized that any practitioner the day after he qualifies is a better financial prospect than the medical officer of health who has a specialist diploma and years of experience behind him before he gets his post as M.O.H. with its attendant pittance?

Why have not the associations of local authorities the boldness to come out into the open and say what is pretty obvious anyway—that they don't want a public health service? Then we could all clear out and let it collapse as ignominiously as the school dental service has done, and the rest of the profession could busy itself in trying to patch up ills which would never occur if preventive medicine offered even reasonable inducements and a living wage for anyone but visionaries and lunatics.

Is it not a little ironical that the very body of medical men who started a public health service in this country should be the only ones to be disregarded when the National Health Service Act came into being? Let us have the answer one way or the other, and soon. We don't ask very much—only to be equated financially with other medical men of comparable experience.—I am, etc.,

Wallingford, Berkshire. HECTOR MACKENZIE-WINTLE.

Dangers of Dicoumarol

SIR,—The new coumarin substance, B.O.E.A., described by Drs. Catherine C. Burt, Helen Payling Wright, and Mirko Kubik (December 3, p. 1250), is clearly a more quickly acting and in some ways a safer anticoagulant than dicoumarol. In view of this article and of the leading article entitled "Dangers of Dicoumarol" (p. 1279), I think three important questions need answer. What is the most effective and safest prothrombin level to aim at? How often is it necessary to estimate the prothrombin level? How dangerous are these anticoagulants?

In the article by Dr. Burt and her colleagues a prothrombin level between 20 and 30% was aimed at because it was thought "generally desirable," but in some cases a level of 40 to 50% of normal, "proved satisfactory for clinical improvement." A number of workers[1–4] have all aimed at a prothrombin level of 10 to 20% of normal in the treatment of thromboses. Peters and his colleagues[5] produced a level of 35 to 50% in their cases and recorded good results. Scott and Lissimore[6] described a case of lymphatic leukaemia with multiple mesenteric thromboses which ceased when the prothrombin level was kept between 60 and 70% of normal by dicoumarol. Treatment was maintained for over three years, prothrombin estimations being made at monthly intervals.

During the last four years I have treated 81 cases of thrombosis by maintaining a prothrombin level of 65 to 75% of normal, and the results have been as good as any of those recorded by the authors quoted above for similar cases. No haemorrhage has been observed. These authors have all recommended daily estimations of prothrombin level, and as their patients were constantly in close proximity to haemorrhage this was certainly essential. On the other hand, when one aims at a level of 65 to 75% of normal, dosage can be adjusted to produce this level and maintain it, using the prothrombin estimation to confirm one's aim rather than as an essential in treatment. Estimations in these cases were never done more often than every five days; in prolonged treatment estimations were done once a month. The prothrombin level never fell below 50% and never rose above 80%. In 24 cases treatment has been continued for at least six months of the year for one to four years.

These cases have all been treated at home, but no case in which liver or renal damage has been found or suspected was given dicoumarol without more frequent prothrombin estimations. Shapiro and his colleagues[7] showed how liver damage increased the response to dicoumarol. Richards and Steggerda[8] demonstrated the continued effect of dicoumarol in rats from which the kidneys had been removed; normally the prothrombin level soon falls.

Dr. Catherine Burt and her co-workers also report that no gross cumulative effect of B.O.E.A. has been observed. Bingham and his colleagues[9] found the same with regard to dicoumarol. After taking 10 g. of dicoumarol in 92 days, a man with thromboangiitis obliterans had normal liver and renal function. My patients who took dicoumarol for six months during each of four successive years similarly showed no ill effect, their white and red cells remaining normal.

It is suggested, therefore, that a prothrombin level of 60 to 75% of normal is adequate for the treatment of most cases of thrombosis; that prothrombin estimations in these circumstances are unnecessary more often than every five days in most cases; that dicoumarol and also B.O.E.A. given for a prolonged time are not harmful in correct dosage.—I am, etc.,

Leeds. R. A. MURRAY SCOTT.

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Enteritis Due to Duck Eggs

SIR,—The article by Professor L. P. Garrod and Dr. M. B McIlroy on enteritis due to duck eggs (December 3, p. 1259) raises certain problems of prevention. Is there any conclusive evidence that a duck infected with *Salm. typhi-murium* ever transmits infection to the inside of a freshly laid and undamaged egg?

In the article in question the words, "In hens' eggs contamination is confined to the outer surface of the shell," suggest that this may also be the path of infection in duck eggs, facilitated in the case of duck eggs by the greater porosity of the shell and by the conditions under which a duck may lay its egg. Unlike a hen, a duck as often as not does not lay its egg in a nest but anywhere about the farm. In addition, a duck's droppings are almost invariably liquid, and this liquid faecal matter gets trampled over the egg.

Even under these conditions it is highly improbable that the egg will become infected unless it is left lying out for a matter of days, and it is on dirty farms that this is likely to occur. It is these "found" eggs which may have been lying out for an indefinite period which are probably the cause of human infection.

An egg, be it duck or hen, which has been lying in one position for some days tends to become sided-yolked, and when, as happens to all eggs at packing stations, these eggs are lamped and found to be sided-yolked they should be discarded, although this would entail discarding some fresh eggs.

It should also be borne in mind that most cracked, broken, and stained eggs are, at packing stations, turned into what are known as "liquid eggs" and sent to bakeries and caterers.

hence the greater liability to infection even from a "queen of puddings." Lastly, distribution being as it is, it is unlikely that the two hundred eggs delivered to St. Bartholomew's were less than a month old.—I am, etc.,

Hittisleigh, Devon F. E. GRAHAM-BONNALIE.

Chilblains

SIR,—I read Dr. J. T. Ingram's contribution, concerning chilblains, to the "Refresher Course" (December 3, p. 1284) with increasing interest, for it occurred to me while reading this article that chilblains may eventually be classified as one of the minor and localized diseases of adaptation.[1]

As Dr. Ingram states, "Exposure to cold and damp followed by warmth" is the common precipitating factor for chilblains. Exposure to cold is one of the "alarming stimuli" described by Selye. The psychological and nervous influences mentioned by Dr. Ingram could act via the pituitary and the "endocrinotropic" hormones in the same manner that Selye postulates nervous fatigue acts in the alarm reaction.

Finally, the susceptibility for the development of chilblains at puberty, the menopause, and old age and their virtual non-appearance during pregnancy are very suggestive of an endocrine mechanism. It was indeed the remissions of rheumatoid arthritis during pregnancy and jaundice that led Hench to his brilliant observations concerning cortisone.

It would be interesting to know the incidence of chilblains in rheumatoid subjects as compared with that in normal people, and also whether anyone has yet observed a dramatic resolution of a chilblain in a patient treated with cortisone.—I am, etc.,

London, W.5 M. D. WARREN

REFERENCE

1 Selye, H., *Practitioner*, 1949, 163, 393.

Resettlement of the Tuberculous

SIR,—The views of Professor Frederick Heaf on rehabilitation of the tuberculous need no bolstering from me against the oblique attack of Dr. Alice Stewart (December 3, p. 1294). It is, however, disheartening to learn that, emanating from "the city of lost causes," philosophic doubt is being cast on the worth of all our policies and schemes in regard to rehabilitation. Misguided these may be, but their fulfilment is at least practicable and realistic. If, as an alternative to the wise and timely reinstatement of tuberculous persons in industry or office, Dr. Stewart can only offer the suggestion of keeping them permanently "in affluence," then she should withdraw from the industrial Midlands and North along with her impedimenta of mass radiography and morbidity tables.

Will she define "affluence" not in the *O.E.D.* sense but in terms of the needs of a tuberculous wage-earner and his wife and family? The standard rates of pensions, sick-pay, and national assistance provide little more than subsistence. Increases have been granted by (or wrung out of) successive Governments sporadically and lagging in time behind the rise in the cost-of-living index. Does Dr. Stewart really think that in future tuberculous persons will be assisted by the State with more than the wherewithal of bare existence? Pensioning-off, however generously, our tuberculous population will not abate by one jot their infectivity in society and in their homes, clubs, churches, and cinemas. Man works for 44 hours, sleeps through 60 hours, and is at home or mixing gregariously with his fellows for 64 hours each week. There is no evidence that exclusion of the tuberculous (even if it were possible) from all work activity would diminish the total infectivity existing in the community. On the contrary, granted eight hours more leisure daily they might well have more opportunities of sowing infection outside workshop or factory.

Half of the tuberculous population becomes capable and does resume work eventually; the work may require to be modified or altered. One-sixth are dying cases, are aged, or are dependent married women. Only the remainder, consisting of 20,000 to 30,000 chronic active cases of pulmonary tuberculosis, need consideration in our rehabilitation plans. Many of them have good work capacity and tolerance. Most are entering or are already at the stage of full productive life. It would be inhumane to deprive these people of opportunity to work and to treat them as "superannuated" men and women at or before the prime of life.

No one, least of all Professor Heaf, advocates the indiscriminate replacement of the tuberculous in industry. Our young people going straight from school to work-bench, shop, or office, there to work alongside older persons, must be protected at all costs. Dr. Stewart's finding of 7 "open" cases in a boot and shoe factory is not germane to the issue unless she also indicates the size of the population that was surveyed or at risk. She decries our present "industrial schemes." To which does she refer? I would draw her attention to the plans of the Disabled Persons Corporation, which has already set up special "Remploy" factories for the tuberculous and aims at establishing one or more in each region. Hull's factory was the first to be opened in the country. It has operated for nine months, has places for 250 men and women, and 60 men are now working there. I can testify to the increased well-being and morale of men who are now being afforded for the first time the chance to work within their reduced physical capacity. As a reward they take home a wage packet on Fridays, earned by their work and skill, instead of being the passive receptors of their "allowances" at the Post Office on Mondays.

Some of the desiderata enumerated by Dr. Stewart in the earlier part of her letter are surely not impossible to attain. I refer to more adequate housing and improved standard of life for tuberculous and healthy alike. These and other social betterments are the prerogative of none, but are within the rights of all to obtain or possess. I assume that Dr. Stewart's letter was intended to be provocative. If her suggestion that it might be better to superannuate tuberculous men and women as a means of reducing the reservoir of tuberculous infection in this country is seriously advanced, then I trust that this latest "Oxford movement" will die a premature and unhallowed death.—I am, etc.,

Hull ROBERT HARDY

Rh Genotype Tests

SIR,—Dr. Edgar Rentoul (December 3, p. 1300) refers to the production of evidence with regard to the Rh sub-groups as being used in a British court for the first time in a medico-legal case recently heard in a Scottish Sheriff Court. Although Dr. Rentoul does not state the date of the hearing, which has otherwise escaped my attention, I gather it was more recently than June 8, 1949, when I gave such evidence at a magistrate's court. The facts of the case were as follows.

A woman who had previously borne an illegitimate child alleged that as a result of a single act of intercourse following a casual meeting she had become pregnant. The defendant, who admitted the act, alleged that a contraceptive sheath had been used. The probable time of conception corresponded with the admitted intercourse.

It has been my practice to test for all the antigens for which I have been able to obtain antisera in disputed paternity cases which I have investigated, but this was the first occasion on which an Rh sub-group had produced evidence of value. The results of testing in this instance were as follows:

	A	B	C	D	E	c	M	N	S
Baby ..	+	−	++	++	++	++	+	+	−
Mother	+	−	++	++	−	?−	+	+	−
Alleged father	+	−	++	++	−	(+)	−	+	−

The result obtained on the mother's corpuscles with the anti-c serum available was a doubtful negative reading, and a very active anti-c serum was not available at the time. Because of the uncertainty of this result an attempt was not made to genotype the individuals, and the evidence was considered to be unsuitable for medico-legal work. The evidence was accepted by the magistrates and the claim dismissed as not proven.—I am, etc.,

Newcastle-upon-Tyne. T. H. BOON.

POINTS FROM LETTERS

Spoons as a Measure

Dr. E. H. JEANES (Rotherham) writes: I was pleased to see the letter of Dr. J. M. Hamill (November 19, p. 1180) regarding the very important matter of spoon measurements. The misconception about the size of the tablespoon is a very common one and can in certain circumstances lead to most unsatisfactory treatment. The position is confused because textbooks often reiterate the myth that one tablespoon contains half an ounce of fluid, whereas in fact it contains one ounce. Contusion is doubly confounded because the majority of medicine bottles are now not marked in tablespoon doses, and the patient has to measure his own dose. . . . Where bottles have been graduated in tablespoons the proper dose is taken, because the patient relies on these bottle markings, yet let it be noted that these measurements are in fact dessertspoon doses, as can be verified by anyone with the interest to do so. It would not be difficult to find prescriptions in the *National Formulary* which would cause definite harm if twice the prescribed dose were taken regularly. The instructions on tins containing dried milk may be misleading. For instance, an infant weighing 8 lb. is started on artificial feeding and the mother is instructed by a nurse to feed by the directions given on the tin. Since some of the leading dried-milk manufacturers give directions in tablespoons of water to be added, the mother proceeds to make the feed by adding four measures of dried milk to eight tablespoons of water. This is poured from a jug into a feeding bottle and given to the baby. The baby, naturally, can only take half the amount, and the result is underfeeding, since only two measures of dried milk are taken. Of course feeding bottles are marked nowadays, but there still exist certain mothers who rely solely upon their own tablespoons and not on the markings on the feeding bottles. It is unfortunate that the Ministry of Food in its instructions issued with National dried milk has repeated the common fallacy that "two tablespoonfuls of water equal about one ounce." It is, of course, two dessertspoonfuls which equal one ounce.

Death by Hanging

Dr. R. PAKENHAM-WALSH (Lancaster) writes: I was interested to read Dr. F. A. Richards's letter (November 26, p. 1235) suggesting that death by hanging was not as instantaneous as is generally supposed. The same thought occurs to me every time I have the unpleasant duty of executing one of my hens by the process of breaking the neck as near to the occiput as possible. Even when everything goes according to plan the hen gives every appearance of being conscious for a few seconds after the neck has been broken. Its eyes remain open and then gradually close, as though the creature was dying slowly. The subsequent "P.M." always shows a considerable haemorrhage in the region of the break, and it is probably this which causes the head and its owner to become finally dead. On one occasion I was anxious that a special pet hen should not suffer, and I was horrified to find that I had pulled the head right off. Death, however, had been instantaneous, as the head was certainly dead by all appearances, while its owner still remained very much alive.

Fracture of the Olecranon

Dr. L. S. WOOLF (London, N.W.11) writes: Thirty years ago the patient of whom I write, then a man of about 30, fell off a bicycle on to his left elbow. An *x*-ray examination showed that the fractured olecranon was drawn up about 2½ in. (6.25 cm.) from the body of the ulna—i.e., there was a separation of 2½ in. between the olecranon and the body of the ulna. It was decided that mechanical means of bringing the fragment of the olecranon down to join the shaft of the ulna would suffice, and an open operation would thereby be avoided. Straps were applied to the upper arm exerting tension on the triceps, and after a short time it was considered that the olecranon was near enough to the shaft of the ulna to form a fibrous union. This in fact is what took place, and the patient had no functional disturbance in the use of the limb. From time to time there was "rheumatism," but it was only recently that there was much pain in or around the elbow. Because of this an *x*-ray photograph was taken, and this revealed that there is, after thirty years, still no bony union, although function is practically perfect.

Pruritus Vulvae

Dr. H. THISTLETHWAITE (Sedbergh, Yorkshire) writes: In Professor T. N. A. Jeffcoate's learned article on pruritus vulvae (November 26, p. 1196) I find no reference to the application of testosterone ointment. A number of my women patients, whose ages range from 30 to 90 years, have cause to bless this ointment, which was recommended to me in the first case by a gynaecologist and has fully justified itself after other measures have failed lamentably. A single treatment which has given relief to some victims of pruritus vulvae deserves to be more widely known and used.

Obituary

WILLIAM ANDERSON, O.B.E., F.R.C.S.

Mr. William Anderson, senior surgeon to Aberdeen Royal Infirmary, died suddenly on November 29. He was born in Aberdeenshire 63 years ago, of a farming family. In 1904 he entered Aberdeen University, and graduated in 1909 with distinction in his final examinations; he was awarded the gold medals in both medicine and surgery After graduation he held hospital appointments in the Royal Infirmary and the Sick Children's Hospital. He became house-surgeon to the late Sir Henry M. W. Gray, to whose influence and inspiration, like so many of his generation, he owed so much—a debt which he always gladly and thankfully acknowledged. Then followed a period of postgraduate study in Germany in the surgical clinics at Tübingen and Berlin.

In 1913 Anderson was appointed to the honorary staff of the Royal Infirmary as anaesthetist—in those days a recognized stepping-stone. In the first world war he served for some four years in France, at first as a regimental medical officer and later as surgical specialist in charge of the surgical division of No. 12 Stationary Hospital. During the war he acquired a comprehensive experience as a general surgeon, though even at that time his main interests were tending to focus themselves on abdominal and thoracic surgery, and by the end of the war he had established his reputation as one of the most promising younger surgeons of the day. For his services he was mentioned in dispatches and awarded the Order of the British Empire. In 1919 he returned to Aberdeen and was appointed assistant surgeon to the Infirmary, again in the service of Sir Henry Gray, and he also joined the surgical staff of the municipal hospitals. In 1912 he became a Fellow of the Royal College of Surgeons of Edinburgh, and in 1923 of the Royal College of Surgeons of England In 1928 he was appointed examiner in surgical pathology and operative surgery for the diploma of F.R.C.S.Ed He rapidly acquired an extensive surgical practice and a steadily increasing reputation as a clinical teacher.

At the outbreak of the second world war he became surgical director to the Northern and North-Eastern Areas, but it was obvious to his friends that he would not be content for long with a purely civil appointment, for his heart was set on service in the field once again. Early in the war he was appointed consulting surgeon to Scottish and Northern Ireland Commands with the rank of brigadier, an appointment for which he was peculiarly well fitted by his experience in the first world war, his shrewd common sense, and his ability to sum up men and affairs Even on a physique as robust as his the heavy responsibilities and the constant journeying to Ireland and all parts of Scotland must have taken a heavier toll than at first appeared.

At different times Anderson held many other important appointments—he was president of the Association of Surgeons of Great Britain and Ireland from 1941–4; an original member and later president of the Society of Thoracic Surgeons of Great Britain; and inspector of examinations for the General Medical Council. He is survived by his widow, two daughters, and one son, to whom all will extend their sympathy.

A.G.A. writes: By the sudden death of William Anderson Aberdeen medical school has been deprived of the services of

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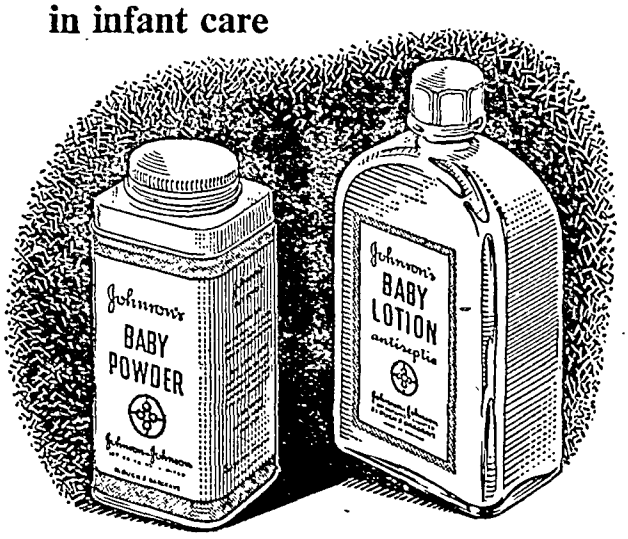
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a great surgeon and a great clinical teacher; his colleagues and students, both past and present, have lost a great and loyal friend. He had spent the whole of his professional life in the service of Aberdeen Royal Infirmary, with the exception of some eight years of distinguished military service in the two world wars. I had the privilege of enjoying his friendship and of being closely associated with him since he entered the university as a first-year student in 1904.

In his later years he would often refer to the first world war as one of the most formative periods of his life, and he was proud of having begun his military career as a regimental medical officer. No doubt it was the fruits of that training combined with his native shrewd common sense and his wide clinical experience which made his opinion as a consultant in the second world war of so much value to his patients, his colleagues, and his country.

On his return to Aberdeen in 1919 he threw himself with his accustomed zest and vigour into the work of the hospital—teaching, operating, spending long and arduous days in the out-patient department, performing research at the Rowett Institute, playing hard and working hard. He had an enormous capacity for hard and sustained work, and he could spend hour after hour in the operating theatre without the least sign of fatigue.

The immediate post-war years to him were one of the truest periods of his life. As a teacher he rapidly made a name for himself, and in his teaching he was outstanding for clear, concise, and practical. If in his later life one ventured to suggest to him the advisability of taking things a little bit easier, particularly in giving up his emergency operating and his evening clinics on his receiving days, he would invariably reply that he believed this was one of the most important parts of his teaching, and in this I am sure he had the assent of all who were privileged to attend them. With his students he was approachable; he was friendly and profoundly interested in all that concerned them in their work and play. He was equally happy in presiding at the students' medical society, to which he supplied a constant stream of inspiration, or presiding at the boxing matches, which he thoroughly enjoyed.

Nowhere was his broad and generous humanity seen to better advantage than in his superb handling of patients. With his pawky good humour, his facility in the use of the Doric, he could rapidly put the most nervous patient completely at his ease, and completely win his confidence and gratitude. He remained a general surgeon to the end of his days, although it was perhaps in abdominal surgery that his masterly technique, his resourcefulness, and his courage were seen at their best. He travelled in Europe and America, always eager to keep abreast of the latest developments. At one time he paid particular attention to the developing specialty of neurosurgery and laid the foundations of a neurosurgical unit in Aberdeen. Later he was to return to one of his earlier interests, the development of thoracic surgery, and he must have been one of the first surgeons in Scotland to undertake thoracoplasties, of which he did a great many for the Red Cross sanatoria.

His contributions to literature were comparatively few, for in his busy and active life there was little leisure, and temperamentally he was more interested in the art of surgery and in the individual patient.

Mr. A. Graham Bryce writes: One of those who made a special study of chest surgery while they continued their practice in the general field, Anderson applied himself to his specialty with all the devotion of his honest being. He was an original member of the Society of Thoracic Surgeons of Great Britain and Ireland, and the fortunes of war kept him a member of its executive committee till a few weeks before his death. It was a stubborn obstacle indeed which prevented Anderson from making the long journey from Aberdeen to attend a meeting of the society or of its committee. The opposite of a thruster, he only took part in debate when he really had something to say. It was in the more intimate and informal group round a table in a hotel lounge that his wisdom and wide experience found expression. In committee his constant thought was for the younger men, for whom he was ever ready to efface himself. Of all the qualities which endeared him to his fellows, and for which he will be remembered, his humanity was the most outstanding. There will be a sense of something wanting in any assembly of thoracic surgeons which lacks the cheer of Willie Anderson's presence.

A. M. writes: By the sudden death of William Anderson the medical school of Aberdeen has lost one of its most prominent and useful members, a loss which will be shared by his many friends and patients. His professional achievements are well known, but, as one who was associated with him since his student days, I would like to pay tribute to some of his personal qualities. He set for himself a very high standard of professional work, and gave freely of his time and energy in the care of his hospital patients and in teaching his students. To his colleagues he was always ready to give help when it was needed. Integrity of thought governed his actions, and he was quick and candid in his resentment of anything which he considered unfair or unjust. He had a most generous nature which many of us had occasion to appreciate, and we feel that our world will be the poorer by his loss.

Sir Leonard Rogers writes: The notice of the late Professor C. A. Bentley (December 3, p. 1299) deals fully with his earlier work on malaria and kala-azar. May I add a few lines on his later, and more important, work while Director of Public Health in Bengal on the control of cholera by inoculation. In December, 1923, he issued a circular on anti-cholera inoculation in the Near and Far East, which illustrated its value, and in May, 1927, one entitled "Cholera must be stamped out of Bengal." After five years' struggle—with the support of a new Governor of Bengal, Sir Stanley Jackson, who had made himself acquainted with recent epidemiological work on cholera in India—Bentley obtained sanction for a laboratory to make cholera vaccine at one-eighth the price of that previously supplied, and in 1928 he organized the inoculation of over 2,000,000 people in Bengal—far more than in the whole of the rest of India. Many instances of the rapid suppression of cholera outbreaks in Bengal villages following inoculation first popularized the method in India. It included instances of controls shown by the immediate decline of the disease in inoculated Hindus, but its continuance among Mohammedans, in the same village, who had refused inoculation. It was largely due to the enthusiastic work of Bentley that the long neglect in India of anti-cholera inoculation was gradually overcome—work in which his administrative ability was outstanding and work which will form a permanent memorial to him.

When visiting Greece in August this year Dr. Ludwig Guttmann, clinical director of the Spinal Injuries Centre, Ministry of Pensions Hospital, Stoke Mandeville, delivered a lecture on paraplegia to Army medical officers at Athens at the request of the Greek Minister of War and the Director-General of the Greek Army Medical Services. Dr. Guttmann has now been invited by the medical authorities of the Government of Israel to advise on the organization of a centre for the treatment and rehabilitation of paraplegics. He is spending about three weeks there.

Medical Notes in Parliament

NATIONAL HEALTH SERVICE (AMENDMENT) BILL

The House of Commons considered, on December 9, amendments to the National Health Service (Amendment) Bill accepted by the House of Lords on November 17 (*Journal*, November 26, p. 1239). The Bill was read a third time in the House of Lords on December 2 (December 10, p. 1359).

Mr. BLENKINSOP said the new Clause "A" was inserted to enable the Minister to make regulations adding to the functions of the Medical Practices Committee. Its functions in relation to the distribution of doctors were limited by statute to granting applications by doctors not already on the medical list for inclusion in that list. Where several doctors applied to fill a vacancy it might be held that the Medical Practices Committee was only concerned strictly with applications from outside the area, whereas it had been usual for the Medical Practices Committee to consider applications from wherever they might come and to make its decision on the qualities of the applicants. Experience had shown that an extension of functions might be desirable in one or two other cases. In England and Wales the view was taken that a doctor whose application to employ an assistant was refused by the executive council should have the right of appeal. It seemed to the Ministry that the Medical Practices Committee should have power to determine such appeals. These matters had received the full consideration of the medical profession. Any other similar evidence of the powers and functions of the Medical Practices Committee would also receive the consideration of the medical profession before any changes in regulations were proposed.

Sir HUGH LUCAS-TOOTH said that there should be some statement from the Government that it was not intended to use the wide wording of the amendment to take additional powers for the Medical Practices Committee without giving Parliament an opportunity of considering what those powers should be.

Mr. BEVAN intervened to say there would be regulations which would be laid before Parliament, and the House then agreed to the new Clause.

Charges for Prescriptions

A second new Clause "B" was then debated. It dealt with the recovery of charges in respect of pharmaceutical services:

"Regulations may provide for the making and recovery, in such manner as may be prescribed, of such charges, in respect of such pharmaceutical services, as may be prescribed, and may provide for the remission or repayment of the charges in the case of such persons as may be prescribed."

Mr. BLENKINSOP said the amendment was designed to give statutory authority for the Prime Minister's proposal to make a charge for prescriptions under the National Health Service. The Clause was drafted widely because the exact nature of the arrangements had not been decided. Discussions were proceeding. It had been announced that the charge would not exceed one shilling, and that old-age pensioners would be relieved of the charge, as would ex-Service men who were war pensioners. They would continue to receive free treatment for their war disabilities. The Government had under consideration many representations made by members of the House and others on the detailed working of the scheme.

In the House of Lords it had been suggested that there had been overprescribing by doctors. On that point he could say that there was already a joint committee of the Central and Scottish Health Services Committee to advise Mr. Bevan whether it was desirable and practicable to restrict in any way the prescribing by doctors of medicines of doubtful value and of unnecessarily expensive brands of standard drugs. The Ministry could not make any statement on this till recommendations had been made.

Mr. WALTER ELLIOT said the Opposition did not oppose the amendment, but it should not pass without comment. It would place 19,000,000 people in a worse position than they had been in since July, 1948, and a considerable number of people in a worse position than since 1912, when insured persons were allowed to obtain their prescriptions without this charge. He understood that £10,000,000 would be obtained by this charge. Was that figure still intended? When might the House expect the regulations to be laid? Would they be laid during the prorogation of Parliament?

These regulations would have the force of law as soon as they were laid, and Parliament would require the earliest opportunity to debate them thereafter. He asked whether the sums to be raised by this procedure would obviate the need for a supplementary estimate for the Ministry of Health. Was there any intention to extend the category of hard cases beyond old-age pensioners and ex-Service men who were war pensioners?

Mr. Bevan must, he thought, have determined whether the charge was to be based on each prescription or on each prescription form. The average number of prescriptions was three on two forms. It was desirable to know whether the prescription form or the prescription was to be charged. Was the shilling to be charged on a flat rate or a graded rate? A great number of prescriptions were inexpensive, and on those inexpensive prescriptions the pricing machinery was now in difficulties. He was delighted to think that Mr. Bevan did not accept an increase in prescriptions as an improvement in the health of the country. If small prescriptions were to be priced on a graded figure the difficulty with the chemists would be increased. The Minister should be able by this time to give a lead on these matters.

Mr. FRANK BYERS said he had come to the conclusion that the Lords amendment should be rejected. The House should beware of giving to any Minister powers which could not be examined in detail. What about the difficulties when rural practitioners dispensed their own medicines? What about diabetics who required continuous treatment? He wanted proposals to be laid before the House in a form in which they could be amended in detail. He did not think the scheme would work. If the charge was too high it would cause injustice, and if it was too low it would not remove the abuses.

A Retrograde Step

Dr. SANTO JEGER said he was one of the few medical men in the House who still followed his profession regularly. He regarded the charging for prescriptions as a completely retrograde step. They had encouraged everyone to become health conscious and had said that if people had small ailments they should seek consultation early, but the charge on prescriptions was introduced as a deterrent.

He feared that Parliament would deter the wrong persons from going to the doctor for treatment. A doctor might have to prescribe five or six items for one ailment at one time—for example, for boils. Was a man with a boil to be asked to pay five or six shillings for treatment? Mr. Bevan had talked of cascades of medicines being poured down people's throats. They all knew that a medicine was often given purely as "a mental poultice." It was not always possible for a doctor to eliminate a patient's fears by words. Part of what the doctor had to do was to supply a prescription, a placebo.

Were old-age pensioners who continued in work to be exempted or were they to pay for their prescriptions? Who was to ascertain whether patients were to be exempted? He did not think the doctor would agree to do it, and the chemist should not be required to ask people to produce their birth certificates or to show whether they were drawing the old-age pension. The Minister had received representations from both the British Medical Association and the Socialist Medical Association. He did not think that these two bodies had ever been in agreement before, but they were definitely in agreement on this.

He could show the Minister many ways in which both doctors and patients could avoid this charge. Another, more serious aspect was that any attempt to limit general practitioners to drugs on a standardized list and to prevent them from trying out unestablished drugs would suppress original work.

Mr. BEVAN asked whether Dr. Jeger asserted that, if a committee of responsible members of the medical profession said an ingredient sold under an expensive title was exactly the same as an ingredient sold under a less expensive title, the Ministry

should adopt the idiosyncrasy of a general practitioner and pay the inflated price.

Dr. JEGER agreed that when there were two preparations one should, other things being equal, use the cheaper one.

Mr. BEVAN hoped Dr. Jeger would not pursue the matter further or he might prejudice discussions which were going on. If Dr. Jeger said that in no circumstances could there be an official list of drugs provided by a responsible, authoritative order, he went further than his friends would wish him to go. The amendment under discussion had nothing to do with such a list. It referred to the power to enforce a charge.

Dr. JEGER said that he was prepared to accept what Mr. Bevan had said and not pursue the matter. He declared that in his experience there had been little abuse of the Service. When all possible exceptions had been considered little of the expected £10,000,000 would await collection. If the proposal went through, patent-medicine vendors would find their sales going up by leaps and bounds.

Mr. LINSTEAD, as secretary of the Pharmaceutical Society, thought that the Minister should explore the possibility of "pay as you use" rather than make cuts in the hospital service or hold up the rebuilding of hospitals. But the House should not be asked to go too far in approval of the scheme without knowing in more detail how Mr. Bevan proposed to carry it out. He hoped that the Minister proposed at an early date to bring chemists into the discussions. At present they did not know where they stood. Estimates for the pharmaceutical services were originally £6,000,000 but were now £20,000,000. On those figures the Minister was entitled to see whether something could be saved to the Exchequer. He asked whether a prescription made out for a mother and two children ranked as one or as three. Hundreds of thousands of such prescriptions were written in cases of family sickness. Group prescriptions could be written if there was an epidemic in a school. A doctor might write one for 60 patients. Did that rank for a charge of 1s. or 60s.? His view was that there must be a flat-rate charge, not one graduated according to the value of the medicine. It would be impossible for pricing officers to attempt to make an assessment according to the value of the medicine. The most they could do was to count the forms.

If patients who went to a general practitioner were to be charged, what of the out-patients at hospitals? The last thing they wanted to do was to divert patients from the general practitioner to the out-patient departments of hospitals. There was the problem of the rural doctor. Diabetics had been mentioned, but what about epileptics, people with chronic bronchitis, and the chronic sick generally?

If there was to be a straightforward payment of 1s. when the medicine was handed over the counter the system might possibly work. But if the "pay as you use" principle was justified for the pharmaceutical services it was justified for the dental and ophthalmic and other benefits.

Each According to his Shilling

Mr. SOMERVILLE HASTINGS asked whether the House was going to replace the Socialist principle of "Each according to his need" by "Each according to his shilling." He had found that a little more than half the doctors with whom he had discussed the question had agreed that there had been some abuse. But doctors who said there had been considerable abuse were those who had opposed the scheme from the start. He asked Mr. Bevan whether neurotic people would be deterred by a shilling and robbed of the enjoyment of bad health. One of the people who would be deterred was the poor mother with young children. Doctors were very concerned about the interests of their patients, and in order to save the shilling poor patients might be given enough medicine for a month rather than for a fortnight. More medicine would be ordered rather than less.

The great advantage of a free and universal service was that doctors got hold of illness earlier, and in medicine that a stitch in time saved nine was a truth more important than ever now that so many bactericidal drugs had been introduced. He agreed with Mr. Bevan that some doctors were inclined to order proprietary medicines when an identical cheaper medicine would do as well. The public did not understand how busy the drug houses were in sending their travellers round to doctors. If the Minister gave the doctors lists of equivalent drugs and asked them to supply these to their patients he would save the necessary money and the good name of the scheme.

Mr. SOLLEY contended that the excuse for the order from the Treasury to Mr. Bevan to save £10,000,000—unnecessary resort to doctors and chemists—could not stand investigation. The Minister of Health should have asked himself before putting this burden on the working class whether he could not save the money by taking away some of the profits of the chemical and pharmaceutical manufacturers. The charge must cause great hardship to chronic patients. He would vote against the proposal and would fight on that issue at the General Election.

Administrative Difficulties

Mr. BEVAN sympathized with those Members who had said they did not know how the power which was requested would be used. He himself did not yet know all the answers. The proposal to make a charge up to 1s. created no administrative difficulties. These arose out of the exemptions. It was no economy to transfer a charge from the State to the individual. The proper economy was to introduce a more efficient way of giving the service.

The Government wished to take power to make a charge for the pharmaceutical service alone because this was the part of the scheme where the greatest load had fallen and in which the scheme was inclined not to give the standard of service which the Government required from it. The amendment did not give power to impose a charge. It was to restrict the free service on the pharmaceutical side up to 1s. The National Health Service would pay the cost of a prescription above a shilling. Even with this charge the National Health contributor would have a far wider range of service than was ever available before.

The Government had come to the conclusion that it would be glad to reduce the queues at surgeries and the unnecessary expenditure at chemists' shops. Some of the abuse arose on aspirins, bandages and so forth, costing less than 1s. The proposal had not been received with much indignation because there was awareness of the abuse which had been taking place. The Government must presume that it was not in the interests of the patient to have too many prescriptions. He was not suggesting that the new clause ought to be a permanent feature of the National Health Service. It was put forward as a temporary easement with a residual financial advantage. The figure of £10,000,000 assumed no exemptions, and any exemptions would reduce that amount. The House would have an opportunity of discussing the regulations before they were put into effect. There was evidence already of a reduction in some cases of the burden on the general practitioners.

Mr. HASTINGS asked whether, in view of that reduction in the abuse that he had mentioned, Mr. Bevan would consider that it might be unnecessary for him to introduce these regulations

Mr. BEVAN replied that he was giving consideration to this. He was not anxious to burden himself with a complicated administrative machine if he could achieve the same results by other means.

Dr. SEGAL contended that, if the suggested charge steadily reduced the number of prescriptions, in a few months it might save more than £10,000,000. If the present total of 187,000,000 prescriptions a year could, at the end of twelve months, be reduced by 30%, the need for the imposition of a charge would have vanished.

Mr. PIRATIN contended that no one could give evidence that abuse existed in prescribing.

Mr. SPARKES referred Mr. Piratin to the report of the Estimates Committee on the administration of the National Health Service.

Mr. PIRATIN said he was not surprised to see a united front between the B.M.A. and the Socialist Medical Association. He drew attention to the profits made on medicaments. He said that Glaxo Laboratories, which produced penicillin, made, in 1948, a gross profit of £1,641,000 and a net profit of £660,000. In 1949 the gross profit was £2,605,000 and the net profit £930,000.

There was the case of "dexedrine." It was first introduced by Menley and James at 126s. per 1,000. The tablets were shortly afterwards marketed by Ward Blenkinsop at 31s. per 1,000. In the last few weeks Boots marketed the same preparation at 8s. 6d. per 1,000. Procaine-penicillin was first sold in this country by I.C.I. (Pharmaceuticals) at 44s. a phial. A few weeks later it was sold by Glaxo Laboratories at 32s. As a result of negotiations between the interested firms and Allen and Hanburys the price was ultimately fixed at 36s., which was 4s. above the price of the most efficient manufacturer. There was plenty of scope for cutting down expenditure, apart from this amendment.

On a division the new Clause "B" was accepted by 138 to 5.

Foreign Visitors

On a further new clause added by the Lords Mr. BLENKINSOP said it carried out a pledge given to the House of Commons during the Report Stage of the Bill. It empowered Mr. Bevan to make and recover charges for use made of the National Health Service by persons not ordinarily resident in Great Britain, but Mr. Bevan did not intend a general and wholesale exclusion of foreign visitors from the benefits of the scheme.

Mr. WALTER ELLIOT was glad to see an admission that there had been substance in the case previously put forward by the Opposition.

Dr. BROUGHTON pointed out that the Clause would allow a Minister of Health to make charges on all foreigners using the National Health Service. He said Mr. Bevan was unlikely to make such a regulation. Care must be exercised not to discourage people from other countries coming for medical and surgical treatment if they were prepared to pay for it.

The House then agreed to the new Clause, and consideration of the National Health Service (Amendment) Bill concluded.

Questions about Prescribing

Mr. BEVAN gave an assurance on December 8 that he did not intend to levy charges for prescriptions supplied in hospitals, including those supplied in casualty wards.

Also on December 8 Mr. KENNETH ROBINSON asked the Minister of Health if he knew that many doctors in the National Health Service were prescribing patent medicines under their trade names in cases where similar ingredients, if specified in the prescription, could be dispensed at less cost.

Mr. BLENKINSOP, for Mr. Bevan, answered that a committee appointed by the Central and Scottish Health Services Councils was considering this problem.

Epileptics.—On October 17, 1949, there were 14,370 epileptics in England and Wales registered as disabled persons.

Universities and Colleges

UNIVERSITY OF BRISTOL

The Carey Coombs Memorial Prize for 1949 has been awarded to Dr. I. McD. Stewart for an essay on "The Aetiology of Coronary Thrombosis."

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At the annual meeting of the College held on December 1 Sir David K. Henderson was elected President for the ensuing year and Drs. W. A. Alexander, J. D. S. Cameron, T. Douglas Inch, Ian G. W. Hill, James G. M. Hamilton, and A. Colin P. Campbell were elected members of Council. Dr. Alexander was nominated Vice-President.

CONJOINT BOARD OF IRELAND

The following candidates were duly admitted licentiates in medicine and midwifery on December 2, having passed the final examination in medicine, surgery, and midwifery of the Conjoint Board of Ireland: E. Bradley, P. G. Brady, H. D. Coghlan, Jane J. Connolly, L. A. Cullen, J. C. Dillon, J. A. Doherty, Rita D. Dooley, Elizabeth M. Farrell, J. A. Fitzpatrick, J. B. Gallagher, Rhoda P. Kennedy, M. J. Moran, J. E. Murphy, J. R. Murphy, J. A. MacCarthy, Eva T. MacDonald, J. F. McGuire, O. A. McKee, Mary T. McQuaid, J. F. Napier, D. O. Ndukwe, Maeve S. O'Kelly, C. M. Ongley, W. Quirk, B. FitzG. Regan, I. Rosenthal, Catherine T. Tynan, Mary T. Vass, A. M. Wells.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended November 26. [No. 47

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county). (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	32	4	11	2	2	36	5	16	1	—
Deaths		1	—				—	—		
Diphtheria	121	18	28	3	9	141	8	37	4	6
Deaths	1	—	—	—	—	2	—	2	—	—
Dysentery	144	25	88	—	—	72	9	46	2	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	1	—	—	—	—	1	—	—	—	—
Deaths		—					1			
Erysipelas			27	5	3			40	12	4
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				33					37	
Deaths	21	1	8	2	4	21	2	5	3	2
Measles*	1,469	28	39	200	87	8,547	127	197	53	66
Deaths†			—	1	—			—	—	—
Ophthalmia neonatorum	31	3	9	1	—	43	5	10	—	—
Deaths										
Paratyphoid fever	11	1	1 (B)	—	—	1	—	4 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	710	51	2	2	7	716	63	5	1	2
Deaths (from influenza)‡	35	9	3	—	—	22	2	2	1	—
Pneumonia, primary			266	27				243	32	
Deaths	303	67		11	5	234	29		8	15
Polio-encephalitis, acute	17	1				5	—			
Deaths										
Poliomyelitis, acute	176	23	6	8	1	42	2	2	3	—
Deaths§	21	8				3				
Puerperal fever		—	9				—	9		—
Deaths										
Puerperal pyrexia‖	87	7	6	—	—	82	10	7	—	1
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	2,827	224	365	154	341	1,544	91	281	165	55
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	11	—	1	14	—	3	—	1	4	1
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,035	43	63	66	67	2,747	162	120	52	16
Deaths	1	—	—	—	—	5	1	—	—	—
Deaths (0–1 year)	288	32	45	23	11	273	29	50	14	13
Deaths (excluding stillbirths)	5,730	995	683	193	148	4,847	779	631	180	120
Annual death rate (per 1,000 persons living)			13·7	12·0				12·7	11·3	
Live births	6,938	1109	867	333	233	7,018	1139	861	327	231
Annual rate per 1,000 persons living			17·4	20·6				17·4	20·5	
Stillbirths	142	16	31			172	12	23		
Rate per 1,000 total births (including stillborn)			35					26		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

Notifications in the week ended December 3 were: poliomyelitis 141 (176), polio-encephalitis 15 (17). Figures for the previous week are shown in parentheses.

Multiple cases (poliomyelitis and polio-encephalitis) were reported from the following counties: London 16 (24), Berks 3 (3), Buckingham 2 (5), Chester 2 (6), Essex 7 (16), Gloucester 7 (8), Hertford 2 (6), Kent 10 (14), Lancaster 14 (10), Leicester 3 (7), Middlesex 15 (11), Norfolk 4 (12), Nottingham 6 (5), Oxford 2 (1), Southampton 5 (4), Stafford 5 (3), Surrey 6 (6), East Sussex 4 (3), Warwick 6 (7), West Yorks 19 (17), Glamorgan 6 (5).

National Insurance Figures

The Registrar-General has included in his return for the week ended November 26 a new table which will show, each week, the numbers of claims to sickness benefit made under the National Insurance Act during the last four weeks, with weekly averages for each completed month of the year, in each of the 10 standard regions of England and Wales. The weekly averages so far this year have been highest in the month of March in all regions except the London and South-eastern Region, where the highest month was February, and the Eastern Region, where the figures for those two months were the same. The July averages were the lowest in every region. Figures for England and Wales as a whole were as follows:

Weekly Averages Each Month				Week Ended	
Jan. ..	157,800	June ..	83,700	Nov. 22 ..	136,800
Feb. ..	180,100	July ..	78,500	Nov. 15 ..	142,300
Mar. ..	185,400	Aug. ..	88,900	Nov. 8 ..	135,000
Apr. ..	114,400	Sept.	100,900	Nov. 1 ..	121,900
May ..	97,900	Oct. ..	119,200		

Discussion of Table

In *England and Wales* infectious diseases were more prevalent during the week and there were increases in the notifications of scarlet fever 264, measles 168, whooping-cough 44, acute pneumonia 43, dysentery 28, diphtheria 25, cerebrospinal fever 10, and polio-encephalitis 10. There were falls in the incidence of poliomyelitis 43 and typhoid fever 10.

A small rise in the incidence of scarlet fever occurred in most areas; the largest increases were Yorkshire West Riding 53, London 38, and Derbyshire 36. Increases in the notifications of measles were reported in Durham 63 and Surrey 40, with decreases in Staffordshire 39 and Norfolk 34.

The only change of any size in the notifications of whooping-cough was an increase of 33 in Lancashire. Notifications of diphtheria were the largest for 10 months, with increases in Yorkshire West Riding 7, London 6, and Durham 6.

The largest returns for dysentery were: London 25 (Wandsworth 13); Lancashire 19 (Liverpool C.B. 6, Hindley U.D. 6); Yorkshire West Riding 15 (Leeds C.B. 8, Huddersfield C.B. 6); Durham 15; Gloucestershire 10 (Bristol C.B. 10); Glamorganshire 10 (Cardiff C.B. 6).

In *Scotland* there were increases in the notifications of scarlet fever 96, acute primary pneumonia 50, and whooping-cough 20. An increased incidence of scarlet fever was reported from every area. In Glasgow there was an increase of 52 in the notifications of scarlet fever. The rise in the incidence of pneumonia was contributed mainly by the western area. The chief centres of dysentery were Glasgow 47, Edinburgh 10, and Stirling county 10.

In *Eire* increases were reported in the notifications of measles 149 and whooping-cough 37, while a decrease of 14 was recorded for cases of diarrhoea and enteritis. The rise in the incidence of measles was mainly due to an outbreak of 108 cases in Waterford, Dungarvan R.D. No. 1. The increase in the notifications of whooping-cough was mainly due to 29 cases in Waterford, Mullingar R.D. Of the 14 cases of typhoid 11 were notified in Co. Mayo (Castlebar R.D. 6 and Claremorris R.D. 5).

In *Northern Ireland* the chief feature of the returns was a rise of 65 in the notifications of scarlet fever; an increase of 37 cases was reported in Belfast C.B.

Quarterly Returns for Scotland

During the September quarter the birth rate was equivalent to 17.9 per 1,000, and was 1.0 below the average of the third quarters of the five preceding years. The infant mortality rate was 35 per 1,000 registered live births, which was 5 below the rate for the third quarter of 1948 and 14 below the five years' average. The general death rate at 10.1 per 1,000 was 0.4 below the five years' average.

Deaths attributed to the principal epidemic diseases numbered 34 and included 12 from influenza and 15 from whooping-cough. The death rate from respiratory tuberculosis was 51 per 100,000 and from other forms of tuberculosis 8 per 100,000: these figures were 4 and 5, respectively, below the five-year average.

Week Ending December 3

Notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,755, whooping-cough 981, diphtheria 90, measles 1,654, acute pneumonia 715, cerebrospinal fever 26, acute poliomyelitis 141, acute polio-encephalitis 15, dysentery 159, paratyphoid fever 7, typhoid fever 9, and food-poisoning 121.

Medical News

Nuffield Grant for Cortisone Research

The Nuffield Foundation has made a grant of £5,000 for research on the effects of cortisone in the treatment of rheumatoid arthritis. The research will be carried out under Professor W. T. Astbury, Professor R. E. Tunbridge, and Dr. R. N. Tattersall. As reported last week, the Nuffield Foundation has also made grants to the Universities of Oxford and Cambridge for work on cortisone and allied substances.

Heberden Society Dinner

The annual dinner of the Heberden Society was held at the Royal College of Surgeons on December 9, Dr. W. S. C. Copeman being in the chair. After the loyal toasts had been honoured, Dr. R. M. Mason, in proposing the health of the guests, welcomed Lord Webb-Johnson on his return from the U.S.A. and Canada, and the Heberden orator, Professor F. Wood Jones, F.R.S., who was later presented with the Heberden Medal. Lord Lucas, in replying for the guests, told a cautionary tale about medicine and politics. In proposing the health of the society Lord Webb-Johnson praised Heberden as one of the great clinicians in medical history. Referring to developments of the past decades Lord Webb-Johnson remarked that he had lived long enough to see James Mackenzie lay the foundations of cardiology. In response Dr. Copeman said the medical profession was much indebted to Lord Webb-Johnson for his interest in, and support of those working on, the rheumatic infections. He was glad to be able to say that Lord Webb-Johnson had accepted honorary membership of the society.

Bulgaria Leaves WHO

Bulgaria has decided to leave the World Health Organization. It has stated in a letter to WHO that the practical results obtained by WHO "appear completely insufficient, particularly in the field of international health aid." Soviet Russia, the Ukraine, and Byelorussia withdrew from WHO last February (*Journal*, February 26, p. 375).

Visits to North America

It is hoped that any medical men and women who intend to visit North America will inform the Secretary of the B.M.A. so that information of such visits may be forwarded to the Canadian Medical Association, which is anxious to be of help to doctors from the United Kingdom visiting North America.

Fulbright Travel Grants

The United States Educational Commission in the United Kingdom announces that, under the provisions of the Fulbright Programme, travel grants are available to citizens of the United Kingdom and Colonies to go to America for an academic or educational purpose, such as study, research, lecturing, or for other educational activities. Applicants must possess a guarantee of financial support in dollars in America for the proposed period of their stay. Undergraduate and postgraduate students must show proof of admission to an American institution of higher learning. All applicants must be affiliated with such an institution. Applications may be made by candidates who have not yet concluded these financial and institutional arrangements, and in certain rare cases of exceptional merit the commission will try to help obtain dollar support or institutional connexion for those candidates who have not been able themselves to complete these arrangements. Preference will be given to candidates who intend to stay nine months or more, but applications for shorter periods from well-qualified persons who cannot be spared from their present activities for so long will be accepted. Grants cannot be given for attendance at conferences alone. The travel grants are available for travel to America between June 1, 1950, and May 31, 1951. Those wishing to apply should write immediately to the United States Educational Commission in the United Kingdom, 55, Upper Brook Street, London, W.1, requesting a preliminary application card. After return of this completed card the appropriate further forms will be sent to applicants at a later date.

West of England and Wales Society of Dermatology

The inaugural meeting of the West of England and Wales Society of Dermatology was held at Bristol on Friday, October 28. Dr. Clifford D. Evans took the chair. It was decided to hold three clinical meetings each year. One will be held at Bristol in the fourth week of October, one in Wales in the fourth week of January, and one in Gloucester, Plymouth, or Exeter in the fourth week of April. The meeting will be on a Saturday morning and will take the form of a clinical demonstration and discussion followed by lunch. Dr. Robert P. Warin was elected secretary.

Dr. J. McK. A. Lowson

The Sultan of Johore has conferred the decoration of Insignia of the Order of the Crown of Johore upon Dr. J. McK. A. Lowson, Principal Medical Officer, Johore, in recognition of valuable services rendered by him.

A Sixtieth Birthday

The Scandinavian journal, *Acta Tuberculosea Scandinavica*, has recently published a *Supplement* (1949, No. 21) in celebration of Professor Arvid Wallgren's sixtieth birthday. Professor Wallgren, who was for 20 years senior physician at the Children's Hospital, Göteborg, is now professor of child health at the Caroline Institute in Stockholm. The list of his publications contains the titles of 229 papers and books, many on the subject of tuberculosis. The special supplement of *Acta Tuberculosea Scandinavica* contains a number of interesting papers, mostly on the subject of tuberculosis, by Professor Wallgren's Scandinavian colleagues.

Visitors from the U.S.A.

Dr. Harold S. Diehl, dean of the Minnesota School of Medicine, and Dr. L. W. Chandler, dean of the Faculty of Medicine, Stanford University, San Francisco, were guests at a reception held at the Royal Society of Medicine on December 6. They are visiting this country in order to study medical education and its relation to the National Health Service, and they will report their findings to the Council on Medical Education and Hospitals of the American Medical Association. Dr. Diehl and Dr. Chandler hope to return to this country in three or four years' time in order to find out what effect the National Health Service has had on medical education in the intervening period.

COMING EVENTS

Conference on Cardiovascular Diseases

A national conference on cardiovascular diseases will be held in Washington from January 18 to 20, 1950, under the joint sponsorship of the American Heart Association and the National Heart Institute of the U.S. Public Health Service. Dr. H. M. Marvin and Dr. C. J. Van Slyke, co-chairmen of the conference, have said in a published statement: "This conference we hope will provide the guide-posts for a comprehensive and concrete programme of action to correlate an all-out national attack on the heart disease problem."

Oxford Graduates' Medical Club

The 100th dinner of the Oxford Graduates' Medical Club will be held at the Royal College of Surgeons of England (Lincoln's Inn Fields, London, W.C.) on Friday, January 27, 1950, at 7 p.m. for 7.30 p.m., when the chair will be taken by Dr. C. M. Hinds Howell. Dinner jackets will be worn. Tickets may be obtained from Mr. E. G. Tuckwell, F.R.C.S., 73, Harley Street, London, W.1, price 26s. each. Cheques should be made payable to the Oxford Graduates' Medical Club and should reach Mr. Tuckwell before January 13, 1950.

SOCIETIES AND LECTURES

Tuesday

EDINBURGH POSTGRADUATE BOARD FOR MEDICINE.—At University New Buildings (Anatomy Lecture Theatre), Edinburgh, December 20, 5 p.m., "*Common Diagnostic Problems in Renal Disease*," by Professor Clifford Wilson.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—December 20, 5 p.m., "*The Treatment of Varicose Conditions of the Lower Limb*," by Mr. A. K. Monro.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—December 20, 3.45 p.m., "*The Larynx*," Arnott Demonstration by Mr. R. J. Last.

APPOINTMENTS

T. P. Mann, M.D., M.R.C.P., D.C.H., has been appointed Assistant to the Professor of Child Health at the Institute of Child Health, University of London, from November 1, 1949.

Dr. Mann will work in the Newborn Baby Department at the Postgraduate Medical School of London, Ducane Road, Hammersmith. He qualified at St. Mary's Hospital in 1941, and after serving as surgeon lieutenant in the R.N.V.R during the war was medical registrar at the Postgraduate Medical School.

EAST ANGLIAN REGIONAL HOSPITAL BOARD.—*Consultant Ear, Nose, and Throat Surgeon in Peterborough Area*, A. A. Finlayson, F.R.C.S. *Consultant Radiologist in King's Lynn Area*, Group Captain G. E. Church, M.B., Ch.B., D.M.R., D.M.R.E., R.A.F.

HINDE, R. T., F.R.C.S., Assistant Ear, Nose, and Throat Surgeon, Exeter Clinical Area, South-Western Regional Hospital Board.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Burslem.—On November 30, 1949, at the City Hospital, Chester, to Kathleen (née Griffiths), wife of R. W Burslem, M.D., M.R.C.O.G., a son.

Harris.—On November 11, 1949, at Nairobi, Kenya, East Africa, to Dr. L. B Mary Harris (née Watch), wife of Norman Francis Harris, a son.

Heanley.—On November 26, 1949, to Molly, wife of Charles Laurence Heanley, F.R.C.S., a third son.

Hughes.—On December 3, 1949, at Klinik Hirslanden, Zurich, Switzerland, to Joy (née Laxton), wife of Dr D. R. Hughes, a son—Christopher Dennis.

Tarnesby (formerly Tarnowski).—On November 28, 1949, at 6, Downside Crescent, Hampstead, London, N.W., to Eleanor (née Ettlinger), L.M.S.S.A. and Herman P. Tarnesby, M.B., B.S., D.R.C.O.G., a daughter—Ruth Marie Bettina Tamara.

DEATHS

Braterman.—On December 3, 1949, at 267, Ealing Road, Wembley, Middlesex Harry Lewis Braterman, M.R.C.S., L.R.C.P., aged 43.

Gavin.—On December 4, 1949, at his home, William Christopher Gavin M.B., B.Ch.

Jones.—On December 3, 1949, at Northgate, Russell Road, Rhyl, Flintshire Edward Hughes Jones, M.D., J.P., aged 84.

Jones.—On December 3, 1949, at 1, Grasmere Avenue, Whitefield, Manchester John Grant Jones, M.D., late of Birnie, Elgin, Moray, aged 77.

McDonald.—On December 6, 1949, at Belford Villa, Belford, Northumberland James McDonald, M.D., J.P., aged 82.

MacFaul.—On December 7, 1949, at his residence, Claremont, St. Helens Road Leigh, Lancs. Alexander MacFaul, M.B., B.Ch.

McKinstry.—On December 7, 1949, William Kilbourn McKinstry, M.R.C.S., L.R.C.P., aged 50

Munro.—On December 8, 1949, in London, Hector Munro, M.B., C.M., of 9, Queen Anne Street, London, W.1.

Ogg.—On December 5, 1949, at 1, Briardale Gardens, Hampstead, London, N.W., Theodore Alexander William Ogg, M.D.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Pulmonary Tuberculosis

Q.—*(1) I should be grateful for information about pneumoperitoneum and its advantages over other methods of collapse therapy, with special reference to phrenic nerve operations. How soon can a pneumoperitoneum be started, and what are the risks and contraindications? (2) What improvement may occur in tuberculous women as a result of pregnancy?*

A.—(1) The fullest information available about pneumoperitoneum is contained in A. L. Banyai's *Pneumoperitoneum Treatment*, published in 1946. Many physicians would consider that this presents a rather too enthusiastic view of the part played by this form of treatment in pulmonary tuberculosis. A very adequate, though less full, general account of artificial pneumoperitoneum in pulmonary tuberculosis will be found in the second edition of Kayne, Pagel, and O'Shaughnessy's *Pulmonary Tuberculosis*, edited by Pagel, Simmonds, MacDonald, and Fatti (1948). Only a few general observations can be made here. Pneumoperitoneum is best regarded as an adjunct to phrenic paralysis; unless the diaphragm is made rigid by old inflammatory changes, especially pleural, pneumoperitoneum allows the paralysed diaphragm to rise very high in the chest and thus effect selective relaxation of one lung. This relaxation is less complete than that obtained by a good artificial pneumothorax, but the possible pleural complications of pneumothorax are of course avoided. The treatment of recent acute tuberculous lesions by artificial pneumothorax leads to a high incidence of serous pleural effusions and empyemata; even if these are eventually absorbed they lead to gross pleural thickening and consequent serious diminution of pulmonary function. Hence in the treatment of such acute cases artificial pneumothorax is now generally avoided. Phrenic paralysis and pneumoperitoneum, however, can be instituted immediately without giving rise to the risks associated with pleural reactions. Hence these acute cases with predominantly unilateral disease form an important indication for pneumoperitoneum and phrenic paralysis. In such cases pneumoperitoneum should be regarded as probably only a preliminary to some further form of treatment. Phrenic paralysis and pneumoperitoneum may also be used as an adjunct to rest in bed in the treatment of less acute and less extensive lesions.

The only positive contraindications to pneumoperitoneum likely to be encountered are active tuberculous peritonitis and the presence of old peritoneal adhesions from any cause. Complications include air embolism, which seems to be nearly as frequent as in artificial pneumothorax; peritoneal effusion, which is very much rarer than pleural effusion in artificial pneumothorax and probably occurs in no more than 1 or 2% of cases; the accidental induction of pneumothorax if the pneumoperitoneum refills are given through the lowest intercostal space; pneumomediastinum; and the production of herniae in the usual hernial orifices, probably because of the increase in intra-abdominal pressure.

(2) This question also is difficult to answer briefly. It was the opinion of French physicians in the latter half of the nineteenth century that pregnancy actually benefited tuberculous women, and many physicians would agree that during pregnancy the general condition of tuberculous women often improves considerably. On the other hand, obstetricians take a gloomy view of the fate of the tuberculous woman after delivery; and physicians in general would agree that it is in the months after delivery that relapses of tuberculous disease tend to occur. Such statistical evidence as is available indicates that no ultimate difference in result will be found in comparable groups of tuberculous women who have borne children and of those who have not. This suggests that the slight improvement which occurs during pregnancy is offset by the greater tendency to relapse in the months after delivery. Certainly there is no statistical evidence to justify routine termination of pregnancy in tuberculous women. Recent papers worth consulting on this point include those by Stewart and Simmonds (*British Medical Journal*, 1947, 2, 726). Cohen (*Brit. J. Tuberc.*, 1946, 40, 10). and Friedman and Garber (*Amer. Rev. Tuberc.*, 1946, 54, 275).

Lymphocytosis in Whooping-cough

Q.—*A relative and pronounced lymphocytosis is an outstanding feature of an attack of whooping-cough. Is there any relationship between the severity of the attack and the degree of lymphocytosis? Is an injection of whooping-cough vaccine followed by lymphocytosis?*

A.—A leucocytosis with lymphocytosis (over 60%) is a characteristic response in whooping-cough, but no satisfactory explanation for its occurrence has yet been given. The lymphocytosis is most marked in the paroxysmal and whooping stages of the infection. It may be absent in infants under 6 months of age and, as infection is often very severe in infancy, the lymphocytic response cannot be regarded as a prognostic sign. Very high leucocyte counts, up to 100,000 or more per c.mm., are often found in cases with complications, such as bronchopneumonia, in which the total lymphocyte count may reach 60,000 per c.mm., but here the secondary bacterial infection may be an added stimulus. A lymphocytic response of varying degree to pertussis vaccine has been reported by Sauer (*J. Amer. med. Ass.*, 1933, 100, 239) to occur in some 60% of young children after two or three injections of vaccine.

Causes of Death

Q.—*(a) What are the commonest killing diseases in adults in order of frequency? (b) What groups of diseases—for example, cardiovascular, respiratory, alimentary, etc.—are responsible for most deaths, and has there been any change in the last 50 years?*

A.—*(a)* The numerical importance of a cause of death depends on the sex and the period of life considered. The most important causes of death for three broad age groups for the most recent triennium available are:

Actual Number of Deaths, 1945–7

Cause	Males					
	20–39 Years		40–59 Years		60 Years and Over	
	No.	% of All Causes	No.	% of All Causes	No.	% of All Causes
Tuberculosis ..	12,189	31·98	16,115	11·18	7,329	1·48
Cancer	3,083	8·09	29,658	20·58	78,666	15·88
Intracranial lesions of vascular origin ..	461	1·21	8,715	6·05	60,645	12·24
Heart diseases ..	3,625	9·51	30,151	20·92	166,629	33·63
Bronchitis	914	2·40	10,820	7·51	39,808	8·04
Pneumonia	1,175	3·08	5,662	3·93	15,931	3·22
Nephritis	1,496	3·92	4,300	2·98	12,909	2·61
Violence	6,624	17·38	9,506	6·60	12,149	2·45
	Females					
Tuberculosis.. ..	14,585	35·31	5,735	5·35	2,387	0·46
Cancer	4,229	10·24	33,791	31·49	76,114	14·81
Intracranial lesions of vascular origin ..	611	1·48	11,117	10·36	82,809	16·11
Heart diseases ..	4,369	10·58	18,915	17·63	180,779	35·18
Bronchitis	627	1·52	3,459	3·22	29,953	5·83
Pneumonia	1,187	2·87	3,072	2·86	15,149	2·95
Nephritis	1,441	3·49	3,909	3·64	12,758	2·48
Violence	2,557	6·19	4,330	4·04	11,839	2·30

(b) The second part of this question presents some difficulties. The fall in the death rates in each age group during the past 50 years has considerably modified the age structure of the population and the risk of dying from specific causes. Owing to the changes in classification and tabulation that have been made during this period because of the increase in medical knowledge a comparison of deaths over a series of years up to 1940 is open to objections. The introduction in 1940 of the

physician's preference when two causes are associated makes it impossible to compare the present classification with that of earlier years. A comparison of the deaths in 1931 with those in 1947, the longest series that can safely be used, is as follows:

Disease	1947		1931	
	No. of Deaths	% of All Causes	No. of Deaths	% of All Causes
Tuberculosis	23,075	4·5	34,959	7·1
Cancer	79,706	15·5	60,162	12·2
Diseases of the nervous system	65,458	12·7	50,781	10·3
Diseases of circulatory system ..	164,015	31·8	103,268	21·0
Diseases of respiratory system ..	60,740	11·8	80,279	16·3
Diseases of digestive system ..	21,044	4·1	25,785	5·2
Diseases of urinary system ..	20,411	4·0	25,354	5·2
Violence	19,826	3·8	21,395	4·4
Other causes	61,316	11·9	89,647	18·2
All causes	515,591	100	491,630	100

The crude death rate in both years was 12.3 per 1,000. The changes in the relative importance of the various groups of diseases, especially those which are the most frequent cause of death in old age, have been largely due to the decrease in the death rates throughout life, which has resulted in more people living to older ages than formerly.

Vitamin D_2 for Chilblains

Q.—*For the past four or five years I have been using ampoules of calciferol containing 600,000 i.u. of vitamin D_2 with great success in the treatment of chilblains, so far without any ill effects. I gave six ampoules—one each week. Recently I have been told that there is danger of calcification of the renal tubules with this treatment. Is this correct, and is the danger great enough to warrant stopping the treatment? Calciferol dragees, each containing 50,000 i.u. of vitamin D_2, are also obtainable. Would treatment by these be free from risk, and what dosage should be used?*

A.—A dose of 600,000 i.u. of vitamin D_2 per week is approaching an amount which can produce toxic symptoms. These may appear with a dose of 100,000 units daily. The use of large doses of vitamin D_2 is not free from risk, the chief results of overdosage being hypercalcaemia with calcification of the kidneys and blood vessels, anorexia, lassitude, headache, and albuminuria. *No controlled observations have been made to show that vitamin D is effective in the treatment of chilblains, and to use a drug in toxic doses for this purpose is hardly justified.* The rationale for the use of vitamin D in the treatment of chilblains rests on the false assumption that a raised blood calcium level will decrease capillary permeability, which may be increased in patients with chilblains. The prolonged use of doses of 50,000 units or more of vitamin D a day is justified only in the treatment of lupus vulgaris, and then it should be controlled by blood calcium estimations.

Boils in Ear

Q.—*How should a case of recurrent boils in the ear be treated?*

A.—Recurrence of boils in the ear may be due to general or local causes. Such diseases as diabetes and nephritis must therefore be excluded. Carbohydrate intake should be reduced, and a varied and well-balanced diet is important. Locally, care must be taken that cross-infection of the meatal wall is avoided, and that a chronic dermatitis does not result from the acute stage. A wick soaked in magnesium sulphate paste, which is generally preferable to aluminium acetate, will help. For some weeks after the acute stage is over the meatus should be mopped out with spirit 75%, or 2% gentian violet in spirit. If a chronic dermatitis is present it should be treated on the usual lines—as, for example, with linimentum calaminae. Various measures may be tried to raise the bodily resistance to staphylococcal infection, but the results are often poor. Ultraviolet-light baths to the whole body two or three times a week for four weeks have been advised by some authorities. The questioner might also refer to the article by W. M. Mollison which appeared in the *Journal* of October 22 (p. 923).

NOTES AND COMMENTS

Estimation of Erythrocyte Sedimentation Rate.—Dr. JAMES KELMAN (Perth) writes: In "Any Questions?" (November 12, p. 1127), in answer to the query whether flocculation should occur in the 3.8% citrate solution (taking this to refer to the blood-citrate mixture), it is stated that "if gross agglutination or flocculation occurs then either the blood has started to clot or the patient is suffering from gross hyperglobulinaemia, the most common cause of which in this country is myelomatosis." Granularity of the sedimenting cells is not infrequently to be found in any very rapidly sedimenting blood, but it has to be looked for. Using a micro-method which involves mixing citrate and blood on a cell slide, I have seen flocculation occurring on the slide on a number of occasions in blood from persons in the acute stage of severe scarlet fever and also in cases of active pulmonary tuberculosis. Balachowsky, S. (*Rev. méd. Suisse rom.*, 1923, **43**, 714), drew attention to this phenomenon, and declared it to be of bad prognosis. This was certainly not so in my scarlet fever cases, all of whom made a good recovery, but in the tuberculosis cases the longest period of survival was six months. The effect of tilting the tube, also mentioned in your reply under this heading, can be very marked. Wintrobe, M. M., and Landsberg, J. W. (*Amer. J. med. Sci.*, 1935, **189**, 102), state that even a difference of two or three degrees may accelerate sedimentation up to 30%. It is interesting however to note that Balachowsky in an earlier article (*Bull. Mém. Hôp. Paris*, 1925, **49**, 1141) showed that quick results could be obtained by using a stand which fixed the tubes at an angle, but this method does not appear to have found favour.

High-pitched Voice in Adult Male.—Dr. VERNON O'HEA-CUSSEN (Cork, Ireland) writes: The reply given to the question on high-pitched voice in adult male ("Any Questions?" November 26, p. 1246) is incomplete. It is doubtful if in ordinary practice hormone deficiency is ever more than an accessory factor in producing the falsetto voice. In normal voice production the larynx is pulled downwards by the sterno-thyroid and sterno-hyoid muscles for low-pitched sounds. For high-pitched sounds the use of the supra-hyoid muscles is necessary. Men with falsetto and "pressor" voices use the latter set of muscles almost entirely for all sounds. By training such individuals to use the infra-hyoid muscles to draw down the larynx the required change of tone in the voice can usually be readily and permanently attained.

Intranasal Oil.—Dr. GEORGE W. C. JOHNSON (Harrogate) writes: The intranasal use of oily preparations was mentioned in "Any Questions?" (November 26, p. 1245). It is pertinent to add to the answer printed a reference to the possible danger of "lipoid-cell pneumonia" following the use of these substances. When a student in America a few years ago I was taught that oily preparations can be hazardous, especially for small children, if given intranasally. I have not myself seen any patients adversely affected, but perhaps I may mention the section on lipoid-cell pneumonia in *Cecil's Text-book of Medicine* (1947, p. 142, Philadelphia) and also the abstract (No. 1846 in *Abstracts of World Medicine* for October, 1949) of a paper by Schneider (*New Engl. J. Med.*, 1949, **240**, 284) concerning mineral oil in the lungs.

Copra Bug.—Mr. JOHN A. FREEMAN, Ph.D. (Chief Entomologist, Ministry of Agriculture and Fisheries), writes: May I refer to the reply to the first item of "Any Questions?" for October 22 (p. 939)? I think it is incorrect to state that the "copra bug" is to be identified with the mite *Tyrophagus castellani*. The insect commonly known as the "copra bug" is the Clerid beetle, *Necrobia rufipes* DeGeer, which is often very common on cargoes of copra and other "oil seeds." Although it is frequently accused by dockers of biting, there does not appear to be any evidence that it can do so. The irritation resulting from the handling of copra and other infested conditions is as your reply states, properly attributed to the presence, at some time, of the particular mite.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY DECEMBER 17 1949

THE SECRETARY REPORTS

RETROSPECTIVE APPLICATION

The terms and conditions of service now being implemented for hospital medical staff apply with retrospective effect to the appointed day. Boards have discretion to make adjustments of salary, items-of-service payments, expenses, etc., relating to the interim period, on the understanding that the effect to be achieved, so far as practicable, is that which would have obtained had the terms and conditions as a whole been in operation since July 5, 1948. Guidance on this subject is given in the explanatory memorandum issued by the Ministry with the terms and conditions of service.

General Application

In general, the salary will be adjusted in accordance with the practitioner's recent grading, except where different posts have been held since July 5, 1948. The retrospective adjustment will be made in relation to the amount of services rendered during the period for which an interim remuneration has been paid, and not—where there is an alteration—on the basis of the permanent contract.

Thus, a consultant who has been doing four sessions and is now offered a contract for six sessions will have his salary adjusted in respect of the interim period on the basis of four sessions. If the salary already paid in the interim period exceeds that to which the practitioner is now entitled retrospectively, the excess will not be recovered. But where under their old conditions whole-time officers have been permitted private fees the whole amount earned may be expected to be offset against any *upward* adjustment of remuneration. Similarly, where the interim rates of payment for domiciliary consultations were more favourable than the new rates (e.g., the 10 guineas payment for major operations) the overpayment, both in the case of whole-time and part-time practitioners, will be offset against any *upward* adjustment either of other domiciliary service payments or of salary.

On the other hand, fees for domiciliary consultations in excess of the maximum for which payment was made under the interim arrangements may be claimed at the new rates and subject to the new maximum where records of these cases have been kept.

Whole-time officers will not be required to pay back any fees paid for domiciliary consultations during the interim period. Where records have been kept pending settlement in the light of the new terms, the provisions of paragraph 14 (regarding the retention of fees for services outside the scope of the Service) may be implemented retrospectively.

Some adjustment may be necessary in respect of exceptional consultations carried out in the interim period. It was not the intention of the Ministry that this work within the area of the employing authority should attract additional remuneration where the consultant was already earning the interim maximum salary of £1,600. Therefore, if special payment has been made for these visits in cases where the consultant was employed for nine or more half-days per week, the payment will be offset against the adjustment now due to bring the interim salary up to the permanent terms. Where the consultant's interim remuneration was less than £1,600, or he was doing fewer than nine half-days a week, then if the application of the terms would bring the work within the assessment of part-time services, and an adjustment of the number of half-days is possible, such adjustment will be made and the items-of-service payments already made for exceptional consultations will be offset against the upward adjustment of remuneration.

The new salary scales are gross, and therefore any reduction for emoluments will be retrospective to July 5, 1948.

If sick leave has been taken during the interim period the balance of pay will be paid in cases where the new conditions are more favourable than the old. If less favourable, the overpayments will not be recovered or offset against other adjustments.

The new rates of travelling allowances and expenses, where higher than those previously operative, may be applied retrospectively so far as possible. Where a detailed adjustment is impracticable, settlement may be made by agreement with the practitioner.

The initial special distinction awards will be applied retrospectively, but application of the terms will not be withheld in expectation of a distinction award except at the consultant's request.

Retrospective adjustment of salaries will be made to practitioners who have resigned or retired, and to the estate of those practitioners who have died since July 5, 1948.

The provision in the terms for the medical examination of officers on appointment does not apply retrospectively.

Medical Superintendents

The arrangement under the terms for the apportionment of the salary of medical superintendents according to the proportion of time devoted to clinical and administrative work is retrospective, except for those transferred officers who elect to retain their old salary and conditions of service.

Registrars and House Officers

In the case of these officers the *post or posts* held by a practitioner from time to time since July 5, 1948, will be classified and the new rates of remuneration then adjusted retrospectively to the post or posts. Overpayments of salary need not be recovered. This applies also to the holders of supernumerary posts under the scheme for postgraduate education of ex-Service practitioners; where the post held by a Class III officer is now graded as a house-officer post, the remuneration at the rate appropriate to a Class III officer should be allowed to stand.

House officers will have the period since the date of registration during which posts in this grade have been held divided into six-monthly periods, their interim remuneration being adjusted at the rate of £350, £400, and £450 in respect of the first, second, and third or subsequent six-month periods.

Boards of governors, regional boards, and hospital management committees are proceeding with the necessary adjustments, and where payment has not already been made members of hospital medical staffs may expect to receive any sums to which they are entitled in due course. In the absence of an automatic settlement application should be made in the case of consultants and senior hospital medical officers to the regional board, and in the case of other staff to the hospital management committee, except in the teaching hospitals where the claims should be to the board of governors concerned

SPECIAL DISTINCTION AWARDS

The Council of the Association and the Central Consultants and Specialists Committee have given careful consideration to the question of special distinction awards. They feel that neither body, nor the Regional Consultants and Specialists Committees, should take any active part in the procedure for selecting consultants for these awards—as, for example, by recommending the names of individual practitioners. The following comments and suggestions have, however, been forwarded to the Advisory Committee on Merit Awards.

Assessment of Merit

Merit should be defined as the total professional value of the consultant to the community, and the following factors should be taken into consideration in assessing merit:

(*a*) The nature and responsibility of the post (or posts) held, and the standard of efficiency attained in the performance of the duties of the post (or posts).

(*b*) Professional qualifications and academic or other professional attainments.

(*c*) The value of the consultant's researches and of his published works.

Procedure for Obtaining Evidence

One of the major difficulties of the National Committee will be the obtaining of reliable evidence on the relative merits of consultants throughout the country. All consultants have been asked to give details of their professional careers, and this information will prove of value to the National Committee. The committee will nevertheless need to be guided to a very large extent by a balanced local opinion on the respective merits of individual practitioners.

For this reason it is recommended that the National Committee, in consultation with boards of governors and regional hospital boards, should establish in each region a committee composed of distinguished practitioners of consultant status who are not themselves interested in merit awards (i.e., being already in receipt of the highest award or retired from practice), and that these committees should be asked to select consultants in the region for recommendation to the National Committee.

Publicity

It would be undesirable that any publicity should be given in the lay press to the practitioners who receive awards, but at the same time information regarding the awards should be available to the profession. If this principle is accepted, it follows that there should be no publication of lists of recipients even in the medical press.

Accordingly it is urged (*a*) that a list of recipients should be made available to the Joint Committee and to its constituent bodies; (*b*) that boards of governors and regional boards should inform medical committees and medical advisory committees of the names of the recipients in their areas (apart from this the boards should be instructed to regard information relating to awards as confidential); and (*c*) the Joint Committee and its constituent bodies should also be informed of the distribution of awards in the various regions and among the various specialties.

INVALIDED FROM H.M. FORCES

MEDICAL REPORTS AVAILABLE

The Ministry of Health reports that Service Records Offices are receiving many requests from medical practitioners for information contained in the medical reports of personnel invalided from the Forces. These applications should be addressed to the area executive council.

[illegible] of October 22 (p. [illegible] the Ministry of Health, and [illegible] executive council for the area where the person concerned has his permanent address. Where the invalided person has given consent on the relevant form to the disclosure of the medical history, the medical report should be sent to the doctor who has accepted that person on his list for medical treatment.

ABUSE OF HEALTH SERVICE

CHANGES OF DOCTOR

The opinion that the National Health Service is being abused was expressed at a recent meeting of the executive council for the county of Ayr. During the first year of the Service 4,016 people have changed to another doctor in the same district of Ayrshire. The executive council passed the following resolution, sending copies of it to the Secretary of State for Scotland and the Scottish Association of Executive Councils:

That the Executive Council for the County of Ayr are of opinion that the administration of the National Health Service Act has disclosed abuses in the use of the services provided by it; that the right of persons on a doctor's list to change their doctor at any time, without notice, facilitates abuse of the general medical service; that the procedure for change of doctor which was required under the National Health Insurance Acts would tend to prevent such abuse, and the Council advise that that procedure be instituted

CIVIL SERVICE APPOINTMENTS

EXAMINATION OF CANDIDATES

The Air Ministry has informed the Association that, when a candidate for an established Civil Service post in that Department is medically examined, the practitioner will be paid a fee of 25s. for the form of report required. This change brings the Air Ministry into line with other Government Departments.

GENERAL PRACTITIONERS AND HOSPITALS

SCOTTISH INQUIRY

The Secretary of State for Scotland has asked the Scottish Health Services Council to advise him on how a closer working relationship can be achieved between the general practitioner and the hospital and specialist services. This may be an important step towards making available to general practitioners facilities to look after their own patients in certain types of hospital.

The council has been asked to consider:

The availability of the hospital laboratory services and the consultants in laboratory medicine to the general practitioner.

The duties which general practitioners could discharge as members of hospitals staffs.

The extent to which accommodation in general and cottage hospitals should be available to general practitioners for treatment of their own patients.

The means whereby the general practitioner in an area can best be kept in touch with the consultants on the staff of the hospitals serving that area.

GENERAL PRACTITIONERS' REMUNERATION

DEPUTATION TO MINISTRY

The following deputation appointed by the General Medical Services Committee will go to the Ministry of Health on December 22 to discuss the resolutions passed by the G.M.S. Committee at its meeting on December 1 (*Supplement*, December 10, p. 252): Dr. S. Wand, Dr. E. A. Gregg, Dr. W. Jope, Dr. H. G. Dain, Dr. F. Gray, and Dr. W. M. Knox.

Questions Answered

Certificate for Midwife

Q.—*With regard to the certificate required by a midwife for gas-and-air analgesia, I should be grateful for guidance on the following points: (a) Apart from examining heart, lungs, and urine, is any antenatal examination required? (b) If no antenatal examination is required, from whom is the certificate fee claimed?*

A.—The Central Midwives Board requires a midwife at some time during the pregnancy to obtain a certificate from a medical practitioner to the effect that the patient has been examined to determine whether or not there is "any abnormality to contraindicate the administration of gas-and-air analgesia" by the midwife. The wording quoted above is that suggested by the Central Midwives Board, and no exact details of the examination are specified. The examination does not include an antenatal examination. The medical certificate is not included among those which the Ministry has decided must be given to a patient without charge

Specimens in the Post

Q.—*In view of the stringent regulations of the Post Office regarding the posting of specimens, published in the Supplement of October 15 (p. 169), what provision is made to provide general practitioners with the requisite containers?*

A.—In some instances laboratories and institutes supply the receptacles, but where that is not the case the practitioner dispatching the specimen is responsible for providing the receptacle and for ensuring that the package complies with the Post Office regulations.

Assistant's Superannuation

Q.—*I am employing an assistant with view to partnership in due course. He has worked hitherto in a hospital and has been paying superannuation contributions. Am I liable to pay superannuation contributions on his behalf, and, if so, to whom, and in what proportion?*

A.—The principal as the employing authority is required to pay 8% of the assistant's salary. The assistant himself pays 5%. The assistant's salary should be notified to the executive council (excluding car allowance), which will then deduct 14% of this amount from the principal's remuneration. Six per cent. is recoverable by the principal from the sums paid to the assistant.

Effect of Act on Partnerships

Q.—*By partnership agreement made before July 5, 1948, I have a quarter-share. The senior partner and myself joined the National Health Service. After a period of five years, that is to say in 1953, I have the option of making my share one-third by payment to the senior man of a stated sum of money. Does this entail my paying the money, or does the State take over this responsibility and allow me to become owner of one-third?*

A.—The Amending Bill, now before Parliament, deals with this point explicitly, and the following are the relevant clauses. Any ambiguity which at present exists will remain only until the Bill becomes an Amending Act in the near future.

Section 1 (3).—Section thirty-five of the National Health Service Act, 1946 (hereafter in this Act referred to as "the Act of 1946"), which prohibits the sale of medical practices, shall not affect, and shall be deemed never to have affected, the exercise or performance under any partnership agreement to which this section applies (i.e., "any partnership agreement in force on and immediately before the Appointed Day") of any right or obligation of a partner to sell to, or purchase from, another partner any share in the goodwill of the partnership practice, but any such agreement shall have effect subject to the following provisions of this section.

Section 1 (5).—Where any agreement to which this section applies imposes an obligation or confers an option on a listed or new listed partner to purchase the share of another partner being a listed partner in the goodwill of the partnership practice, and, in the case of an option, the option has been exercised, that share shall be transferred at the time and on the terms (except as to the payment of the purchase price) provided in the agreement, and there shall be paid to the partner from whom the share is transferred, on or as soon as possible after the completion of the transfer, in complete satisfaction of the purchase price, the compensation determined as aforesaid in respect of that share.

Heard at Headquarters

Unfathomable

Much has been heard about the millions and prospective millions in the medical pool for general practitioners in the N.H.S., or, as it is sometimes called, the "kitty," but the doctors on the General Medical Services Committee the other day were rather abashed to hear their dental colleague—an observer who sits on the committee as representing the parallel dental body—describe it as only a "puddle." He compared it, to its disadvantage, with the dental pool, which, he said, was "unfathomable." The dentists are not remunerated from a pool at all.

A New "High"

A new high record has been reached in the Association membership. In the middle of September it stood at 62,334, being over 2,000 more than the figure in April. The percentage of membership to the total profession in the United Kingdom is 77, and the percentage to the working profession (that is, excluding retired practitioners) is just on 79. Saturation must one day be reached, but an average accession of 100 new members a week during the last five months gives no sign of it

Canadian Tour

Sir Lionel Whitby, Past President of the Association, carried out a strenuous tour of Canada when he went there as the Association's delegate at the end of August. He attended and addressed meetings in six of the Provinces, travelling out as far as Manitoba, and being prevented from going further west only by his commitments in the United States. Immediately on his arrival he spoke on "Nationalized Medicine" at a dinner given in his honour at Quebec, and he found this subject in demand wherever he went. He addressed a special meeting in Montreal of the Quebec Province Division of the Canadian Medical Association, and attended divisional meetings in New Brunswick, Prince Edward Island, and Nova Scotia. In Toronto he spoke at a large meeting of the medical faculty.

Booklet on Medical Ethics

The inexperienced doctor—and we have all been that at some time—often finds that medical ethics is a subject full of pitfalls and governs conduct in situations that sometimes catch him by surprise. The Association has therefore prepared a booklet setting out the main points of medical ethics that the practising doctor should know about. Council has agreed that it should be circulated to all members of the profession in the United Kingdom on qualification, to all those living in the United Kingdom, and to any others who like to apply for it. Sufficient copies have not yet been printed, but they should be available soon.

The Secretary of State for Scotland has appointed Miss E. W Himsworth, R.G.N., S.C.M., to be a member of the Scottish Health Services Council in place of Miss C. M. Keachie, R.G.N., S.C.M., H.V.C., who has resigned. Since 1946 Miss Himsworth has been superintending nursing officer, responsible for health visiting and midwifery services, of Aberdeen Town Council. She has been appointed by the council of the standing advisory committee on nursing and midwifery, local authority services, and health centres, and to the child health committee of the council.

INTERNATIONAL MEDICAL VISITORS BUREAU

The British Medical Association has established an International Medical Visitors Bureau in order to provide a personal advisory service to medical practitioners visiting the United Kingdom from countries outside the British Commonwealth. (For medical practitioners visiting the United Kingdom from countries within the British Commonwealth a similar service has been provided for some time by the B.M.A. in its Empire Medical Advisory Bureau.)

The International Medical Visitors Bureau is at British Medical Association House, Tavistock Square, London, W.C.1. Buses numbered 68 and 77 pass the door, and the nearest underground railway stations are Russell Square (Piccadilly Line) and Euston Square (Inner Circle and Metropolitan Lines). The Medical Director of the Bureau is Dr. H. A. Sandiford, to whom all communications should be addressed.

Information is available at the Bureau on postgraduate education facilities, and visits to hospitals and clinics can be arranged. Assistance in finding accommodation will be given. General information on food rationing, petrol allowances, cars, facilities for sports, travelling exhibitions, theatres, etc., is available.

It will enable the Bureau to be of most service if a visitor gives as long notice as possible of his intended visit to Great Britain, and information on the following lines would also be useful—projected date of arrival, mode of travelling, period of stay, main objects of visit, and requirements from the Bureau.

CERTIFICATE WITHOUT SEEING PATIENT

The London Executive Council on October 27 adopted the report of its medical services committee on a case which was raised by Mrs. A against Dr. B, her late husband's medical attendant.

According to the report, Mrs. A told the committee that her husband saw Dr. B on Monday, May 9, when he complained of pain in the back and ribs. The doctor thought that the pains might have been caused by rheumatism, and he issued a National Insurance certificate. On the following day Mr. A was feverish and complained of headache. Mrs. A saw the practitioner at his evening surgery and said that her husband looked yellow and appeared ill. According to her account the practitioner said that it was "a bore" to go out in the evening but that he would call the following morning. He did call on Wednesday, May 11, and found that the patient was jaundiced. He gave a prescription and some advice on the patient's diet. On Sunday, May 15, Mr. A was very feverish again, and his wife called on the doctor on the Monday to obtain a certificate. The doctor, prompted by Mrs. A, certified that the patient was suffering from "jaundice." He also gave her a prescription for tablets. On Tuesday, May 17, the patient was decidedly worse, and Mrs. A went to the doctor's surgery and asked him to call. The doctor immediately wrote out a certificate for the removal of the patient to hospital. Because of some misunderstanding it was about three hours before the ambulance arrived. The patient died on the way to hospital. The cause of death was obstructive jaundice due to a stone in the common bile duct.

Dr. B denied that he had said it was "a bore" to go out at night. He told Mrs. A that the diagnosis of jaundice was difficult in artificial light and that it would be better to see the patient in the morning. The following day he thought the patient was suffering from catarrhal jaundice, since there was nothing to indicate obstructive jaundice, and he prescribed "the usual alkalines and salines." He heard no more till he saw Mrs. A on Monday, May 16, when he gave her a certificate. Early the following day he could tell from her demeanour that events had taken a serious turn. He therefore telephoned for an ambulance and arranged for the admission of the patient to hospital. At the same time he wrote a certificate for admission, giving "Jaundice—? liver necrosis" as the diagnosis. He had not gone to see the patient on this occasion because he considered that the time would be better spent in arranging for prompt admission to hospital.

Findings

The committee found as facts that the practitioner was requested to visit the patient on May 10 and visited him on May 11; that on May 16 the doctor was informed by Mrs. A of the seriousness of her husband's illness; that a certificate of incapacity was issued, although the patient had not been examined since May 11; and that a request for a visit on May 17 resulted in the issue of a certificate for admission to hospital.

While the committee took the view that nothing the practitioner could have done would have prevented the patient's death, they held that the standard of care provided fell short of that required under the terms of service. The practitioner should not have issued a certificate to a patient whom he knew to be ill and who had not been examined for five days previously, and he should not have arranged for admission to hospital without first satisfying himself that the patient was in a fit condition for removal. The committee therefore concluded that the practitioner concerned failed to comply with the terms of service in that a certificate of incapacity was issued on May 17, 1949, without his seeing the patient; and that the standard of care fell short of that required of a practitioner participating in the National Health Service.

The committee recommended "that the practitioner be censured; that representations be made to the Minister of Health that, owing to the failure of the practitioner to comply with his terms of service, the sum of £25 be withheld from his remuneration; and that the complainant, the practitioner, and the Minister of Health be informed accordingly."

Correspondence

Domiciliary Visits

SIR,—The introduction of the domiciliary consultation scheme was received by most of us with enthusiasm, because it seemed to promise, among other advantages, the prospect of a closer relationship between hospital consultants and family doctors. The gap between consultant and general practitioner has unfortunately been growing in the past, and Dr. J. M. Lipscomb[1] has recently well described its unfortunate effect on the patient who attends a hospital out-patient department. Now, it is clearly unreasonable to expect a family doctor to accompany every case he sends to out-patients, but one had hoped that the domiciliary consultation would enable him more often to meet consultants and to discuss personally with them in the patient's home, at least some of his problems. Such personal contacts had, before the introduction of the scheme, been limited to occasions when private patients could afford a consultant's visit, and had in some practices been rare. Equally one hoped that the consultant would likewise benefit by closer personal contact with his general practitioner colleagues.

These advantages of the scheme are so obvious that one would think they hardly needed emphasis. Yet it would seem that there is a widespread and growing custom whereby a family doctor rings up a consultant (or his secretary, or the hospital bureau) and notifies him that he would like a patient visited some time. The consultant visits the patient when he chooses, and later writes to or rings up the doctor to give him his opinion. This practice, which one might term a "domiciliary visitation," seems to have only about half the value of domiciliary consultation. Its apologists say (*a*) that the family doctor often is too busy to be able to fit such a consultation, which may take half an hour or more, into his day's work, or (*b*) that the consultant has so many requests for domiciliary visits that he cannot fix definite times for them, but must do them whenever he has a spare moment.

To (*a*) one might reply that if a doctor cannot make time to meet a consultant over an occasional difficult case he must be singularly uninterested in his work; alternatively, if he requires the services of consultants so frequently that the consultations seriously encroach on his time, that he must be somewhat lacking

in diagnostic ability or, if he himself requires no guidance, remarkably unresistant to the demands of importunate relatives. To (*b*) one might reply that the consultant has the remedy in his own hands. He can refuse to do any domiciliary visit unless the family doctor also attends; he would then no doubt find that the number of visits he was asked to do would diminish. Unfortunately, so too would his remuneration at the end of the quarter, and to some this is a potent deterrent to action.

There are other objections to the domiciliary visitation, as contrasted with the domiciliary consultation. The disadvantage to the consultant of the absence of the family doctor's assistance in the matter of history and background is obvious. Often the consultant must hedge in his answers to the patient for fear of unwittingly "letting the family doctor down." Moreover, if he thinks that immediate action, such as removal to hospital, is required, he is often put in an awkward dilemma unless he can (as is seldom possible) get into immediate contact with his colleague. The family doctor loses because the consultant may, in all innocence, make a remark to the patient which the latter interprets as indicating a blunder on the part of the family doctor; or some point of advice to the patient which he wished the consultant to make or to reinforce may be missed. In practically every case the patient does not receive from the scheme the fullest advantage that he might.

One further point: there is little enough dignity left to our learned profession these days. Domiciliary visitations seem to savour uncommonly of "mechanization" and of all the worst implications in the term of "State medicine." Not so long ago, and perhaps even now, the advent of a consultant, and the ordered ritual dignity of the consultation, were something of an event to a patient. Is it merely pompous to regret that such a thing should cease to be? Alas, one can foresee a day not so far distant when the question, "Mary, is that the gas-man come to look at the meter?" receives the reply, "No, Mother, it's the hospital man come to look at Dad."

Nevertheless, Sir, it is chiefly because I feel so strongly that what should be one of the best links between a consultant and his general practitioner colleagues is in danger of becoming rusty through disuse that I would like to urge a future universal strict adherence to the unwritten rule (for Heaven forbid that it should ever be the subject of yet another regulation!) that a domiciliary consultation is always in reality a personal meeting between colleagues—what, in fact, everyone has hitherto understood by the term "consultation."—I am, etc.,

Adwy, Denbighshire. JOHN FORBES.

REFERENCE

1 *Lancet*, 1949, 2, 495.

Obstetrics in General Practice

SIR,—Much has been said recently on this subject, but as it is a matter of considerable importance, alike to patient and to doctor, it is surely worth while to consider what principle should guide us in our attitude to the new maternity medical service.

It can hardly be denied that the really important thing is what the expectant mother herself wishes. Clearly she should be free to decide whether the required obstetric services—antenatal, during labour, and post-natal—should be rendered to her by the doctor of her choice plus a nurse, or by a midwife plus an antenatal clinic.

After thirty years of the practice of obstetrics in general practice I know that when a patient comes and asks me to attend her she means me to look after her all the way through—to exercise real and continuous antenatal care, to "stand by" at the labour, and to watch over her afterwards. The introduction of the new scheme has not altered this in the least, and I am glad to find that it is so.

In respect to antenatal care, it is doubtful whether it is possible to ensure the safety of the patient without at least seven examinations. Supervision of the labour by the doctor can mean and should mean increased confidence of, and added safety to, the patient. It can mean and should mean greater relief at the end of the second stage. The puerperium surely demands at least six visits, apart from a late post-natal examination.

Continuity in responsibility should be one of the guiding principles in obstetrics, and I would venture to add that acceptance of such responsibilities, though it often involves hard work, late hours, and sometimes considerable anxiety, can add most notably to the interest of general practice, can give a most abiding sense of satisfaction (though never of complacency), and brings in full measure from patients and their husbands gratitude, often expressed and often equally obvious though unspoken.

The nominal role of medical inspector envisaged by the scheme, if accepted by the doctor, may well result in the complications of pregnancy, which generally arise insidiously, being missed, and unless the doctor is informed of the onset of labour and keeps in touch with its progress it is only too likely that he will not be readily available or in a position to render prompt and efficient treatment in some of those serious complications of labour which, as we all know, can arrive swiftly and menacingly.

It is not clear in whose sterile imagination this so-called maternity service was fortuitously conceived, but it is pretty clear that if the intention of the scheme is carried out it is of precious little use to the patient, somewhat humiliating to the doctor, and in effect places a premium on inadequate and incomplete service. It seems at least doubtful whether the two paltry minimum antenatal attendances are of very much more use to the patient than the fleeting and infrequent visits of the gentleman who calls to inspect the gas meter.

It might reasonably be inferred that I am not greatly enamoured of the new maternity service. It is true, however, that the new service is restrictive only by implication and by the insidious enticement of pecuniary considerations, but there is nothing beyond this to prevent a full and complete service being given. Quite seriously, and with all respect, I would urge the younger men starting in practice not to let the temptation of easy money lead them to acquiesce in, and practise, a scheme which is really a travesty of obstetrics, which is little short of an insult to an intelligent patient, and which is calculated to bring, at no distant date, discredit to the profession.—I am, etc.,

London, N.W.7. A. H. MORLEY.

Income Tax and Whole-time Appointments

SIR,—The recent decision of the council of the Royal Society of Medicine to raise the annual subscription to this society—a decision which we regard as a regrettable necessity—prompts us to draw attention to a position which we consider increasingly anomalous.

The income-tax authorities have for long allowed claims by general practitioners and specialists, who are assessed under Schedule D, for relief in respect of annual subscriptions to professional journals and learned societies and the replacement of equipment, books, etc.; but those of us who hold full-time hospital appointments and are assessed under Schedule E receive no such dispensation.

There are many doctors in our position who may be following for a decade or more after qualification the long, stony, and relatively poorly paid path towards an increasingly problematical consultant status to whom the need to keep in touch and abreast with day-to-day developments in the various branches of medicine is at least as important as to the more established members of the profession. We do therefore most strongly urge the B.M.A. to press for a revision of this invidious and inequitable state of affairs.—We are, etc.,

MICHAEL BOSTOCK.
Norwich. JOHN SIMPSON.

The Growing List

SIR,—I apologize if my reasoning is faulty, but there seems to be one point missed regarding the basic salary and whether it should or should not be paid.

Since my panel on July 1 was 900 (approx.) my remuneration for the period July–September was based on this figure. But on September 30 my panel had risen to 1,500 (approx.), and since the increase, if plotted on a graph, would be represented by a straight line (approx.) I presume that I would actually be at risk during that period for a panel of 1,200. In the same way,

as my panel by December 31 will be a little over 2,000. I shall not receive remuneration corresponding even approximately to the number of units to which I am at risk.

When in addition it is considered that as a squatter one is largely depending upon ill people for an income, in contrast to the established practitioners, it is not only a question of "at risk remuneration." One's work is often out of all proportion to one's panel.

Our leaders, however, both locally and centrally, do not suffer squatters gladly, so perhaps I should just be thankful for small mercies.—I am etc.,

Carlisle. M. LUDLAM.

Public Health Salaries

SIR,—Negotiations on the salaries to be paid to medical officers engaged in the public health service have been going on for some considerable time, but so far no decision has yet been reached. In fact, detailed discussion with the responsible organizations has not yet commenced. That being so, I feel that it is not yet too late to put on paper my own observations on the proposed salaries, which were published in the *Supplement* of January 29 (p. 45).

The salaries are based on population, seniority, and responsibility. A brief glance, however, at the scales and at the populations of the towns and cities of the country will reveal that very few medical officers of health, deputies, or senior medical officers will ever receive a salary comparable to that of a consultant, and yet many of these officers are in possession of equivalent qualifications and hold positions of great responsibility. It is not difficult to visualize the picture of a senior officer in one department spending the rest of his or her life as the senior officer of that department, yet because of a system of salaries based on population and not on responsibility or capability that officer will never get the salary of a consultant.

It may be argued that after many years there may be special payments on merit to these officers, but there are obvious drawbacks to such a system. I feel that officers in the public health service should be treated as their colleagues in the hospital service—i.e., that there can be more than one officer within a department who could be paid on a "consultant-in-public-health rate" and not reserve this salary to the few medical officers of health who will qualify for it because they happen to be in charge of an area with the requisite population. I would, however, suggest that the chief of the department should be given a merit award for his responsibilities, just as it is suggested that there should be merit awards in the hospital service.

The effect, I am sure, of this procedure would be to ensure a constant supply of medical officers for the service. In addition, it would stop the flow of medical officers from places with a small population to larger counties and cities, and so maintain the efficiency of the service.—I am, etc.,

Leicester. ALEXANDER HUTCHISON.

Catching the Chemist

SIR,—The letter under this heading from Dr. W. Edwards (*Supplement*, December 3, p. 247), and your annotation on the subject (*Journal*, December 3, p. 1283) are of importance to all N.H.S. practitioners.

Unfortunately Dr. Edwards has more or less contracted to do this catching. In para. 11 of his terms of service it says, "A practitioner shall comply with any reasonable request from his executive council to furnish orders on a form provided by the council for drugs and appliances for the purpose of testing," etc. Also, the testing scheme has been devised in agreement with representatives of the medical profession and the Pharmaceutical Society, I am informed.

What were our representatives doing to agree to such an ungentlemanly scheme?

The method you suggest, Sir, in your annotation of taking the chemist by surprise and asking him to hand over a few made-up prescriptions for testing is preferable and above-board. Is it too late now for our representatives to endeavour to annul this grossly unpopular scheme?—I am, etc.,

London, N.9. M. P. K. MENON.

Representative Meetings

SIR,—Even in these days when the Association's expenses are increasing at an alarming rate, surely there is one matter on which no economy should be attempted. No money should ever be spared which helps contact between the periphery and the centre. As reported by you, Sir, the vote went against my proposal in Council for an S.R.M. to consider the Council's constitution, but I think Dr. J. A. Pridham is wrong in his statement (*Supplement*, December 10, p. 255) that the cost was the chief reason why the Council voted in this way. The Treasurer made a statement of the cost of an S.R.M., but I am glad to say that I cannot recall any other mention of the matter.

Naturally I realize that attending an S.R.M. is a comparatively simple matter for a Londoner, and I am told that in some parts of the country Representative Meetings are viewed with apathy. But there is possibly a more cogent reason than distance for this apathy. Some representatives may feel that the R.B. is no longer the policy-forming body of the Association. In the crisis of 1948 it was not even consulted, and now, with many of the important issues in the hands of autonomous bodies, it has little say in anything but domestic issues. Representatives may also feel that, as the Council's activities are restricted in the same way, its constitution is not a matter of great importance.

That there is ground for such beliefs is a disaster. But the Representative Body must fight back. If it wants an S.R.M. to consider the Council's constitution, it must have one, but there are wider and more important issues for which it can fight if it wishes. What about all the brave talk of two years ago—grants-in-aid, curtailing the powers of the Minister, and so on. The R.B. is the only part of the Association that can foster such issues. Surely it is not going to lie down like a good dog just because it is told that things can't be changed.—I am, etc.,

London, N.W.1. R. HALE-WHITE.

Constitution of Council

SIR,—I, like Dr. Ronald Gibson (*Supplement*, December 3, p. 247), was amazed to read of the Organization Committee's proposals for altering the constitution of the Council and of the Council's virtual endorsement of them. It is evident that both have failed completely to implement the wishes of the Representative Body.

It is to be hoped that all members will give this matter their careful consideration. Council has been much criticized during the past few difficult years and has been accused (sometimes rightly, in my view) of being out of touch with the views of the majority of the profession. In rejecting Council's proposals for reforming its constitution at the A.R.M. at Harrogate the Representative Body was supporting the view that a far larger proportion of the members of Council should be directly elected by more numerous and smaller constituencies. The latest proposals make practically no improvement in this direction and, as Dr. Gibson points out, still give less than 50% of seats to directly elected members.

An attempt is being made to improve and strengthen the Association at this difficult period of its history, and it is desirable that every member should express his views by instructing his representative when the matter is again put before the Representative Body for its judgment.—I am, etc.,

Churchdown, Gloucester. H. G. DOWLER.

SIR,—I would ask members and Divisions of the B.M.A. to reject the Winchester proposals (*Supplement*, December 3, p. 247). Implied in these proposals is a grave censure on the Representative Body. The members who sacrifice time, convenience, and money to carry out their duties are to be asked to declare themselves unfitted to choose members of the Council from their body. I trust the majority hold a better opinion of their own capabilities. Carried out to its logical conclusion, the proposed exclusion of the Representative Body would result

a system analogous to that of the U.S.A., where the President nd Congress are elected by different groupings, with resultant rustration and halting government when they do not see eye to eye.

The proposals rest on a pathetic fallacy. This is the belief that when the apathetic doctors languidly affix their crosses against their favoured candidates they will rise up active, enthusiastic members of the B.M.A. What wishful thinking! Any divisional secretary, church worker, trade union organizer, or member of any organization can bear witness that in any group only a small minority are interested enough to carry on the real work.

Then again the proposals query the relationship of the autonomous bodies to the Association. Pedantic minds boggle at the idea of these bodies being a constituent part of the B.M.A. But may I point out that there is a similar highly successful organization that has been in existence for over a century—the bewilderment and envy of the world—the British Commonwealth? Perhaps if the B.M.A. were renamed the British dical Commonwealth these sticklers for precise definition ght see the vision of the future and not treat a living ganism as something to be analysed, typed, and preserved in legal document. Be that as it may, the present arrangements hance the strength and influence of both the parent body and ie autonomous bodies, and those who try to stultify them by pposition or carping criticism are doing a grave disservice to ll concerned.

For these reasons I would ask members and Divisions to reject any proposals for more reorganization of the Council by a sweeping majority. In my opinion it has already gone too far, as I consider the omission of members of Council elected by grouped constituencies to be a retrograde step.—I am, etc.,

A. V. J. RUSSELL.

Birkenhead.

SIR,—In his letter (*Supplement*, December 10, p. 255) the chairman of the Organization Committee says nothing to refute the accusations brought forward by Dr. Ronald Gibson. As a direct result of the A.R.M. at Cambridge the Council was obliged to review its constitution. It produced certain proposals at the A.R.M. at Harrogate which were unacceptable and which were referred back.

There is little doubt that sufficient support for the Winchester Division will be forthcoming to enable an S.R.M. to be called to carry out this long overdue reform and put an end to the delaying tactics which are such a prominent feature of medical politics to-day.—I am, etc.

D. R. GILLIES.

Ropley, Hants.

Academic Salaries at Cambridge

SIR,—We ask you to publish certain further facts relating to scales of stipends at Cambridge (*Journal*, October 29, p. 988. and see *Cambridge Reporter*, October 13, p. 200).

	Non-medical	Pre-clinical	Clinical
	£	£	£
Readers	1,800 and 1,600	1,800 and 1,600	2,000 and 1,800
Lecturer	750–1,250 (by 50)	750–1,250 (by 50)	850–1,450 (by 100)
Demonstrator or assistant lecturer	600–700 (by 25)	600–700 (by 25)	700–800 (by 25)
Departmental demonstrator		350 (No F.S.S.U.)	

In certain cases (both medical and non-medical) there are additional pensionable payments up to £120.

The scale for teaching officers ordinarily resident in College is £100 less than that shown.

For the medically qualified man these scales provide stipends which, by comparison with other medical schools, attract him to teach in Cambridge in a position where he may be at a financial disadvantage amounting to some £6,000 of pensionable stipend during his first 10 years of appointment (due to the low annual increments), and at a final disadvantage of over £400 of annual pensionable stipend. It is only reasonable to suppose that these considerations may weigh heavily with the man who lacks private means but has a growing family, for which the "amenities of Cambridge" ought not to be measured thus.

These scales were approved by the University on Saturday, December 3. Many eminent men, both medical and non-medical, opposed this approval, which in their opinion would create a grave risk to the future of medical teaching in Cambridge—a risk which was avoidable and which therefore should not be incurred. They pointed out that in a comparable university different decisions had clearly been made in the national interest, with a proper appreciation of the problems arising from the nationalization of medicine and the Spens Report. They were refused permission to disapprove only of those stipends with which they were obviously concerned, and were heavily defeated by a large non-medical vote.—We are, etc.,

G. W. HARRIS,
University Lecturer in Physiology
M. M. BULL,
University Lecturer in Anatomy

Cambridge

Keep Agreements

SIR,—So Mr. Aneurin Bevan has refused the doctors' "application for higher pay." How misleading words can be when only partially true.

The "application" was one to settle what the doctors' payment should be, and before it was settled the Health Scheme started and doctors were made a payment on account, the difference to be made up to the doctors when it was settled just what the Spens Committee recommendations meant in terms of 1949 values. At the time the Health Scheme started it was agreed that the provisional payment was low, and both the B.M.A. and Ministry of Health agreed to abide by the Spens recommendations. It has been proved by the B.M.A. that the Spens Committee's Report is not being implemented.

Many millions sterling are being wasted by this Government elsewhere, and I do not agree that the doctors should be made to pay for it. Mr. Bevan, if not exactly breaking his word, is trying to get round it. We are not asking for an increase but for the fair payment originally agreed upon by both sides.

Mr. Bevan is treating us with contempt, a contempt we shall deserve if we do not make it brutally clear that we will not work this scheme unless agreements are kept.—I am, etc.,

A. H. LEVERS.

Leigh-on-Sea, Essex.

B.M.A. LIBRARY

The following books have been added to the Library:

American Dietetic Association: A Manual for Teaching Dietetics to Student Nurses. 1949.
Andrews, T. G. (Editor): Methods of Psychology. 1948.
Behrendt, H.: Diagnostic Tests for Infants and Children. 1949.
Best, C. H., and Taylor, N. B.: The Human Body. Revised edition 1949.
Bose, J. P.: Handbook on Diabetes Mellitus and its Modern Treatment. Fourth edition. 1949.
Bourne, A. W.: Synopsis of Obstetrics and Gynaecology. Tenth edition. 1949.
Brügger, H., Müller, R. W., and Birkenfeld, M.: Die Tuberkulose des Kindes. 1948.
Bustamante, J. A.: Las Enfermedades Mentales en Cuba: estudio estadistico. 1948.
Chamberlain, E. N.: Textbook of Medicine for Nurses. Fifth edition. 1949.
Chang, K., *et al.*: Studies on Hookworm Disease in Szechwan Province, West China. 1949.
Chippaux, C.: Eléments d'Anthropologie. 1949.
Clark, W. M.: Topics in Physical Chemistry. 1948.
Cole, W. H. (Editor): Operative Technic in General Surgery. 1949
Coley, B. L.: Neoplasms of Bone and Related Conditions. 1949.
DeTurk, E. E. (Editor): Freedom from Want: a survey of the possibilities of meeting the world's food needs. 1948.
Doggart, J. H.: Ophthalmic Medicine. 1949.
Dukes, E., and Hay, M.: Children of To-day and To-morrow. 1949
Evans, C. L.: Principles of Human Physiology (originally written by Professor E. H. Starling). Tenth edition. 1949.
Family in a Democratic Society: Anniversary papers of the Community Service Society of New York. 1949.
Feldenkrais, M.: Body and Mature Behaviour. 1949.
Fine, J.: Care of the Surgical Patient. 1949.
Foote, R. R.: Varicose Veins. 1949.
Freeman, G. L.: The Energetics of Human Behaviour. 1948.
Fried, B. M.: Bronchiogenic Carcinoma and Adenoma. 1948
Gates, R. R.: Pedigrees of Negro Families. 1949.
Gordon, B. L.: Medicine Throughout Antiquity. 1949.
Greenhill, F. L. (Editor): Techniques in Physiotherapy. 1948.
Gruhle, H. W.: Verstehende Psychologie (Erlebnislehre). 1948.
Güttich, A.: Kurzgefasstes Lehrbuch der Erkrankungen des Ohres, der Nase, und des Halses. 1948.
Harrowes, W.: Human Personality and its Minor Disorders. 1949

Hassin, G. B.: Histopathology of the Peripheral and Central Nervous Systems. Third edition. 1948.
Hellpach, W.: Klinische Psychologie. Zweite Auflage. 1949.
Hill, H., and Dodsworth, E.: Sanitary Science Notes. Second edition. 1949.
Hoff, A.: Die Naturgemässe Heilweise. 1949.
Hoff, F.: Medizinische Klinik: ein Fortbildungskurs für Arzte. 1948.
Hunter, G. W., III, and Hunter, F. R.: College Zoology. 1949.
Illingworth, C. F. W., and Dick, B. M.: Textbook of Surgical Pathology. Sixth edition. 1949.
Irvine, K. N.: B.C.G. Vaccination in Theory and Practice. 1949.
Jents, E. J.: Oto-rhino-laryngologie im Kindesalter: Einschliesslich der Endoskopie. 1949.
Judet, H., Judet, J., and Judet, R.: Traité des Fractures des Membres. 3e édition. 1948.
King, F., and Feldman, L. L.: Office Management for Health Workers. 1949.
Klemme, R. M.: Nursing Care of the Neurosurgical Patient. 1949.
Krantz, J. C. (Jun.), and Carr, C. J.: Pharmacologic Principles of Medical Practice. 1949.
Kretschmer, E.: Psychotherapeutische Studien. 1949.
Kühn, A.: Grundriss der allgemeinen Zoologie. Zehnte Auflage. 1949.
Kurth, W.: Leitfaden der Neurologie und Psychiatrie. 1949.
Levine, S. A., and Harvey, W. P.: Clinical Auscultation of the Heart. 1949.
Lichtenstein, B. W.: Textbook of Neuropathology. 1949.
Ludovici, A. M.: The Child: an Adult's Problem. 1948.
McLester, J. A.: Nutrition and Diet in Health and Disease. Fifth edition. 1949.
March of Medicine, 1948: Perspectives in Medicine. 1949.
Meakins, J. C.: Symptoms in Diagnosis. Second edition. 1948.
Menninger, W. C.: Psychiatry in a Troubled World. 1948.
Modern Practice in Ophthalmology, 1949: edited by H. B. Stallard. 1949.
Ockerse, T.: Dental Caries: clinical and experimental investigations. 1949.
Pearce, E.: Communicable Diseases and their Nursing Care. 1949.
Practitioner, The: The National Health Service Act in Great Britain: a review of the first year's working. 1949.
Progress in Allergy. Vol. 2. 1949.
Routh, J. I.: Fundamentals of Inorganic, Organic, and Biological Chemistry. Second edition. 1949.
Sanchis-Olmos, V.: Skeletal Tuberculosis. 1948.
Soden, W. H. (Editor): Rehabilitation of the Handicapped: a survey of means and methods. 1949.
Stamp, W.: "Doctor Himself": an unorthodox biography of Harry Roberts, 1871–1946. 1949.
Taylor, E. W.: The Examination of Waters and Water Supplies (Thresh, Beale, and Suckling). Sixth edition. 1949.
Van Ingen, P.: The New York Academy of Medicine: its first hundred years. 1949.
Vignes, H.: Eclampsie et Eclampsisme. 1948.
Weiss, E., and English, O. S.: Medicina Psicosomatica, traducción por el Dr. B. Serebrinsky. 1949.
Widdess, J. D. H.: An Account of the Schools of Surgery, Royal College of Surgeons, Dublin. 1789-1948. 1949.
Williams, H.: The Healing Touch. 1949.
Work, T. S., and Work, E.: The Basis of Chemotherapy. 1948.

Association Notices

SCHOLARSHIPS IN AID OF SCIENTIFIC RESEARCH

The Council of the British Medical Association is prepared to receive applications for Research Scholarships as follows: An Ernest Hart Memorial Scholarship of the value of £200 per annum, a Walter Dixon Scholarship of the value of £200 per annum, and four Research Scholarships each of the value of £150 per annum. These scholarships are given to candidates whom the Science Committee of the Association recommends as qualified to undertake research in any subject (including State medicine) relating to the causation, prevention, or treatment of disease. Preference will be given, other things being equal, to members of the medical profession.

Each scholarship is tenable for one year starting on October 1, 1950. The scholar may be reappointed for not more than two additional terms. A scholar is not necessarily required to devote the whole of his or her time to the work of research but may hold an appointment at a university, medical school, or hospital, provided the duties of such an appointment do not interfere with his or her work as a scholar.

Conditions of Award: Applications for scholarships must be made on the prescribed form, which may be obtained from the Secretary of the Association, B.M.A. House, Tavistock Square, London, W.C.1. Applicants will be required to submit the names of three referees who are competent to report on the value of the research contemplated.

Diary of Central Meetings

DECEMBER

19	Mon.	Armed Forces Committee, 2 p.m.
20	Tues.	Organization Committee, 11.30 a.m.
21	Wed.	Protection of Practices Subcommittee, 11.15 a.m.
21	Wed.	Film Committee, 2 p.m.
22	Thurs.	Assistants Subcommittee, 11 a.m.
22	Thurs.	Occupational Health Committee, 2 p.m.
29	Thurs.	Committee *re* Prescription of Tuberculosis, 2 p.m.

JANUARY

5	Thurs.	Anaesthetists Group Committee, 2 p.m.
6	Fri.	Library Subcommittee, 11 a.m.
6	Fri.	Science Committee, 2 p.m.
13	Fri.	Tuberculosis Group Committee, 2 p.m.
19	Thurs.	Planning Subcommittee, 10.30 a.m.
19	Thurs.	Joint Committee of the B.M.A. and the N.V.M.A. 2 p.m.
26	Thurs.	Committee on Psychiatry and the Law, 2 p.m.

Branch and Division Meetings to be Held

BURTON-ON-TRENT DIVISION.—At Little Theatre, Guild Street, Burton-on-Trent, Tuesday, December 20, 8 p.m., (1) Sound Film: "Angina Pectoris"; (2) Colour Film: "Intraocular Foreign Bodies."

ISLE OF WIGHT DIVISION.—At St. Mary's Hospital, Newport, Sunday, December 18, 4 p.m., lecture by Dr. H. L. Marriott: "Recent Medical Advances of Practical Importance."

WINCHESTER DIVISION.—At Royal Hotel, Winchester, Saturday, December 17, 7.30 for 8 p.m., dinner. Mr. N. Leigh Taylor: "Some Legal Aspects of the National Health Service Act."

Meetings of Branches and Divisions

DUMFRIES AND GALLOWAY DIVISION

A meeting of the Division was held at Dumfries and Galloway Royal Infirmary on October 30, when Mr. G. M. Sleggs gave an interesting address on "Old and New Orthopaedics."

There was also considerable discussion during the business part of the meeting about the recent circular issued by the Western Regional Hospital Board debarring general practitioners from any part in the examination or treatment of a patient booked for confinement at Cresswell Counties Maternity Hospital as a Group 1 Maternity Hospital. The following motion was passed:

"That this Division desires to protest against the excluding of antenatal and post-natal care of a patient by a general practitioner where the confinement is booked at Cresswell Counties Maternity Hospital as a Group 1 Maternity Hospital, especially in a rural area such as this hospital serves."

Discussion also took place on the allocation of the Mileage Grant for the area.

COVENTRY DIVISION

An ordinary general meeting of the Division was held on November 8 at the Coventry and Warwickshire Hospital. Dr. R. S. Rudland took the chair, and the B.M.A. Lecture, 1949, was delivered by Dr. J. St. Clair Elkington, his subject being "Diagnosis and Management of Epilepsy of Late Onset." The lecture was well illustrated by lantern slides and was greatly appreciated by the Division. An enthusiastic vote of thanks was accorded to Dr. Elkington at the close of the lecture on the proposition of Dr. W. D Coghill, seconded by Dr. J. Ballantyne.

DARLINGTON DIVISION

The annual general meeting of the Darlington Division was held on November 1, with Dr. B. B. Freshwater in the chair. Eighteen members attended. The following office bearers were also elected: deputy chairman, Dr. A. Morrison; treasurer, Dr. A. Woodman; secretary, Dr. W. F. A. Heron, 15, North Road, Darlington (Telephone: 2155).

The formation of a new Branch to be called Allside was discussed. A meeting of Branch representatives was held on November 6 to vote on the formation of this Branch. Clinical meetings are being arranged by the medical and surgical staff of the Darlington Memorial Hospital; the first meeting was held on November 10. The possibility of establishing a Sunday rota of duties was discussed, but at the moment the response was said to be poor. The annual dinner will be held on December 15, when Dr. Grey Turner will be guest of honour.

BRITISH MEDICAL JOURNAL

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AUTHORS AND PSYCHOPATHS*

BY

W. RUSSELL BRAIN, D.M., F.R.C.P.

Physician to the London Hospital and the Maida Vale Hospital for Nervous Diseases

Of what interest, you may be wondering, is the psychopathology of authors except perhaps to the psychiatrist? I hope to show that it raises questions of considerable importance, primarily to doctors, but indirectly to everyone else. The relationship of mental instability to genius in general may seem to be of merely theoretical interest, but, since authors directly influence the minds of their fellow men more deeply than any other kind of genius, their mental peculiarities possess great social implications. Moreover, if we conclude that there is some positive relationship between their abnormalities and their achievements, we may find in this creative tension a contribution to the solution of the problems that confront many of our ordinary patients. Finally, our appreciation of an author's writing is greatly enriched by an understanding of his psychology.

At this point two possible objections need to be considered. Is it not enough, you may think, for us to enjoy the works of genius without bothering to analyse how they came to be produced, if, indeed, it is possible to do so? Wordsworth thought that nobody ought to pry into the lives of authors. "Our business," he said, "is with their books—to understand and to enjoy them. And, of a poet's more especially, it is true—that if their works be good, they contain within themselves all that is necessary for their being comprehended and relished." Wordsworth had his own secret—an illegitimate child in France—but it is true that we need know nothing about an author in order to enjoy his works. Surely, however, we shall enjoy them more if we know a little about his personality, if we understand not only the internal difficulties over which he had to triumph in order to produce them but how these very elements of his nature find expression in his writings. Biography adds a fourth dimension to the understanding and enjoyment of the works of genius; for, though we can enjoy a poem, a picture, or a symphony without even knowing who created it, we then enjoy it in isolation from the whole of the author's personality except its expression in that particular work of art. But when we understand his biography—and by biography I mean not merely a historical account of the facts of his life but also all that we can learn about his heredity, the workings of his nervous system, and the conflicts of his mind—we find his works enriched by being seen in perspective, in the dimension of time in which all his past has made him what he is and his creations what they are.

There is another objection also which is sometimes expressed. "What interests us about a genius," some people say, "is what is unique in him—not his neurosis or his psychosis, which is something he possesses in common with thousands of others." But it is a fallacy to suppose



The photograph of the statue of John Donne in St. Paul's Cathedral is here reproduced by kind permission of the Dean.

*An address given to the London Hospital Medical Society.

that the unique mental features of a genius exist in isolation from any abnormalities he may exhibit, for what is interesting in the neurosis or psychosis of a genius is not the features it shares with similar disorders in ordinary people but the part that it plays in his individual and therefore unique mental life. Indeed, the most important feature of any neurosis or psychosis is not what it shares with other disorders of its class but its uniqueness as an integral part of a particular personality. But I must add a word of caution. It is easy to let speculation run riot on the subject of the psychology of genius and justify oneself by the generalizations of some particular psychological theory. We shall be on firmer ground and still find plenty to interest us if we stick to descriptive psychiatry and concern ourselves only with those grosser traits of conduct, thought, and feeling which are obvious in the writings of our subjects or in the observations of their contemporaries.

Instead of generalizing about the psychopathology of authors I propose to describe in some detail a few case histories; but before I do so, and lest you should think I exaggerate the relationship between mental instability and great literature, here is a list, which is certainly not comprehensive, of some great writers who were either insane in the sense that they would to-day have been regarded as certifiable, or, though perhaps never certifiable, were cyclothymes, schizophrenics, obsessionals, psychopaths, alcoholics, or drug addicts: Beddoes, Blake, Boswell, Bunyan, Burns, Byron, Chatterton, Clare, Coleridge, Collins, Cowper, Crabbe, De Quincey, Dickens, Donne, Gray, Johnson, Lamb, Rossetti, Ruskin, Shelley, Smart, Swift, Swinburne, Tennyson, and Francis Thompson. And to show that English literature is not exceptional in this respect let me add a few from other nations: Baudelaire, Dostoievsky, Flaubert, Goethe, Gogol, Holderlin, Nietzsche, Poe, Rimbaud, Rousseau, Strindberg, Swedenborg, and Verlaine.

Death's Duellist

John Donne (1572–1631) is one of the strangest figures in English literature—the Catholic who died Dean of St. Paul's, the poetical amorist who became the author of the Holy Sonnets. His influence upon English poetry—which, according to his biographer, Edmund Gosse, was almost entirely malign—can still be traced without difficulty to-day. Dr. Johnson thought his metaphors far-fetched and at times indelicate. His eloquence as a preacher and his preoccupation with the fate of the body after death drew large crowds of fascinated hearers, and this perennial theme came so to possess him that the last events of his life seemed a drama in which he was ready at length to act the part he had so often rehearsed. For, he wrote,

> Since that I
> Must dye at last, 'tis best
> To use my selfe in jest,
> Thus by fain'd deaths to dye.

His *Devotions upon Emergent Occasions*, written during a serious illness in 1623, not only consist of characteristic reflections upon mortality but include in the headings of the chapters a summary of the stages of his disease and the conduct of the doctors. "The first alteration, the first grudging of the sickness. . . . The patient takes to his bed. The Phisician is sent for. The Phisician comes. The Phisician is afraid. The Phisician desires to have others joyned with him. The King sends his own Phisician. Upon their consultation they prescribe." Then follows the treatment—cordials and pigeons—but "the Sickness declares the infection and malignity thereof with spots. . . . I sleep not day nor night. . . . From the Bells of the Church adjoyning I am daily remembered of my buriall in the funeralls of others. Now this Bell tolling softly for another, saies to me, Thou must die." (In that chapter occurs the famous sentence, "Any man's death diminishes me, because I am involved in mankinde, And therefore never seek to know for whom the bell tolls; It tolls for thee.") But "at last, the Phisicians after a long and stormie voyage, see land." They proceed to purge, the patient recovers, but he is warned of "the fearful danger of relapsing."

Donne could never long avert his mind from the thought of the body's dissolution. It appears in his sermons on all sorts of occasions, one of the grimmest meditations on this theme being in a sermon preached at the marriage of the Earl of Bridgewater's daughter. Here is one such passage in his magnificent prose from his last sermon, preached before King Charles I. "That that Monarch, who spred over many nations alive, must in his dust lie in a corner of that sheete of lead, and there, but so long as that leade will laste, and that privat and retir'd man, that thought himselfe his owne for ever, and never came forth, must in his dust of the grave bee published, and (such are the revolutions of the graves) bee mingled with the dust of every highway and every dunghill, and swallowed in every puddle and pond: This is the most inglorious and contemptible vilification, the most deadly and peremptory nullification of man, that wee can consider."

Donne was dying when he preached this sermon, which came to be known as "Death's Duell." "Many that saw his tears and heard his faint and hollow voice," says Izaak Walton, "thought that Dr. Donne had preached his own funeral sermon."

But there was a stranger episode to come. Dr. Simeon Foxe, his physician, urged him to arrange for a monument to be erected to him in his cathedral. Donne agreed on condition that Dr. Foxe should not interfere in any way with the character or form of the memorial. Here is Walton's account of what followed:

> "A monument being resolved upon, Dr. Donne sent for a carver to make for him in wood the figure of an urn, giving him directions for the compass and height of it; and to bring with it a board of the just height of his body. These being got, then without delay a choice painter was got to be in readiness to draw his picture, which was taken as followeth:—Several charcoal fires being first made in his large study, he brought with him into the place his winding-sheet in his hand, and having put off all his clothes, had this sheet put on him, and so tied with knots at his head and feet, and his hands so placed as dead bodies are usually fitted, to be shrouded and put into their coffin or grave. Upon this urn he thus stood, with his eyes shut, and with so much of the sheet turned aside as might show his lean, pale, and death-like face. . . . In this posture he was drawn at his just height, and when the picture was finished he caused it to be set by his bedside, where it continued and became his hourly object till his death, and was then given to his dearest friend and executor, Dr. Henry King, then chief Residentiary of St. Paul's, who caused him to be thus carved in one entire piece of white marble, as it now stands in that Church."

No doubt Donne's attitude to death was in part Elizabethan, and it can to some extent be paralleled in contemporary writers, such as Webster and Sir Thomas Browne, but it was also an obsession, springing from what Gosse rightly calls "the morbid and fantastic character of his genius."

L'Enfant Terrible

Jonathan Swift (1667–1745) could claim distinction as politician, Dean of St. Patrick's, and satirist, but his satires

are remembered by many who know little about his politics and less about his theology. His satires spring from his feelings, and his emotional life was very odd, so odd indeed that it considerably puzzled his contemporaries and is still the subject of speculation to-day. In 1701 Swift, then 34, invited to live near him in Ireland two ladies, Esther Johnson, aged 20, whom he immortalized as Stella, and her older companion Rebecca Dingley. Till the death of Stella in 1728 Swift remained on terms of affectionate friendship with both of them, writing to them when he was absent letters which included messages couched in the language of the nursery. This strange relationship was complicated by the intrusion of another woman, Esther Vanhomrigh, whom Swift called Vanessa, and who fell in love with him.

The question which has been discussed ever since is, What were the relations of Swift and Stella? Swift was a single man of irreproachable morals: why did he never marry her? There seemed to his contemporaries, to Dr. Johnson, and to most people since, to be only two possible explanations: either he did marry her, but for some reason concealed the fact, or there was an external barrier to their marriage. They were, it has been suggested, uncle and niece or half-brother and half-sister. The barrier was real, but it existed in Swift's emotional life. The clue is to be found in *Gulliver's Travels*. "The greatest difficulty that occurs in analysing his character," wrote Johnson, "is to discover by what depravity of intellect he took delight in revolving ideas, from which almost every other mind shrinks with disgust. The ideas of pleasure, even when criminal, may solicit the imagination, but what has disease, deformity, and filth, upon which the thoughts can be allowed to dwell?" Swift's preoccupation with excretion is a constantly recurring theme upon which he plays some fantastic variations. His attitude to the body, and especially the female body, is equally pathological, and is magnified when the body is enlarged to the Brobdingnagian scale. Freud has a word for all this, but one does not need to be a Freudian to see that Swift was emotionally arrested at an infantile stage of development.

Perhaps the most illuminating piece of evidence for his abnormality is the speech which he puts into the mouth of Gulliver when meeting his wife and children on his return from his last voyage: "As soon as I entered the House," wrote Gulliver, "my Wife took me in her arms and kissed me; at which not having been used to the Touch of that odious Animal for so many years, I fell in a Swoon for almost an Hour. . . . During the first year I could not endure my Wife or Children in my Presence, the very smell of them was intolerable, much less could I suffer them to eat in the same Room. To this day they dare not presume to touch my Bread or drink out of the same Cup; neither was I ever able to let one of them take me by the Hand." This, it may be said, is Gulliver, not Swift, talking, but it is the imagination of Swift speaking through Gulliver, and no man who could feel so perversely about normal human relationships would be likely to marry. Swift may not have known why he felt as he did, but he had too much insight to be self-deceived. In a poem called *Cadenus and Vanessa*, in which he is Cadenus (an anagram of Decanus the Dean) and Esther Vanhomrigh is Vanessa, he writes:

> He now cou'd praise, esteem, approve,
> But understood not what was Love. . . .
> Love, hitherto a transient guest,
> Ne'er held Possession of his Breast:
> *So long attending at the Gate,*
> Disdain'd to enter in so late.

We do not know whether Stella ever challenged him in this way, but she seems to have come to accept the Platonic role he assigned to her. Swift was broken-hearted when she died. He lived on to die demented, after a period of melancholia, nearly twenty years later. There is a legend that this perversely fastidious man, who had been so revolted by the flesh, was buried in the same coffin with her. This invention was the last unconscious irony of the Yahoos.

The Great Convulsionary

I suppose that most people who possess an average man's knowledge of Samuel Johnson (1709–84) regard him as a monument of British common sense—a kind of intellectual John Bull, dogmatic, tough, and rather insensitive. This is only half the truth, the superficial half, for beneath his assured demeanour lay a torment of apprehensiveness, doubt, and misgiving which found expression in great eccentricity of behaviour.

Thomas Tyers said of Johnson, "He was to the last a convulsionary. . . . His gestures, which were a degree of St. Vitus's dance, in the street attracted the notice of the many, the stare of the vulgar, but the compassion of the better sort." Johnson's gesticulations, which gave Hogarth the first impression that he was mad, have often been described, but nowhere better than by Miss Reynolds, who speaks of "his extraordinary gestures or anticks with his hands and feet, particularly when passing over the threshold of a door. On entering Sir Joshua's house with poor Mrs. Williams, a blind lady who lived with him, he would quit her hand, or else whirl her about on the steps as he whirled and twisted about to perform his gesticulations: and as soon as he had finished, he would give a sudden spring, and make such an extensive stride over the threshold, as if he was trying for a wager how far he could stride, Mrs. Williams standing groping about outside the door, unless the servant or the mistress of the house more commonly took hold of her hand to conduct her in, leaving Dr. Johnson to perform at the Parlour Door much the same exercises over again. . . . But the manœuvre that used the most particularly to engage the attention of the company was his stretching out his arm with a full cup of tea in his hand, in every direction often to the great annoyance of the person who sat next to him, indeed to the imminent danger of their cloaths, perhaps of a Lady's Court dress; sometimes he would twist himself round with his face close to the back of his chair and finish his cup of tea, breathing very hard, as if making a laborious effort to accomplish it."

According to Miss Reynolds he carried out similar manœuvres in the street while his companions went ahead to wait for him, and caused a crowd to collect in Twickenham Meadows by his violent see-sawing over Grotius's *De Veritate Religionis*. Boswell has described his rolling gait and his habits of whistling and blowing and counting his steps in order to reach a certain point with his right or his left foot; and from Whyte we learn of his practice of touching posts in the street and going back when he had missed one to repair the omission.

Johnson's contemporaries were divided into two schools of thought on the question of the nature of his malady. Boswell, like Thomas Tyers, thought it was a physical disease, St. Vitus's dance, and believed he was confirmed in his opinion by Sydenham's own description, which he quotes. Sir Joshua Reynolds, however, with the acute observation of an artist, noted that Dr. Johnson's "strange antic gestures" accompanied his reveries and that he never exhibited them when engaged in conversation. He thought,

therefore, that the gesticulations were "improperly called convulsions which implied involuntary cortortions." Sir Joshua also made an observation of profound psychological insight when he said that Johnson's actions always appeared to him as if they meant to reprobate some part of his past conduct. It is quite clear to-day that Reynolds was right and that Johnson's movements, although involuntary in the sense that they were not under his control, were not, like St. Vitus's dance, due to organic disease of the brain but were of psychological origin. He knew this himself, for when a young girl, a Miss Hunter, asked him, with some temerity, "Pray, Dr. Johnson, why do you make such strange gestures?" he replied, "From bad habit."

Fears and Apprehensions

This view of the nature of his gesticulations is confirmed by the fact that symptoms of a similar kind occurred in the realm of thought and feeling. Here involuntary fears and apprehensions took the place of involuntary movements. It is impossible to agree with Raleigh that Johnson's fear of death was only a fear of Boswell on death. It was clearly an obsession which could be evoked not only by Boswell's inquiries but by the sight of bones or of a memorial urn, and this is the probable explanation of the outburst of almost hysterical laughter which was excited by Langton's making his will and which so puzzled Boswell. Another obsession was his fear of insanity, which remained with him from his youth, when he consulted Dr. Swinfen and received an answer "importing that the symptoms indicated a future privation of reason," to his old age, when at the time of his stroke he prayed God that however he might afflict his body he would spare his understanding —a prayer which, that he might try the integrity of his faculties, he made in Latin verse.

He was also obsessed with a sense of guilt. As Mrs. Thrale put it, his "daily terror lest he had not done enough originated in piety, but ended in little less than disease. . . . He . . . filled his imagination with fears that he should never obtain forgiveness for omission of duty and criminal waste of time."

Doubtless it was these fears of insanity, death, and damnation that racked his mind when he was alone and rendered solitude so distasteful and indeed distressing to him. "I lie down," he said, "that my acquaintance may sleep; but I lie down to endure oppressive misery; and soon rise again to pass the night in anxiety and pain." Nothing conveys so moving a picture of his lonely and distracted spirit as Murphy's account of how "for many years, when he was not disposed to enter into the conversation going forward, who ever sat near his chair might hear him repeating, from Shakespeare,

> "Ay, but to die, and go we know not where:
> To lie in cold obstruction, and to rot;
> This sensible warm motion to become
> A kneaded clod; and the delighted spirit
> To bathe in fiery floods."

This "morbid melancholy," which Johnson himself believed to be inherent in his constitution, pervaded his thought and made him, in his own words, "mad all his life, at least not sober." I can find no better or nobler expression of it than the last words of the last *Idler* which he called the "Horrour of the Last." In the course of this essay he says: "This secret horror of the last is inseparable from a thinking being, whose life is limited, and to whom death is dreadful." And he concludes: "I hope that my readers are already disposed to view every incident with seriousness, and improve it by meditation; and that, when they see this series of trifles brought to a conclusion, they will consider that, by outliving the Idler they have passed weeks, months, and years, which are now no longer in their power; and that an end must in time be put to everything great as to everything little; that to life must come its last hour, and to this system of being its last day, the hour at which probation ceases, and repentance will be vain, the day in which every work of the hand and imagination of the heart shall be brought to judgement, and an everlasting futurity shall be determined by the past."

Thus we can trace Johnson's morbidity at three levels—his compulsive gestures, his obsessive fears and sense of guilt, and his insistence on the evils of life, its transitoriness, and the ultimate and inescapable judgment, which sounds a note of doom in so many of his writings. Like many obsessionals he was subject to periods of severe depression, the worst of which occurred when he was between 50 and 60. His prayers and meditations in the first half of his sixth decade reveal his struggles with a deepening gloom Dr. Adams told Boswell that he "found him in a deplorable state, sighing, groaning, talking to himself and restlessly walking from room to room." Mrs. Thrale says that he did not stir out of his room for weeks or even months, till she and her husband carried him off to Streatham.

Johnson's mental disorder was clearly compatible with the greatest intellectual powers and with considerable, if sporadic, energy. He found that he lost his symptoms partially or completely when his attention was fully occupied with something else; hence his eagerness for company and reluctance to go to bed. His discovery of the value of distraction is illustrated by one of Mrs. Thrale's anecdotes "When Mr. Johnson felt his fancy, or fancied he felt it, disordered, his constant recurrence was to the study of arithmetic; and one day that he was totally confined to his chamber and I enquired what he had been doing to divert himself; he showed me a calculation which I could scarce be made to understand, so vast was the plan of it and so very intricate were the figures; no other indeed than that the national debt, computing it at one hundred and eighty millions sterling, would, if converted into silver, serve to make a meridian of that metal, I forget how broad, for the globe of the whole earth, the real globe." Dr. Johnson would have had no difficulty in making our present national debt reach to the moon.

He prescribed the study of algebra for a fellow obsessional who consulted him about his scruples, though he did not show him much sympathy. This was a man who was obsessed with guilt at having taken his employer's paper and pack-thread even with his permission. "I would advise you, Sir, to study algebra, if you are not an adept already in it: your head would get less muddy, and you will leave off tormenting your neighbours about paper and pack-thread, while we all live together in a world that is bursting with sin and sorrow."

To trace the effects of the obsessional state upon the temperament is beyond my present scope, but I would draw attention to one characteristic trait, the sufferer's attitude to the past. More than most men, the obsessional is in bondage to the past; for what is an obsession but a past idea of which he cannot rid himself? In Johnson's own words, "an everlasting futurity" is "determined by the past." The past is both inescapable and unchangeable: for Johnson, therefore, guilt endured, and salvation must ever be in doubt. This perverse vitality of his past is well illustrated by the remarkable episode at Uttoxeter market when in old age he stood bare-headed in the rain for a

considerable time to expiate an act of disobedience to his father in his youth. It provides a basis too for Sir Joshua Reynolds's remarkable observation that the gesticulations appeared as if they were meant to reprobate his past conduct.

This picture of Johnson's mental suffering is of course only one aspect of him, but we cannot fully appreciate the light without the shade, nor his achievements without knowing the difficulties he had to contend with. If I am right, the light and the shade are complementary. It was to find escape from his private gloom that he sought the Club and the drawing-room. It was despite nights passed in "oppressive misery" that, as Fanny Burney said, he had "more fun and comical humour and love of nonsense about him than almost anybody I ever saw"; and it was from an overpowering depression and lethargy that he roused himself to accomplish the *Dictionary* and the *Lives of the Poets*.

"Bozzy"

I need say little about James Boswell (1740–95), because his psychology has recently been so admirably summed up by Dr. Douglas Hubble.* Boswell was a cyclothyme, subject to the characteristic alternations of elation and depression, and no doubt it was this inherited psychopathic trait which brought his brother and his daughter to actual insanity. Dr. Hubble has traced the influence of external factors upon his variations of mood, and, in particular, has stressed the importance of his relation with his father. "Whenever James was in the company of Auchinleck the image of himself dwindled until it was no larger than a small boy, beloved and indulged by his mother, but intimidated by the stern and sarcastic tongue of Alexander Boswell." The effect of this conflict was to send Boswell in search of a father substitute who should be great and good, and one such was Johnson. Dr. Hubble concludes that "those who are tempted to take sides in this predetermined struggle between father and son will refrain when they recall that the direct outcome of the conflict was the immortal biography of Samuel Johnson."

One might perhaps go a little further and suggest that if Boswell was in search of a father, Johnson was looking for a son, and the psychological miracle was that these two great eccentrics exactly suited one another. Boswell had all the cyclothyme's vivacity, spontaneity, and warmth of feeling which in Johnson's character were absent or overwhelmingly inhibited. But these qualities alone would have been intolerable to Johnson: they were balanced and redeemed by Boswell's high intelligence and literary gifts. There may have been deeper emotional factors; but here, surely, is a sufficient psychological basis for that unique partnership through which each immortalized the other. Finally, I cannot refrain from quoting one other comment by Dr. Hubble: "Boswell was a drunkard. Boswell wrote two masterpieces of English literature—the one unsurpassed and the other unsurpassable. Boswell was a lecher. Boswell was unusually humane and generous. Boswell was a buffoon. Boswell was the friend of Johnson, of Burke, of Reynolds, and of Paoli—all of whom loved him. Those who find such contrasts irreconcilable have long lost the power of self-examination."

The Flea that Became an Eagle

The eighteenth century produced several mad poets: Collins, Smart, Cowper, and Clare—who just comes into it—all became insane. Christopher Smart (1722–71) is unique in that his poetry was improved by his madness. Dr. Johnson, when asked whether Derrick or Smart was the better poet, replied: "Sir, there is no settling the point of precedency between a louse and a flea." Except for a few lines such as his verses *On an Eagle Confined in a College Court*, Smart wrote nothing before or after his mental breakdown that could be quoted against Johnson's dictum, and, however he may have appeared to himself, nobody else pictured him soaring among the mountaintops of poetry. He became insane, and the miracle that so much puzzled Browning occurred—he wrote *A Song to David*. The flea for a time became an eagle.

It is from Johnson that we learn much of what is known about Smart's madness as it appeared to others, and Boswell records the following conversation between Johnson and Burney. "Burney: 'How does poor Smart do, Sir; is he likely to recover?' Johnson: 'It seems as if his mind had ceased to struggle with the disease; for he grows fat upon it.' Burney: 'Perhaps, Sir, that may be from want of exercise.' Johnson: 'No, Sir; he has partly as much exercise as he used to have, for he digs in the garden. Indeed, before his confinement, he used for exercise to walk to the ale-house, but he was *carried* back again. I did not think he ought to be shut up. His infirmities were not noxious to society. He insisted on people praying with him; and I'd as lief pray with Kit Smart as anyone else. Another charge was that he did not love clean linen; and I have no passion for it.'" Smart was a cyclothyme: he himself said, "I have a greater compass both of mirth and melancholy than another." His disorder is easy to diagnose from his poem *Jubilate Agno*—"Rejoice in the Lamb"—which was written in a madhouse and which shows all the features of maniacal excitement. In the *Jubilate* the spate of ideas sweeps away both sound and sense, and the process of mental association occurs so readily as to be poetically meaningless. The mere sound or clang of words is sufficient to link them together, or the arbitrary apposition of a person and an animal, bird or plant acquires for the poet a spurious significance.

A Song to David, on the other hand, evidently written at the end of Smart's confinement when he had almost recovered, is a true poem, though even here the mood of extreme elation and a certain looseness of the texture of ideas show that the mental storm had not quite subsided. But the after-swell gave him a heightened emotional tension, an associative aptness and a feeling for words that he had never possessed before.

Then he recovered. The eagle became a flea again; or, it would be truer to say, Pegasus lost his wings and reverted to a nag, and Smart's verse ambled along at its habitual jog-trot for the few years of his life that remained.

Bill Sikes and Nancy

Much might be said about the relationship between the personal conflicts of Charles Dickens (1812–70) and his writings, but I can now deal with only two aspects of his temperament—his cyclothymia and his sado-masochism, both stressed by Mr. Edmund Wilson in his study of Dickens's psychology.* Dickens was undoubtedly a cyclothyme. His moods of depression do not seem to have been very frequent, but they were quite characteristic. His son, Sir Henry Dickens, speaks of his father's "heavy moods of deep depression, of intense nervous irritability, when he was silent and oppressed." Dickens himself more than once describes his feelings in his letters. "I am sick, giddy and capriciously despondent," he wrote to Forster; "I have bad nights, am full of disquietude and anxiety." Six

*The New Statesman and Nation, December 28, 1946, p. 485.

*The Wound and the Bow, 1941.

months later he told Georgina Hogarth, "My wretchedness just now is inconceivable." While staying at Bonchurch in 1849, writing of himself as "the Patient," he said: "If he have any thing to do requiring thought and attention this overpowers him to such a degree he can only do it in snatches." He speaks of "extreme depression of mind and a disposition to shed tears from morning to night . . . a dull stupid languor. He has no purpose, power or object in existence whatever." The obverse of these phases of depression was his prevailing mood of elation, which gave him his enormous gusto and from which he derived his energy, which at first was canalized into his prolific inventiveness, in later life feverishly squandered in his readings, and always overflowing into long walks, parties, and amateur theatricals. It was his cyclothymic temperament, too, that enhanced his great sensibility, which made him respond with far more feeling than the average man both to his own experiences and to the sufferings of others. This sensibility was in turn heightened by the vividness of his memory.

Blent with Dickens's cyclothymia was his sado-masochism, which has been analysed especially by Mr. Edmund Wilson. Perhaps having been brought up to regard Dickens as a monument of Victorian respectability and normality, most of us have never achieved sufficient detachment to appreciate this element in him. Though more obvious in some than in others, it runs like a scarlet thread through all his writings. Here, for example, are the instances of violence that occur in one novel, *A Tale of Two Cities*. Dr. Manette spends years in the Bastille; Charles Darnay is on trial for his life; Jerry Cruncher pursues the grim trade of a resurrectionist; the Marquis de St. Evremonde carelessly runs over and kills a child, and is himself murdered in revenge. His brother has raped the sister of Mme. Defarge and killed her brother, as a result of which their father died of a broken heart. Scenes of revolutionary violence dominate the story; the Bastille is stormed and the guillotine falls incessantly. Finally, Mme. Defarge is shot and killed by Miss Pross, and Sydney Carton and the little sempstress, both innocent, are executed together. There is almost as much violence in *Barnaby Rudge*, in which the Gordon Riots take the place of the French Revolution and the sacking of Newgate corresponds to the storming of the Bastille. In this tale execution is personified in Dennis the hangman. Mr. Harold Nicolson has pointed out how often beheading figures in Sam Weller's jokes, and Mr. Edmund Wilson has stressed the large part played by prisons in Dickens's stories. A more personal and refined kind of cruelty is exemplified by the behaviour of the Murdstones to David Copperfield, Squeers to the boys at Dotheboys Hall, and Quilp to his wife.

This emphasis upon violence and cruelty in the novels was only the reflection of a similar preoccupation in Dickens's own life. One of his favourite recreations in Paris was to visit the Morgue. He went to public executions at home and abroad, wrote to *The Times* to protest at the spectacle. "Holy," when he travelled he made a point of visiting the prisons, in his consuming when he went to the Zoo he was so fascinated by the spectacle of the snakes being fed with live rabbits, that he could not drive it from his mind for a long time. Where animated by the same animals and birds to call psychosomatic disorders. Dickens's death was so much the outcome of what it is fashionable to call psychosomatic disorders that his latest biographer, Mr. Hesketh Pearson, some justice describes it as *felo de se*. Soon after he began to get warnings of circulatory disorders of which he carried on an American tour with characteristic energy. Back in this country in the following year, he decided to add to his repertoire the episode in *Oliver Twist* in which Bill Sikes murders Nancy. Probably his cerebral arteriosclerosis was already weakening his control over his feelings and allowing his sado-masochism more overt expression. It was still projected into the world of his imagination, but he was identifying himself with his impulses more closely than in his books, for now he was acting the scene and himself impersonating both the murderer and his victim. Many of his friends who saw him do it privately were horrified, and Forster tried to dissuade him from it; but he toured the country imparting, says Mr. Pearson, "to the murder scene such a sense of horror that the audience were semi-paralysed, and sat with blanched faces in frozen silence." It was noted that these readings put his pulse up to 120. Before long he developed a sense of deadness in the left side of the body, and the readings were abandoned. The next year he died of a stroke at the age of 58.

Conflict and Creativeness

How far do the characters of the strange beings whose lives are here briefly considered help us to disentangle "that subtile knot which makes us man?" What part did their mental abnormalities play in their creative genius? What sort of poet and preacher would Donne have been without his death-wish? Would an emotionally mature Swift have written *Gulliver* or any of his satires? Is there any relation between Johnson's contortions and his common sense, his obsessions and his verbal precision; and would a stable Boswell ever have immortalized him? How much of *Dickens would have been left without his hypomanic* energy and his preoccupation with suffering? Clearly, no man is a great creative artist because he is a psychopath. but our subjects surely show that, given the necessary qualities of mind, more than one process which the psychiatrist calls pathological may be an essential element in the virtues of genius—and perhaps of the rest of us. But what in the mental sphere is the meaning of normal and pathological? Is normality more than a statistical myth? The vast appeal of many creative artists, even the abnormals like Donne, Swift, and Dickens, is to readers whose feelings have something in common with their own. The great artist is a medium through whom our own emotions are expressed, intensified, and illuminated, with results that depend upon their nature and upon our reaction to this heightened experience.

There is a quantitative factor in this which is worth considering. The genius of literature has higher intelligence. more intense and more highly differentiated feelings, a better memory, and a greater capacity for words than the rest of us, and these presumably depend upon a quantitatively richer organization of his nervous system. He also has a dynamic quality which often seems to raise even his madness to a higher power. His creativeness is the resultant of his inner tensions, in which, if he is to create at all, his integrative forces must at least from time to time balance his conflicts and disruptive impulses. Thus for many a genius life is an agonizing struggle from which he may emerge victorious, but which often ends in his destruction by his daimon, the inner fate of the Greeks. Where is man's daimon to-day? Is it the diencephalon, the site of the emotions, or the integrating power of the frontal lobe which, as Dr. Freeman recently said, "is necessary for creativeness as well as for neurosis"? Art and character spring from the relations between these two. Are they not perhaps the two winged horses of the soul, pictured by Plato in his parable being driven by the charioteer he rashly named Reason?

THE FATE OF THE FORESKIN

A STUDY OF CIRCUMCISION

BY

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It is a curious fact that one of the operations most commonly performed in this country is also accorded the least critical consideration. In order to decide whether a child's foreskin should be ablated the normal anatomy and function of the structure at different ages should be understood: the danger of conserving the foreskin must then be weighed against the hazards of the operation, the mortality and after-effects of which must be known. Though tens of thousands of infants are circumcised each year in this country, nowhere are these essential data assembled. The intention of this paper is to marshal the facts required by those concerned with deciding the fate of the child's foreskin.

Origins of Circumcision

Male circumcision, often associated with analogous sexual mutilations of the female such as clitoric circumcision and infibulation, is practised over a wide area of the world by some one-sixth of its population. Over the Near East, patchily throughout tribal Africa, amongst the Moslem peoples of India and of South-East Asia, and amongst the Australasian aborigines circumcision has been regularly practised for as long as we can tell. Many of the natives that Columbus found inhabiting the American continent were circumcised. The earliest Egyptian mummies (2300 B.C.) were circumcised, and wall paintings to be seen in Egypt show that it was customary several thousand years earlier still.

According to Elliot Smith circumcision is one of the characteristic features of a "heliolithic" culture which, some 15,000 years ago, spread out over much of the world; others believe that the practice must have arisen independently among different peoples. In spite of the enormous literature on the subject (well summarized in Hastings's *Encyclopaedia of Religion and Ethics*), we remain profoundly ignorant of the origins and significance of this presumably sacrificial rite. The age at which boys are circumcised varies widely in different races, from the Mosaic practice of circumcising at about the eighth day, to the custom in many African tribes of making circumcision part of an initiation ceremony near the age of puberty. Circumcision was introduced into Roman Europe with Christianity; little is known about its status in mediaeval Europe, but it was probably customary only amongst adherents of the Jewish faith until, with the rise of modern surgery in the nineteenth century, its status changed from a religious rite to that of a common surgical procedure.

Development of the Prepuce

The prepuce appears in the foetus at eight weeks as a ring of thickened epidermis (Fig. 1, a) which grows forwards over the base of the glans penis (Fig. 1, b). It grows more rapidly on the upper surface than the lower, and so leaves the inferior aspect of the preputial ring deficient (Hunter, 1935). At 12 weeks the urethra still opens on the inferior aspect of the shaft of the penis and the terminal part of the urethra has yet to be constructed. Arrest at this stage produces the glandular type of hypospadias, with the "hooded" prepuce only partially covering the glans.

From the inferior aspect of the glans a pair of outgrowths are pushed out and meet (the sulcus on the under aspect of the glans marks their fusion), so enclosing a tube which, becoming continuous with the existing urethra, advances the meatus to its final site. These outgrowths from the glans carry with them the prepuce on each side (Fig. 1, c), thus completing the prepuce inferiorly and forming the frenulum.

By 16 weeks the prepuce has grown forwards to the tip of the glans. At this stage (Fig. 1, d) the epidermis of the deep surface of the prepuce is continuous with the epidermis covering the glans, both consisting of squamous epithelium. By a process of desquamation the preputial space is now formed in the following manner (Deibert, 1933). In places the squamous cells arrange themselves in whorls, forming epithelial cell nests. The centres of these degenerate, so forming a series of spaces (Fig. 1, e); these, as they increase in size, link up until finally a continuous preputial space is formed.

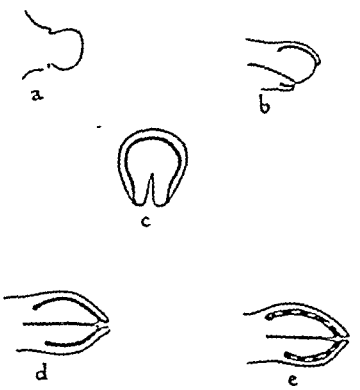


FIG. 1.—Development of prepuce. (*a*) Eight weeks; (*b*) sagittal section and (*c*) coronal section, 12 weeks; (*d*) 16 weeks; (*e*) at about term, compare Fig. 3.

The stage of development which has been reached by the time the child is born varies greatly. Figs. 2, 3, and 4 show sections of the penis in three full-term newborn infants; in Fig. 2 separation of the prepuce has not yet begun; in Fig. 3 separation is partial; in Fig. 4 separation is complete, though this, as will be shown, is uncommon at birth.

Anatomy of the Prepuce

The Younger Child.—The prepuce is still in the course of developing at the time of birth, and the fact that its separation is usually still incomplete renders the normal prepuce of the newborn non-retractable. (It will be seen that preputial "adhesions" is an inapposite term to apply to the incompletely separated prepuce, suggesting as it does that the prepuce and glans were formerly separate structures.) The age at which complete separation of the prepuce with full retractability spontaneously occurs is shown in Fig. 5, which has been constructed from observations of the prepuce in a series of 100 newborns and about 200 boys of varying ages up to 5 years. Of the newborns, 4% had a fully retractable prepuce, in 54% the glans could be uncovered enough to reveal the external meatus, and in the remaining 42% even the tip of the glans could not be uncovered. Of the older group 10% had been circumcised and a few had at some time had their prepuce "stretched"; the figures from which the diagram is constructed are therefore not precise, but they indicate with sufficient accuracy that the prepuce is *non-retractable* in four out of five normal males of 6 months and in half of normal males of 1 year. By 2 years about 20% and by 3 years about 10% of boys still have a non-retractable prepuce.

The fact that at these ages non-retractability depends upon incomplete separation of the prepuce can be easily demonstrated by running a probe round the preputial space, gently completing its continuity. It will then be found

that, although the prepuce is often somewhat tighter than in the adult, it is not tight enough to prevent retraction. This test was applied to a series of 54 boys aged from 2 months to 3 years who had been referred to hospital for circumcision, generally with a diagnosis of phimosis. In



FIG. 2.—Separation of prepuce has not begun and there is as yet no preputial space.

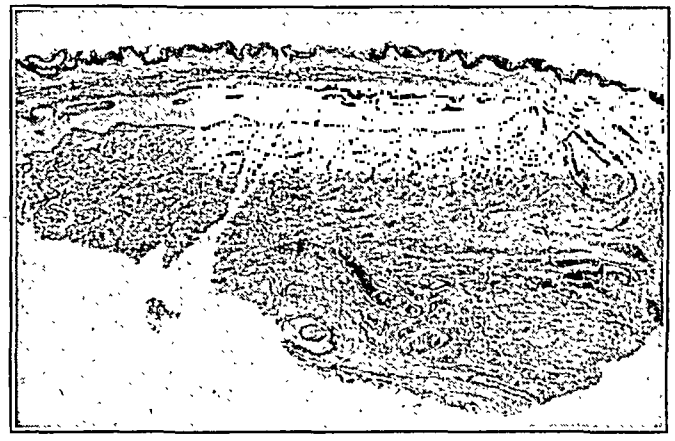


FIG. 3.—Foci of desquamation leading to partial separation of prepuce.

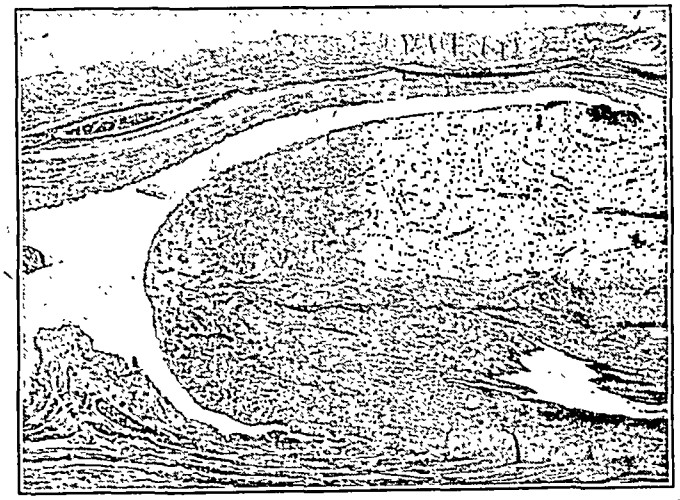


FIG. 4.—Separation of prepuce completed to form fully developed preputial space.

53 of the 54 the prepuce became easily retractable by this simple manipulation; in one 5-months-old infant this manœuvre failed because preputial separation had not advanced far enough to enable manipulation to complete the process. Although in this way the prepuce of nearly every infant can be rendered retractable, the procedure, necessarily involving the tearing apart of two as yet incompletely separated surfaces, causes some bleeding and opens the way to possible infection. For these reasons it is inadvisable as a routine procedure.

Prepuce of the Older Child.—Of 200 uncircumcised boys aged 5–13 years from three different schools, 6% had a non-retractable prepuce; in a further 14% the prepuce could be only partially retracted. In the majority of boys in this age group non-retractability depends upon the persistence of a few strands of tissue between prepuce and glans, so that minimal force is required to achieve retractability. In this age group, however, retraction of a hitherto unretracted prepuce discovers inspissated smegma, which, in contrast to that found in the younger child, is in some cases malodorous. This, together with the facts discussed under penile cancer, indicates that a different view ought to be taken of the non-retractable prepuce in the child over about 5 years, and that, whereas a non-retractable prepuce in the young child should be accepted with equanimity as normal, after about 3 years of age steps should be taken to render the prepuce of all boys retractable and capable of being kept clean.

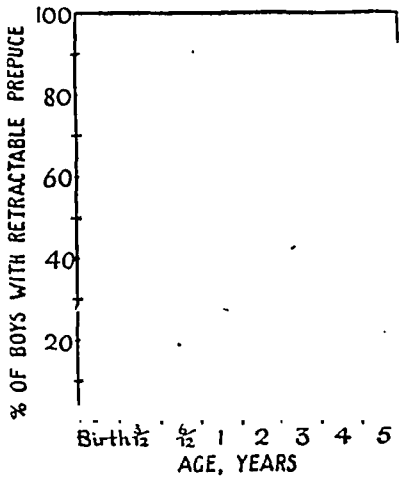


FIG. 5.—Proportion of boys of varying ages from birth to 5 years, in whom the prepuce has spontaneously become retractable. Note that it is uncommon for this to occur in the first six months

Function of the Prepuce

It is often stated that the prepuce is a vestigial structure devoid of function. However, it seems to be no accident that during the years when the child is incontinent the glans is completely clothed by the prepuce, for, deprived of this protection, the glans becomes susceptible to injury from contact with sodden clothes or napkin. Meatal ulcer is almost confined to circumcised male infants, and is only occasionally seen in the uncircumcised child when the prepuce happens to be unusually lax and the glans consequently exposed (Freud, 1947).

Incidence of Circumcision

Amongst the Western nations the circumcision of infants is a common practice only with the English-speaking peoples. It is, for the most part, not the custom in continental Europe or Scandinavia, or in South America. In England the collected data of various colleagues* who have kindly made observations on infants, school-children, and university students reveal wide variations as between different districts and between different social classes. For

*Dr. H. P. Broda, assistant school M.O., Cambridge; Dr. Eileen Brereton, assistant school M.O., Cambridgeshire; Drs. F. J. W. Miller and S. D. Court, Child Health Department, King's College, Newcastle-upon-Tyne; Dr. Margaret Patterson, assistant M.O.H., Cambridge; Sir Alan Rook, senior health officer, Cambridge University; Dr. R. E. Smith, medical officer to Rugby School. It is a pleasure to record my thanks to all these colleagues for their ready co-operation and many painstaking observations, and for generously allowing me to quote their findings.

instance, in Newcastle-upon-Tyne 12% of 500 male infants aged 12 months were circumcised; in Cambridge the comparable figure was 31% of 89 male infants aged 6 to 12 months. Boys coming from the upper classes are more often circumcised, 67% of 81 13-year-old boys entering a public school had been circumcised, whereas only 50% of 154 boys aged 5 to 14 in primary and secondary schools in the rural districts of Cambridgeshire, and 30% of 141 boys aged 5 to 11 in primary schools in the town of Cambridge, had been circumcised. The influence of social class is shown also by some figures analysed by Sir Alan Rook from a group of university students. Whereas 84% of 73 students coming from the best-known public schools had been circumcised, this was so of only 50% of 174 coming from grammar or secondary schools. Either the boys of well-to-do parents are suffering circumcision much too often, or those of poorer parents not often enough.

In view of the wide difference in the incidence of circumcised males in different parts of the country, it is difficult to give an average figure for the whole country. A conservative estimate of 20%, which is above the rate for Newcastle-upon-Tyne but well below that for all the other groups quoted, would mean that the number of circumcisions performed on children in England and Wales is of the order of 90,000 annually.

Mortality and Sequelae of Circumcision

Circumcision, like any other operation, is subject to the risks of haemorrhage and sepsis, and, where a general anaesthetic is employed, to the risk of anaesthetic death. The number of deaths presumed to be due to these causes is shown in the accompanying Table. The Registrar-General groups circumcision and phimosis together, but in view of the fact that "phimosis," as the term is commonly applied to infants, is physiological (see below) it is probable that the great majority of these deaths were attributable to operation rather than to any pathological condition necessitating operation.

Table Showing Deaths in Children Attributed to Circumcision or Phimosis in England and Wales

	Under 1 Year	1–4 Years	Total, Under 5 Years
1942	12	4	16
1943	10	7	17
1944	10	6	16
1945	15	2	17
1946	16	3	19
1947	9	1	10

About 16 deaths in children under 5 years occur each year from circumcision. In most of the fatalities which have come to my notice death has occurred for no apparent reason under anaesthesia, but haemorrhage and infection have sometimes proved fatal.

Haemorrhage is not uncommon after circumcision. F. J. W. Miller and S. D. Court (1949, personal communication), who followed 1,000 infants in Newcastle-upon-Tyne for their first year, found that 58 were circumcised, and two of these bled sufficiently to require blood transfusion. In my own experience about two out of every 100 children circumcised as hospital out-patients will be admitted on account of haemorrhage or other untoward event. Blood losses in the first year are particularly apt to lead to anaemia, and several infants have been seen with severe iron-deficiency anaemia following haemorrhages after circumcision.

Reference has already been made to meatal ulcer, which, in so far as it is so much more frequent in circumcised male infants, should be counted a sequel of the operation.

Pathological Conditions of Prepuce for which Circumcision is Performed

The surprising variety of reasons why different doctors advise circumcision and other operations and manipulations on the prepuce can be found described in the long correspondence on the subject which ran in the *British Medical Journal* from August to November, 1935. Circumcision is sometimes undertaken in order to cure existing pathological conditions, sometimes in order to prevent various diseases from occurring at a much later date.

Phimosis

Since in the newborn infant the prepuce is nearly always non-retractable, remaining so generally for much of the first year at least, and since this normal non-retractability is not due to tightness of the prepuce relative to the glans but to incomplete separation of these two structures, it follows that phimosis (which implies a pathological constriction of the prepuce) cannot properly be applied to the infant. Further, the commonly performed manipulation known as "stretching the foreskin" by forcibly opening sinus forceps inserted in the preputial orifice cannot be justified on anatomical grounds, besides being painful and traumatizing. In spite of the fact that the preputial orifice often appears minute—the so-called pin-hole meatus—its effective lumen, when tested by noting whether or not a good stream of urine is passed, is almost invariably found to be adequate.

Infants with umbilical or inguinal hernia are particularly liable to suffer circumcision on account of "phimosis," but if this simple test is applied, rarely will any obstruction to the urinary flow be found present. Occasionally the preputial orifice is imperfectly related to the external meatus, so that the urinary stream balloons out the subpreputial space; this can be easily remedied by gently separating the prepuce from the glans in the region of the meatus by means of a probe. True phimosis causing urinary obstruction has been described (Campbell, 1948), but must be exceedingly rare: in the cases I have seen in which this diagnosis has been made, simple separation of the prepuce has shown that there was no constriction of the preputial orifice.

Through ignorance of the anatomy of the prepuce in infancy, mothers and nurses are often instructed to draw the child's foreskin back regularly, on the supposition that stretching of the foreskin is what is required. I have on three occasions seen young boys with a paraphimosis caused by mothers or nurses who have obediently carried out such instructions; for, although the size of the prepuce does allow the glans to be delivered, the fit is often a close one and slight swelling of the glans, such as may result from forceful efforts at retraction, may make its reduction difficult.

Balanitis and Posthitis

Inflammation of the glans is uncommon in childhood when the prepuce is performing its protective function. Posthitis—inflammation of the prepuce—is commoner, and it occurs in two forms. One form is a cellulitis of the prepuce; this responds well to chemotherapy and does not seem to have any tendency to recur; hence it is questionable whether circumcision is indicated. More often inflammation of the prepuce is part of an ammonia dermatitis affecting the napkin area. The nature of this condition was firmly established by Cooke in 1921, but is still not universally known. The urea-splitting *Bact. ammoniagenes* (derived from faecal flora) acts upon the urea in the urine and liberates ammonia. This irritates the skin, which becomes peculiarly thickened, while superficial desquamation produces a silvery sheen on the skin as if it were covered with a film of tissue paper. Such appearances are diagnostic of ammonia dermatitis, and inquiry will confirm that the napkins, particularly those left on through the longer night interval, smell powerfully of ammonia. Treatment consists in impregnating the napkins with a mild antiseptic inhibiting the growth of the urea-splitting organisms. For this purpose boric acid powder sprinkled over the napkins, or a rinse of 1 in 4,000 mercuric chloride or of the recently

introduced non-toxic substance "diaparene" (Benson *et al.*, 1949), are gratifyingly effective.

When involved in an ammonia dermatitis the prepuce shows the characteristic thickening of the skin, and this is often labelled a "redundant prepuce"—another misnomer which may serve as a reason for circumcision. The importance of recognizing ammonia dermatitis lies in the danger that if circumcision is performed the delicate glans, deprived of its proper protection, is particularly apt to share in the inflammation and to develop a meatal ulcer. Once formed, a meatal ulcer is often most difficult to cure.

Enuresis

A number of symptoms of obscure cause, such as enuresis, masturbation, habit spasm, night terrors, or even convulsions, have from time to time been attributed to phimosis, and circumcision has been advised. No evidence exists that a prepuce whose only fault is that it has not yet developed retractability can cause such symptoms.

It may be apposite at this stage to quote the reasons given by the mother for desiring her child's circumcision in a series of 54 infants referred to hospital by a doctor. In 39 infants the reason was a symptomless "phimosis," found on routine inspection by doctor, nurse, mother, or neighbour. In nine cases it was said that "he cries when he wets": five of these proved to be due to ammonia dermatitis; closer questioning of the others revealed either no connexion between when the baby cried and when he urinated, or merely that crying often started micturition. In three cases the foreskin was judged to be too long or redundant, and in a further three the reason was even more frankly cosmetic ("it looks funny") or was intangible ("we believe in it"). As has been stated earlier, in all except one of this group of 54 infants, phimosis was disproved, in so far as gentle manipulation enabled the prepuce to be retracted.

Conditions Prevented by Circumcision

Universal circumcision of male infants has been urged as a means of preventing the later development of a variety of conditions—paraphimosis, venereal diseases, penile cancer, and cervical cancer of women

Paraphimosis

Some idea of the importance of paraphimosis can be gained from figures from the Royal Victoria Infirmary, Newcastle-upon-Tyne, a hospital serving a large population in which, as has been mentioned, infants are circumcised less often than in the country generally. In the children's wards paraphimosis accounts for about seven out of a total of 800 male child admissions each year (0.9%): an appreciable number of these are found to be the result of the mother's obeying misguided instructions to retract her infant's prepuce forcibly. In the adult wards it accounts for about 10 out of a total of 5,000 male surgical admissions (0.1%), so that paraphimosis scarcely constitutes an important hazard to the uncircumcised male.

Venereal Disease

Although there is a common belief that the circumcised man runs a lessened risk of venereal infection, particularly syphilitic, there are few figures to support this. Lloyd and Lloyd (1934), who reviewed the published evidence and analysed their own figures, concluded that circumcision did not diminish the chance of a syphilitic chancre. Schrek and Lenowitz (1947) found that hospital patients gave a history of venereal disease equally often whether circumcised or not. Wilson (1947) has published figures showing that, of the men attending a Canadian Army venereal disease centre, the proportion of uncircumcised soldiers (77%) was higher than in the Canadian Army generally (52%), and concluded that the uncircumcised soldier is more prone to venereal infection. It may be, however, that since circumcision of infants is *de rigueur* in Canada, the uncircumcised man will tend to come from a lower social grade and thus to be more likely to expose himself to infection. The evidence seems scarcely to warrant universal circumcision as a prophylactic against venereal infection.

Penile Cancer

This subject merits careful appraisal, for it alone of the medical reasons commonly advanced for the universal circumcision of infants is capable of withstanding critical scrutiny. In England and Wales deaths from penile cancer number about 150 a year. The relation between this disease and antecedent circumcision has recently been reviewed by Kennaway (1947). All observers agree that circumcision in the first five years of life protects absolutely from penile cancer, and this applies not only to one group such as the Jewish but equally to the mixed races of the U.S.A. The reason for this preventive effect of early circumcision is not known: it is not due to removal of the cancer-bearing area since the usual site of penile cancer, the sulcus behind the glans, is retained. If it is due to retained smegma or its decomposition products being carcinogenic, this effect must be of startling potency, since circumcision after the fifth year fails to prevent cancer occurring several decades later.

A clue to the problem may lie in the exceptionally low hygienic standards of patients with penile cancer, which has struck several observers. Dean (1935), reviewing 120 cases, writes: "Men with penis cancers gave the impression of being less intelligent, as a class, than other cancer patients. Not only had the majority ignored for long periods the precancerous state of physical annoyance, filth, and odoriferous discharges but also it was not unusual for many to delay seeking advice until a large part of the penis had become affected with an ulcerating growth." The unusual frequency with which patients with penile cancer have had venereal disease has been demonstrated by Dean (1935) and by Schrek and Lenowitz (1947), these authors having come to the conclusion that this fact indicates again the significantly low standard of social hygiene of these patients. A further factor frequently present in patients with penile cancer is phimosis; although this is often the result of the growth, in many patients the prepuce has never been retractable (Lewis, 1931).

With these facts it may reasonably be contended that, if the uncircumcised male has a prepuce which he can retract and which he keeps clean, he is likely to enjoy the same immunity from penile cancer as his circumcised brother.

Cervical Cancer in Women

The low incidence of cervical cancer among Jewesses has led Handley (1947) to the conclusion that this disease is mainly caused by the introduction of irritant material by the uncircumcised husband during coitus. It should be a simple matter to put this theory to the test by noting whether the husbands of women with cervical cancer are more frequently uncircumcised than others. Meanwhile the evidence seems insufficient to warrant universal circumcision or preputiotomy, such as Handley advocates.

Minor Advantages of Circumcision

There remain a number of more or less trivial factors which are sometimes mentioned as reasons why infant circumcision is desirable: difficulties in keeping the uncircumcised parts clean, or the supposed aesthetic or erotic superiority of the shorn member. In order to fulfil the intention of this paper an inquiry on these points should have been made amongst a group of uncircumcised men. This was not attempted, although with regard to the last two of the factors mentioned it should be stated that whenever the subject has been broached in male company those still in possession of their foreskin have been forward in their insistence that any differences which may exist in such matters operate emphatically to their own advantage.

Moreover, if there were sensible disadvantages in being uncircumcised, one would expect that the fathers of candidates for circumcision would sometimes register their feelings in the matter. Yet in interviewing the parents of several hundred infants referred for circumcision I have met but one father who wished his son circumcised because of his own disagreeable experience of the uncircumcised state. The rest of the fathers were equally indifferent about the matter whether they themselves had been circumcised or not. Indeed, so little did the father's personal experience seem important that one-quarter of the mothers did not even know whether their husbands were or were not circumcised. These facts provide

some evidence that few uncircumcised men have cause to regret their state.

Conclusions

It has been shown that, since during the first few years of life the prepuce is still in process of developing, it is impossible at this period to determine in which infants the prepuce will attain normal retractability. In fact, only about 10% will fail to attain this by the age of 3 years. Of this 10% of 3-year-old boys, in most it will be found a simple matter to render the prepuce retractable by completing its separation from the glans by gentle manipulation. In a very few this may prove impossible and circumcision might then be considered a justifiable precaution. Higgins (1949), with long experience of paediatric urology, also concludes that circumcision should not be considered until "after the age of, say, 2 to 3 years."

The prepuce of the young infant should therefore be left in its natural state. As soon as it becomes retractable, which will generally occur some time between 9 months and 3 years, its toilet should be included in the routine of bath time, and soap and water applied to it in the same fashion as to other structures, such as the ears, which are customarily treated with special assiduousness on account of their propensity to retain dirt. As the boy grows up he should be taught to keep his prepuce clean himself, just as he is taught to wash his ears. If such a procedure became customary the circumcision of children would become an uncommon operation. This would result in the saving of about 16 children's lives lost from circumcision each year in this country, besides saving much parental anxiety and an appreciable amount of the time of doctors and nurses.

Summary

The development of the prepuce is incomplete in the newborn male child, and separation from the glans, rendering it retractable, does not usually occur until some time between 9 months and 3 years. True phimosis is extremely rare in infancy.

During the first year or two of life, when the infant is incontinent, the prepuce fulfils an essential function in protecting the glans. Its removal predisposes to meatal ulceration.

The many and varied reasons commonly advanced for circumcising infants are critically examined. None are convincing.

Though early circumcision will prevent penile cancer, there is reason to suppose that keeping the prepuce clean would have a like effect in preventing this disease.

In the light of these facts a conservative attitude towards the prepuce is proposed, and a routine for its hygiene is suggested. If adopted this would eliminate the vast majority of the tens of thousands of circumcision operations performed annually in this country, along with their yearly toll of some 16 child deaths.

My thanks are due to Dr. A. M. Barrett for pathological facilities.

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THE USE OF RADIOGRAPHS IN ASSESSING DISPROPORTION*

BY

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What has radiology done to help the obstetrician with his problem-cases of disproportion? I do not doubt that some at this moment are muttering, "Nothing"; and perhaps a cynic is adding in ruder tones, "Less than nothing—it is a menace!" But I am equally sure that there are many others of a more sanguine disposition who take an opposite view; and one and all of us are, I hope, ready and willing to enter into a fair discussion concerning the merits of this new tool that has been put into our hands.

Why should there be any sharp difference of opinion; and why should there be, in some quarters, a distrust of radiography? Chiefly, I believe, it is because radiologists as a class have little first-hand knowledge of obstetrics and often fail to appreciate the intricacies of childbirth. Similarly, the obstetrician seldom has an understanding of the technical difficulties encountered in the *x*-ray room and often demands the impossible from the radiologist. Too often, therefore, an early enthusiasm gives place to a distrust or even frank disbelief regarding the value of radiology in assessing obstetrical disproportion. I must therefore first plead for the most intimate and genuine co-operation between obstetrician and radiologist if progress in this field is to be made.

No discussion on the topic of disproportion can escape the criticism that it deals with one aspect only of dystocia and ignores other factors of capital importance. No notice is taken, for example, of the force and frequency of the uterine contractions, of the adaptation and realignment of the soft tissues—particularly those of the lower uterine segment—of the mouldability of the baby's head, or of the "give" of the pelvic joints. Least of all does radiology measure the patient's psychology or fortitude, nor, as I jocularly add to my students, does it judge the character, size, and proximity of the mother-in-law! Yet of all the causes of dystocia, disproportion is the most important; and it is therefore right that it should be singled out for special consideration.

Development of Radiographic Pelvimetry and Cephalometry

Looking back over the development of obstetric science, we see an early recognition of the importance of pelvic measurement. William Smellie knew full well the meaning of the flattened pelvic brim and the ominous significance of a projecting sacral promontory. Baudelocque, Michaelis, and others developed this science; and by the end of the nineteenth century pelvimetry was recognized as an essential part of every obstetrical examination.

Now comes the paradox. In modern times a new method of obtaining this supposedly vital information—and of obtaining it with undreamed-of accuracy—has been placed in our hands. Yet contemporaneously with this wonderful development there has arisen a generation of obstetricians who maintain that exact pelvic measurement is, generally speaking, unnecessary and even misleading and declare that the many components collectively making for eutocia

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on the one hand or dystocia on the other are so complex and varied as to render useless any system of prognosis that is based on one factor or even one set of factors. While I acknowledge the complexity of the subject I do not share these extreme opinions, which seem a counsel of despair, and which, I suspect, are sometimes voiced with insufficient knowledge of the position now reached in obstetric science. And among the iconoclasts one can sometimes perceive an inconsistency, for in those very centres where radiology is viewed with distrust or even antagonism there are in use antenatal charts in which space is provided for pelvic measurements obtained by clinical means. To quote my own words used on a previous occasion, "Disproportion in its widest sense is chief among the causes of difficult childbirth, and here it is that radiology gives most help. If we trouble to take pelvic measurements at all we show our belief in their value, and, if we so believe, then surely it is right to strive for fuller knowledge and greater accuracy."

Possibly some of the opposition to radiography has come from the fact that methods of pelvimetry have been, in some cases, only doubtfully accurate. Here it may be useful to point out that an error in positioning the patient during radiological examination inevitably results in the pelvic size appearing *smaller* than it really is, while in like circumstances the foetal head appears *larger* than it really is. In consequence an entirely erroneous appearance of disproportion may easily be presented, and a forecast made that is belied by subsequent events. But still more important in this connexion is the surprisingly tardy appreciation of the fact that adequate pelvic measurement requires far more than a mere recording of the conjugata vera—important as that time-honoured measurement is. A small brim conjugate may mean little if the pelvis is generous in other dimensions; and, conversely, a generous brim conjugate is no talisman against dystocia if serious diminution of capacity is present in other respects. It follows that, to be efficient, radiological examination must include examination of the pelvis in more than one projection.

Pelvic Shape

And now a word about pelvic shape as distinct from details of pelvic size. There is nothing new in saying that the "mechanics" of labour are largely governed by pelvic shape. But this truism took on a new meaning when Caldwell and Moloy by their admirable work with the radiographic stereoscope distinguished in more precise fashion certain trends that occur in pelvic architecture, and linked those trends with peculiarities in the manner of descent of the head. For example, they (and Herbert Thoms before them) associated the occipito-posterior descent of the head and face to pubes delivery with a pelvis in which the antero-posterior diameter was equal to, or exceeded, the transverse. But space does not allow me to elaborate this topic. This only I would say in passing: any system of pelvimetry must make allowance for the influence of pelvic shape as well as pelvic size if it is to form a basis for obstetrical prognosis.

Radiographic Technique

I shall not here discuss radiological technique. A bewildering variety of methods of pelvimetry and cephalometry have been devised; and, so long as the method is reliable, its choice must be left to the discretion of the radiologist. In passing I may remark that there seems to be an irresistible fascination for the mechanically minded enthusiast to introduce new methods, or new modifications of standard methods. And here I accuse myself, for if this is a sin I have a burden to bear. But such modifications as I have favoured have been directed to simplifying matters at the time of the examination, and I therefore deem my burden light.

Assessing Disproportion

I now come to the main topic—the methods of assessing disproportion. Let us start with the simplest of all: the radiologist views the radiograph and allows the general impression thus received to prompt him to an opinion regarding prognosis. This method—for lack of a better title let it be called the impressionistic method—has been developed to its fullest extent by Caldwell and Moloy and their followers (Caldwell, Moloy, and Swenson, 1939): and here I include Miss Meave Kenny, who has done excellent work on this line at the British Postgraduate Medical School (Kenny, 1944). By use of the Moloy stereoscope the relation of the foetal head to the maternal pelvis can be surveyed in three dimensions. Now, there is obviously much to be said in favour of this method, which, incidentally, enabled Caldwell and Moloy to break new ground and to study the influence of pelvic shape on the course of labour, to which reference has been made. I myself gladly acknowledge personal help from these workers and have made considerable use of their method. Nevertheless, it has disadvantages. It is exacting and time-consuming; moreover, not every observer has adequate stereoscopic vision. At the best the method is essentially impressionistic. Judgment is given on features rather than accurately measured or recordable findings; and obviously there is no certainty that different observers will agree on individual cases.

In 1935 Ball and Marchbanks, of New York, reported a method of estimating head volume and comparing it with pelvic capacity. Theoretically, it is probably the best of all methods, but the technical difficulties are formidable and few workers appear to have followed this line.

In this country, Nicholson, of Moreton-in-Marsh (Nicholson, 1938, 1943), developed a method of pelvimetry based on an original and ingenious method of utilizing parallax-shift measurements. He then evolved a method of measuring the available area at different pelvic levels, and from observations compiled in his own practice was able to assess the significance of various types and degrees of pelvic contraction. For example, a brim reduced to 90 sq. cm. was an indication, he believed, that a "level of uncertainty" had been reached. I much admire Nicholson's work, which, I would remind my listeners, was done as a side interest in a busy general practice. It has done good by focusing attention on the need for accurate measurement and providing, for the benefit of other workers, possible formulae by which the obstetrical value of the pelvis may be judged. Curiously, however, Nicholson has paid little heed to the size of the foetal head—a matter which, in my opinion, is almost as important as the computing of pelvic measurements; nor is it clear that he has sufficiently considered the variation of prognosis that derives from variation in pelvic shape.

In 1933 Thoms, of New Haven, described the construction of pelvic or, as I shall call them to avoid confusion, anatomical charts in which the outline of the pelvis was reduced to its true size and shape. This he did for both the brim outline (supero-inferior projection) and for the pelvic canal outline as seen in lateral profile. Some 12 years ago I was fortunate in being able to see Thoms's work at first hand, and was much impressed by its value. Soon afterwards I tried to add to the usefulness of Thoms's charts by superimposing on them an ellipse which

represented, as nearly as possible, the area that would be occupied by the particular foetal head that was to descend through that pelvis (Moir, 1941). This was done with regard to the pelvic brim and also the pelvis at the level of the ischial spines. A visual impression was thus conveyed of the difficulties (if any) that would be encountered during the descent of the head. This, I felt, was a welcome improvement on purely impressionistic methods of assessing disproportion.

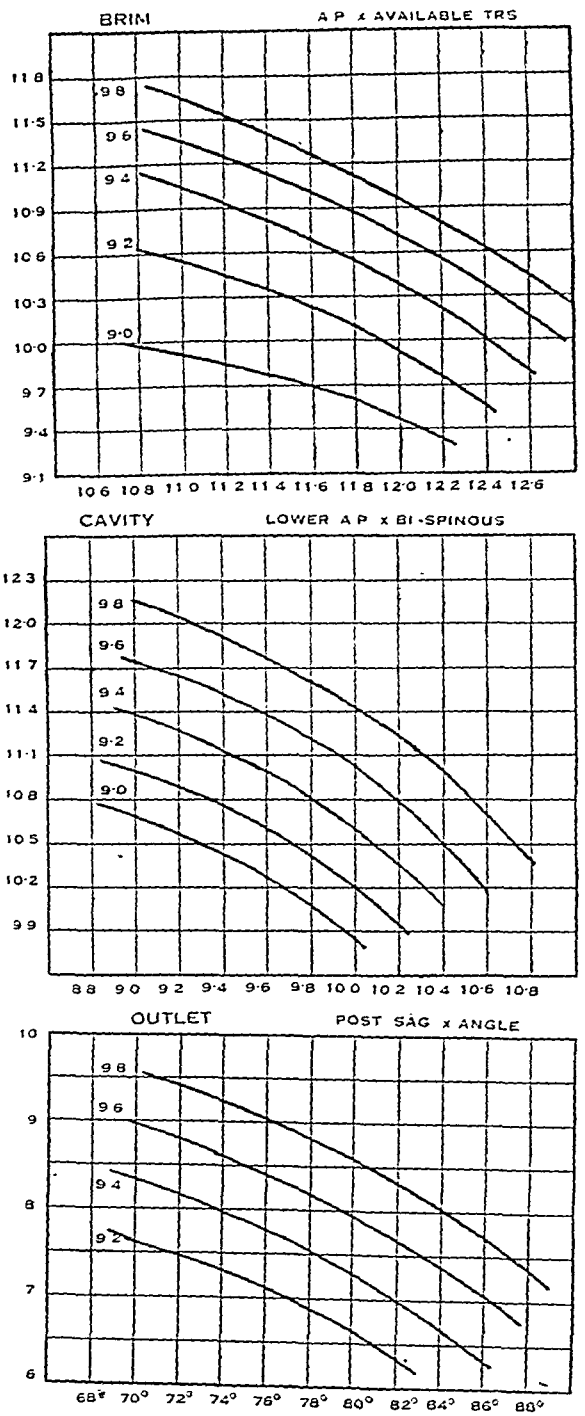
Rohan Williams (1943 ; Williams and Phillips, 1946) has contributed notably in this field by developing the anatomical chart method in new ways, particularly with regard to the lateral profile charts. In place of a static ellipse drawn on the charts he employs a circular disk (or set of variously sized disks) which he passes back and forwards over the chart to help him to form an opinion regarding the space available for the head at the various levels. This method has given excellent results in his hands, and in a series of cases of clinically suspect abnormality he has been able to show a correct forecast of labour in 83%, and a "substantially correct" forecast in 90%, of assessable cases. (The second group includes those in which the forceps operation was used, but without signs of cephalo-pelvic disproportion during labour.)

I cannot here do more than mention the names of Peter Allen, of New Zealand, and Morris, of Edinburgh, both of whom have made valuable contributions to this subject and clarified certain obscure features regarding pelvic measurement.

To return now to my own work, this branched off on lines somewhat different from those just described. I early realized that the construction of the anatomical charts was a time-consuming occupation and that, when all was said and done, they resulted only in providing a visual impression of certain features which could also be expressed in simple figures. I therefore evolved a method which, it seemed, would still give a desirable visual impression but which would be quicker and easier to operate. Details have been published elsewhere (Moir, 1946, 1947, 1949). Briefly, three standard charts on graph paper were constructed—one for the pelvic brim, one for the pelvis at the level of the ischial spines, and one for the outlet. Each chart had the antero-posterior measurements indicated along its vertical edge and the transverse measurements along its horizontal edge. It was thus an easy matter to pin-point at will the main size and shape characteristics of any pelvis. Now, by reviewing and correlating a large number of previously observed obstetrical cases in which full radiological examination had been made, it was possible to indicate on each chart the level at which difficulty was encountered with reference to the degree of head size. The end result was the incorporation in the charts of a series of lines or graphs by which one could tell in any particular case whether head size would encroach to a significant degree on pelvic size, or, to use more familiar words, whether dystocia from cephalo-pelvic disproportion was likely (Fig. 1).

These charts have now been in use for nearly five years and I have found them of very real help in summing up the mechanical features of an obstetrical case. They can be prepared without any great expenditure of time or effort, and can be included in antenatal records and accompany the patient to the labour room.

Critics sometimes ask whether this use of radiography has increased the incidence of caesarean section. To this I can reply that radiographic study of the pelvis has oftener influenced me against that operation. For example, on many occasions when pelvic contraction—even contraction of considerable degree—has been diagnosed by clinical



Charts Used in Cases of Suspected Cephalo-pelvic Disproportion (Measurements in Centimetres).—The chief pelvic measurements can be indicated by a "cross" made on each chart. If the cross lies above and to the right of the line representing the estimate of biparietal head size, mechanical difficulty is highly improbable; if it lies below and to the left, mechanical difficulty becomes probable and increases with the distance from the critical level. Forecast of difficulty is very accurate with regard to the brim chart. It is less accurate if based exclusively on findings in the cavity or outlet charts, for the reason that the lower pelvis may in some cases expand during labour.

means, the radiographic examination has shown that the foetal head was also small, and that while there was undoubted pelvic contraction there was no true disproportion. Indeed, it is quite surprising how often this is so: the small woman very often has the small baby. Occasionally, however, the charts reveal grave difficulty of which no adequate warning is given by clinical examination. In these cases I have hitherto usually adopted the policy of allowing a "trial of labour," for I have realized that the radiographic method has still to prove its worth. But this I can say with full assurance: the charts quickly "separate the sheep from the goats" (I trust this expression will not cause offence!), and show at once which patients are suitable for domiciliary delivery and which should be referred to hospital for careful supervision.

It is difficult to give statistics regarding the accuracy of the obstetric forecast, for there is, in practice, no uniformly applicable yardstick by which this can be judged. How is one to define, for example, what is meant by a difficult labour and what is meant by an easy labour? How is one to class the case in which there has been a long and obviously difficult labour but no evidence of cephalo-pelvic disproportion—for example, the primigravida with primary inertia followed, maybe, by a contraction ring? Again, what is one to say about the case in which an over-enthusiastic house-surgeon has applied forceps for indications that would generally be deemed inadequate? These and other difficulties in assessing results become obvious when statistics are being compiled; and no system of prognosis, however good in itself, can therefore give a forecast that approaches 100% accuracy. Nevertheless, having regard to these limitations, a strict analysis of 193 assessable cases of clinically suspect pelvic abnormality was attempted and gave the following results.

When easy delivery was indicated by the graphs the labour in 72% of cases was found to be short, spontaneous, and uneventful. This figure would be higher if borderline cases were included or allowance made for the "substantially correct" diagnosis as defined by Rohan Williams.

When difficult delivery was indicated by the graphs the labour in 86% of cases was found to be prolonged or to require operative assistance. When dystocia was indicated by contraction in the brim graph, as distinct from the cavity and outlet graphs, the accuracy was even higher.

These results were on an early series; with further experience a higher rate of correct forecast seems possible, and this, I hope, will be the subject of a future report.

Intra-partum Radiography

And now a brief note on intra-partum radiography. It is quite remarkable how little attention has hitherto been paid to this obvious use of the radiograph. By it the progress of labour can be observed, and much help given, for example, in the conduct of the "trial-labour" case. It will show whether the greatest diameter of the head has passed or has nearly passed through the narrowest part of the pelvis, and hence whether or not it is reasonable to subject the mother and the baby to further hours of "trial labour." One can only suppose that lack of radiographic facilities has been the reason for this failure to utilize a modern diagnostic method, and it seems to me that an obstetric hospital without radiographic facilities for the parturient woman is as much an anachronism as, say, a cardiological hospital without an electrocardiograph.

Conclusion

Finally, a word of warning. Let no one suppose that radiography provides a short cut to good obstetrics. The clinical problems involved are sufficiently numerous and varied to make any such supposition quite untenable. But, on the other hand, he is a bold man who would brush aside the help that radiography can give. To ignore its aid and to trust exclusively to clinical judgment in sizing up the problems presented in a border-line case of disproportion is, to my mind, a policy reminiscent of the alleged behaviour of the ostrich on the approach of danger.

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GROWTH OF THE FOETAL BIPARIETAL DIAMETER DURING THE LAST FOUR WEEKS OF PREGNANCY*

BY

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It has long been accepted that the foetal skull grows at a uniform rate during the last weeks of pregnancy, and this view is supported by the work of Scammon and Calkins (1929). They state that the foetal biparietal diameter increases by approximately 0.1 in. (2.5 mm.) a week during the last four weeks of pregnancy, and Reece (1935) based his method of estimating the age of the foetus on their growth curve of the biparietal diameter.

Three years ago the departments of radiology and obstetrics at the Newcastle General Hospital decided to try out a new method of cephalometry. In an attempt to check its accuracy by direct measurement of the foetal head after delivery the following course was adopted.

After each cephalo-pelvic estimate a copy of the radiologist's report, with the date of examination, was filed in a card index. A list of all patients examined, containing no other information than the expected dates of delivery, was kept by Dr. Ruth Fawcett, paediatric registrar to the maternity department, who then measured the biparietal diameter of each baby's head on the third day after delivery. This day was chosen because by that time it was considered that the effects of moulding would have disappeared (Chassar Moir, 1946). The measuring was done with a pair of engineer's callipers, and it was Dr. Fawcett's practice to measure each biparietal diameter three times, the mean of these three measurements being

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FIG. 1.—Radiograph taken on February 11.



FIG. 3.—The foetal skull shadows in Figs. 1 and 2 are shown superimposed.



FIG. 2.—Radiograph taken on March 4.



FIG. 4.—The maternal pelves are shown superimposed. The descent made by foetal head in 21 days is seen.

taken as the observed biparietal diameter of the baby's head. These were true independent observations, unbiased by any knowledge of the radiological estimations.

The biparietal diameter was chosen for the following reasons: (1) It, or its equivalent diameter of the greatest circular section of the foetal head, is recognizable in any projection of the foetal skull (Reece, 1935). (2) It is the most certainly defined diameter when measuring the baby's head after birth. (3) In the majority of cephalic

presentations the biparietal diameter of the foetal head engages with the antero-posterior diameter of the pelvic brim, which is usually the shortest diameter of the inlet.

Results

In 189 cases the biparietal diameters were estimated radiologically *in utero* and subsequently measured with callipers after birth; of these, 34 were examined twice, giving 223 radiological examinations.

Eighty-four cases were examined radiologically seven days or less before delivery, 13 of them actually on the day of delivery, so that the growth that could have occurred between the radiological and calliper measurements was negligible. These 84 cases were used, therefore, to check the accuracy of the method. The two sets of measurements are shown in Table I.

TABLE I.—*Biparietal Diameter of Foetal Skulls*

	Radiological Measurement	Calliper Measurement
No. of cases	84	84
Mean biparietal diameter	3·700 in. (9·4 cm.)	3·680 in. (9·35 cm.)
Standard deviation	0·138 in. (3·505 mm.)	0·124 in. (3·15 mm.)
Standard error of mean	0·015 in. (0·38 mm.)	0·014 in. (0·355 mm.)

It is therefore apparent that the radiological method gives an accurate estimate of the post-natal measurement, with a slight tendency to exaggerate it by 0.02 in. (0.5 mm.). In individual cases, however, there are certain discrepancies which require further consideration. The difference between the intrauterine measurement and the post-natal measurement for these 84 cases is shown in Table II. A negative discrepancy indicates that the intrauterine measurement was larger than the post-natal one.

TABLE II.—*Discrepancies in the Radiological Estimation of the Biparietal Diameter of the Foetal Skull*

Discrepancy in Inches	No. of Cases	Discrepancy in Inches	No. of Cases
−0·20 (−5·08 mm.)	1	+0·05 (+1·27 mm.)	12
−0·15 (−3·81 mm.)	7	+0·10 (+2·54 mm.)	10
−0·10 (−2·54 mm.)	20	+0·15 (+3·81 mm.)	3
−0·05 (−1·27 mm.)	13	+0·20 (+5·08 mm.)	1
0·00	17		

Mean discrepancy = −0·020 in. (−0·508 mm.)
Standard deviation = 0·087 in. (2·210 mm.)
Standard error = 0·010 in. (0·254 mm.)

From this table it is apparent that no error occurred greater than 0.2 in., and on the basis of these figures the following limits of accuracy for individual cases may be claimed: (1) 75% of all cases will be predicted within 0.1 in.; and (2) 95% of all cases will be predicted within 0.15 in. (3.8 mm.) of the calliper measurements. For groups of over 16 cases, however, accuracy to within 0.02 in. may be claimed for the mean reading.

It was observed during this investigation that, although the majority of biparietal estimations carried out during the last seven days of pregnancy were accurate to within 0.1 in., the calculated biparietals were always too large when cephalometry was performed earlier than two weeks before delivery. They were too large in every case, provided an allowance was made for growth of the biparietal diameter at a rate of 0.1 in. a week.

For example, if a biparietal diameter was estimated at 3.6 in. (9.14 cm.) at the 37th week of pregnancy, 0.3 in. (7.6 mm.) was added for growth (Scammon and Calkins, 1929) and the calliper measurement should have been 3.9 in. (9.9 cm.). In fact, however, the calliper measurement was found to be 3.6 in., and this disparity was true of every case examined during the 36th to 39th weeks of pregnancy.

There were therefore two possibilities to be considered either (*a*) our method of cephalometry was accurate during the last week of pregnancy, but inaccurate if performed earlier than two weeks before delivery, or (*b*) the foetal biparietal diameter did not grow during the last four weeks of intrauterine life. The latter concept was supported by the fact that the biparietal diameters estimated during the last four weeks were the same as the observed measurements carried out after delivery. We tried, therefore, to obtain further evidence to support this premise.

A group of cases were sent for cephalometry at the clinically estimated 36th week of pregnancy, and cephalometry was repeated four weeks later. The case sheets of this group were marked so that if the patient came into labour before the expected date emergency cephalometry could be performed.

The following is an example of one of these cases.

A primigravida aged 27 was sent for pelvi-cephalometry on February 11, 1949, and the foetal biparietal diameter was calculated to be 3.55 in. (9.02 cm.) on that date (Fig. 1). Twenty-one days later, on March 4, cephalometry was repeated, and the foetal biparietal diameter was calculated to be 3.6 in. (Fig. 2) —an increase of 0.05 in. (1.27 mm.), which is within the limits of experimental error. Eight days after this, on March 12, a female infant weighing 7 lb. 9 oz. (3.43 kg.) was delivered normally, and its biparietal diameter measured 3.55 in. There was thus no increase in the foetal biparietal diameter during the last 29 days of this pregnancy.

Fig. 3 shows the two previous films arranged so that the foetal skull shadows are superimposed, and it can be seen that they do accurately coincide. Fig. 4 shows the two maternal pelves superimposed, showing that the foetal head has made some descent during the 21 days between exposures.

In each of the 223 radiological estimations the amount of growth from the date of the examination until the date

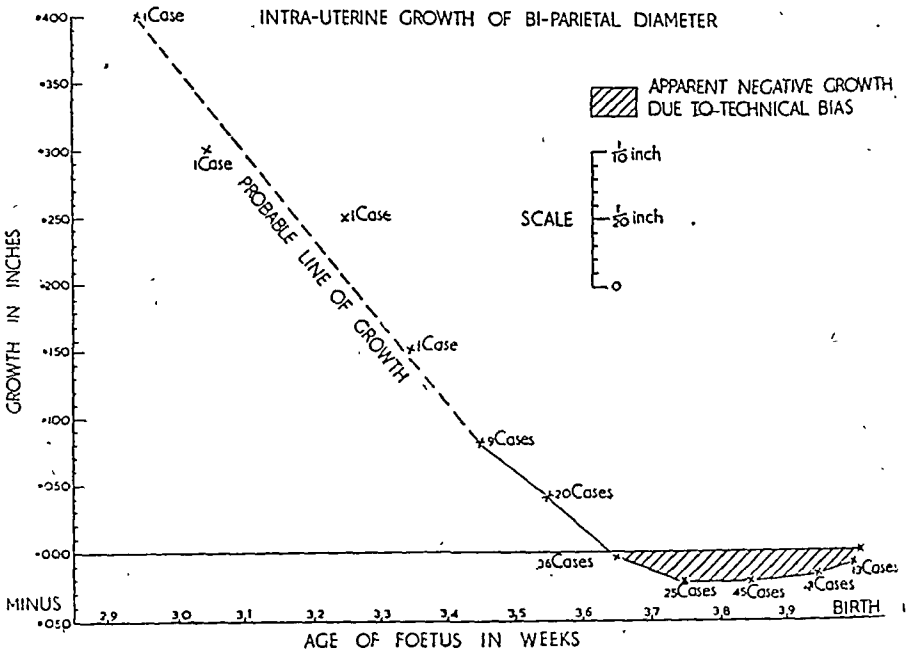


FIG. 5.—The total growth of the biparietal diameter of the foetal skull from the date of estimation until birth. The growth of the skull is estimated from the intrauterine radiological measurement and the actual calliper measurement three days after birth; the difference between these readings gives the growth in the intervening period.

of delivery was calculated from the two readings available. The cases were then grouped according to the number of weeks that elapsed between examination and delivery, and an average of each group was calculated. These growth figures are given in Table III. The standard error of the means of these groups is ±0.02 in.

TABLE III.—*Average Growth of Biparietal Diameter from Date of Examination to Date of Delivery*

Week of Pregnancy	Days Before Delivery	No. of Cases	Average Growth
40	Same day	13	−0·008 in. (−0·203 mm.)
39	1–7	71	−0·022 in. (−0·559 mm.)
38	8–14	45	−0·024 in. (−0·609 mm.)
37	15–21	25	−0·024 in. (−0·609 mm.)
36	22–28	36	−0·005 in. (−0·127 mm.)
35	29–35	20	+0·042 in. (+0·067 mm.)
34	36–42	9	+0·078 in. (+1·981 mm.)
33	43–49	1	+0·150 in. (+3·810 mm.)
32	50–56	1	+0·250 in. (+6·350 mm.)
31	—	—	—
30	64–70	1	+0·300 in. (+7·620 mm.)
29	71–77	1	+0·400 in. (+10·160 mm.)

The notable features of this table are: (1) The radiological method overestimates the size of the head by approximately 0.02 in. Consequently there is an apparent slight negative growth in the later stages (see Fig. 5). (2) There is no sign of a growth curve between the 36th and 40th weeks of pregnancy. (3) The growth curve between the 30th and 36th weeks cannot yet be accurately assessed, owing to scanty data, but even at this stage the biparietal diameter appears to grow at a rate of less than 0.1 in. a week.

We have now collected 34 cases in which radiological cephalometry was performed twice, with an interval of 21 days or more between the examinations. In 13 cases both radiological examinations were performed during the last 28 days of pregnancy, and the apparent growth between the two radiological examinations was 0.02 in. This figure is within the limits of our experimental error and could not therefore be definitely attributed to growth. Further details of these 34 cases are given in Table IV.

TABLE IV.—*Results of Two Radiological Examinations in Same Patient*

Time from First Radiological Examination to Date of Delivery	No. of Cases	Average Time between Two Radiological Examinations	Average Growth between Two Radiological Examinations
28 days or less	13	24 days	0·02 in. (0·508 mm.)
29–35 days	13	26 ,,	0·04 in. (1·016 mm.)
36 days or more	8	30 ,,	0·12 in. (3·048 mm.)

For reasons stated above we have estimated radiologically only the biparietal diameters, and have no observations to offer on the growth, or lack of growth, of the other diameters of the foetal skull during this period. In the absence of craniostenosis, however, it seems illogical to suppose that one diameter of the foetal skull should remain stationary while the others increase.

The investigation continues, and we are trying to estimate the foetal biparietal diameters at 32 weeks, again at 36 weeks, and then at term. Thereby we hope to observe the rate of growth between the 32nd and 36th weeks of pregnancy and to obtain further confirmation of the absence of growth between the 36th and 40th weeks.

Summary

Two hundred and twenty-three estimations of intrauterine foetal biparietal diameters, performed on 189 patients, are compared with calliper measurements obtained on the third day after birth.

Eighty-four cases were estimated radiologically within seven days of delivery.

In 34 cases radiological cephalometry was performed twice, with a minimum of 21 days between the examinations.

For individual cases the predicted measurement will be within 0.1 in. of the calliper measurement in 75% of cases, and within 0.15 in. in 95% of cases.

For groups of over 16 cases, accuracy of 0.02 in. may be claimed for the mean reading.

Radiological cephalometry overestimates the biparietal diameters by approximately 0.02 in.

There is no sign of a growth curve between the 36th and 40th weeks of pregnancy.

Grateful thanks are due to the staffs of the obstetrical and radiological departments of the Newcastle General Hospital; to Mr. F. Pearse, senior radiographer, who produced many of the radiographs of these cases; to Dr. Mary Buchanan and Dr. W. Ingham, who assisted Dr. Fawcett in her measurements; to Dr. Whately Davidson, radiologist in charge, Newcastle General Hospital, Mr. Linton Snaith, obstetrician in charge, Newcastle General Hospital, and Dr. Blair Hartley, honorary radiologist to the Christie Hospital and Holt Radium Institute, Manchester, for their criticism and encouragement in this work.

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THE SHORT OESOPHAGUS

A REVIEW OF 31 CASES

BY

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Although the association of gastric hernia with shortening of the oesophagus is no new conception, it is far from widely appreciated that it can produce a variety of symptoms simulating carcinoma of the oesophagus, peptic ulceration of stomach or duodenum, cholelithiasis, and even disease of the coronary arteries. In this communication, therefore, we propose to review the literature briefly, to discuss the incidence of the condition relative to other lesions of the lower third of the oesophagus, and to point out associations with pregnancy and post-operative oesophageal stricture which we believe have not been previously recognized.

Isolated references to patients described as having a short oesophagus were recorded years ago by physicians from findings at necropsy (Bright, 1836; Bund. 1918; Bailey, 1919). The radiologist Akerlund (1926) seems to have been the first to differentiate hernia of the stomach through the oesophageal hiatus into three types according to the *x*-ray appearances (Fig. 1). In the oesophago-gastric variety (*a*) the oesophagus is redundant and tortuous, in the para-oesophageal (*b*) the oesophagus enters the stomach below the diaphragm and the gastric hernia passes up beside it, while in hiatal hernia with short oesophagus (*c*) the gastro-oesophageal junction is above the diaphragm but the oesophagus is not redundant.

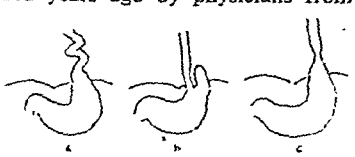


FIG. 1.—Varieties of gastric hernia through the oesophageal hiatus. *a*, Oesophago-gastric; *b*, para-oesophageal; *c*, with short oesophagus.

The first clinical records of a series of cases were published by Findlay and Brown Kelly (1931). Their nine patients were young children in whom regurgitation developed shortly after birth or when solid food was first taken. With barium swallowed in the horizontal position, oesophageal stenosis was found well above the diaphragm, and below it a pouch in which rugae were seen passing through the oesophageal hiatus and continuous with those of the stomach. Confirmation that this pouch was in fact part of the stomach was obtained from oesophagoscopy and biopsy. In the opinion of Findlay and Brown Kelly, this shortening of the oesophagus was congenital, although later Brown Kelly (1936) appears to have thought that in some instances the shortening was cicatricial and secondary to oesophagitis.

Shortly after the paper by Findlay and Brown Kelly, Monkhouse and Montgomery (1933) reported seven instances in adults. In the same year peptic ulceration in the lower end of the short oesophagus was conclusively demonstrated by Clerf and Manges (1934). They described 14 patients, children as well as adults, who had a short oesophagus and thoracic stomach, an ulcer being found in four. Biopsy in eight cases showed gastric mucosa above the level of the diaphragm. The presenting symptom in those with ulcer was burning pain at the lower end of the sternum, coming on immediately after taking solid food, and tending to radiate through to the back between the shoulder-blades or up to the root of the neck and sometimes down the left arm. It was relieved by alkalis, by regurgitation, or by drinking bland fluids, and was made worse by lying down. Dysphagia often did not appear until pain had been present for months or years. In those in whom no ulcer was demonstrated dysphagia was the presenting symptom, and in one patient in whom complete oesophageal obstruction was precipitated by impaction of a piece of apple it had been present from birth.

Clerf and Manges emphasized the importance of the observation made originally by Soresi (1919) in regard to diaphragmatic hernia in general, that to demonstrate part of the stomach above the diaphragm it was essential to lower the head of the table to allow the barium to flow back through the cardia. They found that the best view was obtained with the patient semi-supine in the right oblique position. Failure to use this technique meant failure to reach a correct diagnosis, as only the oesophageal stenosis was revealed by barium swallowed in the upright position, while the thoracic stomach, essential for the diagnosis, was missed. They also held that the lesion was a congenital shortness of the oesophagus accompanied by thoracic stomach—i.e., the cardiac part of the stomach had never descended below the diaphragm in course of development. A predisposition to peptic ulceration of the oesophagus existed because of reflux of gastric juice through the cardia, which was incompetent in its thoracic position. Increase or onset of pain on lying down was held to support this hypothesis.

The occurrence of short oesophagus with thoracic stomach and its association with oesophageal ulcer has been noted by many other observers (Dunhill, 1935, 1937; Chamberlin, 1938; Feldman, 1939; Cleaver, 1943). Among the later workers, Johnstone (1941) recorded seven examples in all of which a chronic peptic ulcer of the oesophagus was present. He held that shortening of the oesophagus occurred as a sequel to the ulceration and that the cardia was as a result drawn above the diaphragm. In support of this view he pointed out that all his cases were at or above middle age. On the other hand Dick and Hurst (1942) believed that a chronic ulcer of the oesophagus seldom occurred save as a sequel to congenital shortening of the oesophagus and thoracic stomach. In the few cases in which this abnormality was not demonstrated the ulcer was ascribed to the secretion of gastric juice by heterotopic gastric mucosa in the oesophageal wall. They considered that the symptoms of which a patient with a short oesophagus complained were as a rule those due to the ulcer, and if there were no ulcer the condition was latent and was found fortuitously on barium examination. It was also noted that pain was made worse not only on lying down but on bending, whereby intra-abdominal pressure was increased and gastric juice regurgitated into the oesophagus.

Polley (1941) had noted that in some cases pain had radiated into the neck and down the left arm. As a rule dysphagia occurred only after days or even weeks of pain. Intermission of symptoms was often observed, suggesting that spasm from the ulcer was the initial cause of dysphagia, while organic stricture gave rise to permanent dysphagia and required dilatation for its relief. In a recent review of the subject Allison (1948) discussed 78 examples of oesophageal ulcer or stricture all but two of which were associated with hiatal hernia and short oesophagus.

From the point of view of the radiologist the literature has been well reviewed by Smithers (1945).

In the present paper are described the clinical features of 31 patients with hiatal hernia and short oesophagus who were admitted to the Western Infirmary, Glasgow, over a period of 10 years.

Incidence

The frequency of short oesophagus relative to other common lesions in the lower third of the oesophagus is shown in Table I. Thus of 139 patients seen during a period of 10 years complaining of dysphagia due to obstruction in that site, 80 had carcinoma; achalasia was the cause in 31, and short oesophagus with benign stricture or active oesophageal ulcer in 26. Excluding the two cases due to swallowing of caustic, benign stricture was not seen in the lower third except in association with short oesophagus.

TABLE I.—*Frequency of Lesions of the Lower Third of the Oesophagus with Dysphagia (1937–46)*

Carcinoma	80 (all sites 203)
Achalasia	31
Hiatal hernia with short oesophagus	26 (+5 without dysphagia)
Fibrous stricture (caustics)	2

Short oesophagus was discovered during the barium examination of five patients whose symptoms of haematemesis or severe flatulence were unrelated to the oesophagus. Since this survey was made largely in retrospect, it is probable that some cases were missed. An attempt was made to re-examine all those in whom there was doubt about the cause of dysphagia in the lower third of the oesophagus, but three patients could not be traced.

It is certain that small sliding gastric hernia with shortening of the oesophagus occurs without symptoms, as it can be demonstrated when the appropriate radiological technique is employed. Kemp Harper (1946) put the incidence at 2% of all patients undergoing routine barium-meal examination. One of us (S. D. S. P.) confirmed this observation in 100 consecutive barium investigations.

Symptomatology

The age-and-sex incidence is shown in Table II, and is contrasted with that of achalasia and carcinoma of the lower third of the oesophagus. The age is that at the onset of symptoms in each group.

TABLE II.—*Age and Sex of Patients with a Lesion in the Lower Third of the Oesophagus*

Age at Onset	Short Oesophagus		Achalasia		Carcinoma	
	M	F	M	F	M	F
0–19 years ..	2	2	1	1	0	0
20–39 ,, ..	2	6	2	11	1	0
40–59 ,, ..	5	8	9	5	23	11
60–80 ,, ..	1	5	1	1	38	7
	10	21	13	18	62	18

Earlier workers found that symptoms associated with short oesophagus might appear at any age. In our series three patients had dysphagia from childhood, but in the majority no complaint was made before middle or late adult life, the oldest being 74. Only one case of cancer of the lower third of the oesophagus was observed in a person under 40 years of age, in a man of 26.

The sex incidence of short oesophagus (Table II), found to be about equal by Dick and Hurst (1942) and by Allison (1948), showed a preponderance of females in the ratio of 2 to 1 in our series. In achalasia this difference was less marked, while in carcinoma the ratio of males to females was 3.4 to 1.

The presenting symptom was pain in three cases, dysphagia in eight, and pain and dysphagia together in 13. This does not accord with the observations of Dick and Hurst (1942), who found that often pain alone was present, sometimes for years, before the onset of dysphagia. Two patients, without previous complaint related to the alimentary system, were admitted to hospital because of massive haematemesis. Analysis of the symptoms in our cases agrees for the most part with the clear descriptions by Clerf and Manges (1934) and later by Dick and Hurst (1942). Pain was complained of by 18 patients. In 13 instances it was felt at the lower end of the sternum, three times high in the epigastrium, and once each in right and left hypochondriac regions. It tended to radiate upwards behind the sternum and through to the back. Two patients complained of radiation to the neck and down the outer aspect of the arm—the left in one, the right in the other. In character it was burning, often coming on immediately after swallowing solid food, particularly meat or fibrous vegetables. It lasted for several minutes and was relieved either when the food was felt " to pass on into the stomach " or was regurgitated. In others the onset of pain was delayed for about 30 minutes and was relieved by regurgitation or by taking bland fluid. Alkali was often helpful. In addition to pain associated with food eight patients experienced pain on lying down or on bending forward. Five said that posture had no influence.

Dysphagia and Regurgitation.—Difficulty in swallowing solid food was felt by 26 patients, and 21 regurgitated food in varying degree. Complete obstruction to the passage of food was precipitated in two patients with partial stricture —in one by impaction of a piece of wood in a sausage, in the other by a piece of orange and again, two years later, by a raisin.

Haematemesis.—This occurred in nine cases. In five instances it was slight and recurrent, and in some consisted of altered blood. The other four patients were admitted to hospital as cases of emergency because of gross vomiting of blood; in two of them bleeding occurred without warning or any symptom of alimentary disorder.

There was one example of chronic haemorrhage with anaemia in the series.

Case 1.—A woman aged 36 had for over a year felt dull pain in the epigastrium relieved by food. No regurgitation. Stools were occasionally dark. Breathlessness, fatigue, and pallor had been present for some months, due to anaemia. Hb, 47%; R.B.C., 3.7 millions; occult blood was present in the faeces. A radiograph showed a short oesophagus and thoracic stomach but no stricture. No ulcer was seen in the oesophagus, stomach, or duodenum.

In this group a definite ulcer was located twice—once in the thoracic pouch of stomach, and once in the lower oesophagus. In the others an associated acute peptic ulcer of stomach or duodenum may have been responsible, as these lesions may be undetectable by radiology within a few weeks of the bleeding. The other possibility is haemorrhage from erosions in the thoracic pouch which are prone to occur because of congestion of the mucosa in that site. In two of this group dysphagia did occur later.

Flatulence.—This was a prominent complaint in four patients. Dysphagia was absent in two and minimal in two.

Case 2.—A woman of 56 had for at least 15 years complained of pain under the left costal margin and very severe flatulence after meals. In 1934 cholecystectomy had been performed without relief, no stones having been found. Peptic ulcer and spastic colon were diagnosed on subsequent occasions, but no proof of either of these lesions was found. In 1942 the pain was gnawing in character and was relieved by vomiting and by alkaline powder. No complaint of dysphagia was made. On her last admission in 1942 a radiograph showed a short oesophagus and a thoracic stomach. No oesophageal stricture or ulcer was seen. This was an *x*-ray diagnosis and was reached quite by chance so far as the clinician was concerned.

Intermission of the Symptoms.—This was characteristic, 21 patients agreeing that the severity of pain and difficulty in swallowing varied. Some lost their pain after months or years but were left with dysphagia, because of which they had to eat only food which could be very thoroughly masticated.

X-ray and Oesophagoscopic Appearances

In the earlier part of the period covered by this survey the actual barium swallow was as a rule given to patients in the standing position only. A typical picture of the result thus obtained is given in Fig. 2, which shows a partial stricture with irregular wall some distance above the diaphragm, the appearance resembling that of carcinoma. If, however, the patient is tilted in order to allow the barium to flow back into the oesophagus the existence of a portion of the stomach above the diaphragm becomes apparent (Fig. 3). It is also sometimes necessary to increase the intra-abdominal pressure by compressing the abdomen or by instructing the patient to strain. It is interesting to note, however, that in two cases in our series it was found impossible to reproduce these appearances on every occasion a barium examination was made, no evidence of hiatal hernia or short oesophagus being obtained.

In this series of 31 cases of short oesophagus and thoracic stomach a partial stricture of the oesophagus was present in 26, and 15 patients showed also an oesophageal ulcer. Thus five patients had a short oesophagus and a thoracic stomach without stricture, though subsequently a stricture did develop in two. Carcinoma was found in the thoracic part of the stomach once, and simple ulcer once.

Oesophagitis was found in varying degree over a distance of about an inch (2.5 cm.) proximal to the constriction in the lower oesophagus. The mucosa was generally engorged with superficial erosions, and radiating streaks of greyish exudate were conspicuous. In some cases there were granulations simulating malignant fungations. Active peptic

ulcers had a flat yellowish-white base with a narrow bright-red margin, and greyish-white scars marked the sites of healed ulcers. Where pronounced spasm or secondary fibrosis was absent the constriction was readily distended, revealing the typical rugose mucosa in the supradiaphragmatic gastric pouch; in others spasm or fibrosis produced varying degrees of resistance to dilatation.

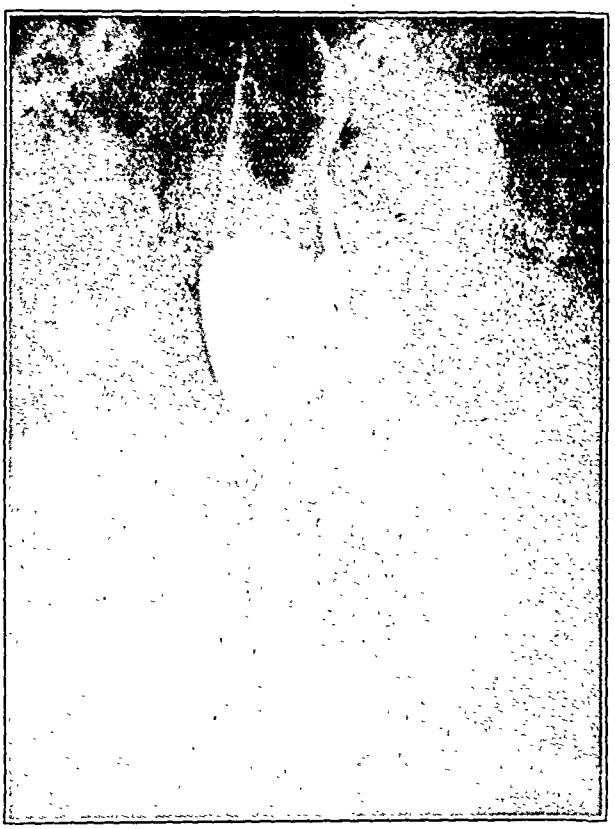


FIG. 2.—Radiograph taken in standing position showing partial stricture with irregular wall some distance above diaphragm, resembling carcinoma.



FIG. 3.—Radiograph taken while patient was tilted in order to allow the barium to flow into the oesophagus. A portion of stomach above the diaphragm is apparent.

The Short Oesophagus in Association with Other Conditions

Carcinoma in Thoracic Part of Stomach.—According to Dick and Hurst (1942) there is no unequivocal evidence that oesophageal ulcer undergoes malignant change. In 1934 Clerf and Manges reported an instance of cancer occurring not in the short oesophagus but in the thoracic stomach. Smithers (1945), reviewing the literature, quoted such a case recorded by Christiansen (1941) and another by Raven (1941), and added two of his own.

Case 3.—For three months before admission a woman aged 67 had progressive dysphagia until only fluids could be swallowed. Food was felt to stick at the lower end of the sternum and was accompanied by a burning sensation. Regurgitation was frequent, with blood present on several occasions. Appetite was very poor from early in the illness. A radiograph showed a short oesophagus and a stricture. A thoracic stomach was present in which there was a persistent ragged outline at one point. Oesophagoscopy revealed a stricture 27 cm. from the teeth, and a specimen taken for biopsy showed gastric mucosa infiltrated with adenocarcinoma. This patient died in another hospital, and no necropsy was made.

Peptic Ulcer in Stomach or Duodenum.—Seven out of 31 patients had a history of peptic ulceration of the stomach or duodenum.

Case 4.—A man aged 54 was admitted in February, 1941, because of haematemesis from a duodenal ulcer which had given rise to symptoms for three years. Between February, 1941, and July, 1943, he was readmitted on three occasions because of haematemesis. At the time of admission in 1943 there was much vomiting due to pylorospasm. Within a few days he began to complain of burning pain behind the sternum and to regurgitate solid food. A radiograph showed a thoracic stomach and a short oesophagus to be present along with an oesophageal ulcer and a tight stricture. For about four weeks all solids and much fluid were regurgitated. Thereafter he improved rapidly, and, while occasional dysphagia occurred, he remained well without dilatation until readmitted in December 1945, with a haematemesis which proved fatal. Post-mortem examination showed that the fatal bleeding had taken place from a duodenal ulcer, while the scar of a healed ulcer was observed in the oesophagus 5 cm. above the cardia. There was no stricture, and shortening of the oesophagus was not noted. As the pathologist had unfortunately not been informed of the radiological findings the oesophageal hiatus was not measured.

This case is of interest in that it demonstrated that extreme dysphagia lasting for several weeks was caused by spasm without organic stricture.

Dysphagia after Abdominal Operation.—In three of the cases in this series persistent dysphagia which had lasted for years developed within a few days of an abdominal operation.

Case 5.—A man aged 51 was operated on in July, 1943, for perforation of a duodenal ulcer. After operation continuous vomiting took place, for which gastro-enterostomy was performed six days later. Within a few days he felt food sticking at the lower end of the sternum. Pain was slight, of a burning character, and always at the same spot. These symptoms were at first intermittent, but dysphagia became very marked in October, 1943, and a barium swallow showed a short oesophagus, a thoracic stomach, an oesophageal ulcer, and stricture. Oesophagoscopy revealed a partial stricture 28 cm. from the teeth. No break of mucosa was seen and no biopsy was made. Apparently because it was felt that carcinoma could not be excluded, it was decided to give a course of deep therapy, which was soon discontinued at the radiologist's request

When seen in 1946 he had no pain, but still had to chew solid food very carefully. A radiograph again showed a short oesophagus, a thoracic stomach, an oesophageal ulcer, and stricture.

Case 6.—A woman aged 58 developed dysphagia three days after an operation for gall-stones in 1936. Food stuck at the lower end of the sternum, associated with pain in the epigastrium and left hypochondrium. It was worst about half an hour after food and was relieved by regurgitation, which occurred frequently. These symptoms were notably intermittent, even from meal to meal. *X*-ray examination in the upright position only revealed a stricture in the lower third of the oesophagus, while oesophagoscopy showed a "fungating growth" starting 30 cm. from the teeth and becoming obstructive near the cardia. No biopsy was made, and *x*-ray treatment for carcinoma was given. She was seen by us in 1946, when she was fairly well but required the passage of bougies at frequent intervals. Her pain, which was still present, was relieved by sodium bicarbonate. She had had slight haematemesis in 1945. A radiograph in 1946 disclosed a short oesophagus with ulcer, stricture, and thoracic stomach. Oesophagoscopy showed an ulcer proximal to the stricture 25 cm. from the teeth, and gastric mucosa was obtained on biopsy from the supradiaphragmatic pouch.

Case 7.—A man aged 37 was operated on for a perforated duodenal ulcer in 1940. Within a week of this he felt discomfort at the lower end of the sternum on swallowing solid food, which stuck momentarily at that site, but there was no regurgitation. A barium swallow in the upright position was stated to indicate nervous spasm. The symptoms continued intermittently till September, 1945, when he had a bout of severe substernal pain and marked dysphagia with regurgitation of solid food. A radiograph at this time showed a short oesophagus, a thoracic stomach, an oesophageal ulcer, and stricture. Oesophagoscopy revealed a stricture 32 cm. from the teeth and a short oesophagus. Biopsy was not made. Bougies were passed with good effect, and in April, 1946, he stated that he was able to swallow most things if well masticated.

Only three instances of persistent dysphagia appearing first after operation were found in the hospital records over 10 years. Oesophageal ulcer and benign stricture were present, associated in every case with a short oesophagus and a thoracic stomach.

Pregnancy

The occurrence of dysphagia in the last three months of pregnancy has been described by Vinson (1923, 1924). The initial symptoms were "vomiting" and pain behind the lower end of the sternum, followed within a day or two by dysphagia, for which the passage of bougies was required. Haematemesis was common and even proved fatal in some cases. Vinson believed that these patients developed an oesophageal stricture because of frequent vomiting. From his records dysphagia was still present months after the onset.

In five of the present series the onset of oesophageal symptoms occurred in the later months of pregnancy.

Case 8.—A woman of 36 developed dysphagia in the sixth month of pregnancy. It was accompanied by a burning pain at the lower end of the sternum which passed through to the back. Symptoms intermitted with almost complete relief for several weeks at a time. In 1933 radium treatment was given for carcinoma of the oesophagus, the diagnosis being based on an oesophagoscopic examination which showed an "ulcerated growth" 30 cm. from the teeth and an obstruction to barium at that level. No biopsy was made. After treatment symptoms continued as before, but the patient's general condition remained quite good. In 1946 *x*-ray examination revealed a short oesophagus with ulcer, and oesophagoscopy showed the oesophagus to be dilated, with a conical approach to a fibrous stricture 26 cm. from the teeth. A whitish scar was visible on the posterior wall at the entrance to the stricture.

Case 9.—Just before the birth of her baby in 1940 a woman aged 36 felt that food stuck at the lower end of the sternum; there was no pain. Regurgitation was frequent at first. In 1940 *x*-ray examination in the upright position revealed stricture of the lower third of the oesophagus, and oesophagoscopy showed an annular obstruction 31 cm. from the teeth without breach of mucosa. No biopsy was made. Cancer was diagnosed and *x*-ray therapy was given. Some months later the stricture was dilated by bougies with complete relief. When seen in 1946 she was very well and could eat anything without dysphagia provided she chewed it thoroughly and had no emotional disturbance. A radiograph revealed a short oesophagus, a thoracic stomach, an oesophageal stricture, and an ulcer.

Case 10.—A woman aged 38, in the seventh month of pregnancy in 1942, quite suddenly felt solid food stick at the lower end of the sternum. At the same time she was conscious of a burning pain at this site immediately after taking food. Symptoms were rather worse after delivery and she lost weight. Regurgitation was frequent and gave relief. *X*-ray examination showed that barium was held up 7 cm. above the diaphragm, where there was a smooth stricture. Below this there was a globular enlargement in which mucosal markings were present, continuous with those of the main body of the stomach below the diaphragm, but no ulcer was seen. Oesophagoscopy was not done. In 1946 she was fairly well, but had to be careful what she ate. *X*-ray findings were similar to those in 1942.

Case 11.—This patient, aged 39, developed difficulty in swallowing solid food during the last weeks of pregnancy in 1944. Regurgitation was frequent but there was no pain. *X*-ray examination revealed a short oesophagus, a thoracic stomach, a small ulcer of the oesophagus, and a stricture. In April, 1946, she still had difficulty in swallowing.

Case 12.—This woman, at the age of 41 and during the last two months of pregnancy, felt a burning pain in the mid-sternal region which radiated to the back. It started 10 minutes after taking solid food, but was also present at night, when it was so severe that she could not lie flat. There was no regurgitation, but food tended to stick at the site of the pain. Nineteen years after the onset of symptoms, which were intermittent, she suddenly began to regurgitate all food and drink. A barium swallow showed complete obstruction in the lower third of the oesophagus. The diagnosis of foreign body was made and a piece of orange was removed from the lower end of the gullet with immediate relief. When seen in April, 1946, she said that some pain and dysphagia were still present. *X*-ray examination revealed a short oesophagus and a thoracic stomach, with partial stricture of the oesophagus, but no ulcer could be demonstrated.

The findings in these five patients are summarized in Table III. All the patients were over 35 and symptoms started between the fifth and last months of pregnancy.

TABLE III.—*Dysphagia in Pregnancy*

Case No.	Dysphagia	Pain	Month of Pregnancy	Age at Onset	Duration of Symptoms (Years)	*X*-ray Findings in 1946
8	+	+	6	36	13	S.O., T.S., Str., U.
9	+	0	9	36	6	S.O., T.S., Str., U.
10	+	+	7	38	4	S.O., T.S., Str.
11	+	0	9	39	2	S.O., T.S., Str., U.
12	+	+	7	41	19	S.O., T.S., Str.

S.O. = Short oesophagus. T.S. = Thoracic stomach. Str. = Stricture. U. = Ulcer.

The duration of symptoms ranged from 2 to 19 years. Dysphagia was present in all, and pain behind the lower end of sternum in three. *X*-ray examination revealed short oesophagus, thoracic stomach, and oesophageal stricture in all, with ulcer also present in three.

Vinson attributed the stricture to the presence of gastric juice in the oesophagus resulting from excessive vomiting, but the development of dysphagia and regurgitation in our

series was in no instance preceded by vomiting. On the facts it seems reasonable to argue that the development of the stricture during pregnancy is due to increased intra-abdominal pressure at that time causing reflux of gastric juice into the oesophagus through a cardia incompetent because of its position in the thorax. The age of the patients in relation to pregnancy, the youngest being 36, is possibly another factor predisposing to laxity of the oesophageal hiatus. Allison, Johnstone, and Royce (1943) describe a similar case in which dysphagia began during pregnancy and a short oesophagus was found to be present, but they make no comment on the association.

Pathology

Since the earlier reports, summarized by Findlay and Brown Kelly (1931), there has been singularly little addition to the pathological knowledge. Morison (1930) described a further clear-cut case.

In this series, two patients died (one of haemorrhage from a duodenal ulcer and the other of cancer of the colon) and post-mortem examinations were made. The description of the findings in Case 4 has already been given.

Case 13.—A woman aged 62 was admitted to hospital because of bleeding from the rectum due to carcinoma of the pelvic colon. She gave a 40-year history of regurgitation of solid food which stuck at the lower end of the sternum. "No other information was available from records. *X*-ray examination showed a short oesophagus, a large thoracic stomach, and a partial oesophageal stricture, but no ulcer was seen. This patient subsequently died, and at necropsy the oesophagus was not short, since the measurement from the top of the thyroid cartilage to the cardia was 30 cm. The hiatus, however, measured 2 in. (5 cm.) in diameter, the oesophagus being placed centrally and attached loosely to it by a fibrous diaphragm.

Unfortunately in Case 4 no special search was made and the oesophageal hiatus was not measured, but there was at least no pronounced shortening of the oesophagus and no part of the stomach was found in the thorax. The findings in Case 13 were also unexpected in that here again none of the stomach was in the thorax and there was no shortening of the oesophagus—this in spite of the unequivocal radiological evidence to the contrary (Harrington, 1940). One is therefore forced to the conclusion that even after years of dysphagia and regurgitation the hiatal hernia may remain unfixed or sliding, while the shortening of the oesophagus must be attributed to spasm. It should be noted, however, that in neither of these cases was there a fibrous stricture.

In an exhaustive discussion Smithers (1945) reached the conclusion that the initial lesion is a congenital or acquired weakness of the oesophageal hiatal ring with herniation of the cardiac end of the stomach followed by passage of gastric juice into the oesophagus. Contraction of the longitudinal muscle fibres is thereby provoked with production of "shortening" of the oesophagus. Support for this view is drawn from the work of Gilbert, Dey, and Rall (1946), who stimulated the vagi of cats electrically and observed contraction of the oesophagus, with drawing upwards of the cardia through the oesophageal orifice. We have ourselves noted in two very recent patients (not included in this series) at one time radiological appearances typical of large para-oesophageal hernia and a few weeks later those of hiatal hernia with short oesophagus. This would make it very difficult to accept the hypothesis of congenital shortening of the oesophagus.

On the other hand the post-mortem observations of the earlier workers and recent work of Allison (1948), who excised the fibrous oesophageal strictures, show that in some patients, presumably after ulceration, the oesophagus becomes permanently shortened by cicatricial contraction.

Prognosis and Treatment

The majority of patients in this series were able to lead a reasonably comfortable and normal life in spite of persistence of oesophageal symptoms, provided they exercised care in the choice of diet and masticated their food thoroughly. From time to time a number required the passage of bougies. The upright position in bed to minimize the reflux of acid, and the use of alkaline powders, were often helpful. One patient seemed to have made a complete recovery, but refused to have a re-examination with barium. One patient was found to have adenocarcinoma of the thoracic stomach and died in another hospital. The other two deaths in this series were due to a coexistent duodenal ulcer (haemorrhage) and to carcinoma of the colon respectively.

It is of interest that we were able, after an interval of 17 years, to re-examine two of the patients originally reported on by Findlay and Brown Kelly in the Royal Hospital for Sick Children, Glasgow, when one of us was house-physician to Professor Findlay. One was a woman now aged 25, small and slightly built, who was in good health and had served in the A.T.S. She confessed that at times she had dysphagia and regurgitation, but apparently had had no difficulty in concealing this from the Army authorities. Barium examination revealed a short oesophagus, a thoracic stomach, and a partial stricture. The other patient was a sturdy youth of 18 who occasionally felt food stick at the lower end of the sternum. *X*-ray examination gave a similar picture.

Summary

Over a period of 10 years dysphagia in 26 patients was found to be due to simple ulcer or stricture of the lower end of the gullet, accompanied by *x*-ray appearances of gastric hiatal hernia and shortening of the oesophagus. Over the same period cancer in the lower third and achalasia caused dysphagia in 80 and 31 instances respectively.

The diagnosis was not often considered, and proof was obtained only by radiology, using a special technique with, on occasion, oesophagoscopy and biopsy.

Dysphagia and ulcer pain developed during the later months of pregnancy in five patients and immediately following abdominal operation in three.

In five patients there were no oesophageal symptoms—three were admitted because of massive haematemesis, one because of anaemia, and the fifth gave a long history of pain and flatulence for which her gall-bladder had been removed without relief.

Congenital or "acquired" weakness of the oesophageal ring is common, allowing of a small sliding hiatal hernia without symptoms. It is considered that only in a minority of people does oesophageal ulcer develop. A rise of intra-abdominal pressure in pregnancy would seem to be one factor concerned. Oesophageal ulcer was not encountered in the absence of hiatal hernia and short oesophagus.

We would like to thank many colleagues in the Western Infirmary who have allowed us access to their patients and to their case records.

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TRILENE ANALGESIA IN PAEDIATRIC PRACTICE

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Various minor diagnostic procedures in paediatrics, such as venepuncture, lumbar puncture, marrow puncture, testing electrical reactions of muscles, abdominal palpation, and chest exploration, cause apprehension and discomfort, often sufficient to render a child uncooperative or even actively resistant. Many other painful and uncomfortable undertakings occur in the course of treatment, such as intravenous injections and burn and wound dressings.

It is possible to diminish apprehension with such sedatives as chloral hydrate or "seconal" and still leave the patient co-operative; but often at the first appreciation of pain the child becomes resistant. The use of anaesthesia or local analgesia would seem to be justified where there is likely to be more than trivial discomfort or where it is essential that the patient should remain still and not resist. General anaesthesia eventually eliminates the patient's resistance but deprives us of his co-operation, and is not without a certain minimal risk. Local analgesia, with its attendant first stab of pain, often renders the child apprehensive, so that he becomes restless and uncooperative.

It occurred to one of us (J. T.) that analgesia produced by a simple inhaler might overcome the disadvantages of sedatives and of anaesthesia. In this communication the apparatus, indications for its use, the technique of administration, and the results obtained in a series of 60 consecutive administrations are described.

Apparatus

The apparatus used was the Blease inhaler. This is a simple draw-over type of inhaler, which can give three concentrations of "trilene" (trichlorethylene) suitable for analgesia and an additional one for anaesthesia by adjusting a simple screw setting. On occasions when induction was slow it was necessary to increase the concentration to "anaesthesia." The only modification required in the standard equipment was the provision of a small face-mask. We used the smallest obtainable (B.O.C. type, small size). At times an even smaller size would have been an advantage.

Indications.—We define analgesia as the loss of sensation of pain without loss of consciousness. The apparatus was used when a diagnostic or therapeutic measure was likely to cause pain, discomfort, or undue apprehension, and where formerly we would have employed sedatives or local or general anaesthesia. When analgesia is desirable, trilene would seem to have no special contraindication.

Our series of 60 cases represents a cross-section of patients admitted to a children's medical ward for investigation and treatment. Analgesia was given for lumbar puncture (34 cases), cisternal puncture (3 cases), venepuncture (7 cases), chest aspiration (8 cases), marrow puncture (3 cases), burn and wound dressings (3 cases); and in one case each for abdominal palpation and electrical reactions.

Age.—The ages ranged from 8 months to 11 years. In infants under 9 months old inhalational analgesia has little to recommend it. We found its greatest use in children over 1 year old. In those in the group aged 1 to 5 years it prevents resistance; and in those over 5 years it will also often secure actual co-operation.

State of Health.—The state of health varied from the acutely ill newly admitted child to the chronically ill case from the waiting-list for investigation or the comparatively healthy convalescent.

Procedure to be Undertaken.—The predominant symptom, or the suspected lesion, along with the diagnostic procedure undertaken in the various cases, is shown in the Table. In the course of treatment, intravenous injections, toilet of burns, suture of lacerations, and burn and wound re-dressings were all carried out under analgesia.

Administration

No premedication was given, and analgesia was induced without special regard to the interval since the last meal. One patient received trilene as early as five minutes after a meal without untoward effect. Several have been given trilene soon after meals, because of urgency in getting samples for laboratory examination. It is not suggested that a recent meal should be ignored, but when circumstances warrant haste trilene analgesia can justifiably be employed soon after a meal. The child, if old enough to understand, is told the purpose of the inhaler and asked to take extra deep breaths if he should feel anything hurt. The mask is applied and a conversation is kept up with the child to allay fear and encourage regular breathing. The older children, aged 5 to 11, were more or less co-operative during the administration and responded to the instruction to take regular deep breaths, usually becoming analgesic in two or three minutes. The younger children struggled and cried in some instances, but after a few deep breaths, associated with the effort of crying, they quieted down, became analgesic, and were usually drowsy. Coughing and spluttering were unusual. When we had become more conversant with the signs of analgesia (see below), if induction seemed a little slow the control screw was turned to "anaesthesia" and returned to "maximum analgesia" when analgesia was obtained. No increase in concentration of trilene was required for older children. Indeed, the younger ones were usually more resistant; but

this may have been due to the difficulty in getting a snugly fitting mask which would allow an effective concentration of trilene to be inhaled.

Once satisfactory analgesia was obtained, the finger was removed from the air port over the facepiece, thus permitting the patient to breathe air. The port was again occluded if analgesia diminished.

The signs indicating effective analgesia were not defined clearly enough to allow any hard-and-fast rules to be laid down, but the following observations were made when analgesia was effective: the breathing was regular, the eyelids were closed, and there was diminishing response to the eyelid reflexes. The patient was drowsy, but, if old enough, readily, almost automatically, responded to requests such as, "Turn on your side" or "Put your arm out."

When ether was used in skin preparation the absence of resentment to its coldness was a good indication that analgesia was satisfactory.

If the administration was continued with the control screw at "maximum analgesia" some cases showed a little increased motor activity, suggesting that the second stage of anaesthesia had been reached. Administration was stopped at this point and the stage of analgesia and drowsiness returned. Where the operation was to be of short duration, administration was continued until the painful stimulus—for example, the prick of the needle—was effected; then the facepiece was removed and the residual analgesia usually afforded enough time for the completion of the procedure. In one case not in this age group an intelligent 12-year-old boy successfully administered trilene to himself to the stage of analgesia, during which lumbar puncture and cerebrospinal fluid manometry were carried out.

In five cases tachypnoea developed, and the administration was stopped. However, subsequent events showed that the onset of tachypnoea corresponded with a satisfactory degree of analgesia.

Observations

We all gained the impression that trilene facilitated the performance of these minor procedures for both patient and operator. This conclusion, so far as it concerns the patient, was based upon objective findings in the younger children, and in the older children upon both objective and subjective findings.

Before questioning the older children a day was usually allowed to elapse, because when still analgesic the child was obviously very amenable to suggestion. Although no set series of questions was asked, it was clear that memory for the procedure was hazy and the child would state that no pain was felt.

Lack of Pain.—No attempt was made to estimate the degree of analgesia quantitatively. However, the following observations led us to conclude that in every case pain was either abolished or greatly diminished. (1) There was never any cry caused by pain or any noticeable vocal or motor response due to the painful stimulus. (2) When subsequent similar procedures were indicated the children showed less apprehension. (3) The painful stimulus evoked little or no resistance—e.g., there was much less extending of the spine when the needle entered the skin for lumbar puncture, and the child was much more easily held in position.

Co-operation or Lack of Resistance.—Active co-operation or at least lack of resistance was apparent when some unusual position had to be maintained. At lumbar puncture the patient lay still and relaxed, allowing full flexion of the spine. In one girl, aged 8, we twice easily performed lumbar puncture under trilene analgesia and later transferred her to another hospital, where a lumbar

Table Showing Prominent Symptoms, Suspected Lesions, and Diagnostic Procedures Undertaken

Provisional Diagnosis or Predominant Symptom	No. of Cases	Age: Under 5 Years	Age: 5-11 Years	Procedure Required	Co-operation in Induction of Analgesia: Non-Cooperative	Co-operation in Induction of Analgesia: Passive	Co-operation in Induction of Analgesia: Active Co-operation	Degree of Analgesia Obtained: No Analgesia	Degree of Analgesia Obtained: Pure Analgesia	Degree of Analgesia Obtained: Analgesia and Drowsiness	Degree of Analgesia Obtained: Second Stage Anaesthesia	Effect: No Effect; Resistant	Effect: Not Resisting; Passive or Drowsy	Effect: Actually Co-operative	After-effects: Nil	After-effects: Drowsy	After-effects: Vomiting	Relation to Meals (Hrs. after): Less Than ½	Relation to Meals (Hrs. after): ½-2	Relation to Meals (Hrs. after): More Than 2	Tachypnoea
Meningitis, meningismus	14	12	2	Lumbar puncture	3	9	2	1	—	11	2	1	2	1	1	13	—	—	7	7	2
Intracranial space-occupying lesion, severe persisting headaches	8	—	8	Lumbar puncture with spinal manometry	—	1	7	—	1	6	1	—	3	5	5	3	—	2	5	1	—
Epileptiform convulsions	8	5	3	Lumbar puncture	1	2	5	—	—	6	2	—	6	2	3	5	—	—	4	4	—
Paralysis of limbs, facial palsy	4	3	1	Lumbar puncture (2) Cisternal puncture (1) Cisternal puncture (2)	2	1	1	—	—	4	—	—	3	1	—	4	1	1	1	2	—
Hydrocephalus, spina bifida	3	2	1	Lumbar puncture (1)	1	1	1	—	1	2	—	—	2	1	—	3	—	1	1	1	—
Rheumatic fever	2	—	2	Venepuncture, blood salicylate levels	—	1	1	—	1	1	—	—	1	1	1	1	—	—	—	2	—
Primary blood disorder, leukaemia, purpura	2	1	1	Venepuncture, blood picture, and biochemical estimations	—	1	1	—	—	1	1	—	1	1	—	2	—	—	2	—	—
Congenital syphilis	2	—	2	Venepuncture, W.R.	—	1	1	—	—	2	—	—	1	1	—	2	—	—	2	—	—
Coeliac disease	1	—	1	Venepuncture, therapeutic "ferrivenin"	1	—	—	—	—	1	—	—	1	—	—	1	—	—	—	1	—
Pleural effusion, serous and purulent types	8	1	7	Diagnostic chest aspiration	1	3	4	—	1	4	3	—	5	3	4	4	—	—	4	4	—
Aplastic anaemia, leukaemia	3	3	—	Marrow puncture	—	3	—	—	1	2	—	—	3	—	2	1	—	—	—	3	2
Intussusception	1	1	—	Abdominal palpation	—	—	1	—	—	1	—	—	1	—	—	1	—	—	—	1	—
Polyneuritis	1	1	—	Electrical reactions of muscles	—	1	—	—	1	—	—	—	1	—	1	—	—	—	—	1	—
Burns and wounds	3	3	—	Toilet and dressings	—	1	2	—	—	2	1	—	3	—	—	3	—	—	1	2	1
Total	60	32	28		9	25	26	1	6	43	10	1	43	16	17	43	1	4	27	29	5
%		53	47		15	42	43	2	10	72	16	2	72	26	28	72	2	7	45	48	8

Satisfactory analgesia 98%

Inhaler of value in 98%

puncture, attempted without analgesia, had to be abandoned because of resistance. In another case, a child who had shown violent opposition submitted readily to a difficult intravenous injection after a few breaths into the trilene inhaler. In a case in which electrical reactions were investigated in a child of 3, we first attempted it without analgesia, but at the first stimulus she became restless. Satisfactory assessment of her reactions could be made only after analgesia had been induced.

Relation to State of Health.—The acutely ill children were more easily made analgesic, but otherwise showed no different response and suffered no more after-effects from the trilene than the chronically ill or convalescent. Where development of empyema was suspected, chest aspiration was effected easily and comfortably under trilene, and the patient suffered no ill effects from it. Trilene in low concentration is practically non-irritant to the respiratory passages. This suggests that the presence of acute or subacute inflammatory lesions of the chest may be no contraindication to trilene analgesia. No cases of primary liver disease occurred in our series, but as trilene has only a transient slight hepatotoxic effect (Armstrong, 1947) it would seem quite justifiable to use it for the short period required unless very extensive liver damage was suspected.

After-effects.—In this series no untoward effects resulted from the administration of trilene analgesia, apart from vomiting. This occurred in only one patient, who had had a large meal half an hour before trilene was administered. The child was not seriously ill or toxic, and no explanation was forthcoming why she had vomited. Vomiting did not occur in any other case in the series. All the children were able to take their next meal at the usual time and did not require additional nursing. Post-analgesic drowsiness was not infrequent (72% of total cases). It lasted from a quarter of an hour to two hours. The child awoke as from natural sleep. It was regarded as one of the advantages that a child should have this short sleep after an unusual experience, as he awoke with apparent amnesia for it.

Failure of Analgesia.—This was observed in one case, that of an infant aged 14 months. The child cried and struggled throughout. This was thought to be due to a poorly fitting face-mask.

Advantages and Disadvantages

Advantages.—(1) The apparatus is simple, safe to use, and inexpensive to maintain. (2) Administration of the analgesia presents no difficulty and takes no longer than local analgesia. (3) Trilene analgesia causes the patient no discomfort. Apprehension is greatly diminished and pain is abolished or greatly reduced. (4) Trilene analgesia affords enough scope for the performance of most of the painful diagnostic and therapeutic procedures in paediatrics. It avoids having to make the choice between full anaesthesia with its risk and possible upset, and no anaesthesia with its safety but greater discomfort. (5) Trauma, physical and psychological, is minimized. (6) The diagnostic and therapeutic procedure can be carried out more quickly, adequately, and deftly, and asepsis is more readily maintained. (7) Satisfactory analgesia allows more comprehensive investigation to be undertaken. (8) The post-analgesic effects include a beneficial period of drowsiness associated with apparent amnesia for the procedure. Nausea is infrequent and meals can be resumed in nearly every case when the patient awakes.

Disadvantages.—(1) The point at which analgesia becomes effective is not easy to appreciate. (2) There is no uniformity in the response to a given concentration of trilene, and the same vigilance must be observed as when administering any anaesthetic. (3) Tachypnoea may occur.

Conclusions

Analgesia which is safe, easily induced and controlled, and devoid of untoward after-effects would appear to be desirable in many of the painful or frightening diagnostic and minor therapeutic procedures in medical paediatric practice.

Local analgesia produced by procaine or similar substances is safe, but causes initial pain and thereafter apprehension and resistance.

Drugs such as chloral hydrate and the barbiturates have not sufficient analgesic effects. Trilene is one of the safest analgesic agents (Ostlere, 1948). It is well taken and well tolerated by children. When administered from an inhaler of the Blease type it produces satisfactory analgesia (98% in this series). It allowed a variety of procedures to be carried out without pain or resistance, or the inconvenience and risk of general anaesthesia.

Psychological upsets are greatly diminished, thus allowing frequent investigations of a disturbing nature to be carried out.

Apart from occasional post-analgesic vomiting (2%) trilene produced no undesirable after-effects. Trilene given with an inhaler of the Blease type secures analgesia more effectively and with a greater margin of safety than any other method with which we are familiar.

Summary

The need for analgesia of short duration in medical paediatrics is discussed.

Trilene analgesia in 60 consecutive cases is analysed. Satisfactory analgesia was obtained in 98%. Beneficial drowsiness occurred in 72%. Tachypnoea occurred in 8%, but analgesia was already present. Psychological benefits are noted.

It is claimed that trilene from a Blease-type inhaler produces satisfactory analgesia for use in medical paediatric practice.

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The report of the River Pollution Prevention Subcommittee of the Central Advisory Water Committee was published recently by the Ministry of Health. The subcommittee was asked to investigate measures for strengthening the law regarding the prevention of pollution of rivers and streams. Its recommendations mark a further stage in the steps proposed for safeguarding and improving the conditions of rivers in England and Wales. The new River Boards, which are now being set up under the River Boards Act, 1948, will provide a new administrative organization based on natural catchment areas instead of local government areas. The next stage is to equip these boards with up-to-date and effective legal powers. The subcommittee considers that the Rivers Pollution Prevention Act, 1876, which is the principal Act now in force, needs considerable revision and strengthening. One of its main recommendations is that effluents discharging into a river or stream should be required to comply with standards prescribed by the River Boards. The standards would be prescribed by by-laws, subject to confirmation by the Minister of Health under a procedure which would give those affected an opportunity to raise objections and to be heard in support of them. Under the Act of 1876 legal proceedings in respect of pollution by trade and mining wastes may be taken only with the consent of the Minister of Health. The subcommittee recommends that once standards have been prescribed consent should not be necessary in the case of failure to comply with a standard, since the effect of the standard on industrial interests will have been considered when the standard was applied.

LEUCOTOMY AND HYPERTENSION

A CASE REPORT

BY

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The following case raises points of theoretical and practical interest, with special reference to the psychosomatic relationships of hypertension.

Case Report

A housewife, then aged 54, was first seen in the psychiatric out-patient department of St. George's Hospital by Dr. Desmond Curran in September, 1947. The presenting symptoms were suicidal depression, intense headaches, and deterioration of vision of three years' duration. A few weeks later she was admitted under Dr. Curran's care into the St. George's Psychiatric Unit at the Atkinson Morley Hospital, Wimbledon.

She is said to have been a woman of active but even temperament. Her personal history, free as it was from abnormal stress, instability, or disharmony, contributes little to an understanding of the case. Marital relations have been good and her three children enjoy good health. Pregnancies and puerperia were uncomplicated. The family history is significant only in so far as the father was asthmatic and one of eleven siblings committed suicide at the age of 21, in the face of considerable stress.

Onset

Her physical and mental health was good until 1944, when her spontaneity and outside interests began to decrease. Intense stabbing supraorbital headaches were increasingly frequent and her menses became irregular. Her visual acuity was decreasing and there were multiple inconsistent symptoms of a hysterical kind. Depression, accompanied by headache and worse in the morning, became so severe that suicidal preoccupation was almost constant. Her threats completely disorganized home life, and on four occasions she made material suicidal preparations or attempts. Even making allowance for histrionic features, the underlying risk was considerable.

In 1946 she was admitted to Dorking Cottage Hospital under Dr. Brice-Smith, who, with the aid of intravenous and retrograde pyelograms and blood-urea estimations, was able to exclude a renal basis for the hypertension. At this stage she was referred to Dr. Strauss at the department of psychological medicine, St. Bartholomew's Hospital. On the organic side arteriosclerosis, hypertension, and a small retinal haemorrhage were noted, while phobias and other neurotic symptoms were prominent. Some of these were alleviated by a narcoanalysis performed by Dr. Jonathan Gould, but the depression persisted. The intractability and severity of the depression were such that certain risks were justified, and it was agreed that electric convulsion therapy should be given a trial. Seventeen treatments were given in two courses over a long period, but the slight improvements were never sustained. Due consideration being given to the operative risk with an arteriosclerotic subject, Dr. Strauss and Dr. Gould concurred that the indications were in favour of prefrontal leucotomy.

At the Atkinson Morley Hospital her blood pressure was observed closely for three weeks. At its most favourable it was of the order 170/100. It was usually considerably higher and there were frequent hypertensive attacks associated with intense headache, with the blood pressure as high as 260/160. Dr. Gerald Parsons-Smith reported: "This patient has severe arteriosclerosis with hypertensive heart disease. The hypertension is at present in a labile stage and has not become fixed at the high figures of 260/160, which will eventually become the position. Examination of the fundi confirms the severe arterial changes. . . ." Clinically there was slight cardiac enlargement and an accentuated aortic second sound. There was no papilloedema, but the retinal haemorrhage was still visible. The blood urea was 28 mg. per 100 ml. All other relevant special investigations yielded insignificant results.

From the mental standpoint she was profoundly tense and depressed and moderately retarded. She made one suicidal gesture in the ward and was constantly on full precautions. Sleep and appetite were poor. There was little self-reproach, and she was not deluded. Her recent memory, as might have been expected, was patchy, but on the whole there was nothing to indicate organic cerebral deterioration.

Treatments which had proved unavailing at various hospitals included pethidine, nicotinic acid, oestrin preparations, venesection, strong sedation, psychotherapy, and E.C.T. Sympathectomy had been considered to be contraindicated. Dr. Curran agreed that leucotomy should be recommended, and the risks were explained to her husband. Mr. Wylie McKissock generously undertook to perform the operation, and bilateral prefrontal leucotomy was performed on October 29, 1947, the approach being that described elsewhere (McKissock, 1943). Very severe arterial haemorrhage occurred on the left side, but eventually the flow was controlled with a tantalum clip.

Post-operative History

The patient's general condition in the immediate post-operative phase, while never critical, gave rise to concern for about two days. Her pulse remained regular and the blood pressure, after the initial shock, fluctuated slightly around 140/80. She was incontinent for about a week, and from the mental standpoint she was free from tension and depression, but was confused and disorientated. After three weeks she was out of bed, but still apt to be confused and to confabulate. She was cheerful, greedy, fatuous, and anergic, and was inclined, even more than most post-leucotomy patients, to huddle round the fire and radiators. On one occasion a syncopal (not epileptiform) attack occurred, and in this her blood pressure fell to 80/40. A haemoglobin level of 70%, which responded to iron treatment, may have been contributory. Two months after the operation her behaviour was greatly improved and she was noted as being cheerful, sociable, and helpful in the ward. Her witticisms were not always fully apt and, with a set occupational task, she proved incapable of long-sustained attention. She was eating and sleeping well and gaining weight.

The next six weeks were spent at Roffey Park Rehabilitation Centre, where, in such a favourable environment, she continued to improve, especially from the occupational standpoint. Frequently recorded blood-pressure readings were always between 160/90 and 140/80. On one occasion an epileptiform attack occurred and subsequently she received a 1-gr. (65-mg.) tablet of phenobarbitone twice a day.

Since that time the patient and her husband have been seen about every two months, the last attendance being 16 months after the operation. The following are summaries of the findings.

1. There have been no headaches worthy of note.

2. The prevailing mood is cheerful and she has been virtually free from tension or depression. The personality changes, as betrayed by occasional outspoken remarks or carefree domestic attitudes and slight limitation of foresight, are scarcely evident as such to the family. She works harder than many and the home is well run. This contrasts with her almost total social and domestic incapacity during her illness.

3. She has had three attacks of (almost certainly) minor epilepsy related to inconsistent taking of phenobarbitone. The last attack was in April, 1948.

4. Precipitancy and occasional enuresis have occurred, but there has been no enuresis in the last two months.

5. She has continued to gain weight—from about 8 st. to 12 st. (50.8 to 76.2 kg.)—since the operation. Her friends and family claim to like her "comfortable figure," but she is definitely obese.

6. The menstrual periods have ceased entirely since the operation.

7. The most striking change is that the blood pressure has always been within the range 160/100 to 140/95. There has been no tendency for it to rise month by month.

8. She was re-examined by Dr. Parsons-Smith 15 months after the operation. He states: "There has been quite a remarkable change in this patient's general medical condition since I saw her in 1947. Recently she has had no symptoms referable to her cardiovascular state, which is all the more striking since she has gained 4 st. (25.4 kg.) in weight. She still has well-marked arteriosclerotic changes, but the fundus is free from exudates and haemorrhage and there is no papilloedema. . . ." The apex beat was in the fifth space in the same position as before, 4½ in. (11.4 cm.) from the mid-sternal line, but there were no other abnormal physical signs.

9. *Special Investigations (January, 1949, 15 months after operation).—Electrocardiography:*—Unfortunately no pre-operative record was available for comparison. Taking this into account, the record at this time was not significantly abnormal. *Electroencephalography:*—"The E.E.G. recorded on this date was very abnormal. The tips of both frontal lobes showed flat records, but elsewhere irregular slow waves were seen in all leads. These were occasionally organized into short rhythms characteristic of epileptic discharges." The *blood urea* was 25 mg. per 100 ml. A radiograph of the chest confirmed slight *cardiac enlargement*, but there was no change from the pre-operative picture.

10. Mrs. Petrie, reassessing the patient eight months after the operation, reported the I.Q. as 109 (Wechsler-Bellevue scale). The gain of 10 points over the pre-operative level was largely a measure of increased co-operation.

11. The tendency to improve since the leucotomy still seems to be operative.

Discussion

There can be little doubt that without the operation the patient was faced with a future of almost constant suffering until death occurred from suicide or cardiovascular complications. The price which has been paid in personality change is familiar in quality but small in degree; progressive hypertensive changes would probably have affected the personality more adversely.

The final cessation of the menstrual periods and the obesity (greater than one might have a right to expect in terms of energy output and food intake) point to endocrine or metabolic changes, about the exact nature of which we can only speculate. The craving for heat, which we have observed more than once after leucotomy, is interesting. It has seemed to us to have a more fundamental basis than mere anergia or hedonism, and, clinically, hypothyroidism has not been indicated. The fact that in monkeys increased heat loss has been shown to follow experimental ablation of area 13 is worth noting (Livingston, Fulton, *et al.*, 1948). It is thought that this may possibly be due to reduction in the amount of peripheral sympathetic activity; in this context it is interesting to note that, in spite of full precautions, our patient developed a bedsore on one buttock after the operation. This has occurred in no other leucotomy patient in our experience.

The main interest in this case, however, attaches to the fall and the greatly increased stability of the blood pressure. Abrupt changes in blood pressure are commonly observed during the operation, and Freeman and Watts (1942) write: "On a number of occasions we have observed a precipitate drop in the blood pressure following incision of the subcortical white matter on one side and then an almost equally abrupt elevation, sometimes amounting to as much as 60 or 80 points, as the other side was operated upon."

In the majority of patients there is little permanent difference between the blood-pressure readings after operation and those recorded during the illness. Where, however, a high degree of nervous tension, in association with a raised blood pressure, existed before the operation, and where this tension is relaxed afterwards, there is a general tendency for the post-operative readings to remain at significantly lower levels. The tendency for the blood pressure to fail to reach the previous high peaks after leucotomy is best seen in frankly hypertensive patients; Freeman and Watts (1942) have described two such cases. Both of these women were suffering from agitated depression, and the relevant facts were:

	B.P. Before Leucotomy	B.P. After Leucotomy
Case A (aged 59)	184/110–222/128	190/105–195/110 (3-year follow-up)
Case B (aged 66)	Around 220/110	130/70–155/80 in hospital, and round 195/75 with full activity

The findings in both these cases are comparable with but less pronounced than those in the case reported above.

Three theoretical possibilities suggest themselves as explanations for the sustained reduction and the increased stability of blood pressure:

(*a*) Decreased physical activity after operation. This is not borne out by our patient, whose pre-operative readings were taken in bed.

(*b*) That the changes are due to interference with localized anatomical areas particularly concerned with automatic function. Evidence, largely inspired by the work of Fulton in America, points particularly to area 13, and to a less extent to area 14 (Stanley and Jaynes, 1949) on the orbital surface of the frontal lobe; the rostral part of the cingulate gyrus (area 24) is also suspect. While these areas are usually avoided in the performance of prefrontal leucotomy they have at times been involved.

Smith (1945), in stimulating the rostral part of the cingulate gyrus in monkeys, produced, among other changes, a significant rise in blood pressure without alteration in the cardiac rate. Ward (1948) described personality changes in the monkey after ablation of this area, and these changes are in some ways comparable to those which may be seen in man after leucotomy. Attention, however, has centred mainly on the orbital surface of the frontal lobe.

Changes in blood pressure (usually a rise), together with inhibition of respiration and decrease in gastric tonus, have been produced in animals by stimulating an area near the olfactory tract (Bailey and Sweet, 1940; Delgado and Livingston, 1948). In the monkey the blood-pressure responses are still operative if the vagi are cut and adrenals removed (Livingston, Fulton, *et al.*, 1948). More recently experiments have been carried out (Livingston, Chapman, and Livingston, 1948) in which, under moderate thiopentone anaesthesia, the orbital surfaces of leucotomy patients were stimulated before the operation. A gradual but consistent and significant rise in blood pressure followed stimulation, and it was shown that this was not causally related to the inhibition of respiration, which also occurred.

It is worth noting that in our patient none of the hyperactivity described in monkeys in relation to lesions of area 13 was seen (Livingston, Fulton, *et al.*, 1948; Ruch and Shenkin, 1943); hyperphagia, however, was certainly evident at first. The whole issue is of course obscured by our inexact knowledge of the extent of the lesion; in view of the haemorrhage this may have been considerable.

(*c*) The third approach assumes a close relationship between the mental tension and the raised blood pressure, so that a decrease in the one is accompanied *pari passu* by a fall in the other. This seems probable on general grounds and in view of the fall in blood pressure sometimes seen after patients who are both hypertensive and depressed have received electric convulsion treatment. In our present state of knowledge we are at a loss to know whether to think in terms of pressor substances or thalamo-frontal radiations, or a combination of the two.

In the selection of the small group of similar cases which might be helped by leucotomy the following criteria are suggested tentatively: (1) The mental state should be such as to call for leucotomy irrespective of the hypertension, and the mental tension should be pathologically high. (2) Every reasonable form of alternative treatment should have been tried without sustained response. (3) The outlook without leucotomy should be bad enough to make all concerned prepared to face a considerable operative risk. (4) Intellectual deterioration should be negligible. (5) The hypertension should be labile, as determined, if necessary, by the intravenous injection of sodium amytal. The arteries should preferably be in a healthier state than in the above case and there should never have been any indication of heart failure. (6) The renal function should be completely satisfactory.

Summary

A case is reported of prefrontal leucotomy performed on a hypertensive patient suffering from severe and intractable depression, the onset of which was associated with the climacteric.

Blood-pressure readings previously ranging between 170/100 and 260/160 have over the 16 months since the operation remained stabilized between 140/95 and 160/100. A retinal haemorrhage seen before the operation is no longer evident.

Possible explanations for these findings and for others which may be related to autonomic functions are discussed.

The disappearance of symptoms and the very great improvement in the domestic situation are considered to outweigh the personality changes and other complications.

Suggestions are made concerning the indications for performing prefrontal leucotomy where hypertension is one of the factors.

I am indebted to all those mentioned in the text for their help, and more particularly to Dr. Desmond Curran for criticism and encouragement and to Dr. Hazel Liddell for the use of her original notes on the case.

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Speaking at a conference on home helps recently, Dr. Peters, Deputy Chief Medical Officer, Department of Health for Scotland, said that though the hospital and specialist services might be the most costly and the most spectacular part of the National Health Service a great deal of its work would be stultified if it could not be followed by continued care in the home. Socio-medical services were of the utmost value in helping to keep the family together and preventing it from being broken up, as it so often could be, by the sickness or disability of one of the parents or bread-winners. The home help should be looked on as a member of a team, along with the family doctor, the health visitor and the district nurse, which could do a great deal towards alleviating suffering and anxiety. She was not a nurse, although occasionally her duties might have to extend to some personal attention, but she was a trained member of a team of social workers whose job it was to help and strengthen the home. Some authorities were already reporting remarkable success in their efforts to supply home helps. The home-help arrangements could be one of the most important and most rewarding parts of the whole National Health Service.

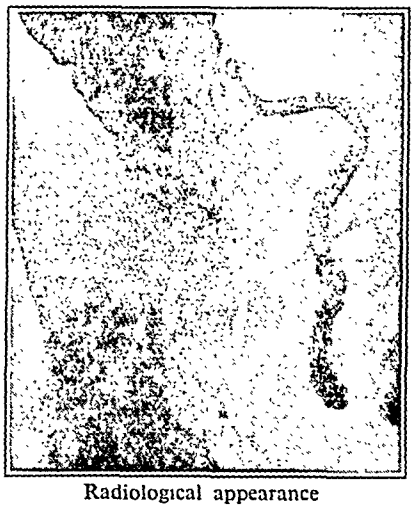
Medical Memorandum

A Shot-filled Appendix

Many cases of appendicitis have been found to contain lead shot inside the lumen of the appendix; usually two, three, or four pieces are discovered. The following case is unusual because of the large number of shot found.

CASE REPORT

The patient, an unmarried woman aged 52, had a three-months history of vague abdominal symptoms which were becoming progressively worse. These symptoms consisted of pain in the epigastrium and in the right lower quadrant of the abdomen, flatulence, attacks of nausea, and, very occasionally, vomiting. The pain was in no way related to meals. There was no loss of weight and there had been no previous similar history. Associated with the abdominal symptoms was a history of occipital headaches and pains in the neck and shoulders for about the same length of time.



Radiological appearance



Appendix after removal

Clinical examination revealed a well-built patient with a marked absence of signs except for tenderness in the epigastrium and right iliac fossa, in neither of which was it very severe. In view of her age and the vagueness of the symptoms and signs a cholecystographic and barium meal examination was made.

The radiological report (Dr. S. Cochrane Shanks) stated: "The cholecystogram was normal, the stomach and duodenum showed a coarse mucosal pattern consistent with a gastro-duodenitis, but there was no sign of actual ulceration. The appendix was very long, and was filled in its distal half with what appeared to be lead shot. There was tenderness over the appendicular shadow. Doubtless the length of the appendix had something to do with the stasis in the distal half."

The case was referred to a consulting surgeon, Mr. Michael J. Smyth, F.R.C.S., who performed a laparotomy, with a paramedian incision extending from the umbilicus downwards. No abnormality was found except that the appendix was distended and bulbous, and was removed. The patient made a rapid and uneventful recovery, all her symptoms, including the head and neck pains, having disappeared.

A pathological examination of the appendix was made by Dr. E. Cuthbert Dukes, who reported as follows: "The appendix was enlarged and its wall was thickened. Its interior was packed with more than 60 small lead shots. No other abnormality was seen. Microscopical examination showed only a slight increase in fibrous tissue in the submucosa. In all other respects the histology was normal." (See photograph.)

It was later discovered that the patient often ate game, her brother being a first-class shot.

C. EPPEL, M.B., B.Ch.

Reviews

SIGHT AND SNAKES

Visual Development. By J. H. Prince, F.R.M.S., F.B.O.A. Volume I. Foreword by Professor H. Hartridge, F.R.S. (Pp. 418; 182 illustrations. £2 10s.) Edinburgh: E. and S. Livingstone. 1949.

Sight, Light and Efficiency. By H. C. Weston, F.I.E.S. (Pp. 318; 132 illustrations. £2 2s.) London: H. K. Lewis and Co. 1949.

Mr. J. H. Prince has travelled fifty thousand miles around and about the Antipodes collecting and examining animals of all types and descriptions, observing them in their natural habitats, watching what they do and do not do, looking into their eyes during life and sectioning them after death, seeking out naturalists, scientists, and just ordinary plain folk—anyone, in fact, who had information to impart. He has examined, watched, and listened to some purpose, and, what is still more important, his observations and deductions make fascinating reading.

With a verve which I hope will take him another fifty thousand miles he tells us in a few pages all there is to know about the development of vision and colour vision, visual imagery, and visual perceptions—the whole story of the evolution of the visual sense from its inception in light-sensitive cells to its fullest development in birds and the higher mammals. He tells how 3,000,000,000 years ago organic solutions reacted to light, 1,000,000,000 years ago unicellular organisms did likewise, 1,200,000,000 years ago amoebae developed primitive eye-spots, 550,000,000 years ago light recognition appeared, and 150,000,000 years ago cephalopods ultimately developed useful eyes; how dark-adaptation followed a flight for safety from predatory enemies to the abyss of the ocean, how the perception of the third dimension arose from the need to pierce the camouflage adopted by animals of shading into their environment, and the colour sense from the development of camouflage by colour. All kinds of knowledge is gained by the way, from how best to use a microscope and take photographs, through a mine of information (most of which I did not know before) on the shape of the pupil in hundreds of species and the appearance of the fundus—illustrated by beautiful paintings—of almost as many, to a discussion of the best way to restrain a snake or a lion when you examine its eyes.

There is plenty of excitement, too—for instance, an illustration of the danger of getting anaesthetized first if you give an anaesthetic to a buffalo to examine its fundus. The greatest thrill is the tiger-snake. Prince guillotined it so that he could look at its fundus without anxiety, but when he approached the severed head the jaws opened—apparently it still could see. The headless body disappeared out of the room, moving along with its severed neck raised until it was swallowed by another snake, and even then the headless snake struggled until the last inch of its tail had disappeared into the other's mouth.

Some of the theories advanced with such care-free assurance are to be viewed with caution (as that rods are developed from cones or that red and blue-green were the first colours to be appreciated), but Mr. Prince is a born observer, and observations—many of them original—are here in plenty. It is to be hoped he will soon set out on his travels again and let us have the pleasure of reading the second volume which he promises.

Sight, Light and Efficiency reminds us that the many problems of lighting, visual efficiency, and the care of the eyes at work are of interest to a wide circle. They concern not only the oculist, the industrial medical officer, the illuminating engineer, and the personnel representatives on industrial staffs, but also the industrialist or works manager, the foreman, and the worker, whose interests lie in the efficiency, safety, and comfort of industrial plants or offices. These problems have been somewhat neglected by British industry as a whole, and there is no doubt that if there were a wider realization of the benefits which almost invariably accrue from scientific illumination and adequate visual hygiene the dividends paid in increased production and improved morale at work-places would surprise most people who have not made a special study of these matters

It is no easy task to present the results of the great amount of technical research which has been directed to these problems, largely in this country and America, so that they are comprehensible to a varied and wide audience, the most important part of which is non-technical. In this Mr. Weston, whose original contributions to the subject are well known, has succeeded to a surprising degree. Nowhere else in this country will the case for visual efficiency and safety be found so well and authoritatively advanced The sense is admirably conveyed throughout by profuse illustrations and diagrams, many of which reveal more than usual originality. It is to be hoped that the book will enjoy a wide distribution, for it cannot fail to exercise an influence for good in a field which is too frequently neglected, and at a time when industrial efficiency and the maintenance of a high morale is of paramount importance in the national interest

STEWART DUKE-ELDER

A REVIEW OF HAEMOLYSIS

Hemolysis and Related Phenomena. By Eric Ponder. (Pp. 398; 69 illustrations. $6.00 or £2 10s.) New York: Grune and Stratton. London: J. and A. Churchill. 1948.

Here is a monograph of outstanding interest, particularly to the haematologist and the bio-physicist. No one is more competent than its author to present a critical review of the subject. He has made an authoritative and thought-provoking contribution to the complex and baffling series of problems of haemolytic phenomena in relation to the mammalian red cell. Dr. Ponder says that he has not set out to provide a compendium or source-book on the subject, but rather to act as a guide to those interested in the fundamentals of haemolytic phenomena.

In the first two chapters he considers shape changes in the red cell, with or without alterations in its volume. There is a full discussion of mammalian red cells, the disk-sphere transformation, various obscure phenomena, and atypical forms of mammalian red cells. Then follows a discussion on the measurement of red-cell volume, the principles and practical details of the different methods used, the effects of hypotonic media with their osmotic discrepancies, metastable states of the mammalian red cell, fragility measurements, and the factors influencing the rate of volume change.

Chapter four describes the cytochemistry and architecture of the red cell, including a consideration of the reversible sickling phenomenon and its bearing on the problem of red-cell structure, changes in the physical and chemical properties in disease, and cell inclusions.

In connexion with the kinetics of haemolysis, the author discusses the formal kinetics, with percentage haemolysis curves, and the technical procedure and analyses of these curves. This is followed by a consideration of the events leading up to, accompanying, and following haemolysis,

prolytic ion exchanges, prolytic volume changes, and the spot-wise action of lysins. An interpretation is given of evidence derived from various measurements—for example, fading time, impedance of haemolysed cells, and electrophoresis. The measurement of inhibition and acceleration of haemolysis (chapter six) under different influences and conditions indicates some of the properties of complex haemolytic systems. The final chapter is concerned with haemolysis *in vivo*, in which many problems are posed for elucidation.

This monograph will not appeal to many readers, but it is an essential addition to the library of the serious worker in this subject. The book is full of information and most valuable critical discussions of techniques, old and new theories, and mathematical, biochemical, and biophysical considerations of the haemolytic phenomenon.

JOHN F. WILKINSON.

VARICOSE VEINS

Varicose Veins. By R. Rowden Foote. (Pp. 226; 205 illustrations and 3 coloured plates. £1 12s. 6d.) London: Butterworth and Co. 1949.

The author has discussed adequately a very difficult subject, and a study of this book will well repay the time spent. The advice given on this ever-controversial topic is sound and orthodox, and the steps of treatment are lucidly described. The author, in my own opinion, belongs to the correct school, in that he endeavours to achieve a good thrombosis of the entire system of varicosities by a combination of ligation and thorough injection.

It is hard to confine the discussion to varicose veins alone, and the author has dealt with deep thrombosis of the leg veins in addition. In this section enough weight has possibly not been given to the value of femoral vein ligation, both during the active phase and later when complications are appearing in the lower leg. Certainly the dismissal of Leriche's method of lumbar ganglionic injection would not be shared by those who have witnessed the dramatic response to this simple measure.

The book is adequately illustrated, but some of the photographs are poor and could be improved and wrongly placed incisions marked plainly on the legs. Mistakes are few—equin(c)us (p. 186); and Leahy's swabs (p. 94), though small things, are Lahey's own. In the excellent photograph of an arterio-venous aneurysm (p. 49) the increased length of the leg is not commented upon. The historical chapter is excellent, but one looks in vain for the eccentric Baynton who did so much for varicose ulceration.

A. DICKSON WRIGHT.

British doctors have a characteristic fondness for old hospitals, old prescriptions, old signs, and old jokes, and the fifth edition of *Round the Fountain* (pp. 243; 4s.; London: St. Bartholomew's Hospital Journal, 1949) should satisfy all four weaknesses. It is a collection of excerpts from the *St. Bartholomew's Hospital Journal* from 1893 to this year. Some of the material has been published in previous editions, and the best of the last 22 years has been added. Bart's seems to produce poets rather than prose-writers, which is unfortunate, as the general standard of the articles is superior to that of the verse. A few passages have the laboured construction of old pieces from *Punch*, but most of the book reads freshly and entertainingly. It is also something of a social-history book, occasionally throwing light on the spacious and more leisured days earlier in the century—for instance, in a serious discussion by a houseman on dressers there is reference to those who "could not . . . be deterred from taking off their hats to me in the Square . . . and who would invite me to dine at their clubs." All students should read "The Keen Man," and every newly qualified resident would profit from the paper on "Housemaniasis." The book is not sufficiently parochial to exclude graduates of other hospitals from its enjoyment; Bart's men, of course, will skip through all the pages with delight.

BOOKS RECEIVED

Review is not precluded by notice here of books recently received

The Proceedings of the Ninth International Congress on Industrial Medicine. (Pp. 1,090. 60s.) Bristol: John Wright. 1949.

Soviet Genetics and World Science. By J. Huxley, D.Sc., F.R.S. (Pp. 245. 8s. 6d.) London: Chatto and Windus. 1949.

The Diagnosis and Treatment of Adrenal Insufficiency. By G. W. Thorn, M.D., and others. (Pp. 171. 40s.) Oxford: Blackwell Scientific Publications. 1949.

Urological Aspects of Spinal Cord Injuries. By G. C. Prather, M.D. (Pp. 146. 27s.) Oxford: Blackwell Scientific Publications. 1949.

Diagnosis and Therapy of Gynecological Endocrine Disorders. By C. L. Buxton, M.D., and E. T. Engle, Ph.D. (Pp. 62. 14s. 6d.) Oxford: Blackwell Scientific Publications. 1949.

The Neuroanatomic Basis of Surgery of the Autonomic Nervous System. By A. Kuntz, Ph.D., M.D. (Pp. 83. 16s. 6d.) Oxford: Blackwell Scientific Publications. 1949.

The Rationalist Annual, 1950. Edited by F. Watts (Pp. 100. Cloth cover, 4s. 6d.; paper cover, 2s. 6d.) London: Watts. 1950.

Clinical Radiation Therapy. By I. I. Kaplan, M.D., F.A.C.R. 2nd ed. (Pp. 844. 110s.) London: Cassell. 1949.

Chemical Constitution and Biological Activity. By W. A. Sexton, B.Sc., F.R.I.C. Foreword by A. R. Todd, D.Sc., F.R.S. (Pp. 412. 55s.) London: Spon. 1949.

Selective Toxicity and Antibiotics, No. 3. (Pp. 372. 35s.) Cambridge: The University Press. 1949.

Tuberculosis. By J. B. McDougall, C.B.E., F.R.C.P.Ed. (Pp. 447. 32s. 6d.) Edinburgh: Livingstone. 1949.

The Pocket Prescriber and Guide to Prescription Writing By D. M. Macdonald, M.D., F.R.C.P.Ed. Revised by A. G. Cruickshank, F.R.C.P.Ed. 14th ed. (Pp. 275. 4s. 6d.) Edinburgh: Livingstone. 1949.

How Your Body Works. By G. H. Bourne, D.Sc., D.Phil. (Pp. 228. 12s. 6d.) London: Sigma Books. 1949.

Lord Lister. His Life and Doctrine. By D. Guthrie. (Pp. 128. 15s.) Edinburgh: Livingstone. 1949.

The Radcliffe Infirmary Handbook. (Pp 150. No price.) Oxford: University Press. 1949.

Home-made Sweets. By N. Heaton. (Pp. 123. 6s.) London: Faber. 1949.

Colours and How We See Them. By H. Hartridge, M.R.C.P., F.R.S. (Pp. 158. 15s.) London: Bell. 1949.

Law Relating to Hospitals and Kindred Institutions. By S. R. Speller, LL.B. 2nd ed. (Pp. 587. 42s.) London: Lewis. 1949.

Isotopic Tracers and Nuclear Radiations with Applications to Biology and Medicine. By W. E. Siri. (Pp. 653. 106s. 6d.) New York, Toronto, London: McGraw-Hill Book Company. 1949.

A Short History of Physiology. By K. J. Franklin, D.M., F.R.C.P. 2nd ed. (Pp. 147. 10s. 6d.) London and New York: Staples. 1949.

The Development of Gynaecological Surgery and Instruments. By J. V. Ricci, M.D. (Pp. 594. $12.) Philadelphia and Toronto: The Blakiston Company. 1949.

Physio-Pathologie de l'Acide Oxalique chez l'Homme. By J. Khouri. (Pp. 120. No price.) Paris: Masson. 1948.

Pocken und Pockenschutzimpfung. By M. Kaiser. (Pp. 207. $3.80.) Vienna: Springer. 1949.

Bronquitis Crónicas. By D. A. M. Barbero. (Pp. 89. No price.) Barcelona: Ediciones Byp. 1949.

BRITISH MEDICAL JOURNAL

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SENSE AND INSTABILITY

In the opening pages of this week's *Journal*, published the day before Christmas, Dr. Russell Brain takes us away from the chief preoccupation of the medical man and a medical journal. No mean poet himself, he follows in the line of many learned physicians of the past in his interest in literature. In the brief "case histories" he records so well he illustrates his chosen theme of mental instability and literary genius. The world would seem to be reasonably well supplied with neurotics and psychopaths. Some of them have a brief burst of publicity in the columns of the sensational press; most of them suffer in obscurity and perplex only their relations and their doctors. But when a genius such as William Blake says he has spoken with Elijah in the field, the question is quickly asked whether this unusual manifestation is causally linked to his creative ability. The question has been asked about Darwin, and about Newton, whose eccentricities lapsed into near-madness when he accused John Locke of seeking to embroil him with women. Whether in science, in painting, in music, or in literature, one has not to look far for examples of what we commonly call abnormal behaviour.

Dr. Brain's list of psychopathic authors is at first sight formidable, and all the more so because it supports the popular impression that genius in writers is a near neighbour to madness, or even an inseparable companion. We are wary of having our preconceptions confirmed only by a list of cases that support them, but Dr. Brain cautiously concludes that "more than one process which the psychiatrist calls pathological may be an essential element in the virtues of genius—and perhaps of the rest of us." On the other hand, many great writers could be cited who never seem to have crossed the forbidden frontier. Yet we are left uneasily asking, How many? Since the limits of both genius and mental instability can be defined only arbitrarily, the question is likely to be left unanswered, and Dr. Brain poses it in another form: "Is normality more than a statistical myth?"

The common man, whose century this is supposed to be, would probably answer yes, for the idea of normality is certainly a popular myth and one of fairly recent evolution. It has been nurtured by the work of administrators and scientists, men who must abstract from a mass of data some general principle that can guide their actions when they set to work on the people or materials concerned. Since science and administration have come to penetrate every cranny of the citizen's life, their abstractions have crept into his mind and reappeared as beliefs. The arithmetical mean shines forth as normality. Common sense allows the normal to vary within limits on either side of the average, but for human conducts sets limits that alter in accordance with social circumstances. The limits of normality, like the average, are a myth founded on an arithmetical abstraction—the standard deviation.

Yet it must be admitted that, even if mental normality is a "statistical myth," writers themselves, in the words of Harold Nicolson,[1] "are largely to blame if the general public regard them as unbalanced." Citing Plato, Burton, Shakespeare, Dryden, Macaulay, and Lamartine as authorities for this "distressing theory," he pleaded that it is more a legend than a true account of the facts. Burton put his own opinion beyond doubt in the words, "All poets are mad"; and Baudelaire confirmed it when he recorded in his notebook, "J'ai cultivé mon hystérie avec jouissance et terreur." Since both these writers were at times mentally deranged, it is doubtful how general among men of genius their experiences were. We might cite in defence the work of Terman and his colleagues[2] in California. Since 1922 they have followed the development of a group of people with great intellectual gifts, and found that the mortality and insanity rates of the group are lower than those for the corresponding age groups in the general population. The divorce rate is also lower, and the delinquency rate is very low. But though men of genius are usually highly intelligent the converse is obviously not true, and the Californian group do not display genius as the word is used here. We cannot infer that, because the men discussed by Russell Brain reveal some gifts greater in degree than the selected Californians, they are a comparable group and should therefore have lower rates of insanity and so on. For their work enshrines an extraordinary creativeness that must be accompanied by gifts not found in men who are merely highly intelligent.

Dr. Brain concludes that there is a quantitative factor worth considering, and we may admit that, without designating them insane, most writers of genius have a greater range of variation in their personality than the common reader. More daring than most in their exploration of the richness of humanity, they have felt more keenly its glory and its guilt. The anxieties that afflict us all rock tempestuously these most sensitive, perceptive, and intelligent of men. Wilfred Trotter's observation that there can be no approach to truth without a threat to one's personality goes far to explain why

[1] *British Medical Journal*, 1947, 2, 782.
[2] *Psychological Approaches to the Biography of Genius*, Eugenics Society, 1947.

many writers have found a close alliance between genius and madness. Threat to personality was felt acutely by that abnormal man and many-sided genius Leonardo da Vinci, who wrote that to create he must be solitary: "While you are alone you are entirely your own, and if you have one companion you are half your own." It is hard, even for the man of genius, to remain out of the herd and at the same time show signs and symptoms of behaviour that the herd dubs normal. This anarchic tendency of his mind may progress so far that, like van Gogh, he may eventually find himself in an asylum in the company of other solitaries who, apart from their similarity to him in madness, differ completely in the commonplace nature of their achievements. It would seem that literary and artistic genius flourish in a society that is stable and prosperous, and wilt in a society that is unstable—another theme, perhaps, for Dr. Russell Brain to explore for our entertainment and delight.

A RITUAL OPERATION

Little is known of the origin of circumcision, despite the very considerable literature on the subject.[1] At its inception the practice seems to have had an essentially religious connotation and to have arisen independently in the continents of Africa, America, and Australia. Among the Semitic races it is probable that circumcision started as an act of consecration to the goddess of fertility with the object of winning her favour and thus ensuring the birth of children. Circumcision in ancient Egypt was certainly not undertaken for hygienic reasons, and probably it served as a sanctification of the reproductive faculties and a ceremonial initiation. It is likely that the ancient Pharaohs were circumcised, the circumcised state being a necessary qualification for the priesthood. It is reported that Pythagoras had himself circumcised while in Egypt so that he might be fully initiated into the esoteric religious rites of the Egyptians. Among others, notably the American Indians, circumcision was mainly adopted as an alternative to human sacrifice. Although circumcision is widespread in Moslem communities the Koran contains no specific ordinance on this subject. Mohammed is said to have been born without a prepuce, and the possession of a foreskin was regarded as a disgrace amongst the Arabs. It is reported that after one of the Prophet's battles a slain Thaqafite tribesman was found uncircumcised, and great pains were taken to prove that he was a Christian and not truly a member of the tribe. In Arab communities the operation is performed with scissors, a razor, or a split reed, and there is a tradition that Abraham used an axe and was rebuked for his haste.

Some of the methods of disposal of the foreskin are more a matter for interest than emulation. The Levites during the Exodus piled their foreskins in the wilderness and covered them with earth; in parts of West Africa, where the operation is performed at about 8 years of age, the prepuce is dipped in brandy and eaten by the patient; in other districts the operator is enjoined to consume the fruits of his handiwork, and yet a further practice, in Madagascar, is to wrap the operation specimen in a banana leaf and feed it to a calf. In happy contrast to some of these macabre practices is the habit of the Bani Chams in Australia, who merely perform a mock ceremony with a wooden knife and leave their victims unscathed.

In Britain, while the practice of circumcision is widespread, there are rather different reasons for its performance, and, though exact figures are difficult to obtain, it would seem that more than half the male members of the population are circumcised. Many doctors have for long rebelled against the wholesale and somewhat primitive lopping of the infant foreskin which goes on in some out-patient departments and surgeries. On these occasions the technique of the operation is frequently deplorable; sacrifice of skin is often too generous, and attendant damage to the glans penis or fraenum is not unknown. If these criticisms are valid then it may well be asked why large numbers of doctors permit and encourage a practice which so savours of the barbaric. Religious considerations apart, it is not easy to find a rational argument for circumcision in most cases, and the operation is more often performed because it is *de rigueur* in certain districts or a habit in some families.

Dr. Douglas Gairdner's valuable study, "The Fate of the Foreskin," which appears at page 1433 in this issue, will, we believe, make many readers pause for reflection. Though medical opinion about circumcision may be more conservative than it used to be, yet even to-day the attitude of the profession in general to the subject is too often based upon false ideas of the anatomy and physiology of what is a useful cutaneous appendage. Of the value of the prepuce in the first two or three years of life there is no doubt, for it has an important function in covering and protecting the glans penis. Contrary to widespread belief, non-retractability, a frequent finding, is not synonymous with phimosis. There can be little medical justification for routine circumcision of the infant, and the operation is only occasionally necessary under the age of 3. After this age operation is indicated for cases of non-retractability with true phimosis and for those with recurrent preputial inflammation or paraphimosis. Circumcision should be limited in extent: the fraenal region must not be damaged, and sufficient skin must be left to cover the very sensitive corona glandis. Although the operation of dorsal slit is unpopular with

[1] Hastings, J., *Encyclopaedia of Religion and Ethics*, 1910, vol. 3, Edinburgh.
[2] Kennaway, E. L., *Brit. J. Cancer*, 1947, 1, 335.
[3] Ibid., 1948, 2, 177.

some, it is both satisfactory and simple to perform, and the ultimate cosmetic result is good.

Apart from the local reasons for circumcision it is argued by some that it will reduce the incidence of venereal disease, cancer of the penis, and cancer of the cervix uteri. The evidence supporting the first of these contentions is inconclusive; the second is established beyond doubt; while the available data on cancer of the cervix do not warrant the conclusions which have been drawn by some authorities. As Dr. Gairdner points out, it is likely that lack of cleanliness is more important than lack of circumcision in the case of venereal diseases and cancer of the penis. If the latter was not a very uncommon disease in this country it alone might provide justification for widespread emulation of the Jewish custom. The Mosaic law enjoins the practice of circumcision on the eighth day, and it appears certain that this ritual circumcision affords complete protection against carcinoma of the penis. Furthermore it has been shown that circumcision between the third and fourteenth years of life does not give complete protection against penile carcinoma.[2] In the absence of more convincing evidence about carcinoma of the cervix it is difficult to ascribe its low incidence in Jewesses to the circumcision of their spouses. As Kennaway[3] has pointed out, the data are inadequate, and the low incidence in certain other races cannot be explained by the practice of circumcision. It seems safe to say that if Dr. Gairdner's recommendations are accepted much circumcisional morbidity and mortality will be avoided and, further, that there is no good reason to fear increased incidence of venereal disease or genital cancer as a result of this policy.

RADIOLOGY IN OBSTETRICS

The technical difficulties of obstetric radiography have prevented it from being so generally accepted as radiography in such other fields as the diagnosis of fractures or of diseases of the chest. At this year's Annual Meeting of the British Medical Association in Harrogate there was an interesting discussion in the Section of Obstetrics and Gynaecology on radiology in obstetrics, and two of the papers contributed to that discussion appear in the present issue of the *Journal*.

Professor J. Chassar Moir, describing the use of radiographs for assessing disproportion, begins with a plea for closer co-operation between the radiologist and the obstetrician. He himself has set the excellent example of being his own radiologist, but this happy combination is a rare one, since few obstetricians have the aptitude, training, or indeed the time to master the difficult and exacting technique of pelvic radiography. Professor Moir is the first to recognize the limitations of the method. It can give no more than a mechanistic picture of cephalo-pelvic disproportion, and it cannot measure such other factors as the efficiency of the uterine muscle or the mouldability of the foetal head. Nevertheless, mechanical difficulty remains the commonest cause of dystocia, and in skilled hands the radiographic method of measuring both the maternal pelvis and the foetal skull can achieve an accuracy far superior to anything that can be achieved by clinical means. There are probably two reasons why this method has not received universal acceptance as an essential part of obstetrical diagnosis—first because inaccurate measurement is all too easy in the absence of adequate skill and experience, and secondly because equipment for this type of radiography has not yet been used sufficiently widely for the method to have became a routine diagnostic procedure. Professor Moir makes the point that pelvic shape is at least as important as pelvic size, and the traditional measurement of the true conjugate may be of little value unless the other diameters of the pelvis are taken into account. Here radiography is of the greatest value, since it is the only means by which an accurate measurement can be obtained of the transverse diameter of the pelvic brim or by which a true picture of the shape of the pelvis can be obtained in the living subject. Pelvic size and shape, however, must be considered in relation to the measurement of the foetal skull in assessing disproportion. Most of the recent work on pelvic radiography has been concerned with these two factors, and many ingenious methods of relating them have been described. Professor Moir has devised three charts—for the brim, cavity, and outlet—from which an impression can be gained about the level at which difficulty may be expected with different sizes of foetal head. By this means he has succeeded not only in predicting difficulty in labour but also in indicating the cases in which an easy and rapid labour can be confidently expected. Obstetric radiography has tended to diminish rather than to increase the use of caesarean section, since in many cases where clinical examination appeared to reveal disproportion radiography has shown that, even when the pelvis was contracted, vaginal delivery was possible because the baby was small.

Measurement of the maternal pelvis can, on the whole, be made with more accuracy than measurement of the foetal skull. Dr. S. Josephs, in the second paper on this subject, discusses the intrauterine measurement of the foetal biparietal diameter. The accuracy of these measurements was checked after delivery of the child by independent observers who had no knowledge of the previous readings. Dr. Josephs does not give details of the actual method employed, but the results are impressive. The radiological method tended to overestimate the size of the head by 0.02 in. (0.5 mm.), but in the whole series it was found possible to predict the size of the biparietal

diameter to within 0.1 in. (2.5 mm.) in 75% of cases and to within 0.15 in. (3.75 mm.) in 95% of cases. One remarkable result of this investigation was that no growth of the biparietal diameter of the foetal skull could be detected between 36 weeks and 40 weeks. If this is confirmed it overthrows an opinion which has been generally accepted since the work of Scammon and Calkins[1] in 1929 indicated that the biparietal diameter of the foetal skull increases in size at the rate of 0.1 in. per week during the last four weeks of pregnancy. If it is true that the diameter of the foetal skull does not increase during the last four weeks of pregnancy—and confirmation of this observation is a matter of great importance—then it should be possible by radiological examination to predict the probable course of labour at any time from the thirty-sixth week to term. Study of the growth curve between 30 and 36 weeks also becomes of greater importance; simple clinical observation shows that the child's head must grow at some time between the thirtieth and fortieth weeks.

Though pelvic radiography must be regarded as still in an early stage of development, equipment for radiographic cephalo-pelvimetry should be provided in every maternity unit. The closest possible co-operation between the radiologist and the obstetrician is essential —ideally each case should be discussed as a diagnostic problem, and the results should be available to both. Great accuracy in measurement is also necessary, and it should be possible for radiographs to be taken during the course of labour. Radiographic pelvimetry is chiefly of value in doubtful cases of cephalo-pelvic disproportion, but the clinical features of the case require careful consideration, since radiology can do no more than exclude one important cause of dystocia. It would be wise, however, to carry out pelvimetry in every case where caesarean section is contemplated for disproportion, except perhaps in the case of obvious gross pelvic contraction, now rarely seen in this country. By this means some patients may be selected for trial labour and accomplish vaginal delivery who would otherwise have been subjected to elective caesarean section. One of the results of radiographic measurement of the pelvis has been the overthrow of many of the traditional ideas of the normal measurements of the pelvis. Since the time of William Smellie it has been assumed that the true conjugate should normally measure 4¼ in. (10.6 cm.), but recent radiographic studies have shown that the normal measurement is 4½ to 4¾ in. (11.3 to 12 cm.). Further, it is now doubtful whether the conventional external measurements of the pelvis, the interspinous, intercristal, and external conjugate diameters, have any practical clinical value. In fact they may often prove misleading, since a normal pelvis often exists with small external measurements, while the pelvis may be contracted though the external measurements are normal. Another important fact disclosed by radiographic pelvimetry is that dystocia may arise from contraction in any plane of the pelvis and not only, as was formerly assumed, at the brim or the outlet. It has also greatly increased understanding of the problems raised by outlet contraction. It appears certain that further technical advances will be made and that radiography for the detection of cephalo-pelvic disproportion will become as commonplace to the obstetrician as, for example, radiography of the lungs is to the chest physician.

[1] *Growth in the Foetal Period*, 1929, Minneapolis.

INHIBITION OF AN ENZYME

Man's internal environment, his essential saline heritage, is preserved mainly by his kidneys. It is a strange evolutionary paradox that this internal environment, to be preserved within its needful narrow limits, must be constantly externalized as a copious protein-free glomerular filtrate, most of which is reabsorbed as it flows over the great and discriminating surface of the renal tubular epithelium. The excretion and selective reabsorption of this internal environment is one of the major circulations of the body. Homer Smith,[1] illustrating its magnitude, states that each day the energy of the heart and blood pressure pumps out as glomerular filtrate 170 litres of fluid, containing nearly half a pound (227 g.) of glucose and over three pounds (1.36 kg.) of sodium chloride, on to the surface of the renal tubular epithelium. As Smith writes, "Thus heart and kidney are literally pitched in constant battle against each other—our lives depend on neither one of them ever winning out." The wards of a general hospital are a reminder that the battle is ceaseless and that man is indeed delicately poised between dropsy and desiccation.

Among the achievements of the renal tubular epithelium in this circulation is its ability to excrete the excess acid of man's usual diet without a corresponding depletion of his stores of body base. R. F. Pitts,[2] reviewing concepts of this mechanism, strongly supports Homer Smith's view that this is accomplished by an exchange between distal tubular cells and distal filtrate of positive hydrogen ions for positive sodium ions. The tubular cells, rich in the enzyme carbonic anhydrase, excrete the positive hydrogen ions from carbonic acid, which is obtained from the dissolved carbon dioxide of the capillary blood and as a product of renal cellular metabolism. The positive hydrogen ions are exchanged for the positive sodium ions from the fixed base of the distal filtrate, the sodium ions being returned to the blood stream as sodium bicarbonate. The carbonic anhydrase in the distal tubular cells is an essential part of this mechanism, which serves the dual purpose of excreting acid and conserving sodium bicarbonate. Inhibition of carbonic anhydrase in this cycle might therefore be expected to diminish the reabsorption of sodium, forcing it out of the body, to promote acidosis by diminishing the

[1] *Lectures on the Kidney*, 1943, Kansas.
[2] *Fed. Proc.*, 1948, 7, 418.
[3] *The Physiology of the Kidney*, 1937, New York.
[4] Pitts, R. F., and Lotspeich, W. D., *Amer. J. Physiol.*, 1946, **147**, 138.
[5] Mann, T., and Keilin, D., *Nature, Lond.*, 1940, **146**, 164.
[6] *New Engl. J. Med.*, 1949, **240**, 173.
[7] *Lancet*, 1949, **1**, 683.

excretion of hydrogen ions, and thus to lessen the acidity of the urine.

This enzyme inhibition has been produced experimentally by giving sulphanilamide,[4] which by virtue of its free sulphonamide group is a specific inhibitor of carbonic anhydrase.[5] Schwartz[6] attempted to force a therapeutic loss of sodium from the body in congestive heart failure by the administration of sulphanilamide and obtained a limited success in three patients. His results supported the ionic exchange concept and were in accord with the predicted biochemical changes. He emphasizes, however, that the drug is too toxic for further trials and he hopes to find a less toxic compound containing a similarly effective free sulphonamide group. It is possible that a similar enzyme inhibition may be the fundamental biochemical lesion in some clinical cases of acidosis. Stapleton[7] recently reported a case of idiopathic renal acidosis in a child with severe dehydration, chronic malaise, and vomiting. The urine, however, remained alkaline and contained sodium bicarbonate despite an abnormally low plasma bicarbonate. The biochemical pattern and the child's health were restored when she was sustained by protracted administration of alkali. Stapleton suggests that in this form of acidosis the biochemical lesion may be an inhibition of carbonic anhydrase. These experimental, therapeutic, and morbid variations all illustrate a vital part of the external circuit of man's internal environment, a circuit in which 400 g. of sodium bicarbonate are tentatively excreted each day, roughly five times the total body store of available base.[4]

MEDICAL DICTIONARIES

So detailed has the study of medicine become that the student taking his final examinations must already have mastered the equivalent of a foreign language if he is to make his terminology understandable to the examiners. Though most medical terms are of Latin or Greek origin, many students now have little Latin and less Greek. When he goes on to do some research or extend his interests the student finds that a knowledge of French and German is desirable, and many of the examinations for higher qualifications require him to translate a piece from one of those languages. Though there are a number of helpful dictionaries for the more commonly used languages it is questionable whether they are adequate for the research student's requirements, and, now that more countries where Slavonic languages are spoken are producing books and journals that should be read, the need is increasing for dictionaries giving an up-to-date translation into English of medical terms from the Russian, Bulgarian, Serbo-Croat, and the others. Discussing the journals in foreign languages read in libraries, Dr. Raymond Whitehead[1] said recently: "The insignificant representation of other foreign languages [than French and German] probably means that few if any users of the library read them; it does not mean that the medical literature in these languages is unimportant—evidence to the contrary is provided by a steady demand for translations from them by those using the library."

A report on technical dictionaries prepared for Unesco by J. E. Holmstrom[2] shows that, though there are three medical dictionaries into Russian, there are apparently none from that language into English, nor are there any from Portuguese into English or from English into Portuguese Two good modern medical dictionaries connecting English with French both ways are said to be in the press. As Mr. Holmstrom points out: "Adequate provision of medical dictionaries is to be regarded as a matter of indirect but urgent humanitarian importance, equally for languages in which original research is published and for those of medically backward countries such as China." The need of these medically backward countries is now great, for many are developing the technical resources that will enable them to make use of research carried out in countries at present more advanced technically. In a rather different category are India and Pakistan. As their link with Britain becomes less intimate than formerly, presumably fewer of their medical men will be able to read and write English with facility, and adequate medical dictionaries will be needed for them if they are to keep in touch with the scientific advances of the English-speaking world. There is no necessity yet for a British-English–American-English medical dictionary, but Mr. Holmstrom shows that in some branches of technical terminology, notably in engineering, we and the Americans often give quite different names to the same thing. We can only hope that such divergence does not become common in medicine.

Mr. Holmstrom suggests that Unesco should gather further information and criticisms of the report, and then consider establishing an international terminological bureau under the joint auspices of Unesco and the International Organization for Standardization. The bureau might be located at Geneva, so that it could be in close touch with the latter organization, or it might be attached to the Science Museum Library in London, or to some other established bibliographical centre. The bureau would conduct research into technical terminology and dictionaries compile and publish standard terminological definitions and equivalents, and, when any definitions, equivalents, or sketches had been approved by the appropriate bodies, authorize them to be printed by commercial publishers accompanied by a suitable symbol indicating that they were approved by the bureau. He wisely considers that publishers should be at liberty to mix approved terms with any others, which would be unaccompanied by the symbol, for language depends on usage, which varies among writers.

The report includes an interesting speculation on whether an electronic machine might be constructed to produce translations. The possibilities are fascinating, though perhaps their realization is still rather remote. The machine translation might be full of "howlers," but an editor acquainted with the subject matter would be able to make it readable and accurate even though he did not know the language from which the work had been translated. Meanwhile the work of translating and abstracting from the world's medical literature is being carried out by more old-fashioned methods by *Abstracts of World Medicine* and *Abstracts of World Surgery*, which draw the attention of medical practitioners and students to the more important medical papers published all over the world and summarize the contents for them.

[1] *British Medical Journal*, 1949, 1, 147.
[2] *Interlingua Scientific and Technical Dictionaries*, Unesco, Paris, 1949.

FIBROCYSTIC DISEASE OF THE PANCREAS

The publication in 1938 of Dorothy Anderson's[1] series of 49 cases of fibrocystic disease of the pancreas led to recognition of the disease as a clinical entity. She divided the cases into three groups: neonatal, infantile, and childhood. Fourteen cases recently reported by Pitt[2] in Australia all belonged to the third group. In a paper which appeared in this *Journal* some weeks ago Matheson[3] described seven cases seen in one hospital between June, 1947, and September, 1948—this amounted to 2% of the medical admissions to the children's ward during that period. The evidence suggests that the disease is inherited,[4] and Matheson considers that the inheritance may be explained by incomplete dominance.

The signs of the disease are malnutrition, the frequent passage of large, offensive, pale stools, and cough, which may resemble whooping-cough. Clubbing of the fingers is usual. The appetite is good—a feature which distinguishes this condition from coeliac disease. Inadequate pancreatic secretion appears to cause a fatty liver and eventually cirrhosis, a process analogous to that which occurs in dogs after removal of the pancreas. The diagnosis is not always easy, but the presence of fatty stools with a high nitrogen content and signs of vitamin-A deficiency in a child without evidence of a tuberculous infection in the chest or abdomen are indicative. The fat content of the stools may be misleading, for although the amount is very high a large proportion may be found as split fat, owing to the effect of intestinal lipase and bacterial action. The older the stool when it is examined the higher the percentage of split fat will be.

Fibrocystic disease of the pancreas can be distinguished from coeliac disease by examination of duodenal contents, but the collection of duodenal juice from a child may not be a harmless procedure. The vitamin-A absorption curve is always subnormal, but this does not help to distinguish the condition from coeliac disease and other intestinal disorders. Recently attempts have been made to investigate protein metabolism by amino-acid curves; whereas there is a definite rise and fall over three hours in normal children and those with coeliac disease, the curve hardly departs from the fasting level in cases of fibrocystic disease of the pancreas. Radiographs of the lungs are said to show a stage of collapse associated with obstruction of the bronchi, and, later, great accentuation of the hilar shadows. Shadows in the lung fields characteristic of peribronchial infiltration have also been described.[5] It must be remembered, however, that respiratory infection often occurs in coeliac disease, and it would be hard to support a claim that the *x*-ray appearances of the lungs in fibrocystic disease are pathognomonic. Indeed, there is no single feature, with the exception of the alteration in the protein metabolism, which can be taken as a definite distinguishing sign between cystic disease of the pancreas and coeliac disease, though the respiratory disturbances are more severe in the former than in the latter. Therefore, when a case of steatorrhoea occurs in a child, the possibility of cystic disease of the pancreas should always be considered. The usual treatment is to give a high-calorie protein diet, with added vitamin A, and pancreatin by mouth. Fats should be restricted. For respiratory infections penicillin will be required. Matheson suggests that the results of treatment might be more successful than those generally obtained at present if the mucus which collects in the bronchial tree could be liquefied.

1 *Amer. J. Dis. Child.*, 1938, 56, 344.
2 *Med. J. Aust.*, 1948, 1, 91.
3 *British Medical Journal*, 1949, 2, 206.
4 Anderson, D. H., *Proc. R. Soc. Med.*, 1949, 42, 25.
5 Attwood, C. J., and Sargent, W. H., *Radiology*, 1942, 39, 417.

HUMAN PLASMA PHOSPHOLIPID FORMATION

A phospholipaemia is a common finding in association with liver disease and many other conditions. In any of these the raised plasma phospholipid may result either from over-production or from diminished utilization in the tissues. Radioactive tracers can be used to determine which of these two mechanisms is responsible. Radioactive phosphorus is incorporated within a few hours into the plasma phospholipids.[1] Accumulation of the latter in the plasma due to inadequate utilization would be indicated by a relatively low level of radioactive phosphorus, since the newly formed phospholipids would be diluted by those already accumulated. On the other hand a lipaemia due to increased synthesis would be reflected in a higher level of the radioactive element. Balfour[2] applied these principles to the study of lipaemia in twenty patients with various types of disease, including obstructive jaundice, nephrotic nephritis, and portal cirrhosis. Nine normal subjects were used as controls. In all cases whatever the cause of the blood lipid change, a direct correlation was found between the level of phospholipid in the plasma and the quantity of newly formed phospholipid as judged by its specific radioactivity. Since the liver is the main and probably the only source of plasma phospholipids,[3] it may be concluded that in all Balfour's cases the hyperlipaemia resulted from over-production in the liver. Since, however, the same results were obtained in cases of advanced liver disease, the liver appears to possess great powers of synthesis. Experiments by Chaikoff and his colleagues,[4] however, indicate that there may be an alternative explanation of Balfour's results. Using radioactive phosphorus as a tracer they found in dogs that choline increased the turnover of the phospholipid in the liver, but not in the plasma. They therefore suggest that the reduction in liver fat which is a consequence of the administration of choline is not due to increased transport but to increased utilization within the liver itself. A rise in plasma phospholipids in hepatic disease might therefore be expected if their intrahepatic consumption was more impaired than their production. Since hepatic injury, particularly if severe, is more likely to be associated with depression than stimulation of liver function, it is more than probable that the apparent over-production of phospholipid results from impaired intrahepatic utilization.

1 Artom, C., Sarzana, G., Perrier, C., Santangelo, M., and Segrè, E., *Nature, Lond.*, 1937, 139, 836 and 1105.
2 *Gastroenterology*, 1947, 9, 686.
3 Fishler, M. C., Entenman, C., Montgomery, M. L., and Chaikoff, I. L., *J. biol. Chem.*, 1943, 150, 47.
4 Ibid., 1948, 176, 193.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

THE MANAGEMENT OF ACUTE DYSPEPSIA

WITH SPECIAL REFERENCE TO GASTRIC AND DUODENAL ULCER

BY

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Dyspepsia is a common symptom for which there are many causes. Discomfort related to meals, epigastric fullness, flatulence, soreness, and heartburn may merely signify a disturbance of function of the stomach, often the result of some form of stress. This stress may be nervous or emotional, as from acute anxiety or sustained annoyance: or it may be physical, the result of over-fatigue, late nights, or insomnia; or it may be acting directly on the stomach from hurried meals, badly cooked food, or excessive drinking. Heavy smoking, habitual purgation, or continued use of aspirin may be having an irritant effect on gastro-intestinal function. A psychoneurosis is another possible reason for a functional dyspepsia.

These causes account for a high proportion of the dyspepsias. The next common cause is peptic ulcer, and again many of the above stress factors may have been present. Whether or not a given set of stimuli cause functional dyspepsia or produce an actual ulcer possibly depends on the time the adverse factors have been operating and on their intensity, both of which may also depend on the personality of the individual. The carefree fellow will meet his disappointments and frustrations with equanimity and quickly forget about them; the sensitive, worrying individual will magnify difficulties and bottle up his resentments, stimulating nervous impulses which pass down to his stomach and intestine. If he is also over-conscientious he will not stop working and rest like many of his fellow men. Sudden calamity in the life of a normal stable individual may be enough to fire the mechanism which produces the peptic ulcer, and acute symptoms may begin without any preceding indigestion.

Although this relation between stress and ulceration may often be found, there are many patients in whom the most careful inquiry will fail to reveal any untoward event preceding the onset of symptoms. Physical and mental stress are two aetiological factors, but there are probably others which are subtly associated with modern life and which have so far escaped recognition.

Differential Diagnosis

Other diagnoses have to be kept in mind, particularly for the milder degrees of indigestion. Carcinoma of the stomach is, numerically, an infrequent cause of indigestion, but must nevertheless be carefully excluded. Gall-bladder disease may produce a flatulent dyspepsia. Oesophageal hiatus hernia, or oesophageal ulcer may lead to acute discomfort, particularly when the patient lies down. Helminthic infestation is an occasional cause, and there are also diseases affecting other organs—e.g., cirrhosis hepatis, pulmonary tuberculosis, early heart failure, and incipient uraemia—which may produce dyspepsia.

Investigation

A careful history and examination are the first essentials, and may bring to light significant factors of probable aetiological importance. In the majority of cases a barium meal should be arranged, to increase the accuracy of the diagnosis. One is constantly being surprised to find gastric or duodenal ulcers in patients whose symptoms have been slight and atypical. However, it is not uncommon to receive a negative *x*-ray report on the patient with a convincing ulcer history. Examination of stools for occult blood is a valuable investigation, but a fractional test meal is of little diagnostic assistance. Gastroscopy is useful when there is a discrepancy between the clinical and radiological findings, and may clinch the diagnosis between a simple and a malignant gastric ulcer. In some difficult cases laparotomy is still the final arbiter.

Simple Stress Dyspepsia

This is mainly associated with anxiety states, and the symptoms lack the clear-cut periodicity of ulcer dyspepsia. Discomfort is common immediately after meals, and aerophagy is often present. The internal emotional tension may be well concealed at first, even though the individual may feel at the "end of his tether." A sympathetic hearing of the patient and a confident explanation of the mechanism of the symptoms, combined with adequate sedation and hypnotics, a holiday, and a review in four to six weeks, are the essentials of treatment. In particularly sensitive individuals initial rest in bed away from home may be desirable, and in other cases there may be some obvious physical stress which can be diminished.

Ulcer-like Dyspepsia with a Negative Barium Meal

There are patients who present with typical ulcer symptoms, yet the radiograph is reported as normal. These patients may have a history of recurring bouts of dyspepsia with gnawing epigastric pain related to meals, eased by food or alkaline powder, and possibly waking the patient at night. They should be regarded as having a peptic ulcer and treated just as energetically by rest in bed, antacids, sedatives, and a careful investigation of the personal aspects of their case. It is probable that many of these patients have subacute ulcers, as they tend to return later with undoubted evidence of peptic ulcer, or gastroscopy may reveal subacute (and occasionally chronic) lesions which have escaped radiological detection. At least three weeks' rest in bed should be advocated and the same treatment prescribed as for duodenal ulcer. In the past these cases have often received inadequate treatment, but if neglected at this stage irreversible changes may develop and a chronic ulcer supervene.

Duodenal Ulcer

The treatment of choice, especially for patients with a recent history, is initial rest in bed, preferably away from home; but that is often difficult to manage. Hospital accommodation in the country is totally inadequate to allow in-patient treatment of all but a minority of duodenal ulcer subjects.

Six weeks' rest in bed is desirable. Many patients will greatly prefer to continue at work, but this is to be resisted unless the rest in bed is clearly going to add to their anxieties. Rest in bed almost certainly favours the healing process, and it impresses the need for care much more

than if ambulatory treatment were undertaken. It provides opportunity for reflection and perhaps the adoption of a better perspective. The complete break will allow excessive commitments to be shed without loss of prestige. With rest in bed there must be adequate sedation during the day and adequate sleep at night, otherwise much of the benefit of the rest will be lost.

The radiological control of healing of duodenal ulcer is difficult and, indeed, impossible unless the ulcer crater is well seen initially.

Gastric Ulcer

The presence of a definite lesser-curve ulcer should always be regarded seriously. The characteristic niche, projecting cleanly from the middle of the lesser curve, is practically never a malignant ulcer; but an ulcer in the antrum, at the cardia, or well away from the lesser curve must be regarded with suspicion and investigated further.

Large gastric ulcers can heal even if the individual barely diets and stays at work, but it is extremely likely that without treatment the chance of the ulcer becoming chronic is greatly increased. Loss of pain is an entirely unreliable guide, for ulcers may remain present and symptomless for many months. The treatment of choice is rest in bed, preferably away from home, until healing takes place. This may be within three weeks, but it may need several months. Good convalescence should follow radiological healing of the ulcer, as gastroscopic studies have shown that the crater may still be present for several weeks after it has disappeared radiologically. Gastric ulcers are associated with a higher mortality than duodenal ulcers when they bleed or perforate, and there is the slight risk of malignancy. No compromise is possible, and if healing will not take place a partial gastrectomy must be advocated.

Dietetic Treatment

Treatment is based on the principle of giving two-hourly milk feeds and as pain subsides adding bland foods to maintain adequate protein, calorie, and vitamin requirements. The rate of increase must be decided in each case by the relief of pain. The diet should be attractive and colourful, as the irritation of a dull diet more than offsets the benefit from the loss of psychic stimulation of gastric secretion. The diets below are practical but not perfect, and more protein and fat in the form of eggs and cream would be of value.

The following dietary was given by Fletcher in 1948: reprints of his valuable pamphlet for patients can be obtained from *The Practitioner*. The patient should be told that the diet sheets should be regarded as a general guide, and that he must not get fussed or worried if occasionally he has difficulty in following them.

First Stage: Strict

Two-hourly milk feeds may be given, alternating with 5-oz. (140-ml.) feeds of egg and milk, or Benger's food, "ovaltine," "horlicks," malted milk, or junket. An example of stage 1 diet is given below.

8 a.m.—5 oz. of custard mixture
10 a.m.—5 oz. of milk
12 noon—5 oz. of custard mixture
2 p.m.—5 oz. of milk
4 p.m.—5 oz. of custard mixture
6 p.m.—5 oz. of milk
8 p.m.—5 oz. of custard mixture
10 p.m.—5 oz. of milk
(5 oz. = 140 ml.)

At night (if awake) 5 oz. of milk may be given.

All feeds should be taken warm (not hot), and plain water in small quantities may be allowed in addition. Between each feed (that is, at 9 and 11 a.m., and at 1, 3, 5, 7, and 9 p.m.) and at night, if awake, alkaline powder or medicine should be taken.

If there is vomiting the milk should be diluted half-and-half with water and only 3 oz. (85 ml.) taken at each feed.

If there is no vomiting and pain rapidly subsides the patient may be allowed two plain biscuits, or two small pieces of crisp toast buttered when cold. These are taken at 10 a.m., 2 p.m., and 10 p.m. with the 5 oz. of milk. If improvement continues the patient may be given a little strained porridge or patent cereal baby food at 8 a.m. and a small helping of pudding at 12 noon and 8 p.m. for two or three days before starting the stage 2 diet.

Extra nourishment can be obtained by adding a teaspoonful of sugar to each feed, and this should be done if the diet is taken for more than two days.

The milk feeds may be flavoured with a little cocoa or with "ovaltine," "bourn-vita," or "horlicks," or the milk may be taken in the form of junket.

Custard Mixture.—This should be prepared for the day by stirring two eggs (fresh or reconstituted dried) into 16 oz. (450 ml.) of milk. Before the mixture is served it should be thickened by warming and, if desired, flavoured with vanilla or chocolate. If one cannot get enough eggs to make the custard mixture, a proprietary brand of "strained custard pudding" may be used or better still a "fortified milk mixture" made by adding 2 oz. (55 g.) of dried milk powder or 1½ oz. (40 g.) of dried protein milk—i.e., "prosol" ("trufood")—to 1 pint (570 ml.) of milk.

Second Stage: Moderate

An example of a stage 2 diet, which is considerably fuller, is given here.

6 a.m.—5 oz. of warm milk.

8 a.m.—Small helping of patent groats, patent barley, or strained porridge made with milk to which "bemax" may be added; two slices of crisp toast, buttered when cold; one lightly boiled or poached egg, or scrambled dried egg; 5 oz. of milk flavoured with weak tea: jelly, honey, or syrup.

10 a.m.—5 oz. of warm milk.

12 noon.—Small helping of steamed fish or egg, as at 8 a.m.; two slices of crisp toast or plain biscuits with butter; small helping of pudding; 5 oz. of milk (including that used in pudding); add small helping of creamed potato after one week on stage 2 diet.

2 p.m.—5 oz. of warm milk or milk pudding (for example, junket, egg custard, or corn-flour).

4 p.m.—5 oz. of milk with weak tea; two slices of crisp toast or biscuits with butter; small slice of plain cake, jelly, syrup, or honey.

6 p.m.—5 oz. of warm milk or cream of vegetable soup.

8 p.m.—Same as at 12 noon.

10 p.m.—5 oz. of warm milk.

The times may be varied so long as the intervals between feeds are not longer than two and a half hours. Sugar or glucose may be taken as desired. If the patient is thirsty, water or fruit juice may be taken, but not more than 5 oz. at a time. The milk feeds may be flavoured with a little cocoa, "ovaltine," "bourn-vita," "horlicks," or very weak tea, or they may be taken in the form of junket.



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Third Stage: Convalescent

A sample diet for stage 3 is as follows.

Breakfast.—Cornflakes, patent groats or barley, or strained porridge with "bemax" and 5 oz. of milk; lightly boiled, poached, or scrambled egg (shell or dried); bread or toast and butter; weak, milky tea; honey, syrup, or jelly.

Dinner.—Boiled, steamed, baked, or grilled white fish, soft roes, tripe, brains, sweetbread, chicken, or rabbit. White sauce. Lamb, tender beef, or liver, minced if possible, may be allowed; mashed potato; soft parts of well-cooked root or green vegetables (sieved if possible) or cauliflower; pudding (see below); bread or toast and butter.

Tea.—Bread or toast and butter; plain cake, or biscuits; milky tea; honey, syrup, jelly, or pea-nut butter.

Supper.—Boiled or steamed fish, egg as at breakfast, or grated cheese; bread or toast and butter; sieved vegetables; milk (with weak coffee, tea, or cocoa) or milk vegetable soup.

(*Note.* The bread should not be new; the toast should be crisp and buttered when cold).

In addition to these four main meals, one of the following snacks should be taken in the intervals between them, before going to bed, and if awake at night, so that the patient never has more than two hours during the day without taking food.

Snacks.—Small cup of milk (flavoured with weak tea, very weak coffee, "ovaltine," "bourn-vita," cocoa, or "horlicks," if desired); or ½ oz. (15 g.) of plain or milk chocolate; or two or three tablets of "horlicks" malted milk or "ovaltine," or two plain biscuits or slices of crustless bread with butter and jam or paste, or a slice of plain cake.

Ascorbic acid and medicine should be taken as in stage 2 diet.

Suitable Puddings.—Suitable puddings may be made from junket, well-cooked rice, ground rice, corn-flour, semolina, tapioca, vermicelli, arrowroot; and flavoured with coffee, chocolate, caramel, almond, or vanilla. Milk jelly and all other kinds of jelly; custard, baked or boiled; blancmange; steamed sponge or castle puddings; fruit fool; sieved stewed apples, pears, prunes, plums; sweet omelet; queen of puddings; meringues, ice-cream, trifles, sieved apple charlotte.

Medication

The most important single drug in the management of peptic ulcer is phenobarbitone, given in sufficient doses to have the desired effect of sedation. The dose must be worked out individually for each case, starting with ½ gr. (32 mg.) three times a day. Sodium amytal is a valuable alternative, starting with ¼ gr. (48 mg.) t.d.s.

Antacids are of some value during the initial phase, and "aludrox" or "lactalumina" may be given, one dessertspoonful with water four to six times daily, half to one hour after meals. Other antacids recommended are magnesium trisilicate (30 gr.—2 g.) or equal parts of calcium and magnesium tribasic phosphate (30 gr. of each). Neither of these is as good as the soluble alkalis for the relief of pain, and during the initial phase the addition of sodium bicarbonate can be most useful—e.g., tab. alk. co. effervesc. may be given, or mist. magnesii trisilicatis composita (*N.F.*), which contains 10 gr. (0.65 g.) of magnesium trisilicate, light magnesium carbonate, and sodium bicarbonate.

Belladonna is probably of most value when taken at night, and may stop night pain. Tinct. belladonna. 15–30 min. (0.9–1.8 ml.) may be given, or the dry extract may be combined with phenobarbitone aa ½ gr.; the dose is one to two tablets. Olive oil (½–1 oz.=14–28 ml.) before meals is a useful adjunct, especially in cases of duodenal ulcer.

Special Measures

The underweight patient should be given extra protein "Bemax" (1 oz.=30 g.) is a useful supplement, as it contains 30% protein in addition to the vitamin B complex Fortified milk feeds at night are most useful—for example:

5 oz. (140 ml.) milk
½ oz. (14 ml.) half-cream dried milk
¼ oz. (20 mg.) "prosol"

Flavour as desired with cocoa, vanilla, or coffee. A milk drip is invaluable if there is severe pain at first, and a milk drip at night is a useful additional therapy for duodenal ulcer. Use a very thin Ryle's tube passed through the nose and give 2 pints (1.1 litres) of milk during the night or 6 pints (3.4 litres) in the 24 hours. Evaporated milk in the proportion of 15 oz. (425 ml.) to 25 oz. (700 ml.) of water may be used. This is more satisfactory than dried milk.

Surgery

There is no hard-and-fast line between medical and surgical treatment, and each case requires individual assessment. Under the age of 45 the chance of death is small, but surgery may be needed to save a man's job rather than his life. If crippling relapses incapacitate him he has earned a partial gastrectomy. Over 45 years there is increasing risk of death from complications if ulcers remain unhealed. If the general condition and the surgical facilities are good there should be no hesitation in operating on the patient who is unable to heal his ulcer or has recurrent complications. Partial gastrectomy is the operation of choice, and its mortality has declined considerably recently with increasing experience of surgeons and the introduction of new anaesthetic techniques and antibiotics. Nevertheless, there is a small mortality and morbidity which must still encourage the practitioner to administer medical treatment thoroughly before surgery is recommended.

Aftercare

The risk of subsequent relapses can be reduced by attention to certain aspects of the patient's life and habits. He must have a clear appreciation of the effect of emotional reactions in predisposing towards or causing further ulceration. Minor environmental difficulties may be more harmful than personal catastrophes. There must be a calm, philosophical outlook and a refusal to allow small troubles to accumulate into a pent-up load of resentment or frustration. If the patient finds himself becoming tense he must be encouraged to take phenobarbitone (½ gr. t.d.s.). The practitioner can assist greatly by encouraging regular consultations, at first every six weeks, then every three months, and finally three times a year. A sympathetic understanding of the difficulties and the advice of an independent observer may greatly help the individual.

The patient should avoid undue fatigue, chilling, and work which involves constant bending; but it is seldom advisable to change the patient's occupation, for this often causes more problems than are solved. Regular hours are highly desirable, and limitation of overtime duties is necessary.

Dietary restriction is probably of value indefinitely, but the most important aspect of feeding is maintaining regular meals without long intervals between them. The patient is well advised to avoid fried foods of all kinds, pastries and suet, pickles and spices, curry, pepper, onions, reheated dishes, coffee, strong tea, and anything which he finds indigestible. Priority milk should be continued, and has proved to be of great value for many patients with a ready tendency to relapse. Alcohol is best omitted for six months and then allowed in strict moderation. Smoking should be restricted, or preferably stopped, but it is legitimate to allow a few cigarettes after meals, unless the patient relapses.

Continued medication with antacids or atropine is not desirable, but the patient should have a supply of phenobarbitone. He should be strongly advised to rest completely at the onset of a relapse and return to the strict ulcer regime, for early treatment may abort an otherwise long and tiresome recurrence.

MEN AND MEDICINE*

BY

T. M. TAYLOR, C.B.E., K.C., M.A., LL.B.
Principal of Aberdeen University

You are entering on your profession at a time when great changes have taken place not only in the practice of medicine but also in the organizational forms under which it is conducted. It is far too soon to pass any verdict on the National Health Service, whether of praise or of blame, but one danger is already apparent—that its financial arrangements may easily tend to draw men away from general practice into so-called specialisms, with results that on the long view may be detrimental to the weal of the patient and the general progress of medicine.

It will be an ill day for the community when the general practitioner degenerates into a filler of forms or an automatic machine dispensing chemical panaceas. In earlier times the specialist usually graduated from the field of general medicine or surgery in which he was accustomed to deal with his patient as a human being set in a particular environment. Now the specialist at the very beginning of his career will be tempted to immure himself in his specialty, and the danger may be not only that the range of his own medical knowledge will be restricted but that he may come to lack understanding of the patient's environment and of the problems that face the general practitioner.

I am aware of the theoretical arguments in support of this trend. They start from the proposition that medicine is a science—i.e., an attempt to make knowledge quantitative—and in their extreme forms they suggest that the best results may be attained by subjecting the patient to the attentions of a series of specialists, each producing his quantitative report with a Grand Co-ordinator at the top who collates their reports and then prescribes the appropriate remedy. This picture, I will concede, is caricature, but it is not an unrecognizable distortion of some things that may be read or heard. The other theory rests on the contention that medicine is an art and that there is no difference in principle between the doctor making up his mind and the judge framing his judgment, the painter building up his picture, or the cook producing a good meal. In each case the practitioner of the art requires to take a total view of the situation, balancing the different elements with a delicate sense of relevancy. It is this intuitive sense of relevancy and balance that makes a judgment—legal, medical, aesthetic, or culinary—and in each case the art is learnt by doing the job and by following the practice of the acknowledged masters. It cannot be disputed that contemporary medicine owes much to the quantitative approach of exact science, but on the other hand it must not be forgotten that many of the great discoveries have come by chance to men who, like Saul, were looking for their father's asses and found a kingdom. Others again, as Sir James Mackenzie was never tired of saying, were due to general practitioners who were capable of using their own observation and clinical nous to some purpose.

Pastoral Medicine

If the practice of medicine is an art rather than a science it is equally true that the patient himself is not a mere natural object to which the techniques of physical science can be universally applied. I think it will be increasingly recognized that man has a spiritual structure which must be respected no less than the physical structure with which it has some kind of relation. It may be that the conditions of modern industrial society are themselves a violation of this essential structure, and that the increase of nervous tension and mental instability and the growing resentment of the industrial proletariat are symptoms of a violation too gross to be palliated by mere adjustments of social mechanism. However that may be, there now devolves upon the doctor in general practice a quasipastoral function which derives from the pathetic and indeed terrifying trust which simple folk repose in him. It is to be feared that the medical course, grossly overloaded as it is admitted to be, is a most inadequate propaedeutic for the discharge of a ministerial function of this kind. It becomes a question whether there should not be a course in pastoral medicine as well as in pastoral theology. Such a course would take the student into deeper waters than can be plumbed by operational techniques and the measuring instrument of the laboratory.

For the great scientific advances of our time have singularly little bearing on the decisions which have to be taken in men's daily lives and which, over a period of time, affect them profoundly for weal or woe. Scientific discovery can do much to change the environmental framework within which decisions have to be taken, but the decisions themselves depend on factors that derive from custom and tradition, from poetry and literature, from philosophy and religious belief. This fact, once you perceive and realize it, may well serve to keep you humble. But those are questions that you will have to face in the years that are to come.

*Part of a graduation address given at Aberdeen University, September, 1949.

The American Trudeau Society, medical section of the National Tuberculosis Association, has adopted a report of its Subcommittee on Immunology which recommends that "efforts be continued to perfect and to meet in practice suitable standards for the production of B.C.G. vaccine, and that, when practicable, commercial firms be licensed under the National Institute of Health to produce the vaccine."

WITH WHALES AND SEALS

BY

H. R. LILLIE, B.Sc., M.B., Ch.B.

Surgery and medicine on Arctic or Antarctic expeditions are very different from the routine of practices and hospitals in cities. In lands where icebergs drift quietly by in the summer twilight and the world next day may be one howling gale, you are your own radiologist, pathologist, and theatre sister, and for a second opinion you have the nearest penguin or polar bear. When an operation has to be done, the ship's fifth engineer will probably be first assistant and one of the wireless operators anaesthetist. Then the patient so often gets back to duty in much less time than he would at home, for the air is pure and he knows his mates are waiting for him.

Surgeons and biologists on whaling operations, and those who come in contact with the lesser-known sealing expeditions, soon realize that behind the popular sagas of hardships and bravery in these industries lie killing methods which over the past hundred years have, for excesses of cruelty, been surpassed only by the horrors of fur trapping.

Whaling in the Antarctic

My introduction to the real state of affairs in whaling was in the Antarctic in the 1946–7 season as surgeon with a Scottish whaling fleet of 14 ships, comprising the parent factory ship the size of the *Empress of Australia*, 10 foraging harpoon vessels like squat trawlers, two oil tankers, and a supply ship plying between the mother ship and the United Kingdom during the season. Six hundred men had to be catered for medically. It was a year when the accident toll was heavier than usual, one catching-vessel being lost with only one survivor, and the fleet hospital on board the mother ship was kept in action with such as broken limbs and ribs, eye damage from a tank explosion, and, by the way of variation, injuries to a flenser who fell inside a blue whale's mouth as the carcass was being turned over on deck. Trapped with only his boots sticking out as the jaws came together, he got off with a moderately crushed chest and emphysema from the neck to the waist, but was back on his job in six weeks. In a factory ship crammed from stem to stern with machinery for processing the whales, with little room for men to move around, accidents were to be expected, but mangled feet and hands were very few. In view of the antiquated explosive harpoon still used in the killing, which bursts the whale intestines, a large supply of anti-gas-gangrene serum was taken, but little was required in spite of whales having to be handled at times in a very putrid condition.

A whale-factory cutting-deck, which for space resembles the flight deck of a small aircraft carrier, when in full action is a blood-soaked welter of entrails, massive vertebrae, ribs, jaw bones, and five-ton lumps of red meat being dragged in all directions. The whale being dismembered may have been well over 100 tons in weight, the equivalent of 150 oxen. The surgeon acting as biologist in the pursuit of whale pituitaries, ovaries, pancreas, or thyroids has to find his specimens with the minimum of delay in this battlefield if he is to secure them before they disappear through the deck manholes into the factory cookers below. And if his feet go out from under him on a piece of slippery whale tongue, then the mirth of those seeing him sitting in six inches of blood and entrails is anything but half-hearted.

The ship's hospital equipment was good. There were eight normal beds, two extra isolation cabins for emergency, and an operating theatre equipped for every possibility: a portable *x*-ray plant was a great asset, and, in addition to its use for humans, was used to diagnose damage done to the foot of one of the many king penguins we brought back from South Georgia for the zoos in Britain.

The whaling surgeon is likely to be busy at any time in the day or night throughout the three to four months' active whaling season. During daylight most of his work will be with the factory hands, but at night catching-vessels will come alongside to take on bunkers and stores and get any sick men attended to, for only with very serious cases will they interrupt whaling operations. In addition to accidents there are always the few dental cases requiring fillings or extractions. The fevers also crop up. A week out from home we had a case of scarlet fever on board, and towards the end of the season one of the worst cases of chicken-pox I have seen. During the season the doctor may transfer to the catching-vessels for a few days at a time, keeping in touch with the mother ship and the other catchers by radio-telephone.

The method still used in killing the whales to-day is antiquated and horrible. Since the last war radar, asdic, and even aircraft have been added to the whalers' equipment, in addition to faster catching-vessels, but the sad fact remains that with all these inventions the actual killing with the explosive harpoon is more cruel and economically unsound than was the original iron harpoon at the dawn of the industry hundreds of years ago—more cruel than it would be to a man, for, in a whale, wound shock gives no relief; and economically bad, for the explosive harpoon is the most wasteful weapon possible. The delayed-action explosive head usually bursts the intestines and spreads putrefactive organisms throughout the circulation during the long time taken for the creature to die. Only in the comparatively few cases when the whale is speedily and humanely killed by a harpoon striking a vital spot altogether away from the intestines can satisfactory meat be produced. Only when this primitive explosive harpoon is given up altogether—superseded by a modern humane method such as electrocution—will whale meat ever really come into its own as a valuable food for man.

A whale swimming is a wonderful sight, just the poetry of majestic motion, and to see one of these beautiful creatures pouring blood and gasping along on the surface towing a three-hundred-ton catching-vessel on the end of a harpoon rope is pitiful. Anything up to an hour is the usual time taken for them to die, but time and again it takes two or three hours and three, four, or more harpoons to tear and blast the life out of one of them. In one extreme case I witnessed five hours and nine harpoons were required to kill a female blue whale in advanced pregnancy. These mother whales fight desperately for their lives and those of their babies. I am glad to say research to correct this is at long last going ahead to make the industry one of which we need no longer be ashamed.

Sealing Expedition

Last Christmas brought me to Newfoundland and a base at Twillingate Hospital in Notre Dame Bay, an institution of 130 beds serving an area of 3,000 square miles and presided over by Dr. John Olds, a graduate of Johns Hopkins. There we discussed the plight of the harp seals and what could be done. Like the whales they are helpless against uncontrolled commercial exploitation. The sealing fleet this past spring included 25 ships from Newfoundland, Norway, Canada, and the United States, and one was fitted as an emergency medical ship. Two spring months were spent in the drifting pack with the seals, our little wooden vessel

Codroy with her crew of 43 men at times lying immovably jammed and helpless in a silent world of drifting snow, or on other days with the pack grinding and battering at her sides in a heaving ocean swell Three ships were lost—one wooden Newfoundlander, from which the crew escaped, was crushed by heavy inshore rafting pack, and two steel Norwegian ships were lost by fire and heavy seas, the crews of both missing.

The conditions of medical work differed from those on the whaling expedition. Other ships of the fleet could not come for medical help, being often frozen fast in the pack and possibly 50 miles away from us. So we treated over our radio transmitter their cases of pneumonia, damaged ribs, and exposure. A mild form of snow blindness was common in men who neglected to wear dark glasses while working in bright weather out on the ice pans. Seal finger, sometimes known as fat finger, is found occasionally in men working with adult seal pelts. Dr. Olds has probably studied this more than anyone. In appearance the lesion is not unlike a tuberculous finger; it is confined to the joint and does not spread, and there is no accompanying lymphangitis. But there is ultimate necrosis and atrophy of the bone, when amputation is the only effective treatment. Investigation by Dr. Olds has shown that in cultures from such fingers, as well as from the seal parts involved, the dominant organism is frequently a staphylococcus, but the bacteriology so far is not conclusive. I found a break in the skin was not a necessary preliminary. Very often the fingers involved are those hooked into the eye-holes in dragging the adult pelts over the ice, and possibly mechanical pressure forces the organisms of the skin through to the deeper layers. I have never seen a similar condition during any whaling operations. In the three typical cases of seal finger brought to me penicillin was injected into the joint area and streptomycin systemically. The two with which I was able to keep in touch cleared up well, but the third patient lost his life by drowning.

Unnecessary Cruelty

As in whaling, unnecessary cruelty is inflicted on the seals. The baby harp seals (whitecoats) born out on the pack ice are helpless, and are taken mainly for their fat; often, instead of killing them properly by a blow on the skull, sealers just daze them with a kick before cutting the little bodies out of the pelts. The mothers climb back on to the ice and wonder why the bleeding carcasses cannot suck from them.

Days I spent with ciné and other cameras strapped around me jumping ice pans; with the ocean swell, footing was not always safe. Many times I subsided into the icy water, when first thought had always to be for saving the cameras, and fortunately only one of three came to grief. On one occasion a harp seal being chased close by was caught between two closing pans and burst like a ripe tomato. I was more careful than ever after that. In this work, often miles away from the ship, I found drinking raw seals' blood and eating the hearts raw to be the most sustaining food of all. It is the Eskimo way.

The shooting of the adult seals later in the season is the worst of all, when any man who thinks he can shoot is allowed to mutilate these creatures. Some seals may die at once, but others shot through the neck or lungs writhe about until they may flop over the edge of the ice to die out of sight. I have seen as many as five seals from one pan disappear leaving bloody trails, while others crippled lie in pools of blood. Three hundred thousand seals are involved annually off Newfoundland alone, and international control is urgent.

Why has nothing been done in the past towards humane whaling and sealing? I find so many of the whalers, sealers, and trappers in their hearts are sick of the practices of these industries, so often glamorized in print. As medical science seems to strive towards the survival of the unfittest, and wider famine areas result from the excessive increase in human numbers, consideration for the other animals that are helping us out now is more than overdue.

Everywhere I have been apart from Arctic and Antarctic expeditions the great cry both in the cities and the remote backwoods is for all-round doctors, with a grip of medicine and surgery as a whole—men to whom the people can come knowing they will be taken care of mentally and physically and not just pushed on to someone else. There are so many vast areas where a Highlands and Islands Medical Service as we knew it in Scotland is an urgent need. But the people living bravely in the outposts of this world will for ever resent any so-called free service. There they rarely complain of their lot. They may be lonely, but the general doctor can do much where the city specialists' ideas cannot meet the requirements. These people have faith in what they are doing, and courage Working with them you will get back again your faith in the human race.

AUREOMYCIN AND CHLOROMYCETIN

We published (November 19, p. 1171) a memorandum from the Ministry of Health on the subject of "aureomycin" and "chloromycetin." The Department of Health for Scotland has now made the following announcement:

Supplies of aureomycin and chloromycetin are now available for use in Scotland. Owing to the fact that they are scarce and costly their use can be justified only for conditions in which they are likely to be beneficial. Until supplies become more plentiful the Medical Research Council has advised that the use of the drugs should be confined to the following conditions:

Aureomycin.—Suspected cases of ornithosis; proved cases of undulant fever (brucellosis) and lymphogranuloma inguinale; severe cases of atypical pneumonia in which there is good reason to believe that the cause is a virus.

Chloromycetin.—Suspected cases of ornithosis; proved cases of undulant fever (brucellosis), lymphogranuloma inguinale, typhoid fever, paratyphoid fever (severe), salmonella septicaemia.

These categories are under constant review and may be added to from time to time in the light of current expert advice.

All available supplies are being purchased centrally and will be distributed through the following centres:

Region	*Distribution Centre*	*Telephone No*
Northern	The Medical Superintendent, Raigmore Hospital, Inverness ..	Inverness 681
North-Eastern ..	Dr J. Smith, City Hospital, Aberdeen ..	Aberdeen 2242
Eastern	Dr. Wm. Jamieson, King's Cross Hospital, Dundee	Dundee 85241
South-Eastern ..	The Chief Pharmacist, Western General Hospital, Crewe Road, Edinburgh, 4	Edinburgh 30271
Western	The Chief Pharmacist, Central Pharmaceutical Store, 112, Ingram Street, Glasgow ..	Glasgow Central 9600

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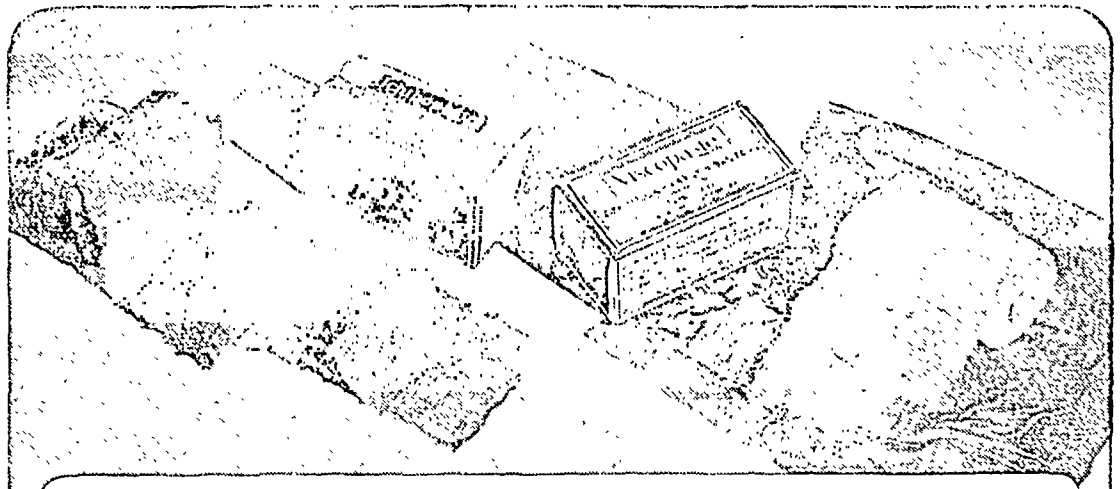
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Reports of Societies

MUSIC IN PSYCHOLOGICAL MEDICINE

The use of music in psychological medicine was discussed at a meeting of the Section of Psychiatry of the Royal Society of Medicine on December 13, with Dr. W. J. T. KIMBER presiding.

Dr. S. D. MITCHELL said that at his mental hospital, with a colleague, he had been studying the use of music in group therapy in a variety of syndromes. The groups averaged 10 persons, all in-patients, members of both sexes, mainly young and middle-aged adults, generally selected because they liked music and were well enough to carry on a conversation. They met weekly, listened to selections of music, and discussed their reactions. He wanted to see whether the more inhibited were enabled to express themselves better, and whether the less inhibited would have better emotional control. The music was chosen to cater for every taste. Elizabethan music—madrigals and so forth—appeared to be too remote to evoke any emotional reaction. Reactions to the music of the great composers varied:

Mozart.—Mild serenity throughout the group.

Bach.—Some patients were indifferent. Several schizophrenics expressed "cool admiration." One declared that the composer was "balanced." An anxiety neurotic and morphine addict found this music boring; Bach gave her, she said, a feeling of frustration and inferiority.

Beethoven.—Produced outstandingly stimulating effects compared with other classical masters. On listening to the Fifth Symphony a manic-depressive said it was clear that Beethoven had had a conflict and had won through. It made her feel much better to listen to him.

Chopin.—An obsessional neurotic said that the Fourth Prelude affected him personally; a manic-depressive woman had a feeling of personal loss. A young schizophrenic said that Chopin's music burdened her with other people's troubles, and she did not see why this should be.

Wagner.—The *Flying Dutchman* overture evoked very strong personal reactions and led to quarrelling about personal attitudes to the love relationship.

Nineteenth-century realistic music, said Dr. Mitchell, had certain advantages in therapy. It stirred up personal emotional reactions, but it did make for contact with reality. Negative transference was frequently aroused in the personal relationship of group members. A selection from *Cavalleria Rusticana* led to animated discussions on the faithlessness of men and of women.

Schizophrenics showed kinship with Eastern music. The reactions to comic and light music were stereotyped and much like those of normal people. Of Stravinsky's ballet music a morphine addict said that if she had been present at the ballet she would not have been responsible for her behaviour; a paranoiac said that the composer should be shot. The music of Delius affected patients favourably, but some felt it was "like a cold wind." Traditional and folk songs drew the group closely together.

On the whole Dr. Mitchell thought that these preliminary investigations were sufficiently encouraging to justify the further use of music as an accessory in psychological medicine. Even deteriorated patients responded well to music and afterwards talked more freely and sociably.

Reactions of Mental Patients

Dr. E. CUNNINGHAM DAX exhibited a number of paintings made by patients immediately after hearing certain musical compositions. He considered that the therapeutic uses of music were spoken about too loosely. No one had proved statistically that music or any other art had a curative effect on the mentally ill, yet people tended to speak of stimulating or sedative music as one might speak of drugs. He went on to play a gramophone record of a composition by a patient; this consisted of 16 variations on "God rest you merry, gentlemen." He also showed the original notation, which was in part illegible. When these variations were played back to the patient two years later she disowned some of them. He also showed a musical score by a young and distinguished composer who was a schizophrenic. He had decorated it with various emblems, and the notation itself appeared to be schizophrenic in character. Scores by other patients showed decided overactivity.

As to the reactions expressed pictorially after listening to well-known music, Vaughan Williams's "Lark Ascending" appeared notably to increase the colour reactions of the patients, and Schumann's "Pianoforte Quintette" increased the sense of movement. After hearing one piece of music, 13 out of 17 patients immediately depicted scenes of murder, suicide, robbery, train disasters, storms, or dragonflies burning their wings in the fire. Dr. Dax added that at concerts patients seemed to enjoy the voice, especially the soprano, more than instruments. A more disturbed group was greatly upset by the piccolo, but as yet no patient had had a fit during a concert.

In the ensuing discussion some interesting experiences were exchanged. One psychiatrist who had trained an orchestra of mental patients said that it had opened to them a new dimension. Some of the patients even simulated the mannerisms of professional musicians.

Dr. WILLIAM SARGANT spoke of experiences in the Southern States of America where among the negro populations music was essential to church worship, and church worship was intimately bound up with psychiatric healing. He had seen what amounted to shock therapy produced by musical noise and excitement. He referred also to the history of St. Vitus's dance, which, like the tarantella in Italy, was a dance used in the Middle Ages for working a hysterical malady out of the system

Dr. HENRY YELLOWLEES put in "a humble plea for clear thinking." The only point the openers had made was that music provided a means of emotional expression for the patient. Various diagnostic labels had been placed on patients, but surely inhibited schizophrenics and the like would all react in some way or other to any stimulus, and there was no evidence that there was any validity whatever to be attached to the reactions which occurred after the playing of certain pieces of music.

Jung would have given these patients a string of simple words, and surely they would have shown just as varied and sometimes startling reactions as they had done to musical compositions. Moreover, all the three schools of psychological medicine had laid stress on the point that what mattered was the individual psychology of the patient, his individual complexes and outlook, yet now for various reasons patients were treated in groups, and we had "social psychiatry, social psychology, and social everything else." Here inferences were being drawn from the reactions of a group of psychotic or neurotic or psychopathic patients, all mixed up together, who, after a certain piece of music had been played to them, were said to be more group conscious.

Dr. MITCHELL, in reply, said that he thought those who had experience of what had been done would agree that there were advantages, both for observation and treatment, in the musical group method.

MANAGEMENT OF THE ANAEMIAS

At a meeting of the Liverpool Medical Institution on December 1, with the president, Professor Charles Wells, in the chair, Dr. F. J. ZACHARIAS read a paper on "The Management of the Anaemias."

Dr. Zacharias said that the general practitioner had to sort out those cases he could treat himself and those that required investigation in hospital. Domiciliary management was adequate for a large number of cases, those in which the anaemia was doubtful or slight and whose symptoms did not suggest serious organic disease, and also those in which the history and signs suggested an iron-deficiency state but with no likelihood of persistent blood loss. Access to the laboratory for every practitioner was essential, and the importance of full co-operation between the general practitioner and the pathologist was stressed.

The speaker suggested that in many hospitals far too little was done in the out-patient clinic. It was his practice to have a full blood count and a histamine test-meal undertaken, and to perform a sternal puncture on out-patients in a single morning, as a routine in all cases of anaemia requiring these investigations.

The problems of investigation in the less straightforward cases were discussed with particular reference to pernicious anaemia. It was relatively common to mistake macrocytic anaemias that did not respond to liver therapy for cases of pernicious anaemia. He recalled a series of such cases seen in the last three years, including cases of haemolytic anaemia, refractory normoblastic anaemia, aleukaemic leukaemia, and certain cases of chronic hypoplastic anaemia.

The less common error of mistaking pernicious anaemia for other conditions was then discussed, and three cases were described presenting in young people with organic heart disease; in each case bacterial endocarditis had been diagnosed. In one of these cases the peripheral blood was at first not significantly macrocytic, and only a full investigation revealed the true nature of the anaemia.

Dr. Zacharias stressed repeatedly the importance of the axiom "Investigate before you treat," and showed that failure to adhere to this principle was responsible for much confusion and delay in diagnosis and for many errors in treatment. While the great majority of cases of pernicious anaemia could be diagnosed by an intelligent assessment of the clinical findings together with examination of the peripheral blood, mistakes would be made occasionally if these cases were not further investigated by means of the histamine test-meal, marrow puncture, and assessment of the reticulocyte response to treatment. Since the outlook was usually very grave in the cases misdiagnosed as pernicious anaemia, this error was inexcusable, for with proper investigation, before and not after treatment, it could be avoided.

Blood Transfusion

Dr. D. LEHANE read a short paper on blood transfusion in the treatment of anaemia. He said that blood transfusion, properly administered with due regard to the indications, gave excellent results in the treatment of anaemia. The main purpose of transfusion was to increase the number of circulating red blood cells. This was necessary when there was complete failure of red blood cell production, when the anaemia was so severe that the patient's life was in danger, or as a pre-operative measure.

The indications for transfusion in the various types of anaemia were briefly discussed. Cases of chronic hypochromic anaemia usually responded satisfactorily to iron therapy, and transfusion was not necessary except in the most severe cases.

Liver therapy was usually adequate for cases of pernicious anaemia, but blood transfusion was of considerable value when anoxia appeared.

Patients suffering from the macrocytic anaemia of pregnancy could be maintained in good health throughout pregnancy by transfusion.

In cases of aplastic and hypoplastic anaemia blood transfusion was the only measure by means of which a satisfactory haemoglobin level could be maintained; it was possible to prolong life for considerable periods by repeated transfusions. Two patients who had had long remissions had been given 108 and 58 transfusions respectively, and were in good health after three and a half and two years.

Transfusion was of little value in the anaemia of leukaemia except in the preparation of the patient for other therapy. In his experience treatment by massive replacement transfusion had not been very helpful in cases of acute leukaemia.

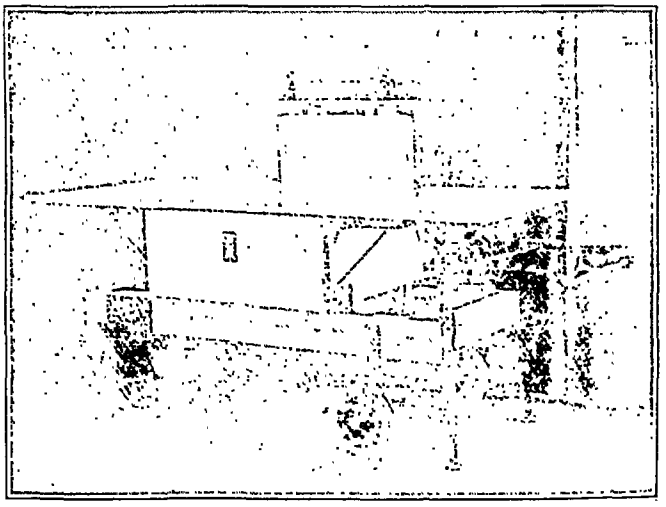
Generally speaking, single transfusions of not more than 500 ml. should be given on alternate days by the slow drip method. Where there was any possibility of myocardial insufficiency great caution was required, and the rate of transfusion should be 10–15 drops per minute, otherwise there might be grave danger of overloading the circulation. Deaths from pulmonary oedema and cardiac failure were by far the commonest fatal transfusion reactions in cases of chronic anaemia.

Preparations and Appliances

WARD WEIGHING-MACHINE FOR RECUMBENT PATIENTS

Dr. F. HARWOOD STEVENSON, Consulting Physician to the Royal National Orthopaedic Hospital, writes: The weighing-machine illustrated here has been made for the Royal National Orthopaedic Hospital, Country Branch, Stanmore, and is proving most efficient and valuable in use.

There are in the hospital about a hundred cases of orthopaedic tuberculosis. It has long been felt that these and certain other long-term cases should be weighed regularly, and this machine has been constructed so that the patient can be laid recumbent and, if necessary, weighed in a plaster bed or on a frame. All frames and plaster beds are now weighed before the patient goes on to them. The machine weighs up to a maximum of 24 st. (107 kg.) by 2-oz. (57-mg.) divisions, and the total capacity is shown on graduated indexes over which pass sliding poises, there being no loose weights whatever. The indexes are placed so that they can be read by a nurse of average height while standing, and are at the centre of the machine. The weighing mechanism is mounted on a trolley which is fitted with four sorbo-rubber-tyred wheels, two of which swivel to enable the machine to be manœuvred in a



very small space. The stretcher, or platform, is so designed that it cannot tip, and when not in use the ends fold over the centre of the machine, thus reducing the size and making it more convenient to move about. At one end of the trolley is a folding push-bar which acts as a convenient means of pushing or pulling.

When the machine is manœuvred into position beside the patient's bed the handle-bar is pulled down, thereby raising the two back swivel wheels off the ground and lowering two feet, or supports. The front wheels can be secured by a hand-brake, and the machine is then completely stable. All knife-edges and bearings in the weighing mechanism are of hardened steel, thus ensuring the continued sensitivity and accuracy of the machine.

It will be noted from the above description that the whole outfit is fully mobile, and as it is constructed largely of wood the weight is kept to a minimum. It can be handled quite easily by one nurse.

The machine is made by H. Fereday and Sons, Ltd., 39-54 Shaftesbury Street, London, N.1, and the price is £50.

A pamphlet entitled "Cerebral Palsy" has been prepared by Queen Mary's Hospital for Children, Carshalton, Surrey, giving notes for physiotherapists on infantile cerebral palsy. It may be obtained for 1s. from the hospital.

Correspondence

Morphine for the Injured

SIR,—Mr. Wilson Hey (November 5, p. 1056) has done a great service to the profession and the country in drawing attention to the restrictions in the use of morphine which are the cause of unnecessary suffering.

Recently a committee on ambulance equipment, of which I was chairman, was informed that while an ambulance with trained attendants and equipment, including morphine and syringe, usually arrived at the seat of an accident promptly, no morphine could be given until a doctor was obtained, and that there was generally appreciable and sometimes prolonged delay before the services of a doctor were available. The committee made recommendations to the effect that with certain safeguards the law should be altered to permit of trained attendants giving morphine under such circumstances.

During my service in Palestine in 1938, when British troops were scattered in small groups in many villages, R.A.M.C. nursing orderlies were provided with morphine and instructed in the indications for its use, and nothing but good resulted. During the war many units at home and abroad were provided with "tubunic" ampoules of morphine for use when no doctor was available.

Surely the time has come to revise the rules so that they do not stand in the way of relief of pain in emergency.—I am, etc.,

ALEX. HOOD.

Government House, Bermuda.

Sudden Obesity and Psychological Trauma

SIR,—I was extremely pleased that the weight of Dr. H. J. Shorvon and Dr. John S. Richardson's authority should be brought to the support of a concept which I have urged for many years. There are two points, however, in their paper (October 29, p. 951) which I feel might receive a slightly different stress. In the first place, although they quote the work of Verney on the action of the antidiuretic hormone of the posterior pituitary in producing water retention during emotional stress, they do not in their discussion give it the weight which I feel that it deserves. I have not had the opportunity of studying this subject from any but a strictly clinical point of view, but I am convinced that in those patients who develop "obesity" suddenly during emotional stress the water retention is of far greater importance than the fat retention. I have even wondered at times whether any true fat retention in fact occurs. The changes in weight are often so sudden that it is difficult to account for them by fat deposition. Pitting oedema, best detected along the shins, is nearly always obvious and occasionally severe.

My second point is a corollary to this. The authors in their discussion of their case lay great stress on the excellent researches of Bruch. No one, of course, can deny that "oral gratification may allay anxiety or conflicts," or, as some of us would put it, that food is a comforting thing. I have no doubt that many people who are unhappy over-eat and that this is particularly true of children. Nevertheless the case of my own which Dr. Shorvon and Dr. Richardson quote brings out an important point about this syndrome which is too little stressed. My patient lost weight only slightly on a diet of 1,000 calories under close observation while her anxiety continued. On a diet which must have had at least twice this calorie value, and perhaps three times, she lost weight very rapidly when once her anxiety had ceased.

The increase in weight due to psychological trauma is not invariably associated with an increase in appetite or with an increase in calorie intake. This apparent contradiction of the law of the conservation of energy can only be explained on the assumption that the major part of the increase is due, as it is in Verney's animals, to water retention rather than to fat deposition. On this hypothesis it is easy to understand why so many of these patients fail to lose weight on a diet of restricted calorie value while they lose weight rapidly on a diet which restricts their intake of carbohydrate, fluid, and salt, leaving their calorie intake more or less unaffected. It explains also why diuretics are often a necessary part of the treatment.

Dr. Ian Martin-Scott (November 19, p. 1178) raises the question of whether seborrhoeic dermatitis is a related phenomenon. I cannot bring forward any statistical observations. My impression is that although seborrhoea is commonly associated with psychogenic obesity it is probably no more common amongst the obese than amongst the slim. Nevertheless it is a very noticeable fact that when seborrhoea is associated with obesity it is immensely improved by the dehydrating regime.—I am, etc.,

RAYMOND GREENE.

London, W.1.

SIR,—We were much interested by the question asked by Dr Ian Martin-Scott (November 19, p. 1178). We have considered our cases in the light of this question but have found no evidence of excessive secretion of sebum as a constant or even frequent feature. It was notable that many of our patients had particularly fine clear skins such as are not infrequently seen in obese subjects.

Dr. Martin-Scott presumed that the loss of weight in our cases was due to fluid loss. This we feel is most certainly true when the loss is rapid, but we have also found that our patients had better control of their appetites after the treatment we were giving.—We are, etc.,

H. J. SHORVON.
J. S. RICHARDSON

London, W.1.

Amphetamine Euphoria

SIR,—The case recently reported in the press, when a young woman committed shop-lifting offences apparently under the influence of amphetamine euphoria, is perhaps of more than passing interest. In the circumstances it was not unexpected that the magistrate declined to accept the suggestion that the drug had any effect on the girl's behaviour, and as there is little reference in the literature to the association of amphetamine ingestion with delinquency the facts should be placed on record.

The patient, a young woman of 24, asked for medical advice concerning her varicose veins. In relation to these the principal causative factor appeared to be her excessive weight, and as she slept long hours and was rather lethargic and apathetic generally amphetamine 5 mg. three times daily was prescribed.

It was on the third day after beginning the drug treatment that the offences took place. As she was going out for the afternoon she decided on her own account to take two tablets at lunch-time. As she was not hungry and thought that fasting would help her to lose weight she had eaten nothing since breakfast. Her memory of events during the afternoon is vague, but it appears that, as arranged, she met her sister, who after a time noted her strange excitable mood and tried to persuade her to return home. Five articles were stolen in three different shops, and it was only in the last shop that the sister became definitely aware that something had been stolen and tried in vain to get her to replace it. Shortly after she was detained by the stores' detective, who in giving evidence testified that the girl laughed and treated the matter as a joke and did not appear in a normal mood.

There was nothing to suggest psychological stress, nor had there been any indication of delinquent characteristics or of maladjustment of any kind. On the day before the offence she had appeared somewhat jovial and irresponsible, but not to an extent to draw particular attention. She had slept fitfully, unlike her normal routine, had jumped out of bed easily in the morning, and stated that at midnight "she felt like going off to London for a night out." At the court hearing it was reported that Dr. Russell Davies had found, during an investigation in the Services, that women were more liable than men to show a tendency to irresponsible behaviour, without normal control or insight, after amphetamine medication. It would be interesting to know if there have been other cases of this kind.—We are, etc.,

ALAN MABERLY.
C. V. BLOOM.

London, E.

Experimental Ascorbic Acid Deficiency

SIR,—I am most interested in the medical memorandum by Dr. J. D. Andrew on experimental ascorbic acid deficiency (December 3, p. 1273), especially in the observation that he had oedema of the ankles apparently due to ascorbic acid deficiency. Out of the mass of literature on the subject I quote Duran-Reynals,[1] who states that "the studies of Chambers[2] and Zweifach[3] have defined the cement present between the endothelial cells of blood capillaries as a sticky, argyrophilic matter, continuously secreted by the cells themselves, and conditioned by calcium salts and the *p*H level. The cement behaves as if it were a salt of calcium, is digested by trypsin, and is not laid down in the absence of vitamin C."—I am, etc.,

Liverpool, 3. J. G. ALEXANDER.

REFERENCES

1 *Bact. Rev.*, 1942, 6, 197.
2 *J. cell. comp. Physiol.*, 1940, 15, 255.
3 *Cold Spring Harbor Symposia on Quantitative Biology*, 1948, 8, 216.

Visceral Actinomycosis

SIR,—Mr. V. Zachary Cope, in his Bradshaw Lecture on "Visceral Actinomycosis" (December 10, p. 1311), brings to our notice the Cinderella of infections. He is to be congratulated on his clear exposition of the disease, its symptoms, diagnosis, and treatment, and in stressing the need to bear this disease in mind at all times. It is only by being alive to the fact that this disease is not a rarity that it will be diagnosed and the necessary treatment carried out. Both surgeon and bacteriologist have a responsibility in the diagnosis of this condition—the surgeon to include it in his differential diagnosis and to provide a suitable specimen for bacteriological examination, the bacteriologist to search for and isolate the causative organism.

To isolate *A. israeli* and grow it in pure culture is often a difficult task for the bacteriologist. If a small quantity of pus arrives on a swab then the job of the bacteriologist becomes much more difficult, if not wellnigh impossible, unless the "sulphur granules" are abundant. Pus obtained from any lesion which is suspected of being actinomycotic in origin should be sent to the laboratory in a sterile tube and not on a swab. The more material that is sent to the bacteriologist the better chance he has of finding the organism.

Although much has been learned about this disease since the first case was described 70 years ago, there are still many gaps in our knowledge. The fact that *A. israeli* could be isolated from the teeth and tonsillar crypts of people who showed no signs of actinomycosis was an important contribution to our knowledge of the disease, as was the fact that the disease was often associated with dental caries. It has long been recognized that trauma frequently precipitates the onset of the condition. These three factors—actinomycetes in the mouth, dental caries, and trauma—must often be present in the mouth. It may be that other factors are required before *A. israeli* can establish itself in the tissues. It is probable that actinomycosis is a commoner disease than we realize, only a small proportion of the actual cases being diagnosed.

The figures of the incidence of actinomycosis in this country were given in a discussion at the Royal Society of Medicine in 1930 by Cope.[1] In 11 hospitals in England the average number of cases per year varied from 1 to 2.5. In two of the largest Scottish hospitals there had occurred only five cases in ten years and eight cases in nine years respectively. Recently a survey has been carried out of the cases of actinomycosis which have occurred in the North-east of Scotland (the results of which it is hoped to publish shortly), and it would appear from this that the incidence of actinomycosis, at least in this area, is much greater than the figures quoted above. This survey is part of an investigation the results of which it is hoped will provide figures of the incidence of actinomycosis in Scotland.—I am, etc.,

Aberdeen. I. A. PORTER.

REFERENCE

1 *Proc. R. Soc. Med.*, 1930, 23, 866.

Treatment of Cutaneous Anthrax

SIR,—With reference to recent correspondence on anthrax (October 15, p. 875, and December 3, p. 1296) the following fatal case of anthrax might be of interest.

A Slovak peasant of 50 cut a finger of his left hand while handling some raw meat. Soon his hand became swollen, and his general condition deteriorated so rapidly that on about the third day of his illness he had to be transferred to a hospital. On admission he was a very ill man, semi-comatose and running a temperature of 104° F (40° C.). He died about 24 hours after admission, receiving symptomatic treatment only.

The most important necropsy findings were: (1) Left arm oedematous. (2) Lymph glands of left arm, left axillary, and cervical glands enlarged and haemorrhagic. (3) Spleen enlarged, soft, septic. (4) Haemorrhagic exudate in pleural cavities and haemorrhagic bronchopneumonia of both lungs. (5) Haemorrhagic leptomeningitis; the thickened meninges were covered with a thick layer of brown-red haemorrhagic exudate. Direct smears from the meninges showed numerous anthrax bacilli, which were grown from cultures from the organs also.

This case, an example of the fulminating type of anthrax giving rise to septicaemia and haemorrhagic leptomeningitis, did not receive penicillin. However, several cases of malignant pustule of the arms and face responded well to treatment with penicillin.—I am, etc.,

London, W.C.1. I. FRIEDMANN.

Antihistamine Drugs and Sea-sickness

SIR,—It is a matter of some difficulty for the ship's surgeon to assess the many and varied remedies for this distressing complaint, and the reasons are not far to seek. The passenger usually consults one after vomiting for 24–36 hours, and this often coincides with the end of the bad weather. So whether it be the passenger finding his sea-legs, the weather subsiding, or the efficacy of the remedy prescribed which causes his vomiting to cease is hard to determine. One must remember, too, that one only sees the failures and not the successes of the self-medicated travelling public.

During the war a considerable amount of research work was undertaken to find a remedy for sea-sickness, but in the end hyoscine by itself or combined with some other drug was found to be the best antidote. In fact one might say that until a year ago hyoscine was the sheet-anchor in the treatment of sea-sickness.

The first report on "dramamine" (see leading article in the *British Medical Journal*, May 14, p. 855) seemed almost too good to be true, though it should be noted that quite a considerable proportion of the controls fared quite well on the placebo given, stressing the psychological factor, which is very considerable in this complaint. I have treated a considerable number of cases with dramamine and its Canadian equivalent "gravol" during the summer months when the weather was not too bad and have been very favourably impressed, though my results were not as good as those published by the Americans.[1] However, any antidote for sea-sickness given by the mouth presupposes that the patient will retain it, and in their inability to do so probably lies most of my failures.

The first aim of the surgeon in treating sea-sickness is to stop the vomiting, the second to alleviate the accompanying dehydration. In order to accomplish this I consider it is of cardinal importance to commence medication per rectum. The weather this autumn on the North Atlantic has been very favourable to an extensive trial of initial rectal therapy. The last two voyages westbound found us in a whole gale for three days, which means considerable pitching. In most cases medication had commenced 24–48 hours before the storm subsided, an important point in assessing the results. One hundred cases of severe sea-sickness were treated, and below is given the routine and the results.

Patients were kept in bed for two days. Initially one "neoantergan" suppository (150 mg.) was given per rectum, and a half-hour later the patient was encouraged to commence slowly drinking either water, ginger ale, or soda water, aiming at an intake of four to five pints (2.25 to 2.8 litres) during the following 24 hours. On the second day light solid diet was allowed, and the fluid intake was maintained as during the previous 24 hours. On the third day the

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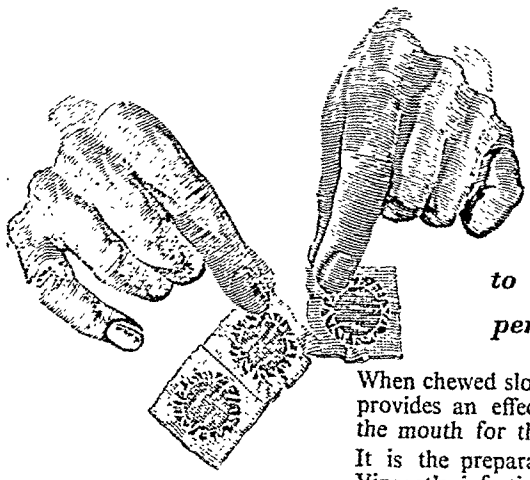
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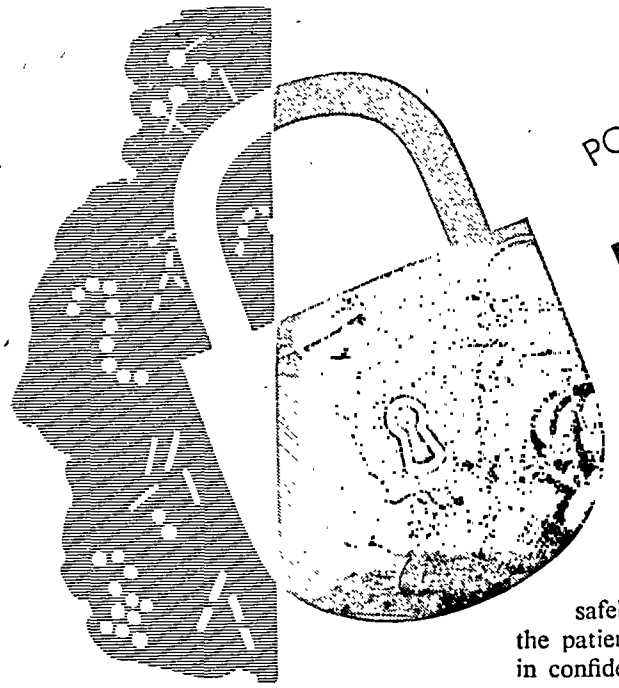
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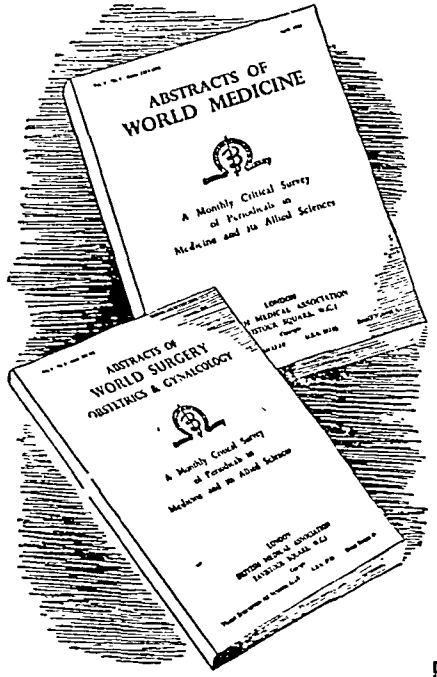
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patient was encouraged to get up. Eight hours after the initial suppository a tablet of neoantergan (100 mg.) was administered, and on the second day this was repeated at 8 a.m. and a tablet of "phenergan" (25 mg.) was given at 6 p.m. It was unusual to have to carry on treatment for more than three days. In children the same routine was followed, aiming at a fluid intake of 2 to 3 pints (1.1–1.7 litres) of fluid in the first 24 hours. Initially a neoantergan suppository (50 mg.) was given, followed by pulv. neoantergan (25 mg.) three times a day.

Out of 100 consecutive cases of severe sea-sickness treated in this way only two vomited after the first suppository (one being a foreigner whose language I could not speak, and whether or she followed my directions I cannot tell). The average duration of vomiting prior to medication was 36 hours. Of the 100 passengers treated 80% were females, 20% males. Of these, 20% sought advice following the failure of hyoscine medication, and 7% following failure to retain dramamine tablets. Apart from some drowsiness, I came across no complications.

It is heartening to know that when one first sees a case of severe sea-sickness one can say with almost complete assurance that the patient will vomit no more.—I am, etc.,

F. K. BEAUMONT.

Liverpool.

REFERENCE

1 Gay, L. N., and Cartiner, P. E., *Bull. Johns Hopk. Hosp.*, 1949, **84**, 470

Chilblains

SIR,—Dr. J. T. Ingram's excellent article (December 3, p. 1248) on this subject ends by recommending that the physical factors concerned should be explained to the patient. As I have not yet heard or read of a satisfactory explanation, or indeed met anyone who has, I hope you will allow me to give my own as briefly as I can.

1. Chilblains are found usually on such sites as the fingers, toes, and ears. These regions do not contain any intrinsic source of heat. Any animal warmth that they possess is derived from warm arterial blood.

2. The arteries supplying these parts lie to some extent of their course close to the skin surface and are subject to cooling in certain conditions.

3. Heat produced in the body by metabolic processes is largely dissipated by radiation and evaporation from the skin, the hands and feet being especially important in this connexion. It has been shown that a slight rise in body temperature will increase the flow of blood to the hand by 100%.

4. If the body generally is cooled arterial supply to skin, hands, and feet is cut down. Where arteries themselves are exposed to cooling this is bound to result in the blood contained in them being reduced to a lower temperature still.

5. Vascular endothelium being sensitive to cold, the next stage is a spasm of the arterioles supplying the chilblain areas, and ischaemia results—cf., dead fingers after a swim in cold water. So far no great harm has resulted, as tissue metabolism is also arrested by the lowered temperature of the chilblain area.

6. If the subject is so unwise as to warm the part before warming himself the local metabolism will begin before the circulation has resumed. *Hinc illae lacrimae* (meaning, here come chilblains).

As to prevention, it should be clear that groins, knees, ankles, axillae, elbows, and wrists need to be kept warm in cold weather. Wrapping up hands and feet cannot possibly help if arterial blood is already cold when it gets there. If the ears are affected a warm high collar would help. Incidentally, any protective clothing of this sort must be kept dry. A wet anklet is worse than useless. Any measures calculated to increase metabolism should help, particularly an increased calorie intake. The better nutrition.

Regarding treatment, the calcium theory is most interesting. Has anyone ever been cured of chilblains by taking calcium? Does anyone know how the idea started? It is plain enough that a prolonged course of treatment started in March ought to give results by July, at least in this country, by any method, but why calcium? And, I might add, why calcinosis as a sequel of chilblains?

There is one way of aborting chilblains in the itching stage that can be depended on. The patient puts the affected part under a cold-water tap until the part becomes then rubs vigorously with a dry rough towel until the circulation returns. It is essential for the patient to do the work himself and thus get warm. Personal experience of the method has always been quite successful. The last time tried would be about 1934. I am glad to say I have not had chilblains since.—I am, etc.,

HENRY S. RUSSELL.

Shipley, Yorks.

The Natural History of Asthma

SIR,—I had felt the same disappointment as Dr. D. H. Irwin (December 10, p. 1354) at the absence of adequate reference to psychogenic factors in asthma in the article by Drs. Elsie O. Williams and G. E. O. Williams (October 22, p. 897). One interesting point which Dr. Irwin raises is the "growing out" of the condition which seems to happen round about the age of early puberty. This tendency, of which, so far as I know, there is no statistical demonstration, renders it difficult to assess results of treatment in later childhood, but in my experience residential open-air-school treatment for a period of about two years has very good results and often breaks down the anxiety-ridden cycle at home in the most effective manner.

With younger children re-education of the mother, as mentioned by Dr. Irwin, should be an essential adjunct of any treatment. Finally, a demonstration of its psychic nature is given by the favourable effect of hypnotic treatment in adults. It is possible not only to relieve the nervous spasm during an acute attack but also to obtain extended amelioration by including this particular technique in the therapeutic approach.—I am, etc.,

C. BURNS.

Edgbaston, Birmingham.

The Uses of Streptomycin

SIR,—Your leading article (November 12, p. 1098) on the uses of streptomycin was well timed and informative. Like Dr. Eric Frankel (November 26, p. 1229), however, I find reason to disagree with the statement that the drug is useless in the treatment of ulcerative colitis. Realizing quite well that one or even two swallows do not make a summer, nevertheless they do make one think that others may be knocking around if we look for them.

In October, 1948, a female patient aged 37 was referred to me for hospital treatment. There was a history of the passing of blood and mucus per rectum for some weeks prior to admission, with rapid weight loss and pyrexia. Over the previous six months two similar but shorter attacks each lasting about one week had occurred. On admission the patient was nervous and depressed. Her general condition was poor. Temperature varied between 100°–103° F. (37.8°–39.4° C.). Tenderness was present over the descending colon, and stools (10–20 in 24 hours) consisted of blood, pus, and mucus. Barium enema revealed a straight, narrow colon, and sigmoidoscopy the typical changes of colitis with ulceration. *Proteus morganii* was isolated from the stools on culture.

Full courses of penicillin and "sulphasuxidine" together with sedatives, low-residue diet, etc., failed to influence the condition over the next two weeks. Local treatment with a tannic-acid solution was reluctantly tried, still without any improvement.

In view of its reputation with Gram-negative organisms it was then decided to try the effect of streptomycin. For seven days the patient received 0.5 g. thrice daily intramuscularly, together with 0.5 g. in 8 oz. (230 ml.) normal saline per rectum daily. On the third day the temperature settled and the number of stools diminished rapidly, and on the ninth day from the installation of streptomycin therapy she passed one normal stool free from blood, pus, and mucus, and culture was negative. At this stage and for the next three weeks transfusions of a half-pint (570 ml.) of blood were given twice weekly to combat a moderately severe secondary anaemia.

Having remained well for four weeks, the patient's temperature rose to 101° F. (38.3° C.), and on the following day she passed ten stools containing blood and mucus. Streptomycin was immediately administered on similar lines as before, and on the third day the condition cleared quite suddenly. This time a total of 8 g. was given. Stool culture at the beginning of relapse was negative.

The patient's progress from now on was an uninterrupted recovery; and prior to discharge, after hospital treatment for 16 weeks, sigmoidoscopy revealed a normal rectum and sigmoid colon, though the radiological picture was substantially unchanged. She has remained well and free from symptoms since, a period of ten months.

It is interesting to note that in this case there was a history of a severe attack of epidemic diarrhoea three years previously.

A psychological background was added by the birth, ten months after this attack, of a mentally defective (mongol) child, a factor which profoundly affected the patient's outlook since.

These points are interesting in view of the diverse views of the aetiology of ulcerative colitis. Perhaps there is a little of truth in both the psychosomatic and infective schools of thought, and more often than we have realized the colon may have been the recipient of both types of trauma. Intestinal infection and psychosomatic stress are both common, and thus the comparative rarity of ulcerative colitis may be explained by the necessity for coincidence.

In conclusion, may I suggest that cases such as the above and Dr. Frankel's indicate that absolute and dogmatic statements regarding the use of streptomycin in ulcerative colitis may yet prove premature. The danger of such an attitude towards comparatively new forms of therapy has recently been rather forcibly demonstrated in Ireland, where streptomycin has been controlled on the advice of the Medical Research Council, and gastro-intestinal infections are not even mentioned in the schedule of diseases in which permission to use the drug will be granted.—I am, etc.,

Dublin WILLIAM F. O'DWYER

An Unusual Murmur

SIR,—The unusual murmur described by Dr. F. A. Ward (December 10, p. 1353) with the accompanying case history suggests the diagnosis of a small spontaneous pneumothorax. I myself suffered from recurrent spontaneous pneumothoraces a few years ago, and during an attack I often heard and felt the clicks described by Dr. Ward (known in the textbooks as aortic or systolic clicks).

My own personal experience indicates that the systolic clicks are influenced by posture and to a lesser extent by respiration. With alteration of posture, often very slight, they could be made to appear or disappear at will. This probably accounts for the sudden disappearance and reappearance of the clicks in Dr. Ward's case. It was also my experience that the clicks are more pronounced the smaller the pneumothorax.

It seems probable, therefore, that in Dr. Ward's case there was present a small pneumothorax, possibly localized by adhesions, which did not show up on the radiographs.—I am, etc.,

Ryton-on-Tyne, Co. Durham P. H. DICKINSON

Splenic Puncture

SIR,—I was particularly interested in Dr. Emanuel Tuckman's reference (November 12, p. 1112) to the increasing employment of splenic puncture as a diagnostic measure in blood diseases. Thirteen years ago, in describing the technique of this puncture, I wrote[1]:

"In the investigation of the pathological processes in blood and other diseases in which splenic enlargement is a prominent symptom, the possibilities of spleen puncture have not been fully explored . . . and it seems certain that useful information regarding the processes of blood-cell destruction might be obtained from the blood taken directly from the sinusoidal spaces in the spleen."

I am in entire agreement with Dr. Tuckman's statements on both the relative safety of splenic puncture and on its greater value in the diagnosis of kala-azar. I also agree that the safety of the operation depends to a great extent on the speed with which it is done. However, I was not impressed with his technique for spleen puncture. I have no doubt that it is much simpler than it sounds. I wonder whether Dr. Tuckman has tried the method described in the paper referred to above. This certainly needs a special syringe attachment, but it is one that can be made very easily by any local tinker. This attachment gives the operator complete control of the syringe with one hand and leaves the other hand free to grasp the spleen.

I could not quite see why Dr. Tuckman claimed that his method made one independent of the patient's co-operation. With my attachment, however, it is possible to do a spleen puncture on a screaming struggling child: all the help that is needed is for someone to keep the child's hands off the syringe With a firm grasp of his spleen one is quite indifferent to the child's gyrations around this central point. The needle is in the spleen for only a fraction of a second, so that danger of damage to the capsule is reduced to a minimum.

I have used this syringe attachment for twenty-odd years in over 6,000 splenic punctures in kala-azar and in a variety of blood diseases, without fatalities or any serious ill effects and I now do not care to do the operation without it. If it is true that splenic puncture is becoming more popular among haematologists, I would draw their attention to this simple attachment.—I am, etc.,

London, W.1 L. EVERARD NAPIER

REFERENCE

1 *Lancet*, 1936, 2, 126.

Hyaluronidase and Bee-sting Sensitivity

SIR,—In reply to the letter by Drs. W. R. S. Panckridge and C. Q. Henriques on the subject of angioneurotic oedema caused by a wasp-sting (December 10, p. 1354), I wish to make the following comment arising out of observations on two cases of bee-sting sensitivity.

The exquisite degree of sensitivity seen in cases of bee-sting is evident from the severe and on occasion fatal reactions recorded in the literature and in the press. There is evidence that this sensitivity is of an allergic character and is based on sensitization following previous bee-stings. The rapidity of development and widespread severity of the reaction are of the highest order. Among the ordinarily encountered parallels is that seen in cases receiving pollen-hyposensitization therapy, and even here the reaction is rarely as acute or as severe.

The likeliest mechanism for these severe reactions may be (1) a very high degree of sensitivity, as seen by the vigorous skin reactions obtained with testing, or (2) the possibility of accidental intravenous administration of the allergen. The latter is unlikely, though possible even in the case of bee-stings The fact that bee venom contains hyaluronidase suggests an alternative mechanism. The hyaluronidase could facilitate the rapid and massive absorption of the antigen and could therefore account for the acute and severe generalized reaction.

The two cases of bee-sting sensitivity which were investigated and treated were two members of the South African police force. Their histories varied only in degree. In the one case there were two incidents of almost immediate unconsciousness lasting up to 1½ hours, followed by severe generalized oedema and respiratory distress. The second case, while not so severe, was prostrated with extensive angioneurotic oedema and severe abdominal pains.

Scratch tests were carried out with (1) a bee-venom extract prepared commercially for the treatment of rheumatoid arthritis; (2) bee body protein extracted with carbol saline after the sting and venom had been carefully removed; (3) a drop of honey placed on the skin. The more severe case gave strong positive reactions with all three test materials, while the other did not react to being scratched through the honey. The antigen, therefore, is contained in the bee protein, not solely in the venom. This observation has been confirmed previously by other workers. Both patients responded well clinically to hyposensitization with a bee protein extract prepared by the South African Institute for Medical Research. The response was assessed by the increasing tolerance of the skin to larger doses of the injection material. As emergency measures, the patients were instructed to carry with them a syringe, adrenaline for injection, tablets of ephedrine and of "benadryl" (oral adrenaline, such as "neo-epinine," would appear to hold out the advantages of easier application and portability). When last seen neither had been exposed to the crucial test of being stung again, though it is reasonable to expect that benefit may have accrued from the treatment.

It is suggested, therefore, that the anaphylactic-like response to bee-sting is due to (1) a high degree of sensitivity to bee protein following on previous sensitization, and (2) the adiuvant effect of hyaluronidase in the bee venom; this could facilitate and make more complete the rapid absorption of the antigen.—I am, etc.,

London, W.C.1. J. PEPYS.

Librarians in Children's Wards

SIR,—At a recent conference on "The Librarian in the Children's Ward" held by the Guild of Hospital Librarians on November 9 the audience was surprised to learn that at several hospitals, including large and well-known establishments, librarians were not allowed into the children's wards at all. The opposition, so far as we could gather, comes mainly from the nursing staff, and the reason given is usually "infection." It is not clear whether the librarian or her books are held to be the conveyers of disease, but in any case we respectfully take leave to doubt whether the objection is a reasonable one. If it were valid it would surely be applicable to all children's wards, which is not found to be the case. Where the librarian is welcomed, difficulties about infection traceable to her presence or to the distribution of books do not arise in practice.

It also emerged at the conference that where the teacher acts as children's librarian the books are sometimes locked up at the beginning of the school holidays and the children are deprived of this solace just when they need it most. A few old books left for the nurses to distribute do not in the least meet their wants.

Do these defects in hospital library service really matter? The attention now being paid to the psychological effect of hospital admission on children has shown how bored and frightened and home-sick they can be behind a mask of docility. It seems strange that the best and cheapest means of comfort, occupation, and mental stimulation—a good supply of suitable books—is still not being fully utilized.—We are, etc.,

JOHN FOSDYKE, President.
LETITIA FAIRFIELD, Chairman.
JOAN CLOKE, Secretary.
Guild of Hospital Librarians.

London, S.W.3.

POINTS FROM LETTERS

Health and the Soil

Dr. A. D. WILLIS (Guildford) writes: The letter by Dr. G. T. Wrench (November 19, p. 1178) has stimulated no discussion, yet it is surely of vital importance. It is not widely realized that there is a direct relationship between human health and soil fertility, a capital asset which has been squandered throughout the world with a prodigal disregard for its consequences. The lost fertility can only be restored by a return to organic cultivation. . . . Lack of humus in the soil not only deprives plants of their natural food but changes the character of the soil and encourages erosion. By such methods and the wholesale slaughter of tree and hedgerow America leads the world in the creation of deserts; but there are signs that erosion has begun in England, particularly in East Anglia. Diseases and pests affecting plants have been well named by the late Sir Albert Howard as "nature's censors," since they do not attack the healthy plant to any significant extent. It is known that health in plants depends on following nature's law of return and also that animals feeding on such plants enjoy the same vigour and immunity from disease. . . . The time is, surely, appropriate to initiate a series of experiments embodying these principles and practices to test their validity in a scientific manner.

Dr. K. O. A. VICKERY (New Malden, Surrey) writes: Dr. G. T. Wrench's timely reminder of our neglect of the soil and our continued preoccupation with disease (November 19, p. 1178) must not pass unheeded. It is hardly suprising that there is no mention of the soil in the National Health Service, while we of the profession continue to pay such scant attention to the vital interdependence of soil, animal, and human health. . . .

Painful Experiments

Mr. J. L. DOBBIE (Manchester) writes: I am glad you found room to print at least one protest (December 10, p. 1356) under this heading. The question is whether we are capable of moving with the contemporary current of civilization. Such a question deserves more attention, and ought not to be bedevilled by the conflicting passions of vivisectors and their enemies.

Small Mothers and Large Babies

Dr. P. STACK (Worksop, Notts) writes: A primipara whose height is 4 ft. 10½ in. (168 cm.) was delivered with forceps of a living child weighing 10 lb. 7 oz. (4.73 kg.). . . .

Obituary

T. A. HINDMARSH, M.S., F.R.C.S

Mr. Thomas Albert Hindmarsh, of Newcastle-upon-Tyne, died on December 8 in Newcastle Infirmary at the comparatively early age of 60. "T. A.," as he was affectionately known among his colleagues, always intended to be a surgeon. It was to further that end that he took the Conjoint diploma in 1913 after graduating M.B., B.S at the University of Durham in 1911. The varied house appointments which he held at the Royal Victoria Infirmary, Newcastle-upon-Tyne, in the medical, gynaecological, and dermatological wards, apart from his period as house-surgeon, served as a further preparation. Though it may have been without design, a short assistantship in a country practice followed by a partnership in a practice in Cumberland helped to make him a "good doctor" and contributed in after years to his successful handling of patients and his equally successful relationship with practitioners. In the 1914–18 war he served in the R.A.M.C. overseas, mostly in Salonika, and there he came in contact with many surgeons whose practice and outlook he analysed with discernment as a guide to his own future conduct.

Back in England it was not long before he was appointed a surgical registrar in his old hospital at Newcastle-upon-Tyne—a wonderful training school with a wealth of clinical material. During 1919 he took with first-class honours the M.S. of his own university, and in the same year the F.R.C.S. He was made assistant surgeon three years later and a full surgeon in 1935, and from then onwards he continued to serve the Royal Victoria Infirmary loyally and devotedly. In his short final illness his one desire was to get well enough to resume the work that he loved.

Hindmarsh was always a general surgeon with an aptitude for dipping into new fields. His craftsmanship was easy and effective, and in most cases produced a great measure of success. It was just that success and a certain emulation of the pioneer work of Sir Thomas Dunhill that attracted him to the surgery of toxic goitre, in which he eventually acquired an enormous experience and outstanding success. It was not only his care and skilful technique that brought these rewards, but a nice understanding of the problems of each individual case, an understanding and unremitting care which in the earlier days had to be sustained throughout the management of many critical cases His optimistic approach to each problem was undoubtedly a great help, not only to his patients but to the nurses and those about him. Hindmarsh was a very successful abdominal surgeon, as so many of his friends and colleagues can testify from personal experience; he had long been a "doctors' surgeon." In this field of surgery he recognized few limitations and did most things well. His thorough grounding in principles undoubtedly helped him, and he was never appalled by impending or unexpected difficulties. In recent years he had been especially interested in the surgery of the sympathetic nervous system.

Though he never paraded his knowledge of surgical literature, Hindmarsh somehow was always up to date. He loved to travel, and was an acceptable and popular member of more than one surgical club. On visits to foreign clinics he showed himself a discerning observer and judge of men. Hindmarsh was not ambitious. His daily work filled his life and he wrote but little. His teaching was neither didactic nor systematic, but he had great influence among the students, who learned much from his informal

talks. It gave him pleasure recently when he was elected an examiner for the final Fellowship, and he was eagerly looking forward to his duties in this connexion. For years Hindmarsh had conducted a very large and widespread consulting practice, and in addition to his main work in Newcastle he operated regularly in outlying hospitals twenty to forty miles distant. In these areas his name was well known to doctors and patients alike.

"T. A." was a most loyable man, and he will be sadly missed in Newcastle. He had a warm, genial, kindly disposition and radiated good cheer. He loved to hear or to tell a good story. Although he worked so hard he found time to pursue his hobbies. He was a good golfer, a keen fisherman, and interested in music. He was happily married, and he leaves a widow and two daughters, to whom the sincere sympathy of all his colleagues and friends will be extended.—J. H. B.

A. J. HIRD, M.B., M.R.C.P.

Dr. Alan J. Hird, a junior lecturer in medicine at the University of Glasgow, was killed early on December 11 when he fell several hundred feet while undertaking an overnight climb of Am Bodach, a mountain near Kinlochleven. Dr. Hird was a member of the Scottish Mountaineering Club and a keen and experienced climber. His career, cut short at the age of 32 by this tragic accident, was one of great promise.

Alan James Hird was the son of the late Mr. James Hird, principal teacher of chemistry at Allan Glen's School, Glasgow. Educated at Glasgow Academy, of which he was dux at the age of 16, he entered Glasgow University and took a B.Sc. in 1937. He went on to graduate M.B., Ch.B. with honours in 1940. He then held resident posts as house-physician at the Western Infirmary, Glasgow, and house-surgeon at the Royal Hospital for Sick Children, before joining the Navy as a surgeon lieutenant. After completing his service Hird took the M.R.C.P. in 1947. He was then appointed medical registrar at the Southern General Hospital, Glasgow, and shortly afterwards was made a junior lecturer in medicine at the University, in the department of the Regius Professor of Medicine at the Gardiner Institute and Western Infirmary. Alan Hird was particularly interested in research on diseases of the blood, and he had already published a number of useful contributions. In the past year he had often been of much assistance to the *Journal* in writing annotations and occasional leading articles.

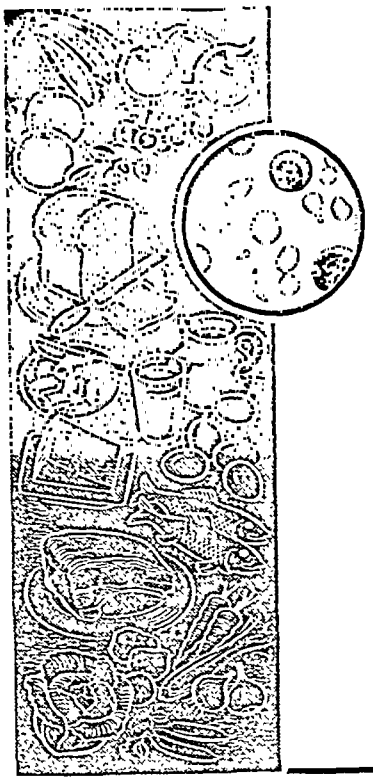
Hird was greatly liked by all his colleagues for his charming manner and for the firmness and resolution which he showed in his approach to any problem, whether in the clinical or research field. He was the only child of his widowed mother, and to her the sympathy of all his friends and colleagues will be extended.

Professor J. W. McNee writes: The tragic death of Dr. Alan Hird at the age of 32 in a mountaineering accident is a severe blow, both to Glasgow University and to the Western Infirmary. Hird was universally recognized among his colleagues, old and young, to be on the way towards a brilliant career in medicine, and his aptitude for independent research work was apparent to all. He was just in course of applying for one of the coveted Commonwealth Fund Fellowships, and if successful would have spent the next year or two at either Harvard or Rochester University in the United States on exciting research work, which he had already tentatively planned. Hird was a fine lad and greatly liked by all his colleagues. There is no doubt that a fine young physician, steadfastly moving towards the light, has been lost by the Glasgow School of Medicine.

Dr. EDWARD EDELSTEN BRIERLEY died suddenly in Ramsey, Isle of Man, on December 8 at the age of 78. His family came from the Rochdale area. He was proud of being a Haileybury man, and he graduated M.B., C.M. at Edinburgh in 1895. Five years later he took the F.R.C.S.Ed., and this was to affect some of the later phases of his career. He held some resident appointments and undertook a trip to the Far East before settling in practice in Cardiff in 1901. His practice developed rapidly and included some surgery, though he was narrowly unsuccessful in his application for a surgical post on the staff of the Cardiff Royal Infirmary. He found partnership helpful, notably that with Dr. Telford Morgan, who now carries on the practice. Brierley was a keen B.M.A. man, and filled many of the important Association offices locally as well as representing the Cardiff Division at the Representative Meeting almost without a break from 1915 to 1933. He was president of the South Wales and Monmouthshire Branch in 1931–2 and chairman of the Cardiff Division. He also served for ten years on the Charities Committee of the Association. His contributions to professional and medico-political discussions in Divisional and Branch meetings were able and interesting. Many will recall that when the Association was aroused by the advent of the Insurance Act his observations, while intensely critical, nevertheless conveyed a sense of the inevitability of some such development. Brierley was an ardent churchman, and for many years he was vicar's warden at the Church of St. John the Baptist, Cardiff. After 33 years in Cardiff it became necessary for family reasons that he should move to the Isle of Man. At Ramsey, from 1934 onwards, Brierley developed a moderate practice and at the same time, as was his custom, took up his interests in the Church and in medical politics. He became vicar's warden at the Church of St. Olave's, Ramsey. He was president of the Isle of Man Division of the B.M.A. from 1939 to 1943, and president also of the Isle of Man Medical Society. He worked, too, for the Red Cross Society, and with that body rendered sterling service during the war. He was an expert pigeon fancier, and it was just two days before his death that the award of a first prize to one of his exhibits was announced. Brierley was a man and a colleague whom it was a privilege to know. He was as upright in conduct as in figure. A very wide circle of friends will feel the utmost sympathy with those whom he leaves—his widow, whose devotion and expert knowledge of medical matters must have been of the greatest service, one daughter, and three sons, one of whom is in practice.—E. J. M

Dr. FRANK THORNTON BIRKINSHAW died suddenly at his home in Auckland, New Zealand, on October 2, 1949, at the age of 50 years. Born at Ovingham-on-Tyne in 1899, Dr. Birkinshaw was educated at the King Edward School, Birmingham, and at Birmingham and London Universities. He joined the Royal Warwickshire Regiment during the first world war and was later attached to the Royal Air Force, in which he saw service with a special duty flight attached to the Hedjaz army. He was for a time the personal pilot of T. E. Lawrence, and was decorated by the French and British Governments. After the armistice he returned to his regiment and later joined the Royal Army Medical Corps. He went to New Zealand in 1930, and practised in Amberley and Christchurch, where he was a vice-president of the Returned Services Association. Dr. Birkinshaw came to London in 1937 for postgraduate study. After 18 months he returned to Christchurch and in 1940 was appointed medical superintendent of the Coromandel Hospital. He relinquished this appointment in 1943 to commence practice in Auckland as a consultant physician. Dr. Birkinshaw is survived by his wife, Dr. Edna Birkinshaw, and by one son and one daughter.

Dr. WILLIAM SCOTT HALL, who died on November 14 at the age of 74, was for many years one of the best-known medical practitioners in Scunthorpe. Dr. Hall was a student at Marechal College, Aberdeen, and at the Middlesex Hospital, graduating M.B., Ch.B. in 1897. He came to North Lincolnshire as an assistant in practice at Althorpe before settling in Scunthorpe. Then in 1902 Dr. Hall went into partnership in Bradford, returning to Scunthorpe again after four years as a captain in the R.A.M.C. during the 1914–18 war. He retired from practice



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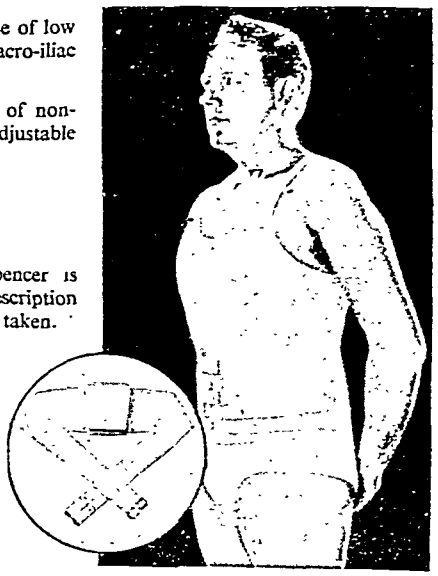
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* *Treatment of Sacro-iliac Sprain by Manipulation, Jr. Fla. Med. Assn.*, 33: 193–196 (Oct.), 1946.

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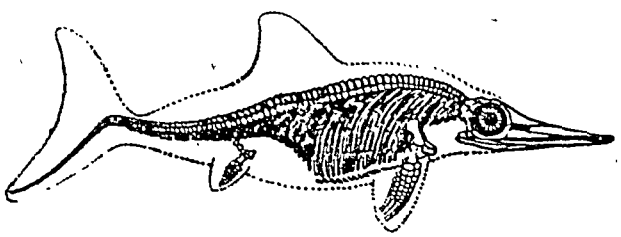
B.M.J. 12/49

LAWS OF MEDICINE

Flint's Law

"The ontogeny of an organ is the phylogeny of its blood supply"

AUSTIN FLINT, JN



AUSTIN FLINT, Jn. (1836-1915) *was an American physiologist. In 1874 he published a treatise on physiology in which his law appeared.*

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CALMIC LIMITED CREWE HALL CREWE

only three years ago, and lived in the Isle of Axholme and subsequently at Epworth. Dr. Hall was a man of few words, sometimes difficult to approach, sometimes brusque and gruff in manner. These outward garments served only to hide a man of deep feeling and compassion, a doctor to whom the ills and distress of his patients were of real moment, distressing to himself. He had an independent outlook on medical problems, but he kept pace with the rapid advances in medicine, and his younger colleagues could always rely on a sound, modern, balanced, pithy comment on any subject under discussion. His practice extended far and wide in North Lindsey, his many patients relying on him to continue to serve them even at great distances. As a magistrate his deep insight into human behaviour was always of value to colleagues on the bench, where he joined his own sense of personal integrity with a sympathetic understanding of human failings. His interest in things other than medicine was wide. He had pronounced views on the failings of our social order, and could speak vehemently at times of need for change. His great hobby was the collection of old prints and etchings, about which he had something of a connoisseur's knowledge. His widow and two sons and two daughters survive him.—J. R. B. and W. H. B.

Dr. ALFRED ERNEST REMMETT WEAVER, who died on November 15, was formerly medical officer of health for Weston-super-Mare. A student at Birmingham University, he graduated M.B., Ch.B. in 1904, proceeding M.D. two years later and taking the D.P.H. in 1908. He entered the public health service in 1906, and was for more than 20 years deputy to Sir William Savage, who was then county medical officer of health for Somerset. Then in 1929 Dr. Remmett Weaver succeeded the late Dr. John Wallace as medical officer of health for Weston-super-Mare. He continued in this appointment until his retirement in August, 1941. He acted also as superintendent of the isolation hospital, and he was responsible for creating an up-to-date maternity and child-welfare service for Weston. In his retirement Dr. Remmett Weaver continued to play an active part in local affairs. He did a great deal of work for St. Paul's Church, where he was churchwarden, and recently represented the church at the Locking Ruri-decanal Conference. He was a past president of the local Rotary Club, and took a keen interest in the Somerset Association for Mental Welfare and in the local Tuberculosis Care Committee.

Dr. WILLIAM HILTON PARRY died suddenly at his home in Caernarvon on November 19. A son of the late Dr. Robert Parry, he was born in Caernarvon and educated at Llandovery College, the University College of Wales, Aberystwyth, and Liverpool University. He graduated M.B., Ch.B. in 1911, and was house-surgeon and subsequently house-physician at the Royal Southern Hospital, Liverpool. In September, 1914, he was posted to the 14th General Hospital at Wimereux, and a year later he transferred to the No. 3 Field Ambulance of the 1st Division. He then served as medical officer of the 4th Battalion, Grenadier Guards, and later was with the 3rd Guards Brigade in the Battle of the Somme and was twice mentioned in dispatches. For his work during the Passchendaele attack he was granted an immediate award of the M.C. At the end of 1917 he was graded unfit for further service abroad and appointed surgeon specialist at the Alder Hey Military Hospital. A few months later, however, he managed to get back to France, where he served with distinction while attached to the Australian Division. On demobilization Dr. Hilton Parry joined his father in general practice in Caernarvon. Shortly afterwards he was appointed medical superintendent to the Gallt-y-sil Isolation Hospital, and he later became superintendent of the Eryri Hospital and Bodfan Mental Home, medical officer of the port sanitary authority, and police surgeon. He had been a borough magistrate since 1930, and for many years was a member of the local panel committee, serving as its chairman for a time. He was made chairman of the North Caernarvon and Anglesey Division in 1928–9, and was president of the North Wales Branch in 1945–7. During the recent war Dr. Hilton Parry served as chairman of the local medical board. He also acted as medical officer of a Caernarvonshire Home Guard battalion, and was later promoted to zone medical officer for Caernarvonshire with the rank of lieutenant-colonel. In 1945 he was accorded the honour of nomination as high sheriff of Caernarvonshire. In recent years Dr. Hilton Parry had been a member of the local executive council and of the local medical committee for the area. In his youth Dr. Hilton Parry was an enthusiastic athlete, and at the age of 17 he swam the Menai Straits at their widest point. He was a keen footballer and cricketer and also a useful boxer. He leaves a widow, one son, and one daughter. His elder daughter was killed in a London hospital, where she was nursing, during a flying-bomb attack in July, 1945.

A colleague writes: As a surgeon Dr. Hilton Parry was cool, resourceful, and undaunted by unexpected difficulties. He was at his best in operating on the many and varied acute abdominal conditions that he was called on to treat. A pupil of the Liverpool School, he was adroit in handling fractures, and he also had a long run of successful caesarean sections in the days before the modern maternity centres were available in the district. On a holiday outing his greatest pleasure was to bring along one or more of his friends to accompany him. Many of us have happy memories of summer afternoons in his boat in Caernarvon Bay, or trawling in the Menai Straits in the winter On such occasions he was a genial and generous host.

Lieut.-Colonel Sir Goronwy Owen, D.S.O., writes: By the death of Dr. W. Hilton Parry the town and county of Caernarvon have lost a much loved and highly respected figure. He had had a distinguished career, not only as a medical practitioner in civilian life for a period of 30 years, but also as a medical officer on active service in the first world war. His unfailing cheerfulness and his optimism endeared him to his patients in all ranks of life, and his indomitable courage in the face of his own agonizing illness placed him in a category of his own. His interests were not confined to his profession, but embraced many other activities and hobbies. He discharged his duties as a magistrate and as chairman of the advisory committee with the same punctiliousness and conscientiousness that he devoted to his profession, and not the least of his activities was his devotion to the Sea Cadets. He was also a keen photographer and yachtsman. In truth, he was a man of sterling character and of many parts.

Dr. FRANK HUSBAND-CLUTTON died on November 19 at his home in Crowland, Peterborough, at the age of 78. Dr. Husband-Clutton, who had been in failing health for two years, was well known in Crowland, where he had lived for 53 years. A student of Bristol University and Guy's Hospital, he qualified in 1894, and went on a voyage to India as a ship surgeon before settling at Crowland in 1896. Over the next 34 years, until his retirement in 1930, he was medical officer and public vaccinator for the Crowland district of the Peterborough Union. He was also medical officer for the Crowland rural council. While in practice and afterwards Dr. Husband-Clutton took a great interest in the work of the British Medical Association, and he was chairman of the Holland Division of the B.M.A. in 1924–5. It was after he retired that he became most active in local affairs. He served on the Spalding Council for many years, on the Holland County Council, and had been a magistrate since 1933. He is survived by his widow and a son and a daughter, to whom the sympathy of all his many friends will be extended.

Dr. ROBERT FRANCIS GERRARD died at his home in Great Sutton, Cheshire, on November 19 at the age of 74. A Lancashire man, he was educated at the Collegiate School, Chester, and at Liverpool University. He qualified in 1906, and after holding several assistantships in Lancashire settled down in Ellesmere Port, where he practised until a little over a year before his death. He was one of the early pioneers in the establishment of the district hospital, and was for many years chairman of the medical board. He was chairman of the Ellesmere Port Nursing Association for a long period, and he was police surgeon and a factory surgeon for many years. He was also a lecturer to the St. John Ambulance Association and did much to establish the association on a firm basis in

Ellesmere Port. Before the outbreak of the 1914–18 war Dr. Gerrard was prominently associated with the Cheshire Yeomanry, of which he was at one time medical officer. While serving in the Near East in 1916, attached to the Welsh Border Mounted Brigade Field Ambulance (74th Division), he was mentioned in dispatches. Dr. Gerrard always had the interests of Ellesmere Port at heart and was elected to the council in 1930, becoming chairman in 1933–4. He will be best remembered, however, by his colleagues in Birkenhead and Wirral as an active member of the B.M.A. He represented his constituency at the Annual Representative Meeting in 1946, and he was chairman of the Birkenhead and Wirral Division during the difficult period 1946–7. He was a fine family doctor, and his widow and two daughters, both of whom are members of the profession, will have the sympathy of his many friends, patients, and colleagues.—R. W. L. P.

Dr. THOMAS HUGH ROBINSON MCKIERNAN died at his home in Falmouth on November 21 at the age of 56. He was the fourth son of T. C. McKiernan, of Dublin, and was educated there at Mountjoy School and later Trinity College. On the outbreak of war in 1914 he interrupted his studies and at once volunteered as a surgeon-probationer R.N. After a period of service he was sent back to complete his medical studies in 1918, and immediately afterwards he rejoined as a surgeon lieutenant. Following his demobilization he was resident surgeon at Dr. Steevens's Hospital, Dublin, and later went to New Zealand, where he was medical superintendent of the N. Wairoa Hospital. Returning to this country, he settled in Falmouth, and soon built up a large practice, mainly surgical, in Falmouth and the surrounding country. He was one of the last of the dwindling body of general-practitioner surgeons. Dr. McKiernan was a quiet and retiring man, in whom his patients had profound confidence. He lived for his work, and paid frequent visits to the surgical clinics of America and the Continent. The death in action of his only son in 1940 was a great blow, a tragedy from which he never fully recovered. He had been ill for some years, and, in spite of advice to the contrary, continued to work at high pressure. As he would have wished, his end came when he was still in harness. To his widow the deepest sympathy of his friends will be extended.—J. A. S.

Dr. JOHN GORDON GORDON-MUNN died on November 29 at his home in his native Scotland. He was aged 86 and was the son of a distinguished Edinburgh mathematician. He graduated M.B., C.M. at Edinburgh University in 1889, proceeded M.D. with first-class honours in 1896, and was later elected F.R.S.Ed. Dr. Gordon-Munn served as medical officer to the 1st Battalion of the Grenadier Guards in South Africa and gained the South African Medal with six clasps. Returning to this country, he started in psychiatric work at Cane Hill Mental Hospital in association with Rotherham, Pope, and Armstrong Jones. After his training there in this distinguished company he took over the Heigham Hall private mental hospital in Norwich, and soon built up a large consulting practice. He retired in 1920. His professional duties permitted him little leisure to participate in outside activities, but in 1914 he was appointed lord mayor of Norwich, and worked hard and enthusiastically at his new duties. When war was declared he did a great deal for the public safety and was especially proud of his achievement in raising at the request of the Army Council a new unit for the Regular Army—the Norfolk Divisional Engineers, 1,230 strong. Dr. Gordon-Munn was a sound psychiatrist, and he will be missed by many friends. A bachelor, he was a wonderful host in his own house.—J. A. S.

Dr. LESLIE ALFRED HUMPHREY died on December 1 at the age of 32. During his early years in Tunbridge Wells he grew up a kind, charming, and seemingly idle lad, and it was only towards the end of his time at Winchester that he began to show the breadth of interests and the intellectual qualities which endeared him to such a wide circle of friends. At Trinity College, Cambridge, he learned much about life and rather less than his tutor thought proper about natural science. On going down from Cambridge, he joined I.C.I., Ltd., as a trainee, but when his father offered to make it possible for him to take up medicine he grasped the opportunity. He went to University College Medical School at the beginning of the war, when it was evacuated to Leatherhead and subsequently Cardiff. After a hesitant start Humphrey adapted himself to student life, and in the combination of scientific discipline with personal contact and interest provided by a medical training he found the outlet for his energies which he had been seeking. None of his contemporaries are likely to forget his enthusiasm, enterprise, and personality. After qualifying in 1944 he went to the West Middlesex County Hospital, first as house-surgeon and then as house-physician. Although this was his first medical post, he started a diabetic clinic and trained himself to make the electrocardiographic reports for the whole hospital. Some of his colleagues will remember his plan to commission artists to paint friezes in the children's wards—a plan which might have been accepted in other circumstances than those of the war. It soon became clear to him that he would not obtain a fundamental understanding of disease solely by clinical work, and he determined to become a pathologist. This was not undertaken as an aim in itself, but with the idea that he should equip himself sufficiently to form part of a team which could study particularly psychosomatic disorders. In this he was influenced by the work of Sheldon. He was accepted as a trainee in the Emergency Pathological Service, and spent two years in the sector laboratory at Ashford County Hospital, where, as always, he made many friends. At the end of his training he was placed in charge of the laboratory at the Queen Alexandra Military Hospital, Millbank. He was due for demobilization at the end of this year, and had been offered a research post which would have given him his first real opportunity to test some of his ideas. In February, however, he developed an obscure illness which was later proved to be periarteritis nodosa. Although aware of his condition, and although blind for the last three months of his life, he never lost any of his charm or dignity. Rather did he grow in intellectual stature, so that persons who went to visit a very sick man found themselves talking with one who was at least an equal, and who had turned his illness into an opportunity for reflection. In 1946 he married Lorna Ince, who survives him with two children.

Medico-Legal

IDIOSYNCRASY TO WHOOPING-COUGH VACCINE

On November 30 an inquest was held in Hanley on the death from encephalopathy of an eight-months-old infant. According to a recent press report[1] death was apparently due to an idiosyncrasy to pertussis vaccine.

The father gave evidence that his son, one of twins, had been in good health up to Saturday, November 26, when he was taken to the Hanley Clinic to receive inoculations against diphtheria and whooping-cough. Both children were immunized in the morning and were taken home by their mother. At about 6 p.m. one child began to cry and make strange movements with his arm. A doctor was called and the baby was admitted to hospital at 1.30 a.m. on the Sunday morning. The infant died less than an hour after admission.

Dr. C. Giles said he had never seen such an unfortunate consequence of whooping-cough inoculation. He had little doubt that it was the whooping-cough vaccine and not the diphtheria vaccine that was responsible. So far as he knew this was the first case of its kind to be reported in this country, although several had been reported in the United States. There was nothing to show that the inoculation was not properly carried out, and a number of children had been inoculated with material from the same bottle of vaccine without ill effect. The vaccine was now being examined at the Central Public Health Laboratory in London.

The coroner, who returned a verdict in accordance with the medical evidence, told the father that he had been right in consenting to the immunization being performed. This case was "perhaps one in hundreds of thousands."

[1] *Hanley Evening Sentinel*, November 30, 1949.

Medical Notes in Parliament

On December 16, before Parliament was prorogued, the Royal Assent was signified to the National Health Service (Amendment) Act, the Criminal Justice (Scotland) Act, the Nurses (Scotland) Act, the Adoption of Children Act, and other Acts.

Medical Services in Malaya

Colonel STODDART-SCOTT on December 3 invited Mr. Shinwell to make a statement with regard to the medical services provided for British troops in the Malayan campaign, and to state what improvements could be expected in the immediate future.

Mr. SHINWELL in reply said the medical services in Malaya included an adequate number of Service hospitals and medical officers to maintain the normal health of the troops and to care for the sick and wounded. Difficulties, however, arose in securing the immediate surgical treatment of battle casualties. Since fighting was carried on by numerous small columns of troops which operated in difficult country and were frequently on the move, it was impracticable to provide surgical facilities for carrying out operations in the immediate vicinity of the fighting. Consequently it was necessary for casualties to be evacuated to the hospitals where surgical attention could be given.

There were three Service hospitals in Malaya District, which covered the mainland of Malaya, but there was only one Army surgeon. It had accordingly been necessary to utilize the services of civil surgeons. In Singapore island there were three Service hospitals and three Army surgeons. To meet the deficiencies of surgeons in the Army as a whole, arrangements had been made to engage immediately a number of civil surgeons for short-term contracts. Three had already accepted the terms and conditions of service. Subject to their being physically fit they would be sent to the Far East as soon as possible to complete the establishment in that theatre. The evacuation of casualties presented great difficulties in view of the nature of the country. Efforts had been made for a considerable time to devise a suitable means of air transport from the jungle to the nearest hospital. Various tests had been undertaken, and work was proceeding on the modification of three helicopters to make them suitable for this task. They should arrive in Malaya in April, 1950. In the meantime, the effects of delay before surgical treatment were being minimized so far as possible by the use of penicillin and other drugs.

Antihistamines and the Common Cold

On December 13 Mr. JOHN LEWIS drew attention to the claims recently made in the United States of America about the efficacy of antihistamine preparations for the treatment of the common cold.

Mr. HERBERT MORRISON said in reply that the claims to which Mr. Lewis referred were of great interest to the Medical Research Council workers studying the problem of the common cold at the Harvard Hospital, Salisbury. Unfortunately, a carefully controlled attempt, made last spring, to confirm the value of one of the drugs most commonly recommended in America failed to show that it had any dramatic effect. The experiment emphasized the need for great care in assessing the claims made for cold cures, in view of the extremely variable natural duration of colds without special treatment.

Principals and Assistants in Scotland.—Mr. RANKIN on December 13 invited the Secretary of State for Scotland to indicate the number of general practitioners acting as assistants under the National Health Service scheme, and the number who were principals. Mr. WOODBURN said that on October 1, 1949, the number of assistants in Scotland was approximately 250, and the number of principals was 2,411.

Mass Radiography in Scotland.—Over 300,000 examinations have been carried out by mass radiography in Scotland since 1944. In the last year for which figures are available, up to June 30, 1949, over 97,000 examinations were made, as a result of which 670 persons were found to have active tuberculosis

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

FINAL M.B.—*Part I (Surgery, Midwifery, and Gynaecology):* M. S. Aldridge, I. I. Bornstein, A. S. F. Butcher, D. Butcher, E. P. Cadbury, N. I. Cardno, J. S. W. Chambers, A. C. Chovil, E. H. Coats, J. E. Dalby, J. W. B. Dalgleish, T. D. W. Davies, H. de Glanville, B. O. L. Duke, D. S. Eastwood, J. G. Elliott, J. Fairgrieve, P. R. Gittins, B. M. Gray, K. W. Gray, K. E. Halnan, J. M. Hodson, G. Holden, T. M. Howell, P. G. A. Irvine, J. D. Jackson, F. E. Kirk, T. P. Kissack, J. F. Lees, C. R. Leeson, T. S. Leeson, D. W. Lemmon, J. P. Lester, R. J. Lunniss, J. P. Lythgoe, K. M. McFadyean, K. G. P. Mackenzie, E. Marley, K. R. Mason-Walshaw, B. J. Muir, A. D. Muirhead, M. J. D. Newman, R. H. Oram, E. M. Orton, G. B. R. Oswald, M. J. Peel, G. N. St. J. Penney, J. C. E. Peshall, S. T. Pickles, R. B. Prowse, D. R. Pugh, J. C. A. Raison, P. J. Randle, M. Rayne, J. N. Redfern, J. R. Rees, A. M. Richardson, C. R. Robinson, J. H. Ross, J. J. H. Rymer, G. E. Sayce, J. O. Seville, I. M. Simmonds, V. H. Smith, J. B. Spargo, D. R. Sweetnam, Mrs E. R. Taylor, J. C. Turner, A. G. Wallace, W. J. Wigfield, P. L. Williams.

UNIVERSITY OF DUBLIN

SCHOOL OF PHYSIC, TRINITY COLLEGE

The following medical degrees and licences were conferred on December 8:

M.D.—W. E. R. Hackett, F. J. C. Loughran, J. D. McKeever, Irene S. Orgel.

M.B., B.CH., B.A.O.—J. H. Ashmore, Evelyn Browne, Joan I. Buchanan, L. J. Clein, Margaret B. E. Ellis, E. G. England, R. C. Gray, R. ff. Jackson, Vyvyan I. K. Johnston, O. H. Killen, W. A. McGaw, E. B. McHugh, Sheilagh M. McHugh, W. D. McNaul, T. T. E. Michael, E. V. Page, Ruth M. Perrott, Gwendoline G. L. Poots, W. D. H. *Powell*, R. N. *Siberry*, B. A. *McC. Thompson*, F. A. Walkey.

LICENCE IN MEDICINE, SURGERY, AND OBSTETRIC SCIENCE.—B. J. O'Reilly.

UNIVERSITY OF LONDON

Antony Clifford Dornhorst, M.D., M.R.C.P., has been appointed to the University Readership in Medicine tenable at St. Thomas's Hospital Medical School from October 1, 1949.

William Howard Hughes, M.D., has been appointed to the University Readership in Bacteriology tenable at St. Mary's Hospital Medical School from October 1, 1949.

Jack Joseph, M.B., Ch.B., M.R.C.O.G., has been appointed to the University Readership in Anatomy tenable at Guy's Hospital Medical School from April 1, 1950.

Raleigh Barclay Lucas, M.D., M.R.C.P., has been appointed to the University Readership in Pathology tenable at the Royal Dental Hospital of London, School of Dental Surgery, from January 1, 1950.

The title of Reader in Pharmacology and Therapeutics in the University has been conferred on Cyril Arthur Keele, M.D., F.R.C.P., in respect of the post held by him at the Middlesex Hospital Medical School.

Professor F. R. Winton and Mr. P. H. Mitchiner have been appointed representatives of the University on the governing bodies of the Institute of Psychiatry and Reigate Grammar School, respectively.

The following have been recognized as teachers of the University in the subjects indicated in parentheses: *King's College Hospital Medical School:* Dr. R. S. Lewis (Oto-rhino-laryngology); Dr. Mary J. Wilmers (Children's Diseases). *Middlesex Hospital Medical School:* Dr. J. A. Hobson (Mental Diseases); Mr. I. MacG. Jackson (Obstetrics and Gynaecology). *Royal Free Hospital School of Medicine:* Dr. Frances Gardner (Medicine); Dr. Gladys Hill (Obstetrics and Gynaecology); Mr. G. Qvist (Surgery). *St. Mary's Hospital Medical School:* Mr. A. G. Cross (Ophthalmology); Dr. L. H. Morris (Anaesthetics). *University College Hospital Medical School:* Mr. J. W. Schofield, M.R.C.S., L.R.C.P., F.D.S. (Dental Surgery). *Westminster Medical School:* Dr. G. Garmany (Mental Diseases). The following teachers have been granted probationary recognition for two years from October, 1949: *London Hospital Medical College:* Mr. A. M. Horsnell, M.R.C.S., L.R.C.P., L.D.S. (Dental Surgery). *Royal Free Hospital School of Medicine:* Dr. A. G. Stansfield (Pathology (Morbid Anatomy)).

The John Marshall Fellowship in Surgical Pathology, of the value of £700 a year, for two years in the first instance and tenable at University College Hospital Medical School, has been awarded to Benjamin Bethel Milstein, M.B., B.S., F.R.C.S.

The following candidates have been approved at the examinations indicated:

POSTGRADUATE DIPLOMA IN PSYCHOLOGICAL MEDICINE.—[1]E. Brenman, [1]W. Calder, [1]D. H. Clark, [1]J. A. Ewing, [1]Joan I. Hallinan, [1]J. Hönig, [1]S. Jacobson, [1]J. M. Macdonald, [1]J. H. McDougall, [1]D. F. Macgregor, [1]S. Mansvelt, [1]J. D. Morrissey, [1]C. Rose, [1]Lotte Rosenberg, [1]I. M. Shepherd, [1]M. Shuaib, [1]R. L. Sikes, [2]R. J. Stanley. The following have passed in Part A only: A. S. Clenaghan, K.-C. Dubé, O. Elgarem, L. H. Field, Mercy I. Heatley, J. C. S. Houston, B. J. Phillips, A. A. Robin, D. B. Stone, A. A. Valentine, H. de B. Warren, R. H. Wheeler.

[1]With Mental Diseases (Psychiatry) in Part B. [2]With Mental Deficiency in Part B.

UNIVERSITY OF WALES

The following candidates for the degrees of M.B., B.Ch. at the Welsh National School of Medicine have satisfied the examiners at the examination indicated:

PATHOLOGY AND BACTERIOLOGY.—A. G. Alexander, S. I. Davies, A. R. Harris, S. E. Ll. Morris, G. J. Moses, S. J. S. Polwin, Elizabeth M. M. Price, Margaret Pugh, T. A. I. Rees, Esther H. Thomas.

MEDICINE.—Marjorie J. Adams, C. H. Burman, R. B. Davies, B. M. Frost Smith, J. I. Hopkins, H. B. Jenkins, Beryl H. Jones, Mair G. Lloyd, D. Phillips-Miles, H. M. N. Rees, R. M. Richards, C. P. Seager, D. G. H. Thomas, J. D. Thomas.

PHARMACOLOGY.—Vyvian J. Bennett, B. N. Davies, W. E. J. Horton, J. H. Naysmith, C. J. Revington, Joyce M. Smith, Glenna Thomas, M. S. I. Wilkinson, Isobel M. Young.

K. S. Ray has satisfied the examiners at the examination for the Tuberculous Diseases Diploma.

QUEEN'S UNIVERSITY, BELFAST

The following candidates have been approved at the examinations indicated:

M.D.—[1]T. J. Harrison, W. I. Forsythe, Maude Stevenson, F. R. Johnson.

M.B., B.CH.—[2]Mary F. Brown, [2]E. N. F. Browne, [2]H. M'W. Lyle, B. J. Beatty, Hester C. Blagden, J. Blundell, R. H. Bolton, Barbara J. Bunting, Ruth M. Burns, M. M'C. Burrows, L. J. Byrne, R. L. Carson, J. C. Clarke, J. M. Clarke, W. H. Cochrane, Joan S. Dales, A. D. Dickson, Abigail F. R. Dodd, D. M. Downing, S. D. Emerson, J. T. Fisher, Margaret L. Fisher, Agnes A. Flewett, V. R. Gardiner, J. D. Glover, J. G. Gray, I. H. Greer, Denise M. Hall, J. H. Harland, Louise M. E. Hogg, J. G. Hudson, L. J. Hurwitz, R. B. Irwin, H. F. Jackson, S. M. Johnston, Margery C. Jones, T. W. Leitch, J. M. B. Lenfesty, Elizabeth S. Lindsay-Rea, J. B. Lowry, Jean E. M'Gowan, H. D. M'Kee, J. C. M'Nulty, H. H. M'Cartney, S. A. Millen, Elizabeth M. J. Milligan, O. H. A. Mitchell, W. R. Moffatt, E. J. Mulholland, D. Murphy, J. R. Nelson, K. A. Nelson, K. G. Orr, R. A. Robinson, Olive M. Russell, W. E. B. Scott, R. W. Simpson, H. J. Sloan, J. H. Smith, Dorothy Stewart, R. C. Stewart, F. R. Stinson, H. P. Swan, Charlotte M'E. Taggart, Patricia A. Thomas, T. N. F. Todd, H. A. Wagner, M. J. Wauchob, N. W. F. Weir, Edith S. Wells, R. W. Whiteley, L. M Wolf, G. I. Young.

[1]With commendation. [2]With second-class honours.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a meeting of the Council of the College held on December 8 with Sir Cecil Wakeley, President, in the Chair, Sir Harry Platt was appointed Bradshaw Lecturer for 1950.

The following examiners were appointed for the Primary Fellowship examination to be held in Ceylon, India, and Pakistan: Sir Gordon Gordon-Taylor (Anatomy), Professor G. Hadfield (Pathology), and Professor A. St. G. Huggett (Physiology).

Sir James Paterson Ross was reappointed as the Representative of the College on the Council of the National Association for Mental Health.

Hunterian Professorships were awarded to Professor Milroy Paul (Ceylon) and Mr. R. T. Johnson (Manchester).

The following hospitals were recognized under the F.R.C.S. regulations:—*General Surgery:* Auckland, New Zealand—Cornwall Hospital, Green Lane Hospital, and Middlemore Hospital (while controlled by the Auckland Hospital Board); Sydney, N.S.W.—Royal North Shore Hospital (being a teaching hospital); Brisbane—Mater Misericordiae Hospital (for six months only); Hobart—Royal Hobart Hospital; Launceston—Launceston General Hospital. *Ophthalmology and Otolaryngology:* Derby—Derbyshire Royal Infirmary; Brisbane—Mater Misericordiae Hospital; Victoria—Victorian Eye and Ear Hospital.

DIPLOMAS

Diplomas of Fellowship were granted as follows: J. L. Reid G. D. Channell, J. C. Watts, I. A. Donaldson, R. Ramsay, B Fairburn, N. C. Rogers, F. S. Gorrill, F. A. Henley, S. Pillai, L. A Atkinson, R. C. Jack, D. O. Williams, J. S. Tomkinson, A. E Howarth, H. A. Ripman, D. A. Langley, M. G. Wilson, J. P Mitchell, D. L. Evans, M. P. Durham, J. W. Betts, F. T. Graves G. S. Ramsay, F. R. Sutton, D. A. T. Farrar, B. H. Hand, D. W Thomas, M. O. Carruthers, K. Chitty, B. V. Jones, R. W. Tudor V. S. Brookes, D. A. C. Reid, A. Brown, A. W. Nurick, I. P Todd, I. B. Smith, J. S. R. Golding, A. M. H. Bennett, N. J Blockey, A. G Dingley, P. N. Robson, J. F. Bolton Carter, M. C. T Reilly, C. Taylor, R. Iskander, M. A. Radwan, A. J. Clyne, W. W Davey, M. M. Nath, Marjorie A. Powys, S. A. Bond, J. N Appleton, W. M. Manchester, B. M. Omar, T. G. Barlow, R. D Condon, H. H. Gilbert, H. El S. Higazi, G. P. Ramayya, T. G Cameron, W. W. Hallwright, L. Bonnin, R. R. Dickson, P. H Greenwell, J. S. Guest, L. Jayasuriya, R. C. R. Loane, A. F. Murphy E. R. W. Thomson, A. J. Alldred, J. Block, P. W. Cotter, C Dundon, R. C. Evans, B. P. Flannery, F. E J. Gabel, A. J. Gunning G. F. T. W. Henson, T. P. Morley, R. Patuck, A. Roper, M. I Symonds, D. Ainslie, A. Clain, P. R. R. Clarke, C. P. de Fonseka J. Hewet, D. A. Macfarlane, A. B. Mackenzie, W. J. McLaren, I. W MacPhee, T. H. L. Rosser, C. L. Tucker, L. S. Walsh, J. A. Baird H. D. W. Black, A. F. Bromwich, M. F. Butler, J. F. Dark, N. C Davis, J. D. K. Dawes, W. R. Lang, W. A. Liddell, N. J. Shah D. B. Caro, D. H. Keller, D. N. Ross, A. G. Parks.

The following lectures will be delivered at the College (Lincoln's Inn Fields, London, W.C.) at 5 p.m. each day. January 3, Erasmus Wilson Demonstration by Mr. C. E. Shattock, "Tumours of the Kidney"; January 5, Otolaryngology lecture by Mr. Rainsford Mowlem, "Injuries of the Nose and Sinuses"; January 6, Erasmus Wilson Demonstration by Mr. C. E. Shattock, "Tumours of the Testicle"; January 11, Erasmus Wilson Demonstration by Mr L. W. Proger, "Recent Additions to the Museum"; January 12. Ophthalmology Lecture by Professor Arnold Sorsby, "Prospects in the Control of Genetic Disease"; January 17, Arris and Gale Lecture by Mr. F. Douglas Stephens, "The Diagnosis and Management of Hirschsprung's Disease"; January 18, Arris and Gale Lecture by Mr. D. F. Ellison Nash, "The Surgical Aspects of Renal Damage in Childhood: Assessment, Salvage, and Aftermath". January 19, Erasmus Wilson Demonstration by Dr. Magnus Haines "Tumours of the Ovary"; January 24, Erasmus Wilson Demonstration by Mr. L. W. Proger, "Recent Additions to the Museum." The lectures are open to those attending courses in the College and to all other medical practitioners, dental surgeons, and advanced students.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Mr. Terence Millin will deliver the Miss Weild Lecture in the Hall of the Faculty, 242, St. Vincent Street, Glasgow, on Wednesday January 11, 1950, at 5 p.m. His subject is: "Retropubic Surgery." Medical practitioners are invited to attend.

The Services

Surgeon Lieutenant-Commander E. J. S. Woolley, O.B.E R.N.V.R., has been awarded the R.N.V.R. Decoration.

Brigadier J. M. Macfie, C.B.E., *M.C.*, has been appointed Commandant and Director of Studies, Royal Army Medical College and has been granted the temporary rank of major-general.

The Efficiency Decoration of the Territorial Army has been conferred upon Major F. H. Blackburn, R.A.M.C., T.A.

The Efficiency Decoration and 1st Clasp of the Territorial Army has been conferred upon Lieutenant-Colonel A. G. Henderson and Major W. B. Evans, R.A.M.C., T.A.

The following have been mentioned in recognition of gallant and distinguished services in Malaya during the period January 1, 1949, to June 30, 1949: Colonel A. E. Campbell, late R.A.M.C.; Colonel (temporary) R. S. Dickie, Lieutenant-Colonel W. A. Y. Knight, and Captains G. B. Brown, A. C. Milne, and J. C. Walker, R.A.M.C.

In the Northern Ireland Parliament recently the Parliamentary Secretary to the Ministry of Health and Local Government said that special geriatric units had been established in Ballymena and at the Belfast City Hospital. There was accommodation at Ballymena for 130 and at Belfast City Hospital for about 300 cases.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended December 3. [No. 48

Figures of Principal Notifiable Diseases for ... sponding week last year, for: (a) England a ... London (administrative county). (c) Scotland ...

Figures of Births and Deaths, and of Deaths re... are for: (a) The 126 great towns in England and Wales ... (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949					1948 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	26	6	14	—	—	33	2	19	1	1
Deaths		1	—				—	1		
Diphtheria	90	11	29	6	6	131	10	42	6	4
Deaths	—	—	—	—	—	1	—	—	—	—
Dysentery	159	10	94	—	—	64	10	44	2	2
Deaths				—	—				—	—
Encephalitis lethargica, acute	—	—	—	—	—	—	—	—	—	—
Deaths		—					—			
Erysipelas			35	10	5			38	10	3
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				28					37	
Deaths	18	2	4	3	2	33	1	3	2	4
Measles*	1,654	31	23	92	116	8,562	157	165	90	66
Deaths†			—	—	—			—	—	—
Ophthalmia neonatorum	38	1	5	1	—	47	—	8	—	—
Deaths										
Paratyphoid fever	7	—	—	—	—	10	2	1 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	715	42	7	4	6	897	60	3	4	4
Deaths (from influenza)‡	33	5	1	1	—	25	3	3	1	1
Pneumonia, primary	274	58	350	28	5	316	73	337	28	11
Deaths				11					4	
Polio-encephalitis, acute	15	4				9	1			
Deaths										
Poliomyelitis, acute	141	12	7	2	3	51	—	4	1	—
Deaths§	6	1				1	—			
Puerperal fever		—	10				—	1		—
Deaths										
Puerperal pyrexia¶	70	11	3	—	—	108	11	9	—	—
Deaths		—					1			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	2,755	183	284	157	274	1,527	71	294	194	54
Deaths†			—	—	—					
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	9	—	1	11	—	4	—	—	2	—
Deaths	1	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	981	36	82	44	45	2,562	141	132	58	11
Deaths	2	—	—	—	—	8	—	1	—	—
Deaths (0–1 year)	251	37	51	46	4	341	36	35	17	11
Deaths (excluding stillbirths)	5,481	893	632	185	133	5,967	1019	698	198	119
Annual death rate (per 1,000 persons living)			12·7	11·5				14·1	12·4	
Live births	6,841	1067	835	264	197	7,607	1107	913	436	250
Annual rate per 1,000 persons living			16·7	16·4				18·4	27·3	
Stillbirths	169	22	21			178	20	38		
Rate per 1,000 total births (including stillborn)			25					40		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

¶ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Poliomyelitis

The number of notifications in the week ended December 10 were: poliomyelitis 124 (141), polio-encephalitis 10 (15). Figures for the previous week are shown in parentheses. The total of 134 notifications of poliomyelitis and polio-encephalitis together may be compared with 76 in the corresponding week of 1947 and 36 in 1948. In 1926 the corresponding figure was 43 and in 1938 it was 30.

Multiple cases were reported from the following counties London 15 (16), Bedford 2 (0), Buckingham 3 (2), Cambridge 3 (1), Chester 4 (2), Cumberland 3 (0), Devon 2 (0), Dorset 4 (1), Essex 10 (7), Gloucester 2 (7), Hertford 3 (2), Kent 8 (10), Lancaster 9 (14), Middlesex 6 (15), Norfolk 4 (4), Northampton 2 (1), Nottingham 3 (6), Southampton 2 (5), Stafford 3 (5), Surrey 6 (6), East Sussex 5 (4), Warwick 5 (6), East Yorks 2 (0), West Yorks 13 (19), Glamorgan 4 (6).

Discussion of Table

In *England and Wales* there were decreases in the notifications of scarlet fever 72, whooping-cough 54, diphtheria 31, and poliomyelitis 35; the only appreciable increase was in the incidence of measles 185.

The only changes of note in the notifications of measles were increases in Norfolk 144 and Durham 125. The total notifications in these two counties formed 56% of the total for the country as a whole.

The largest decreases in the incidence of scarlet fever were London 41 and Derbyshire 38; the largest increase was Middlesex 34. Notifications of diphtheria decreased in Lancashire 11 and London 7 and increased in Cheshire 5; the main centres of infection during the week were Birmingham C.B. 12, London 11, Birkenhead C.B. 8, and Liverpool C.B. 8.

The largest fluctuations in the local returns of whooping-cough were a rise of 34 in Yorkshire West Riding and a fall of 34 in Lancashire.

Notifications of dysentery during the week included Gloucestershire 30 (Bristol C.B. 9, Cheltenham R.D. 21); Lancashire 21 (Wigan C.B. 9); Cheshire 16 (Ellesmere Port U.D. 14); Yorkshire West Riding 16 (Leeds C.B. 5); Glamorganshire 16 (Cardiff C.B. 6, Cardiff R.D. 6); Durham 12 (Sunderland C.B. 5); London 10. The only large outbreak of food-poisoning notified was in Somerset, Wincanton R.D., where there were 60 cases.

In *Scotland* decreases were recorded in the notifications of acute primary pneumonia 84, scarlet fever 81, and measles 16, while the only increase of any size was whooping-cough 19. A decrease in the incidence of scarlet fever and pneumonia was noted in most areas of the country. Another 28 cases of dysentery were notified from the outbreak in Stirling county, where there were 10 cases in the preceding week; Glasgow had 49 notifications during the week.

In *Eire* the notifications of measles fell by 108 and of whooping-cough by 22. The fall in the incidence of measles was mainly due to the experience of Waterford, Waterford R.D. No. 1, where the notifications decreased from 108 to 16. An outbreak of 29 cases of measles was reported from Kilkenny. Callan R.D. A further 8 cases of typhoid were notified in Mayo, Claremorris R.D.

In *Northern Ireland* there were decreases in the notifications of scarlet fever 67 and whooping-cough 22. There was a rise of 29 in the incidence of measles.

Week Ending December 10

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,855, whooping-cough 893, diphtheria 87, measles 1,596, acute pneumonia 734, cerebrospinal fever 37, acute poliomyelitis 124, acute polio-encephalitis 10, dysentery 133, paratyphoid fever 5, typhoid fever 4, food-poisoning 95.

Medical News

Physician to the King's Household

Dr. R. Bodley Scott has been appointed Physician to the King's Household in succession to Dr. D. T. Davies, who has been appointed Physician to the King.

Nuffield Foundation Medical Fellowships

The Nuffield Foundation is offering a number of fellowships to enable selected persons to receive such higher training as will qualify them for senior appointments in medical teaching and research. All medically qualified persons are eligible to apply for them, but preference will be given to those who wish to specialize in the following: child health, psychiatry, social medicine, industrial health, and chronic rheumatism. The fellowships will be open to persons of either sex—usually between the ages of 25 and 35 years—who hold a university degree in medicine registrable in the United Kingdom, who are normally resident there, who are of high merit, and whose ability and inclinations fit them for an academic career in medicine. Candidates on application should already hold the M.R.C.P. or F.R.C.S. Candidates must be recommended by the executive authority of a university medical school in the United Kingdom. They will be expected to have had at least one year's general clinical experience since registration and as a rule to have held residential hospital appointments in general medicine and surgery. A fellowship will be awarded for one year and is extendable, but, save in exceptional cases, will not be tenable for longer than three years. Normally the annual value of a fellowship will be between £900 and £1,300, subject to income tax. A Fellow may not hold any other award concurrently with his fellowship without the permission of the trustees of the Nuffield Foundation. He will be required to carry out, at institutions approved by the trustees of the Foundation, a programme of work and training similarly approved. Other work, paid or unpaid, may not be undertaken without the permission of the trustees. Applications must be received by May 1, 1950. Forms of application are obtainable from the secretary of the Nuffield Foundation, 12 and 13, Mecklenburgh Square, London, W.C.1.

Bulletin on Narcotics

The United Nations has started publishing a new periodical entitled the *Bulletin on Narcotics*. It is prepared by the Division of Narcotic Drugs. The first number includes articles on the international control of narcotic drugs and opium products throughout the world. The *Bulletin* will publish articles on the scientific and legislative aspects of narcotic drugs and give up-to-date news on their control. The annual subscription for four copies a year is $2, which may be paid in other currencies to the authorized sales agents of U.N. (H.M. Stationery Office in Britain).

Prospective Parliamentary Candidate

Dr. A. D. Robertson has been adopted as prospective Parliamentary candidate by the Motherwell and Wishaw Unionist and Liberal Nationalist Associations.

Film on Food-poisoning

The Ministry of Health has sponsored a new film called "Another Case of Poisoning," which has been produced by the Central Office of Information in collaboration with the Central Council for Health Education. The film takes about 20 minutes to run and shows the many ways in which a patient with food-poisoning may have become infected. Further information about the film can be obtained from the Press Officer at the Ministry of Health.

Sickness Insurance for Women

The directors of the Medical Sickness Annuity and Life Assurance Society, Ltd., state that the present age limit of 35 imposed in connexion with sickness insurance on female lives has now been removed.

Kempner Rice Diet

The Food Rationing (Special Diets) Advisory Committee of the Medical Research Council has recommended to the Minister of Food that supplies of rice and one extra ration of sugar should be made available for the treatment of patients with severe hypertension by means of the Kempner rice diet. The Minister of Food has therefore arranged that patients who on medical advice adopt the Kempner rice diet shall be allowed 4 lb. of rice and one extra ration of sugar a week in place of their allowance of milk and rations of meat, bacon, cheese, and fats. The Advisory Committee considers that there is considerable evidence that a diet consisting entirely of rice, sugar, fruit, and fruit juice as recommended by Kempner (*Amer. J. Med.*, 1948, **4**, 545) will lower the blood pressure in certain cases of hypertension, but that the diet must be rigidly observed if it is to be effective. It points out that the treatment may be not without danger, since progressive renal failure has been observed to occur in patients taking the diet, and the treatment should not be used unless facilities for biochemical control are readily available. Doctors who have not received a copy of Med. 2 (Revised 1948) may obtain one on application to their local food office.

COMING EVENTS

British Association of Physical Medicine

A short course of lectures on the various aspects of physical medicine will be delivered on Tuesdays and Thursdays, from January 3 to February 9, 1950, inclusive, at 5 p.m., and will be suitable for candidates preparing for Part II of the Diploma in Physical Medicine. Further details can be obtained from the honorary secretary, British Association of Physical Medicine 45, Lincoln's Inn Fields, London, W.C.2.

Neurological Teaching

A limited number of clinical clerkships for students who are preparing for the membership or other special diplomas are available at the school for postgraduate teaching in neurology now in existence at the Maida Vale Hospital for Nervous Diseases, London, W. A course of twelve weekly clinical demonstrations open to all members of the medical profession at a fee of £1 1s. will begin on January 6 at 5 p.m. Full particulars can be obtained from Dr. Redvers Ironside, F.R.C.P., dean of the medical school of the hospital.

N.O.T.B. Association

The annual general meeting of the N.O.T.B. Association will be held at 5 p.m. on February 10, 1950, at B.M.A. House, Tavistock Square, London, W.C.1.

BIRTHS, MARRIAGES, AND DEATHS

BIRTH

Bain.—On December 8, 1949, at the Simpson Memorial Pavilion, to Mabel Gertrude (nee Hall), M.B., B.Ch., B.A.O., wife of Dr. A. J. Bain, Craigbinning House, Dechmont, Broxburn, West Lothian, a son.

DEATHS

Brierley.—On December 8, 1949, at St. Olave's, Ramsey, Isle of Man, Edward Edelsten Brierley, M.B., C.M., F.R.C.S.Ed., aged 77.

Brown.—On November 21, 1949, at Adelaide, Australia, Marie Brown, M.B., B.S., D.P.H., wife of Gilbert Brown, M.B., Ch.B., D.A., aged 66.

Caine. On December 12, 1949, at 1, New Chester Road, New Ferry, near Birkenhead, Nathaniel Caine, M.D., J.P.

Champion.—On December 13, 1949, at "Beckets," Framfield, Uckfield, Sussex, Selwyn Gurney Champion, M.D.

Dods-Brown.—On December 11, 1949, John Lawson Dods-Brown, M.B., Ch.B., of Newbridge House, Upwell, Wisbech, Cambridgeshire, aged 32.

Elliott.—On November 28, 1949, at Sea Point, Capetown, South Africa, Charles Caldwell Elliott, M.D., aged 83.

Hannigan.—On December 12, 1949, at Gardenfield House, Drumcollogher, Co. Limerick, Maurice Hermann Hannigan, M.D., D.P.H., late of Botesdale, Diss, Norfolk, aged 91.

Hawkes.—On December 8, 1949, suddenly, Alfred Ernest Underwood Hawkes, M.R.C.S., L.R.C.P., of 41, Penkett Road, Liscard, Cheshire, aged 75.

Liversidge.—On December 15, 1949, at a Harrogate nursing-home, William Liversidge, M.D.

Macfarlane.—On December 14, 1949, Ian William Macfarlane, M.B., Ch.B., of 4 Union Place, Montrose.

MacKessack.—On December 9, 1949, at 83, East Avenue, Bournemouth, Peter MacKessack, M.B., Ch.B., D.P.H., Colonel R.A.M.C., Ret.

Rayner.—On December 6, 1949, Percy Chambers Rayner, M.B., Ch.B., of Barwell, Leics., late of Brook House, Earl Shilton, Leics., aged 78.

Russell.—On December 6, 1949, at St. Anthony's, Crowborough, Sussex, Sir Michael William Hansby Russell, K.C.M.G., C.B., M.R.C.S., Major-General A.M.S., Ret., aged 89.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Vaccination Against Smallpox

Q.—*What is considered the best method of vaccination? Is there any truth in the statement that the degree of immunity is directly proportional to the area of foveation? In any case, how can such an immunity be measured? Finally, can you define the term "reaction of immunity"?*

A.—The method of vaccination now officially recommended by the Ministry of Health is the multiple-pressure technique. A drop of vaccine lymph covering an area of about one-eighth of an inch (30 mm.) in diameter is placed on the skin at the prepared site, usually in the region of the deltoid insertion on the left arm. A straight needle, which should be flat-sided or triangular in section (for example, a Hagedorn) and of relatively large size, in good condition, sharp, and sterile, is held parallel or tangential to the arm with the forefinger and middle finger above and the thumb below. One side of the needle point is then pressed firmly and rapidly into the drop about 30 times within 10 seconds, the needle being lifted clear of the skin each time. This rapid up-and-down motion of the needle is in a plane perpendicular to the skin. The needle point is *not* driven into the skin, but at each pressure the elasticity of the skin pulls a little of the epidermis over the point of the needle so that the virus-bearing lymph is carried into the deeper epidermal layers. If the skin has not been unduly irritated by a preliminary cleansing procedure and the needle has been properly aligned, no pain or bleeding should occur and within a few hours there will be no visible signs of trauma.

There is some evidence that the case mortality in smallpox is related to the degree of foveation. Thus, in the Vaccination Report of 1928, case mortality among patients with four scars was 5.4% and increased progressively to 17.9% among those with only one scar. Therefore susceptible persons who are intimate contacts of a case of smallpox should preferably have three or four quarter-inch (60-mm.) insertions rather than the multiple-pressure type of vaccination. There is no infallible test of immunity to smallpox, but failure to vaccinate successfully on two or three successive occasions or the demonstration of complement-fixing antibody is fairly reliable evidence of a high degree of resistance. The so-called "reaction of immunity" is the early local lesion reaching maximum size on the second or third day and characterized by elevation and irritation of the skin but no vesiculation. Such a reaction may be due to sensitivity of the individual to protein or other substances in the lymph and may not be a response to the virus of vaccinia. It should preferably be recorded as "maximum local reaction (non-vesicular) on the second to third day," and if there is any doubt about the potency of the lymph a further attempt at vaccination should be made.

Indications for Digitalis

Q.—*What are the indications for digitalis therapy in patients with normal cardiac rhythm? What is the best method of administration?*

A.—As a broad generalization it may be stated that digitalis is indicated in any case of congestive heart failure. The improvement is not due only to the slowing of the heart, as it often occurs before this is effected. With digitalis therapy in congestive failure the heart volume is diminished and output increased, the rate is slowed, and the force of beat is said to improve. It has also been shown that the right auricular pressure is diminished. In failure secondary to anaemia, emphysema, and thyrotoxicosis, digitalis has hardly any effect, and the primary cause must be treated. The raised right auricular pressure in these cases tends to maintain the cardiac output. Digitalis is also given in cases of rheumatic carditis when it is necessary to control the tachycardia. On recovery from heart failure, digitalis may be continued in those patients whose effort tolerance is so impaired as to interfere with their livelihood; it should not be given in any case of peripheral circulatory failure.

The best method of administration will depend on how urgently the drug is needed and on whether the patient has already been taking it. Rapid digitalization may be obtained by intravenous administration of 1 mg. of "digoxin," given slowly and diluted in 10 ml. of saline. At the same time 2 gr. (0.13 g.) of the powdered leaf may be given every six hours for two to three days, depending on the rapidity of control. The maintenance dose varies considerably, and can be determined only by experience with a particular patient. If the patient has already been taking digitalis, much more cautious dosage is necessary.

Thiopentone in Eye Surgery

Q.—*Is thiopentone soluble or any similar anaesthetic being used effectively and safely in eye surgery, especially for extraction of the lens in cataract operations? If so, are there any contraindications to its use in patients over 70 years of age?*

A.—Thiopentone soluble is being used widely as a safe and effective anaesthetic for cataract operations in cases where a general anaesthetic is desired. Intermittent injections of a 2½% solution or a continuous drip of 0.5% solution are equally satisfactory. Attention to the following points makes for safety. A pharyngeal airway liberally greased with a local analgesic lubricant should be used in every case, and a stream of oxygen allowed to flow into the pharynx throughout the operation. A drop or two of cocaine placed in the eye obviates many reflexes due to operative stimuli, and may avoid the need for large doses of thiopentone. Great care must be taken to keep the airway perfectly clear throughout the operation, and, if the anaesthetist is in doubt about his ability to do this with only a pharyngeal airway in place, he should not hesitate to use an endotracheal tube. In such a case the larynx should be well cocainized to avoid coughing during the operation should the anaesthesia become too light.

There are no contraindications to the use of thiopentone in patients over 70 years of age, so long as it is remembered that the elderly require but small doses of the drug to produce the desired effect. In such patients in particular, heavy premedication should be avoided before using thiopentone as the sole anaesthetic.

Histamine Therapy for Urticaria

Q.—*Could the method of histamine desensitization referred to in "Any Questions?" of May 10, 1947 (p. 666), be used for a boy of 16 who suffers from recurrent attacks of urticaria which respond to treatment with antihistamines, but who is not totally free from urticarial rash? In a bad attack, a saline purgative, together with antihistamines, seems to help in clearing up the rash for a few days. If the method can be used, is it necessary to test for histamine-sensitivity before starting treatment? Urticarial weals of all sizes have been observed, but no "pseudopodia."*

A.—Histamine therapy for urticaria is usually disappointing and has been given up by many workers in this field. A few cases of chronic urticaria appear, however, to do well on this therapy. Preliminary skin-testing with histamine is unnecessary. The following dosage for chronic urticaria is advised by H. L. Alexander (*Synopsis of Allergy*, 2nd ed., Kimpton, London. 1947, pp. 164–5). On the first day two injections of 0.05 ml. of 1 in 10,000 histamine (histamine diphosphate), and on the second day two injections of 0.01 ml., are made. Ten daily injections are then given, starting with 0.15 ml. and increasing each dose by 0.05 ml. up to 0.50 ml. of a concentration of 1 in 10,000. A solution of 1 in 1,000 histamine is then used, and the next two doses are 0.05 ml. and 0.10 ml. of this strength. Five injections are then given every two days, starting with 0.15 ml. of 1 in 1,000 histamine and increasing each dose by 0.05 ml. up to a maximum of 0.30 ml., which is repeated

once. Five injections of 0.30 ml. are then given every three days. According to Alexander (loc. cit.), "One course of treatment may suffice, or further ones may be necessary. If no results occur after 15 or 20 injections, they are not likely to appear." The possibility of food allergy in this case should be considered—and symptoms may occur only when excessive amounts of the offending food are taken. Keeping a food diary and trial dieting might help.

Peptic Ulcer due to Trauma

Q.—*Is there any substantial evidence that a severe blow on the epigastrium might cause a duodenal ulcer? I would be grateful for references and any information.*

A.—A number of cases of probable traumatic gastric or duodenal ulcer have been reported, and the subject has recently been reviewed by Crohn (*Gastroenterology*, 1947, **8**, 735). There seems to be good evidence that local trauma to the upper abdomen can result in a peptic ulcer which manifests itself within a few days. Although the psychosomatic aspect is difficult to exclude, it is probable that submucosal and intramucosal haemorrhages may be followed by ulceration, and this has been observed gastroscopically.

Acquired Allergy

Q.—*A married woman of 35, with no personal or family history of allergy, had a liaison with a man who had such a history, and as a result she became pregnant. Her child developed infantile eczema during his first year. Twelve months later the liaison was resumed for one week, when a contraceptive paste was used. The following week she had severe generalized urticaria with slight asthma. Adrenaline gave prompt but transient relief, and the condition cleared slowly with antihistamines. Is it a tenable theory that she was sensitized by her child during pregnancy to a factor provided during intercourse by the child's father?*

A.—No, she could not be sensitized by her child or by the father. In children with very early allergic manifestations it is usual to obtain a history of allergy in both parents; it is therefore suggested that if the patient made a more careful inquiry she would find that she had a family history of allergy. In all probability her present symptoms are due to psychological disturbances. It may be, also, that they had nothing to do with her liaison and that the association was accidental. Possible allergens which might be suspected are quinine or some other drug used in the contraceptive paste, or foods such as chocolate or fruit which she may have eaten in excess at that time.

Unsuccessful Injection of Varicose Veins

Q.—*For the first time in 13 years' experience of injecting varicose veins I have met a patient who resists every attempt at inducing thrombosis. There is no fault in technique, and she tells me that doctors in the Services had the same experience. Why is this? What happens to the sclerosing solution? Can you suggest a remedy?*

A.—There are now and again cases of this type. The twin injection of quinine and salicylate sometimes succeeds and so does 30% saline. Ligation of the veins with simultaneous injection in the orthodox way, however, always achieves thorough thrombosis.

Survival of the Flea

Q.—*Is it known how long the common flea (Pulex irritans) can survive in an empty house? What is the best means of cleansing an infested house?*

A.—Many varieties of flea are adapted to survive for long periods in the absence of their host. The larval flea develops to the adult stage and then waits, resting in its cocoon, until the disturbance caused by a returning host indicates the presence of a further source of blood meals. The human flea is no exception to this general rule and can certainly survive several months, in the cocoon, in an empty house. Bacot (1914) records an average of 116 days' survival at 53° F. (11.65° C.); the maximum period he observed was 239 days. To eradicate a heavy infestation it may be desirable to employ fumigation experts to disinfest with hydrogen cyanide. It should, however, be possible to destroy the fleas by scattering flake naphthalene over the floors (about 4 lb. (1.8 kg.) per room) and leaving the rooms sealed up for a day or so. For fuller details see the *Monthly Bulletin of the Ministry of Health and Public Health Laboratory Service*, October, 1944.

NOTES AND COMMENTS

Acute Nephritis and Sweating.—Miss H. COOPER (sister tutor in the preliminary training school, General Hospital, Birmingham) writes: In Dr. Charles Romer's letter (November 12, p. 1128) he questions whether patients suffering from acute nephritis "tend to sweat excessively." As sister tutors we teach that a blanket bed is used for nursing these patients, not because they do sweat but in order to induce sweating and increase the amount of fluid loss. This seems reasonable, since the important balance between the activity of the skin and the kidneys is upset in acute nephritis. Patients suffering from acute rheumatism, on the other hand, do in fact tend to sweat, and the use of blankets in these cases is to provide a material next to the skin which will readily absorb perspiration. We have always tried to teach the physiological reasons underlying the use of these beds and have emphasized our different aim in each case. Nevertheless we feel that the value of the amount of diaphoresis induced by the use of blankets next to a patient suffering from acute nephritis is outweighed by the discomfort which this causes to some patients. We would suggest that in future it would be better to teach the use of one soft blanket next to the patient wherever it adds to the comfort of that patient—e.g., aged or very thin people—rather than to emphasize the questionable diaphoretic value of blankets next to the skin in the case of acute nephritis.

Proguanil as a Malaria Suppressant.—Dr. CH. W. F. WINCKEL (Amsterdam) writes: Under the heading "Any Questions?" (November 26, p. 1245) your expert on malaria ended his answer to a question on proguanil as a malaria suppressant as follows: "The frequency of relapses of vivax malaria may be reduced by taking one of the 8-aminoquinoline drugs—for example, pamaquin, 0.01 g. thrice daily for 10 to 14 days; with each dose of the drug it may be more effective to combine quinine 0.6 g. or mepacrine 0.1 g." This alternative might lead to confusion, and therefore I should like to make the following remarks: (1) It is very unusual to treat attacks of vivax malaria (*a fortiori* of falciparum malaria) with pamaquin only, as this drug is rather poor as a schizonticide, whatever its merits as a gametocide, and especially as an anti-relapse drug. (2) For this reason the combined use of pamaquin and a schizonticidal drug is recommended in every textbook on tropical diseases. (3) Usually only quinine is recommended for this purpose, mepacrine being seldom recommended, for the simple reason that the combination of pamaquin and mepacrine is too toxic. It would not be difficult to quote many authors who express this opinion. It may suffice to mention Manson's *Tropical Diseases*, 1946, London, p. 103, which states: "The simultaneous exhibition of 'atebrin' and 'plasmoquine' is not to be recommended, as it may cause alarming symptoms."

Breathing Through a Closed-circuit Apparatus.—Dr. W. N. ROLLASON (Scunthorpe, Lincs) writes: Your answer in "Any Questions?" (October 29, p. 1000) on breathing through a closed-circuit apparatus reminds me of a leisure hour I spent nearly four years ago breathing through a Coxeter-Mushin closed-circuit machine with a basal oxygen flow of 500 ml. As reported in the *Journal* of January 19, 1946 (p. 106), my pulse varied between 72 and 68 and my respirations between 16 and 14. I experienced slight discomfort towards the end due to the pressure of the face-mask, but otherwise no untoward effects during or after the inhalation.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY DECEMBER 24 1949

THE SECRETARY REPORTS

PUBLIC HEALTH MEDICAL OFFICERS

In this column a fortnight ago attention was drawn to the problems arising for those members of the public health service who before the N.H.S. appointed day were whole-time officers of local authorities and whose duties included commitments as medical superintendents or medical officers of infectious-diseases hospitals and similar institutions. The Public Health Committee intends to pursue this matter through the appropriate committee of the Whitley Functional Council early in the new year. After all, this is just the sort of problem for which the Whitley machinery was devised, and it is a matter for some surprise that this point should not have occurred to the Ministry. Meanwhile the committee desires to repeat the advice already given to local authority medical officers who are asked by regional hospital boards to accept contracts for part-time services. That advice is to defer action until the present discussions are completed.

The committee's view is that under no circumstances should a public health medical officer accept a contract for hospital work in the grade of junior hospital medical officer. In cases where pressure is brought on an officer to undertake hospital work in this grade it should be undertaken only on the understanding that the arrangement will be regarded as temporary in character and subject to revision in the light of the Public Health Committee's discussions. Incidentally, there seems to have been a lack of uniformity between the various regions in the classification of their public health medical officers in relation to their infectious-diseases work. In one large region it appears that the public health officers engaged in this work, some of them of high standing and long experience, have been classified, willy-nilly, as senior hospital medical officers. Inquiry is being made into the position.

Vaccination and Immunization

Negotiations on the fees for vaccination and immunization have at last reached conclusion. The local authorities' associations have agreed to recommend their constituent bodies to pay a fee of 5s. for each record received from a general practitioner. This fee will be paid for evidence of a successful vaccination on the first attempt, or where a second attempt has been made after an unsuccessful first attempt. A third attempt will be regarded as a fresh vaccination and an additional fee of 5s. will be paid for it. In the case of immunization, the fee will be paid in respect of the complete process, normally involving two injections.

The General Medical Services Committee has accepted these terms on the understanding that they will apply retrospectively to all cases for which a record has been returned since July 5, 1948, and without prejudice to the reopening of the question of the fee in the light of changed circumstances. The committee has also asked that every effort be made to simplify and standardize the form of report required by local authorities.

Other General Practice Matters

By the end of December we shall have completed the first three months of the statistical inquiry which has been undertaken, under the guidance of an eminent statistician, to determine the number of items of service rendered by general practitioners under the National Health Service. In addition to the usual items such as visits and consultations at the surgery the inquiry will reveal a number of special items of service—e.g., reports, certificates, night visits, etc. The object of the survey is to assess the amount of work which is being undertaken by general practitioners in the light of the committee's view that in devising its recommendations the Spens Committee based them on the assumption that the doctor would do a reasonable day's work and be left with sufficient leisure.

The Ministry has agreed that all sulphonamides should be included in the list of specially expensive drugs for which additional payment is made in the case of those practitioners who are dispensing practitioners. The Ministry has also agreed that, where drugs and dressings are supplied by a dispensing practitioner who is providing maternity medical services for a patient on another practitioner's dispensing list, the cost can be covered by prescribing the drugs and dressings on the ordinary prescription form (E.C.10), which should be passed to the executive council.

Owing to a legal difficulty the Ministry has not yet been able to promulgate the arrangements agreed with the General Medical Services Committee under which doctors associated with residential schools will be able to prescribe in bulk on a single prescription form drugs for the use of the school as a whole. It is understood that the necessary regulation will be issued now that the Royal Assent has been given to the National Health Service (Amendment) Act.

The committee is still awaiting an invitation from the Ministry to discuss proposals for giving effect to the Government's decision to make a charge of not more than one shilling (subject to certain exceptions) for prescriptions under the National Health Service. All will agree that the doctor should not be required to play any part in the collection of this charge.

A special committee of the General Medical Services Committee has been set up to consider any modification or amendment which may be desirable in the Medical Services Committee procedure as laid down in the Service Committees and Tribunal Regulations, 1948.

Residential Appointments

I suppose no one can complain at being called upon to pay his legitimate income tax—by that I mean to complain more than usual—but the fact remains that a number of practitioners, notably resident hospital officers, including medical superintendents, will pay more tax under the new arrangements than they did under the old. This happens not because of new legislation but because of a change in the way of expressing an officer's position in relation to emoluments.

Under their former conditions of service many hospital medical officers received a net salary, plus residential emoluments in kind which were not taxable. The Board of Inland Revenue has intimated that as from July 5, 1949, these officers will be taxed on the basis of their gross salary, but for the period July 5, 1948, to July 4, 1949, only the actual cash arrears will be taxable. In other words the intention is to tax net salary up to July 4, 1949, and gross pay thereafter.

The salary scales laid down in the terms and conditions of service for hospital medical staff are for non-residential officers, and, where board and lodging or other services are provided, are subject to deduction.

In the case of house officers the deduction is at the fixed rate of £100 p.a., *but for all other officers* the charge is determined by the hospital management committee (or board of governors) at a sum equal to the value of the services provided. It is not uncommon therefore for a house officer and a registrar to occupy similar quarters at very different charges. Where the officer is appointed by a regional board, the charge fixed by the hospital management committee is subject to the approval of the board.

HOSPITAL AND SPECIALIST SERVICES IN SCOTLAND

The following memorandum has been issued by the Department of Health for Scotland:

The tables which follow this memorandum have been constructed on returns which were obtained from the five Scottish regional hospital boards in September, 1949. These returns covered the specialists, including both consultants and S.H.M.O.s, who were at that time in contract with the regional boards. For each individual was recorded his year of birth, his grading, the specialty in which he was engaged, the hospital group (or the principal one) to which attached, whether whole-time, part-time (including the number of notional half-days employed per week), or under a main contract with the university and a parallel contract with the regional board.

These returns were transferred to punched cards and have been analysed as set out below. The process is still incomplete, but the preliminary results have appeared so deserving of urgent consideration that the tables and certain deductions from them are now set out for the information of the regional hospital boards, the universities, and the profession.

Certain reservations must be made. In the interval between receipt of returns and their analysis some deaths, retirements, promotions, and new appointments have occurred. Some 60 appeals against grading are pending and have still to be decided. In the tabular grouping it has from time to time been necessary to associate certain groups—for example, pathologists include biochemists, as well as certain other laboratory specialists whose field may include bacteriology. Some specialists are included in the general surgical or general medical groups although they may also have an interest in special fields.

It is believed, however, that these and other sources of possible error do not seriously invalidate the general tables and the conclusions to which they seem to point. The total number of individuals included in these tables is 920. Of these, 646 hold consultant grade and 274 are graded as S.H.M.O.s.

Further studies are in progress, including an estimate of the distribution by age groups and locality of the general practitioners in contract with executive councils, and further tables will show the number of new medical practitioners and medical students who register for the first time in each year in Scotland and England and Wales. At a later stage it is intended to make a similar analysis of all registrar appointments. And, finally, the tables will be kept up to date by quarterly returns from the boards showing deaths, retirements, transfers, and new appointments.

Young Specialists

The first impression from a study of the specialist age groups is that the specialists are, in the mass, a comparatively young community. The year-of-birth period covers almost exactly 40 years. Only two consultants in the Service were born before 1880; only three S.H.M.O.s subsequent to 1919. The age distribution between the four 10-year periods is:

	Date of Birth			
	Before 1889	1890–9	1900–9	1910 and After
	(60 and over)	(50–59)	(40–49)	(Under 40)
All specialists, consultants, and S.H.M.O.s	85	210	305	320
Percentage of total (920) (to nearest whole number)	9	23	33	35

It will be seen from the tables showing the age groups by five years (and still more clearly from the original extended tables) that there are "peaks" at the age groups surrounding 1901 and 1911 (year of birth). Individuals born in these years would graduate, say, between 1922 and 1926, and 1932 and 1936, respectively. The comparatively heavy "crop" of specialists in these age groups may be referable, in the first group, to the great accession to the *Medical Register* in the years following the first world war (over 2,500 in the peak year 1925).

It is significant that this last figure was equalled in 1938 and has been exceeded in almost each subsequent year. It still remains to be estimated what proportion of new graduates in the years since 1938 may have turned to specialist work, but, given the same preferences as held for the 1922–6 and the 1932–6 graduates, it will be high. It seems clear, too, that the numbers added to the *Medical Register* in each of the next few years will exceed any previous "normal" additions. The graduates of 1950 and onwards will include numbers of demobilized ex-Service men and women who returned to civil life and took up studies in 1945 and subsequent years and to accommodate whom the medical schools increased the number of available places. The tables are, therefore, of special interest for the indications they afford, however limited, of the prospective vacancies in specialist appointments.

Vacancies

Vacancies in the specialist service may occur through death, through retirements, or through an actual increase in the establishment of specialist posts. It is not, of course, practicable to assess precisely the opportunities which specialists trained in Scotland may find elsewhere in the United Kingdom, in the Services, or abroad. With this reservation, the numbers of specialists in training at any one time—that is, the numbers in registrar appointments—should be related to the prospective vacancies.

There cannot at present be any certainty as to the number of new specialist posts that may be created in the next few years. The more obvious gaps—in the landward areas and in certain specialties—are being filled now, and further expansion of the specialist services cannot proceed far in advance of expansion of the hospital and out-patient facilities and in the numbers of nursing and other ancillary staff. These may prove limiting factors. It is safer, therefore, to confine examination for the present to the numbers required to maintain the existing specialist establishment.

Retirements can be calculated from the numbers in the various age groups. The normal retirement age in the Service is 65, though boards may agree with individual specialists to extend their contracts, perhaps with modifications, to the age of 70. That is, specialists born in 1885 or earlier should normally retire before the end of 1950. The numbers concerned are:

Consultants	28
S.H.M.O.s	6
Total	34

In subsequent years the number of estimated "normal" retirements are:

	1951	1952	1953	1954	1955	1956
Consultants	6	13	17	10	12	13
S.H.M.O.s	1	—	3	1	4	3
Total ..	7	13	20	11	16	16

distributed over the whole specialist field. Whether all these retirements would mean individual replacements would have to be decided at the time. Some certainly would; others representing posts on part-time contracts, with a limited number of sessions, might not. Some S.H.M.O.s will no doubt be replaced by consultants.

As well as losses from "normal" retirements there is a calculable loss from mortality over specialists in all age groups. Calculation shows that this number would be around 10 per annum and may be less in the next few years because of the age distribution.

Registrars

These calculations suggest that an output of trained registrars of not more than 30 per annum would adequately fill the prospective vacancies for some years to come over the whole specialist field.

The number of registrars in each grade—junior registrar, registrar, and senior registrar—will no doubt be progressively reduced so as to select from the initial entrants to the registrar grade only those capable of filling specialist posts. This qualitative selection should presumably be accompanied

by a quantitative reduction so that the numbers emerging as trained specialists roughly approximate to the prospective vacancies—in Scotland and elsewhere. The proper rate of reduction at each of the several years of the registrar's training is a matter for consideration. The number of senior registrars in each year of training should presumably be related closely to the annual expectation of specialist vacancies. The number of registrars in each year has to be greater than the number of seniors and the number of junior registrars greater than the number of registrars. For example, one estimate is that for every 30 specialist posts that fall vacant each year the appropriate numbers of registrars in training might be:

Senior Registrars	
(? Fourth year	30)
Third year	30
Second year	30
First year	30
Registrars	
Second year	40
First year	60
Junior Registrars	90
Total No. of Registrars	280 (+ ? 30)

If the process of selection is more severe the numbers in the earlier years might be greater, and conversely.

As 30 has been taken above as the number of vacancies in existing posts that will occur annually in Scotland in the next few years, the total number of registrars in training necessary to fill these posts would be about 300.

Allowance has to be made, of course, for new posts and other needs outside Scotland, but even so it seems necessary to consider whether the numbers of registrars and others at present in training to be specialists are justified by their prospects of obtaining specialist posts.

It is also necessary to consider the needs of the hospitals for medical staff below the specialist level in order to carry on the essential work. There may prove to be a substantial difference between the number of registrars which the prospect of specialist posts would warrant and the number of doctors of this level of experience who are actually needed in posts the bulk of which have in the past been filled by specialists in training. A situation of this kind might well require some reconsideration of the basis of hospital staffing, the relative responsibilities of specialists and registrars, and the scope for hospital posts outside these two categories.

TABLE I.—*All Specialists—Age Groups by 5-Year Periods*

	Before 1880	1880–4	1885–9	1890–4	1895–9	1900–4	1905–9	1910–14	1915–19	1920–	Total
Consultants	2	20	52	64	99	127	108	138	36		646
S.H.M.O.s		5	6	20	27	44	26	73	70	3	274
Total	2	25	58	84	126	171	134	211	106	3	920

TABLE II.—*General Medicine*

Consultants	1	3	8	13	13	20	19	28	8		113
S.H.M.O.s				3		3	1	3	1		11
Total	1	3	8	16	13	23	20	31	9		124

TABLE III.—*General Surgery*

Consultants	1	5	10	15	17	25	17	35	4		129
S.H.M.O.s		3	1	1	4	4	1	4	1		19
Total	1	8	11	16	21	29	18	39	5		148

TABLE IV.—*Gynaecology and Obstetrics*

Consultants		2	1	7	6	10	13	12	3		54
S.H.M.O.s					2	1	1	8	6	1	19
Total		2	1	7	8	11	14	20	9	1	73

TABLE V.—*Anaesthetists*

Consultants		1		6	5	8	9	6	2		37
S.H.M.O.s				5	4	11	2	10	10	2	44
Total		1		11	9	19	11	16	12	2	81

TABLE VI.—*Infectious Diseases*

Consultants			1	1		1		1			4
S.H.M.O.s					2	1		2			5
Total			1	1	2	2		3			9

TABLE VII.—*Venereal Diseases*

Consultants			2		2	2	1				7
S.H.M.O.s				1		2	2				7
Total			2	1	2	4	3	2			14

TABLE VIII.—*Tuberculosis and Chest Diseases*

Consultants			3		2	6	3	3			17
S.H.M.O.s			1		2	6	8	13	17		47
Total			4		4	12	11	16	17		64

TABLE IX.—*Dermatology*

Consultants		1	2		4	3	1	2			13
S.H.M.O.s			1		1	1	2		1		6
Total		1	3		5	4	3	2	1		19

TABLE X.—*Neurology*

	Before 1880	1880–4	1885–9	1890–4	1895–9	1900–4	1905–9	1910–14	1915–19	1920–	Total
Consultants		1	1			1	1				4
S.H.M.O.s ..											
Total ..		1	1			1	1				4

TABLE XI.—*Orthopaedic Surgery*

Consultants		1		1	1	3	8	4	7		25
S.H.M.O.s ..									2		2
Total ..		1		1	1	3	8	4	9		27

TABLE XII.—*Neurosurgery*

Consultants				1	1		3	1			6
S.H.M.O.s ..						1					1
Total ..				1	1	1	3	1			7

TABLE XIII.—*Dental and Oral Surgery*

Consultants		1	2		3	3	1	1			11
S.H.M.O.s ..		1		2	5	2	3	1	2		16
Total ..		2	2	2	8	5	4	2	2		27

TABLE XIV.—*Ear, Nose, and Throat Surgery*

Consultants		1	2	2	10	11	4	4	2		36
S.H.M.O.s ..				1				2	2		5
Total ..		1	2	3	10	11	4	6	4		41

TABLE XV.—*Plastic Surgery*

Consultants							2		1		3
S.H.M.O.s ..											
Total ..							2		1		3

TABLE XVI.—*Urology*

Consultants					2	3	1				6
S.H.M.O.s ..								1			1
Total ..					2	3	1	1			7

TABLE XVII.—*Ophthalmology*

Consultants		3	5	2	10	3	4	8	1		36
S.H.M.O.s ..				2	2	1	1	4	9		19
Total ..		3	5	4	12	4	5	12	10		55

TABLE XVIII.—*Paediatrics*

Consultants			1		3	2	4	4	2		16
S.H.M.O.s ..											
Total ..			1		3	2	4	4	2		16

TABLE XIX.—*Pathology*

Consultants		2		4	5	3	5	8	1		28
S.H.M.O.s ..				3	2	3		3	4		15
Total ..		2		7	7	6	5	11	5		43

TABLE XX.—*Bacteriology*

Consultants		2	2	1		2	2	4			13
S.H.M.O.s ..				1	1			1	2		5
Total ..		2	2	2	1	2	2	5	2		18

TABLE XXI.—*Radiodiagnosis*

Consultants			2	4	7	10	2	6	1		32
S.H.M.O.s ..			2	1		3	1	5	4		16
Total ..			4	5	7	13	3	11	5		48

TABLE XXII.—*Radiotherapy*

Consultants						3	1	2	1		7
S.H.M.O.s ..								1	1		2
Total ..						3	1	3	2		9

TABLE XXIII.—*Psychiatry*

	Before 1880	1880–4	1885–9	1890–4	1895–9	1900–4	1905–9	1910–14	1915–19	1920–	Total
Consultants		1	6	6	7	7	6	8	3		44
S.H.M.O.s ..		1	1	1	3	5	3	12	8		34
Total ..		2	7	7	10	12	9	20	11		78

TABLE XXIV.—*Thoracic Surgery*

Consultants						1	2	2			5
S.H.M.O.s ..											
Total ..						1	2	2			5

Age Distribution of General Practitioners in Scotland

	Before 1870	1870–4	1875–9	1880–4	1885–9	1890–4	1895–9	1900–4	1905–9	1910–14	1915–19	1920–4	1925–30	Totals	Age Unknown or Not Divulged	Total
Medical practitioners (principals) on list of Scottish executive councils	6	23	62	75	139	205	368	345	262	316	373	152	4	2,330	88	2,418
Assistants		1	1	2		1	3	10	7	24	69	125	20	263	7	270
Total																2,688

The 270 assistants include 25 *part-time* assistants who in addition are employed as medical practitioners on their own account and are *also* included in the 2,418 principals.

Age Distribution as at December, 1949: 10-Year Periods

	Principals	% of Principals of Known Age	Assistants	% of Assistants of Known Age
Over 80	6	0·2		
70–79	85	3·6	2	0·76
60–69	214	9·2	2	0·76
50–59	573	24·6	4	1·52
40–49	607	26·0	17	6·0
30–39	689	29·6	93	35·4
20–29	156	6·7	145	55·2
Total	2,330	99·9	263	99

SURVEY OF CONVALESCENT HOMES

The Ministry of Health has asked regional boards to undertake in association with local health authorities a fact-finding survey of the untransferred convalescent homes in their regions. This survey is to be carried out instead of a review, formerly asked for, of the untransferred convalescent homes with a view to their allocation for use either by boards or by local health authorities. In the survey the homes will be put into one of the following categories:

(*a*) Those which provide convalescent treatment within the scope of the hospital service, and may therefore be appropriately used by regional hospital boards.

(*b*) Those which provide recuperative facilities of the "holiday home" type, and may therefore be appropriately used by local health authorities.

(*c*) Those which are a combination of (*a*) and (*b*).

When this information is available consideration will be given on a national basis to the question whether there should be any, and if so what, allocation of convalescent homes or beds between regional hospital boards and local health authorities.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Hackney, Poplar.

Non-County Borough Councils.—Dartford, Wallsend.

Urban District Councils.—Denton, Droylsden, Houghton-le-Spring, Huyton-with-Roby.

DOCTOR TO PAY EXPENSES

In a case that came before a medical service committee recently a man complained that his daughter was not visited by a doctor when the doctor was called by telephone.

Mr. A wrote to the clerk of the executive council of his area saying that at about 6 p.m. his daughter complained of slight earache, which his wife treated. After 8 p.m. the pain became worse; by 10.15 p.m. the child was in agony, which showed no sign of abating by 11 p.m. Mr. A then telephoned Dr. X. Dr. X came from his bath to answer the telephone, and, according to Mr. A, on being told about the child's pain said, "Well, what can I do about it?" Mr. A protested at this remark, and said that the doctor told him not to be silly, that he had nothing for the child at home, and that he could only give a prescription which could not have been made up until the morning. Mr. A got very angry and rang off. At 4 a.m. the same night Mr. A telephoned a Dr. Y, who visited the patient within a few minutes, and treated her. The next morning a surgeon performed a minor operation on the child, and she made an uneventful recovery.

A copy of Mr. A's letter of complaint was sent by the clerk of the executive council to Dr. X, who agreed that the facts in it were correct. Dr. X added in his reply that he considered he was entitled to be annoyed about the telephone call at 11 p.m. Twice on that evening he had been near Mr. A's house between 6 p.m. and 9.30 p.m. and would have been pleased to visit Mr. A if he had been more considerate and telephoned sooner. Moreover, he had intended to comply with Mr. A's telephoned request, but considered he was entitled to argue the matter first.

In verbal evidence Mr. A admitted that owing to the abrupt termination of the telephone conversation he did not expect Dr. X to attend the child that night, but thought he would come on the following morning. He had felt reluctant to call the doctor unless it proved absolutely essential to do so.

Dr. X contended in his verbal evidence that a large proportion of "urgent" calls had proved to be unnecessary, and that he was therefore entitled to discuss the case on the telephone. He insisted that he had not refused to attend, and if Mr. A had not rung off so suddenly he would have undoubtedly made the visit.

Inferences by Committee

The committee considered that the doctor's failure to visit the patient was due to the nature of the telephonic exchanges between him and Mr. A. The committee thought it reasonable for Mr. A and his wife to try to alleviate the child's immediate distress and to avoid, if possible, the need for calling in the doctor, and it was satisfied that Mr. A had not sought Dr. X's services until he had formed the opinion that such services were absolutely necessary.

Deduction from Pay

The executive council adopted the committee's recommendation that an amount be recovered from Dr. X's remuneration equal to any medical expenses incurred by Mr. A as a result of his requisitioning the services of another general practitioner in a private capacity, and that such amount be paid to Mr. A.

Correspondence

Unreasonable Demands by Regional Boards

SIR,—Sir Reginald Watson-Jones's timely letter (*Supplement*, December 10, p. 253) prompts me to record a recent but by no means unique experience, which is best described by giving the substance of a letter of protest that I sent to the chairman of the regional board concerned.

"Yesterday morning (November 30) I received a cyclostyled letter, even the signature being duplicated, asking me for a private and confidential opinion about a candidate for the post of orthopaedic surgeon to the ..... Hospital Management Committee. I was asked to send my reply *before Saturday, December 3*.

"The format of the letter is, perhaps, excusable, though no such labour-saving devices are permitted to those who reply to these inquiries—and one may have many to answer.

"What is serious and, I think, unpardonable is the short interval between the posting of the request and the date for sending in the reply. . . . Tomorrow I am going to —— to give a lecture, and I shall be away from the hospital for two days. It is pure chance that this absence did not coincide with the arrival of the letter about the —— candidate, and then I should have been unable to send an answer in time for the meeting of the advisory committee. In that case my silence might have been open to very serious misrepresentation. . . .

"I am not unaware of the heavy responsibilities of regional boards, but surely it must be acknowledged that the selection of the best men for senior vacancies in the Health Service is by far the most important of the manifold duties of regional boards and boards of governors. The man you appoint will make or mar the Health Service. If referees are to do their job conscientiously they must be given time in which to write considered opinions about candidates, and allowance must be made for possible short absences from their normal places of work."

No reply has yet been received.—I am, etc.,

London, W.1. H. J. SEDDON.

Protection from Patients

SIR,—We youngsters serving in the Forces read with dismay the alarming accounts of N.H.S. patients who send lists by post of all the articles which they require their doctor to prescribe. It seems that, unless we are to lose patients from a very meagre panel at a time when we need them most, when we return to general practice, we shall be forced to give in to this blackmail.

Is this outlook widespread among our future patients? Can our senior colleagues advise us on how to protect ourselves against these and similar "things that go bump in the night"? It will be many years before we have acquired their degree of tact and independence to protect ourselves.—I am, etc.,

M.O. OVERSEAS.

As Others See Us

SIR,—The following extract from a friend's letter requires no comment of mine. I should introduce the extract by saying that my friend's daughter, aged 7, had run in front of a bus, which in avoiding her had skidded and pinned her foot against the kerb. The child has been warned repeatedly to take care in crossing the road, but is rather an obstinate mite.

"I sent for doctor, who came fairly quickly. Ankle swollen, but he said it wasn't much; rest for two days and then come to surgery. The child was very shaken up, so I put her to bed for a day although the doctor said I needn't. I couldn't walk her down to the surgery, as it was still swollen, so I asked him to call, wishing that we were private patients. He called, and I said we wanted an *x*-ray as it was still swollen. Then for three days we spent several hours waiting at the hospital. It took four hours at first, then the next day about an hour and a half. The third day there was the clinic at the orthopaedic department. There was such a crush you couldn't get in at the door. Once inside the holy of holies I got ticked off by a nurse for saying goodbye to someone I'd met. 'You mustn't talk in here,' she said. The doctor wouldn't let me see the *x* ray. 'Only a slight break,' he said, 'only slight.' Why must one be treated as an imbecile?

"We go again on Monday to have the plaster removed. I hope I don't get ticked off again—I may answer back next time."

I would only add that my friend lives in a large town. How good it is to see ourselves as others see us.—I am, etc.,

Isleworth, Middlesex. F. PYGOTT.

Ham and Offal

SIR,—May I cap your very interesting anecdote (*Supplement*, December 3, p. 239)? I happened to be in the office of the Lady Margaret Fruitarian Hospital and so answered an urgent and imperious 'phone call: "Please send round at once to Lady X two kidneys or a liver."

I had to decide promptly whether to reply, "This is a fruitarian hospital and not the butcher's shop," or, "We are not operating to-day."—I am etc.,

London, W.1. JOSIAH OLDFIELD.

Country Doctors Near Towns

SIR,—I believe mileage payments for rural areas were intended to encourage doctors to settle in these areas. I live in a village of about 1,300 people, surrounded mainly by urban areas. When a patient of a doctor from one of these areas moves into this village, the doctor is encouraged to continue to attend him by the payment of a mileage fee. Yet, when one of my patients moves out into one of these urban areas, I do *not* receive mileage payment.

The argument is advanced that rural practitioners would be able to build up substantial lists in urban areas, with the consequent diminution of the mileage rate. This argument is specious, since in any urban area a patient has choice of several locally resident doctors and is most unlikely to call in a doctor from several miles away, and I find that my list in these urban areas does not grow appreciably, although I believe I give reasonable service, since I practically never lose a patient except by death or removal.

I should like to hear the views of other rural doctors living near urban areas. My contention is that either a doctor living in a rural area should be eligible for mileage payments for urban patients living over two miles away, or doctors living in urban areas should *not* be eligible to receive mileage payments.—I am, etc.,

Stockport, Cheshire. JOHN HEGINBOTHAM.

Patients in Scottish Camps

SIR,—As a rural practitioner in a sparsely populated area who cannot normally expect to increase my small list of patients to any extent, it is somewhat disconcerting to find that when by chance a few hundred workmen are added to the population for a year or two I am remunerated at the cut-price rates of 12s. 6d. per annum for medical attention to these men and 4s. for drugs.

I refer to men stationed in two North of Scotland Hydro-electric Board camps in my area. Because of the frequent changes in personnel these men do not come on to my list, but by arrangement with the Department of Health for Scotland I am paid according to the average number in the camps based on weekly returns.

The Department, on being approached on the matter, maintained that because the men were concentrated in a limited area this was regarded as an advantage in that more attention could be given to a greater number in a given period of time. Secondly, the Department maintained that the workers went home in serious illnesses or were removed to hospital and therefore the services rendered were less than for ordinary Health Service patients.

The two camps are 10 and 11¼ miles from my house, and there is little difference between visiting men sick in scattered huts and visiting patients in a village. As to the Department's second argument, over 80% of the men are Irish and do not go home. They are put in the camp sick-bay if the illness is slight or in the cottage hospital if more severe and in both places are treated by me.

It is appreciated that some of these men are on the lists of other doctors, but surely those who do the work deserve the reward. It would be interesting to know the views of others similarly affected. My feeling of injustice is not lessened by the fact that I have to date received no payment at all for 1949.—

I am, etc.,

DAVID M. WALKER

Strone, Argyll.

POINTS FROM LETTERS

Mutual Support

Dr. DUDLEY F. TORRENS (Market Rasen, Lincs) writes: Medicine is beleaguered. We must pool our incomes and divide them fairly. Pay each practitioner's rent and rates. Pay a per caput subsistence allowance to each medical family. Pay a travelling allowance to each practitioner proportionate to his petrol allowance. Pay an allowance proportionate to each practitioner's surgery expenses. Pay a per caput educational allowance in families where it is needed. This means a sacrifice for those who are above the average in income and an alleviation for those who are below the average. That is not so important. What *is* important is that such action would mean *unity*. At present the fortunate professional man does not really support the unfortunate. He does in theory. This is not a strike. It is mutual support in *doing*, not in refusing to do. It is ethical as between doctor and doctor, as between doctor and patient, as between all doctors and the State. It would soon demonstrate whether the attitude and estimate of the State was right, or that of the profession. . . .

B.M.A. LIBRARY

The following books have been added to the Library:

American Association for the Advancement of Science: Rickettsial Diseases of Man. 1948.

Bernheim, B. M.: The Story of Johns Hopkins. 1948.

Bier, A.: Homöopathie und [illegible]ische Ordnung der Heilkunde. Zweite Auflage. 1949.

Black, N.: Notes on the Theory [illegible]ental Surgery. 1949.

British Pharmaceutical Codex. 1949.

Cantarow, A., and Trumper, M.: Clinical Biochemistry. Fourth edition. 1949.

Cohen, E. W.: English Social Services. 1949.

Crohn, B. B.: Regional Ileitis. 1949.

Dampier, Sir W. C.: A History of Science. Fourth edition. 1948.

Douglas, C. G., and Priestley, J. G.: Human Physiology: a practical course. Third edition. 1948.

East, T.: Failure of the Heart and Circulation. Second edition. 1948.

Fairbrother, R. W.: Textbook of Bacteriology. Sixth edition. 1949.

Faust, E. C.: Human Helminthology. Third edition. 1949.

Fulton, J. F. (Editor): A Textbook of Physiology (originally by W. H. Howell). Sixteenth edition. 1949.

Geschickter, C. F., and Copeland, M. M.: Tumors of Bone. Third edition. 1949.

Gray's Anatomy: descriptive and applied. Thirtieth edition edited by T. B. Johnston and J. Whillis. 1949.

Green's Manual of Pathology. Seventeenth edition revised by H. W. C. Vines. 1949.

Grenville-Mathers, R.: Handbook of Venereal Infections. 1948.

Hess, J. H., and Lundeen, E. C.: The Premature Infant: medical and nursing care. Second edition. 1949.

Hoare, E. D.: The Sulphonamides in General Practice. 1949.

Hosford, J.: Fractures and Dislocations in General Practice. Second edition revised by W. D. Coltart. 1949.

Jordan-Burrows's Textbook of Bacteriology. Fifteenth edition by William Burrows. 1949.

Kenyon, F.: Psycho-analysis: a modern delusion. 1949.

Kerényi, C.: Le Médecin Divin: promenades mythologiques aux sanctuaires d'Asclépios. 1948.

Kerr, J. M. M., and Moir, J. C.: Operative Obstetrics. Fifth edition. 1949.

Kintner, E. W. (Editor): Trial of Alfons Klein *et al.* (The Hadamar Trial). 1949.

Konopka, G.: Therapeutic Group Work with Children. 1949.

Liechti, A.: Die Röntgendiagnostik der Wirbelsäule. Zweite Auflage. 1948.

May and Worth's Manual of Diseases of the Eye. Tenth edition by Montague L. Hine. 1949.

Newton, W. H.: Recent Advances in Physiology. Seventh edition. 1949.

O'Hara, F. J.: Psychology and the Nurse. 1949.

Pickles, M. M.: Haemolytic Disease of the Newborn. 1949.

Randall, M.: Ward Administration. 1949.

Rivers, T. M. (Editor): Viral and Rickettsial Infections of Man. 1948.

Robertson, W. G. A.: Aids to Forensic Medicine and Toxicology. Twelfth edition edited by J. H. Ryffel. 1949.

Schmideberg, M.: Children in Need. 1948.

Scottish Council for Research in Education: The Trend of Scottish Intelligence. 1949.

Stephenson, M.: Bacterial Metabolism. Third edition. 1949.

Stephenson, W.: Testing School Children. 1949.

Stieglitz, E. J. (Editor): Geriatric Medicine. Second edition. 1949.

Ten Teachers: Diseases of Women. Under the direction of Clifford White. Eighth edition. 1949.

Thornton, H.: Textbook of Meat Inspection. 1949.

Traquair, H. M.: An Introduction to Clinical Perimetry. Sixth edition. 1949.

Van Der Meer, P., and Zeldenrust, J.: Reticulosis and Reticulosarcomatosis. 1948.

Webb, A. M. (Editor): Trial of Wolfgang Zeuss *et al.* (The Natzweiler Trial). 1949.

Woglom, W. H.: Discoverers for Medicine. 1949.

Woodworth, R. S. L.: Contemporary Schools of Psychology. Eighth edition. 1949.

H.M. Forces Appointments

ROYAL NAVY

Surgeon Captain J. F. M. Campbell, K.H.P., has been placed on the Retired List.

Surgeon Commander W. M. Greer has been placed on the Retired List.

Acting Surgeon Lieutenant-Commander A. O'Connor to be Surgeon Lieutenant-Commander.

ROYAL NAVAL VOLUNTEER RESERVE

Surgeon Commander A. S. Bradlaw, V.D.R., has been placed on the Retired List.

Temporary Surgeon Lieutenant D. P. Finnegan has been transferred to List II of the Permanent R.N.V.R., in the rank of Surgeon Lieutenant-Commander.

ARMY

Major-General J. C. A. Dowse, C.B., C.B.E., M.C., K.H.P., late R.A.M.C., having completed four years in the rank, has been retained on the Active List supernumerary to establishment.

Brigadier (Temporary Major-General) T. Menzies, O.B.E., late R.A.M.C., to be Major-General.

Brigadier T. Young, O.B.E., late R.A.M.C., to be Major-General (supernumerary).

Colonel A. J. Beveridge, O.B.E., M.C., late R.A.M.C., to be Brigadier.

Colonel B. J. Daunt, O.B.E., late R.A.M.C., having attained the age for retirement, is retained on the Active List supernumerary to establishment.

Colonel F. C. K. Austin, late R.A.M.C., has retired on retired pay.

Lieutenant-Colonels E. H. Hall, O.B.E., A. Sachs, and G. A. Walmesley, O.B.E., from R.A.M.C., to be Colonels.

ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel C. G. G. Keane, O.B.E., has retired on retired pay, and has been granted the honorary rank of Colonel.

Lieutenant-Colonel J. G. E. Vachell has retired on retired pay.

Lieutenant-Colonel T. J. Moloney has been placed on half-pay on account of disability.

Majors (War Substantive Lieutenant-Colonels) A. M. Pugh and J. D. Cruickshank to be Lieutenant-Colonels.

Majors D. Wright, D.S.O., and G. C. Dansey-Browning to be Lieutenant-Colonels.

Major J. G. Peacock has retired, receiving a gratuity.

Captains A. J. Moss-Blundell, E. M. Ensor, H. M. Macfie, and R. G. McFarlane to be Majors.

Short Service Commission.—The notification regarding Major J. C. Scott in a *Supplement* to the *London Gazette* dated July 22 has been cancelled. Captain R. M. B. Talbot has retired, and has been granted the honorary rank of Major.

REGULAR ARMY RESERVE OF OFFICERS

ROYAL ARMY MEDICAL CORPS

Lieutenant-Colonel K. S. Fitch, O.B.E., I.M.S. Ret., to be Lieutenant-Colonel.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

Colonel W. McK. H. McCullagh, D.S.O., M.C., T.D., has been appointed Honorary Colonel, a new appointment.

Colonel R. Ward, M.C., T.D., having exceeded the age limit, has retired.

Major (Honorary Lieutenant-Colonel) R. Passmore, I.M.S., retired, to be Major, and has been granted the acting rank of Lieutenant-Colonel.

Captains (acting Majors) R. H. Moore and E. N. Owen to be Majors.

Captains D. S. Dick, A. C. Houghton, C. J. Mackinlay, and J. R. D. Williams to be Majors.

Lieutenant F. C. Rodger to be Captain, and has been granted the acting rank of Major.

ROYAL AIR FORCE

Group Captain J. B. Gregor has retired.

Flight Lieutenant C. R. Griffin to be Squadron Leader.

To be Squadron Leaders (temporary): W. Laurence and Mary G. Murphy.

Flight Lieutenant M. Mattinson has relinquished his commission, retaining the rank of Squadron Leader.

Flying Officer J. N. Agate to be Squadron Leader.

ROYAL AIR FORCE VOLUNTEER RESERVE

Squadron Leader W. Laurence has relinquished his commission on appointment to a temporary commission in the R.A.F.

WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

Squadron Leader M. G. Murphy has relinquished her commission on appointment to a temporary commission in the R.A.F.

Flight Lieutenant M. E. G. Sherwell to be Squadron Leader.

INDIAN MEDICAL SERVICE

Lieutenant-Colonels W. Lawie, E. T. N. Taylor, C.I.E., M. P. Atkinson, J. P. J. Little, G. J. Joyce, and W. Fleming have retired.

Major T. C. McG. McD. Morrison has retired and has been granted the honorary rank of Lieutenant-Colonel.

COLONIAL MEDICAL SERVICE

The following [illegible] announced: W. Richmond, M.B., Medical C[illegible] Northern Rhodesia; V. F. Wilkins, M.B., [illegible] Nigeria; N. T. Pease, M.B., D.C.O.G., Medic[illegible], J. K. Hunter, M.B., D.P.H., I. W. Mackeilan, M.B., D.T.M.&H., and W. A. Wilson, M.B., D.T.M.&H., Senior Medical Officers, Uganda; W. A. Glynn, M.R.C.S., Senior Medical Officer, Nyasaland; M. L. McCauley, M.B., Senior Medical Officer, Fiji; D. R. McPherson, M.B., D.M.R.E., D.T.M.&H., Specialist Radiologist, [illegible] Federation of Malaya; J. R. P. Murley, M.R.C[illegible] Nigeria; R. H. Purnell, F.R.C.S., Surgeon [illegible] G. A. Ransome, M.R.C.S., M.R.C.P., Chair[illegible] Edward VII College, Singapore; H. G. H. Waters, B.M., D.T.M.&H., Senior Medical Officer, Kenya; H. M. Johnson, M.B., M.P.H., Medical Officer (Health), Jamaica; E. S. Monteiro, M.R.C.P., Chair of Clinical Medicine, King Edward VII College of Medicine, Singapore; Constance E. Field, M.D., Child Health Specialist, Federation of Malaya.

The Ministry of Health has notified executive councils that a revised Form E.C.1 will come into use from January 1. The form can be used either for a first application to be placed on a doctor's list or for transfer to another doctor when the medical card is missing. It will be available only at doctors' surgeries, executive council offices, and, on the registration of a birth, from the Registrar of Births. Form E.C.1 itself has already been withdrawn from post offices and public libraries to help reduce the risk of inflation of doctors' lists.

Association Notices

REGISTRARS' GROUP

Following the approval of the Council to the formation of a Special Group of Registrars within the framework of the Association, members who are engaged in one or other of the registrar grades are invited to apply for membership of the Group on the form set out below. Further supplies of the application form may be obtained on request.

Applications should be sent to the Secretary.

BRITISH MEDICAL ASSOCIATION

REGISTRARS' GROUP

Form of Application for Membership

To the Secretary,
British Medical Association, B.M.A. House, Tavistock Square, London W.C.1.

I wish to apply for membership of the Registrars' Group of the Association, and understand that the inclusion of any individual member within the Group is at the discretion of the Group Council subject to appeal to the Council of the Association.

I am a member of the Association, and am engaged as a hospital registrar.

Name (in block capitals) .....

Qualifications .....

Date of Qualification .....

Present Appointment (Hospital) .....
(Grade, i.e., whether Junior Registrar, Registrar, or Senior Registrar) .....

Region .....

Signed .....

Address .....

.....

.....

Date .....

Diary of Central Meetings

DECEMBER

29	Thurs.	Committee *re* Prescription of Tuberculosis, 2 p.m.

JANUARY

3	Tues.	Central Ethical Committee, 2 p.m.
5	Thurs.	General Medical Services Committee, 11 a.m.
5	Thurs.	Anaesthetists Group Committee, 2 p.m.
6	Fri.	Library Subcommittee, 11 a.m.
6	Fri.	Science Committee, 2 p.m.
11	Wed.	Spa Practitioners Group Committee, 2 p.m.
11	Wed.	Committee on Patenting in the Medical Field, 2 p.m.
13	Fri.	Tuberculosis Group [illegible]mmittee, 2 p.m.
19	Thurs.	Planning Subcom[illegible]cally 10.30 a.m.
19	Thurs.	Joint Committee [illegible]the B.M.A. and the N.V.M.A., 2 p.m.
26	Thurs.	Committee on Psychiatry and the Law, 2 p.m

Meetings of Branches and Divisions

BOURNEMOUTH DIVISION

At a meeting of the Division held at Boscombe, Bournemouth, on November 25, Dr. G. D. Kersley, Director of the Rheumatism Research Unit, Royal National Hospital for Rheumatic Diseases, Bath, gave an address on "Recent Advances in Connexion with Rheumatism and the Endocrine Glands." In addition to an up-to-date résumé on endocrinology in relation to the rheumatic diseases, including gout, Dr. Kersley referred to the interrelationship of the pituitary adrenal cortex and the collagen diseases. He also discussed the possible control of hereditary hyperuricaemia in gout and recent work on the endocrine glands and the ageing process of bone in osteoarthritis. The address was much appreciated by the Division, and after questions and discussion a vote of thanks was accorded to the lecturer on the proposition of the chairman, Dr. O. C. Carter.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY DECEMBER 31 1949

A QUANTITATIVE APPROACH TO THE STUDY OF TRANSPLANTABLE TUMOURS*

BY

JAMES CRAIGIE, O.B.E., F.R.S.

A period of intense experimental activity was ushered in when it was discovered, at the end of the last century, that some rat and mouse tumours could be transplanted. The discovery was made by Hanau, in Germany, and Moreau, in France, and was confirmed by Loeb and by Jensen. The significance of the introduction of the simple technique of tumour transplantation is that it removed a limitation that had greatly impeded progress, the limitation of the study of a tumour to the animal in which it had arisen. With the means of indefinitely prolonging the life of a tumour available, experimental oncology developed rapidly. Much substantial progress was made, but many hopes remained unfulfilled or were proved to be built on imperfect knowledge and misunderstanding of the available facts. I make reference to these disappointments because I feel that the title of this lecture may perhaps suggest an undue and unwarranted degree of optimism about the amount of useful information that remains to be gathered by transplanting tumours from one animal to another. There are many lessons in the mistakes and disappointments of the early period of study of transplantable tumours which should not be forgotten in the conduct of any branch of cancer research.

A number of important facts emerged from the work of Loeb, Jensen, Borrel, Ehrlich, Apolant, Bashford, Murray, Haaland, Woglom, and others on transplantable tumours. Those which are relevant to my subject may be summarized very briefly.

Serial passage of a tumour is possible only in the species in which it arises, and within the species is usually restricted to animals of the same genetic constitution. The importance of genetic background is due to the fact that transplantation is dependent on the inoculation of living tumour cells which, since they retain genetic characteristics of the original host, are rejected by a genetically alien one. A pedigree of tumour cells remains unbroken throughout the history of transplantation of the tumour. Each successive host provides anew at each transplantation the vascular supply and stroma necessary for continued growth of the tumour. There are of course exceptions to this continuity of cell pedigree. The carcinogenic viruses—namely, the Rous and other avian viruses, the Shope papilloma virus, and others—will produce tumours *de novo* by infection of cells of the host. Again, a transplantable carcinoma may sometimes be replaced by a sarcoma, or a tumour specific for one inbred strain of mice may acquire the ability to grow in other strains. Nevertheless, the essential facts I have mentioned apply to the vast majority of transplantable tumours.

*Imperial Cancer Research Fund Lecture given at the Royal College of Surgeons of England on November 22.

Transplantation Technique

When tumour transplantation is practised merely as an adjunct to other studies which require that the life of a tumour be extended artificially over a series of generations of the host animal, a comparatively simple yet necessarily aseptic technique suffices. Small fragments may be cut from the parent tumour and introduced singly to the desired sites in new hosts by a wide-bore needle or trocar and cannula. Alternatively the tumour may be reduced to an emulsion by mincing with scissors or a special instrument, or pounding it with a pestle in a mortar. Saline or Ringer's solutions are used only when it is necessary to thin the emulsion so that it can be injected to special sites by means of a fine needle. The graft or emulsion is usually placed subcutaneously, but other sites are employed for special purposes.

For the purposes for which they were designed and continue to be used, these simple transplantation techniques have the merit of combining simplicity with adequacy. The tumour cells are transplanted to their new hosts with a minimum of delay, and by using finely divided emulsions similar amounts of tumour cells can be inoculated into each animal of a group.

Various arguments might be advanced to justify an attempt to develop more quantitative methods for special purposes. On the other hand, consideration of the nature of the phenomena involved when a portion of living tumour tissue is transplanted to a new host and the extent to which the rate of growth may vary might lead to the conclusion that transplantable tumours are unlikely to be amenable to quantitative investigation. In view of the many obvious practical difficulties that have to be faced I do not feel justified in speculating on the possible practical applications of non-existent methods. However, it would seem desirable to indicate my main purpose in attempting to approach the study of transplantable tumours from a quantitative viewpoint.

The Quantitative Point of View

Numerous authors, arguing from the existence of a number of carcinogenic viruses, have suggested that many mammalian tumours, if not all, may be of virus aetiology. Failure to demonstrate viruses in tumours which cannot be propagated except by transplantation has been attributed to technical limitations and low transmissibility of the virus

from tumour to normal cells. Many excuses for failure to transmit transplantable tumours with cell-free filtrates, or with preparations from which living cells cannot be excluded with certainty, could be advanced in the light of our present-day knowledge of viruses. All the carcinogenic viruses amenable to conventional techniques have, so to speak, been dragged out into daylight. Yet hypotheses invoking the existence of more elusive ones can be advanced and cannot be disproved experimentally. Thus even the most sceptical must admit that there is a virus problem in relation to cancer, if only in this form.

So far as transplantable tumours are concerned I do not think that any real progress can be made with this problem until an adequate foundation of quantitative data has been laid down. It is necessary to determine, for example, using a representative series of selected tumours, the relationship between the dose of living tumour cells inoculated and the rate at which a tumour is produced at the site of inoculation. It is also urgently necessary to discover to what extent tumour cells can survive under various environmental conditions *in vitro*. I believe that it is only against an adequate background of such knowledge that we can obtain evidence for or against the existence of carcinogenic viruses of low transmissibility to normal cells. The evidence for or against will inevitably emerge without being directly sought for if a sufficiently complete quantitative characterization of tumour transplantation phenomena becomes possible.

However, for the moment it does not seem to be necessary to aim directly along such lines at such a distant objective as complete resolution of the virus problem. Indeed, it would be foolish to do so, for there are many important things that we do not know about the nature of viruses, as current speculations indicate clearly enough (vide Bauer, 1949). There seem to be ways in which quantitative refinements might be usefully introduced into investigations in which transplantable tumours are employed. If quantitative methods can be developed to the point of practical usefulness we may be confident that some information will accumulate which will be relevant to the virus problem in cancer.

Essential Specifications

Let us consider the three essential specifications that must be complied with if adequate quantitative methods are to be realized.

1. The preparations of tumour cells used for inoculation must be sufficiently homogeneous to obviate significant variations in the number of viable cells in different samples of a given volume of any given dilution.

2. The viability of the cells must be maintained unaltered during the period elapsing between the preparation of the inoculum and the completion of inoculation. This is a minimum requirement. It is obvious that opportunities for the development of quantitative techniques will depend on the period of time over which the activity of a suspension remains constant within the limits of error of determination of its activity. Should it be possible to reduce these limits of error to a level at which comparative titrations would be worth while, preliminary titrations would be necessary in order to narrow the range of cell concentrations and limit the number of animals used in the test proper. However, such two-stage tests will remain impracticable until methods of long-term stabilization of cell viability become available.

3. The third essential requirement is a quantitative method of comparing the activities of different tumour preparations.

The first specification presents a relatively simple problem which has been satisfactorily solved for present needs. Some progress has been made in regard to the second, and it has become clear that the viability of tumour cells may be extended for longer periods than might be expected from *a priori* considerations. The third requirement, a method of quantitative estimation, presents extremely difficult problems, which must await the accumulation of enough experimental data, and I would like this opinion to be borne in mind when, a little later on, I indicate one possible approach to the problem.

So far as is possible, I am going to present the progress of attempts to meet these specifications in a chronological manner. As will be appreciated, technical limitations and the experimental findings resulted, several times, in marked deviations from the more logical course that is obvious in retrospect. For example, if equipment for phase microscopy had been available when the work started just two years ago, or when dextrose was adopted as an aid to low-temperature preservation, the course pursued might have been very different.

Tumour Survival in Frozen State

The greater part of the work has been carried out with a mouse sarcoma (C3H, R.T., Ludford) which arose by stromal transformation of a sporadic mammary carcinoma. However, the initial attempts to preserve tumour-cell suspensions in the frozen state were made with a similar sarcoma of the R III strain (Ludford and Barlow, 1945) This tumour grows luxuriantly when inoculated intraperitoneally in R III mice. If transplanted to subcutaneous sites in the heterozygous MRC/H strain, the sarcoma often undergoes regression after considerable development. With a view to genetic selection and purification of the MRC/H strain and study of the regression phenomenon it seemed desirable to establish frozen stocks of the R III sarcoma.

It has of course long been known that tumours will survive in the frozen state. Ehrlich discovered this, but no serious attempt at practical application was made until Breedis and Furth (1938) investigated the matter. These authors demonstrated that various tumours could be preserved in the frozen state on CO_2 ice (−79° C.), for periods up to 400 days. There is an extensive but scattered literature relating to the survival of unicellular and other primitive organisms and also of some mammalian cells on freezing and thawing. The subject, up to 1938, has been reviewed by Luyet and Gehenio (1938). Of more recent work, I would select for special mention the convincing work of Briggs and Jund (1944), who showed by transposed transplanting of dorsal and ventral autoplastic grafts that normal mouse skin will survive sufficiently for grafting purposes when frozen for 1 hour to 24 hours at −78° C. Webster (1944), reporting results with refrigerated human skin grafts, describes takes with grafts refrigerated to −72° C. and with a lyophilized graft—i.e., one dried from the frozen state *in vacuo*.

Nearly all the reported observations on tumour survival in the frozen state relate to portions of tumour preserved *en masse*. One might expect that separated tumour cells exposed to an artificial fluid environment are more likely to be killed by freezing than cells situated in the interior of an intact portion of tumour. This, in fact, was the finding of Mider and Morton (1939). It will be remembered that the first specification I have outlined was as follows: "The preparations of tumour cells used for inoculation must be sufficiently homogeneous to obviate significant variations in the number of viable cells in different samples of a given volume of any given dilution." Obviously, homogenization of tumour preparations must be carried out before distribution to ampoules and preservation by freezing

From the theoretical point of view the possibilities are not encouraging if we consider the probable fate of cells suspended in any of the physiological salt solutions. When a salt solution freezes, ice crystals separate and the concentration of salt in solution increases until the eutectic concentration is reached. This eutectic concentration does not freeze unless the temperature is reduced to a critical level. Consider the figures for the salts present in Ringer's solution: the eutectic mixture of KCl with water is 25% and its freezing-point is −10.7° C.; of NaCl, 30.4%, with a freezing-point of −21.2° C.; of $CaCl_2$, 48%, with a freezing point of −52° C. This means, for example, that if a cell suspension is frozen at a temperature above −20° C. in 34 volumes of 0.85% NaCl, the volume of concentrated salt solution formed will be approximately equal to that of the cells, and its concentration will be 30%. Freezing under such conditions is therefore equivalent to soaking the cells in strong brine.

Preparation of Tumour Suspensions

Preliminary tests carried out with the R III and C3H sarcomas showed that when the tumour mince was diluted with more than a few parts of saline or Ringer's solution marked inactivation occurred on freezing and thawing. Other tests in which C3H sarcoma cells were held at 0° C. in various concentrations of NaCl or held in isotonic concentration for several hours at temperatures above and below −21° C. (the eutectic temperature of NaCl) showed that the rate and degree of inactivation were undesirably high. It seemed reasonable, therefore, to investigate the effect of substituting a non-electrolyte. Comparative tests with dextrose and saline solutions showed that sarcoma suspensions frozen in the former were much more active on thawing than suspensions prepared in the latter from the same lots of tumour mince. The optimum concentration of dextrose appeared to lie between 5 and 10%, but its protective effect was evident at from 3 to 40% if the suspensions were frozen without delay.

At this stage it became apparent that a better method of preparing tumour suspensions was required. A satisfactory solution, in the form of a pressure mincer, has been described (Craigie, 1949a). The later models of this instrument have been made entirely of stainless steel. Each mincer is provided with a set of four sliding-fit plungers provided with uniform longitudinal grooves. The groove sizes are 0.5, 0.25, 0.125, and 0.0625 mm. According to the consistency of the tumour and degree of mincing required, one or two plungers are selected and loaded in the barrel after the tumour tissue has been inserted. A portion of the suspending fluid is placed above the plunger. The plunger is then forced down by means of the screw, and the tissue passes through the plunger grooves into the suspending fluid.

To return to the problems of preserving tumour suspensions in the frozen state, I might mention that Breedis (1942) found that mouse leukaemic cells are inactivated if frozen too quickly in the temperature range of 0 to −15° C. A similar effect could not be demonstrated with the C3H sarcoma. This failure led to attempts to depress the freezing-point of suspensions in dextrose, one of which resulted in a striking demonstration of the survival of the C3H sarcoma under unexpected conditions. This has been reported (Craigie, 1949b), but the essentials are worth quoting.

C3H sarcoma mince was diluted to 1 in 12.5 (*a*) in 10% dextrose and (*b*) in 10% dextrose and 40% glycerol in water. Each suspension was distributed to several ampoules, sealed, frozen, and placed on CO_2 ice. The first test was carried out after the suspensions had been frozen for four days. Immediately after thawing, a portion of each was diluted with nine volumes of Ringer's solution. These dilutions, as well as the 1-in-12.5 concentrations, were injected subcutaneously in 0.1-ml. volumes, with the results shown in Table I.

TABLE I.—*C3H Sarcoma Suspension Frozen in Dilution of 1 in 12.5. 0.1 ml. Injected Subcutaneously after Thawing and Further Dilution*

Diluent	Time Frozen (Days)	Dilution Tested	No. of Tumours	Mean PMG (Days)
10% dextrose	4	1:12·5	6/6	8·0
	4	1:125	5/6	9·8
	253	1:17·5	12/12	4·17
	253	1:70	12/12	8·73
10% dextrose with 40% glycerol	4	1:12·5	6/6	11·0
	4	1:125	5/6	13·6
	253	1:17·5	12/12	4·08
	253	1:70	12/12	7·08

PMG = Period of microscopic growth, i.e., between inoculation and first appearance of tumour.

The preparation containing glycerol and dextrose appeared to be less active than the control. However, this may have been due to imperfectly developed technique and the use of Ringer's solution as a diluting fluid. A further test was undertaken after the preparations had been kept frozen for 253 days (Table I). In this test the dilutions were prepared in a saline–phosphate–cysteine mixture. As pointed out in the previous commentary on this experiment (Craigie, 1949b) the results, interpreted as being due entirely to the survival of tumour cells, indicate that at least 25% of the cells viable in the tumour mince before treatment survived dilution with 10% dextrose and 40% glycerol, freezing, preservation in the frozen state for 253 days, and subsequent thawing. In the light of more adequate data on the activity of freshly prepared C3H sarcoma-cell suspensions, this estimate seems to be confirmed. It is interesting to note that Polge, Smith, and Parkes (1949) have recently reported that glycerol protects spermatozoa against low temperatures. Fowl semen diluted with Ringer's solution showed no significant survival of spermatozoa after vitrification at −79° C. for 20 minutes and rapid thawing. On the other hand, the addition of 40% glycerol before freezing resulted in the resumption of full motility after thawing.

Effect of Dehydration

The preliminary results of the experiment with C3H sarcoma in dextrose and glycerol that I have quoted led to the adoption of drying techniques as a possible aid to the study of tumour survival on freezing, for the question of the role of dehydration by the suspending fluid inevitably arose. If dehydration were a factor, progressive loss of intracellular water at the low temperature of storage might be important. A few tests were carried out in which suspensions frozen in saline and in 5% dextrose were exposed to dehydrating agents *in vacuo* at −79° C. As expected, dehydration was extremely slow and further investigations were transferred from the CO_2 ice-box to the laboratory bench. It was planned to compare the effect of dehydration of tumour suspensions held in the frozen state at temperatures chosen in relation to the eutectic temperatures of Ringer's salts.

It might be noted that among the side-issues encountered during the development of equipment was the appearance of crystalline water-soluble and other organic substances in the water condensate. Back diffusion of pump oil was excluded, and the explanation seems to be that significant amounts of dried material from necrotic portions of tumour

were carried across in a microscopic state of division on the rapid current of water vapour. Tests of dried material obtained at various times during the development of the drying equipment (Craigie, 1949c) were negative, although one positive result was obtained later with C3H sarcoma and others were obtained by Gye, Begg, Mann, and Craigie (1949). On mature consideration of the problems involved it was decided to return to a study of the conditions of survival of activity of tumour suspensions on freezing, because freezing is the first step in freeze-drying. The need for quantitative methods also appeared to be urgent.

Degree of Survival

It had been found that a number of transplantable sarcomas and carcinomas could be preserved as suspensions in dextrose in the frozen state (Craigie, 1949b). In order to find out if primary chemically induced tumours would survive this treatment, groups of C3H mice of different ages were injected subcutaneously with 0.1% benzpyrene in arachis oil. A series of 19 tumours were removed at intervals ranging between 90 and 163 days from the injection and frozen in 5% dextrose in dilutions of 1 in 5 to 1 in 10. These were tested after being kept frozen for periods ranging from 36 to 96 days, and tumours were obtained in 17 of the preserved lots. (One other lot, diluted to 1 in 50 before freezing, failed to survive.)

It is evident from the results of this experiment that the degree of survival of the different tumours varied considerably. Some lots produced tumours at all sites injected, others at only some. The intervals elapsing between injection and appearance of the tumours ranged from 10 to 58 days. This variability in ability to survive freezing was also apparent in records of observations of other tumours. Although sporadic mammary carcinomas survive reasonably well, the best and most consistent survival has been obtained with tumours with a long history of transplantation. Sarcomas seem to be more resistant than carcinomas. Complete failure to survive freezing has been observed so far only with the two benzpyrene tumours mentioned and an undifferentiated tumour derived by Dr. Foulds from a squamous mammary tumour arising near the point of needle entry of intraperitoneal injection of methylcholanthrene.

From data which I shall present later it will be apparent that comparisons of activities of treated tumour preparations on the basis of percentages of tumours induced are of very doubtful validity. It cannot be too strongly emphasized that when suspensions of the C3H sarcoma are reduced by dilution or other means to a level of activity at which tumours fail to develop in 25% or more of the sites inoculated with a 0.1-ml. dose, the estimated order of survival is not more than one cell out of 100,000 or more cells viable in 0.1 ml. of the source tumour. The fallacy of comparing results on the basis of percentage of tumours obtained was not appreciated at first. In fact, until a year ago, attempts to obtain quantitative data on the survival of C3H sarcoma cells in various environments were based on the injection of a series of secondary dilutions with the object of identifying that giving 50% tumours. By way of excuse I might mention that titrations permitting observation or estimation of the 50% end-point are an integral part of modern and statistically acceptable methods used in exact work with pathogenic bacteria, viruses, and substances having an immunological or pharmacological action.

Fortunately, instead of recording the presence and size of tumours at weekly intervals, as is often practised with transplantable tumours, all mice were inspected daily and adequate records were available for analysis from experiments in which two to four dilutions or preparations were compared, not in different animals but at different sites in each member of a group. This is what emerged from an earlier experiment carried out with C3H sarcoma frozen in a dilution of 1 in 2.5 in (*a*) 5% dextrose and (*b*) 5% dextrose with M/150 phosphate buffer for four days. On thawing, dilutions were made in Ringer's solution to which 0.1% cysteine hydrochloride neutralized with phosphate had been added. Starting with the highest dilutions, two dilutions of each preparation were injected subcutaneously in 0.1-ml volumes in four groups of mice. The injections were deposited in the centres of the four abdominal quadrants; thus four comparisons were made in each mouse. When on later analysis the log of the dilution injected was plotted against the mean interval in days which elapsed before the tumour first became visible the picture shown in Fig. 1 was obtained.

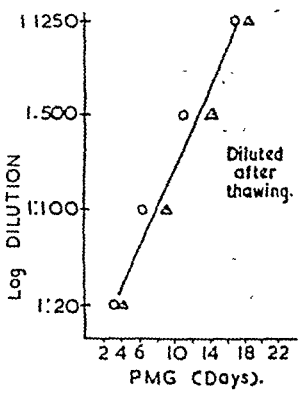


FIG. 1.—C3H sarcoma frozen with 1.5 parts of 5% dextrose (circles) and 5% dextrose and M/150 phosphate buffer (triangles).

This semi-logarithmic relationship suggests that any mean lag period* which may have intervened between inoculation and resumption of cell growth and mitosis was constant for all dilutions in this experiment and that the interval elapsing before the tumours became visible was primarily dependent on the volume of viable cells inoculated and the constancy of the average period between successive mitoses. There is reasonable agreement with the formulae :

$$T = L + \frac{m}{\log 2} \cdot \log \frac{1}{C},$$

$$\text{and } T_2 - T_1 = \frac{m}{\log 2} \cdot \log \frac{C_1}{C_2},$$

where T is the observed PMG value*; L, the lag period. m, the mean interval between successive mitoses; and C the concentration of viable tumour cells inoculated.

Of course, these formulae must not be taken too seriously at present. Things are not as simple as they might suggest, but it is of interest that sometimes they fit experimental results with astonishing accuracy for dilutions ranging from 1 in 50 to 1 in 1,000, and, further, that the value of "m," the mean interval between successive mitoses estimated from pairs of dilutions, has shown a remarkable constancy with unfrozen preparations. The formulae have proved useful in the analysis of experimental data because any statistically significant departures indicate that the simple, almost naive, assumptions involved are invalid on these occasions or that other factors, neglected in the formulae, have operated to a significant extent.

For example, tests checked with these formulae confirmed earlier suspicions about the inadequacy of Ringer's solution as a suspending fluid for tumour cells. However, before proceeding to discuss this, let me mention two rather striking and puzzling features about the development of tumours obtained with tumour-cell suspensions.

*The term "lag period" has been used in a different sense (Craigie, 1949b). Since lag period must be redefined as above, the abbreviation PMG (period of microscopic growth) is suggested to denote the time interval between the end of the lag period and the appearance of visible growth.

Rate of Growth

In the mouse a subcutaneous injection of 0.1 ml. spreads to occupy a visible area more than 1 cm. in diameter. It might therefore be expected that several discrete tumours would appear when multiples of the minimal tumour-inducing dose are given. This is rarely so. In fact, the only striking development of multiple tumours that has been encountered occurred with suspensions frozen with glycerol and dextrose. The second point is this: after a tumour has made its first appearance its growth rate is far from constant. The daily increments in diameter are quite erratic; after remaining practically stationary for several days a definite increase may occur within 24 hours. Following subcutaneous injection of a suspension of a rapidly growing sarcoma, tumours make their first appearance (*a*) as a somewhat irregular subcutaneous mass, or (*b*) as a nodule in the deeper layers of the dermis, or (*c*) as a muscle-plaque. When first recognized the tumours are nearly always 1 to 2 mm. in diameter, or larger. They may appear within six hours. Thus there is at first sight a somewhat puzzling inconsistency between the sudden appearance of tumours and their frequent apparent quiescence for several days after they appear. Further, any attempt to base quantitative estimates on recorded dates of first appearance might seem to be a very questionable proceeding.

However, it must be borne in mind that if these tumours grew at a uniform rate around the time of the first appearance it would be very difficult to be certain on which day they first appeared. Actually there is no difficulty in ascertaining the date of first appearance. (I should add that a very small percentage disappear in 24 or 48 hours, in which event the record is cancelled.) It is evident that a detailed histological investigation of inoculated sites will have to be undertaken. However, adequate trial has shown empirically that data based on the times of first appearance of tumours induced by the inoculation of cell suspensions into 16 sites or more are much more likely to serve as a useful basis for quantitative comparisons than observations which record only the percentages of tumours obtained.

When it was found that dextrose was of value for preserving tumours in the frozen state, tests were undertaken to determine whether it was a desirable fluid for preparing dilutions of fresh or frozen and thawed suspensions for inoculation. It appeared to be somewhat inferior to salt solutions. Further observations were made from time to time, and the results can be summarized briefly. If dilutions are injected immediately they are prepared, physiological saline, saline with phosphate buffer, with or without cysteine, and Ringer's solution are definitely better than 5% dextrose. If there is a delay before injection of frozen and thawed preparations activity is reduced in all these solutions and the higher the dilution the greater the rate of inactivation. The need for a more satisfactory diluting fluid was emphasized by the tantalizing glimpses of tumour cells conforming to the simple and rational quantitative law suggested in Fig. 1. A further retreat was indicated and, in conformity with the principle that first things should come first, attention was concentrated on the survival of fresh unfrozen sarcoma cells.

When a C3H sarcoma is minced and series of dilutions from 1 in 50 to 1 in 1,000 are prepared in Ringer's solution and inoculated immediately, results illustrated by those shown in Fig. 2 are obtained. As in Fig. 1, a semi-logarithmic relationship between dose and mean time of appearance (PMG) of the tumours is strongly suggested. The curves on the left and right of Fig. 2 were obtained with healthy and necrotic tissue from the same tumour. The apparent discrepancy between these curves may be entirely referable to a less adequate dispersion of viable cells from the firmer healthy tissue, since the titration was carried out 10 months ago, using an earlier and less efficient model of pressure mincer. Another point to be noted is that the slope of the lines may be interpreted as a function of the mean interval between successive mitoses. If this is correct it may be calculated that 0.1 ml. of a 1-in-1,000,000 dilution of C3H sarcoma would produce tumours around

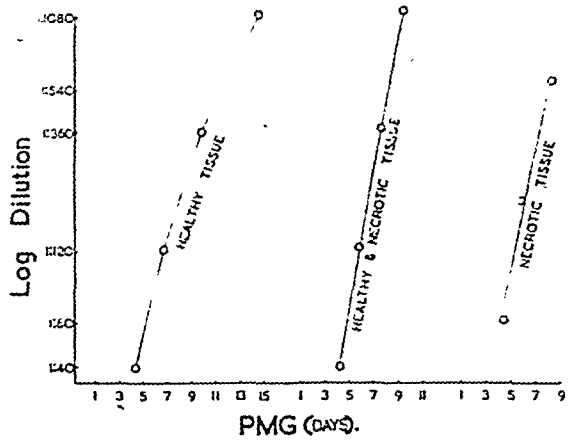


FIG. 2.—C3H sarcoma-cell suspension titrated in Ringer's solution.

21 days after inoculation, provided that the cells remain viable in such high dilutions and the majority of single cells are capable of initiating tumours. However, this expectation cannot be realized.

Beyond a dilution of 1 in 1,000 there is a marked departure from the reasonably consistent relationship of log dose and mean PMG value observed with stronger concentrations. As the dilution is increased the percentage of tumours obtained falls off rapidly and their appearance is delayed. There are two possible interpretations. The minimal number of local concentrations of viable cells required to initiate a tumour in 75% of instances may be very large. Alternatively, Ringer's solution may exert a toxic effect when some unknown protective substance derived from the tumour tissue is diluted beyond an effective concentration.

A Different Approach

Attempts to increase the activity and stability of dilutions beyond 1 in 1,000 by the addition of tumour or muscle extracts or homologous blood and serum were unsuccessful. After reviewing the composition and history of the physiological salt solutions and fluids used to promote the survival of specialized cells it was decided to try a different approach. The differential balance of cations and anions across the limiting membrane of the living cell is such a fundamental fact that it is generally assumed that it must be maintained within reasonable limits if the cell is to survive. However, we must not confuse "survival" with maintenance of metabolic and functional activity. Suppose we could match the inorganic substances present inside the cell, ion for ion, across the cell membrane, would the effects be worth observing? Unfortunately, no complete figures for the composition of the intracellular fluid of tumour cells is available. The average figures for muscle tissue given by Muntwyler and Mautz (1947) have had to be used as a guide.

A preliminary investigation has been made of the survival of C3H sarcoma in fluids containing Na, K, Mg, and P in the same amounts as given in Fig. 3 for the intracellular

phase of muscle. These fluids are isotonic and adjusted to *p*H 7.3. It is hardly necessary to point out that precipitation of magnesium phosphate must be avoided in preparing them. There are obviously many organic substances which might be used to adjust the base balance, but trial has been limited to fluids containing lactate or succinate ions. In some tests the amount of organic anion has been reduced by the inclusion of carbonate, but this creates

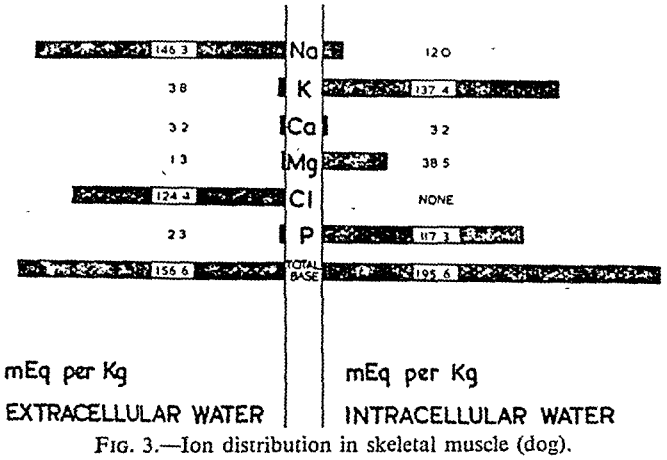


FIG. 3.—Ion distribution in skeletal muscle (dog).

difficulties in maintaining a constant *p*H. The succinate system has yielded more striking results than the lactate system.

Before quoting some experimental results I would like to mention two interesting points about the stability of these fluids. If the succinate system is heated to 48° C. it becomes turbid, and at higher temperatures a precipitate forms. If it is frozen and then thawed quickly it remains clear, but if it is thawed slowly a precipitate is obtained. However, precipitation on slow thawing is prevented if 2.5% or more of dextrose is added before freezing. The limited range of stability of this fluid is referable to the low solubility of magnesium phosphate and the solubility products of the various possible combinations of cations and anions in the mixture. The properties of this fluid, which is intended to resemble intracellular fluid in respect of balance of inorganic ions, invite speculation on the primary mechanisms of cell death on freezing and thawing and on exposure to the minimal lethal temperature.

Artificial Intracellular Fluid

Fig. 4 shows the results of a comparison of the survivals of C3H sarcoma cells in Ringer's solution and artificial intracellular fluid (A.I.C.F.) with succinate. A 1-in-5 suspension of sarcoma cells was prepared in 5% dextrose. This was diluted 1 in 10 and 1 in 50 (i.e., to 1 in 50 and 1 in 250) in (*a*) Ringer's solution and (*b*) A.I.C.F. The diluted suspensions were distributed to ampoules, which were sealed and kept in ice-water. Tests were carried out at two hours and after three, six, and eight days at 0° C. On each occasion each of the suspensions, in 0.1-ml. volumes, was injected subcutaneously in 16 mice. Four ventral sites were used in each mouse, one for each preparation, and the positions of the preparations were rotated to cancel out site variations. The date of first appearance of each tumour obtained is shown in Fig. 4.

The greater degree of survival in the succinate A.I.C.F. is obvious. It is also evident that the survival in the 1-in-250 dilutions is much shorter than that obtained with the 1-in-50 dilutions. It should be noted that both the Ringer and A.I.C F suspensions contained 0.5% dextrose carried over from the primary suspension.

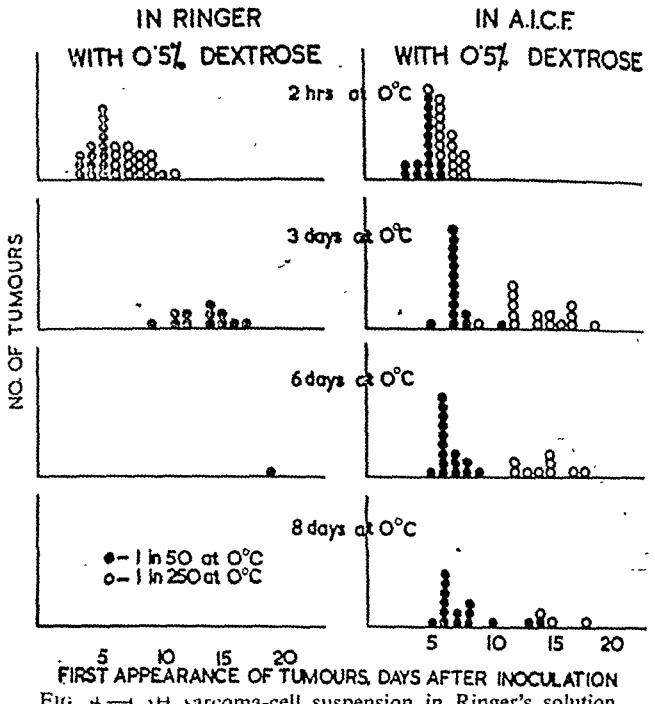


FIG. 4.—C3H sarcoma-cell suspension in Ringer's solution and A.I.C.F.

The superiority of succinate A.I.C.F. as a preserving fluid for sarcoma cells at 0° C. over Ringer's and Tyrode's solutions has been confirmed in a number of experiments. Significant survival up to 15 days has been observed.

TABLE II.—*C3H Sarcoma Cell Suspension Held in Succinate A.I.C.F. at 0° C. in a Dilution of 1 in 63*

Time Held at 0° C. Before Inoculation	No. of Sites Injected	Total No. of Tumours	Date of First Appearance of Tumours (Days After Inoculation)									
			2	3	4	5	6	7	8	9	10	11
3 days	12	12	0	0	9	1	1	0	0	0	0	1
9 ,,	16	16	0	0	4	8	3	1	0	0	0	0
15 ,,	16	16	0	0	0	3	9	3	1	0	0	0

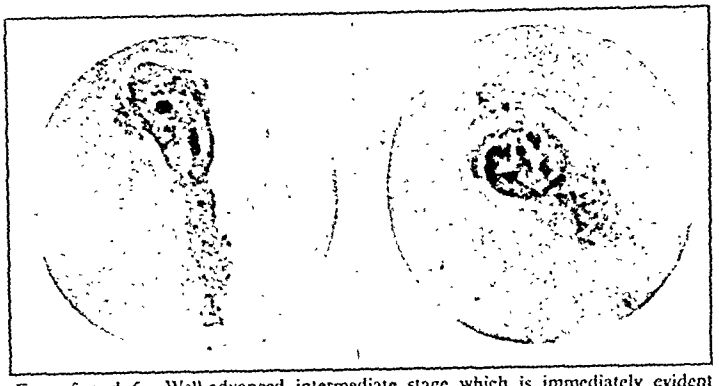
The results shown in Table II are taken from an experiment carried out to obtain data on the influence of Na and Mg ions. Only the results obtained with Na, K, and Mg in the proportions shown in Fig. 3 are shown. A considerable degree of survival (20 to 25%) occurred up to 15 days at 0° C. In this experiment no evidence that Na is essential to survival was obtained, but in the absence of Mg deterioration was rapid.

As a working hypothesis it might be assumed for the present that survival in A.I.C.F. is referable to abolition of the normal ion differential across the cell membrane and consequent depression of certain phases of cell metabolism. It might therefore be suggested that comparative studies of the survival of tumour cells in fluids of this type, in which the concentration of the inorganic ions and the nature of the supplementary organic base are varied, might provide an indirect approach to some cytochemical problems. Before leaving the subject of A.I.C.F. I might remark that if one wished to transmit an extremely labile virus from one cell to another it would be reasonable to guard it from the shocks of change in ionic environment. Some difficult mammalian viruses might be easier to handle in fluid which approximates in inorganic ion balance to the fluid in which they multiply within the cell.

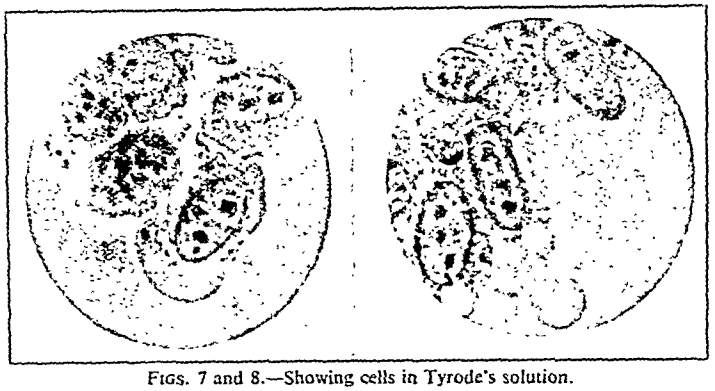
Nuclear and Cytoplasmic Changes

There is one further topic to which reference must be made—namely, the nuclear and cytoplasmic changes

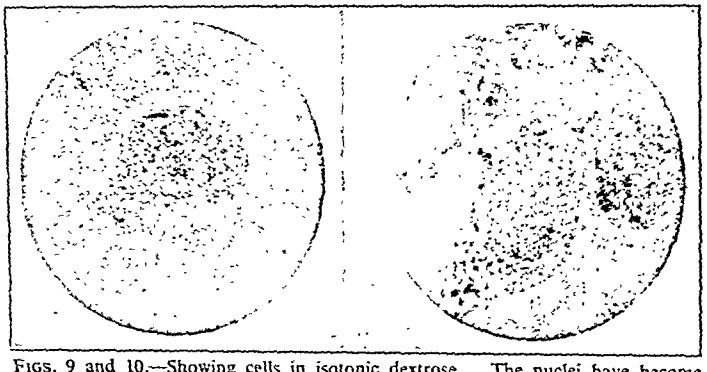
induced in tumour cells by the treatments I have mentioned. It has become essential to have an adequate record of the appearance of the cells in all suspensions tested by mouse inoculation. The routine which has been recently adopted is as follows. A portion of the suspension remaining in the syringe after injections are given is transferred to a cytometer slide. A number of fields are systematically recorded at a low magnification on fine-grain 35-mm. film of fixed contrast (Micro-Neg, Ilford) using phase contrast illumination. The phase-contrast photomicrographs of C3H sarcoma cells here shown will, I hope, make it obvious that detailed cytological studies are required in order to establish criteria of cell death under various conditions. As will be seen, nuclear and cytoplasmic detail is profoundly influenced by the fluid in which the cells are suspended. The photomicrographs were obtained from freshly prepared suspensions made from the same lot of C3H sarcoma mince. The photographic processing was strictly standardized, so that differences in contrast are comparable.



FIGS. 5 and 6.—Well-advanced intermediate stage which is immediately evident when C3H sarcoma cells are suspended in A.I.C.F.



FIGS. 7 and 8.—Showing cells in Tyrode's solution.



FIGS. 9 and 10.—Showing cells in isotonic dextrose. The nuclei have become swollen and are hyaline and vitreous in appearance.

Zollinger (1948) states that the brilliant type of nucleus, with bright nucleoli and double-contoured nuclear membrane, is a reliable sign of cell death, but there are grounds for doubt. When C3H sarcoma cells are suspended in A.I.C.F. a well-advanced intermediate stage is immediately evident (Figs. 5 and 6). Potocytosis (blistering proceeding to liberation of spherules of cytoplasmic fluid) seems to be a normal reaction of these cells to saline, Ringer's and Tyrode's solutions (Figs. 7 and 8, cells in Tyrode's solution), but it is very rarely seen in isotonic A.I.C.F. The effect of dextrose—a rapid disappearance of nucleoli and associated chromatin—has been described briefly (Craigie, 1949b). The nuclei, within a few seconds of contact of the cell with isotonic dextrose, become swollen and are hyaline and vitreous in appearance (Figs. 9 and 10).

Conclusion

In concluding this lecture I would like to emphasize that no certain evidence of the existence of a virus or transmissible agent, other than the Bittner agent, associated with transplantable mouse tumours is likely to emerge in the absence of adequate quantitative knowledge concerning the biomechanics of tumour-cell transplantation and the ability of the cells to survive under various conditions. The initial rather vague belief with which this work started has crystallized into the conviction I have expressed. There is a great deal that we do not know about the response of tumour cells to various artificial environments and the conditions necessary for their survival. There are some odd things about the way in which tumours appear after inoculation of tumour-cell suspensions that suggest the desirability of detailed histological examination of the inoculated sites. I, for one, when examining unfixed and unstained tumour cells under the phase microscope am often uncertain whether they are alive or dead. These problems may be approached in various ways, but they should, I think, be studied together and every endeavour made to place the observations on a quantitative basis so far as the materials permit.

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ANTICOAGULANT THERAPY*

BY

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AND

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There is little disagreement about the value of heparin in the prophylaxis and treatment of thrombosis, and considerable quantities of this expensive drug are now used. The control of the dosage, however, often seems to be unsatisfactory, and we feel that more would be gained by giving larger and fully effective doses to a smaller number of carefully selected cases. The aim should be to maintain the clotting time at about 30 minutes instead of the normal 6–10 minutes, and this seems seldom to be achieved by the usual practice of intravenous injections of 50–75 mg. four-hourly. It is probably more efficacious to give a continuous intravenous drip of heparin in saline (say 100 mg. per pint, or 175 mg. per litre) at a rate of 15 to 25 drops a minute, the rate being adjusted at intervals so as to maintain the desired prolongation of coagulation. But until we have available effective preparations of heparin with an action lasting many hours when given intramuscularly it is unlikely that this drug will be employed for more than a few days at a time, and in the great majority of cases of thrombosis effective treatment for much longer than this is desired.

Dicoumarol

This brings us to consider dicoumarol, which is given orally and is thought to prevent the development or extension of thrombosis by lowering the prothrombin and thereby the coagulability of blood and we propose to confine the rest of the paper to a consideration of this drug, which is now widely used in the treatment of many forms of venous and arterial thrombosis.

Dicoumarol has not proved to be one of those drugs which fade into disuse after a short period of popularity. Rather the reverse is true, and as time has passed and more and more reports have appeared its place in the treatment of thrombosis has become more firmly established. It is true, of course, that many of these reports have dealt with such small numbers of cases that their value has been negligible, but several large and well-controlled series have been published, and these are impressive enough to justify its use. A committee of the American Heart Association has recently reported the results in 800 cases of coronary thrombosis (Wright *et al.*, 1948). Of these, 368 patients admitted on even days received conventional treatment without anticoagulants; and 432 admitted on odd days were given the same conventional treatment with the addition of anticoagulants, mainly dicoumarol. While the mortality rate in the control group was 24%, in the treated group it was 14.9%, and this reduction was accounted for mainly by the much smaller number of deaths after one or more thrombo-embolic complications in the treated group.

More than 25% of the control group developed one or more thrombo-embolic complications, as compared with about 12% in the treated group. Moreover, in only about 6% did these complications occur at a time when the anticoagulant therapy could reasonably be expected to be effective.

*Read in the Section of Medicine at the Annual Meeting of the British Medical Association, Harrogate, 1949.

The incidence of the various thrombo-embolic complications was noted, and it was found that for extensions of the original infarct, for new infarctions, for pulmonary, cerebral, and peripheral emboli, and for venous thromboses the incidence was notably less in the treated group.

These results provide striking confirmation of the effectiveness of dicoumarol as an anticoagulant and are likely to increase its use in coronary thrombosis considerably The results of its use in venous thrombosis are also striking, although frequently the findings have not been so well controlled

Unfortunately two considerations have to be borne in mind before a decision to use it as a routine can be adopted First, no uniform scheme of dosage can be prescribed, because of the marked individual variation in response Secondly, dosage must be carefully controlled, because not infrequently a haemorrhagic tendency, which may be severe, complicates treatment. This is often due to too great lowering of the prothrombin level of the blood Accordingly, dosage in each case must be controlled by regular estimations of plasma prothrombin—ideally every day, certainly not less often than every second day. In our opinion this consideration should limit the use of dicoumarol to patients in hospitals with adequate facilities for these tests. Even in these circumstances haemorrhage —e.g., severe haematuria—will occasionally occur. Without such careful control one of two things is likely to happen: either small ineffective doses will be used or effective doses will lead to some disastrous haemorrhages

On the question of what test should be used to control the dosage there has been much difference of opinion and confusion of thought. It is now possible to clear away some of the misconceptions which have arisen in the past few years and therefore to understand better the significance of the different techniques of so-called "prothrombin estimation." Certainly the lack of knowledge concerning these techniques and the resulting confusion have prevented dicoumarol being used on a much wider scale.

The simplest theory of blood coagulation is that of Morawitz, who describes the process as occurring in two steps: (1) thrombokinase + prothrombin + calcium → thrombin; (2) thrombin + fibrinogen → fibrin. It used to be thought that thrombokinase was derived mainly from disintegrating platelets in shed blood and from tissue cells damaged in a wound; now its main source is believed by some to be a precursor in the plasma (Lozner *et al.*, 1942) According to this theory it converts prothrombin to thrombin in the presence of free calcium ions. When enough thrombin has accumulated the soluble protein fibrinogen is converted to strands of fibrin which contain the red cells and serum in their meshes.

Prothrombin Estimation

(*a*) *Quick's Method.*—This is based on the above theory, and is widely used in America and this country in the control of treatment with dicoumarol. In this method the source of thrombokinase is a suspension of acetone-dried rabbit brain. A similar substance can be obtained from most tissues—e.g., several workers have used an extract of lung, and now human brain is widely employed.

The essential steps in the test are: (1) 4.5 ml. of blood is mixed with 0.5 ml. of oxalate solution. The calcium is thereby removed and development of Stage 1 is prevented. (2) To 0.1 ml. of plasma the same volume of brain-powder suspension is added—the tube being held in a water bath at 37° C. (3) Then 0.1 ml. of calcium solution is added

quickly and the time between this addition and the formation of fibrin is noted, a stopwatch being used.

This is the so-called "prothrombin time." The theoretical justification for regarding this time as an indication of the prothrombin content of the plasma is that when optimal amounts of thrombokinase and calcium are added the only variable in Stage 1 is the amount of prothrombin. Therefore the smaller the amount of prothrombin the longer the time before enough thrombin is formed to bring about Stage 2.

Various workers have found different times with Quick's method in normal plasmas, usually ranging between 15 and 30 seconds. This is because different batches of brain extract vary in potency, and the normal time for each batch must be carefully determined before the test is used in patients. Moreover, the preparation of the powder is tedious.

(*b*) *Russell Viper Venom.*—The foregoing considerations led one of us (H.W.F.) to suggest the use of Russell viper venom as the source of thrombokinase in this test (Fullerton, 1940). Six years earlier Macfarlane and Barnett (1934) had investigated the possibilities of this substance in their search for a local haemostatic effective in haemophilia. They found that the venom was capable of accelerating the clotting of haemophilic blood in dilutions of 1 in 10^{12} or more. It did not clot oxalated or citrated blood unless calcium was added, and it did not clot solutions of fibrinogen. Accordingly, its action was that of a powerful thrombokinase.

As a result of this work Russell viper venom was produced commercially. The best-known preparation is "stypven" (B.W. and Co.): 0.1 mg. of dried venom and 1 ml. of distilled water are supplied in separate ampoules and the solution is made shortly before use. Different batches differ little in potency, and with normal plasmas "prothrombin times" of 18–25 seconds are usually obtained; consequently the careful standardization of each batch is unnecessary. Apart from this difference in the source of thrombokinase the technique is the same as Quick's.

(*c*) *Venom plus Lecithin.*—The venom method was quickly followed by a third. Witts and Hobson (1940) described a series of observations in which they used a mixture of venom solution and ovo-lecithin as the thrombokinase. Normal plasmas gave very short "prothrombin times" of 6–10 seconds, so it is evident that some substance in the ovo-lecithin potentiates the action of the venom. Witts and Hobson, and recently Biggs and Macfarlane (1949), added an alcoholic solution of lecithin to the venom. With this method we have had variable results. We believe that it is much more satisfactory to use water instead of alcohol as the solvent. When ovo-lecithin is dissolved in water containing 0.5% phenol the solution retains its full activity for several months. This solution is added to a freshly opened ampoule of venom in the usual proportion (1 ml. to 0.1 mg. venom). With this modification the method is therefore a very simple one to use. With it we have not observed the marked day-to-day variations recorded by Biggs and Macfarlane during treatment with dicoumarol, nor have we found it insensitive as an indication of the effects of this drug; in fact, definite prolongation of the time has usually been observed on the second or third day of treatment—i.e., at the same time as changes occur when brain powder is used.

The questions then arise: How do these three methods compare? Do they measure the same factor when they are used to control the dosage of dicoumarin, or is one to be preferred to the others when it is used in this way? These questions can be answered satisfactorily if we base our deductions on a theory of coagulation slightly different from that of Morawitz.

Role of the Lipoid Factor

There seems no doubt that a lipoid substance is essential for the coagulation of blood. For example, Macfarlane *et al.* (1941) have shown that oxalated plasma from which the fat has been removed by high-speed centrifuging or by extraction with carbon tetrachloride will not clot after the addition of a fat-free thrombokinase such as viper venom and calcium unless some lipoid material like ovo-lecithin or cream is added as well. We believe that it is not only essential in the first stage of coagulation but that it is a separate and distinct substance—in a way similar to calcium but with the difference that while it is simple to free a plasma of the calcium ions without disturbing the other factors concerned in coagulation it is very difficult to free it entirely of the lipoid substance. Moreover, alterations probably occur in the concentration of this lipoid factor in the plasma of a degree sufficient to alter the coagulability of blood.

If we accept this theory then the following is clear:

(1) That with the venom+lecithin method optimal amounts of thrombokinase and the lipoid activator are added in the test. Therefore this method measures the prothrombin level but will not reveal alterations in coagulability due to variations in the plasma level of the lipoid factor.

(2) Brain extract contains optimal amounts of lipoid factor and variable and suboptimal amounts of thrombokinase. The results of a representative experiment illustrate this point (Table I). All the estimations were made in one sample of plasma. With venom alone an average time of 22.5 seconds was obtained. With the particular batch of brain we were then using the time was 24.1 seconds; with venom+lecithin it was 9.3 seconds. Adding ovo-lecithin to the suspension of the brain powder produced no shortening of the time: this indicates that the brain extract already contained an optimal amount of the lipoid factor. But the addition of venom (0.1 mg. per ml.) to the brain suspension reduced the time to 10.8 seconds, which is not significantly longer than the result with venom+lecithin (9.3 seconds). This indicates that the concentration of thrombokinase in the brain suspension is suboptimal.

TABLE I.—*Prothrombin Time with the Various Methods*

Thrombokinase	"Prothrombin Time"
Venom	22·5 secs.
Brain powder	24·1 "
Venom + Lecithin	9·3 "
Brain powder + Lecithin	25·4 "
Brain powder + Venom	10·8 "
Brain powder + Venom + Lecithin	10·2 "

We believe, therefore, that Quick's test, like the venom+lecithin method, measures prothrombin but not changes in coagulability due to variations in the lipoid factor. Since optimal concentrations of thrombokinase and the lipoid factor can be assured with the venom+lecithin method it would seem preferable to the brain extract method.

(3) When venom alone is used we have a thrombokinase which is free of lipoid factor. Accordingly, by this method the so-called "prothrombin time"—the "accelerated clotting time" is a better term—is an accurate measure of prothrombin only if the concentration of lipoid factor in the plasma is within the normal range. And, conversely, if the prothrombin is constant this test will measure variations in the lipoid factor in the plasma.

The justification for these statements and their practical importance is based on the following experimental work.

Effect of Alimentary Lipaemia

The effect of lipaemia on the coagulability of blood following a high-fat meal was determined by the "accelerated clotting time," venom being used as the thrombokinase.

When the ordinary ward meals are taken there is no significant variation in the accelerated clotting time throughout the day; this conclusion is based on a study of eight patients. But in a group of six patients given a breakfast containing 85 g. fat (bacon and eggs and bread-and-butter) the results were striking (Table II).

TABLE II

Fat Intake 85 g.				
Case	Fasting	During Lipaemia	Difference	Time of Shortest Reading After Meals
1	24·5 sec.	10·9 sec.	13·6 sec.	5 hours
2	22·3 ,,	13·4 ,,	8·6 ,,	4¾ ,,
3	23·0 ,,	12·8 ,,	10·2 ,,	3 ,,
4	24·3 ,,	17·5 ,,	6·8 ,,	2¼ ,,
5	22·3 ,,	14·8 ,,	8·0 ,,	3¼ ,,
6	24·7 ,,	13·1 ,,	11·6 ,,	3¾ ,,
Average ..	23·5 ,,	13·7 ,,	9·8 ,,	

In the second column is shown the accelerated clotting time in seconds with the patients fasting (average 23.5); in the third the shortest accelerated clotting time during the lipaemia (average 13.7 seconds); next the difference between the fasting and the shortest times (average 9.8 seconds); and lastly the time of the shortest reading in hours after the meal. In each patient a much shorter time was found at the height of the lipaemia.

Chart I shows the details in one case. The curve marked V represents the accelerated clotting times with venom as the thrombokinase falling from about 25 seconds fasting to 10.9 seconds at the height of the lipaemia. The line V+L was obtained by using venom and lecithin as the thrombokinase; it runs in a more or less horizontal line. The line R.B. was obtained by using rabbit brain extract; it too runs horizontally.

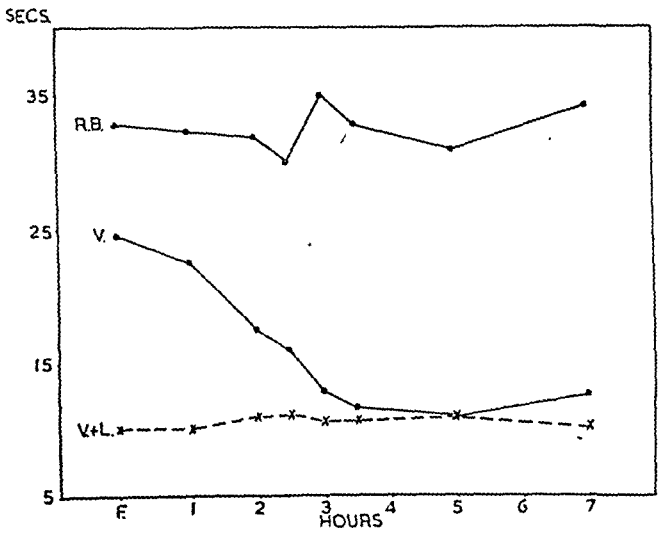


CHART I.—Accelerated clotting times in a patient after a meal containing 85 g. of fat.

Therefore we can conclude that accelerated clotting times determined by the use of venom show marked shortening during lipaemia, a result which is obscured by the use of venom+lecithin and of brain extract, because both these reagents contain an optimal amount of the lipoid factor essential for clotting.

Effect of Alimentary Lipaemia during Treatment with Dicoumarol

The next step was to investigate the effect of alimentary lipaemia in patients in whom dicoumarol treatment had produced a low prothrombin level. This was done in eight patients. The results varied according to the time after the start of dicoumarol treatment when the test was done and also according to the degree to which the prothrombin level had been depressed by the treatment. But it was very clear that the shortening of the accelerated clotting time produced by alimentary lipaemia was much less marked during dicoumarol treatment, and in some cases it was absent altogether.

One example will suffice (Chart II). The patient had received dicoumarol treatment for coronary thrombosis. The accelerated clotting time with venom with the patient fasting was 33.7 seconds. He then took the meal containing 85 g. fat, and at intervals of one hour, two hours, two and a half hours, three hours, and three and three-quarter hours thereafter the times were 32.9, 33.6, 32.6, 31.1, and 33.2 seconds: that is, there was no significant shortening after the meal. The venom+lecithin curve runs horizontally and the rabbit brain extract curve horizontally with some irregularity.

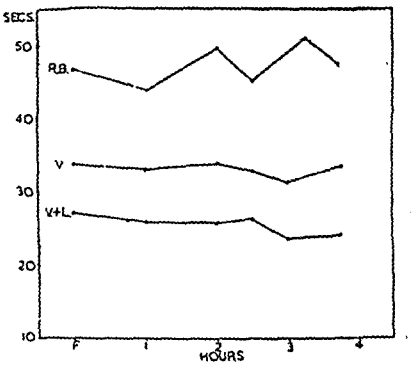


CHART II.—Accelerated clotting times in a patient undergoing dicoumarol treatment and after a meal containing 85 g. of fat.

We believe that the explanation for this striking difference is that when one component in the first stage of coagulation—viz., prothrombin—is depressed by dicoumarol a compensatory increase in another component—the lipoid factor—occurs and so lessens the reduction in coagulability produced by the drug. Alimentary lipaemia produces little or no shortening of the accelerated clotting time when the effects of dicoumarol are marked, because even in the fasting state the plasma level of the lipoid factor may be nearly optimal.

Further evidence in support of this theory is provided by comparing the results obtained by the use of the venom and the venom+lecithin tests throughout the period of dicoumarol treatment. Chart III illustrates the typical findings. Before treatment the accelerated clotting time with venom was 22 seconds; with venom+lecithin 10.5 seconds. Then 1,700 mg. dicoumarol was given over a period of seven days. Increases in the clotting times occurred with both methods, but the difference between the two became less, and it increased again as the effect of the dicoumarol passed off. We believe that this result is due to an increase in the lipoid activator in the plasma, which

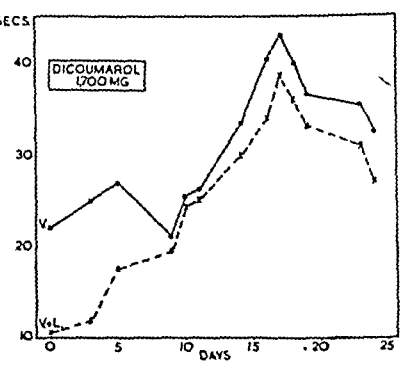


CHART III.—Typical findings when 1,700 mg. of dicoumarol was given for seven days.

after some time reaches nearly an optimal concentration. The effect of this is that the addition of lipoid factor to the venom—as in the venom + lecithin test—produces little or no potentiating action.

On the basis of these results it may be concluded that when dicoumarol is controlled by tests using venom + lecithin or brain extract a reasonably accurate assessment is obtained of the reduction in prothrombin produced by the treatment. But this reduction in prothrombin does not accurately represent the effect of dicoumarol on the coagulability of the blood, since an increase in lipoid factor follows the reduction in prothrombin. The test using venom alone reflects this alteration in coagulability, but does not accurately determine the reduction in prothrombin.

Effect of Haemolysis

One additional point of considerable practical importance is that slight haemolysis produces considerable shortening of the accelerated clotting time when the venom test is used, but not with the venom + lecithin and brain extract tests.

Chart IV illustrates this point. Haemolysed solutions were prepared by adding one volume of packed red cells

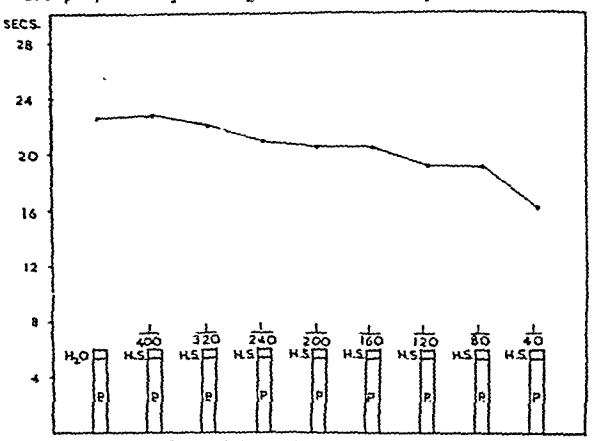


CHART IV.—The effect of haemolysis in shortening the accelerated clotting time with the venom test.

to different volumes of distilled water—one volume of cells in 400 of water, one in 320 of water, one in 240, and so on up to one in 40. One volume of the resulting solutions was then added to nine volumes of plasma, and as a control one volume of water was added to nine volumes of plasma. The accelerated clotting times using venom were then estimated in each, four determinations being made and the average taken. It is clearly seen that as the strength of the haemolysed solution increases the clotting time falls from the control level of 22.6 seconds to 16.1 seconds. We particularly wish to stress that in the range of haemolysed solutions used in this experiment the presence of haemolysis could be recognized macroscopically only at the right-hand end of the scale; in the last plasma slight but definite haemolysis was discernible; in the next a mere trace; in the next it was doubtful; and in the others haemolysis could not be detected.

It is clear, therefore, that when the venom test is used the greatest possible precautions must be taken to avoid haemolysis; the syringe must be dry and must be manipulated gently, and inversion of the tube to ensure mixing of blood and oxalate solution must be done very carefully.

Failure to appreciate the effect of haemolysis has been responsible for some of the confusing results reported. For example, recently there appeared an article by James (1949), who set out to compare the venom and the brain test in patients treated with dicoumarol. He used oxalate crystals instead of solution, and to ensure that they dissolved rapidly in the blood he shook each sample well. Obviously he was producing variable degrees of haemolysis, and accordingly his results with the venom test must be discounted.

The active agent in the red cells which produces this effect is probably the lipoid factor in the cell envelope; hence the effect is not seen with the venom + lecithin and brain extract tests.

Conclusion

Lastly the question arises, Which is the best test to use in the control of dicoumarol treatment? The answer is, I think, that it does not matter greatly which is used: the important points are to understand clearly the significance of the findings and to carry out the test with scrupulous attention to detail.

We use both the venom and the venom + lecithin method in each case. This entails very little extra work and the findings give important information. We aim to maintain the accelerated clotting times at about 25 seconds with the venom + lecithin test and at 35–40 seconds with the venom test—i.e., less prolongation proportionally with the latter. Prolongations of the time with the venom test require a larger dosage of dicoumarol and indicate a lower concentration of prothrombin than comparable prolongations with the venom + lecithin and brain tests. A failure to appreciate this point has caused much confusion and has been responsible for the view that the venom test is not suitable for the control of dicoumarol treatment. We do not express the results as a percentage of normal: this involves making unwarranted assumptions and confuses the picture. Until standard preparations of brain powder are obtainable we can see no theoretical advantage in using them. It would seem that their use is unlikely to give any more valuable information, but a careful comparison of the three tests has not yet been reported.

We give 300 mg of dicoumarol on the first day and 200 mg. on each of the two succeeding days. Further treatment is not given until the effect of these initial doses is seen, and then the dosage depends not only on the degree of prolongation of the accelerated clotting time but also on the speed with which this develops. No definite rules can be given; each case must be considered individually, and some experience is necessary before the desired prolongation can be attained and maintained. On several occasions haematuria has developed: we have used no special treatment for it apart from stopping dicoumarol, and no harm has resulted.

Summary

The value of heparin and dicoumarol is briefly appraised, and the difficulties of calculating accurate dosage are mentioned. Three methods of determining blood coagulability are described. The role of the lipoid factor in blood clotting is discussed from this standpoint. An account is given of experimental work showing the effect on the coagulability of the blood of lipaemia and haemolysis, and important points of technique in tests of blood coagulability are emphasized.

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THE EXCRETION OF CHORIONIC GONADOTROPHIN BY PREGNANT DIABETICS

BY

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The quantitative estimation of chorionic gonadotrophin (C.G.) in the blood and urine of pregnant women has assumed new importance from the diagnostic point of view since the work of White (1937, 1943, 1946, 1947), White *et al.*, (1939), and White and Hunt (1943) on pregnancy complicated by diabetes and of Smith and Smith (1935, 1936, 1941, 1948), Watts and Adair (1943), and Smith, Smith, and Hurwitz (1944) on the toxaemias of pregnancy.

Although the introduction of insulin greatly reduced the maternal mortality rate in pregnant diabetics (Kramer, 1935; Lawrence and Oakley, 1942), the foetal mortality in such cases has not shown a corresponding decline (Herrick and Tillman, 1938; Gilbert and Dunlop, 1949; Barns and Morgans, 1949). It is evident that foetal wastage remains the great obstetrical problem in diabetes, and in some series of cases the foetal loss rate has been over 50%.

Set in this background, therefore, the great reduction in foetal mortality rate obtained by White (1946, 1947), using hormonal therapy in the form of oestrogens and progesterone in a proportion of these cases, is very striking indeed. Estimations were made by White of the serum chorionic gonadotrophin, using corpora lutea in immature female rats as the end-point of the biological assay: urinary pregnanediol was estimated by the Venning (1937) method and subsequently by that of Astwood and Jones (1941). A few assays of oestrogens in the serum were performed by biological methods.

From a study of 300 consecutive cases of pregnancy complicated by diabetes White (1947) found that such patients could be divided into two groups, each carrying an entirely different prognosis.

The first group consisted of 66 patients in whom the C.G. readings throughout pregnancy were classified as normal. In this group the foetal survival rate was 97%, the incidence of premature deliveries was 0, and that of pre-eclampsia 2%. The second group (over 75% of the 300 consecutive cases) was said to suffer from "hormonal imbalance" during pregnancy. The C.G. levels were abnormally high, and this finding was often associated with a low urinary pregnanediol and a low serum oestrogen. Of the patients in this group, 58 received no hormonal therapy and the foetal survival rate was only 47%; premature delivery occurred in 40% and pre-eclampsia in 50%. In addition many of these patients delivered babies which were grossly over weight.

Since this change in C.G. level preceded, often by some weeks, any obstetrical accident it was concluded that a rise in the serum C.G. could be regarded as the harbinger of an impending disaster. A group of 174 cases showing "hormonal imbalance" were treated with oestrogen and in most cases with progesterone as well. In these patients the foetal survival rate rose to 90%; premature delivery occurred in only 5%, pre-eclampsia in 5%, and the majority of patients receiving this treatment delivered babies of normal size.

method of assay of C.G. depending on the increase rostatic weight in immature rats and based on the use of the International Standard preparation of C.G. is described elsewhere (Loraine, 1949). This method was applied to the estimation of C.G. in the urine of normally pregnant women. In these normal cases very high readings, such as 25,000–30,000 i.u. of C.G. per 24 hours, were obtained from the 40th to the 80th day of pregnancy as calculated from the date of the last menstrual period. This was followed by a gradual decline, and from the 100th day until the end of pregnancy the excretion of C.G. was between 4,000 and 10,000 i.u. per 24 hours.

In Fig. 1 is shown the complete range of all the estimations made on the urines of normal pregnant women. The figures are quantitatively similar to those of Jones, Delfs, and Stran (1944), who also used the International Standard but estimated C.G. in the serum. Curves of the same general shape have been obtained by other workers, who expressed their results in arbitrary "rat units" (Cole and Saunders, 1935; Browne and Venning, 1936; Smith and Smith, 1936; Boycott and Rowlands, 1938; Browne, Henry, and Venning, 1939; Siegler, 1939; Rakoff, 1939; Taylor and Scadron, 1939; Venning, 1948). Although the series of cases was a relatively small one, the variations in the amount of C.G excreted per 24 hours during the second and third trimesters of pregnancy were smaller than has been generally supposed, and much of the apparent variation shown by previous workers has probably been due to the use of relatively inaccurate assay methods.

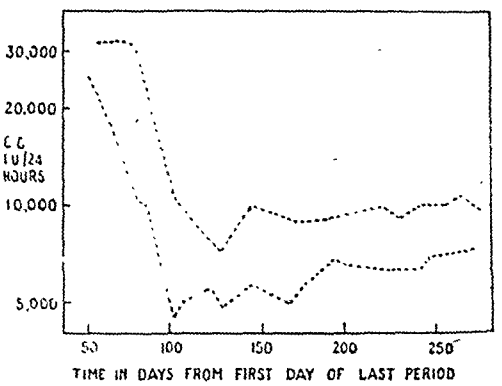


FIG. 1.—Total range of 136 estimates of the excretion of chorionic gonadotrophin in normal pregnancy.

The number of pregnant diabetics studied is as yet too small to assess adequately the effect of stilboestrol in reducing the foetal mortality rate. The present communication is concerned with the excretion of C.G. by diabetic women and the effect of oestrogens on this excretion in normal women and in diabetic women.

Methods.—The method used depends upon the increase in the prostatic weight in immature rats after subcutaneous administration of the urine to the animals. The results of the assay are always expressed in i.u. of C.G. per 24-hour specimen of urine. The technique is described in detail in the previous paper.

Results

The effect of orally administered stilboestrol on the C.G excretion in two normally pregnant women was investigated. Fourteen pregnant diabetics were considered in all, and 11 of these had C.G. estimations made at approximately weekly intervals after diagnosis. Only a few readings were made on the other three patients. Stilboestrol was administered to these diabetics, who after 100 days of gestation consistently showed an excretion of C.G. above the normal level of 10,000 i.u. per 24 hours. Six of the 14 cases were shown to have abnormally high C.G. readings at some stage of their pregnancy, and the findings in these cases are discussed below. In the other eight patients the excretion of C.G. appeared to be normal.

Normal Pregnancy

Case 1.—After two weeks' control period stilboestrol in dosage of 25 mg. a day was started at the 21st week of pregnancy (Fig. 2). The dose was increased to 30 mg. a day at the 23rd week. A sharp fall in the C.G. excretion occurred, the reading climbing back to just below its original level on cessation of the treatment.

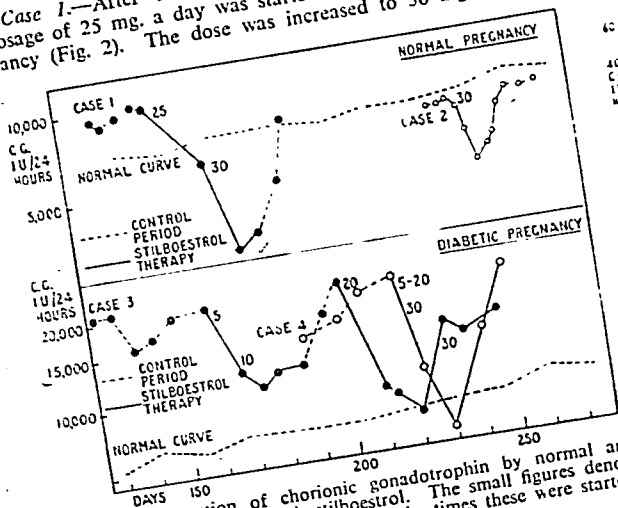


FIG. 2.—Excretion of chorionic gonadotrophin by normal and diabetic women treated with stilboestrol. The small figures denote doses (mg. per day) and are placed at the times these were started. (Cases 1–4).

Case 2.—After one week's control period stilboestrol in dosage of 30 mg. a day was given at the 34th week of pregnancy (Fig. 2). A modest depression of the C.G. level ensued initially, but when the same dose of stilboestrol was continued the excretion of the hormone returned to its original level, this occurring after approximately three weeks' therapy.

Pregnancy in Diabetics

Case 3.—Estimations made from the 17th to 23rd weeks of pregnancy showed an abnormally high excretion of C.G. (Fig. 2). Stilboestrol in relatively small dosage was started at the 23rd week and it produced a significant fall, but the reading rose to slightly above its original level on cessation of the therapy. Subsequent therapy with larger dosage started at the 28th week produced another dramatic fall in the C.G. excretion, but an "escape" phenomenon occurred when the same dosage was maintained. This patient was delivered at the 36th week by caesarean section. The weight of the baby was 6 lb. 7 oz. (2.92 kg.) and of the placenta 1 lb. 10 oz. (0.74 kg.).

Case 4.—An abnormally high C.G. excretion was found when the first estimations were made on this patient at the 27th week of pregnancy (Fig. 2). The dosage of stilboestrol started at the 31st week was rapidly increased by 5 mg. a day to 30 mg. a day and maintained at this level. A rapid initial fall in the C.G. excretion was observed, but this was followed by a rise to approximately the original level after four weeks' treatment. The patient was delivered vaginally at 36 weeks. The birth weight of the foetus was 4 lb. 11 oz. (2.13 kg.) and of the placenta 1 lb. 3 oz. (0.54 kg.).

Case 5.—The very high readings of C.G. obtained in early pregnancy in this patient were originally thought to indicate a delayed peak period, but the excretion remained consistently high well after the 100th day of pregnancy (Fig. 3). Stilboestrol in dosage of 25 mg. a day was started at the 15th week of pregnancy, and this was increased to 30 mg. a day at the 17th week. A fall in the excretion of C.G. occurred, but the titre rose again on cessation of the treatment. Therapy was restarted at the 20th week in dosage of 20 mg. a day, and this was increased to 30 mg. a day at the 25th week. This resulted in a fall in the urinary excretion of C.G. to 10,000 i.u. by the 27th week. After that, however, while the therapy continued the readings climbed steeply. Apparently the patient had become quite refractory to stilboestrol in the dosage given. The oestrogen was stopped at the 30th week of pregnancy and restarted at the 31st week. Some degree of sensitivity appeared to have been re-established as a slight fall in the

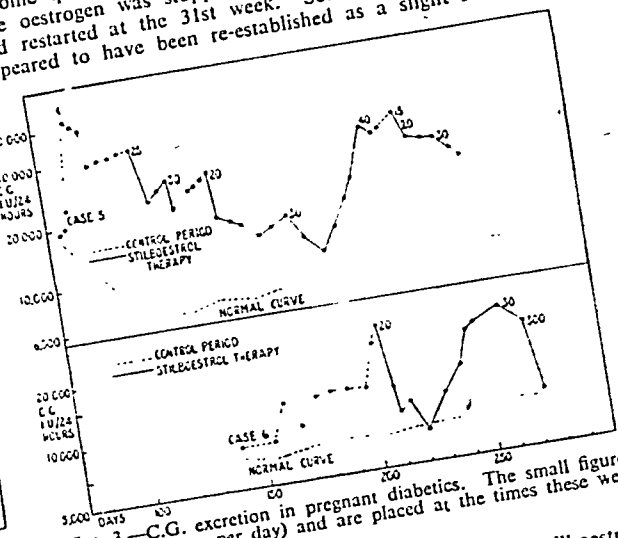


FIG. 3.—C.G. excretion in pregnant diabetics. The small figures denote doses (mg. per day) and are placed at the times these were started. (Cases 5 and 6).

excretion was obtained with a smaller dosage of stilboestrol. This patient was delivered by caesarean section at the 37th week. The weight of the baby was 6 lb. 1¼ oz. (2.76 kg.) and of the placenta 1 lb. 2 oz. (0.51 kg.).

Case 6.—The rise in C.G. excretion in this patient occurred at the 24th week of pregnancy (Fig. 3), readings before that time being comparatively normal. Stilboestrol in dosage of 20 mg. a day was started at the 29th week. A transitory depression of the reading was obtained, but again the "escape" phenomenon was observed. A dose of 300 mg. given to induce labour approximately halved the C.G. reading. This patient was delivered by caesarean section at 41 weeks. The foetus weighed 9 lb. 4 oz. (4.2 kg.) and the placenta 1 lb. 15 oz. (0.88 kg.).

Case 7.—The excretion of C.G. was relatively normal in this patient until the 28th week of pregnancy, when a steep rise occurred (Fig. 4). Stilboestrol in dosage of 20 mg. a day was

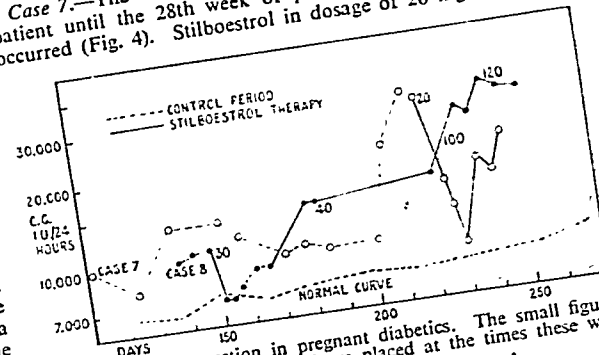


FIG. 4.—C.G. excretion in pregnant diabetics. The small figures denote doses (mg. per day) and are placed at the times these were started. (Cases 7 and 8).

started at the 31st week and produced a dramatic fall in the titre, but the reading climbed rapidly again while the therapy continued. This patient developed a mild degree of pre-eclampsia at 32 weeks. Delivery was by caesarean section at 34 weeks. The baby weighed 6 lb. 3 oz. (2.81 kg.) and the placenta 1 lb. 5 oz. (0.6 kg.).

Case 8.—Stilboestrol was administered to this patient at the 21st week of pregnancy for experimental purposes although the C.G. excretion was not unduly high (Fig. 4). A characteristic depression of the titre occurred, but the excretion rose when the treatment was stopped. No further readings were made until considerably later in pregnancy, when, although the patient was receiving massive doses of oestrogens (up to 120 mg. a day of stilboestrol supplemented by 100 mg. a day of oestradiol

benzoate at the 34th week), the C.G. level remained very high, again indicating refractoriness to the oestrogen. Delivery was by caesarean section at the 36th week of pregnancy. The foetus weighed 9 lb. 15¾ oz. (4.53 kg.) at birth and the placenta 2 lb. (0.9 kg.).

In Fig. 5 the results are shown in those pregnant diabetics in whom the excretion of C.G. was within normal limits.

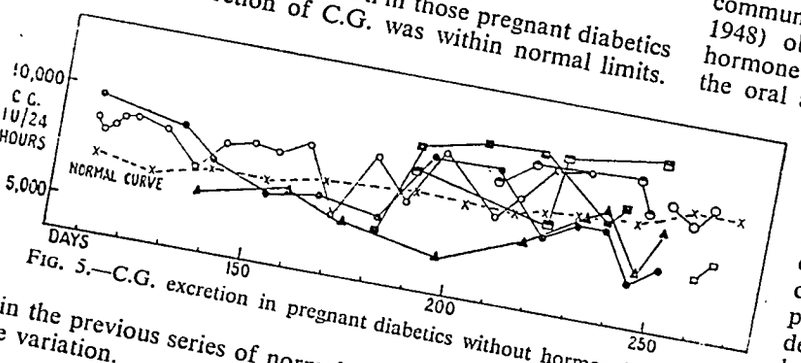


FIG. 5.—C.G. excretion in pregnant diabetics without hormonal therapy.

As in the previous series of normal cases, there is relatively little variation.

Discussion

From the evidence cited above it is apparent that a proportion of pregnant diabetic women (6 out of 14 studied) showed an abnormally high excretion of C.G. as compared with normally pregnant women. In the remaining eight diabetics the readings were perfectly normal (Fig. 5). Hormonal therapy was given only to those patients who after 100 days of gestation consistently showed a C.G. excretion of over 10,000 i.u. in 24 hours.

Stilboestrol when administered orally to normal and diabetic women, even in relatively small dosage, invariably produced a fall in the C.G. excretion. The degree of depression varied from case to case but tended to be more pronounced in early than in late pregnancy. On a constant dosage of the oestrogen, however, this depression was not maintained, the readings tending to climb back to their original level while the patient was still receiving treatment. This may be described as an "escape" phenomenon. At this stage an increase in dosage of stilboestrol temporarily produced another depression of the reading. Certain patients, however, seemed to become completely refractory to stilboestrol even in massive dosage. This is well illustrated by Case 8, which in the later stages of pregnancy was receiving 120 mg. of stilboestrol a day supplemented by oestradiol benzoate without depression of the C.G. level. There is some evidence (see Cases 3 and 5) that by cessation of the treatment for a few days sensitivity to the drug may be re-established and a depression of the C.G. level produced by a dose smaller than that previously employed.

The effect of stilboestrol on the C.G. excretion can therefore be considered to have five phases: (1) initial depression, (2) subsequent escape, (3) further depression by increase in dosage, (4) refractoriness after prolonged treatment, and (5) increased sensitivity to oestrogen on restarting treatment after stopping it for a few days.

The mechanism of action of oestrogens in producing these effects is not clear. Smith and Smith (1948), who first observed the rise in C.G., considered it a "compensatory" one due to lack of oestrogen and progesterone, and showed that oestrogen therapy will correct this.

Studies in the experimental animal have shown that oestrogen may suppress or inhibit the gonadotrophic activity of the anterior pituitary (Meyer and Biddulph, 1941; Meyer, Biddulph, and Finnerty, 1946). In the human, Jones and MacGregor (1936) observed that the injection of oestrogen into women at the menopause resulted in a cessation of the increased gonadotrophic hormone excretion in the urine, and Albright (personal communication to Professor J. H. Gaddum, September, 1948) obtained a depression of the follicle-stimulating hormone titres in the urine of menopausal women by the oral administration of stilboestrol. The rationale of oestrogen therapy in Cushing's syndrome (Dunn, 1938; Rakoff, Cantarow, and Paschkis, 1941) and in acromegaly (Schrire and Sharpey-Schafer, 1938; Goldberg and Lisser, 1942) is in virtue of the inhibitory effect produced on the anterior lobe of the pituitary. There does not appear, however, to be any previously published work on the effect of oestrogens in depressing the excretion of the gonadotrophic hormone elaborated by the placenta during pregnancy.

In the pregnant diabetics studied so far, no definite correlation has been found between the C.G. excretion on the one hand and the weight of the baby and placenta on the other. There also appeared to be no relation between the C.G. excretion and the insulin requirements during pregnancy in these patients.

Summary

Estimates have been made of chorionic gonadotrophin (C.G.) in the urine of 14 pregnant diabetics. The prostatic weight in immature rats was the end-point of the assay.

In 6 of these 14 cases the figures for C.G. excretion obtained were abnormally high when compared with that of normal women.

The administration of oestrogens caused an evanescent fall in the amount of C.G. excreted in the urine per 24 hours.

I am deeply indebted to Professor J. H. Gaddum for his help and guidance. I should like to thank Professor R. J. Kellar and Professor D. M. Dunlop for permission to study the cases under their charge. Thanks are also due to Dr. C. F. Rolland and Dr. G. D. Matthew for advice on the medical and obstetrical aspects of this paper. Finally, I am much indebted to Miss M. Mackay for the excellent technical assistance she has given me in carrying out the experiments.

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VITAMIN A, TOTAL CAROTENOIDS, AND THYMOL TURBIDITY LEVELS IN PLASMA

TEST IN NORMAL SUBJECTS RESIDING IN THE MIDLANDS DURING 1947

BY

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In the course of a previous investigation into the cause of nystagmus in coal-miners we estimated the levels of vitamin A and total carotenoids in the plasma (Campbell and Tonks, 1948). Thymol turbidity tests were performed at the same time on a number of cases in order to exclude the possibility of liver dysfunction as a cause of fluctuation in these constituents. Since the diet of the majority of people had been rather drastically altered by war and post-war conditions in Great Britain, we were obliged to establish "normal" figures for comparison. It was thought that the values obtained might be of practical interest to other investigators engaged on similar problems.

Methods

Estimation of Vitamin A and Total Carotenoids in Plasma

Clausen's application of the Carr–Price colorimeter method was the means used in this procedure. The colour was measured in a Hilger absorptiometer, using filters specially designed for these estimations. The results were read off from standard curves prepared as suggested by Yudkin (1941).

The following reagents were used: (1) ethyl alcohol (redistilled); (2) petroleum ether (boiling point 40–60° C.); (3) chloroform—alcohol-free and dried over anhydrous sodium sulphate; (4) antimony trichloride solution 30% (w/v) in dry chloroform; this is a saturated solution freshly prepared and filtered, and is cleared of any turbidity by the addition of one drop of acetic anhydride.

Preparation of Standard Curves.—Carotenoids:—For this purpose pure β-carotene was obtained from the National Institute for Medical Research. A weighed amount (about 0.25 mg.) was dissolved in 100 ml. of petroleum ether (boiling point 40–60° C.). Aliquots of this solution were made up to 5 ml. with petroleum ether, and readings were taken in the absorptiometer to determine the standard curve for β-carotene, using the special filter combination provided by Hilger for carotenoids. *Vitamin A*:—Capsules of vitamin A alcohol of high purity were very kindly given to us by Roche Products, Ltd., to whom we offer our thanks. The contents of one capsule were weighed and made up to a known volume with chloroform. Under our conditions 1 ml. of this solution contained 27.25 i.u. Each aliquot taken was made up to 0.5 ml. with chloroform, and then 5 ml. of antimony trichloride solution was added. The resulting colour was read off on the absorptiometer within 10 seconds of the addition of the reagent, using the special combination of filters designed by Hilger for the estimation of vitamin A.

Correction Curve for the Blue Colour Produced by β-carotene and Antimony Trichloride.—A solution of a weighed quantity of β-carotene (1.2 mg.) was made up to 100 ml. with chloroform. Aliquots were made up to 0.5 ml., and 5 ml. of antimony trichloride solution was added. The special filter for vitamin A was used in the absorptiometer, and readings were taken within 10 seconds of mixing the reagents.

From these readings graphs were constructed so that results could be ascertained with accuracy and speed.

Two millilitres of plasma was placed in a stoppered centrifuge tube, 2 ml. of ethyl alcohol was added slowly, and the contents thoroughly mixed. To this mixture was added 4 ml. of petroleum ether. The stopper was inserted and the tube shaken at frequent intervals for half an hour. The mixture was then allowed to settle into its two layers or was centrifuged. An aliquot of the top layer (usually 3.6 ml.) was then transferred to an absorption cell, made up to 5 ml. with petroleum ether, and a reading taken using the carotenoid filter. The equivalent value in terms of β-carotene was then obtained from the standard curves and calculated for 100 ml. of plasma.

The petroleum ether solution in the cell was evaporated to dryness by placing the cell in a bath of warm water (40–60° C.). A gentle current of dry air or nitrogen was used to assist evaporation. The residue was dissolved in 0.5 ml. of dry chloroform. With the use of the special vitamin-A filter the cell was placed in the rack of the absorptiometer and 5 ml. of antimony trichloride solution added. The reading was taken within 10 seconds of the addition of the reagent.

The amount of vitamin A present in the cell was calculated by reading the value from the standard curve for vitamin A and subtracting the amount of blue colour due to the reaction of the antimony trichloride with the estimated amount of carotenoids present. From this value the amount in 100 ml. of plasma was calculated.

Thymol Turbidity Test

This test was originally described by Maclagan (1944), but in order to get more precise comparable values the modification of Ley, Lewis, and Davidson (1946) was used, in which a barium sulphate suspension was employed as a standard and the turbidity was measured in the Hilger absorptiometer. The results given in this paper, therefore, are expressed as being equivalent to the corresponding amount in millilitres of barium sulphate suspension.

A slight modification was introduced—namely, the performance of a blank test with 0.1 ml. of plasma and 6 ml. of 0.9% sodium chloride. The reading of this blank test on the standard barium sulphate suspension curve was subtracted from the value obtained in the usual way in the case of lipaemic or slightly haemolysed plasma.

Results

Vitamin A and Total Carotenoids

Our series consisted of 133 normal adults (116 men and 17 women) varying in age from 18 to 73 years. They included housewives, office workers, factory hands of all types, and labourers, and came from all walks of life. They were tested only when free from infection, as Brenner and Roberts (1943) found that feverish colds reduced the blood level of vitamin A by one-half. All specimens of blood were collected at approximately three hours after

a meal, but no attempt was made to obtain fasting specimens, since Kimble (1939) found that ordinary meals do not cause a measurable increase in either vitamin A or carotene within two to six hours.

The figures in our 133 subjects were:

Total carotenoids (μg./100 ml.)	20–199	Mean	80
Vitamin A (i.u./100 ml.)	69–158	,,	108

These figures are strikingly different from those of Haig and Patek (1942) in America, based on 74 measurements on 44 normal people between the ages of 20 and 45:

Total carotenoids (μg./100 ml.)	69–240	Mean	144
Vitamin A (i.u./100 ml.)	109–309	,,	198

It is to be noted that all these subjects were on highly nutritious diets which were estimated to provide at least 13,000 i.u. of vitamin A daily.

Yudkin (1941) in England, in a series of 23 normal adults varying from 18 to 30 years of age, found:

Total carotenoids (μg./100 ml.)	50–240	Mean	120
Vitamin A (i.u./100 ml.)	72–157	,,	113

while Moore and Leitner, during the course of an investigation of the vitamin A requirement of human adults, published in the Medical Research Council Special Report No. 264 (1949), collected a series of 195 cases, comprising 112 subjects with illnesses not expected to affect the vitamin A value, and 83 normal subjects. They give the following figures as their mean values:

	All Cases	Normals
Total carotenoids (μg./100 ml.)	92	100
Vitamin A (i.u./100 ml.)	121	128

Their series was collected from residents in the London area in 1946, while ours, collected during 1947 in the Midlands, are lower than these, both in carotenoids and in vitamin A levels.

The long-continued low intake of fat due to rationing restrictions accounts for the fact that our standards for the average blood level of carotenoids and vitamin A in this country are lower than those considered normal by American standards. This must be borne in mind when assessing the nutritional state of persons suffering from disease.

Variation with Age.—Taking our cases in approximately 10-year age groups, the total carotenoids and vitamin A figures show a slight variation with age (Table I).

Influence of Season.—There was a slight fluctuation in the vitamin A values when grouped in two-monthly periods throughout the year, while the carotenoids showed a steady rise from March/April to November/December (Table III)

TABLE III.—*Seasonal Variation in Total Carotenoid and Vitamin A Content of Blood Plasma*

	Jan. Feb.	Mar. Apr.	May June	July Aug.	Sept. Oct.	Nov. Dec.
Total carotenoids (μg./100 ml.)	82	65	69	75	82	97
Vitamin A (i.u./100 ml.)	110	94	108	113	108	112

Influence of Occupation.—The cases investigated have been grouped into four categories to see if any difference in carotenoid and vitamin A blood levels resulted from hard physical exercise and consequent increased metabolism (Table IV). The "heavy" category of occupation in this series included all those people who do hard manual labour, with the exception of coal-miners. An additional group of 133 miners (divided into "surface" and "underground" workers) shows figures comparable with those for other heavy industries, the levels being particularly low in miners working underground (Table V).

TABLE IV.—*Influence of Occupation on Total Carotenoid and Vitamin A Content of Blood Plasma*

	Occupation			
	Heavy	Medium	Light	Sedentary
Total carotenoids (μg./100 ml.)	76 (37 cases)	79 (34 cases)	88 (32 cases)	81 (30 cases)
Vitamin A (i.u./100 ml.)	102	109	111	113

TABLE V.—*Variation of Total Carotenoid and Vitamin A Content of Blood Plasma in Coal-miners*

	Miners, Surface	Miners, Underground
Total carotenoids (μg./100 ml.)	72 (53 cases)	67 (80 cases)
Vitamin A (i.u./100 ml.)	102	97

Thymol Turbidity Tests

Thymol turbidity tests were performed on 110 normal adults, giving values varying from 0.2 to 1.85 ml. of barium sulphate suspension with a mean value of 0.59. Ley, Lewis, and Davidson (1946), in a series of 105 healthy young men, found a range of 0.16 to 2.19 ml. with a mean value of 0.63. In our series 84% of the cases had a value of less than 0.9 ml. and 93% a value of less than 1.06 ml. of barium sulphate suspension, while less than 3% had values exceeding 1.5 ml.

It is suggested that the introduction of the blank reaction into this estimation has the effect of reducing the upper limit of the normal range, and that the true range should be 0 to 1.5 ml. of barium sulphate suspension.

TABLE I.—*Age Variation in Total Carotenoid and Vitamin A Content of Blood Plasma*

	18–29 Years		30–39 Years		40–49 Years		50–59 Years		60–73 Years	
	Range	Mean	Range	Mean	Range	Mean	Range	Mean	Range	Mean
Total carotenoids (μg./100 ml.)	20–118	70 (26)	42–199	80 (32)	26–137	80 (26)	40–192	90 (24)	23–190	83 (25)
Vitamin A (i.u./100 ml.)	69–148	106 (26)	84–141	112 (32)	82–158	110 (26)	75–145	109 (24)	80–138	105 (25)

Figures in parentheses indicate the number of cases.

Influence of Sex.—Our series is predominantly male, but the results show the same trend as that found by Kimble (1939) and by Moore and Leitner, in that the carotenoids are higher in females than in males, while the vitamin A is slightly lower in females than in males (Table II).

TABLE II.—*Total Carotenoid and Vitamin A Content of Blood Plasma in Males and Females*

		Total Carotenoids (μg./100 ml.)			Vitamin A (i.u./100 ml.)		
		Range	Mean	No. of Cases	Range	Mean	No. of Cases
Our series	Males	20–199	79	116	69–158	109	116
	Females	52–155	90	17	75–155	105	17
Kimble, 1939	Males	50–300	166	30	87–193	127	30
	Females	90–340	187	34	65–165	91	34
M.R.C., 1949	Males		96	46		146	46
	Females		105	37		110	37

Conclusions

Our cases were collected from patients attending eye clinics for minor accidents, for refraction, or for correction of squint. They may be regarded as a cross-section of the

population of the Midlands, having no obvious disease or chance infection. This being so, our results show that the average blood levels of the total carotenoids and vitamin A are lower in this part of England than those found in other countries.

In the Medical Research Council's Special Report on Vitamin A Requirements of Human Adults are assembled all the available data on the normal value for the carotenoid and vitamin A content of human blood plasma in 195 subjects, and Moore and Leitner, who carried out the investigation, point out that some American authors, in calculating the values for vitamin A, do not appear to have made any correction for the blue colour contributed by carotenoids to the antimony trichloride reaction. They also state that some of the earlier workers in America used the U.S.P. unit, which is now held by Hume (1943) to have only 87% of the value of the international unit, and that it is not always possible in retrospect to be certain which unit was really meant.

These facts may account for the apparent discrepancies between American and English results, as well as the fact that the people of Britain do not have access to unlimited fat, and have not acquired the taste for large quantities of green vegetables and salads. In our series 85% of cases have total carotenoid plasma levels lying between 40 and 120 μg./100 ml., and vitamin A plasma levels between 80 and 130 i.u./100 ml., and these are suggested as being reasonable limits for normality under conditions prevailing in the Midland area of England during 1947.

The results of our investigation indicate slightly lower levels for vitamin A, and considerably lower levels in total carotenoids, compared with those found by other English workers (Yudkin, 1941 ; M.R.C., 1949).

Summary

The levels of total carotenoids and vitamin A in the plasma of 133 normal adults were estimated. The investigation took place throughout the year 1947. The normal range was found to be:

Total carotenoids (μg./100 ml.)	20–199	Mean	80
Vitamin A (i.u./100 ml.)	69–158	"	108

but since 85% of our cases gave values of

Total carotenoids (μg./100 ml.)	40–120
Vitamin A (i.u./100 ml.)	80–130

these are suggested as limits of normality under conditions prevailing in the Midland area of England in the year 1947.

Vitamin A levels showed a slight fluctuation during the year, while the level of the total carotenoids rose steadily from March to December.

Those subjects performing hard manual labour showed lower levels of total carotenoids and vitamin A than subjects engaged in light or sedentary occupations.

Thymol turbidity tests were performed on a series of 110 normal adults, and it was found that when allowance is made for a "blank" test the normal range is 0 to 1.5 ml. of barium sulphate suspension, with a mean value of 0.59 ml.

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CHLORAMPHENICOL IN TREATMENT OF INFANTILE GASTRO-ENTERITIS

A PRELIMINARY REPORT

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Bray (1945), Giles and Sangster (1948), and Taylor *et al.* (1949) independently noted a close correlation between the same serologically specific type of *Bact. coli* and epidemic infantile gastro-enteritis. This *Bact. coli* is referred to in this communication as *Bact. coli* B.G.T. (Bray–Giles–Taylor).

During the last ten months one of us (K. B. R.) has studied the appearance of this organism in 86 infants under the age of 1 year admitted to the Birmingham Children's Hospital. Routine rectal swabs were taken on admission and in many cases five days later, and again if a case of gastro-enteritis appeared in the ward. The first isolation of the *Bact. coli* B.G.T. from the stool was noted and the subsequent progress of the infant observed.

Epidemiology

In 17 cases it was possible to calculate the interval between the time of the first isolation of this organism from the faeces and the development of a gastro-intestinal disturbance. In all cases except one this period was less than 22 days; the exception was a case which developed diarrhoea at home 24 days after the first positive rectal swab. The shortest interval was four days, in two cases; the average interval was 11 days. It must be emphasized that in 25 of the 86 cases observed the appearance of the *Bact. coli* B.G.T. in the faeces was followed by no untoward symptoms; these cases were followed for a period of at least one month.

This organism was isolated from the stools of 86 babies under the age of 1 year, 82 of whom acquired the organism after admission to hospital; 25 patients, 10 of whom were less than 4 months old, had no intestinal symptoms, while the remaining 61 developed gastro-intestinal disturbances which varied from a severe gastro-enteritis to a mild diarrhoea with or without vomiting; of these 61 patients 13 died. All of the deaths occurred in infants under the age of 4 months, except in two who were aged 10 months. One of the two, a mongoloid idiot, collapsed and died directly after discharge from hospital, but to what extent the *Bact. coli* was responsible is not known. The other, a case of pink disease, died primarily of respiratory failure associated with an extensive polyneuritis and diaphragmatic palsy, but she also had a severe terminal enteritis. The finding that *Bact. coli* B.G.T. is more commonly associated with severe gastro-enteritis in the younger babies is in agreement with the observations of Taylor *et al.* (1949). That the appearance of *Bact. coli* B.G.T. in the stools is sometimes associated with a fulminating gastro-enteritis is suggested by such typical case histories as the following.

Case 1.—A girl aged 3 months was admitted with pseudo-paralysis due to congenital syphilis, for which she received penicillin. A month after admission *Bact. coli* B.G.T. was isolated from the faeces; 15 days later, after her transfer to another hospital for further antisyphilitic treatment, she developed diarrhoea. Four days after the onset she collapsed and died.

Case 2.—A girl aged 2 months was admitted with cystic fibrosis of the pancreas. Her progress was satisfactory at first, but five days after *Bact. coli* B.G.T. was isolated from the stools she developed a watery diarrhoea and 10 days later she died. Necropsy revealed fibrocystic dystrophy of the pancreas complicated by enterocolitis, bronchopneumonia, adhesive pleurisy, and right otitis media; clinically the severe gastro-enteritis was the cause of her sudden death.

Case 3.—A girl aged 1 month was admitted because she had vomited with increasing severity since birth and had become jaundiced. Diarrhoea was present on admission and the stools contained *Bact. coli* B.G.T. In spite of intravenous alimentation the gastro-enteritis persisted and she died 13 days later.

Case 4.—A girl aged 1 month was admitted with generalized convulsions precipitated by an otitis media. From this she made an uneventful recovery. Four days after admission *Bact. coli* B.G.T. was isolated from the stools; 10 days later gastro-enteritis developed and after nine days she died. Necropsy revealed a haemorrhagic enterocolitis with intestinal pneumatosis and an early peritonitis.

Treatment with Penicillin and Sulphonamides

All cases of severe gastro-enteritis were treated as a routine with intravenous alimentation until the diarrhoea and dehydration were controlled, followed by graded oral feeding. Initially, penicillin and sulphonamides were also administered. These agents helped to control parenteral infections, such as otitis media, but they seemed to have little or no direct effect on the gastro-enteritis. In fact, *Bact. coli* B.G.T. appeared in the stools and gastro-enteritis developed in some cases while the infant was actually receiving both penicillin and sulphonamides. Case 5 is an example.

Case 5.—A girl aged 6 months was admitted with scalded buttocks, and developed gastro-enteritis associated with the isolation of *Bact. coli* B.G.T. while on penicillin, sulphonamides, and streptomycin.

In no case did either penicillin or sulphonamides remove *Bact. coli* B.G.T. from the stools once this organism had made its appearance.

Treatment with Streptomycin

Streptomycin proved to be equally disappointing in its failure to cure gastro-enteritis. Although only 12 cases were treated with this drug, four orally and the remainder by intramuscular injection, the results did not appear to justify further investigation. Our small experience supports that of Holzel *et al.* (1949) and not that of James *et al.* (1948). In Holzel's series 50 of the 79 cases were associated with *Bact. coli* B.G.T., but this organism was not mentioned by James *et al.*, whose cases might therefore have had a different aetiological agent.

In three of our cases which received streptomycin *Bact. coli* B.G.T. was actually isolated from the faeces for the first time while streptomycin was being given for other conditions (miliary tuberculosis, a large infected naevus, and infected scalds of buttocks). Two of these cases developed a severe gastro-enteritis necessitating intravenous alimentation; the third had no more than a mild diarrhoea preceded by a loss of weight. Of the remaining nine patients one died, a second deteriorated whilst on streptomycin, and seven recovered, but only one made a quick recovery. *Bact. coli* B.G.T. disappeared from the stools of only one child while it was receiving streptomycin.

Chloramphenicol

When it was decided to investigate the efficacy of one of the newer antibiotics, chloramphenicol ("chloromycetin") was chosen because all strains tested were sensitive to this drug; they were also sensitive to "aureomycin," but chloramphenicol was used because of its relative stability. Chloramphenicol was first described by Ehrlich *et al.* (1947), who mentioned that *Bact. coli* was sensitive to it. It is felt that the results with this

Table Showing Cases Treated with Chloramphenicol

Case	Sex	Age in Months	Reason for Admission	Days After Admission Before Onset of G.E.	Severity	Duration of Treatment with Chloramphenicol in Days	Complications	I.V. Alimentation	Days Taken to Clear *Bact. coli* B.G.T.	Result	Comments
S.B.	F	6	Scalds of buttocks	13	Severe	13	Infected scalds and G.E.	Yes	5	Died	Died 9 days after disappearance of *Bact. coli* B.G.T. from stools but after diarrhoea had ceased
M.C.	M	2	Otitis media	18	Severe	15	None	Yes	3	Survived	
G.H.	M	8	Pink disease	On readmission	Moderate	10	Sore buttocks	No	3	"	Readmitted with G.E. 10 days after discharge from original admission for nutritional disorder and pink disease
N.H.	M	3	Otitis media	11	Severe	10	Mastoiditis	No	2	"	
J.M.	F	1	Marasmus	12	Severe	11	Sore buttocks	Yes	3	"	Bacteriological relapse 7 days after cessation of chloramphenicol. Had been clear 15 days
R.M.	M	1	Pyloric stenosis	17	Moderate	9	None	No	?	"	
L.P.	F	5	G.E.	On admission	Severe	7	Staphylococcal septicaemia and osteomyelitis	Yes	3	"	Bacteriological relapse 1 day after cessation of chloramphenicol; had been clear for 5 days
W.R.	F	4½	Thrush and parotitis	11	Severe	13	Sore buttocks	Yes	5	"	
D.S.	M	5	G.E.	On readmission	Severe	14	None	Yes	7	"	Readmitted with G.E. 4 days after discharge from original admission for otitis media and asthma
R.S.	M	8	Pink disease	15	Moderate	12	"	No	8	"	
S.S.	F	5	G.E.	On admission	Moderate	13	"	No	3	"	Discharged from another hospital 8 days before admission
D.T.	M	1½	Meningitis	40	Severe	14	Sore buttocks	Yes	4	"	
J.C.	F	3	Prematurity	On readmission	Severe	13	Otitis media	Yes	5	"	(Twin died of G.E. associated with *Bact. coli* B.G.T. and received no chloramphenicol) Readmitted with G.E. 13 days after discharge from original admission for otitis media
J.N.	M	2½	G.E.	On admission	Mild	6	None	No	3	"	Attending a day nursery
J.P.	F	2	Marasmus	27	Mild	9	"	No	Never	"	

J.C., J.N., and J.P. were carriers who had recovered from their initial G.E., but who still excreted *Bact. coli* B.G.T. G.E. = Gastro-enteritis.

antibiotic are hopeful enough to warrant a preliminary communication, although it is realized that the number treated is small. The age groups in the different series are not strictly comparable; moreover, individual cases vary so much in severity that, with small numbers, comparisons are invidious. These results can best be illustrated by the following case histories. (For further details of cases see table.)

Case 5 (already referred to).—In spite of treatment with sulphonamides, penicillin, and streptomycin her gastro-enteritis continued, but within five days of starting chloramphenicol *Bact. coli* B.G.T. disappeared from the stools and the diarrhoea ceased. Unfortunately she died from complications due to burns nine days after the disappearance of *Bact. coli* B.G.T. from the faeces. A post-mortem examination was not made.

Case 6.—A boy aged 5 weeks was admitted with meningococcal meningitis. Nineteen days after the first appearance of *Bact. coli* B.G.T. in the stools, and while receiving both sulphonamides and penicillin, he developed a severe gastro-enteritis. No improvement followed the administration of streptomycin, but within three days of starting chloramphenicol therapy the diarrhoea ceased; a day later *Bact. coli* B.G.T. disappeared from the stools. Further recovery was uneventful.

Case 7.—A boy aged 8 months was admitted with pink disease. Fifteen days after admission he developed gastro-enteritis associated with the isolation of *Bact. coli* B.G.T. from the faeces. With penicillin and sulphonamide therapy there was little improvement, but on chloramphenicol the organism disappeared within eight days, the diarrhoea ceased, and he started to gain weight satisfactorily.

Case 8.—A girl aged 4½ months was admitted with thrush and a left parotitis. The infection subsided with the application of gentian violet locally and penicillin systemically, but 10 days after the isolation of *Bact. coli* B.G.T. from the stools she developed diarrhoea and lost 12 oz. (340 g.) in weight in three days. The enteritis did not respond to symptomatic treatment, but when chloramphenicol was given the diarrhoea ceased; *Bact. coli* B.G.T. disappeared from the stools in five days.

In eight additional cases the administration of chloramphenicol, in conjunction with intravenous alimentation where necessary, and graded feedings, was followed by rapid amelioration of the diarrhoea, and *Bact. coli* B.G.T. could no longer be recovered from the faeces. In three cases there was a bacteriological relapse, although no case had a recurrence of the diarrhoea.

Carriers.—Three children who had had diarrhoea associated with the presence of *Bact. coli* B.G.T. but had recovered from their diarrhoea still excreted this organism in the faeces. They were given chloramphenicol. In one case *Bact. coli* B.G.T. was not recovered from the faeces after the third day of treatment. In a second the organism was not recovered from the fifth day of treatment until four days after the cessation of treatment, when a bacteriological relapse occurred. In the third case this organism was still present in the faeces after nine days' treatment.

Clearance of the Organism.—The average time for chloramphenicol to effect a clearance of *Bact. coli* B.G.T., except in the carriers already mentioned, was four days, within the limits of two and eight days. In two cases the organism reappeared in the faeces one and seven days after cessation of treatment which had lasted seven to eleven days respectively, but the organisms were still sensitive to chloramphenicol. These cases may have been either true relapses or reinfections, as neither had been discharged from the infected ward.

Parenteral Infection.—Six cases were admitted with an otitis media. No *Bact. coli* B.G.T. were isolated from their faeces, but before these infants were fit for discharge they had not only acquired the organism but had also developed gastro-enteritis. It is understandable that, in the absence of recognition of any organism as a potential pathogen in the stools, the diarrhoea might be ascribed to the inflammation in the ears. In point of fact, the sequence of events would seem to have been an initial infection necessitating admission to hospital, followed by a subsequently acquired intestinal infection. An otitis media was present at the onset of the gastro-enteritis in two cases; in three additional cases an otitis media developed from five to ten days after the onset of the gastro-intestinal infection. In no case was *Bact. coli* B.G.T. isolated from the middle ear.

Other Cases

Case 9 is worthy of special mention as it was the only one in which a primary urinary infection with *Bact. coli* B.G.T. was encountered.

Case 9.—A boy aged 7 weeks was admitted with anaemia, mild jaundice which developed during the week before admission, severe urinary-tract infection, and bilateral otitis media. The urine contained many pus cells, casts, and a few red cells, and gave a heavy pure growth of *Bact. coli* B.G.T. There was no evidence of any abnormality in the blood apart from anaemia. Gastro-enteritis developed three days after admission, but *Bact. coli* B.G.T. were not isolated from the faeces. The urinary infection was not influenced by penicillin, given on account of the otitis media, or by sulphonamides, but responded dramatically, as did the enteritis, to chloramphenicol.

Bact. coli B.G.T. may be associated with diarrhoea in older children; the oldest child known to be affected in this hospital was a girl 4 years old, and although, because of her age, she is not included in this series, her case history is of considerable interest. Soon after she had successfully negotiated a Blalock–Taussig operation she developed severe enteritis in which the only potential pathogenic organism that could be isolated was *Bact. coli* B.G.T. After three days' treatment with chloramphenicol, given for seven days, the diarrhoea ceased and *Bact. coli* B.G.T. was no longer isolated from the stools. Before this case occurred no gastro-intestinal disturbance associated with the presence of *Bact. coli* B.G.T. had been discovered in the general wards of this hospital. The enteritis in this 4-year-old girl began 15 days after a baby who was excreting the organism had been transferred to her ward.

Administration of Chloramphenicol

Chloramphenicol is marketed in 250-mg. enteric-coated capsules, but as infants cannot swallow these the drug has been given as a suspension with tragacanth flavoured with syrup of raspberry and chloroform water. The babies have needed little encouragement to take it in spite of its bitter taste. The dosage given has been 75 mg. per lb. (165 mg. per kg.) body weight per day in six or eight divided doses; the initial dose was twice the maintenance dose.

Complications of Chloramphenicol Therapy

The administration of chloramphenicol has occasionally coloured the stools bright green. Four of the cases developed sore buttocks followed by a spreading generalized dermatitis which cleared only after two weeks, but it is not established that chloramphenicol was responsible. Apart from this possible toxic reaction, no untoward effects have been noted; routine blood counts and urine examinations on all cases have shown no abnormalities.

Further Investigation

A trial with chloramphenicol is now being undertaken on all severe cases of infantile gastro-enteritis, irrespective of the presence of the known specific strains of *Bact. coli*. Although *Bact. coli* B.G.T. is often associated with gastro-enteritis there is no proof of its actual pathogenicity, and, moreover, a number of babies who excrete this specific strain of *Bact. coli* never develop symptoms: there may

have been a previous undetected infection with *Bact. coli* B.G.T. in these cases. On the other hand, an appreciable number of children are admitted with primary gastro-enteritis without any identifiable specific strain of *Bact. coli* in their faeces.

Bacteriology

Routine Examination.—Faeces from cases of gastro-enteritis were examined to exclude the presence of protozoa and cultured on Leifson's desoxycholate citrate medium as well as in selenite enrichment medium to exclude the presence of salmonellae and shigellae. A MacConkey plate was also inoculated and at least four representative colonies were tested by slide agglutination, using Bray and Beavan's (1948) technique, which gave very clear-cut and reliable results. All positive colonies were inoculated into sugars, and a culture was sent to Dr. Joan Taylor, who very kindly confirmed their identity.

Sensitivity of the Organism to Chloramphenicol.—*Bact. coli* B.G.T. was inhibited in concentrations of chloramphenicol varying between 2 to 4 μg./ml. Tests were made using representative colonies from each specimen from which *Bact. coli* B.G.T. was isolated whilst the child was on chloramphenicol treatment or if the organism reappeared after treatment had been stopped. No change in sensitivity of the organism was shown in these experiments. This is in agreement with the work of Smadel *et al.* (1949) and Alexander *et al.* (1949). This result is very different from those obtained with streptomycin, when insensitive variants began to appear in nearly all cases within 24 hours of the initiation of treatment. In most of the antibiotic-treated cases specimens of faeces were obtained once or twice daily during treatment and daily for two weeks after its cessation or until the patient was discharged.

Blood Levels.—Estimations of chloramphenicol blood levels were made; the technical difficulties were not fully overcome, but by the use of a modification of the technique described by Fleming and Smith (1947) levels up to 120 μg./ml. were obtained. The test organism used was a strain of *Bact. coli* B.G.T. from Case 5. There seemed to be definite individual variations in the absorption of the drug by the patient, so a relatively high dose of chloramphenicol was employed.

Summary

In Birmingham, as in many other parts of Great Britain where it is sought, *Bact. coli* B.G.T. has been found to be intimately associated with epidemic infantile gastro-enteritis. The enteritis did not respond to the administration of sulphonamides, penicillin, or streptomycin, but the response, both clinically and bacteriologically, to chloramphenicol has been most encouraging.

We would like to express our thanks to the staff of the Children's Hospital, Birmingham, especially to Professor J. M. Smellie for his encouragement and most valuable criticism, to Sister M. Coker for her co-operation, and to Dr. Joan Taylor for much advice and help; also to Dr. C. Giles, who supplied the first antisera used in this investigation.

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PARATYPHOID B FEVER TREATED WITH CHLORAMPHENICOL

BY

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The clinical course of paratyphoid fever is subject to much variation. Compared with typhoid fever it is in general a milder disease, although attacks of paratyphoid fever occur which both in severity and in duration rank with typhoid even of the most severe form. Owing to this variation in degree of clinical illness it is difficult to assess the response to any particular form of treatment. Reports on paratyphoid B fever treated with chloramphenicol (chloromycetin) have been few. Christie (1949) has reported briefly on seven cases, and Kiledjian (1949) and Montuschi (1949) have each reported on a single case. As much investigation remains to be done before the full effect of the drug on paratyphoid fever can be finally assessed, and as it will be some time before an optimum scheme of dosage can be arrived at, the following report may be of interest.

Betweeen June and October, 1949, six clinical cases of moderately severe paratyphoid B fever were admitted to Sheriff Hill Infectious Diseases Hospital. The diagnosis was confirmed in all cases by culture of *Salmonella paratyphi B*. All patients had been ill for some days before admission; treatment with chloramphenicol was started in three cases at the end of the first week, in two cases during the second week, and in the sixth case early in the third week of disease. The dosage and the period of administration of the drug varied, patients who were admitted later in the series receiving larger doses over a longer period. The frequency of administration remained constant, the drug being given at four-hourly intervals.

In addition to the above cases, three apparently healthy faecal carriers of *Salm. paratyphi B* were admitted and treated with chloramphenicol.

Case 1

A girl aged 11 was admitted on June 21, 1949, complaining of malaise, headache, anorexia, diarrhoea, and abdominal pain of five days' duration.

On examination she was obviously toxic, cerebration was dull, her mouth was dry, and her tongue was heavily furred. The abdomen was tumid and slightly tender. The spleen was just palpable. Her temperature was 99.4° F. (37.4° C.) and pulse 120.

Progress and Treatment.—On admission penicillin (200,000 units four-hourly) and sulphasuxidine (8 g. daily) were given and continued for five days. There was no improvement: diarrhoea, abdominal pain and tenderness, pyrexia, and drowsiness persisted. *Salm. paratyphi B* phage type 3A was cultured from faeces. On the tenth day of disease a course of chloramphenicol was

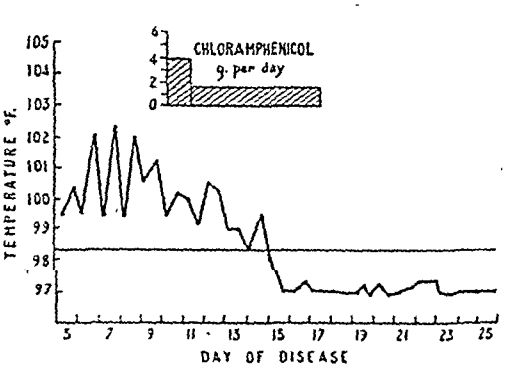


Chart 1.—Case 1.

started (1 g. in first hour, 0.5 g. four-hourly for 24 hours, and then 0.25 g. four-hourly for six days). On the following day the patient's general condition was improved and she was much brighter mentally. Within 48 hours diarrhoea and abdominal tenderness disappeared. Her temperature was normal in four days (Chart 1). There was no clinical relapse, but *Salm. paratyphi B* was excreted in faeces for six weeks after clinical recovery. *In vitro* tests showed that the infecting organisms were sensitive to chloramphenicol even when the temporary carrier state had developed.

Case 2

A woman aged 29 was admitted on July 1, 1949, with a history of the onset of headache, pyrexia, abdominal discomfort, and constipation 14 days previously. At the time of admission her only complaint was that of general weakness and fatigue. On examination her temperature was 100° F. (37.8° C.) and pulse 102. The tongue was furred, and there was evidence of recent wasting. A mitral systolic murmur was heard, but nothing else abnormal was found.

Progress and Treatment.—After admission the patient progressed favourably for three days. *Salm. paratyphi* phage type 3A was isolated from faeces. On the fourth day there was a sudden rise in temperature accompanied by headache, abdominal discomfort, and mild abdominal tenderness. As it was felt that a relapse had taken place, next day she was given chloramphenicol (1 g. in first hour, 0.5 g. four-hourly for 24 hours, and then 0.25 g. four-hourly for five days). Treatment coincided with general improvement. Her temperature did not show a dramatic response, returning to normal on the fourth day of treatment. A convalescent carrier state developed, and this persisted for eight weeks.

Case 3

A boy aged 5 was admitted on July 6, 1949, with a history of lassitude, anorexia, cough, abdominal pain, and diarrhoea.

On examination he was obviously toxic, drowsy, and irrational, and had bouts of noisy delirium. His tongue was heavily furred. The abdomen was distended, and palpation was resented. The spleen was moderately enlarged. A few rose-coloured spots were present on the abdomen. His temperature was 101.8° F. (38.8° C.) and pulse 98.

Progress and Treatment.—On admission on the seventh day of illness a course of chloramphenicol was started (0.25 g. four-hourly for six days). Next day there was a remarkable change in the patient's condition. He was alert and composed, and the abdomen was was less tender. Within 48 hours diarrhoea had ceased. His temperature returned to normal on the third day of treatment (Chart 2), coincident with clinical recovery. *Salm. paratyphi* phage type 3A was cultured from specimens of blood and faeces taken on the day of admission. A convalescent faecal carrier state developed and lasted for nine weeks.

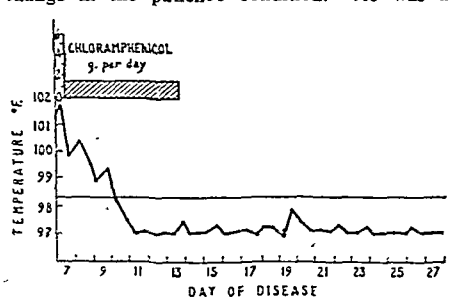


Chart 2.—Case 3.

Case 4

A boy aged 6 was admitted on July 18, 1949, with a history of headache, vomiting, drowsiness alternating with restlessness, and constipation.

On examination his general condition was fair, his tongue was furred, the abdomen was tumid, and a few rose-coloured spots were seen on his abdomen and legs. His temperature was 100.6° F. (38.1° C.) and pulse 112.

Progress and Treatment.—On admission on the seventh day of illness he was put on a course of chloramphenicol (0.5 g. four-hourly for 24 hours and 0.25 g. four-hourly for four days). On the morning following admission several fresh rose-coloured spots were noted. However, his general condition was much improved. The temperature settled to normal in 24 hours. *Salm. paratyphi* phage type 3A was isolated from specimens of blood and faeces taken on the day of admission. The patient continued to excrete the infecting organisms in faeces for seven weeks after termination of treatment.

Case 5

A woman aged 40 was admitted on August 27, 1949, with a history of headache, generalized abdominal pain, constipation, and malaise for six days.

On examination cerebration was dull and speech was sluggish. There was well-marked abdominal tenderness. The tongue was furred. The temperature was 101° F. (38.3° C.) and pulse 92. There were no other abnormal findings.

Progress and Treatment.—On admission the patient was put on a course of penicillin (200,000 units four-hourly) and sulphadimidine (sulphamezathine) (six tablets in the first hour, three four-hourly for 24 hours, and then two four-hourly to a total of 40 g.). Abdominal pain and tenderness, drowsiness, and pyrexia persisted. Faeces were reported as positive for *Salm. paratyphi B* phage type Taunton. Serum gave a positive agglutination with this organism to a titre of 1 in 250 (H). On the 14th day of disease a course of chloramphenicol was begun (2 g. in first hour, 0.5 g. four-hourly for five days, and then 0.25 g. four-hourly for four days—a total of 23 g. in nine days). Within 24 hours there was a change in the patient's condition. She was brighter and said she felt much better. This was in marked contrast to her previous outlook. The abdominal tenderness improved, disappearing after three days. Her temperature was normal on the fourth day (Chart 3). Faeces were still positive for *Salm. paratyphi B* on the fifth day of treatment, but negative thereafter. *In vitro* tests showed that the infecting organism (*Salm. paratyphi B* phage type Taunton) was sensitive to chloramphenicol.

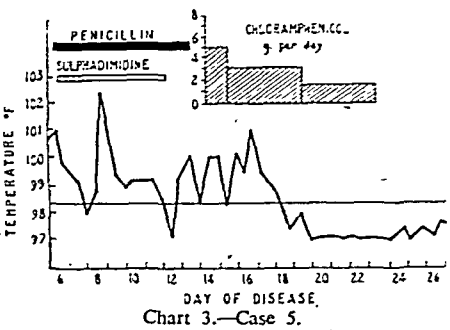


Chart 3.—Case 5.

Case 6

A boy aged 12 was admitted on September 19, 1949, with a history of headache, abdominal pain, pyrexia, and constipation for four days.

On examination the abdomen was moderately distended. The tip of the spleen was palpable. Rose-coloured spots were present on the abdomen and legs; there was slight generalized adenitis; and the tongue was furred. His temperature was 99.8° F. (37.1° C.) and pulse 94.

Progress and Treatment.—Cultures of blood and faeces were positive for *Salm. paratyphi* phage type 3A. Serum gave a positive agglutination with this organism to a titre of 1 in 250 (H). Chloramphenicol was begun on the seventh day of illness (2 g. in first hour, 0.5 g. four-hourly for five days, and then 0.25 g. four-hourly for four days—a total of 23 g. in nine days). There was a dramatic change in the patient's condition. Within 24 hours he no longer complained of headache or abdominal pain. His temperature became normal in 18 hours and, apart from a slight rise (99° F., or 37.2° C.) on the fifth day, remained normal. Faeces were negative for *Salm. paratyphi* on the fifth day. Four subsequent specimens were also negative.

Carriers

During July three apparently healthy faecal carriers of *Salm. paratyphi B* phage type 3A were admitted and treated with chloramphenicol. The dosage given was 16.5 g. in seven days (0.5 g. four-hourly for four days, and then 0.25 g. four-hourly for three days). This dosage had no effect on the carrier state.

Comment

The satisfactory evaluation of the effect of chloramphenicol is not possible in so small a series of cases, especially in the absence of a control group. The rapid improvement and clinical recovery which coincided with treatment, however, were most impressive. This was particularly so in those treated early in the disease.

The dosage of chloramphenicol adequate to produce a well-marked clinical response did not in all cases render the faeces free from the infecting organisms. A similar observation was made in the case of typhoid fever by Woodward *et al.* (1949) and by Rumball and Moore (1949).

In vitro tests showed that both *Salm. paratyphi B* phage type 3A, and *Salm. paratyphi B* phage type Taunton were sensitive to chloramphenicol. It was encouraging to note that in a case in which sensitivity tests were carried out after treatment the organism had not become resistant to chloramphenicol.

It remains to be seen whether larger doses over longer periods will prevent the development of the convalescent carrier state, and whether the drug is effective in treatment of the chronic carrier condition.

I am indebted to Dr. J. Grant, medical superintendent, for his invaluable advice in the preparation of this paper, and to Dr. R. Norton, Director of the M.R.C. Public Health Laboratory, Blakelaw, Newcastle-upon-Tyne, who carried out all bacteriological investigations, including the chloramphenicol sensitivity tests.

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DIFFRACTION METHODS OF MEASURING RED CELL DIAMETERS

THEIR USE IN CLINICAL HAEMATOLOGY*

BY

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An important feature of many anaemias is the alteration which occurs in the size of the average red cell. This alteration is important in diagnosis and in treatment, since, for example, many anaemias associated with increased red cell size have a common aetiological basis and respond to liver therapy.

The recognition of changes in red cell size can be made in various ways. Probably the oldest is direct inspection of blood films, stained or unstained, under the microscope —a method fraught with difficulty even for those accustomed to making blood examinations and with positive danger for those not so accustomed. Actual measurement of the diameters of a large number of cells (Price-Jones, 1929) converts the method into one of considerable accuracy but of such tediousness that it is ruled out except for special research. An entirely different method, depending upon measurements of the packed cell volume and of the red cell count, gives a value for the mean corpuscular volume (Wintrobe, 1946). While the packed red cell volume can be determined with an accuracy of ±1%, the red cell count (and consequently the mean corpuscular volume) is subject to errors of at least ±5%.

An ingenious alternative method for measuring the mean diameter of red cells depends upon the diffraction of light around the edges of the cells in an unstained film in a manner similar to that which occurs in a diffraction grating By suitable optical methods the diffracted light can be projected upon a ground-glass screen as a series of coloured haloes (when ordinary white light is used). The diameter of the haloes varies inversely with the average diameter of the red cells. This method was originally described by Pijper (1919), and a later article (Pijper, 1947) gives a full historical review, including references to modifications by other workers, together with a detailed account of the technique and its application. It is claimed not only that the mean cell diameter can be determined but also that the degree of anisocytosis can be estimated by the degree of spread between the inner violet and outer red rings Brief descriptions of the method will also be found in the standard textbooks on haematology (Whitby and Britton. 1939 ; Todd and Sanford, 1943 ; Wintrobe, 1946). Some workers have cast doubt upon the accuracy of claims made for diffraction methods (e.g., Fullerton *et al.*, 1933), and the general impression derived from a study of the literature is that the method is a useful confirmatory one but not reliable enough to be of use as a single critical method of diagnosis. A modification of the method, using two lamps (Pryce, 1929), has simplicity to commend it, but has been criticized by Pijper on the ground that it does not measure the diameter of the average cell but that of the smallest cell present in any considerable number.

Objects and Methods of Present Investigation

The object of this investigation was to determine whether the simple diffraction method of measuring the mean red cell diameter was of value in addition to or in place of more elaborate studies. Several uses were considered: (1) as a "screening" device in the diagnosis of untreated cases of anaemia ; (2) as a control in the treatment of cases of pernicious anaemia ; and (3) in the investigation of certain other conditions, particularly liver disease.

The study covers a period of almost two years, during which time all new cases showing features of haematological interest in one medical unit were personally investigated, and many followed up at intervals. In addition to conditions usually grouped under the heading of primary blood diseases a considerable number of disorders primarily involving other systems were also dealt with. Excluding a large number of investigations in which the diffraction method was used but for various reasons a complete blood examination was not made, there remain 353 blood examinations on 205 individuals in which haemoglobin, red and white cell counts, haematocrit, absolute values, sedimentation rate, and icterus index were determined in addition to the measurement of the mean cell diameter by the diffraction method and examination of stained films. Table I shows the numbers of each type of disease investigated.

Blood in all cases was withdrawn from a vein into a small bottle containing the appropriate amount of oxalate mixture (Wintrobe. 1946). Haemoglobin was determined by the oxyhaemoglobin method (Bell *et al*, 1945), using a

*The proofs of this article were passed by Dr. Hird shortly before his tragic death on December 11, 1949.

TABLE I.—*Diagnosis of 205 Cases Studied (In Order of Frequency)*

Diagnosis	No.	Diagnosis	No.
Pernicious anaemia	34	Bronchiectasis	4
Hypochromic anaemia	27	Steatorrhoea	
Normal	16	Infectious mononucleosis	
Chronic lymphatic leukaemia	8	Chronic myeloid leukaemia	
Acute hepatitis	9	Cardiac failure	3
Bronchial carcinoma	7	Lymphadenoma	
Lead-poisoning	6	Myelomatosis	
Purpura	5	Haematemesis and melaena	
Chronic renal failure		Gastric carcinoma	
Cirrhosis of liver		Banti's syndrome	
		Myxoedema	
		Miscellaneous	46

"Spekker" photo-electric absorptiometer; red and white cell counts were made with the same pipettes, counting-chamber, and cover-glass throughout the entire period, and packed cell volumes were measured by Wintrobe's method. Mean red cell diameters were measured on a "blood cell tester" of Pijper's (1935) design manufactured by Zeiss, the diameter of the yellow ring being used and the conversion table constructed by Pijper (1947) employed to express the value in μ.

In addition, 100 films were also measured by the two-lamp method, which was chosen on account of the extreme simplicity of the apparatus required. Little difficulty was experienced in obtaining consistent readings in films with pronounced macrocytosis, since in them the haloes were small and correspondingly bright: in some films with microcytosis, on the other hand, the colours, being spread out over a wider area, were lessened in intensity, and it was much more difficult to make measurements that could be duplicated. The Pijper apparatus can be read in an ordinarily illuminated room provided that the ground-glass screen is shielded from direct light, but the two-lamp method requires a practically darkened room and a considerable space in which to carry it out. The use of oxalated blood, the delay (never more than one hour) between the withdrawal of blood and the making of films, and the thickness of the film (provided that haloes could be elicited at all) appeared to have little effect on the reading by either method.

Results

Comparison of Pijper's Instrument with the Two-lamp Method of Merlin Pryce.—One hundred consecutive films were read by the two methods, both yellow and red rings being measured in Pijper's instrument, since the two-lamp method depends upon the position of the latter ring. The average mean cell diameter by the two-lamp method was almost exactly 1 μ less than by Pijper's method using the yellow ring (6.91 compared with 7.89) and 0.5 μ less when the red ring was used. There was moderately good correlation between individual readings.

Relation of Mean Cell Diameter to Mean Corpuscular Volume.—The mean cell diameters for the 353 observations were plotted against the mean corpuscular volumes obtained from the red cell count and the haematocrit (Fig. 1). As will be seen, there is a general correlation between the two values, but the degree of scatter is disappointingly wide—e.g., a mean cell diameter of 7.5 μ by the diffraction method was obtained with bloods in which the mean corpuscular volume varied between 58 and 98 c.μ (with an isolated figure of 116). Part of this error is likely to be due to the error in determining the red count, but the discrepancies are greater than can be explained solely on this basis. As a method of estimating macrocytosis (in the sense of increased corpuscular volume), therefore, the mean cell diameter as determined by diffraction methods must be considered unreliable except in the extreme upper range (>8.5 μ), being subject to errors of both commission and omission, while in assessing microcytosis it seems to be valueless, although, unfortunately, no cases showing microspherocytes were encountered in this series.

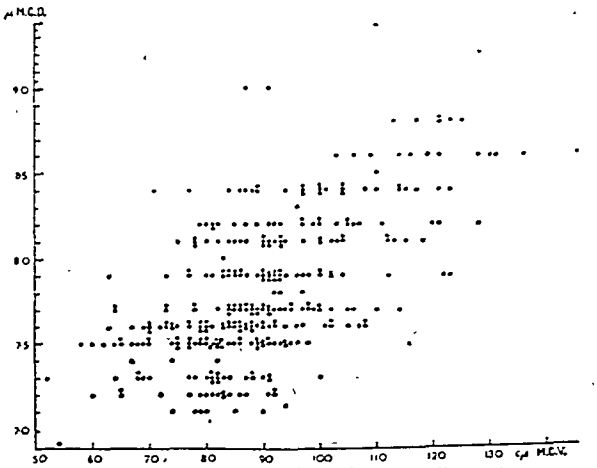


FIG. 1.—Mean cell diameters as determined by Pijper's instrument plotted against mean corpuscular volumes (353 observations).

Use as a Screening Examination in the Investigation of Untreated Cases of Anaemia.—Here the principal, if not the sole, interest centres upon cases showing a high mean cell diameter. Taking the figure of 8 μ as a dividing-line, there were 108 examinations in which a higher value was obtained. Fifty-five occurred in patients with pernicious anaemia or steatorrhoea (including some under treatment), 23 in liver disease, and 30 in miscellaneous conditions. No normal subject was found to have a mean cell diameter greater than 8 μ. There were 11 individuals in whom the value was higher than 8.5 μ, and 9 of these were patients with pernicious anaemia or steatorrhoea, untreated or in relapse. It is of interest that 18 cases of pernicious anaemia or steatorrhoea seen before treatment or in a state of relapse all showed a mean cell diameter of more than 8 μ. In some of these the anaemia was not severe (in one case which presented with subacute combined degeneration of the cord the haemoglobin was 13.9 g. %). It seems improbable, therefore, that an untreated case of pernicious anaemia will be missed by diffraction methods of estimating the mean cell diameter, but the exact diagnosis and the distinction from other causes of a high cell diameter depend of course upon fuller blood examination. Fig. 2 shows the distribution of conditions showing a mean cell diameter greater than 8 μ at the initial examination (excluding patients with pernicious anaemia first seen while under treatment).

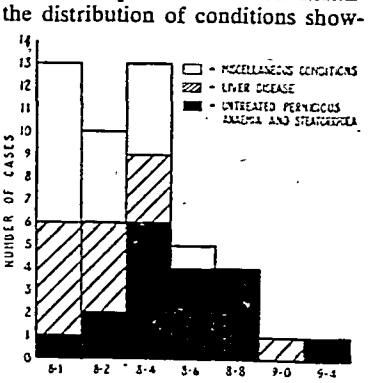


FIG. 2.—Distribution of cases (other than pernicious anaemia under treatment), showing a mean cell diameter greater than 8 μ. The variations in the scale for the mean cell diameter are due to the effect of the conversion table, which does not include certain intermediate values.

Use in Control of Treatment in Pernicious Anaemia.—Fig. 3 (average of 8 cases) shows the return to normal of mean corpuscular volume and mean cell diameter under specific therapy. The fall in mean cell diameter roughly

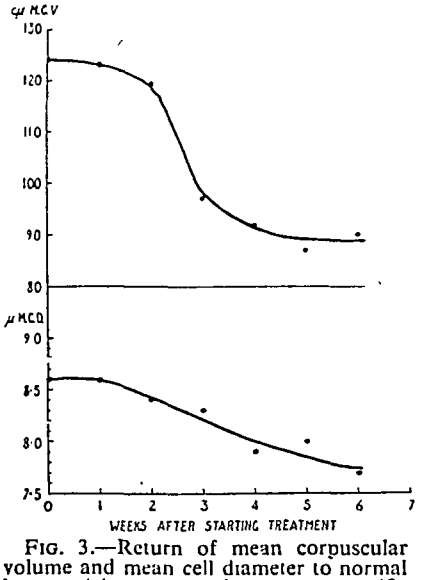


FIG. 3.—Return of mean corpuscular volume and mean cell diameter to normal in pernicious anaemia under specific therapy (average for eight cases).

parallels the decrease in macrocytosis but takes somewhat longer to return to normal levels. Of 25 cases of pernicious anaemia or steatorrhoea followed up as out-patients and about which sufficient data have accumulated, 17 have consistently displayed a mean cell diameter of less than 8 μ, and of these only one has been regarded as not being satisfactorily controlled by treatment. This patient, suffering from steatorrhoea, has shown a haemoglobin of around 10–12 g. % over long periods with, usually, a hypochromic picture, which has responded poorly to oral iron and not at all to increased dosage of liver or to administration of folic acid. Five patients have shown a mean cell diameter of more than 8 μ on one or two occasions, while symptomless and with otherwise normal blood findings. Three have shown a mean cell diameter fairly consistently above 8 μ. One was a woman of 68 years with a severe uterine prolapse for which no radical treatment was possible and which was associated with recurrent cystitis. Despite heavy dosage of liver preparations, haemoglobin averaged 10–11 g. % and macrocytosis persisted. Two other patients, both male, have enjoyed excellent health, with no neurological complications, and shown normal haemoglobin values, but have had persistent macrocytosis (confirmed by mean corpuscular volume determination) despite increases in dosage of liver. It can probably be said that most properly treated patients with pernicious anaemia will show a mean cell diameter of less than 8 μ; while a value higher than this should suggest the need for further investigation but is not by itself necessarily an indication of inadequate treatment.

Use in Other Conditions Showing a High Mean Cell Diameter.—These included a wide variety of diseases (Table II), but the most notable group was that of diseases involving the liver as shown in Table III. It is of interest that in only two of these 18 cases was the mean corpuscular volume greater than 100 c.μ. One case with cirrhosis and one with Banti's syndrome showed a persistently high cell diameter despite the presence of a severe hypochromic microcytic anaemia resulting from oesophageal bleeding.

The degree of spreading of the haloes was determined by measuring the diameters of the red and violet rings in 14 films from patients with liver disease and 12 from patients with pernicious anaemia in relapse, in all of which the mean diameter was greater than 8 μ. The results shown in Table IV, demonstrate no appreciable difference in the degree of anisocytosis in the two conditions. This finding is not in accord with the results of inspection of the films. The red cells in liver disease showed anisocytosis little greater than normal, certainly nothing like that seen in pernicious anaemia, nor was there greater rouleaux formation than normal in the thin parts of the film which were used in the diffraction method. It seems that diffraction methods by themselves are unable to differentiate between the macrocytosis of pernicious anaemia and that of liver disease, and the claim that separation of the rings in the halo represents anisocytosis seems debatable. It is hoped to make this macrocytosis of liver disease the subject of a further study

TABLE II.—*Diagnosis in All Cases Showing a Mean Cell Diameter Greater than 8 μ on One or More Occasions*

Condition	No.	Condition	No.
Liver disease	13	Cardiac failure Chronic lymphatic leukaemia Dermatomyositis Hypochromic microcytic anaemia Lead-poisoning Lympho-epithelioma Refractory anaemia	1
Carcinoma of colon Chronic renal failure Lymphadenoma Myeloma ..	2		
Aplastic anaemia Bronchial carcinoma ..	1		

TABLE III.—*Mean Cell Diameters in Cases of Liver Disease (Initial Findings in Each)*

Condition	No. of Cases, with M.C.D.		Total
	>8 μ	<8 μ	
Acute hepatitis	7	2	9
Cirrhosis	4	1	5
Banti's syndrome	1	2	3
Obstructive jaundice	1	—	1
Total	13	5	18

TABLE IV.—*Mean Cell Diameter and Degree of Variation in Liver Disease and Pernicious Anaemia*

Condition	M.C.D. (μ)	Range (μ)
Liver disease	8·38	7·80–9·09 (−0·58 to +0·71)
Pernicious anaemia	8·56	8·00–9·33 (−0·56 to +0·77)

Conclusions

The measurement of the mean red cell diameter by diffraction methods, as an alternative to the determination of the mean corpuscular volume, cannot be recommended, since the relationship between the two is not close enough.

The finding of a mean cell diameter greater than 8 μ by Pijper's instrument (using the yellow ring) will lead to detection of the great majority of cases of pernicious anaemia, either untreated or in relapse, but a number of other haematological conditions will also be included, of which the most strikingly consistent group is that associated with liver disease.

In the control of treatment of pernicious anaemia the presence of a normal mean cell diameter (<8 μ) suggests that treatment is reasonably adequate, but the satisfactory response to treatment of the majority of patients in this small series makes this difficult to assess. On the other hand, the finding of a mean cell diameter greater than 8 μ, even repeatedly, does not necessarily imply inadequate therapy.

Some doubt is cast upon the ability of the method to estimate the degree of anisocytosis.

Summary

The use of diffraction methods of measuring mean red cell diameters is described and their value in routine blood examination discussed. They are of value as a "screening" examination, particularly in detecting untreated cases of pernicious anaemia, but fuller blood examination is required for an exact diagnosis. In following up cases of pernicious anaemia under treatment these methods are of value, in conjunction with other blood findings, but moderately abnormal findings do not always imply an unsatisfactory clinical or haematological state. Liver disease

is often associated with a high mean cell diameter as shown by these methods, a result which may not be arrived at by other means.

My thanks are due to Professor J. W. McNee for advice and criticism in the preparation of this paper.

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TWO SUCCESSFUL RESECTIONS FOR CARCINOMA OF PANCREAS

BY

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Two cases of carcinoma of the pancreas in which a resection operation was carried out successfully are described below. The first patient recovered from the operation, gaining 5 lb. (2.27 kg.) in weight, but died five months later from recurrences in the abdomen. The second patient was alive and well when seen 12 months after her operation; she had put on weight, and was able to do her work as a housewife. Up to that date there was no sign of recurrence. The procedure included excision of the caecum, ascending colon, and right transverse colon.

So far no record of a colon excision with the pancreas has been traced in the literature. Hunt (1941) exhaustively reviews all cases of carcinoma of the ampulla of Vater up to that date, and includes synoptic tables showing the type of operation and the results achieved. Cattell (1948) goes more fully into technique, and Brunschwig (1942) reviews the different operative treatments but makes no mention of the colon.

Case 1

A man aged 55 was first seen in October, 1947, when he complained of jaundice of four months' duration. He gave a history of general lassitude, breathlessness, dizziness on exertion, and loss of weight for two years; he said that in the last five months he had lost 19 lb. (8.62 kg.). For 30 years he had had intermittent epigastric pain two hours after a meal, and this was relieved by taking more food and by alcohol. He had had the usual infectious diseases of childhood and also occasional attacks of influenza. In 1917, in Italy, he had had an attack of dysentery, and in 1922 appendicitis, which was treated medically. His mother had died of pulmonary tuberculosis, and his father, at 76 years of age, of heart disease.

On examination he was seen to be a thin spare man, deeply jaundiced. The liver was palpable ½ in. (1.25 cm.) below the costal margin, and the gall-bladder was felt to extend from the ninth costal cartilage to the right iliac fossa. On October 30 he was admitted to a medical ward with a tentative diagnosis of carcinoma of the head of the pancreas.

Operation, November 4.—On opening the abdomen under local analgesia supplemented with open ether (Dr. Goldman) the gall-bladder was seen to be distended to the caecum and there was the scar of a healed duodenal ulcer. The liver was normal in size and consistency, as were also the abdominal viscera. The pancreas was of hard consistency throughout; around the entrance of the common bile duct there was a stony-hard portion which, by inserting the blunt end of a straight needle, was proved to be composed of tissue and not a stone in the common bile duct. A diagnosis was made of carcinoma of the head of the pancreas around the entrance of the ducts into the duodenum. It was considered that a resection of it was possible.

Procedure.—The duodenum was mobilized from the posterior abdominal wall and the head of the pancreas exposed from behind, where a firm irregular mass the size of an almond was present around the opening of the ducts. The stomach was divided above the pyloric antrum. The common bile duct was ligated with stout thread and sewn over, and the duodenum was mobilized to 1 in. (2.5 cm.) beyond the duodeno-jejunal flexure. The pancreas was divided at the junction of its distal and middle thirds; its duct was found to be distended to a size rather larger than that of the ureter. The first 6 in. (15 cm.) of the jejunum was easily drawn up through the mesocolon, which was closed snugly round it. The neck of the gall-bladder was anastomosed to the distal end of the jejunum. The end of the pancreatic duct was anastomosed to the side of the jejunum about 2 in. (5 cm.) distal to the first anastomosis, where the two were easily approximated. The end of the stomach was anastomosed to the side of the jejunum, immediately below the pancreas. A soft rubber drain was passed to these anastomoses and the wound was closed.

Examination of sections of the hard mass around the common bile duct confirmed the clinical diagnosis of carcinoma of the head of the pancreas. The tumour was infiltrated by large anaplastic epithelial cells with pronounced hyperchromatosis and mitosis. Differentiation to glandular structure was seen in parts of the growth. Extensive lymphoid-cell infiltration was also present.

On January 16, 1948, the patient weighed 9 st. 3 lb. (58.51 kg.)—an increase of 5 lb. (2.27 kg.). By February 13 he was again jaundiced, and a recurrence was palpable in the scar of the abdominal incision. He died in April of asthenia.

Comment.—In this case the common bile duct was so large that its anastomosis to the jejunum would have been practicable, and I think this would have been a sounder operation. The patient had been jaundiced for four months when he was first seen, and I make a plea that in cases in which painless jaundice has been present for a month the possibility of carcinoma of the pancreas should be considered and a surgical opinion sought. The mortality of laparotomy is probably 1 to 2%; that following observation of carcinoma of the bile ducts or pancreas is 100%. Some 80% of the patients will recover after resection of the pancreas.

Case 2

A married woman aged 43 was first seen in September, 1948, when she complained of a symptomless lump in the right side of the abdomen, which she had first noted two and a half years before but which had enlarged in the last seven weeks. She had some flatulence and nausea, but no pain or vomiting. Recently her appetite had been poor. She weighed 7 st. 6 lb. (47.17 kg.), but her weight had never been more than 8 st. (50.8 kg.).

On examination a tense cystic, smooth globular swelling the size of a child's head was found on the right side of the abdomen (Fig. 1*a*). The tumour was movable from left to right but not up and down; on pressure it flattened into the loin, but reappeared on coughing; it did not move on respiration. The liver, gall-bladder, kidneys, and spleen could not be felt. On rectal examination the pelvis was found to be clear. Provisionally the diagnosis rested between (1) mobile retroperitoneal sarcoma in the area of the pancreas, duodenum, and transverse mesocolon; (2) an atypical carcinoma of the pancreas; and (3) an atypical pelvic tumour rising into the abdomen.

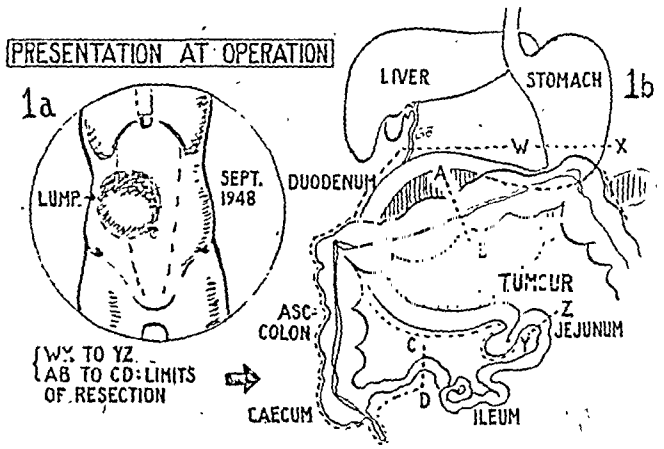


FIG. 1.—Case 2 (*a*) The site of the tumour. (*b*) The tumour as presenting at operation.

Examination of the blood showed: haemoglobin, 42%; red blood cells, 2,600.000 per c.mm.; leucocytes, 10,300 per c.mm. (polymorphonuclears 84%, lymphocytes 16%); blood urea concentration, 34%. A catheter specimen of urine yielded a negative quantitative result, both regarding the deposit and on culture.

Operation.—On October 12 an extended right paramedian incision was made under thiopentone and open ether anaesthesia (Dr. Badock), supplemented by local infiltration of the abdominal wall and splanchnic ganglia with 1 in 1,000 amethocaine hydrochloride. A large vascular, apparently cystic tumour somewhat smaller than an adult head was found lying within the curvature of the duodenum, which was stretched like a strap over it superiorly and laterally. It was adherent to the stomach, duodenum, pancreas, ascending colon, and transverse colon, and bulged through the stretched right mesocolon. The gall-bladder and liver were normal. The swelling was aspirated, but nothing was withdrawn (Fig. 1*b*).

Procedure.—An attempt to shell out the swelling through the mesocolon was abandoned because of copious bleeding and because no plane of cleavage was found. At this stage it was decided that the tumour arose from the pancreas and that its excision was possible and necessary. The colon and duodenum were mobilized from the flank into the wound and the tumour was brought forward with the duodenum stretched tightly over it. The common bile duct and the gastro-duodenal artery were divided between ligatures. The stomach was sectioned above the pyloric antrum. The duodenum was mobilized to the first inch of the jejunum, where it was incised. The mass was brought out of the abdomen attached to the descending and transverse colon and the pancreas; the latter was cut at the junction of the left and middle thirds, well removed from the swelling (Fig. 2). The tumour was so intimately associated with the right colic artery and mesocolon that there was danger, if they were separated, of disseminating the growth and of imperilling the blood supply of the colon; therefore the ileum was sectioned and the transverse colon was transected at its middle. The tumour, with the pyloric antrum, the duodenum and first inch of the jejunum, the last 6 in. (15 cm.) of the ileum, the caecum, ascending colon, hepatic flexure, and right half of the transverse colon, was removed.

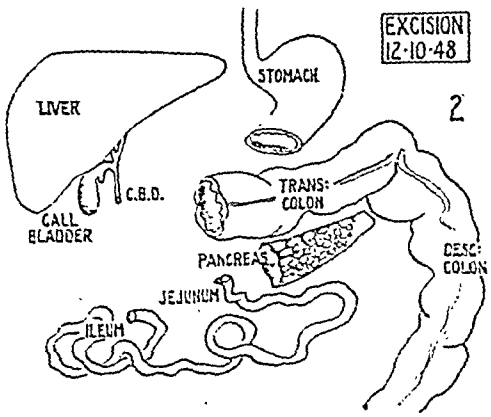


FIG. 2.—Case 2. Showing the parts after excision.

The Reconstruction.—The first 6 in. of the jejunum was drawn through the transverse mesocolon, and the opening in the latter was closed and sutured to it (Fig. 3). The common bile duct was anastomosed to the centre of the end of the jejunum; as it was not dilated, this was difficult. (In dealing with a similar case in future I intend to use the gall-bladder instead.) The pancreatic duct was not dilated, and was considered too small to connect to the jejunal mucous membrane. The end of the pancreas was oversewn and the stump was implanted into the side of the jejunum, the sero-muscular wall being incised to receive it. The stomach was anastomosed end to side to the jejunum. The ileum was united end to end to the transverse colon. This last step constituted a weak link in the chain, but, thanks to the use of penicillin and "sulphatriad" (sulphathiazole, sulphadiazine, and sulphamerazine) combined with plasma and blood transfusion, all was well. The abdomen was closed with nylon sutures, and drainage-tubes were inserted to the anastomoses.

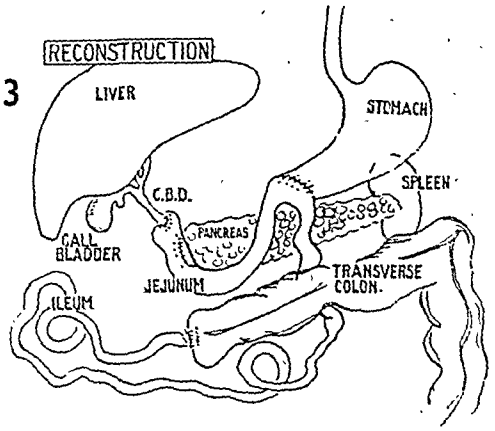


FIG. 3.—Case 2. Showing the reconstruction.

Pathological Report (*Dr. Cuthbert Dukes*).—The specimen consisted of a large oval tumour measuring 5 by 4 in. (12.5 by 10 cm.) and occupying the region of the pancreas. The growth was surrounded by the duodenum, all of which was removed with the operation specimen. The caecum and a portion of the transverse colon were also removed. Microscopical examination showed the tumour to be composed of fusiform epithelial cells arranged in small clumps and distributed irregularly. The histological appearances were those of an anaplastic carcinoma of the body or the tail end of the pancreas. Judged from its histology the growth was probably of a high grade of malignancy.

The patient was given infusions of salt, sugar, and water, and transfusions of plasma and blood, under the direction of Dr. Sterndale Bennett. The post-operative course was uneventful, except for a small discharge of bile for six days, beginning on the fifth day.

The following post-operative results of tests of blood, urine, and faeces were obtained by Dr. John Spencer.

October 18.—Catheter specimen of urine: occasional red blood cells in deposit; culture demonstrated presence of coliform organisms; total chlorides, 6 g. per litre. Blood: haemoglobin, 85%; red cells, 4,350,000 per c.mm.; blood urea, 35 mg. per 100 ml.; plasma proteins, 7.5 g. per 100 ml.

October 19.—Blood: haemoglobin, 90%; red cells, 4,820,000 per c.mm., blood urea, 24 mg. per 100 ml.; resting blood sugar, 160 mg. per 100 ml.

November 5.—Fasting blood sugar, 120 mg. per 100 ml. Thirty minutes after the administration of 50 g. of glucose the blood sugar was 120 mg. per 100 ml., one hour after the glucose was given the reading was 121 mg., and within another 30 minutes the level had fallen to 100 mg. per 100 ml. No sugar was found in the urine. Examination of the faeces gave the following percentage figures: total fat, 7.32; unsplit neutral fat 1.52; split fat 5.8. It was concluded that the fat-splitting mechanism was functioning adequately.

May 30, 1949.—Blood, normal; blood sugar, normal; faeces, fat-splitting mechanism normal; urine, normal. The patient was well in all respects and maintaining her weight and strength.

In December, 1949, the patient was well and was doing her work as a housewife without sign of recurrence.

Comment.—The magnitude of this operation was increased by the resection of the ascending and the transverse colon—a procedure which seems not to have been called for hitherto, as no record of such a step has been found in the literature.

I gladly acknowledge my indebtedness to Drs. Sterndale Bennett, Bentley, and John Spencer (of the King George Hospital, Ilford) for their help with this patient.

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Medical Memoranda

Hernia through Foramen of Winslow

The following case was complicated by the fact that the herniated loop had re-entered the general peritoneal cavity through the lesser omentum.

CASE REPORT

A woman aged 41 was admitted to hospital complaining of severe abdominal pain which had come on some 20 hours previously. The onset had been sudden, and the pain had increased in severity, especially in the upper abdomen. Some seven hours after the onset she had vomited, and this had recurred about six times since. The bowels had not moved, nor had she passed flatus since the pain started. She had no other symptoms and the last menstrual period had been two weeks before. On specific interrogation she admitted to a vague type of indigestion which "came on before supper if I had a fatty dinner." The previous history was otherwise entirely negative.

Examination showed her to be a well-nourished woman, and in obvious pain. Her temperature was normal. There was a fine whitish fur on the tongue, and the breath was slightly fetid. The abdomen did not move on respiration, and tenderness and guarding were present all over, but more pronounced in the epigastrium. There was loss of liver dullness in front but not in the axillary line. Rectal examination revealed a rather bulky uterus but no other abnormality. No abnormal signs were found in the other systems except rather frequent extrasystoles. The pulse rate was 92 and the blood pressure 135/85. As she did not vomit after admission the character of the vomitus was not ascertained.

A tentative diagnosis of perforated peptic ulcer was made and a laparotomy performed. In all fairness to those who saw the patient I must record that this diagnosis was made with some trepidation. There were many features which did not fit in—e.g., the ingravescent nature of the pain and the absence of frank rigidity. It was also difficult to reconcile a perforation of 20 hours' duration with her extremely good general condition.

Operation.—Under general anaesthesia a high right paramedian incision was made. On opening the peritoneum the first significant finding was the absence of free fluid; next, the caecum presented in the upper part of the wound, grossly dilated and overlying the liver. This must have been the cause of the loss of liver dullness noted clinically. The findings at laparotomy are shown in Fig. 1. At first this was thought to be a case of volvulus of an abnormally mobile right colon, but on tracing the loop to its base under cover of the liver a fold of peritoneum was found under which the loop had passed. It then seemed that we were dealing with an obstruction by a peritoneal band, and the obvious treatment would be to divide it and thus free the imprisoned gut (Fig. 2).

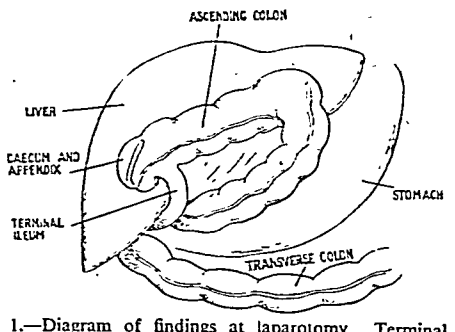


FIG. 1.—Diagram of findings at laparotomy. Terminal ileum, caecum, ascending colon, and part of transverse colon were lying superficially, forming a loop the base of which disappeared under the liver margin.

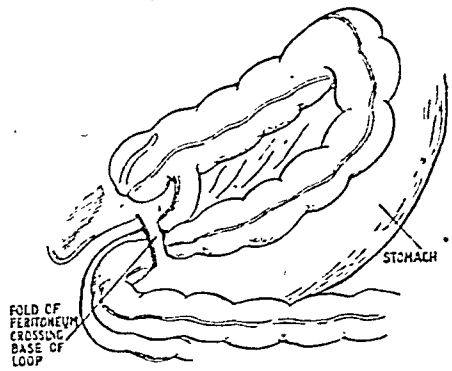


FIG. 2.—Diagram of findings after the liver had been turned up The band of peritoneum shown crossing the base of the loop was the right "free edge" of the lesser omentum.

The true diagnosis was not evident until palpation of the fold revealed forcible pulsation and investigation proved that it contained the hepatic artery, common bile duct, and portal vein, and that it was in fact the right "free edge" of the lesser omentum. The loop of gut had entered the lesser sac through the foramen of Winslow and traversed the gastro-hepatic omentum to reappear in the general peritoneal cavity between the liver and the lesser curve of the stomach.

It was impossible to reduce the hernia by traction, as the loop was so distended and the hiatus so small. Enterotomy was also in vain, and it was decided to resect the offending loop. This was considered feasible in view of the excellent condition of the patient under the anaesthetic; also, the length of mesentery was such as to render the procedure relatively simple. Resection of the loop was accordingly effected and an ileo-transverse colostomy performed. It was then considered that the patient had had as much manipulation as was desirable and no attempt was made to define the precise peritoneal anomalies or to close the gap between the liver and the stomach.

Apart from some infection of the base of the right lung convalescence was uninterrupted and the patient was discharged well three weeks later.

I am grateful to Mr. J. F. Heslop for permission to publish details of the case. Thanks are also due to Dr. S. Kay for the drawings, and to Mr. C. I. Raeburn for his invaluable assistance in the preparation of the report.

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Treatment of Megaloblastic Anaemia with Vitamin B_{12}

In view of the interest aroused by the recent isolation of vitamin B_{12} simultaneously by Lester Smith (1948, 1949) in Britain and Rickes *et al.* (1948) in the U.S.A., and its action in megaloblastic anaemias (Ungley, 1949), we feel that it would be of interest to record our experience of this substance in the treatment of two cases of pernicious anaemia which were recently under our observation. The amount of substance available to us did not permit treatment to be completed and continued, but a satisfactory and unequivocal initial response was obtained in both cases.

The preparation employed was made by Glaxo Laboratories from the mould *Streptomyces* and was a clear brown liquid, each 1 ml. containing 10 μg. of vitamin B_{12}.

CASE 1

A housewife aged 65 was admitted on September 2, 1949, complaining of increasing lassitude, pallor, and dyspnoea on exertion. Sternal pain radiating down both arms brought on by exercise had also been experienced during the preceding few months. On examination she was found to be rather obese and very pale. There were no detectable abnormalities in the chest, abdomen, or heart, the blood pressure was 150/80, the tongue normal, and oedema was absent; apart from bilateral absence of vibration sense in both legs the central nervous system was normal. An electrocardiogram soon after admission revealed negative T waves in Leads I and II which were ascribed to coronary artery disease. The faecal occult blood was negative.

A blood count the day before admission showed: haemoglobin, 40%; red cells, 1,490,000 per c.mm.; colour index, 1.3; white cells, 5,700 per c.mm. Anisocytosis and poikilocytosis were prominent on examination of the film, and macrocytes were in evidence. The mean corpuscular volume was 143 c.μ, and the concentration method suggested recently by K. S. Rodan showed a few megaloblasts in the peripheral blood.

On September 4, 20 μg. of vitamin B_{12} was injected intramuscularly and no other therapy was permitted. The next day examination of the peripheral blood revealed 2% reticulocytes, and these continued to rise rapidly, reaching a peak of 17% on September 8 (Fig. 1).

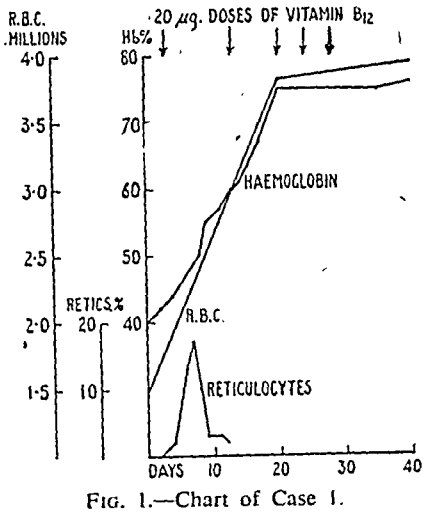


FIG. 1.—Chart of Case 1.

On September 9 the haemoglobin had reached 50%, and by September 14, 60%. Vitamin B_{12}, 20 μg., was administered on September 14, 21, 25, and 29, and on September 21 and 30 the haemoglobin was found to be 75%.

We were impressed by the patient's sense of well-being soon after the first dose, and no ill effects were observed after each injection except that the patient complained of being "drowsy and tired" for a few hours; this effect was thought to be psychogenic. Owing to exhaustion of the supply of vitamin B_{12} an orthodox liver preparation was started on October 8. The total amount of vitamin B_{12} administered was 100 μg.

CASE 2

A woman aged 77 was admitted on August 5, 1949, complaining of increasing weakness, pallor, dyspnoea on exertion, and persistent anorexia. These symptoms had gradually developed over a period of two years, but had become very much worse lately. For a few weeks before admission she had been much troubled by vomiting, and loss of weight had been severe.

On examination the patient was found to be very pale and looked ill. The tongue was smooth and she appeared to have lost a considerable amount of weight. There were no detectable abnormalities in the heart or abdomen, but rales were heard at both lung bases. The blood pressure was 150/90, and the central nervous system showed no evidence of subacute combined degeneration. At that time she was thought to have a carcinoma of the stomach, but a barium meal *x*-ray examination on August 12 showed no stomach-filling defect, although a hiatus hernia was revealed.

A histamine test meal revealed no free acid, and a blood count on August 9 showed: haemoglobin, 40%; red cells, 1,400,000 per c.mm.; white cells, 2,000 per c.mm., colour index 1.4. Marked anisocytosis and poikilocytosis were present in the blood film and macrocytes predominated.

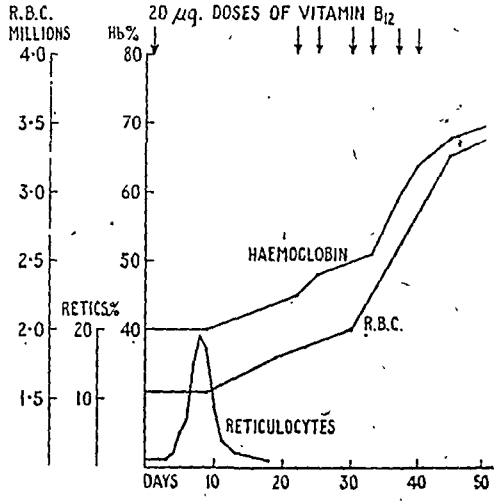


FIG. 2.—Chart of Case 2.

On August 22 a sternal puncture revealed a megaloblastic marrow, thus clinching the diagnosis of Addisonian anaemia. The faeces were negative for occult blood.

Vitamin B_{12}, 20 μg., was administered intramuscularly on August 23 (no other therapy being permitted) and daily reticulocyte counts were made. These were 1% until August 26, when 2% were detected in the peripheral blood. On the 27th the figure had risen to 5% and a peak of 19% was reached on the 30th (Fig. 2).

The haemoglobin was still 40% on August 31, but this now started to rise, although slower than we expected; on September 12 it was found to be only 45%, and in view of what was considered to be an unsatisfactory haemoglobin response a further injection of 20 μg. of vitamin B_{12} was given that day and a similar amount on September 15, 20, 23, 27, and 30—i.e., 20 μg. twice weekly. The total amount of vitamin B_{12} administered in this case was 140 μg.

By September 30 the haemoglobin had risen to 64%, and was 70% on October 11, but in view of the lack of a further supply of vitamin B_{12} an orthodox liver preparation was substituted, the first dose being given on October 11.

In this case, although the rise in haemoglobin was slow, the rapid general improvement was striking. Within two days of the first injection of 20 μg. of vitamin B_{12} vomiting, which had been troublesome, completely ceased, appetite returned, and the patient showed an active interest in her surroundings; this had previously been lacking.

Conclusion.—It seems that vitamin B_{12} prepared from *Streptomyces* is a potent therapeutic agent in megaloblastic anaemia.

We wish to thank Dr. E. Noble Chamberlain for his encouragement and advice, and Messrs. Glaxo Laboratories Ltd. for the supply of vitamin B_{12}.

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Reviews

THE PROBLEM OF LABORATORY ANIMALS

Manual for Laboratory Work in Mammalian Physiology. By Fred E. d'Amour and Frank R. Blood. (Pp. 50; illustrated. 15s.) Chicago: University of Chicago Press. London: Cambridge University Press. 1949.

This laboratory manual describes 50 experiments that may be carried out by students on the rat. The authors, who are attached to the University of Denver, have experienced difficulty in providing larger mammals for class work and have therefore devised a course in which the rat is exclusively employed. The experiments are well distributed over the various systems, and if carried out conscientiously will provide the student with an admirable training. Some of the experiments, such as those involving cannulating the carotid artery or jugular vein, require a considerable degree of manual dexterity.

The shortage of cats, rabbits, or dogs is not peculiar to the United States; in this country research in mammalian physiology is grievously handicapped because of the inadequate supplies of suitable animals. Although tens of thousands of cats and dogs are destroyed annually the present state of the law apparently prevents any of these animals being made available even for acute experiments conducted throughout under full anaesthesia, at the end of which time the animal is destroyed. It has been suggested that breeding stations should be established to provide experimental animals. It has been reliably estimated that, apart from the capital costs for land and buildings, the cost of producing a one-year-old cat would be of the order of £10 or £15. It is believed that some of those in authority would rather have this indefensible extravagance allowed than antagonize the antivivisectionists by amending the law to permit the use of stray animals.

Work on the mammal is now everywhere reduced to a few demonstrations for medical students and an inadequate course even for students doing honours degrees in physiology. The shortage of experimental animals is bound to have a crippling effect on the progress of experimental physiology in this country. The use of the anaesthetized rat for class work would involve either re-interpretation or amendment of the Vivisection Act. It might be worth while for the Physiological Society to take up the matter officially with the Home Office. Should the rat ever become available for student work in this country, then d'Amour and Blood's *Manual* will provide an invaluable guide.

SAMSON WRIGHT.

GRADING MUSCULAR FUNCTION

Muscles: Testing and Function. By Henry O. Kendall and Florence P. Kendall. (Pp. 278; illustrated. £2 1s.) London: Baillière, Tindall and Cox. 1949.

There is nothing novel in the detailed testing of muscle function. What is new is the wholesome revival of interest in the subject, which has recently found expression in the appearance of several useful manuals and monographs. This book, the latest and most elaborate of them, is written by two physiotherapists who have given many years to the care of children suffering from poliomyelitis. No one who has visited the Children's Hospital at Baltimore can fail to have been impressed by the superb work being done there by Mr. and Mrs. Kendall, and this book gives a complete picture of the painstaking methods of examination on which this work is based. The action of every important muscle that can be demonstrated by clinical examination is shown in a series of remarkable photographs, and there are pictures of a number of important paralyses, contractures, and errors of posture. The text itself is equally informative.

The practical implications of their teaching must be considered, however. The disturbing feature, and it is an important one, of the Kendalls' work is the complexity of their system of grading muscle power. There can be no question that some method of recording the action of individual muscles (or where necessary muscle groups) is essential in the management of lower motor neurone disorders, of which poliomyelitis and nerve injuries are by far the most important. Even under epidemic conditions clinicians must be prepared to work out muscle charts in every case of poliomyelitis, and a chart is equally necessary for the squirming infant as for the co-operative adolescent. But one must choose a system of examination and assessment that does not make impossible demands on the examiner's time, and in which the differences between the various grades of muscle power are not less than the unavoidable errors of examination. These variations may be due to temporary fluctuation in the patient's condition and to slight differences in technique between one trained observer and another.

In Great Britain the 0 to 5 system of recording is becoming generally accepted, and, having had experience of it in some thousands of cases of nerve injury and poliomyelitis, I would not like to assist at the introduction of anything more elaborate. It is true that one often makes use of pluses, minuses, and half values—e.g., 2+, 3−, or 4½. Yet these "accidentals" must never be taken seriously; they are helpful to the individual observer but are not an argument in favour of a more elaborate system of notation. The Kendalls are no doubt well able to use all twelve of their grades of muscle power, but it would hardly be impertinent to ask what proportion of the residents leaving the Children's Hospital at Baltimore subsequently employ their elaborate system, and, if they do use it, with what degree of accuracy.

Another objection to the Kendalls' system is their employment of percentages to express the various grades. It is reasonable to suppose that a muscle graded as 80% is twice as strong as one graded 40%. Yet this is not so. Grading of such accuracy could be done only with elaborate machinery wholly unsuited to the needs of clinical practice.

Provided he is not repelled or led astray by this system of charting, the anatomist, the physiotherapist, and the clinician will find here a book that should be a constant source of profit. It cost 41s. before devaluation; it will cost more now, but it is still worth it

H. J. SEDDON.

FREUD: A FRESH TRANSLATION

Three Essays on the Theory of Sexuality. By Sigmund Freud. Authorized translation by James Strachey. (Pp. 133. 10s. 6d.) London: Imago Publishing Co. 1949.

When *Three Essays* made its first appearance forty years ago it may be said to have rivalled the work of Galileo in the storm of indignation, hostility, and recrimination which it evoked. It is remarkable that in spite of this it has been translated into most languages, and reached a fourth German edition by 1920. The book was the basis of a large part of Freudian teaching, and from its

conclusions, with the doctrines set out in *The Interpretation of Dreams*, there developed the theory and practice of psycho-analysis. Not only this, but the startling conclusions on the theory of sexuality have now become fairly generally accepted. This excellent new English translation is most welcome, for if the Freudian doctrine is to be learnt by the neophyte or appraised by the experienced psychotherapist (of whatever school) it is essential for him to refer to originals without the labour of pursuing the German text.

The first essay gives us a general conspectus of the sexual perversions. The second shows how psycho-analysis led to the discovery that sexuality did not start at puberty, and that any previous manifestations were not necessarily pathological. On the contrary, it revealed a real infantile sexual life in every child, which was repressed and forgotten about the age of 5 and remained latent, except for occasional outbursts, till the onset of puberty. This infantile sexuality is polymorpho-perverse, and its manifestations correspond to the temporary dominance of the various erotogenous zones—oral, anal, urethral, and phallic. The third essay shows how adult perversions and many neuroses, especially hysteria, could be explained by repressions, deviations, and irregular development of these various phases. A useful summary by the author recapitulates his discoveries and the conclusions which he draws from them.

R. G. GORDON.

The fourth edition of *Manual of Clinical Laboratory Methods*, by Opal E. Hepler (pp. 387; illustrated; £2 5s.; Oxford: Blackwell Scientific Publications, 1949), intended primarily for laboratory technicians and medical students, is much larger than its forerunners. About half the book is allotted to investigations in chemical pathology, and the techniques used in haematology, bacteriology, and serology are described in fairly extensive detail. There are also short articles on pregnancy tests, tissue sectioning, allergy extracts, basal metabolism, and even electrocardiography. For most investigations one method only is described, though two or more are given for important determinations. The methods chosen are usually those popular in Britain, but a notable omission is an account of the use of the spectroscope for the detection of porphyrin, urobilin, etc. Neither is the useful property of fluorescence in ultra-violet light described. The unusual features of the book are its format and arrangement. The large size of its pages has allowed the diagrams and nomograms to be drawn on a large scale and comprehensive tables to be made. Many of the tests are arranged under a series of headings; though the use of a uniform order of description is good, one cannot avoid feeling that the author has got into difficulties in allotting numbers and letters to the various sections and headings. Nor has sufficient attention been given to the spacing between different sections, and it is not easy to find where one subject ends and another begins. There are some useful nomograms for determining the red cell indices, and there are eight good colour plates showing the maturation of blood cells and development of malaria parasites, though these were prepared too early to allow the inclusion of the tissue forms of the latter. British readers may find a few of the words and phrases used in the text unfamiliar, and they may be a little surprised by such words as "urinalysis" and "dark-field examination," and by the instruction to fill a 500-ml. "graduate" with, say, alcohol. The distinguishing characteristics of the book are its explicit technical instructions and the attention it draws to sources of error. Its introduction into laboratories may well improve the standard of work carried out in them: if references were given it would have even wider appeal.

Schafer's Essentials of Histology (15th ed.; edited by H. M. Carleton, B.Sc., and E. H. Leach, B.Sc.; pp. 655; 25s.; London: Longmans, Green) is so well known by students of medicine and biology that little need be said about it. The general arrangement and character of the work show little alteration, but there are many minor changes throughout. It is unfortunate that the account of the circulation in the kidney does not include a more direct reference to the supply of blood to the medulla, which may be physiologically important as a shunt mechanism. As a foundation for the study of physiology and of pathology the book is probably unsurpassed, and its reasonable price is a further attraction.

BOOKS RECEIVED

Review is not precluded by notice here of books recently received

A Report on the Results of Treatment of Malignant Disease in Aberdeen Royal Infirmary During the Decade 1930-1939. By J. F. Philip, M.B., Ch.M.Aberd., F.R.C.S.Ed. (Pp. 238. 15s.) Aberdeen: University Press. 1949.

The Tuberculous Process: A Conception and a Therapy. By A. Leitch, M.B., Ch.B.Ed. (Pp. 175. 12s. 6d.) Bristol: John Wright. 1949.

The 1949 Year Book of Pediatrics. Edited by H. G. Poncher, M.D., and others. (Pp. 560. $4.50 or 34s.) Chicago: The Year Book Publishers. London: Lewis. 1949.

Divine Physician. By F. L. Wyman. (Pp. 90. 3s. 6d.) London: The Bannisdale Press. 1949.

A Handbook for Industrial Nurses. By M. M. West, S.R.N., S.C.M. 2nd ed. (Pp. 264. 9s.) London: Edward Arnold. 1949.

The Africa of Albert Schweitzer. By C. R. Joy and Melvin Arnold. Concluding essay by A. Schweitzer. (Pp. 159. 15s.) London: Adam and Charles Black.

St. Thomas's Reports. Second Series. Edited by H. K. Goadby, J. S. Richardson, and others. Vol. 5. (Pp. 136. No price.) London: St. Thomas's Hospital. 1949.

Science News. 14. Edited by J. L. Crammer. (Pp. 158. 1s. 6d.) Harmondsworth, Middlesex: Penguin Books. 1949.

Handbook of Bacteriology. By J. W. Bigger, M.D., F.R.C.P., 6th ed. (Pp. 547. 20s.) London: Baillière, Tindall and Cox. 1949.

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PAS AND STREPTOMYCIN

We publish on page 1521 an important statement from the Tuberculosis Research Unit of the Medical Research Council. It is to the effect that in the treatment of pulmonary tuberculosis of a certain type the administration of para-aminosalicylic acid (PAS) in addition to streptomycin has unmistakably reduced the frequency with which the patient's tubercle bacillus acquires resistance to streptomycin. Acquired resistance is the bugbear of all streptomycin treatment, and, as was pointed out recently in these columns (November 12, p. 1098), it may have peculiarly disastrous results in this disease. Recent reports[1] from the U.S.A. provide interesting information about factors affecting the development of drug resistance. There is a clear relationship with the type of lesion, frank caseation or cavity formation favouring the emergence of resistant organisms. The system of dosage also affects it, the main point being that intermittent treatment, such as the administration of a single 1-g. dose at intervals of three days or more, tends to prevent or at least delay the development of resistance. The effect of the size and number of doses during continuous treatment is more complex, but it seems that large doses, such as 3 g. daily, tend to produce highly resistant bacilli and smaller doses bacilli of intermediate degrees of resistance, most of which nevertheless are probably unaffected by further treatment. Shortening the course from 120 to 42 days had been expected to obviate drug resistance but has apparently not done so.

The advent of PAS has greatly altered the whole aspect of this problem. This substance was first shown by Lehmann[2 3] to have a pronounced action on tubercle bacilli *in vitro*, and both animal experiments and later clinical trial confirmed that this action is also exerted in the body. Feldman, Karlson, and Hinshaw[4] reported over two years ago that the drug is well tolerated by guinea-pigs and has a pronounced suppressive effect on experimental tuberculosis in these animals. Youmans and his colleagues[5] confirmed this finding in mice, though they note that PAS is inferior to streptomycin. There have been several accounts of preliminary clinical trials in human tuberculosis by Lehmann himself and others, and various forms of the disease have been treated with, on the whole, encouraging results.

There seems to be little doubt that the most valuable use for PAS will be to reinforce the therapeutic action of streptomycin. That the two drugs together exert a greater effect than either alone, apart from the advantage that the sensitivity of the bacillus to streptomycin tends to be preserved, seems evident from the recent experiments of Karlson and Feldman.[6] In guinea-pigs treated in four different ways the smallest traces of disease—represented by an infection index of 2·8—were found in animals given 4% of PAS in the diet and 2 mg. of streptomycin daily. A dose of 2 mg. of streptomycin alone gave an index of 18.2, and 6 mg. one of 3.6: thus a larger dose of streptomycin was slightly inferior in effect to the combined treatment. The index in the case of the animals given PAS alone was 27.0 and in that of the untreated controls 85.5. Clinical trial of the two drugs given together has not proceeded far enough for it to be asserted that its direct therapeutic effect is superior to that of streptomycin alone, but American workers are convinced of its value in preventing the emergence of drug resistance. Combined therapy of several kinds has been under trial in the nation-wide studies controlled by the Veterans' Administration in the U.S.A., and the conclusion reached is as definite as that in the Medical Research Council statement published to-day. Among other combined treatments, streptomycin with "promizole" did not reduce the incidence of drug resistance. Streptomycin and PAS, on the other hand, gave rise in one series of treated cases to only three resistant cultures from 26 patients (12%), whereas in patients given only streptomycin the proportion of resistant organisms isolated at the same stage of treatment was about 50%.[1]

These and similar observations have led the authorities controlling the American Veterans' Administration research programme to take an important decision: of the various methods of treatment tested in cases selected at random from patients considered suitable for treatment, all those employing streptomycin alone in whatever doses or for whatever period have been abandoned.[7] The three regimens henceforth to be tested are all 120-day courses, in each of which 12 g. of PAS is given daily together with either 1 g. of streptomycin daily, 1 g. of dihydrostreptomycin daily, or 1 g. of streptomycin twice weekly. It is clear from this decision, more than from any published data on the effects of such treatment, that American opinion is convinced of the value and necessity of using PAS in conjunction with streptomycin.

[1] Minutes of the Seventh Streptomycin Conference, Denver, April, 1949. Veterans' Administration, Washington.
[2] *Lancet*, 1946, 1, 15.
[3] *Nord. Med.*, 1947, 33, 140.
[4] *Proc. Mayo Clin.*, 1947, 22, 473.
[5] *J. Bact.*, 1947, 54, 409.
[6] *Proc. Mayo Clin.*, 1949, 24, 510.
[7] Report of Eighth Streptomycin Conference, Atlanta, November, 1949. Veterans' Administration, Washington.
[8] *Proc. Mayo Clin.*, 1949, 24, 213.
[9] Ibid., 1949, 24, 220.
[10] Ibid., 1949, 24, 544.

PAS is given by the mouth with or after meals, the dosage adopted in the U.S.A. being four daily doses of 3 g. each. It is believed to be free from any dangerous toxic effects—unless the leucopenia sometimes observed proves other than temporary—but in a large proportion of patients it causes nausea, vomiting, and diarrhoea. This has been the main difficulty in its administration: Pfuetze and Pyle[8] found that only half their patients could tolerate a daily dose of 10 g. Enteric-coated capsules do not obviate this difficulty, but the addition of sodium bicarbonate and a flavouring agent has been found helpful. The difficulty may eventually be overcome by devising a method of parenteral administration. PAS given subcutaneously in the form of its sodium salt, according to Feldman and Karlson,[9] exerts full therapeutic effect on tuberculosis in guinea-pigs, but the injections cause very severe local reactions. Possibly the final solution may prove to be the use of the chemical compound of PAS and streptomycin described by Hobby.[1] This is a freely soluble substance to which tubercle bacilli are in general more sensitive *in vitro* than to a corresponding amount of streptomycin itself. Strains resistant to it could not be produced *in vitro*. It is more effective than streptomycin in the treatment of tuberculosis in mice, and repeated injections at the same site are said to be non-irritating. More information about this substance will be awaited with much interest. A further fact to be borne in mind is that tubercle bacilli can acquire resistance to PAS itself, at least if this is given alone. Karlson and his colleagues[10] tested cultures isolated from the same patient before and after treatment; the sensitivity of the bacilli to PAS rose from 0.024 to 3.2 mg. per 100 ml. As would be expected, the resistant variant produced disease in guinea-pigs which did not respond to treatment.

THE VIRUS THEORY OF CANCER

There is general agreement that the inciting cause of cancer may be any of a number of agents, such as *x* rays or chemical carcinogens. But having started the cancer off they cease to operate, and it is then necessary to find the continuing cause. About the nature of this continuing cause there is much disagreement. Two main theories have been put forward to account for the unrestrained growth of the cells forming a neoplasm. According to the virus theory there was in the cell long before any neoplastic change occurred a virus which was living quietly in symbiosis with its host until the balance was disturbed by the inciting cause. According to the other theory the inciting cause provokes a somatic cell mutation: this is pure speculation, but appeals intuitively to some. The virus hypothesis can be experimentally proved in a small number of instances, notably in the case of the Rous fowl sarcoma, but from the great majority of tumours no virus can be separated by filtration. Those who support the theory maintain that this failure to isolate a virus from most tumours is due to technical difficulties, for it can be shown with other virus suspensions that if only a few virus particles are present they are adsorbed in the pores of the filter and do not appear in the filtrate. Professor W. E. Gye, who was director of the Imperial Cancer Research Fund laboratories at Mill Hill from 1936 until his retirement earlier this year, is a firm believer in the virus theory, and he has been active for most of his professional life in collecting evidence to support this belief. About two years ago Dr. James Craigie, well known for his studies on bacteria and viruses, joined him at the Fund laboratories, and together they initiated a new series of experiments. Some account of this work, in which their colleagues Miss Ida Mann and Dr. A. M. Begg collaborated, has already been published,[1 2] and comment on it has appeared in this *Journal*.[3] In Gye's opinion these new experiments offer definite proof of the virus theory. However, this opinion has been challenged by Dr. C. H. Andrewes in his Imperial Cancer Research Fund lecture delivered at the Royal College of Surgeons on November 29 and shortly to be published in this *Journal*. Andrewes spoke as a believer in the virus theory of cancer and described in some detail the grounds for his belief, at the same time stating why, despite the new evidence which Gye and his colleagues have brought forward, he still cannot exchange the arduous exercise of faith for the serenity of complete certainty.

The experiments described by Gye seem to show that typical non-filterable mouse tumours can in fact be transmitted by agents other than intact cells. Since it has many times been demonstrated that the presence of a virus in these tumours cannot be revealed by filtration other methods of virus detection were tried. It was found that the tumours could be minced and frozen at −79° C. for long periods and yet, after thawing and injection into suitable animals, they provoked new tumours. It is argued that no living cell could have survived this treatment; moreover, mouse-embryo tissue which will provoke embryomas on injection was rendered quite inert by such freezing. Unfortunately there is no information about the relative potency of the two preparations in causing new growths before freezing, and without this it is possible to argue that a few cells survived in both instances, but that for the production of embryomas more cells were needed than for the initiation of a new tumour: freezing had reduced the number of viable cells below the minimum necessary for the one but not below the minimum for the other. Another series of experiments has shown that tumour tissue may

[1] *Brit. J. Cancer*, 1949, 3, 259.
[2] *British Medical Journal*, 1949, 1, 511.
[3] Ibid., 1949, 1, 531.

be dried from the frozen state and yet initiate tumours on re-hydration and injection into suitable animals. It is very unlikely that living cells can survive such treatment, but it is not absolutely certain that every single living cell was destroyed. In both instances it is lack of quantitative information that hinders assessment of the significance of the results.

Dr. James Craigie, who has succeeded Professor Gye as director of the Imperial Cancer Research Fund laboratories, is cautious in his remarks about the new evidence which he and his colleagues have brought forward. In the Imperial Cancer Research Fund Lecture given at the Royal College of Surgeons on November 22, and published in the opening pages of this issue, he asserts that no real progress can be made in solving the problem of whether the continuous cause of transplantable tumours is a coexistent virus until "an adequate foundation of quantitative data has been laid down." The evidence for or against will, he thinks, inevitably emerge if work is conducted towards this end. Craigie has therefore begun a series of studies which may well revolutionize cancer research. To the casual reader the preliminary work may seem mundane, for it is concerned with designs for tissue mincers, the fluids which are best for suspending the minced tissue, the way in which minced tissue may be stored and dried, and the methods of comparing the activity of different tumour preparations. But all these are points of fundamental importance if cancer research is to be put on a quantitative basis. What Craigie is now doing is to bring the more refined methods of studying viruses into the field of cancer research. Immediately ahead there lies enough work for a generation.

THE SHORT OESOPHAGUS AND HIATUS HERNIA

The condition often described as the short oesophagus is a form of hernia which may simulate a variety of clinical syndromes. The essential lesion is incompetence of the diaphragmatic oesophageal hiatus with herniation of the cardiac portion of the stomach above the diaphragm. This may sometimes pass upwards as a pouch of stomach alongside the oesophagus; in other cases the upper part of the stomach forms the hernia, leaving the thoracic oesophagus either with a normal length and tortuous appearance or apparently shortened. It is doubtful if it is correct to consider the three subdivisions as separate entities: the para-oesophageal hernia may become the oesophago-gastric, and this in turn may develop a shortened oesophagus. All three varieties are best considered under the general term of diaphragmatic oesophageal hiatus hernia. The final two words are short and alliterative, and by common usage connote the site of the herniation. The objection to describing one variety as the short oesophagus is that it implies an aetiological significance which is probably not justified. Congenital shortening of the oesophagus undoubtedly can occur, and probably accounts for the rare cases of oesophageal ulceration and stricture in children.

The majority of cases of hiatus hernia, with or without apparent shortening of the oesophagus, occur in middle-aged and elderly patients, in whom the primary defect is a weakness of an abdominal orifice. Such a weakness develops more commonly in the sthenic individual and is aggravated by the same factors which may lead to herniation elsewhere from the abdomen. It is likely that secondary shortening of the oesophagus may result from spasm of the longitudinal coat of the oesophagus: this might occur from direct irritation of the oesophagus by regurgitation of acid gastric contents causing peptic oesophagitis. If this should lead to peptic ulcer of the oesophagus shortening may then develop from cicatricial contracture, as is seen with "purse-stringing" of the lesser curve from gastric ulceration. It must, however, be mentioned that Gilbert, Dey, and Rall[1] have thought that shortening of the oesophagus could be due to a vago-vagal reflex from an intra-abdominal lesion such as cholelithiasis or duodenal ulcer, either of which are not uncommonly found with a hiatus hernia. Experiments on dogs have shown that vagal stimulation may cause oesophageal shortening, and the same result could be obtained by stimulation of the peritoneum or distension of the gall-bladder.

Dysphagia with hiatus hernia signifies severe oesophagitis or peptic ulceration. Only five patients were without this symptom in the series of 31 cases admitted to the Western Infirmary, Glasgow, during the past ten years and reported in last week's *Journal* (p. 1443) by Drs. J. B. Rennie, F. T. Land, and S. D. S. Park. Dysphagia is a relatively uncommon symptom with hiatus hernia, many of which may cause few or even no symptoms. Radloff and King[2] found dysphagia in 22% of their cases of hiatus hernia. The Glasgow series probably does not represent the total number of patients with this condition seen at the Western Infirmary, but essentially those with dysphagia as a presenting symptom. The diagnosis of hiatus hernia requires special radiological technique, and it is the responsibility of the clinician to remind the radiologist of its likelihood, for routine barium meals in a busy department may fail to demonstrate the herniation. The symptoms are protean and include unexplained haematemesis, obscure cases of anaemia, dyspepsia of all degrees—from heartburn to intense boring retrosternal pain after meals—pain simulating angina but occurring at rest or after meals, breathlessness, and cough. These symptoms may result from

[1] *J. Amer. med. Ass.*, 1946, 132, 132.
[2] *Gastroenterology*, 1947, 9, 249.
[3] *Proc. R. Soc. Med.*, 1949, 42, 672.
[4] *British Surgical Practice*, 1949, 6, 334. Butterworth and Co., London.

associated peptic oesophagitis or from the mechanical effects of the hernia. The finding of a hiatus hernia in an elderly patient may occasionally be misleading and direct attention away from a more important intra-abdominal condition. Factors causing a rise in intra-abdominal pressure may lead to incompetence at the cardia. Rennie and his colleagues draw attention to pregnancy as a possible precipitating cause of peptic oesophagitis or stricture. Lewis's[3] case of oesophagitis caused by an indwelling gastric tube suggests that another mechanism might account for the three post-operative cases included in the Glasgow series. Post-operative regurgitation of gastric contents, possibly seeping round a gastric tube in a supine, comatose patient, might cause an acute peptic oesophagitis.

Although patients with hiatus hernia and shortened oesophagus may be able to lead reasonably comfortable lives if they select their food with care and chew it well, nevertheless surgery can offer relief in many cases. The experience of Allison[4] with transthoracic repair of the hiatus hernia is particularly encouraging; in cases with much shortening and stenosis of the lower oesophagus local resection and anastomosis to the jejunum has been successfully performed.

PREGNANCY IN DIABETICS

Many workers have shown that the pattern of production of chorionic gonadotrophin (C.G.) in normal pregnancies, as reflected by its level in the blood or its excretion in the urine, is remarkably uniform. After conception the hormone rapidly increases in amount, so that between the fortieth and eightieth days of pregnancy a peak excretion occurs of 25,000–30,000 i.u. in 24 hours. There follows a rapid fall, and from the hundredth day of gestation until parturition about 4,000–10,000 i.u. are excreted each 24 hours. Departures from the norm have been claimed to occur with statistically significant frequency in pregnancies complicated by diabetes and by late toxaemia. For these observations credit is principally due to Priscilla White and to O.W. and G. van S. Smith, who have elaborated a complex theory of hormonal imbalance in a long series of papers. The characteristics of this imbalance are said to be deficiencies in production of oestrogen and progesterone by the placenta, with a reciprocal rise in C.G. levels, the latter being explained as a failure of "utilization" of this hormone by the placenta. White[1] found such an imbalance in more than 75% of patients in a consecutive series of 300 pregnant diabetics. By treatment with oestrogen and progesterone she obtained a foetal survival rate of 90%, compared with only 47% for an untreated control group (which, it should be noted, was one-third less in size), and the incidence of pre-eclampsia was reduced from 50% to 5%. The effectiveness of the treatment was ascribed to its having restored the hormone balance to normal. The Smiths[2] have maintained that late pregnancy toxaemia, which occurs frequently in diabetics, is always preceded by the hormonal imbalance mentioned above, and they have obtained encouraging results by the prophylactic administration of stilboestrol to patients whose previous pregnancies had been complicated by toxaemias. On the other hand, by no means all workers have been able to confirm these findings, either in so far as they relate to the hormone levels in blood and urine or to the effects of treatment with oestrogens. Indeed, Snaith[3] has recently reported an unexpectedly high incidence of toxaemia in a group of patients with habitual abortion treated with oestrogens, even though the proportion of live births in the treated patients was higher than would have been expected on a chance basis.

Elsewhere in this issue Dr. J. A. Loraine reports the results of his studies on the excretion of chorionic gonadotrophin by pregnant diabetic women. This careful work clears up at least some of the obscurities in the endocrinology of obstetrics, for it leaves no doubt of the existence of increased C.G. excretion in some cases of diabetic pregnancy, though the absence of a departure from normal in no less than eight out of fourteen cases is noteworthy. That the administration of stilboestrol depresses the level of C.G excretion in both normal and diabetic pregnancies also appears to have been established beyond doubt. However, the important additional information provided by these studies is that in spite of continued administration of stilboestrol, even in increasing dosage, the C.G. excretion soon rises to, and may indeed surpass, its previous levels. Temporary interruption of stilboestrol treatment seems to restore the sensitivity of the response, at least for a time. It might, therefore, be a wise plan to administer stilboestrol in interrupted courses to these patients, if it can be accepted that depression of the elevated C.G. excretion is an object to be desired. Dr. Loraine's paper provides no evidence on this last point, since most of his patients were delivered before term by caesarean section. In no case was the baby characteristically oversize, and in one case at least mild pre-eclampsia developed while the patient was actually receiving stilboestrol. Clearer understanding of the underlying causes of these abnormalities will eventually lead to improved methods for reducing the foetal mortality and preventing the onset of late toxaemia in diabetic pregnancies.

ANIMAL EXPERIMENTS

It is constantly being asserted by anti-vivisectionist societies that animal experiments have not made any contribution to medical progress. Little attempt is made to counter this distortion of fact, for the publications and lectures of the Research Defence Society, excellent though they are, do not reach the general public. Another organization doing useful work is the Universities Federation for Animal Welfare: its handbook, *The Care and Management of Laboratory Animals*, was reviewed in the *Journal* some months ago (July 20, p. 20), and an annotation on laboratory animals appeared in the same issue (p. 26). The Federation's latest publication[1] is entitled *How to Befriend Laboratory Animals*. The sincerity of the author is obvious, and the problem is looked at from many sides by one

[1] *Penn. med. J.*, 1947, 50, 705.
[2] *J. clin. Endocrinol.*, 1941, 1, 461.
[3] Report of the Sixth Annual Conference on Infertility in the *British Medical Journal*, 1949, 2, 809.

[1] Hume, C. W., *How to Befriend Laboratory Animals*, 1949. Price 3d.

deeply sensitive to the infliction of unnecessary pain on either man or beast. Not everyone will agree that "there is no reason except prejudice for preferring that an animal rather than a random human being should suffer pain," but nevertheless the general conclusions about the value of animal experiments are stated in unequivocal language. "Anyone who says that medicine, in as far as it has become scientific, does not depend on physiology, pathology, or pharmacology, or that these sciences could have progressed so far as they have without experiments on animals, is so obviously talking through his hat that he puts himself out of court and wrecks his chance of being taken seriously."

While justifying the need for animal experiments, the author of this pamphlet makes valuable criticisms. The improvement of the status of the animal attendant is important. Too often the position of "animal boy" is a despised one, and yet the care of animals requires very special abilities, and the success of experimental work largely depends on the handling of the animals before and after their time in the laboratory. Need for increased expenditure on animal accommodation is also stressed and should be considered in future schemes of development. This is particularly important in view of the need for developing techniques for the study of function by long-term experiments uncomplicated by anaesthesia. Inclusion of a veterinary surgeon among the Home Office inspectors is also an excellent suggestion. The author also does good service in pointing out the irrational attitude towards certain favoured species, notably dogs. It would seem that if the dog were exempt from experiment the causation of pain to less popular animals, such as rats, would be a matter of much less concern. No good reason exists for making such a distinction. The scientist, who does not wish to cause unnecessary pain to either dog or rat, prefers to choose his species for its suitability to his problem and not on emotional grounds. Choice of experimental animal is referred to elsewhere in this issue by Professor Samson Wright, who draws attention in a book review to the great difficulty of obtaining dogs and cats in sufficient numbers. This is undoubtedly having a deleterious effect on both teaching and research in physiology and, ultimately, on medical progress.

The present position is ridiculous. Parliament has recognized the value of animal experiments in medical research, and through licences issued by the Home Office gives protection to those doing the work. The University Grants Committee and the Medical Research Council, financed by the taxpayer and responsible to the Government, make money available for the purchase of animals which are both very scarce and very expensive. At the same time the police, under Home Office guidance and also financed by the taxpayer, assist in the collection and destruction of tens of thousands of stray animals every year, with the express aim that these shall not become available for medical research. This is both hypocritical and wasteful. Professor Samson Wright suggests an official approach by the Physiological Society to the Home Office, but it would seem that the approach might have more chance of success if supported by other bodies with wider interests. Any Government must hesitate about introducing legislation which might lose votes. But it is possible that the risk is exaggerated. A few years ago diphtheria immunization was a similar controversial subject, and now, thanks to courageous action and a well-conducted campaign of public enlightenment, it has proved to be a great boon to the health of the public.

MEDICAL PRACTICES ADVISORY BUREAU

A year ago the B.M.A. set up the Medical Practices Advisory Bureau to help doctors enter medical practice. Most of its work has been done in the field of general practice, since hospital appointments are advertised in the Press and applicants compete for them as before. But it has nevertheless been able to advise many doctors in finding suitable posts outside general practice. The most popular way of entering general practice is still by means of assistantship, and the Bureau has performed a valuable service in bringing together principals and assistants.

An unexpected finding of the Bureau's first year of work is that entry into general practice is easier than many believe, though lack of suitable housing is an obstacle in some places where an assistant or partner is sought. In general there is no difficulty in entering practice for a young man with ordinary qualifications who does not mind where he practises and is willing to accept the remuneration attached to the bottom rung of the ladder. Increasing age is a hindrance as in other walks of life, and doctors over 40 are certainly handicapped by their years. It is also regrettably true that refugees from foreign countries, among whom there are many doctors, have greater difficulty in finding openings than their British colleagues—a situation confined neither to the medical profession nor to Britain. But perhaps the greatest problem that the Bureau has had to contend with arises from the "territorial demands" of the applicants, who naturally enough often specify certain areas of the country where they wish to practise. In most cases these areas already have sufficient doctors. Even so, the Bureau has had some disappointing experiences. On several occasions it has informed over 100 doctors of a vacancy that seemed to conform with their desires, yet only a dozen or so have applied. Recently, for instance, a principal in the Home Counties earning over £5,000 a year offered a one-third share of the practice after a preliminary assistantship of twelve months, the share rising to two-fifths in five years, and to 48% in ten years. A small modern house was available to rent at 30s. a week. The Bureau sent the details to more than 130 doctors: fewer than 20 responded.

Now that general practitioners are gaining experience of the Health Service many of them who a year ago were doubtful about taking assistants or partners are deciding to do so. At present the Bureau is filling about 50% of the vacancies referred to it, whereas nine months ago the figure was about 30%. Certainly the Bureau has found no evidence to support allegations that principals tend no longer to seek partners but prefer a succession of assistants. As the director said in his report[1]: "Contrary to expectation, there seems to be an increasing tendency for the retiring doctor to wish to preserve the practice as an entity by securing the introduction of a 'logical

[1] *British Medical Journal Supplement*, 1949, 2, 226.

successor' or by taking in a partner for a longer or shorter period."

The services of the Bureau are free to members of the B.M.A., and that doctors are finding it useful is clear from the steady increase in the numbers who seek its help. Its offices are at B.M.A. House in London, at 7, Drumsheugh Gardens, Edinburgh, and at 33, Cross Street, Manchester.

VITAMIN C AND BENZENE POISONING

Having observed that the symptoms of scurvy resembled those of benzene poisoning, Meyer[1] carried out the experiment of giving large amounts of ascorbic acid to guinea-pigs in order to find out if they became more resistant to benzene: he found that they did. Friemann[2] measured the output of ascorbic acid in the urine of men exposed to benzene fumes and found it reduced, and Forssman and Frykholm[3] observed signs of vitamin-C deficiency in the majority of 26 men exposed to benzene fumes, as compared with 23 men in the same industry who were not exposed to the fumes. The relation between vitamin-C deficiency and exposure to benzene fumes has now been more fully studied by Ekman,[4] who used large numbers of guinea-pigs and came to the following conclusions. Guinea-pigs exposed to benzene vapour daily lose weight and die. The administration of large amounts of ascorbic acid gives some protection, since they gain weight and not all of them die: to obtain complete protection the guinea-pigs must be given not only ascorbic acid but also cucumber or citrin. Cucumber contains large amounts of ascorbic acid oxidase, an enzyme which increases the breakdown of ascorbic acid in the body. Ekman considers that this oxidase accelerates the rate at which ascorbic acid breaks down the benzene molecule. Thus the protection given against benzene by ascorbic acid and cucumber depends on the fact that these agents furnish a means of destroying cyclic compounds like benzene.

PAIN OF VISCERAL ORIGIN

The mechanism of visceral pain is still a matter for speculation, mainly because it is difficult to obtain reliable factual information. The investigator is dependent on the patient's interpretation of the sensations which various manœuvres may provoke. Furthermore, the patient may be under the influence of drugs at the time or affected by a very natural anxiety. Nevertheless, certain constant responses have been noted, and recent investigations have added fresh information about visceral sensitivity. The earlier teaching that the viscera are at all times insensitive to ordinary stimuli must be modified in the light of the findings of Kinsella,[5] Brown,[6] and Bentley.[7] There can be no doubt that an inflamed or diseased area in a viscus can be tender to direct pressure, and even normal organs—for instance, the testes—may be sensitive. The pain is not well localized, due partly to the relatively small numbers of afferent nerves from the viscera and partly to the sensorium being uneducated to interpret these rare sensations. As a result, the tendency is to relate the pain to the embryonic position of the viscus. Bentley[8] has demonstrated that the afferent fibres travel via the splanchnic nerves, since he found that splanchnic block abolishes the tenderness of a peptic ulcer. Stretching or spasm of the muscle of the hollow organs of the abdomen causes pain which is mediated by the same nerves. Such pains may be associated with voluntary guarding, but not as a rule with true involuntary rigidity. This latter is largely dependent, as Morley showed, on irritation of the parietal peritoneum and, with acute local tenderness, is the most reliable sign of inflammation in the abdomen.

Though it seems clear that visceral and parietal irritation causes distinct sensations of pain carried by different nerves, the question remains whether there is a place for Mackenzie's old theories of the viscero-cutaneous reference of pain and of viscero-motor reflexes. So far as the abdomen is concerned there is little need to invoke these hypotheses, except perhaps for the unilateral rigidity of renal colic. But the radiation of pain in angina pectoris is difficult to explain otherwise, and the concept of an irritable focus in the spinal cord has recently been reintroduced to account for certain ill-understood painful states in the upper limbs.[9] Though much remains to be learned, it is now possible to interpret with fair accuracy pain and tenderness due to visceral disease.

MEDICINE, 1900–50

Anyone born in the year 1900 probably likes to think of himself as a child of the twentieth century. But according to the Astronomer Royal he is not; he belongs apparently to the nineteenth century. The cause of the disappointment is that there was no A.D. 0, or at least no A.D. 0 has been admitted by the chronologists. The error having started so far back, no one has yet had the common sense to say outright that the first century by some mishap contained only 99 years. If this convenient and charming fiction had been adopted there would not have occurred at intervals of 50 years since pedantic discussions about the beginning and end of centuries. According to *The Times*[10] Kaiser Wilhelm II declared firmly that 1899 was the last year of the nineteenth century. To-day we find ourselves in the much better company of France, whose Ministry of Justice has decreed that on Sunday, January 1, 1950, France will enter the second half of the twentieth century.[11] On the reasonable assumption that 50,000,000 logical Frenchmen cannot be wrong, this *Journal* in its issue of January 7 will celebrate the first half of the twentieth century by publishing a special symposium on the theme "Fifty Years of Medicine." It will do that firm in the conviction that at least no one will hesitate to celebrate January 1, A.D. 2000, as a remarkable date in the history of the human race.

Dr. Howard Nicholson will deliver the Goulstonian Lectures before the Royal College of Physicians of London (Pall Mall East, S.W.) on Tuesday and Thursday, January 10 and 12, at 5 p.m. His subject is "Suppurative Pneumonia."

[1] *Z. Vitaminforsch.*, 1937, 6, 83.
[2] *Arch. Gewerbepath. Gewerbehyg.*, 1936, 7, 278.
[3] *Acta med. scand.*, 1942, 128, 256.
[4] *Acta Pharmacol. Toxicol.*, 1947, 3, 261.
[5] *Brit. J. Surg.*, 1940, 27, 449.
[6] *Lancet*, 1949, 1, 994.
[7] *Ann. R. Coll. Surg. Eng.*, 1948, 3, 328.
[8] *Ann. Surg.*, 1948, 128, 881.
[9] Steinbrocker, O., Spitzer, N., and Friedman, H. H., *Ann. intern. Med.*, 1948, 29, 22.
[10] December 17, 1949.
[11] December, 18, 1949.

TREATMENT OF PULMONARY TUBERCULOSIS WITH PARA-AMINOSALICYLIC ACID AND STREPTOMYCIN

PRELIMINARY REPORT

A clinical trial of *p*-aminosalicylic acid (PAS) and streptomycin in pulmonary tuberculosis was undertaken in 1948 by the Medical Research Council, with the co-operation of the British Tuberculosis Association. The trial is not yet completed, but certain results already obtained are of such importance that the joint committee responsible for guiding the trial has decided to issue the following preliminary statement.

A major disadvantage in the use of streptomycin is that the period of effective therapy is limited in many patients by the emergence of streptomycin-resistant strains of tubercle bacilli after five or more weeks of treatment. It has been thought by many workers that the addition of another tuberculostatic agent might be sufficient to suppress the resistant strains, which in the initial phases are present in very small numbers; published reports on a few cases treated with PAS and streptomycin have been encouraging. The present investigation was planned to examine, by the method of controlled trial, the possibility that PAS has this property, and at the same time to assess the clinical effect of this drug alone and in combination with streptomycin. Accordingly, three treatment groups of over 50 cases each were observed: (*a*) PAS alone (20 g. of the sodium salt daily); (*b*) streptomycin alone (1 g. daily); and (*c*) both drugs together (20 g. of the sodium salt of PAS and 1 g. of streptomycin daily). The methods were similar to those employed in the first M.R.C. clinical trial of streptomycin in pulmonary tuberculosis (*British Medical Journal*, 1948, 2, 769), and the type of case was again defined as follows: acute rapidly progressive bilateral pulmonary tuberculosis, of recent development, unsuitable for collapse therapy, in young adults aged 15 to 30. After acceptance for the trial by a panel, patients were allocated to one of the three treatment groups by a method of random selection. The prescribed treatment was given for three months in each case. Clinicians and pathologists at eleven hospital centres have co-operated in this investigation, keeping uniform records, employing standard clinical and bacteriological procedures, and reporting results at regular intervals to the Council's Tuberculosis Research Unit, where the grouped results have been analysed.

For this well-defined type of case of pulmonary tuberculosis the trial has demonstrated unequivocally that the combination of PAS with streptomycin reduces considerably the risk of development of streptomycin-resistant strains of tubercle bacilli during the six months following the start of treatment. This conclusion is applicable so far only to the acute form of disease treated, and it remains to be seen whether the same results are obtainable in other forms of tuberculosis amenable to streptomycin therapy. Furthermore, the conclusion is applicable only to the large dose of PAS used; this dosage causes discomfort in some patients, and it has been agreed to find out, by further trials, whether smaller doses would achieve the same result. It must be stressed also that streptomycin is effective only in certain forms of tuberculosis, and the finding reported here must not be interpreted as indicating that a combination with another drug will be effective in those forms in which little result would be expected from streptomycin alone.

REFRESHER COURSE FOR GENERAL PRACTITIONERS

ANALGESIA IN CHILDBIRTH

BY

C. LANGTON HEWER, M.B., M.R.C.P., F.F.A.R.C.S.

Senior Anaesthetist, St. Bartholomew's Hospital

One of the first facts the medical student is taught when starting his course in obstetrics is that labour is a physiological function. It does not take him long to find out that however physiological the process may be it is usually accompanied by pain, which may be severe. To alleviate this pain without danger to mother or child has been a problem facing obstetricians and anaesthetists for over a century: now it is known that not only the mother but the baby benefits from painless childbirth.

Suggestion

It can safely be said that there is no known method of achieving general or local analgesia with drugs which may not either affect the course of labour or have some deleterious action on the mother or foetus. The only absolutely safe method of analgesia is that obtained by suggestion, one form of which is associated in this country with the name of Dr. Grantly Dick Read. The theoretical basis of this technique depends upon the assumption that fear causes a sympatheticotonia which makes the circular fibres of the cervical sphincter contract. In turn the longitudinal fibres of the upper uterine segment increase their tension to overcome the obstacle, and eventually the threshold of pain is crossed—"A tense woman means a tense cervix and a long and painful labour." This is probably an over-simplification of a complicated process, but there is no doubt that antenatal suggestion combined with relaxation at crucial times of the labour can work wonders with a co-operative patient. Unfortunately, this technique makes heavy demands on the doctor's time and patience, and in these days it is frequently impracticable.

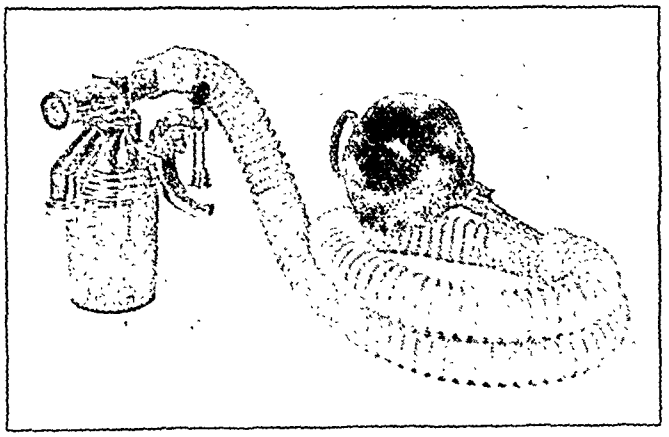
General Analgesia by Volatile Drugs: Chloroform

All volatile anaesthetics are to some extent analgesic when given in subnarcotic concentration, and most of them have been employed in this way in obstetrics. Chloroform analgesia has been in use for over a century, and the method is known as "à la reine," since John Snow practised it on Queen Victoria in 1853 during the birth of Prince Leopold. Chloroform analgesia is still widely used in rural areas of Great Britain, and general practitioners often fit up some type of Junker's apparatus and mask so that the patient

can obtain relief by hand-pumping. If chloroform must be used, Mennell's bottle is probably the safest auto-inhaler as it cannot be upset and is difficult to overfill. The tubes cannot be connected up wrongly, and the vapour concentration is normally insufficient to produce loss of consciousness. Capsules containing 20 min. (1.2 ml.) of chloroform have also been used; they could be crushed and placed under a mask to produce analgesia. Although it is probable that primary cardiac failure is less likely to occur during labour than at other times, chloroform is a toxic drug to both mother and child and its use is not to be encouraged.

Trichlorethylene

"Trilene" (purified trichlorethylene) has largely replaced chloroform as an analgesic in labour, since there is no doubt that it is less toxic to the liver and much less likely to cause primary cardiac failure. The most popular auto-inhaler in this country is Freedman's, a "draw-over" apparatus which delivers a vapour concentration of about 0.65% trilene in air. A hole near the facepiece must be covered by the patient's finger before trilene vapour can be inhaled, and thus acts as a safety device. This method is so convenient and reliable that an investigation was instituted by a committee of the Royal College of Obstetricians and Gynaecologists to see whether it could be used by unsupervised midwives. A study of 2,354 cases showed that the technique was most efficient, only 7% of the mothers being



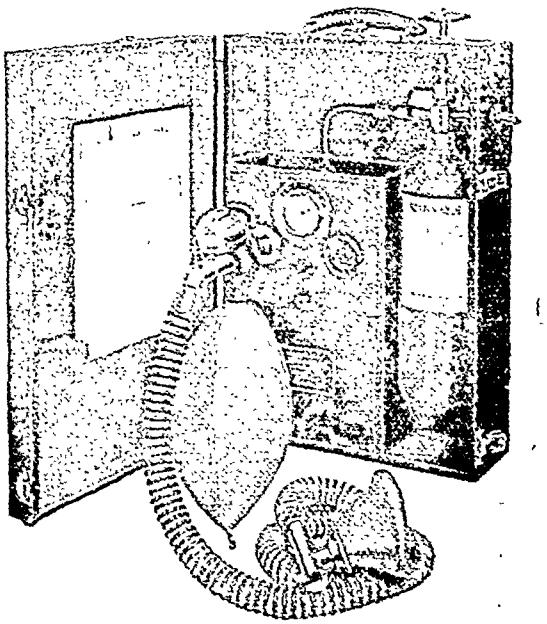
The Freedman inhaler. (By permission of A. Charles King, Ltd.)

dissatisfied with the relief obtained. There was no evidence of increased risk to mother and child, but the committee did not recommend that legislation be passed for the method to be used without medical supervision. Other "draw-over" inhalers have been devised with which the vapour concentration can be varied to suit the individual patient, one of the simplest and most efficient being the "cyprane." The Oxford ether vaporizer can also be used for the same purpose; 7.5% on the ether calibration is equivalent to approximately 1.5% trilene.

Nitrous Oxide and Air

Nitrous oxide and air analgesia was popularized in 1933 by Minnitt, who adapted a McKesson oxygen-therapy apparatus for the purpose. Modern machines deliver about 45% nitrous oxide in air and work on the intermittent-flow principle, so that no gas escapes when the patient raises the facepiece. The air-hole normally covered by the patient's finger acts as a safety device. Gas and air should not be started too early in labour, and certainly not before the uterine contractions are causing discomfort. This will probably be at about five-shillings dilatation of the cervix. It is essential that inhalation be started at the very first warning of a pain. Between the pains, restful sleep is usually obtainable.

During the second stage of labour, inhalation of gas and air is stopped at the height of a pain and the patient asked to bear down while holding her breath. Further inhalations of the mixture can be taken after each effort. As the head



The Minnitt gas-air apparatus (portable model). The Chassar Moir attachment has been added to the delivery tube where it leaves the machine. With the cylinder valve open the 2.5-litre bag will fill with pure nitrous oxide—the first three or four breaths will be of nitrous oxide alone, after which the patient inhales the standard nitrous-oxide–air mixture. (By permission of A. Charles King, Ltd.)

is crowned, continuous inhalation should be given until the birth of the child, the patient being instructed not to bear down.

Pure nitrous-oxide–air analgesia administered from an approved apparatus is the only form of inhalation which may be given without medical supervision by midwives trained in its use. Since July, 1946, all pupil-midwives must take a course of instruction and be found proficient before enrolment as midwives. Nitrous-oxide–air analgesia is extremely safe and non-toxic apart from the slight risk of anoxia. The analgesia is, however, not always so complete as is desirable and the onset is rather slow. The former disadvantage can be overcome by adding a trace of trilene vapour to the mixture by some device such as a Rowbotham's bottle plugged into the circuit. A more rapid onset of analgesia can be obtained by starting each inhalation with two to three breaths of pure nitrous oxide followed by the gas-air mixture. A Chassar Moir attachment enables this to be done. It must, however, be clearly understood that any modifications to standard machines disqualify midwives from using them without supervision. The weight and bulk of the necessary apparatus constitute a definite disadvantage when gas-and-air analgesia is used in domiciliary practice. In addition to Minnitt's apparatus certain other types of intermittent-flow machines, such as the "Amwell" and the "Jecta," are recognized as safe for use by midwives.

Nitrous Oxide and Oxygen

The substitution of oxygen for air diminishes the risk of anoxia but renders the method impracticable for midwives and increases the bulk and weight of the apparatus. It is,

however, probably the safest form of inhalation analgesia for obstetrics and tends to shorten the course of labour by increasing the force of the uterine contractions. During the birth of the child a brief period of anaesthesia is easily obtained, but some obstetricians hold the view that from a psychological aspect it is better for the mother to retain consciousness. Light narcosis is desirable, however, should perineal sutures have to be inserted.

Analgesia by Non-volatile Drugs

In 1902 Von Steinbüchel and Gauss introduced "twilight sleep," which consisted of an initial injection of morphine and scopolamine followed by supplementary doses of scopolamine alone. Some analgesia and considerable amnesia resulted, but the frequent prolongation of labour resulting in the birth of a narcotized baby soon diminished its popularity. Most obstetricians now feel that morphine and its derivatives should seldom be used before the birth of the child.

The many non-volatile drugs which have been tried as substitutes for morphine include rectal paraldehyde and bromethol ("avertin"), and oral barbiturates such as pentobarbital ("nembutal"). More recently pethidine and physeptone have been employed, but unfortunately all these drugs tend to diminish uterine contractions and to depress the infant's respiration. It is impossible in this article to give details of the various techniques, or even to mention the many combinations of drugs which have been tried.

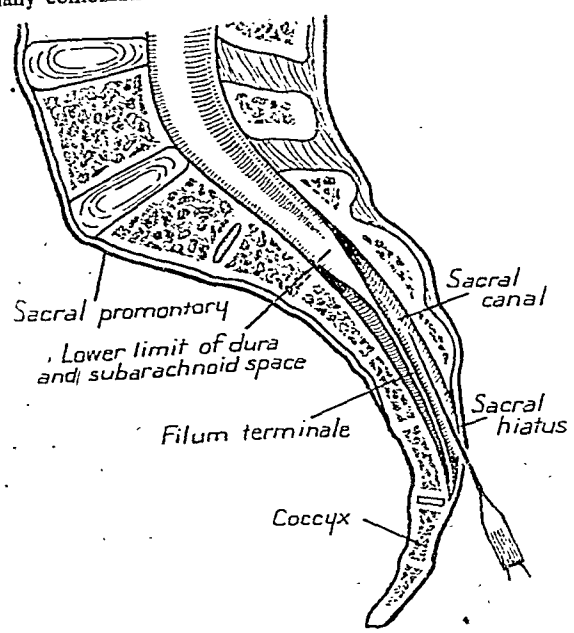


Diagram to illustrate the principle of caudal analgesia. The analgesic solution is injected through the sacral hiatus to render the nerves in the sacral canal insensitive, but remains outside the dural sac.

Intravenous procaine has also been used, and is said to be satisfactory. It is injected as a slow intravenous drip in a dilution of 1% in 5% aqueous glucose solution. It should be noted that it is unwise to exceed the rate of injection of 20 mg. of procaine per minute, or tachycardia, muscular twitching, and finally convulsions may ensue.

Local Analgesia

In order to be successful local analgesia for childbirth must obviate the pain both of the uterine contractions and of the dilatation of the birth canal. The method known as fractional caudal block has come to the front recently, and extremely good results are claimed for it. Very briefly, the technique consists in the insertion of a malleable needle or a ureteric catheter through the sacral hiatus into the caudal canal and injecting at intervals an analgesic solution such as 1% procaine. It should be clearly realized that this technique alters the whole course of labour. The patient has no urge to bear down or to use her abdominal muscles in the second stage, so that this is usually prolonged, while interference with the normal flexion of the head and rotation of the occiput result in an unusually high proportion of occipito-posterior presentations. The incidence of forceps deliveries is also increased. The insertion of the needle may prove difficult or impossible, particularly in fat patients, and inadvertent spinal block is a possible complication. Furthermore, sepsis and broken needles are not unknown. It will therefore be seen that the method demands a skilled team working in hospital, and it is outside the scope of the general practitioner. In an emergency some relief can be obtained from the pain of stretched tissues by infiltration on each side of the midline half-way between the anus and the edge of the perineum.

Spinal analgesia has been given a good trial, and, though it still has some advocates, the general feeling is that it is unsatisfactory for labour. There would seem to be an overaction of the circular fibres of the uterus combined with underaction of the longitudinal muscle, so that the organ contracts violently with diminished expulsive power. This would appear to be borne out by the fact that spinal block is frequently successful in the treatment of post-partum haemorrhage due to uterine atony.

Conclusions

From the foregoing remarks it will be obvious that there is an almost infinite choice in the possible techniques of analgesia for childbirth. There are bound to be considerable differences of opinion about their relative merits, but my own views are as follows:

(1) If an experienced anaesthetist is available, the safest and best method is nitrous-oxide–oxygen inhalation, intermittent during the pains of the late first and second stages and continuous during the birth of the child.

(2) If a general practitioner is present, the midwife can give trilene and air under his supervision with some type of auto-inhaler such as Freedman's. Alternatively, the gas-gas-air sequence can be used with the Chassar Moir attachment to a Minnitt's apparatus.

(3) If only the midwife is present, inhalation of a gas-air mixture from an approved machine is the only permissible method.

(4) If the delivery is taking place in the service of an obstetrical unit at a large hospital some local technique such as fractional caudal block may prove excellent.

It should be mentioned that only normal labours in healthy mothers have been considered in this article. Pathological conditions may necessitate some modifications of the analgesic technique.

The Scientific Film Association is conducting for its information service a national survey of makers, owners, and users of scientific films. It would be glad to be informed of the name and address of the makers of such films, the gauge and running time, and a brief synopsis of contents. Particulars of the association's work may be obtained from the secretary at 4, Great Russell Street, London, W.C.1 (Telephone: MUSeum 2403).

BRITISH ORTHOPAEDIC ASSOCIATION

ANNUAL MEETING

The annual meeting of the British Orthopaedic Association was held at Bristol from October 13 to 15 under the presidency of Mr. S. A. S. Malkin (Nottingham).

Orthopaedic Surgery and Traumatic Surgery

A discussion on the relationship of orthopaedic surgery to traumatic surgery was opened by Mr. William Gissane (Birmingham). He said that 80% of patients were admitted to casualty departments because of accidents, and only 10% required reference to the medical or general surgical departments. The casualty department had often proved a barrier to prompt and effective treatment, and control of these departments might justly be claimed an orthopaedic commitment. Fractures provided but a small part of the work of accident services. Accident hospitals like that at Birmingham could be developed for a population of about two million people, and should receive at once, both on economic and on clinical grounds, injuries of a specialized nature. An accident unit should retain and develop its relationship with surgery as a whole, and every accident hospital should be attached to a teaching hospital. After preliminary experience in general surgery and full training in orthopaedic surgery, intending traumatic specialists should acquire at least the first principles of plastic surgery and thereafter gain practical knowledge of the work of a special accident unit.

Mr. E. A. Nicoll (Mansfield) said that traumatology was now practised in three ways: in conjunction with orthopaedics; as part of general surgery; and as a specialty in its own right, a status which was hardly yet justified, and which in any event was inseparable from an orthopaedic training. Better distribution of orthopaedic surgeons was required.

Mr. H. Osmond-Clarke (London) considered that accident units should usually be situated in general hospitals, maintaining close contact with teaching hospitals. Whether the surgeon confined himself to traumatic work or not, training in general and orthopaedic surgery was essential. Mr. Rainsford Mowlem (London) emphasized the importance of full co-operation in any traumatic unit between plastic and orthopaedic surgeons. Mr. R. H. Metcalfe (London) referred to one Metropolitan region in which registrars had been enabled to gain a varied experience by working in rotation through appointments in casualty departments, wards, consultative out-patient departments, and long-stay orthopaedic hospitals.

Mr. Bryan McFarland (Liverpool) considered that an accident unit should be within a general hospital, with an orthopaedic surgeon in charge. The co-operation of a plastic surgeon in the treatment of injuries and in the training of orthopaedic specialists was desirable. Miss M. Forrester-Brown (Bath) referred to the Ontario scheme of postal advice upon radiographs. The president hoped that this expedient would not be followed. Mr. H. Langston (Southampton) considered that Mr. Metcalfe's scheme for registrars was excellent, pending the formation of large accident units.

Mr. Norman Roberts (Liverpool) said that the accident unit should be situated in a general hospital. The casualty department should be controlled by the accident service and directed by the orthopaedic surgeon. Mr. J. C. Scott (Oxford) deplored the inadequate orthopaedic training of many traumatic surgeons. Mr. E. N. Wardle (Liverpool) regretted the frequent appointment of the most junior member of a general hospital staff to the casualty or accident department. Mr. Roland Barnes (Glasgow) advocated an accident unit under the control of the orthopaedic department in every teaching hospital.

Professor George Perkins (London) thought it was generally agreed that everyone practising orthopaedic or traumatic surgery must be properly trained, and also that traumatology was not to be encouraged as a specialty. The president took the same view and said that practical experience was more important than a special degree. The emphasis should be on training in general orthopaedic surgery, and thereafter on special training in the principles of plastic surgery and traumatology.

Lesions of the Lumbar Intervertebral Disk

Mr. J. Pennybacker (Oxford), on the basis of 800 cases, mentioned first the importance of differentiation from cases of neoplasm, which were often misleading in their symptoms, but in which the neurological signs were usually progressive. Occasionally radiographs would show scalloping of the vertebral bodies or increased width between the pedicles; lumbar puncture usually revealed an increased protein content of the cerebrospinal fluid, and as a rule myelography established the diagnosis. Other conditions which might cause difficulty in diagnosis were tuberculous arthritis, metastatic carcinoma, and spondylolisthesis.

No lesion was found at operation in 3% of cases. Naffziger's sign and pain on lumbar pressure with the patient prone were important diagnostic aids. Treatment should follow the lines of rest in bed, a plaster jacket for six weeks, and thereafter a corset, operation being reserved for cases which were resistant or in which there were frequent recurrences. Manipulation was dangerous. Exploration must be extensive, including the fourth and fifth lumbar and the first sacral roots without laminectomy; both sides should be explored and the theca opened. Arthrodesis was usually performed only if relief was incomplete.

Mr. E. N. Wardle (Liverpool) regarded retropulsion of a disk as secondary to loss of equilibrium of the whole spine and loss of elastic reaction in many disks. A plaster jacket, applied in head suspension, had given complete relief in 60% of cases. Mr. J. R. Armstrong (London) detailed the causes of operative failure. Sometimes there was no lesion, or, more often, exposure was at the wrong level or a midline disk lesion made disclosure difficult. A double lesion was found in about 20% of cases; a bilateral lesion might need exposure on both sides. In some cases insufficient removal might allow further protrusion; or a previously healthy disk might prolapse. In other cases a nerve root might be damaged or might become adherent; there might be arthritis of intervertebral joints. Arthrodesis at the time of the first operation he condemned as unnecessary. It increased the complications and danger, and demanded a more prolonged post-operative immobilization. Where it was necessary, arthrodesis could more conveniently be undertaken later; it was difficult to repeat an operation on a nerve root after an unsuccessful arthrodesis.

Other Subjects

A number of short papers were presented on a variety of subjects.

Protrusions of Cervical Disks.—Mr. G. L. Alexander (Bristol) referred first to nerve root compression. He ascribed the frequent involvement of the sixth and seventh cervical roots to their thickness; the eighth cervical root, also thick, escaped because its course was less oblique and it was less prone to stretching by cervical and shoulder movements. In cord compression the symptoms and signs were often confused; lumbar puncture seldom helped, but myelography might. Cord compression called for laminectomy and removal of the displaced material. Operative results were imperfect.

Lambotte.—Professor J. Verbrugge (Antwerp) painted a vivid picture of Monsieur Lambotte, an early pioneer of bone suture. At 85 this versatile and ingenious surgeon still operated occasionally.

Fractures of the Upper End of the Radius in Children.—Mr. C. C. Jeffrey (Birmingham) confined his remarks to fractures through the neck of the radius and separation of the upper epiphysis. Most were abduction injuries, the position of the forearm determining the direction of the tilt, which could be estimated before reduction by radiography in various positions of rotation. Closed reduction was performed by digital pressure on the radial head in an appropriate degree of rotation with adduction of the elbow. The late results were good provided the radial head had not been completely displaced. Occasional premature fusion was much more likely if there had been complete separation, and would lead to deformity of the head of the radius and limitation of movement.

Experimental Rupture of the Medial Ligament of the Knee.—Mr. E. A. Jack (Edinburgh) had studied the results of

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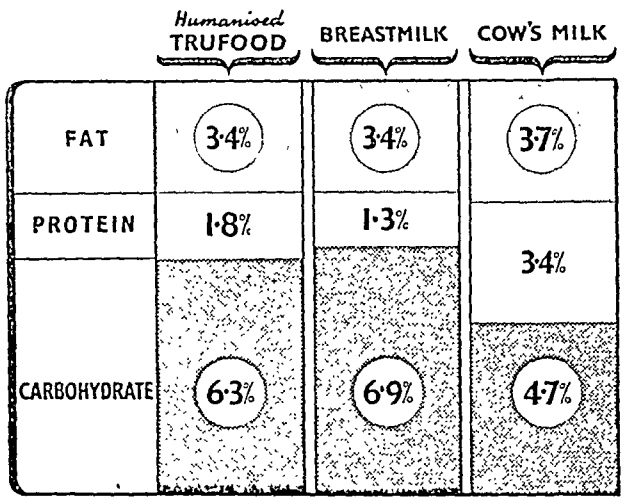
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THE INTRAVAGINAL TAMPON IN MENSTRUAL HYGIENE

An important clinical study

Significant facts obtained by the close observation of 25 parous and nonparous women

In view of the increasing use of the intravaginal tampon for the absorption of the menstrual flow, the following important study was undertaken to determine whether or not this method of sanitary control is safe and not prejudicial to health.

Twenty-five women—parous and nonparous—were selected and were under daily institutional observation during two successive catamenial periods. Ranging in age from twenty-one to forty-five, some had previously used tampons, others had not.

The following summary indicates clearly the findings of the study.

1. In not a single instance was there any evidence of local irritation brought about by the use of the tampons.
2. No uterine cramps, suggestive of block of the uterine flow or damming back into the tubes were reported in any case of this series.
3. No bladder irritation was reported.
4. The average number of tampons used in a period was ten.
5. In cases in which a cervical erosion was present, neither the amount of bleeding nor the character of the erosion was altered by the use of the tampons.
6. There was no appreciable difference in the bacterial flora of the vagina and cervix, as determined by smear and culture, before menstruation and after the use of the tampons during the menstrual period.
7. There was no appreciable difference in the pH of the vaginal or cervical secretions before menstruation and after the use of the tampons during the period.
8. Absolute comfort and complete absorption of the flow was obtained by the proper correlation of the size of the tampon with the length and calibre of the vagina.
9. *The evidence is conclusive that the tampon method of menstrual hygiene is safe, comfortable and not prejudicial to health.*

Reprinted from the Medical Record, U.S.A. for May, 1942

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experimental rupture of the medial ligament of the knee in the cat. Ligamentous recoil always left a gap which could no longer be closed after seven to ten days. Healing occurred except when the rupture was at the upper end of the ligament. These experiments suggested that the ligament should be sutured during the first week, with the least possible damage to its blood supply.

Experiences in Mauritius.—Mr. J. M. Fitton (Mauritius) described the island's peculiarities and the orthopaedic service which had been developed since 1945, when an epidemic of poliomyelitis occurred. Mr. H. J. Seddon (London) referred to the magnitude of Mr. Fitton's task and his modesty. Other Colonial orthopaedic centres had now been established in Malta, Nairobi, and Lagos. It was imperative that the men who built up these centres should find places on their return home.

STAFF COLLEGE FOR HOSPITAL ADMINISTRATORS

KING EDWARD'S HOSPITAL FUND FOR LONDON

At a meeting of King Edward's Hospital Fund for London held on December 14 at St. James's Palace, H.R.H. the Duke of Gloucester said that the management committee had been giving careful consideration to the ways in which the Fund's resources could best be used. They now sought approval for three main proposals.

It was proposed that a sum of £100.000 should be placed again at the disposal of the Distribution Committee for grants to hospitals. The second proposal involved the allocation of £80,000 to the Convalescent Homes Committee. Thirdly, there were grouped together a number of activities and projects.

Some of these are already well known, for example, the Emergency Bed Service. Others, such as the division of hospital facilities, the staff college for ward sisters, the training school for medical records officers at the Middlesex Hospital, and the projected training centre for hospital caterers at St. Pancras Hospital, were discussed at previous meetings, and have been described in the *Journal*.

The most important new proposal is the establishment of a residential staff college for hospital administrators. On this subject there have been consultations with the Institute of Hospital Administrators, and the Fund has already acquired suitable premises. Mr. Constable, the present house governor of St. George's Hospital, has agreed to resign his hospital appointment and he will become the first head of the new college. Some months must elapse before the college can be opened, but it is already assured of the support of the Ministry of Health.

At the same meeting Sir Wilson Jameson pointed out that in the metropolitan regions there were more than 120 hospital management committees each with a chief administrative officer, and there were, in addition, several hundred senior officers in charge of unit hospitals. Though hospital management called for special inborn qualities of mind and spirit, he thought that much could be done to develop and strengthen these qualities by an enlightened system of training. In some countries training in hospital administration was provided by universities, but in England such provision on any scale was most unlikely, though in the teaching of the subject some of the methods of university instruction might well be used. A college of the kind now proposed—in part residential for students, in part a centre for the exchange of ideas between existing administrators, members of boards and management committees, doctors, nurses, and others connected with hospital work—would do much to raise the standard of hospital administration in this country.

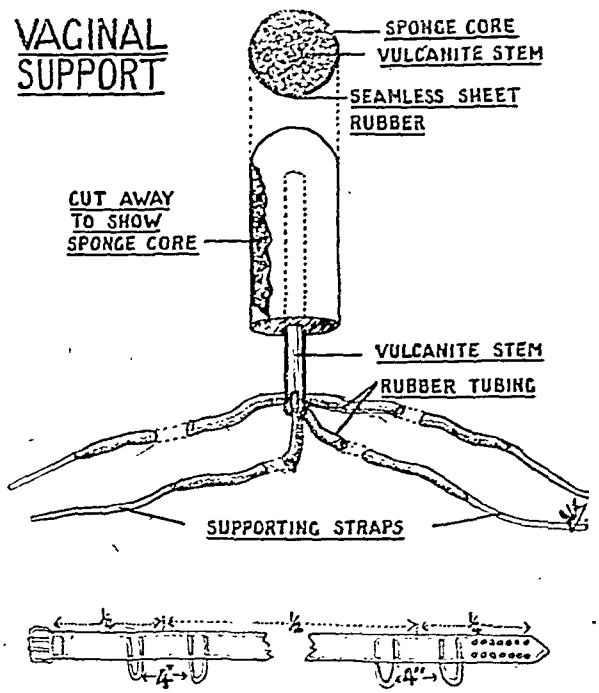
Yugoslavia has made a voluntary contribution of $10.000 to the Supplementary Budget of the World Health Organization for 1950. WHO's regular budget is $7,500.000, but an additional $10.000.000 has been requested from member States in voluntary contributions for the development of health programmes.

Preparations and Appliances

A NEW TYPE OF VAGINAL SUPPORT

Dr. DAVID L. ARNOLD, D.R.C.O.G., writes: In the hope that some measure of relief may be afforded to those who are condemned to a life of semi-invalidism on account of a uterine prolapse for which surgical relief cannot be given, I bring the following appliance to the notice of practitioners.

The first case in which the support was used was one of a thrice-recurrent vaginal vault prolapse. The patient was a married woman aged 62, and was unable to move about without extreme discomfort and pain. She refused to undergo a Le Fort operation, but wished to have some sort of relief from her symptoms. A Napier cup-and-stem pessary was tried, but one week later she still complained of discomfort, and it



was found that the rim of the pessary had ulcerated the vagina over a large area; it was therefore decided to try to design a more comfortable support.

The pessary here illustrated was made and fitted to the patient. It was arranged that its diameter should comfortably fill the vagina, leaving the urinary meatus free of the body of the support, and ¼ in. (1.25 cm.) below its base. It is made of rubber sponge with a sheet-rubber covering and a vulcanite stem, and is supported by a waistband and four straps as used in the cup-and-stem pessary. The patient wears the pessary during the day, inserting it with a little "dettol" cream each morning, and removing it after retiring at night. It is washed and placed in a weak solution of dettol during the night and is ready for use next morning. She has been using the support for two years and continues to be entirely satisfied with it.

Five other cases of procidentia unfit for operation state that the appliance is a success.

It is not suggested that the support should be used in an operable case of prolapse, but it may be of value in any post-menopausal case in which operation is contraindicated. Its advantage over the cup-and-stem pessary is that the pressure area is evenly distributed over the vagina and not confined to one small part.

The appliance is made to order by Messrs. Allen and Hanburys, Ltd.

Reports of Societies

SOME ASPECTS OF UNDERNUTRITION

A meeting of the Section of Experimental Medicine of the Royal Society of Medicine was held on December 13, under the presidency of Professor G. W. PICKERING, when the subject of undernutrition was discussed.

Miss E. M. WIDDOWSON described an experience in 1946 in the British Zone, in the industrial town of Wuppertal, Westphalia. At that time the official German rations provided 1,050 calories a day for the normal consumer. Very few of the population, however, lived as normal consumers. There were many supplementary rations, for one or other of which almost everybody was qualified. The most extraordinary supplement was 30 eggs for the donation of half a litre of blood. Anyone certified as suffering from hunger oedema or as more than 20% underweight also qualified for extra rations in addition to any other extra allowance they might have. Moreover, these supplementary allowances were not the only means of getting extra food; everyone who had a garden cultivated it most diligently.

All the patients certified by their doctors as cases of hunger oedema had to go to a clinic before obtaining their extra rations; it was from these clinics that a group was drawn for more detailed investigation. These people were suffering from calorie deficiency, but not of the most severe type. They looked pale, and it was obvious from their clothes that they had lost a good deal of weight. Oedema was more common in men than in women, particularly in men over 40; it was confined to the legs and generally disappeared after a few days' rest in bed. No signs of vitamin deficiency were seen and there were no complaints of diarrhoea. So far as could be ascertained, there were no deaths in the British Zone which could be attributed solely to undernutrition.

Nineteen men were selected for an unlimited feeding experiment, their ages ranging from 26 to 80 years, and they were given unlimited food for eight weeks. All of them at the beginning showed signs and symptoms of undernutrition; all but two had oedema, and all but one were underweight. They had all been short of food for the previous 18 months. Their first "unlimited" meal was breakfast, at which one of them, aged 80, consumed in margarine, cheese, sugar, and bread the equivalent of 3,170 calories. The men had an unlimited supply of potatoes and other vegetables, tinned meats, dried milk, and cocoa. After a few weeks some were eating less than at first, but others were eating increasing amounts. The average calorie intake during the period was about 6,000 a day, compared with a previous 1,800 or 1,900. These 6,000 calories were obtained from 200 g. of fat, 200 g. of protein, and rather more than 800 g. of carbohydrate. The increase in the amount of food caused no digestive disturbance. The average gain in weight was just over 10 kg. The two octogenarians gained 10.3 and 9.5 kg., respectively. There was no significant change in blood pressure as a result of the feeding. The serum protein rose from 6.4 to 7.1 g. per 100 ml., entirely due to the rise in the globulin fraction.

At the end of the eight weeks, although a few of the men had lost some of their oedema, in others it was worse, and the frequency of the distribution of the various grades of oedema was the same as at the beginning of the experiment. A marked feature was the polyuria, especially at night. The men finally returned to their former rations, which, even when supplemented, amounted to only about one-third of the calories they had been receiving. It was possible to follow the progress of these men during the next two years. At first their weight fell sharply, but with better feeding for the community generally their condition improved considerably.

Professor R. A. MCCANCE spoke briefly on serum cholinesterase. The level of serum cholinesterase, he thought, was a measure of the general metabolic condition or plane of nutrition. For assessing the general nutritional level of a group of 50 or 60 people estimation of the serum cholinesteras level was about as good as any other single test, perhaps better than most. It agreed closely with estimates of the nutritional state from clinical and other tests. But it was good only for group testing. There was considerable variation individually even among normal people, so that it was not much use estimating the serum cholinesterase level of a single person and relating it to the normal average. The other interesting thing about serum cholinesterase was that everything known about it suggested that it had species specificity. Variations with the plane of nutrition, so far as could be discovered, applied only to man.

Birth-weight and Lactation

Dr. R. F. A. DEAN discussed the effect of undernutrition on the size of the baby at birth and on lactation. At Wuppertal the British investigators were fortunate in finding a maternity hospital which had escaped damage during the war, and at which the most meticulous records had been kept for 15 years.

In 1946 a pregnant woman in the British Zone was entitled to food providing about 2,400 calories a day. When she was feeding her baby later she was entitled to 3,500 calories. About 1,200 women in the clinic were interviewed; about half of them said that they got less than 2,400 calories, and 20% said that they got a little over the ration. Nearly all the women wanted more fat. One pint of milk a day was allowed during pregnancy and three pints during lactation. The women were not obviously undernourished and none of them had oedema. They might have been, on a rough estimate, 8% underweight at the beginning of pregnancy. Abnormalities of pregnancy during 1946–7 were not greatly different from those of 1937–8. The average birth-weight in 1937–9 had been about 3,340 g.: in 1945 the average was 3,155. There was a big drop in this respect in the first quarter of 1945, and a further drop in the second quarter, but towards the end of that year there was some recovery. The average daily milk yield of the mother at about the fifth to the ninth day in 1937 was about 320 g.: in 1945 it was 240 g.

It seemed, then, that during the time of the acute food shortage in Germany the children were smaller at birth, and that the mothers had more difficulty in establishing lactation. It was difficult to account adequately for these findings. Some diets which were analysed provided 2,500 calories and contained about 25 g. of animal protein in 75 g. of total protein. It might be that the diet of the women did not contain enough animal protein or that in one way or another it did not provide a good mixture of amino-acids. The psychological upset to which these women had been subjected had, of course, to be considered.

It was possible to follow the growth of 300 children born in 1946 during about six months in 1947–8. The children who were small at birth were nearly always brought up to the average, sometimes quite rapidly, as a result of good feeding. It seemed unlikely that the German children, who now had what food they needed, would show any signs of the hard times during which they were born.

EPIDEMIOLOGICAL RESEARCH ON VIRUS DISEASES

At a meeting of the Devon and Exeter Medico-Chirurgical Society on December 1 Dr. F. O. MACCALLUM spoke on the part played by the general practitioner in epidemiological research on virus diseases.

Virus diseases, Dr. MacCallum said, were coming out of the laboratory and into the field. By taking accurate notes of even a few cases the general practitioner could add to the sum of knowledge in this direction, as had already been done by Dr. Pickles, of Wensleydale. Incubation periods could be verified by noting single and only possible contacts. Material for the diagnosis of virus diseases was readily obtainable by the general practitioner. Material was wanted for labo[illegible] investigation in cases of suspected influenza. [illegible]

questions to be answered. Where did influenza go in the summer? Where did an influenza epidemic start? Vaccines prepared and given in advance might confer immunity to influenza, but it must be confessed that they were often ineffective owing to a change of strain in the virus.

Cases of atypical pneumonia, characterized by acute onset, intense headache, malaise, depression, hacking cough, and absence of fever or other physical signs were probably due to virus infections. One of these infections—so-called Q fever, due to *Rickettsia burneti*—appeared, at any rate in a proportion of cases, to be milk-borne. The incubation period was 14-25 days, and rashes were rare. The rickettsia could be excreted symptomlessly by cows, sheep, and goats for as long as three months, and had been found, though rarely, in cattle ticks and dog ticks.

No serological tests were yet available in this country for differentiating strains of the virus of poliomyelitis. The viruses responsible for a large group of cases labelled "encephalitis" had still to be worked out. The syndrome of lymphocytic meningitis was probably caused by many different viruses. In 80 of 100 cases investigated the virus had not been identified.

Finally Dr. MacCallum pointed out that the distribution of cowpox in this country had not yet been fully mapped, and he asked for scrapings from suspected cowpox lesions.

Correspondence

Colour Plates

SIR,—I am grateful to Professor L. J. Witts for his kind remarks (December 10, p. 1336) about my *Atlas of Bone-marrow Pathology*, but I am disappointed to find that he does not like the colour plates. This is, I am well aware, very much a matter of individual preference, and Professor Witts prefers the lithographic type of reproduction of which Blackfan, Diamond, and Leister's *Atlas of the Blood in Children* is a first-class representative.

There are, however, other views. The *Journal of Pathology and Bacteriology*'s (1948, 60, 648) review of my book said: "In tone, colour, and perfect register these plates do real justice to the skill of the artist, Miss Davison, and are among the very best available in haematological literature. Some of the cells appear small, but they are all drawn to the same scale and their size is actually that which one is accustomed to see with the magnifications usually employed." This last phrase gives the key; the reviewer understands that what I was trying to do was to reproduce the appearances seen down the microscope by those whose job it is to examine bone marrows for diagnostic purposes.

The lithographic illustrations of the *Atlas of the Blood in Children* are beautifully done, but many of the pictures, especially of the more primitive types, show types of cells that are only occasionally seen through the microscope in a blood or marrow film; the plates could not be used for day-to-day help in the laboratory—and were probably not designed for this purpose. Many of the cells in my plates appear not wholly distinct, because that is how they looked. I insisted on a high fidelity of reproduction from the original paintings, and Messrs. Heinemann deliberately rejected the lithographic process because they considered it not good enough to give the results desired. They went to immense trouble to ensure the right "tone, colour, and perfect register." I and Messrs. Heinemann embarked on this production because the many atlases in existence did not, in fact, show actual appearances; most of them showed fine, often very fine, reproductions of paintings of idealized type cells, and the best of the pre-war atlases, that published by Schulten in Germany, was no longer available.

This dilemma, whether to prepare fine reproductions of idealized type cells or whether to endeavour to reproduce actual appearances at the sacrifice of an artificial clarity, has to be faced whenever a colour atlas is contemplated using paintings from which to work. Professor Witts prefers the former; I think the latter of more practical value. Presumably, if colour photomicrography can be sufficiently improved, photographic reproduction will solve the question for us; but that time is not yet.—I am, etc.,

Manchester. M. C. G. ISRAËLS.

Hormones and Rheumatism

SIR,—Dr. Hans Selye's account (November 19, p. 1129) of his most recent work on the adrenal cortical hormones and their inhibiting effect on the development of arthritis makes fascinating reading. I am particularly interested in his interpretation of the results of one experiment.

Fifty rats were divided into five groups, one of which served as controls. The remainder were deprived of food for 24 hours and subjected to various forms of trauma or "stress"—exposure to cold, forced exercise, spinal transection, and injections of formalin—and as a result of these procedures some of the animals were obviously debilitated but others appeared to be in good condition. After subsequent injections of formalin into the paw the controls all developed "formalin arthritis," while the "treated" groups did not. In his interpretation of these results Selye rejects the possibility that the development of lesions was repressed by debility, since some of the animals were obviously in good condition. Instead he suggests—and in your leading article (p. 1159) you agree with him—that the "stress" provoked secretion of ACTH, which in turn stimulated gluco-corticoid production, the last being responsible for the inhibition of arthritis.

For some years I have been intrigued by the effect of debility on the development of lesions in disease. In the case of leprosy[1] and chronic rheumatism[2] I have pointed out that all the agents known to be effective in the suppression of lesions shared a common factor which I referred to as debility but which Selye, perhaps more accurately, describes as stress. I had put down the recession of lesions to the depressing effect of the debility on the reaction of the tissues. While I feel I have no right to dispute Selye's interpretation of this particular experiment, the extensions of this interpretation are sufficiently important to merit discussion.

"Cortisone" release through stress will explain the good results in rheumatism which follow parathyroidectomy and mock parathyroidectomy, fracture of a long bone, hysterectomy, or any major surgical operation. It will explain the effects of gold and atophan poisoning. But what of the success of local measures? Selye's rats injected with formalin between the shoulder blades failed to develop arthritis in the paws. I had believed that such measures as acupuncture, application of Corrigan's button, osteotomy, surgical manipulation, and local injections of distilled water, lactic acid, bee venom, and so on acted locally and produced local effects. While they were generally believed to raise the resistance, I choose to believe that they lowered it by depressing tissue reaction. If these effects are indeed achieved through release of cortisone generally, why should not an injection of lactic acid, say, into the hip cure arthritis in the knee, and why should not manipulation of the elbow improve movements in the ankle? I have discussed this question of local debility following trauma in the paper on rheumatism referred to above. I am convinced that local trauma or interference can operate locally to suppress the development of lesions without the intervention of cortisone.

In discussing the effects of debilitating agents in rheumatism I referred to the reputed efficacy of toxic doses of vitamin D. Here one would now say was a "stress" reaction with cure by cortisone effect. Will cortisone cure lupus, which yields even more spectacularly to vitamin D in toxic doses? And was the previous cure of lupus by Finsen-lamp treatment due to the depressing effect of local trauma or general release of cortisone? Dermatologists, so far as I know, treated all the lesions. Again, I had believed that the cure of general paralysis by malaria could be attributed to the effect of the general debility on the development of anatomical lesions in the brain. I also thought that the local trauma occasioned by the use of convulsants or leucotomy was the agent which repressed the exaggerated behavioural reaction of schizophrenia. Now it

appears that the alarm reaction of malaria or convulsant therapy could release cortisone, which is the final curative agent. But why then are not malaria and leucotomy interchangeable as therapeutic agents?

One more consideration. The effect of stress factors in preventing the development of lesions is beautifully illustrated in the epidemiology of poliomyelitis and in experimental studies of the infection in monkeys. There is the time-honoured observation that the disease attacks only the healthiest children in the community; the incidence is heavy in country districts and light in the towns; heavy in the suburbs and light in the slums; heavy in the well-cared-for children of countries with low infantile mortality and negligible in undernourished tropical children; higher in American whites than negroes; higher in officers than in men; higher in the autumn, when food and vitamins are more plentiful, than in the spring, the season of scarcity, of pellagra and rickets. Experimentally various forms of trauma and malnutrition lower the incidence of disease or give complete protection. Local trauma to the nose and throat region by application of caustics—including, incidentally, formalin—will lower the incidence of the disease. So will deprivation of thiamine or riboflavin. The agents which Selye used to provoke an alarm reaction in rats are all obviously potent in the prevention of poliomyelitis. Selye believes, and you concur in his belief, that these agents finally release cortisone, which prevented or cured formalin arthritis. Do you, Sir, accept the obvious extension of this interpretation of Selye's results? We must wait patiently, I suppose, for increased supplies of cortisone, when practical trial may provide the answers to our questions.—I am, etc.,

Bristol WILLIAM HUGHES.

REFERENCES

1 *Trans. R. Soc. trop. Med. Hyg.*, 1938, **31**, 383.
2 *Ann. rheum. Dis.*, 1942, **3**, 89.

Failed Forceps

SIR,—In discussing the management of occipito-posterior positions of the foetal head and deep transverse arrest your correspondent, Mr. Derek Freeth (December 3, p. 1298), states, "The correct procedure is, of course, the application of Kielland's forceps and not the displacement of the head above the pelvic brim during further attempts at rotation."

I am fearful that this will make many practitioners who have had to seek further assistance in a case of "failed forceps" feel that if only they possesed a pair of forceps with straight blades all would have been well. While not denying that the use of such an instrument may be attended with excellent results in expert hands, I would draw attention (1) to the words of Alan Brews,[1] "It is not easy to use except for an expert who has made himself well acquainted with it"; (2) to one of the few statistical reports on the use of this instrument and to the fact that it shows a higher foetal mortality than with traditional methods,[2] and (3) Monro Kerr's beautiful description of the technique of manual rotation, where stress is laid on the importance of rotation of the shoulders as well as the head.[3]

The successful management of such cases is dependent on an accurate assessment of the position of the foetal head and the skilled use of the hands and not upon whether one buys a new pair of forceps or not.—I am, etc.,

Norwich. A. P. BENTALL.

REFERENCES

1 Eden, T. W., and Holland, E., *Manual of Obstetrics*, 1948, London, p. 727.
2 *Clinical Report of Queen Charlotte's Maternity Hospital*, 1932–3.
3 *Operative Obstetrics*, 1937, London, p. 90.

SIR,—With reference to the letter by Dr. Mabel F. Potter (December 10, p. 1353) I should like to have further particulars. At what stage of labour does she proceed to "spin the occiput"? Is it after full dilatation of the os, before or after rupture of the membranes, and is anaesthesia required? It puzzles me also how pressure with "three fingers on the occiput" could produce flexion of the head. I should have thought it would have extended it further. Further elucidation of these points would be gratefully received.—I am, etc.,

Rhyl, Flints. AUSTEN H. HOLMES.

SIR,—Since two correspondents, Mr. W. P. Hirsch (November 19, p. 1179) and Mr. Bryan Williams (December 10, p. 1353), have stated that there is inadequate consideration of transverse arrest of the head in the standard textbooks in this country, I would respectfully point out that they will find three pages devoted to this particular subject, as well as numerous references in different sections, in *Operative Obstetrics* (Munro Kerr and Chassar Moir, 1949, London).

I would implement the information contained therein by saying that there is no necessity to apply Kielland's forceps in the original manner, but that the "wandering method" with the anterior blade is excellent. This manœuvre removes the danger which has for long been held against the instrument—namely, rupture of the lower uterine segment. There is still another method of putting on the anterior blade when the head is low enough, and that is by direct application. One can easily feel the anterior ear just behind the symphysis pubis in these circumstances, making diagnosis of position easy, and the anterior blade can be directed between the baby's head and the symphysis pubis without disimpaction.

A combination of low spinal analgesia and Kielland's forceps, I believe, is the best method for dealing with transverse arrest of the head, whether deep or otherwise, and for occipito-posterior positions. The operator supplies the extra force required to effect delivery and imitates Nature's mechanism at the same time. I can state, and support with statistics, that foetal mortality is thereby reduced.—I am, etc.,

Oxford. G. GORDON LENNON.

SIR,—I consider that Dr. Mabel F. Potter's letter (December 10, p. 1353) is most misleading. It would appear that confusion exists regarding the definition of persistent occipito-posteriors. I have always understood this to mean direct occipito-posterior (i.e., occipito-sacral). It is established, and I have myself observed, that in many of these cases the head is already well flexed.[1] Hence, if Dr. Potter's interpretation of persistent occipito-posterior is the same as my own, it is difficult to appreciate why flexion—using H. L. Hodge's manœuvre (*Principles and Practice of Obstetrics*, Philadelphia, 1864)—results in anterior rotation.

I can only assume that she refers to occipito-posteriors lying in the oblique position; which leads one to wonder what term she applies to occipito-sacral positions. Furthermore, we know that some 70% of oblique occipito-posteriors rotate spontaneously, so any manœuvre would seem meddlesome unless adequate time has been allowed for this to occur.—I am, etc.

London, N.W.8. R. E. FFRENCH DEVITT.

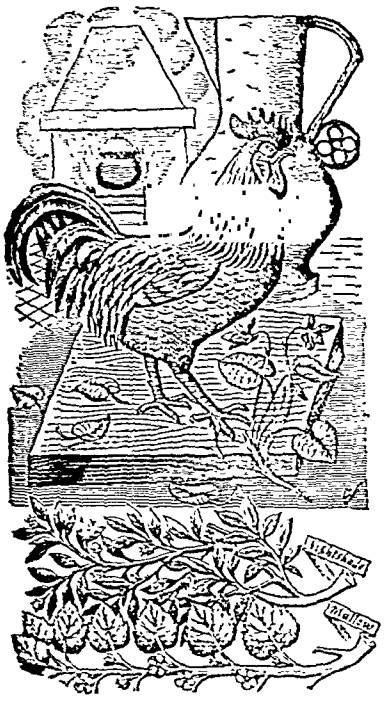
REFERENCE

1 De Lee, J. B., and Greenhill, J. P., *Principles and Practice of Obstetrics*, 1947, Philadelphia, p. 539.

Operative Treatment of Varicose Veins

SIR,—Mr. R. R. Foote (December 3, p. 1295) quotes me as stating "that elastic-adhesive bandage should not be used in the treatment of varicose ulcer." I advise against the use of an "elastoplast" type of bandage—i.e., one which owes its stickiness to a rubber-zinc spread, because many patients are sensitive to it. This rubber-zinc type of bandage is more adherent and elastic than that spread with the lead paste, and it suits a large number of patients when it is properly put on, but in my hospital clinics its ill-effects are well known and patients fear its application. For this reason I have given up its use. A test for allergy to this elastoplast type of bandage is by the application of a piece of it, the size of a shilling, to the leg: if there is no redness the next day then it can be safely used on that person. I have found that the old-fashioned emplastrum saponis type (diachylon or "lestreflex"), which is also reasonably elastic and adhesive, is almost universally acceptable and equally effective.

As regards Dr. H. M. Hanschell's remarks (p. 1296) on my results, I would say that one pulmonary embolism in a thousand is rather less than the incidence after any clean operation below the diaphragm. With regard to my two cases of deep thrombophlebitis, they affected the leg only and not the thigh.



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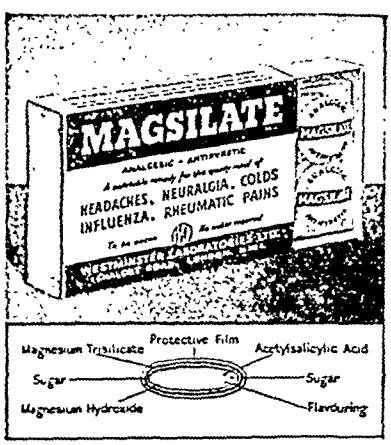
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Both were slight, so that neither heparin nor dicoumarol was used; they responded progressively to compression bandaging. I think that the danger with the method used carries no greater risk from embolism or deep thrombosis than any other clean surgical procedure of similar magnitude. For instance, I recently followed up 300 routine herniae in patients over 50 years old; there were two deaths from pulmonary embolism and one temporarily swollen leg and thigh. Further, these varicose vein results are those of my assistants and myself, the former performing rather more than half.

Dr. Hanschell says, "In an unselected run of over 1,000 patients whose varicose veins are left unabraded and uninjected neither deep thrombophlebitis nor pulmonary embolism is to be expected." I wonder if instead of "is to be expected" he meant "occurred"? None of us expect complications after our clean operations, but . . .—I am, etc.,

London, W.1. H. DODD.

∴ This correspondence is now closed.—ED., *B.M.J.*

New Mechanism of Vitamin Deprivation

SIR,—In his reply to my letter (November 19, p. 1177) Professor A. C. Frazer (December 3, p. 1294) states that his original paper (October 1, p. 731) deals with vitamin deficiency in the sprue syndrome. When this statement, as it seems to do, means "*in the sprue syndrome only*," it is incorrect, since the paper is concerned with the general aspect of vitamin deficiencies. This is obvious from the following items.

(1) The title, "A New Mechanism of Vitamin Deprivation, with Special Reference to the Sprue Syndrome."

(2) From many parts of the text, particularly the introduction, which deals with deficiencies not only of B vitamins but also of vitamins A and D, which are entirely unconnected with the sprue syndrome.

(3) The following passages of the last paragraph of the paper: "This paper is especially concerned with vitamin deficiencies in the sprue syndrome. Special consideration must be given, however, to the possible importance of intestinal bacterial competition in other conditions. A similar competition situation must arise in pernicious anaemia, in which vitamin-B deficiencies are well recognized. . . . The possibility of intestinal bacterial competition along the lines indicated in this paper should be investigated not only in the sprue syndrome but in various other conditions which are thought to be closely associated, such as pernicious anaemia, pellagra, and nutritional megalocytic anaemia (Manson-Bahr, 1940, 1941). The metabolic demands of a varying but essentially non-pathogenic flora may be the key to the problem of the multiple but selective vitamin deficiencies so commonly observed in these conditions."

If Professor Frazer had restricted his discourse to the sprue syndrome alone, as he does in his letter, I would not have commented on it, as I did not do on his former paper[1] on a similar subject but concerned with the sprue syndrome only. I have no personal experience with the sprue problem and I never pretended to deal with it. My comments were based on experience of nicotinamide deficiency as influenced by intestinal bacteria. All of Professor Frazer's replies which rejected my comments as invalid for the sprue syndrome can therefore be dismissed. They have been directed against the claim of having discovered a new mechanism of general vitamin deprivation, which he now withdraws or denies to have had in mind. There are many points in Professor Frazer's letter that would need reply. I limit myself, however, to a few of them.

Professor Frazer is perfectly correct in saying that I do not differentiate between the effects of the administration of natural and of synthetic vitamins. I had always accepted the fundamental pharmacological rule that the action of a chemical compound does not depend on the mode of its origin. Professor Frazer is, however, wrong in saying that I do not differentiate between the effects of different routes of administering the vitamins. A whole paper[2] has been devoted to this problem. I wonder on which experimental evidence Professor Frazer's statement on release or consumption of B vitamins by intestinal *Bact. coli* is based.

I have to apologize for "misquoting" a sentence of Professor Frazer's article by omitting the word "normal" before "human subjects," but this is materially irrelevant, because the investigations quoted were carried out on physically fit persons as well as on pellagrins, and not, as Professor Frazer wrongly states, on deprived subjects or those treated with sulphonamides. From the differences in nicotinamide methochloride elimination before, during, and after administration of succinylsulphathiazole, which changed the composition of the intestinal flora, conclusions were drawn on the importance of these bacteria for the vitamin requirements of the human body.

I fully agree with the statement of the reviewer[3] quoted by Professor Frazer that the full significance of the bacterial synthesis of vitamins by human intestinal bacteria for the vitamin requirements is not yet fully known, but this knowledge can be attained step by step by careful experimental examination only.—I am, etc.,

London, S.W.1. P. ELLINGER.

REFERENCES

1 *British Medical Journal*, 1947, 2, 641.
2 Ellinger, P., and Hardwick, S. W., ibid., 1947, 1, 672.
3 Najjar, V. A., and Barratt, R., in *Vitamins and Hormones*, 1945, 3, 23.

Vagotomy for Peptic Ulcer

SIR,—In the article by Messrs. I. M. Orr and H. Daintree Johnson on the above subject (December 10, p. 1316) we get the surgeons' point of view. We are now anxious to hear what the physician has to say about it. Meanwhile it would not be amiss to have the opinions of general practitioners, for after all it is they who have to guide the patient in arriving at a decision. The doctor thus asks himself, "If I have a peptic ulcer, would I submit myself to vagotomy?" I should say, "Definitely not." Why undergo the trouble and risk when one can quite well control the secretory activities of the vagus with atropine sulphate in gradually increasing doses? Some disagreeable symptoms are apt to follow vagotomy and it is rather a let-down when, after stopping the secretion of acid, the surgeon has to administer hydrochloric acid to stop the diarrhoea which ensues. He has also found that the best results follow vagotomy plus resection of the ulcer or a gastro-enterostomy.

But I have patients working regularly and apparently cured—some after gastro-enterostomy without vagotomy and others treated solely by medical means—and I maintain that uncomplicated peptic ulcer can be cured by this latter treatment if, and it is a big "if," the patient carries out his instructions faithfully not only for three months or so but for the remainder of his life. For I consider that such ulcers come under the heading of "deficiency diseases," like pernicious anaemia and diabetes. The normal, healthy stomach must form a secretion to protect the mucosa from the digestive action of its own juices. When this is deficient or absent ulceration is prone to develop. It is a permanent condition and therefore ulcers are apt to recur and may be multiple. It is significant that ulcers induced by traumatism in the stomachs of healthy animals heal rapidly.

One can quite understand why uncomplicated ulcers heal after vagotomy, which renders the stomach inert and changes it from an organ of digestion into a mere receptacle, and an uncomfortable one at that, since once the food gets in it is difficult for it to get out again owing to impaired motility. In the medical treatment of peptic ulcer I have learnt that it is imperative to give oils and cream before meals in the endeavour to supply a substitute for the natural protective secretion of the mucosa.—I am, etc.,

Upholland, Lancs. J. THOMSON SHIRLAW.

Aureomycin in the Treatment of Pneumonia

SIR,—Dr. J. G. Scadding's article on "The Management of Acute Pneumonias in Adults" (November 26, p. 1225) prompts me to write of a case I have attended recently.

A male aged 46, weighing 17½ stone (110 kg.), who indulges considerably in alcoholic beverages, came home on November 12, 1949, from watching a football match, feeling shivery and ill. He went to bed and called me in next morning. He was in a very dyspnoeic state with a continuous irritating and non-productive cough, and he complained of severe pain in his left epigastrium, radiating to

the left shoulder-blade and increasing with the slightest movement. He was obviously very ill. His temperature was 103° F. (39.5° C.). His abdomen was very distended. On percussion of the left hemithorax there was dullness of the lower two-thirds, with absence of vibration, the cough revealing crepitations in the upper limit of the dullness. Diagnosis of lobar pneumonia was made. He received 500,000 units of penicillin and 2 g. of sulphadiazine. He had the same amount of penicillin twelve-hourly and 1 g. of sulphadiazine four-hourly until November 22. During these ten days no great change was noticed in his general condition except a slight decrease of the fever. A radiograph taken on November 18, although unsatisfactory because of great technical difficulties in handling a very ill and obese patient, showed a large patch of hepatization of the lower left lung and a small amount of fluid in the costal diaphragmatic margin on the same side.

Penicillin and sulphadiazine were stopped on November 22, and he received 500 mg. of "aureomycin" at 6 p.m. on November 23 orally. This was repeated six-hourly until the total dose was 4 g. The response was dramatic: at 9 p.m. his temperature was 98.4° F. (36.8° C.) and the next day his condition was indeed changed—pain had disappeared, the cough became productive, there was no dyspnoea, and the dullness was less pronounced. His condition continued to improve, and on November 28 his lungs were clinically clear.

Unfortunately the unproductive cough made it impossible to examine the sputum at the beginning, but there was no doubt I was dealing with a case of a penicillin-and-sulphonamide-resistant pneumonia. The immediate response to aureomycin, so easy to administer and without any side-effects, will have to be considered in future in such pneumonias.—I am, etc.,

London, W.1 M. KENIG.

Pathological Fracture Treated by Methyl Testosterone

SIR,—The following case history shows how an ununited pathological fracture of the femur due to metastases from carcinoma of the breast united under the influence of methyl testosterone.

A woman aged 50 was admitted to hospital on March 12, 1948, having sustained a fracture of the middle of the shaft of the left femur after a fall in her home. Five years previously she had had a right radical mastectomy performed for carcinoma of the breast, and this was followed by a course of deep *x*-ray therapy. *X*-ray examination showed a complete transverse fracture of the middle of the shaft of the left femur with areas of rarefaction in the adjacent bone. The pelvis showed multiple areas of increased density due to metastases. *X*-ray examination of the chest showed the lung fields clear.

The fracture remained in perfect position on light traction and subsequently a plaster spica was applied. On September 30, 1948, the fracture was quite ununited clinically and the radiograph showed no callus at all. It was kept in position by strapping extension and a Thomas splint, but by this time the patient's general condition had greatly deteriorated. She was very feeble, was vomiting repeatedly, and required large doses of sedatives daily. On October 25—i.e., after the fracture had been ununited for seven and a half months, the patient being by this time in a state of advanced cachexia—methyl testosterone, 20 mg. three times daily, by mouth was commenced. This was increased to 30 mg. t.d.s. on November 4. She began to improve rapidly, vomiting ceased, and in a few weeks she was able to take full diet. No further sedatives were required and she put on weight. On December 10 her general condition had improved remarkably and she was mentally bright, but large masses were palpable in the abdomen rising from the pelvis. A hard fixed mass could be felt in the pouch of Douglas, and there was a pleural effusion on the right side. The fracture by this time felt firm clinically, and *x*-ray examination showed good callus formation—i.e., after seven weeks on methyl testosterone.

Subsequently she developed gross ascites, bilateral pleural effusions, and oedema of the legs, and she died on January 12, 1949. Necropsy by Dr. Keith Simpson showed advanced carcinomatosis in the chest and abdomen, with massive deposits in both ovaries. There were also deposits in the skull, spine, and pelvis. The left femur was dissected out and found to be soundly united by bone. There was apparently no growth in the shaft of the femur.

Pathological fractures due to metastases from carcinoma of the breast do, of course, frequently unite if properly immobilized. The recalcification of bony metastases from carcinoma of the breast under the influence of methyl testosterone is now well known. The interest of this case lies in the striking (though temporary) improvement in the clinical condition, and the rapid union following methyl testosterone administration of the pathological fracture after non-union for seven and a half months. The temporary effects of methyl testosterone and its lack of influence on the soft tissue growth are noteworthy. Adair's[1] findings are thus confirmed in this case. His observations lead him to recommend intermittent treatment with methyl testosterone, a second course being followed by further improvement.—I am, etc.,

Whipps Cross Hospital, London, E.11. S. G. NARDELL.

REFERENCE

1 *Proc. R. Soc. Med.*, 1949, **42**, 468.

The Stability of Society

SIR,—As a mere medical student it is with extreme trepidation that I engage in a joust with Lord Russell. There were, however, one or two points in his erudite, if rather ethereal, Lloyd Roberts Lecture (December 10, p. 1307) to which I would like to draw your attention.

We are told that medical missions in China "do much to diminish the infant death rate; the consequence is that more children die painfully of famine at the age of 5 or 6. The benefit to mankind is very questionable." Medical missions would indeed be gratified if they had reduced the infant death rate by even a fraction of the "much" quoted, and the subsequent aside is hardly relevant to the argument. Is there one law for the Chinese and another for the European? Do we not pride ourselves on the improving record of antenatal and postnatal care? Is such care to be applauded in England and to be condemned in China?

World-wide advocacy of birth control or suitably controlled outbreaks of plague are suggested as means to keep down the world population. Surely a cheaper and more practical method would be for doctors to liquidate their patients instead of to heal them. The chronically sick and infirm, the aged, and the mentally subnormal could be dispatched and thus reduce the number of hungry mouths to be fed. This idea is not so fanciful as it might appear, as we all remember such experiments being carried out in Germany in recent years.

Surely the fundamental error in Lord Russell's thesis is that he tends to regard men *en masse* and not as individuals. He is asking people with hopes and fears and aspirations to submerge their identity in a homogeneous mass. They must forgo the joys and privileges of parenthood because perhaps in fifty years trouble may befall their descendants. I say, God bless those who work among the sick and suffering in China or India or any other country. Let us do all we can to help our fellow men wherever they are in need.—I am, etc.,

London, E.1. JOHN TESTER.

A Sign of Ruptured Ectopic Gestation

SIR,—There are few constant clinical signs in medicine, but I would like to draw attention to one which is, I think, insufficiently recognized. I refer to the loss of consciousness which invariably accompanies the rupture of a Fallopian tube due to an ectopic pregnancy. This is by no means meant as an original observation, for it is mentioned in many places, but it does deserve more prominence, as it may easily be the deciding sign in what may be a difficult diagnosis. I would go further. When one is faced with the usual picture of some six weeks' amenorrhoea, bleeding, and abdominal pain, and if careful questioning elicits a loss of consciousness, however momentary, at the onset of the pain, the diagnosis, in 100% of cases, is a ruptured tube.

This sign does not refer to a tubal abortion, which is different in pathology, symptoms, and prognosis, but I hope I am not labouring the point too much if I again use the word invariable, for I believe this sign to be constant. As such, therefore, it is of the very greatest diagnostic value, and deserves greater prominence than it has hitherto been given.—I am, etc.,

London, W.1. MORTIMER REDDINGTON.

POINTS FROM LETTERS

The Acute Throat

Dr. H. TUDOR EDMUNDS (Slough, Bucks) writes: I am sure many practitioners will feel indebted to Dr. T. Anderson (October 15, p. 860) for his clear exposition on the "Acute Throat" in general practice, but it is surprising he does not mention under the heading of treatment the importance of elimination therapy in throat infections. . . . There is a tendency to-day to over-emphasize the importance of the individual germ and forget the patient. . . . There is an old-fashioned remedy for throat infections which is so simple it is likely to be scorned in these days of complex treatments, but which, if tried, will surprise many practitioners of the younger school. At the onset a brisk purge is given, then calomel, ½ gr. (16 mg.) t.i.d., for three to five days. This dose can be the same for child or adult. The patient is encouraged to take large quantities of fruit juice and water as well as fruit pulp, and a blanket bath is given daily.

Weight Reduction

Dr. P. L. DESHMUKH (Poona) writes: I have been greatly interested in the correspondence on weight-reducing diet for personal reasons as well as in the interest of my patients. The letter of "Apollonian" (July 28, 1945, p. 136) and the subsequent correspondence was a great incentive to me to reduce my own weight. I found his plan very austere. I could maintain myself on it for barely a week doing full work and sport. But then I had to give it up, for the pangs of the plan were enormous for me. There was significant loss of weight for the period, but it soon relapsed to its original level very rapidly. . . . An essential principle in weight reduction, which is often lost sight of, is the stabilization, periodically, of the lower levels of weight reached. It is no use simply going on reducing, for when the restrictions slacken, as they are bound to slacken some time, the weight will start increasing with a vengeance. To prevent this a weight-reducing plan must include a "weight-stabilization" programme. This can be achieved by "re-educating" or "rehabilitating" the metabolism to a lower level or "tune." . . .

Chilblains

Dr. GORDON AMBROSE (Carshalton Beeches, Surrey) writes: Now that we are well into the chilblain season, I think it might be interesting to your readers that I have seen cases of painless swelling of the fingers, and in one case of the toes, following the use of calciferol. I hasten to add that these cases were young women: two were taking halibut-liver-oil capsules, and one was having a course of ultra-violet light at the local hospital for "rheumatism" before and during her course of calciferol. Metabolic disturbances with high doses of vitamin D are well recognized. The effect of painless swelling of the fingers in young women appears out of all proportion to its medical seriousness, and it appears worth while to stop all other sources of vitamin D during a course of calciferol

Angioneurotic Oedema Caused by a Bee-sting

Dr. C. W. A. SEARLE (London, S.W.5) writes: Having read the letter by Surgeon Commander W. R. S. Panckridge and Surgeon Lieutenant C. Q. Henriques (December 10, p. 1354) I am inclined to report a very similar case which occurred in Ahmednagar, India, in March, 1941. I was called to see the wife of the brigade major, who was said to be in great distress, having just been stung by a bee. I saw her within half an hour of having been stung and her condition was exactly similar to that described by the two authors referred to. I also gave a subcutaneous injection of 0.5 ml. of liquor adrenalin, with dramatic effect. Within a few minutes oedema of the glottis had subsided, followed by that of the lids, which was very marked. Within half an hour a clinical cure was effected. She then gave me a history of having been stung by a similar type of bee exactly ten days previously.

Aspirin as a Local Analgesic

Dr. S. HILLMAN (Glasgow) writes: I should like to remind Dr. G. Sclare (December 10, p. 1352) that the insertion of a crushed aspirin into a tooth socket after painful extraction gives real relief. This, in addition to Dr. T. Anderson's reference in his article on the acute throat (October 15, p. 860), adequately illustrates the action of aspirin as a local analgesic.

"Psychosurgery"

Dr. H. THISTLETHWAITE (Sedbergh) writes: I protest vehemently against the use of the word "psychosurgery." Unless you are prepared to equate "mind" (psyche) with "brain" (encephalon) the word can have no meaning. It has no etymological justification. Why could you not use the short, clear, English expression "brain surgery"?

Obituary

SIR CHARLES GORDON-WATSON, K.B.E., C.M.G F.R.C.S.

Sir Charles Gordon-Watson, whose career was one of distinction in military and civil surgery, died at York on December 19 at the age of 75. Before qualifying in 1898 he had enlisted at the age of 20 in the old Volunteers, and afterwards served in the Territorials. In 1899 he went out to the South African war, where he served until 1901 as a civil surgeon in the field force, gaining the medal and three clasps. At No. 1 Field Hospital he was associated with Sir Anthony Bowlby and Dr. Howard Tooth, two seniors from his own school, St. Bartholomew's. In the war of 1914–18 he began his service at the First London General Hospital, and then went to France. There he was in command of the Duchess of Westminster's hospital at Le Touquet. Later, with the rank of colonel, he was consulting surgeon to the Second Army, and afterwards to the British Army in Italy. In the war which began in 1939 he was made consulting surgeon to the British Army at home, and in 1943 he was promoted major-general.



Charles Gordon-Watson [Russell, London]

Charles Gordon-Watson was born in April, 1874, the son of the Rev. Henry George Watson, sometime vicar of St. Leonard's, Buckinghamshire He took the prefix "Gordon" by deed poll in 1920. He was educated at St. Mark's, Windsor, and at St. Bartholomew's Hospital. His service in South Africa followed a period as house-surgeon at his teaching hospital and at the Norfolk and Norwich Hospital. By the time he returned he had chosen general surgery as his career, and he obtained the F.R.C.S. in 1902. He was elected assistant surgeon to St. Bartholomew's in February, 1910, and later became joint lecturer in surgery to the medical school. Other appointments which he held were those of surgeon to St. Mark's Hospital, City Road, to the Metropolitan Hospital, and to St. Andrew's Hospital, Dollis Hill. He remained surgeon to St. Bartholomew's until his retirement under the age limit, when he became consulting surgeon.

In his early days Charles Gordon-Watson was specially interested in orthopaedics, and he collaborated with Howard Marsh in 1910 in the preparation of a new and enlarged edition of *Diseases of the Joints and Spine*, which Marsh had originally published fifteen years earlier. He also contributed articles on this subject to Latham and English's *System of Treatment*. Later he developed an interest in proctology. He was president of the Subsection of Proctology of the Royal Society of Medicine, and often took part in its discussions. He was also the author of the article on diseases of the rectum in Gask and Wilson's *Surgery*. Gordon-Watson served on the council of the Royal College of Surgeons from 1933 to 1940, and in 1937 he was Bradshaw lecturer. He also represented the College on the scientific advisory committee of the Radium Institute and Mount Vernon Hospital, of which committee he was vice-president. In 1931 he was made an Honorary

Fellow of the American College of Surgeons. He was a president of the Aesculapian Society and a member of the British Medical Association, to which he gave some useful assistance at the time—about 1931—when the Association was considering the question of patenting in the medical field. A body with which he was prominently identified for many years was the British Empire Cancer Campaign. He was a member of its executive and chairman of its investigation committee.

Gordon-Watson had an acute and inquiring mind, and never allowed the military cadre within which he worked for so many years to depress his initiative. In 1914 he made what was probably the first observation on trench frost-bite, on the basis of a number of cases admitted to the hospital in France of which he had charge. His military experience made him a strong advocate of the use of "bipp" (a dressing composed of bismuth, iodoform, and petrolatum), which he employed from an early stage of the last war.

To his many fine qualities of head and hand which made him an outstanding surgeon he added a manner of great charm and friendliness which must have been in many trying times a source of encouragement to his colleagues and of reassurance to his patients. At the Bath and Garrick and other London clubs, or on the golf links at Sandwich, he was an admirable companion. During the South African war he formed, with the late Sir Francis Fremantle, the South African civil surgeons dinner, which was held annually for many years. He was made a C.M.G. in 1916, and was knighted in 1919.

We are indebted to Mr. Reginald M. Vick for the following appreciation:

It must sometimes happen that the ordered details of a man's life fail to give an adequate picture of the man himself, and most certainly this is true of someone of the calibre of Gordon-Watson. His vivid personality, his untiring energy, his capacity for friendship, and his earnest desire to help others made him stand out among his fellows. Whatever he undertook he did with abounding enthusiasm. He was very keen on nearly all forms of recreation. As a young man he was a pioneer among motor-cyclists, and on more than one occasion he took part in the annual motor-cycle race from London to Edinburgh and back at a time when these machines were both novel and unreliable. Often I have ridden in the Row with him in the early hours of a summer's day, and I recollect one occasion when he was warned for exceeding the speed limit on his spirited mount He was a most strenuous golfer and an incredibly energetic tennis player. At Bart's, as a student, he played soccer In later years his interest lay in watching rugger, and I know that he always rather regretted that he had never taken part in the titanic struggles for the Inter-hospital Rugger Cup. He was one of the first members of the Bart's staff to drive a motor-car, and to ride with him in those early days of motoring was not without its thrills. In later life he took up horse racing and became a familiar figure on many a race-course.

When wars came, Gordon-Watson was always to the fore He went as a very young man to the South African War In the 1914–18 war he commanded the Duchess of Westminster's Hospital for Officers at Le Touquet, where his surgical skill and powers of organization had full play. He later became consulting surgeon to the Forces in Italy. In the recent war he once more became consulting surgeon to the Forces, which post he held until 1942.

As a teacher he shunned routine methods and taught with originality. As he grew older he spoke with the sure voice of a great experience. In surgery, his outstanding characteristic was courage. There was no operation too extensive for him to refuse to undertake, and he had some wonderful results. In dealing with carcinoma of the colon and rectum, which might be described as his specialty—although he remained a general surgeon to the end of his time—he always believed that it was right to tackle all cases where surgery offered any chance of cure. Needless to say, he had many disappointments, and I have known him to lose heart, but he always recovered rapidly and fought on. He was one of the first surgeons in this country to treat carcinoma of the rectum with radium. As is well known, this method proved a failure in many instances, but he saw to it that it had a full and fair trial. For a long period he treated suitable cases of this disease by the more conservative method of perineal resection, arguing, as was true in those days, that this operation was justifiable because of its lower mortality. Later he used to carry out the abdomino-perineal operation with considerable success. He was always a front-rank fighter in the battle against cancer, and took an active part in organizing research in that field.

One of Gordon-Watson's other lines was traumatic surgery in the days before all fractures automatically passed into the hands of the orthopaedic surgeons. He achieved excellent results with them, largely because of his mechanical turn of mind, which was well known to all who worked with him. He was an advocate of the Balkan beam, and was, I believe, the first surgeon (at Bart's) to affix the beam to a bed. His arrangement was somewhat primitive, but it was the precursor of the complicated fracture beds that we know now.

In his heyday Gordon-Watson had a very large private practice. To assist him at the hospital taught one a great deal, but to work with him in the more difficult surroundings of private practice was a liberal education indeed. He was always keenly interested in students' affairs, and was at one time or another either president or vice-president of many students' clubs. He took his duties seriously and regularly turned up at matches.

I had the privilege of living with him for many years in his house in Harley Street. The household consisted of four bachelors; in those spacious days entertaining on a large scale was the fashion, and it was indeed a gay bachelor establishment. Gordon married late in life, and he and Lady Gordon-Watson were absolutely devoted to one another. It might be said with truth that he never really recovered from the strain of her long and distressing illness, which ended with her death after they had been together for eighteen years. His son Michael now commands the 1st Battalion of the Scots Guards. Gordon-Watson had to undergo a major operation himself towards the end of his life, from which he made a wonderful recovery and came up smiling.

Gordon-Watson made many friends and held them, and there will be many to mourn him. He was always ready with a helping hand towards all those who worked with him. Generation after generation of chief assistants—many of whom are well-known surgeons to-day—house-surgeons, and dressers will bear witness to this splendid spirit in him. One of the most striking things about him was his delightful smile, which truly lit up his face. By his death another famous Bart's man—a great pioneer surgeon and a loyal friend—has passed on his way.

LANCELOT BROMLEY, M.Ch., F.R.C.S.

The sudden and unexpected death of Lancelot Bromley on December 17 at Seaford, Sussex, came as a great shock to his friends, by whom he had always been regarded as the personification of perfect health and physical fitness. The son of Sir John Bromley, he was born in London in

February, 1885. He received his early education at St. Paul's School, where he was captain of the cricket eleven and showed great proficiency as a gymnast. From school he went to Caius College, Cambridge. He played golf for the university and cricket and hockey for his college. He took his B.A. with honours in 1906, and began then his thirty-six years' association with Guy's Hospital. He qualified in 1909, took his F.R.C.S. in 1912, and the M.Ch., Cambridge in 1913.

Bromley made his mark as house-surgeon to Sir Alfred Fripp, and in 1911 he was appointed surgical registrar. He was an excellent teacher, who taught on the patients and not on the textbook description of their diseases. He was warden of the college from 1912 to 1919. In 1914 he married Dora Ridgway Lee, sister of the late Harry Lee, the ophthalmic surgeon of Leeds, who was his contemporary at Guy's Hospital. He was successively demonstrator of anatomy, deputy resident surgical officer, and dean of the medical school. Then in July, 1916, he was appointed assistant surgeon to Guy's. Bromley served in the R.A.M.C. from 1916 to 1918 in Salonika and Italy. On his return he was also appointed surgeon to the Surbiton and Putney Hospitals. It was at these latter hospitals that his ungrudging attendance at all times did so much to develop the scope and usefulness of the surgical service to the patients and their general practitioners. As a result he built up a large practice which continued until his retirement in 1946. In 1942 he resigned from the staff of Guy's in order to continue his work at the Ministry of Pensions Hospital at Stoke Mandeville, where he enjoyed working for ex-Service men—mostly naval ratings. For twenty years he was examiner in surgery at Cambridge, and found much pleasure in these visits to his old university.

His shy, modest, unassuming but helpful character gained for Lancelot Bromley the name of "Daddy," by which he was known to his intimates for over forty years. He had the happy knack of managing his life so well that he was able to combine a busy and successful surgical career with time somehow to satisfy his love of sport, especially golf, racing, yachting, and ski-ing. All these activities were carried out with his family, with whom he spent all his leisure. He was essentially a clinician with a sound knowledge of living pathology and a careful and tender craftsman. He wrote but little, because such time as he may have had for writing was devoted to his wife, children, and three grandsons. His elder son, John, a glider pilot, was killed on D Day near Caen. His daughter is the wife of Dr. R. A. P. Hogbin, a former Guy's rugby captain. His younger son is also a surgeon. As "Daddy" would readily have agreed, he owed his happiness and much of his success in life to the loving and tender care of his wife Dora, to whom all his colleagues and friends will extend sincere sympathy in her great loss.—W. E. T.

W. K. McKINSTRY, M.R.C.S.

Dr. William Kilbourn McKinstry died on December 7 at the early age of 50, after a short illness. The only son of Dr. W. H. McKinstry, now of Brighton and at one time pathologist to the Royal Northern Hospital, he was educated at St. Paul's School and Emmanuel College, Cambridge. McKinstry received his medical education at St. Bartholomew's Hospital and qualified in 1925. After qualification he was R.M.O. at the Westminster Hospital, where he had also been house-surgeon to the ear, nose, and throat and eye departments. He was later a house-physician at the Brompton Hospital.

While at the Westminster Hospital McKinstry had started to take an interest in anaesthetics, and he succeeded, while carrying on a busy general practice in West Kensington, in establishing himself in this specialty. In 1929 he was appointed honorary anaesthetist at the West London Hospital, a post he held until his death. He was also anaesthetist to the National Dental Hospital, and he had served, too, the Victoria Hospital for Children and the Royal Dental Hospital. During the recent war he was anaesthetist to the Royal National Orthopaedic Hospital. It is probable, however, that McKinstry's name will be best remembered in the realm of general practice, for he was in the best sense of the word a "family" doctor Good-looking and with delightful manners, he was soon on friendly terms with new patients, while by his old ones he was considered a family friend, counsellor, and, if necessary, arbitrator. At his memorial service at St. Paul's, Knightsbridge, the writer overheard an elderly man say, "I feel like a ship without an anchor." His friends and colleagues will mourn the untimely death of an always genial and helpful companion.

He leaves a widow, herself a doctor's daughter, and two young daughters. The expressions of sorrow and loss from all his colleagues, patients, and friends may help a little to mitigate for them the tragedy which has overcome a particularly united and happy family.—O. L. C. S.

Mr. Alex. E. Roche, writes: W. K. McKinstry was a friend of very long standing. We went to the same preparatory and public schools, the same university, and the same hospital, and were subsequently close colleagues at another hospital, he being my anaesthetist, and an excellent one at that, and always calm and unruffled. One was completely confident if "Mac" was at the head end. Another, and an astonishing, coincidence is that we married on the same day of the same month of the same year. He was most sane and level headed, and an excellent man from whom to seek advice. He radiated vitality, cheerfulness, and kindliness, and one feels permanently enriched by his friendship. The rapidity and tragedy of his sudden illness leave one stunned, but he was so full of life that he is, and will always remain, vividly present to the memory of those who knew him.

Dr. Redvers Ironside writes: Others may testify to the professional abilities of William Kilbourn McKinstry and his skill as an anaesthetist. May a word or two be added about the loss his friends and colleagues have sustained by his premature death in the fullness of a happy and busy life. He was incapable of an uncharitable thought or deed, utterly unselfish in his work, and with a wonderful quality of imparting cheerfulness and joy to others. His courage and cheerful fortitude in his last illness were an example to those few who were privileged to be with him towards the end. "To live in the hearts of those we leave behind is not to die," and we who mourn his passing will always feel the cheerful, kindly warmth of his personality in remembering him.

J. C. writes: If the men who were boys when I was a boy could sit and drink with me, W. K. McKinstry would be my choice as chairman of that bright band. Years ago we used to meet on Saturday nights at the University of London Union in Malet Street. He was all that a Cambridge man should be: kind, urbane, grave or gay as the occasion demanded. Even then he had acquired that deep wisdom which bids man to be an artist of life: to appreciate folly in season. His death, as it were, snaps the last link in my chain of living reminders of the long days of youth.

Dr. MINA LOUISA DOBBIE died in a nursing-home in Bournemouth on November 23. She was the third daughter of Dr. Robert Dobbie, medical officer of health and general practitioner of Ayr, who died of typhus when she was a girl. She decided to take up medicine early in life, and studied at the London School of Medicine, the Royal Free Hospital, and later in Ireland. After qualifying she was a medical officer at the Crichton Royal Hospital. She became interested in remedial gymnastics and gymnastics for women, and was a pioneer in this field, going to Sweden to study their methods and translating the current Swedish textbook on the subject. She was a close friend and collaborator of the founder of the Chelsea Physical Training School, and was their medical officer for many years. She was also medical officer of the Aske's Haberdashers Girls' School at Acton and New Cross; also of the Maria Grey Training College at Brondesbury. She started general practice in Haverstock Hill, Hampstead, in 1899. She was an active member of the Hampstead Division of the B.M.A. for many years.

Dr. JAMES KIRKWOOD DUNLOP died at Sanquhar on November 24 at the age of 65 He was educated at Kilmarnock Academy, and graduated M.A. in 1905 and M.B., Ch.B. in 1908 at Glasgow University. After a year's assistantship with Dr. Roger in Sanquhar he spent a year as a house-surgeon in the Western Infirmary, Glasgow. He then returned to Sanquhar and continued to practise there until his retirement in June of this year. He was known to everyone in Upper Nithsdale, and when he retired he was presented with an illuminated address as a token of appreciation and respect. He was in every sense the family doctor, and there are few homes in the district where his passing has not meant the loss of a friend. Interested in the community as well as the individual, he served for ten years on the local town council. He was a keen supporter of the British Medical Association, and was chairman of the Dumfries and Galloway Division in 1945–6. While a student he was a keen golfer, and he maintained his interest in the game until ill-health compelled him to stop. For the last few years of his life he suffered from angina, but carried on his practice as he had always done, unselfishly and without counting the cost. Unfortunately, he was able to enjoy only six months' retirement. He is survived by his widow and two sons, to whom his colleagues and friends will extend their sympathy.—J. W.

Dr. THEODORE OGG died at his home in Hampstead, London, on December 5 after a short illness. Born at Fyvie, Aberdeenshire, in 1873, he was educated at Robert Gordon's College, Aberdeen, and at Aberdeen and Edinburgh Universities. As a student he won first prize in obstetrics and gynaecology at the Royal College of Surgeons, Edinburgh, where he later became demonstrator in midwifery. He took the Scottish triple qualification in 1897, and, after practising at Jarrow-on-Tyne and at Rothes, in Morayshire, for a time, he acquired an extensive practice at Huntly, Aberdeenshire. There he was honorary medical officer to the memorial hospital, where he undertook a fair amount of major surgery. He was asked by the Ministry of Pensions after the first world war to form a hospital for the treatment of disabled men from five northern counties. Later, following two years of special postgraduate study at Edinburgh and at Lausanne, where he took an M.D. in 1930, Dr. Ogg came to London. He was clinical assistant to the Soho Hospital for Women, and later physician to the Charterhouse Rheumatism Clinic. He was also medical officer to the Royal Sailors Daughters' School and Home at Hampstead. Dr. Ogg wrote a number of papers on rheumatism and on gynaecological and other subjects. An able diagnostician, he was very conscientious in his work, and endeared himself to his patients by his sympathy and kindness. He is survived by one daughter.

Dr. L. Carlyle Lyon writes: It is with a sense of more than usual regret that I, one of his grateful Aberdeen students of the years 1922–7, read (December 17, p. 1418) of the sudden death on November 29 of Mr. William Anderson, or "Willie," as he was invariably affectionately referred to by us all. As he hurried away after our 1927 Class Reunion Dinner, held in London on March 26 of this year, none of us present could have imagined from his vigorous, though tired, appearance that he would not live to see the New Year. His clinics in the old Aberdeen Royal Infirmary at Woolmanhill, and in the surgical out-patient department across the road, were an example of how medical students should be taught. His kindly handling of patients, putting them at their ease by his spontaneous and friendly use of the native dialect, as well as his consideration for the naïveté of the surgical beginner and his courtesy to the nursing staff, endeared him to all around him. His clinics were therefore always overcrowded, and there was invariably a rush by the more enthusiastic students to be amongst the early arrivals. His lectures on systematic surgery at Marischal College were a model of clarity and lucidity, and a pleasure to attend; while his surgical technique when he was operating was masterly. His place cannot readily be filled, and those of us who worked under him will always be indebted to him. One hopes there will be some fitting memorial erected to William Anderson in his old teaching school.

Dr. C. F. Ross writes: It does not seem long ago since we were giving a tea-party in the lab. for Leslie Humphrey (December 24, p. 1478) on his leaving us to join the R.A.M.C Our chief had concluded a short speech with the words: "I am certain that Dr. Humphrey will make his mark in medicine." How sad it is to think that he was not to be spared to that end—to be cut off so near the beginning. Yet he seemed to have crowded into his short lifetime an amount of experience which some of us may never achieve. Knowing full well the eventual outcome of his illness, his constant solicitude for others shone to the end through the pain and blindness which he bore with such steadfast courage for so many months. Self-pity was entirely alien to his nature. Visits to him in hospital were not so much a consolation to the patient as a privilege to oneself, in making the most of all too fleeting a contact with his mind, too rare to be missed. The triumph of this mind over his body was exemplified in his behaviour, and will be an everlasting inspiration to those who had the honour to witness it. To his wife, whose perfect love and understanding must have given him infinite help in those last dark months, and to his two children, heartfelt sympathy goes out in abundance.

Medico-Legal

ADDICTION TO TRICHLORETHYLENE

At the Birmingham Assizes, on December 12, Mr. Justice Lynskey passed sentence on a man who was said to have killed his mother while under the influence of trichlorethylene, a drug to which he had become addicted.[1] Accepting a plea of not guilty of murder, but guilty of manslaughter, Mr. Justice Lynskey sentenced Peter Edwin Whillier, aged 26, of King's Heath, Birmingham, to five years' imprisonment.

For the prosecution Mr. Arthur Ward, K.C., said it would be difficult to prove intent at the time of the attack and therefore the prosecution was willing to accept this plea. Whillier had been employed at a power station near Birmingham where trichlorethylene was in use. He had got into the habit of soaking his handkerchief in trichlorethylene and inhaling the fumes. He was normally devoted to his mother, but on returning home after working a night shift he attacked her, and she died in hospital from a fractured skull.

Mr. Fearnley Whittingstall, K.C., who defended Whillier, said that he would have been able to call two doctors who would have given evidence that at the time of attack Whillier was in a state of delirium corresponding to that seen occasionally in people coming out of an anaesthetic. He was lashing out wildly without any control whatever.

[1] *Manchester Guardian*, December 13, 1949.

Medical Notes in Parliament

The King's Speech proroguing Parliament on December 16 made no reference to public health or to the passage of the National Health Service (Amendment) Act.

DEBATE ON NUTRITION

On December 15 Mrs. GANLEY opened a debate on nutrition. She commended the Government for continuing rationing, thus securing fair shares for all. She recalled that a leading French specialist had said in 1948 that in ten years England would have a generation of young men and women superior physically and mentally to that of any other European country. He was convinced that the excellent condition of these children was due to their feeding; their diet was perfectly balanced.

Viscountess DAVIDSON said that she had talked recently with two Australian doctors who had come back to this country for the first time since the war. They were deeply distressed at what they saw, particularly the appearance of the ordinary housewife. To produce more in the factories on a diet which only just reached the level of pre-war in quantity, but certainly not in quality, was impossible.

Mr. SOMERVILLE HASTINGS said there was a world shortage of food. Britain must take account of the needs of other countries and not demand more than a fair share of world supplies. In Britain about one-fifth of the people now received less food than before the war, about two-fifths received about the same, but the remaining two-fifths received much more food. He did not forget that there was a high incidence of tuberculosis, but this was probably due to the fact that the disease was more frequently recognized than before the war. There was no clear evidence that the death rate from tuberculosis was increasing. This death rate was the important guide to the nutrition of the people. He was a little unhappy, however, about the consumption of vitamins and fats. The fats the public now obtained were some some 16% below pre-war.

Colonel STODDART-SCOTT remarked that one could not get nourishment out of calories any more than out of a tape machine. What was nourishing was a balanced diet. Over many years this country had developed a diet suitable to its climatic conditions and industrialization. If the country was to get a more nourishing and attractive diet it must get more meat, more animal fats, and more animal proteins. He hoped consideration would be given to the question of food-poisoning. The handling of food was better than in the past and there were more refrigerators, yet the country never had so much food-poisoning as at present. He was sure that if Parliament got rid of rationing, nutrition and the health of the people would improve.

Dr. HADEN GUEST said that within a few years young people would look back on the medical reports of school doctors before the war and on Mr. Seebohm Rowntree's book, *Poverty and Progress*, almost as fairy tales. These conditions might return if food rationing was abolished. The nation was living at a very high standard of nutrition; rationing, price control, and subsidies were necessary to maintain that standard.

Tuberculosis and Nutrition

Mr. WALTER ELLIOT said that in Western Europe in the post-war years there had been a striking recovery in respect of many forms of illness, particularly tuberculosis. The Milroy Lectures, published recently in the *British Medical Journal* (November 12, p. 1065, and November 19, p. 1135), showed a remarkable clearing up of tuberculosis in Europe since 1921. In the years around 1947 the fall in France had been most spectacular. Since 1941 tuberculosis death rates in England and Wales had declined but did not reach the level which had been expected if pre-war trends had been continued. Scotland was the one country which showed no improvement since the end of the war. The trend there actually brought the tuberculosis rate in recent years above the worst period of 1930–1. The death rate from tuberculosis in 1946 in Scotland was 27, in Amsterdam 51, in Copenhagen 44, and in Stockholm 56. In Dundee it had gone up from 82 to 87. If progress was to continue Parliament must see that a more varied diet was available, moving towards the traditional high protein, big meat ration and not depending so much on the large starch ration.

Dr. EDITH SUMMERSKILL said that Mr. Elliot had failed to be objective. She contrasted his speech with his presidential address to the Royal Institute of Public Health and Hygiene published in the *British Medical Journal* (August 6, p. 297). The *British Medical Journal* had headed that address "Tuberculosis: Certain Unexplained Mortality Figures," whereas Mr Elliot had advanced in the present debate an argument trying to prove that the high tuberculosis rates in Scotland could be attributed to the nutritional policy of the Labour Government.

She said that some newspapers had confused averages with specific allocations in discussing rations. If the calorie consumption averaged 3,000 a day and a small child only required a few hundred calories, the heavy workers were consuming something like 4,500 calories. On sugar Dr. Summerskill said there had been a slight increase in consumption but the Government had not the dollars with which to pay for more sugar from Cuba. As for meat, the Ministry of Food had a representative in every meat-producing country who was trying to find available meat supplies. The consumption of milk was 55% greater than before the war and had steadily increased since 1940. A further improvement was expected in 1950. In the present year the Minister of Food had decided to carry out a survey of approximately 2,400 households representative of all economic classes. In this study, made in May, 1949, when milk was unrestricted, the Ministry discovered that the consumption of milk was between 6 pints and 4½ pints per head per week, against 5.4 pints in the highest income groups in the 1930's and 1.1 pints in the lowest income group.

She would like to see more fats available, but a clinical survey had shown no sign of there being a fat deficiency in this country. In 1947 the supply of fats was something like 75% of pre-war, but for the whole of 1949 it was 98% of pre-war. It was good to have margarine fortified with vitamins A and D, and the margarine of to-day was infinitely superior to the yellow grease used years ago. Of flour consumption 19% had been replaced since July, 1949, by the extra fats now available. This was a transfer of 60 calories a day.

The most spectacular change in the public health of the country was the almost complete elimination of rickets. At the beginning of the century one-third of the London children had rickets. Now it was possible to walk down a London street and not see one pair of bandy legs or knock-knees. Cure and prevention of rickets was by means of cod-liver oil, which was now distributed free. The Government was not withholding any of these important nutrients from the poorest income groups. Wise feeding was one of the greatest weapons that preventive medicine could wield, and she looked forward to the day when the Ministry of Food could allocate a balanced diet with a full complement of every nutrient without having to consider the supply question.

The report of the Chief Inspector of Mines for the year 194* has recently been issued (*H.M.S.O.*, price 1s. 3d.). It describes how "beat" diseases account for the largest number of cases of industrial disease in miners at the present time. The incidence of "beat knee" has risen gradually over the past 10 years, and this increase is believed to be due to the growing use of conveyers in the thinner seams. The ideal knee-pad, which will exclude the accumulation of small particles between the pad and the knee, has yet to be designed. Pneumoconiosis continues to be the most important cause of wastage of manpower. The highest incidence is in the South Wales coalfield, but the number of certified cases there has fallen from a peak figure of 5,821 in 1945 to some 3,800 cases in 1947. In the other coalfields of Great Britain there has been an increase from 597 cases in 1945 to some 950 cases in 1947. The report also points out that the number of recorded cases of miners' nystagmus is almost the same to-day as it was ten years ago.

Universities and Colleges

UNIVERSITY OF EDINBURGH

The following medical degrees and diplomas were conferred at a Graduation Ceremonial held on December 16:

M.D.—[3]A. K. Bannister, J. B. Borthwick, D. P. Degenhardt, [1,2]G. W. A. Dick, [4]Rose I. L. Donaldson, [2]J. P. Duguid, [1]D. E. P. Forbes, [1,4]Constance C. Forsyth, [4]I. C. Gilliland, S. H. Graham, [3]A. F. Maccabe, [4]I. A. G. MacQueen, [4]I. C. Monro, M. B. O'Neill, [3]J. B. Wilson.

PH.D.—In the Faculty of Medicine: [1]R. A. Miller, M.D., F.R.C.P.Ed.

M.B., CH.B.—Nancy M. Adams, D. J. M. Allan, T. D. Bleakley, N. T. D. Brewis, J. D. Campbell, I. P. Dunnett, Mary B. Edwards, T. W. G. Fraser, J. H. Greig, C. J. Hardie, D. C. Hudson, Mary E. R. Hughes (née Latimer), Anne E. Jameson, J. D. Litt, Mary B. B. McGregor, A. J. H. MacLennan, J. H. McMillan, D. M. McNab, Margery Matheson (née Dunn), R. D. Merson, P. A. Metcalfe, J. G. Mitchell, R. S. H. Pasqual, D. E. Ryder, I. M. Simpson, Pansy E. Smith, Joyce Stirling, Margaret A. Tait, A. Taylor, Jessie J. F. Tennent, Janet I. Thompson, P. G. W. Weston, T. A. White, Marjorie N. P. Whyte, J. R. Wilson, Sybil M. D. Wood.

D.P.H.—Ewe Hin Ong.

DIPLOMA IN MEDICAL RADIODIAGNOSIS.—E. A. Keith, W. Macleod.

DIPLOMA IN MEDICAL RADIOTHERAPY.—A. Henderson, K. S Mowatt, J. D. Sammon, V. K. Sundaram.

[1]In absentia. [2]Awarded medal for thesis. [3]Highly commended for thesis. [4]Commended for thesis.

UNIVERSITY OF DURHAM

The following medical degrees were conferred in Congregation on December 16:

M.B., B.S.—J. T. Clow, Evelyn C. Cummings, J. M. Finnerty, J. Hayes, Sheila Hedley, A. B. C. Hotobah-During, J. Kirkup, J. McHugh, T. A. O'Sullivan, N. G. Pearson, J. W. Salkeld, W. Shaw, T. Silver, L. B. Strang, E. J. Thomas, D. Veitch, Margaret C. Watkinson, B. H. Webb, D. Webster, R. Williams, *W. D. Baston.

*In absentia.

UNIVERSITY OF BIRMINGHAM

The following appointments have been made: Dr. J. C. Bowie, representative of the University at the Health Congress of the Royal Sanitary Institute, Eastbourne, April, 1950; Mr. S. D. Loxton, Lecturer in Obstetrics and Gynaecology, from December 1, 1949; Dr. E. C. Fox, Lecturer in Operative Dental Surgery, from January 1, 1950.

The title of Honorary Research Fellow in the Department of Physiology has been conferred on Mrs. M. Beznak, M.D.

UNIVERSITY OF LEEDS

At a meeting of the University Court held on December 21 it was decided to confer the honorary degree of D.Sc. on William Norman Pickles, M.D., M.R.C.P., medical officer of health for the Aysgarth Rural District Council, at a Congregation to be held on May 19, 1950.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the Royal College of Surgeons of Edinburgh held on December 14, 1949, with Mr. W. Quarry Wood, President, in the chair, the following candidates, having passed the requisite examinations, were admitted Fellows: *N. R. Butcher*; J. C. Campbell, B. S. Dhillon, K. MacD. Douglas, R B. Duncan, R. Fahmy, J. R. Hutchinson, W. S. Johnston, I. Lindsay, R. C. R. Loane, W. C. Lloyd-Smith, W. C. Menzies, J. A. Mitchell, A. L. Morton, K. Prasad, P. L. Rishi, D. E. Robertson, Dorothy E. Rowling, P. N. Simons, I. S. R. Sinclair, B. P. Singh, Z. H. Y. Sobani, A. G. M. Watt.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

Dr. William J. Dieckmann, Director of the Department of Obstetrics and Gynaecology, Chicago Lying-in Hospital, will deliver a lecture on "The Aetiology of Pre-eclampsia—Eclampsia" at the College House (58, Queen Anne Street, London, W.) on Wednesday, January 11, at 5 p.m. Fellows and Members of the College and other medical practitioners interested in the subject are invited to attend the lecture, admission to which is by ticket only, obtainable from the secretary of the College.

Medical News

Crown Representative on G.M.C.

Sir Henry Cohen has been reappointed Crown Representative on the G.M.C. for the term of five years from January 24, 1950. He was first appointed Crown Representative five years ago.

Elastic Adhesive Bandages B.P.C.

The Ministry of Health states that production of one of the two packs of these bandages hitherto in use will be discontinued from January 1, 1950. After that date stocks of the carton "N.H.S." pack may be dispensed where elastic adhesive bandage is ordered on Form E.C.10 while supplies of this pack are being exhausted. The carton pack is being replaced by a pack in tin containers labelled "Elastic Adhesive Bandage B.P.C." Since this pack may be the pack adopted by manufacturers for their branded product, the respective brand name or trade mark of the manufacturer may also appear on the tin. The prices included in the January Drug Tariff for the two widths of this bandage will be the prices for the new tin pack. Whether the carton or the tin pack has been dispensed, these prices will be paid until April 1, after which date the bandage in the tin container only may be dispensed against orders on Form E.C.10. For diachylon base bandages the tin container will be of distinctive colour.

Enjoying Health

How to achieve health and enjoy it is the theme of a pamphlet by Dr. Charles Hill entitled "Health and the Family" (Conservative Political Centre, 1s.). Writing for the lay reader, he discusses the importance to health of a happy home and good conditions of work, and makes some suggestions on such topics as the care of old people and the design of houses. "Men are not changed by legislation," he says, and he gives them plenty of homely advice that will doubtless be more helpful.

Guild of St. Luke

The annual meeting of Catholic doctors of the Guild of St. Luke, SS. Cosmas and Damian was held on December 18 at the Hospital of St. John and St. Elizabeth, London. Dr. W. B. J. Pemberton was re-elected Master of the Guild, Dr. P. Corridan honorary treasurer, and Dr. W. J. O'Donovan honorary secretary. A memorandum setting out the considered opinion of the Guild on some matters raised in the Royal Commission's Report on Population was the chief business discussed at the meeting.

Whooping-cough Research

Dr. Pearl Kendrick, of the Michigan Department of Health, is in London discussing whooping-cough vaccines with British research workers. According to a statement issued by the Medical Research Council, Dr. Kendrick has given valuable help with the investigations into whooping-cough vaccine being carried out in this country. She is discussing on the basis of her wide experience in the U.S.A. present and future trials of whooping-cough vaccine in Britain. Dr. Kendrick is a corresponding member of the Medical Research Council whooping-cough immunization committee, and is here under the auspices of the World Health Organization.

Consultant Psychiatrist to WHO

Dr. Lucien Bovet, chief of the Office Médico-Pédagogique of the Canton de Vaud at Lausanne, has been appointed consultant on juvenile delinquency to the World Health Organization. He will shortly tour Holland, Sweden, Finland, France, England, and the U.S.A.

Treatment of Anthrax, Botulism, and Snake-bite

Arrangements which are to operate from January 1, 1950, are being made for emergency supplies of sera for the treatment of anthrax, botulism, and snake-bite to be kept at the following centres. In each case the centre will maintain a twenty-four-hour service.

Centre	Telephone Number
The Dispensary, Newcastle General Hospital	Newcastle 35211
The Dispensary, Cumberland Infirmary, Carlisle	Carlisle 590
Seacroft Hospital, York Road, Leeds	Leeds 45194
Castle Hill Hospital, Cottingham, York	Cottingham 47372
Nottingham City Hospital, Hucknall Road, Nottingham	Nottingham 42554
Regional Blood Supply Depot, Brookland Avenue, Cambridge: Monday to Friday, 8 a.m.–10 p.m.; Saturday 8 a.m.– 6 p.m.	Cambridge 2536
All other times	Cambridge 87988
North Middlesex Hospital	Tottenham 3071
South London Blood Supply Depot, Benhill Avenue, Sutton	Vigilant 0068
Northampton General Hospital	Northampton 4680
Royal Berkshire Hospital, Reading	Reading 2231
Ham Green Hospital, Bristol	Till 31165
Swilly Isolation Hospital, Plymouth	Plymouth 4311
Canton Infectious Diseases Hospital, Cardiff	Cardiff 960
Dudley Road Hospital, Birmingham	Northern 3801
The Dispensary, Manchester Royal Infirmary	Ardwick 3300
The Fazakerley Isolation Hospital, Liverpool	Aintree 2324

In addition, 10-ml. containers of anthrax antiserum for use *prophylactically* in persons exposed to infection may be obtained during the daytime from the following centres:

Public Health Laboratory, 16-18, Edmund Street, Bradford	Bradford 24314
Public Health Laboratory, 184, High Street, Kingston-upon-Hull	Hull 35371
Bacteriological Department, City Laboratories, 126, Mount Pleasant, Liverpool	Royal 3636
Central Public Health Laboratory, Colindale Avenue, London, N.W.9	Colindale 6041 and 4081
Public Health Laboratory, General Hospital, Westgate Road, Newcastle, 4	Newcastle 34920
Public Health Laboratory, General Hospital, Northampton	Northampton 347
Public Health Laboratory, County Hall, Taunton	Taunton 3451
Public Health Laboratory, Institute of Preventive Medicine, The Parade, Cardiff	Cardiff 8288

COMING EVENTS

Meeting of Registrars

All registrars in the North-west Metropolitan Region are invited to attend a General Meeting at B.M.A. House on Wednesday, January 4, at 4.30 p.m. The objects of the meeting are to elect a permanent committee and also three representatives to the Central Council of the Registrars Group of the B.M.A.

Alcoholism

A joint meeting of the Society for the Study of Addiction and the Section of Psychiatry of the Royal Society of Medicine will be held at 1, Wimpole Street, London, W., on Tuesday, January 10, at 8 p.m., when Dr. Erik Jacobsen, of Copenhagen, will read a paper on "Biochemical Methods in the Treatment of Alcoholism, with Special Reference to Antabuse." A discussion will follow.

Diet in Infancy and Childhood

A course of lectures for postgraduates on "Diet in Infancy and Childhood" will be delivered by members of the staff of the Institute of Child Health and visiting lecturers at the Hospital for Sick Children, Great Ormond Street, London, W.C., on Tuesdays, at 5 p.m., from January 17 to March 21, both dates inclusive. The fee for the course of ten lectures is £3 3s. Applications for tickets of admission (limited in number), accompanied by a remittance, should be sent to the *secretary* of the Institute of Child Health at the hospital.

Society for Endocrinology

The Society for Endocrinology has arranged a lecture on "The Nature of Adrenocorticotropic Hormone (ACTH)" to be given by Dr. C. H. Li (Institute of Experimental Biology, University of California, Berkeley, California) at the Royal Society of Medicine, 1, Wimpole Street, London, W., on Thursday, January 26, at 5 p.m. Admission is free, without ticket.

SOCIETIES AND LECTURES

Tuesday

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—January 3, 5 p.m., "*Animal Diseases Communicable to Man*," by Dr. M. S. Thomson.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—January 3, 5 p.m., "*Tumours of the Kidney*." Erasmus Wilson Demonstration by Mr. C. E. Shattock.

Wednesday

LONDON COUNTY MEDICAL SOCIETY.—At St. Giles's Hospital, Camberwell, S.E., January 4, 3.15 p.m., annual general meeting, followed by an address by Dr. C. D. S. Agassiz.

Thursday

FACULTY OF HOMOEOPATHY.—At Royal London Homoeopathic Hospital, Great Ormond Street, London, W.C., January 5, 5 p.m., "*The Homoeopathic Treatment of Common Liver and Gall-bladder Disorders*," by Dr. E. K. Ledermann.

INSTITUTE OF DERMATOLOGY, 5, Lisle Street, Leicester Square, London, W.C.—January 5, 5 p.m., "*Eczema and/or Dermatitis*," by Dr. Brian Russell.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—January 5, 5 p.m., "*Injuries of the Nose and Sinuses*," Otolaryngology Lecture by Mr. Rainsford Mowlem.

ROYAL PHOTOGRAPHIC SOCIETY: MEDICAL GROUP.—At 16, Princes Gate, London, S.W., January 5, 7 p.m., "*Display Methods in Medical Illustration—Graphic and Photographic*," by Miss Sylvia Treadgold (Department of Medical Illustration, Guy's Hospital).

Friday

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, London, W.C.—January 6, 5 p.m., "*Tumours of the Testicle*." Erasmus Wilson Demonstration by Mr. C. E. Shattock.

MAIDA VALE HOSPITAL MEDICAL SCHOOL, Maida Vale, London, W.—January 6, 5 p.m., Neurological Demonstration by Dr Redvers Ironside.

Saturday

PHYSIOLOGICAL SOCIETY.—At Guy's Hospital (Physiological Laboratory), London, S.E., January 7, 11 a.m., demonstrations and communications.

BIRTHS, MARRIAGES, AND DEATHS

BIRTHS

Benjamin.—On December 15, 1949, at the London Hospital, E., to Astrid (née Persson) and Hugh Benjamin, M.B., F.R.C.S.Ed., F.R.F.P.S., of Johannesburg, a daughter.

Harrison.—On December 15, 1949, at 10, Millington Road, Cambridge, to Mary (née Marryat), wife of G. Kent Harrison, F.R.C.S., a daughter.

Mellor.—On December 17, 1949, at the Buckingham Nursing Home, Leeds, to Jean Marie (née Walker Wood), wife of Norman Mellor, M.B., Ch.B., a son.

DEATHS

Boyd.—On December 17, 1949, at Blythe Bridge, Stoke-on-Trent, Staffs., Edmund Robert Boyd, M.B., Ch.B.

Bromley.—On December 17, 1949, at Seaford, Sussex, Lancelot Bromley, M.Ch., F.R.C.S.

Buckley.—On December 20, 1949, at Broadhurst, Bury Old Road, Manchester, John Philip Buckley, M.S., F.R.C.S.

Cholmeley.—On December 17, 1949, at the Royal Hospital, Wolverhampton, William Frederick Cholmeley, F.R.C.S., aged 83.

Cope.—On December 17, 1949, at Marylands, Hilltop Crescent, Cosham, Portsmouth, Liderooke Frank Cope, O.B.E., L.S.A., Surgeon Captain R.N., retired.

Egan.—On December 17, 1949, at the London Hospital, E., William Egan, M.R.C.S., L.R.C.P., aged 52.

Gordon-Watson.—On December 19, 1949, at York, Sir Charles Gordon-Watson, K.B.E., C.M.G., F.R.C.S., Major-General, A.M.S.

Hirst.—On December 16, 1949, at Brompton Hospital, London, S.W., Henry Adamson Hirst, M.R.C.S., L.R.C.P., of Spa Grange, St. Helen's Road, Hastings, Sussex, aged 70.

Hutchinson.—On December 20, 1949, at The Cottage, Grammar School Lane, Northallerton, Yorks, Joseph Armstrong Hutchinson, M.D., aged 91.

McClure.—On December 17, 1949, at Edinburgh, Alexander Robert McClure, M.B., Ch.B., of Park House, Wellington, Shropshire, aged 57.

McGregor.—On December 18, 1949, in hospital, Aden, Donald McGregor, M.B., Ch.B., aged 59.

Morris.—On December 19, 1949, in Nairobi, Charles Sculthorpe Morris, M.R.C.S., L.R.C.P., L.D.S., of 77, Albert Hall Mansions, London, S.W., and formerly of 88, Park Street, London, W., aged 74.

Newton.—On December 20, 1949, at 14, Pentland Avenue, Colinton, Edinburgh, William Henry Newton, M.D., D.Sc.

Robertson.—On December 16, 1949, at Hamburg, Hamish Gordon Grant Robertson, M.R.C.S., L.R.C.P., D.P.H., Lieutenant-Colonel, R.A.M.C.

Rorie.—On December 16, 1949, at 41, Albyn Place, Aberdeen, Frank Milne Rorie, M.B., Ch.B., aged 54.

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended December 10. [No. 49

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included) (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1949 (a)	(b)	(c)	(d)	(e)	1948 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	37	4	26	—	—	39	4	19	—	—
Deaths		2	—				2	—		
Diphtheria	87	7	37	3	1	144	12	45	7	9
Deaths	3	—	—	—	—	2	—	—	—	—
Dysentery	133	14	73	—	3	69	13	44	—	—
Deaths				—					—	—
Encephalitis lethargica, acute	—	—	—	—	—	—	—	—	—	—
Deaths		—					—			
Erysipelas			31	10	3			30	21	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				33					36	
Deaths	13	—	4	1	1	29	—	7	1	2
Measles*	1,596	26	22	89	119	10,094	176	147	51	63
Deaths†			—	—	—			—	—	—
Ophthalmia neonatorum	38	3	5	—	1	36	5	20	—	—
Deaths										
Paratyphoid fever	5	1	1 (B)	—	2 (B)	3	1	1 (B)	—	—
Deaths	—	—	—	—	—	—	—	—	—	—
Pneumonia, influenzal	734	26	12	1	11	1,027	81	9	1	6
Deaths (from influenza)‡	23	6	3	—	—	24	4	3	—	—
Pneumonia, primary			287	35				397	28	
Deaths	236	48		12	7	321	71		3	18
Polio-encephalitis, acute	10	—				1	—			
Deaths										
Poliomyelitis, acute	124	15	1	2	—	35	4	3	2	—
Deaths§	11	—				1	—			
Puerperal fever		—	5				—	8		—
Deaths										
Puerperal pyrexia‖	57	7	7	—	1	98	8	2	—	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	2,855	214	249	123	269	1,410	85	287	170	45
Deaths†			—	—	—			—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	4	—	—	3	—	4	1	2	—	—
Deaths	1	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	893	33	59	16	52	2,522	187	159	74	9
Deaths	—	—	—	—	—	13	1	3	—	—
Deaths (0–1 year)	263	37	42	16	11	360	54	60	13	7
Deaths (excluding stillbirths)	5,222	873	702	184	136	5,497	944	659	154	107
Annual death rate (per 1,000 persons living)			14·1	11·4				13·3	9·6	
Live births	6,595	1047	849	308	224	7,212	1220	867	303	227
Annual rate per 1,000 persons living			17·0	19·1				17·5	19·0	
Stillbirths	193	27	15			219	24	21		
Rate per 1,000 total births (including stillborn)			17					24		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Deaths from measles and scarlet fever for England and Wales, London (administrative county), will no longer be published.

‡ Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

§ The number of deaths from poliomyelitis and polio-encephalitis for England and Wales, London (administrative county), are combined.

‖ Includes puerperal fever for England and Wales and Eire.

EPIDEMIOLOGICAL NOTES

Typhoid in a Liner

When the liner s.s. *Mooltan* arrived in the Port of London on December 16 three sick members of the crew were removed to hospital for observation. On subsequent days further members of the crew were admitted to hospital, and a diagnosis of typhoid fever has now been confirmed in some of them. On December 22 a total of 11 confirmed cases were under treatment, and 5 further members of the crew were under observation in hospital. The organism is Vi-phage type A Retrospective inquiries suggest that the dates of onset of illness were during the last ten days of the voyage.

One passenger has been admitted to hospital as a suspected case of enteric fever. The names and addresses of passengers and members of the crew who left the vessel have been notified to medical officers of health of the destination to which they were proceeding.

Discussion of Table

In *England and Wales* there were falls in the notifications of whooping-cough 88, measles 58, dysentery 26, and acute poliomyelitis 17, while the only large rise was in the incidence of scarlet fever 100.

A small rise in the incidence of scarlet fever was reported from most areas; the largest increase was London 31. The notifications of measles remained almost constant in most counties; the exceptions were decreases in Durham 212 and Norfolk 83 and an increase in Lancashire of 110, mainly contributed by Liverpool C.B. with a rise from 77 to 145.

A small decrease in the incidence of whooping-cough was recorded in most areas; the only large fall was 47 in Yorkshire West Riding. The only marked change in the notifications of diphtheria was an increase of 8 in Staffordshire.

Two fresh outbreaks of dysentery were reported during the week, one affecting 24 persons in Berkshire, Wokingham R.D., and the other with 18 notifications in Staffordshire, Wolverhampton C.B. Only 2 cases were notified in Gloucestershire and in Cheshire; in the preceding week the notifications were 30 and 16, respectively. The other large returns for dysentery were Lancashire 21 (Preston C.B. 7, Liverpool C.B. 6); London 14 (Poplar 7); Northumberland 11 (Newcastle-upon-Tyne C.B 9). The largest outbreak of food-poisoning was that in which 43 cases were notified in Wiltshire, Salisbury M.B.

In *Scotland* there were decreases in the notifications of acute primary pneumonia 63, scarlet fever 35, whooping-cough 23, and dysentery 21, with increases in the incidence of cerebrospinal fever 12 and diphtheria 8. The rise in the notifications of cerebrospinal fever and diphtheria was contributed by Glasgow. Notifications of dysentery came mainly from Glasgow 23 and Stirling county 15.

In *Eire* there were decreases in the notifications of scarlet fever 34 and whooping-cough 28. Notifications of diarrhoea and enteritis fell by 9 in Dublin C.B., but there was a rise of 14 in the rest of the country.

In *Northern Ireland* there were only small changes in the notifications of infectious diseases. In Belfast C.B. a decline of 31 was reported in the notifications of measles, but there was a rise of 34 in the remainder of the country.

Initial plans for the control of venereal disease in the South-east Asia Regional Organization of WHO are being drafted on the basis of reports furnished by Dr. George M. Leiby, WHO consultant working with the WHO regional office in New Delhi The plan includes a project for the eradication of yaws in Indonesia. Unicef has allocated $700,000 to it. A scheme for controlling syphilis will be combined with it. Dr. Leiby, who is professor of internal medicine and syphilology at the University of California, will also visit Bangkok to discuss plans for V.D. control in Siam. It is believed that adequate V.D. services can be introduced in Ceylon in conjunction with the Mother and Child Welfare Organization there. After completing his tour of Burma and Indonesia, Dr. Leiby will be replaced by Dr. N. Jungalwalla, who will be the permanent consultant in venereal diseases to WHO in South-east Asia.

Any Questions?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Control of Dust-borne Infection

Q.—(*a*) *How useful is the oiling of floors and blankets in preventing cross-infection? What oils should be applied, in what quantities, and how often? Can you mention any hospitals using the method now?* (*b*) *What is the best method of aerial disinfection? I take it that the only effective chemical available commercially is sodium hypochlorite?*

A.—(*a*) Dust in a hospital ward consists largely of particles of fabrics from the patients' beds; when these fabrics are contaminated by secretions or discharges the dust arising from them, and the air when dust is formed or disturbed as by bed-making or floor-sweeping, can be shown to contain surprisingly large numbers of pathogenic bacteria. That oiling, by causing such particles to stick together in indispersible masses, much reduces aerial contamination and actually reduces the amount of cross-infection has been fully proved. Papers which should be consulted are those of Thomas and Van den Ende (*Journal*, 1941, 1, 953), Van den Ende and Thomas (*Lancet*, 1941, 2, 755), Thomas (ibid., 1941, 2, 123), Van den Ende, Edward, and Lush (ibid., 1941, 1, 716), and Wright, Cruickshank, and Gunn (*Journal*, 1944, 1, 611). These contain information about methods, which cannot be detailed here, as well as results. The oiling of floors is simple and inexpensive, and requires repetition only at intervals of three or four weeks; the treatment of blankets and garments is much more difficult and expensive and requires skilled laundry co-operation. The only present-day use of both processes of which we have knowledge is in the Burns Unit of the Birmingham Accident Hospital, although it may well be that other hospitals use them. The oiling of floors only has been continued at the L.C.C. North-Western Hospital (where the observations of Wright *et al.* quoted above were made), in the wards of the Facio-Maxillary Unit, Hill End Hospital, St. Albans, and doubtless elsewhere. It should perhaps be pointed out that this method of dealing with infected dust is only one of many precautions, some alternative to it, whereby the risks of cross-infection may be diminished.

(*b*) Most of the information asked for in this question can be found in the memorandum "Studies in Air Hygiene" (*Spec. Rep. Ser. med. Res. Coun., Lond.*, No. 262, 1948), which was the subject of a leading article in the *Journal* for September 17, 1949 (p. 640). The best method of aerial disinfection depends on many circumstances not specified in the question. For temporary use in an emergency such as an air-borne epidemic, and in premises where elaborate installations employing ultra-violet light or glycol vapours are out of the question, it is true that sodium hypochlorite is the best agent available.

Sympathectomy for Intermittent Claudication

Q.—*What are the indications for sympathectomy in intermittent claudication? Is there any means of telling what is the state of the arteries at any time and at any level?*

A.—Recent investigations have shown that sympathectomy is of benefit in the milder degrees of intermittent claudication, where the pain either wears off or remains constant even with continued walking. In such cases a high proportion of patients can be greatly relieved by the operation, or by chemical destruction of the lumbar sympathetic chain by phenol injection, when open operation is contraindicated by the patient's age or general condition. In the more pronounced degrees, when further walking is prevented by the development of severe pain, only about one-third of cases obtain benefit from sympathectomy, and in this group the operation is hardly justifiable. Phenol injection can be tried, provided the patient understands that improvement is by no means certain. If this confers no benefit, tenotomy of the affected muscles should be considered, as this operation can greatly increase the walking distance.

Some indication of the degree of generalized arteriosclerosis can be obtained from estimation of the blood pressure and from palpation of the course and consistency of the brachial and radial arteries, while radiographs of the limbs show the degree of calcification in the arteries. The patency of the arteries at any level can be estimated by palpation of the pulses or by oscillometry, and the presence of other evidence of ischaemia, such as muscle-wasting and pallor of the foot on elevation or exercise. The exact state of the limb arteries can be demonstrated by arteriography, but clinical examination is usually sufficient to assess the extent of the ischaemia.

Subacute Combined Degeneration

Q.—*How should a case of subacute combined degeneration of the cord where the neurological symptoms are predominant be treated? One proprietary liver extract has been used, and discarded because it produced a dark-brown discoloration of the urine with a high specific gravity. Is there any explanation for this, as the urine is otherwise normal? How soon may improvement in the neurological signs and symptoms be expected with adequate dosage?*

A.—Subacute combined degeneration of the cord requires full and intensive treatment, and the doses of the anti-anaemic preparations used should not be reduced even when the blood count has returned to normal. If liver extracts are employed, then doses of 2–4 ml. intramuscularly daily for a fortnight or longer should be followed by similar doses on alternate days, and then two or three times weekly until the condition is much improved. With more concentrated or purified liver extracts, 1–2 ml. should be given at similar intervals. Good responses are obtained to the continued administration of 10 g. of desiccated pig's stomach thrice daily; this should be given in cold water or cold milk after meals and should not be heated. Sometimes in the early stages it is of advantage to combine parenteral liver and oral stomach therapy. Liquid liver extract or proteolysed liver in a dose of 1 oz. (28 ml.) twice daily may also be tried.

Recent investigations have suggested that vitamin B_{12} may be of value in the treatment of this condition, but as yet dosage and long-term effects have not been fully reported. Doses of 40–60 μg. intramuscularly once or twice weekly might be tried. Under no circumstances should folic acid be used, either alone or in combination with any other preparation. Ancillary treatments will include: (*a*) acid. hydrochlor. dil. 30 minims (1.8 ml.) and glycerin. pepsin. 1.5 dr. (5.25 ml.) in a tumblerful of water after each meal if there are any gastrointestinal symptoms; (*b*) supplementary vitamins, especially B complex, and also ascorbic acid (50 mg. three times a day); (*c*) a full normal diet; and (*d*) massage and exercises for the limbs. The response will vary according to the severity of the initial condition, the intensity and persistence of the treatment, and the individual sensitivity of the patient. Improvement should be noticeable in the first few weeks, particularly as the blood count returns to normal, after which it should be progressive although probably slow. Paraesthesiae and some spasticity may persist for a very long time.

A dark-brown urine is noted occasionally after the use of certain very crude preparations of liver, and is probably due to pigmentary matter extracted from the original liver tissue.

Treatment of Coronary Thrombosis

Q.—*What is the most satisfactory modern treatment of coronary thrombosis? Is heparin or dicoumarol of proved value?*

A.—The mortality rate of all cases of acute coronary thrombosis treated with rest alone is in the region of 20%. If an 800-calorie diet is maintained for the first week and a light diet thereafter the mortality rate drops to around 15%. The addition of anticoagulant therapy lowers it another 2½%, and practically abolishes thrombo-embolic complications such as cerebral thrombosis, phlebothrombosis, pulmonary infarction, and massive pulmonary embolism. The slight lowering of the

mortality rate may be fairly attributed to the absence of deaths from massive pulmonary embolism. It is likely, though not yet proved, that the administration of quinidine 3–5 gr. (0.2–0.32 g.) thrice daily for the first month may diminish the number of deaths from ventricular fibrillation. In other words, the combination of a low-calorie diet, anticoagulants, and quinidine may be expected to halve the mortality rate of acute coronary thrombosis. In practice it is usual to limit anticoagulants to those cases in which thrombo-embolic complications are likely. The criteria for employing such therapy include: (*a*) marked fall in blood pressure; (*b*) any evidence of left ventricular failure or congestive heart failure; (*c*) paroxysmal tachycardia or auricular fibrillation; (*d*) electrocardiographic signs indicating gross infarction—for example, monophasic Q waves and persistent elevation of the ST segment in left ventricular surface leads and their equivalents; and (*e*) any direct signs of thrombosis elsewhere. If heparin were easier to give and less expensive, or dicoumarol were less dangerous and required less laborious control, the anticoagulants would probably be given as a routine to all patients; but, as they are not, some selection is usual.

Pruritus During Pregnancy

Q.—*What is the best treatment for pruritus of pregnancy? A patient suffered considerably in her first two pregnancies; she is now two months pregnant and already the irritation has started in the vulva. There are no abnormal physical signs and the urine is free from sugar.*

A.—If the pruritus is limited to the vulva there is nearly always a local cause for it, and, even if there is no glycosuria and no obvious vaginal discharge, vaginal swabs should be repeatedly examined to exclude trichomonas and monilia infection. If all such local causes are excluded, treatment with acid. hydrochlor. dil. 30 minims (1.8 ml.) in a tumbler of water three or four times daily with meals may be tried tentatively. The cause of generalized pruritus associated with pregnancy is unknown, but the nature of the skin lesion rather suggests an allergic basis. Treatment is empirical, and, if antihistamine drugs are ineffectual, stilboestrol, 5 mg. thrice daily by mouth, sometimes seems to help. Calcium gluconate in large doses is also used. Frequent bathing with 1% sodium bicarbonate solution may give temporary relief. When the pruritus is restricted mainly to the abdomen—and it often is—an emollient such as lanoline cream gently rubbed into the skin each day is well worthy of trial.

Hirsutism

Q.—*What investigations are called for in a case of hirsutism? A woman of 28 has a growth of hair on her legs, slight growth on her chin, a tendency to masculine-type pubic hair, and hair round the nipples. Her menstrual history is normal, apart from slight irregularity and amenorrhoea for six months on starting nursing; there is no other evidence of endocrine imbalance. Is it possible to prescribe a depilatory cream which would relieve the hirsutism and, if so, could its use be continued indefinitely without danger?*

A.—The adrenogenital syndrome is usually said to consist of three features—hirsutism, adiposity, and amenorrhoea. Sometimes, instead of adiposity, one gets increased muscular development and strength, and even loss of adipose tissue. In this case the amenorrhoea would appear to be psychological, and should this be so we are probably dealing with a genetically determined hirsutism for which there is no medical or surgical endocrine treatment. In the case of adrenogenital syndrome the usual cause is bilateral hyperplasia of the adrenal cortex, and unilateral adrenalectomy may offer a modicum of relief. An adrenal or ovarian neoplasm is revealed by excessive secretion of 17-ketosteroids in the urine, and by intravenous pyelography or possibly pelvic examination, respectively. Depilatory creams are, in the writer's experience, fundamentally ineffective, and not without danger or severe discomfort. Other physical measures, such as shaving or electrolysis, are on the whole preferable.

NOTES AND COMMENTS

Salicyl-sulphonic Acid Test.—Dr. A. MICHAEL DAVIES (London, N.W.) writes: Under "Any Questions?" (December 3, p. 1306) the use of the salicyl-sulphonic acid test for the detection of "albumin" in urine is discussed and the statement made "that the test is not so delicate as the boiling test. . . ." Some months ago I had occasion to investigate this point and found the converse to be true—i.e., that the sulphosalicylic acid test is twice as sensitive as the boiling test in the detection of protein (*not* "albumin") in urine. A series of dilutions of plasma in urine were made, commencing at 0.5% and running down to 0.005%. The urine was fresh, pooled, and found to be free from protein and other abnormalities. The plasma was human, citrated and pooled, and was found to contain 7.0 g. of total proteins per 100 ml. (biuret method). Each test was performed in triplicate by each of three experienced laboratory technicians and myself, the operator having no prior knowledge of the protein content of the specimen, and the end-point taken to be the faintest detectable (naked eye) opalescence. The results showed close agreement. With 25% sulphosalicylic acid the end-point was reached at 0.04% plasma (a protein content of 2.8 mg. per 100 ml.) and with the boiling test and addition of 2% or 4% acetic acid the end-point was 0.08% plasma, a protein content of 5.6 mg. per 100 ml. The ease and sensitivity of the salicyl-sulphonic acid test make it eminently suitable for surgery or bedside use, and it deserves to be more widely employed. The possibility of false reactions with uric acid and "uroselectan" in no way detracts from its value, and a further point in its favour is the fact that it can be made into a quantitative test by using constant volumes and comparing with a set of standards. I have used it as the routine test for proteinuria in several clinical laboratories with complete success.

The Symptoms of Botulism.—Dr. GERALD LEIGHTON (Ramsey, Isle of Man) writes: In a typical outbreak usually several people are affected. All present the same symptoms within a few hours of each other, varying in severity; all remain for a time unaware of having taken the toxin, and go about as usual. There are no symptoms at all until the patient suddenly complains of dizziness and double vision, when paralysis of the ocular muscles is commencing. This may appear at any time from six hours to about thirty hours: having appeared, the outlook is serious. In a typical case there is no incubation stage with preliminary feverishness; the temperature is slightly subnormal. There is no pain, or only slight pains, no headache, slight vomiting in some cases, none in about half. Then appears the striking sign of more or less complete ptosis. Vision is not impaired. The speech becomes blurred and indistinct: attempts to walk are marked by staggering. There is no pain at this or at any other stage in a typical case. Consciousness remains to the end. As a rule there is obstinate constipation all the time, but no headache nor any rise of temperature. The later symptoms then develop: difficulty in swallowing; the larynx becomes paralysed: power of speech is often completely lost. The mental faculties are fully active and communication is achieved by writing. There is dyspnoea from accumulation of mucus. Lastly the intercostal muscles and diaphragm become paralysed and the circulation fails. Up to this point there is no marked deviation of the pulse from normal.

High-pitched Voice in Adult Male.—Mr. M. VLASTO (Westerham, Kent) writes: I was surprised to read the reply ("Any Questions?" November 26, p. 1246) to the question about high-pitched voice in adult male. The eunuchoid type of voice is heard now and again by laryngologists and speech therapists, who know little or nothing about the "secretions of androgens." In my experience the great majority of such cases have a psychological background and are amenable to therapy along well-established lines. . . .

Correction.—Dr. Terence East's *Failure of the Heart and Circulation* is priced 8s. 6d., not 6s. as stated in our recent review.

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL B.M.A. HOUSE TAVISTOCK SQUARE LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London*. ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY DECEMBER 31 1949

THE SECRETARY REPORTS

CERTIFICATION BY GENERAL PRACTITIONERS

The long-awaited report of the Inter-departmental Committee on Certification, presided over by Mr. Archibald Safford, K.C., is now available, and is summarized elsewhere in the *Supplement*.

In general, the report shows much sympathy with the views expressed in the Association's evidence to the committee. The Association, while recognizing that the issuing of medical certificates where reasonably required is an essential part of a doctor's duty, stressed the importance of ensuring that it does not take precedence over his clinical work. The Safford Committee endorses this view and draws attention to the inroads which unnecessary certification can make on a doctor's opportunities for study and leisure.

In its evidence the Association recommended that the certificates which a doctor is required to give as part of his terms of service should be listed by the Ministry in regulations, and that the list should not be prepared or amended, nor the form of existing certificates altered, without prior consultation and agreement with the profession's representatives. The doctor's obligation, it was suggested, should be limited to giving such certificates as are necessary to make a claim (*a*) for sickness and disablement benefit, (*b*) for essential surgical appliances, and (*c*) for special treatment, under the National Health Service. While the Safford Committee has accepted the first part of this recommendation, it has not accepted the second part in its entirety, regarding such a limitation of the scope of certificates as bearing too hardly on the public. The committee has accepted the proposition that not every certificate required under or for the purpose of an enactment should be included in the approved list.

The General Medical Services Committee was furnished with an advance copy of the Safford Report, together with a statement that the Minister has accepted the recommendations in paragraph 25 that the certificates which a doctor is required to issue free of charge to his patients or their personal representatives under Section 33 (2) (*d*) of the N.H.S. Act should be limited to those certificates which are prescribed under regulations made by the Minister, being certificates reasonably required under or for the purposes of any enactment. The Amending Act contains a clause giving effect to this recommendation, and the G.M.S. Committee has discussed with officers of the Ministry the certificates to be listed in amending regulations shortly to be issued. This consultation with the profession's executive puts into effect the second part of paragraph 25 of the Safford Report, which suggested that borderline cases should be so discussed.

Insurance Certificates

On the subject of the simplification of the forms of certificate, the Association put forward two model forms: (1) combining the First, Intermediate, and Final certificates required by the Ministry of National Insurance, and (2) a simple statement of recommendation (without a certificate of unfitness) for use in connexion with commodities in short supply. The Safford Committee has not recommended the adoption of the first of these two models in the form suggested, but has drafted a model combined certificate which the G.M.S. Committee will shortly examine and discuss with the officers of the departments. On the second of the Association's model forms the Safford Committee does not comment, but one gathers that the committee hopes that the progressive abolition of controls will reduce the number of certificates required for commodities in short supply It is to be hoped that this process will be rapid.

On the question of frequency with which certificates are required to be issued by doctors, the Association recommended (1) that, instead of being required to issue a certificate within twenty-four hours of seeing the patient, the doctor should be given up to seven days; (2) that, in the case of chronic illness, the doctor should be able to issue certificates at three-monthly intervals after the second week. The Safford Committee did not accept the first of these recommendations, but agreed with the second. It describes the present requirement of weekly certificates for the first four weeks of incapacity and four-weekly or eight-weekly certificates thereafter as needlessly exacting, and goes on to say that in acute surgical cases or in cases of certain types of injury it is possible for the doctor to say with assurance, sometimes from the first day of incapacity, that the patient will remain incapable of work for a period exceeding four weeks. Similarly, in cases of permanent incapacity certificates might well be given at intervals considerably in excess of eight weeks. If, as we have reason to believe, these proposals will be accepted, a welcome reduction in the number of certificates will follow.

The Safford Committee has not adopted the Association's recommendation that there should be some relaxation of the requirement to give the diagnosis in certificates, especially those issued for the purposes of receiving some concession or privilege. The committee seems to appreciate the Association's anxiety on this point, and utters a word of advice on the subject of secrecy to those whose job it is to handle medical certificates. The reflection should always be, "Would *I* like other people to know what the doctor has written on *my* certificate?"

Non-medical Certificates

The Association asked that doctors be relieved of the present heavy burden of signing certificates for non-medical purposes —applications for passports, in respect of lost ration books, old-age pensioners' tobacco concessions, etc. There are many classes of the community besides doctors who may witness signatures for these purposes, and it was felt that doctors might be excluded, at any rate in some cases. In oral evidence it was suggested that Government servants at local offices might be included in the categories of persons authorized to attest signatures, and the Safford Committee is in agreement with this suggestion. On the point of excluding the doctor from the list, however, the committee feels that the N.H.S. Act has not altered their position as responsible members of the public.

This commentary on the Safford Report is in no way exhaustive. The report is an important document which requires to be very carefully examined as a whole. Such a scrutiny will be undertaken by the G.M.S. Committee in the near future, and there will follow discussions with the Ministry of Health. For the present, it may fairly be said that the committee's twenty-four sessions have been well spent and that its report will be helpful in clearing the ground for serious discussion on what is, to general practitioners, an important and all-too-substantial part of their daily work.

REPORT ON MEDICAL CERTIFICATES

The Inter-Departmental Committee on Medical Certificates has now issued its report (H.M.S.O., 2s.). The committee was appointed "to consider the medical certificates required under present enactments or regulations or for other administrative purposes and to advise, without excluding the possibility of amending legislation, how far it would be practicable to reduce the number of certificates to be signed by medical practitioners and to improve and simplify the forms of certificates and the rules governing their issue." Its members were Mr. Archibald Safford (chairman), Dr. J. C. Arthur, Miss Florence Hancock, Dr. W. Jope, Mr. E. D. Macgregor, and Mr. R. L. Briggs (secretary).

The committee considers—as medical practitioners will agree—that the primary function of a doctor is therapeutic, and that the time spent in examining patients for the purpose of signing or refusing to sign certificates has undesirable effects on medical practice, to the detriment both of the profession and of the community. "Surgery hours become unduly protracted." The doctor "may well find himself compelled to eliminate visits which he would normally desire to make," or he may have to visit a patient "not in need of medical treatment solely for the purpose of signing a document." "This bears especially hardly on practitioners in rural areas." The report adds that "in the long run the prospect of a harassed life may deter young men from entering the profession."

The committee had some difficulty in defining what is a medical certificate and what is not, for some of the documents before them were medical reports, notifications, attestations, or statements. It points out that a document which a doctor is authorized to sign as an attesting witness is not a certificate; he signs it as a responsible member of the public, not as a doctor. It suggests that Government servants at local offices should be among those authorized to attest such forms.

Form of Certificates

Since any particular control is a question of Government policy, the committee has in most cases confined its suggestions to limiting the occasions when a certificate is asked for rather than advocating its abolition, but has suggested that a number of them be simplified. When new certificates are prepared, advice should be obtained on their form from the medical profession and legal guidance obtained. In particular, the lay-out of similar certificates should be the same, since the same questions asked in different order confuse the doctor who has to answer them.

Discussing the detailed form of the certificates, the committee emphasizes that the doctor's function is to provide evidence of medical facts or inferences, and that it does not extend to a general assurance that the application for which the certificate is used is founded on a true presentation of the other facts of the case. Breaches of this principle are at present common in medical certificates. Again, some questions in certificates require answers on medical facts which the doctor cannot give from his own knowledge, since he has to rely on what the patient says. A typical example given comes from a form used by the Home Office: "Are the periods regular and normal in all respects?" Questions such as this are better framed with the words: "Does the patient (or candidate) state that . . . ?"

One of the most efficacious ways, the committee considers, to reduce the number of medical certificates would be for the Ministry of National Insurance to provide, at the request of insured persons, extracts from certificates of incapacity submitted to that Ministry's local offices in connexion with claims for insurance benefit. These could be used for more general purposes than at present—for example, for presentation to employers.

Some medical certificates play no part in the medical treatment of the patient. The committee recommends a change in the wording of the National Health Service Acts of 1946 and 1947 to provide for the free issue only of "such certificates as may be prescribed, being certificates reasonably required under or for the purposes of any enactment." And whether or not a certificate should be included could be discussed between the medical profession and the Ministry of Health and the Department of Health for Scotland.

B.M.A. Evidence

The committee heard evidence from many Ministries and organizations, including the B.M.A., which submitted evidence in writing and also orally through its representatives, who were Dr. S. Wand, Dr. F. Gray, and Dr. D. P. Stevenson (Deputy Secretary). The Association expressed its strong concern at the increasing divulgence of diagnosis as the result of universal certification for many purposes. While the committee appreciated the B.M.A.'s concern, it pointed out that the National Insurance (Medical Certification) Regulations, 1948, provide that, if disclosing the precise cause of incapacity to the claimant would be prejudicial to his well-being, the certificate may contain a less precise statement. "Further, the general incorporation of a diagnosis enables those administering the payment of benefit to keep a check on the cases for which benefit continues to be claimed without unduly troubling the doctor with inquiries as to the detailed circumstances in which the patient's incapacity has not come to an end."

The Association drew attention to a resolution passed at the A.R.M. (*Supplement*, July 3, 1948, p. 1) that the obligation on a doctor under the N.H.S. Act and its regulations should be limited to such certificates as are necessary to make a claim (*a*) for sickness and disablement benefit as provided by the National Insurance and National Insurance (Industrial Injuries) Acts, (*b*) for essential surgical appliances, and (*c*) for special treatment under the National Health Service. But the committee thought that such limitation would bear too hardly on the public.

Some Recommendations

The report concludes with recommendations on how various certificates should be altered. These include the following:

Ministry of Food—We recommend that the length of validity of a certificate of the need for special rations for active workers should be at the doctor's discretion, and not restricted to one week. We consider that the fairly recent introduction of Form R.G.50a puts an unwarrantable burden on doctors.

Ministry of Health—We consider the demand for a certificate for an ambulance is unjustified except in special circumstances. We do not consider the provision of a certificate to obtain a district nurse or home help is convenient or necessary. We consider that at the most one certificate should be necessary for all purposes to obtain a specially made surgical corset.

Ministry of National Insurance.—We recommend longer intervals between certificates in the case of long-term and permanent incapacity. We recommend that existing arrangements should be extended for the provision of extracts of certificates, for use for more general purposes than at present, and that the assistance of the Organization and Methods Department of the Treasury should be sought.

REMUNERATION OF MEDICAL OFFICERS IN THE ARMED FORCES

After an interval of nine months the Ministry of Defence has agreed to a further meeting on the subject of the Association's proposals for improvements in the pay of medical officers in the armed Forces. The meeting will take place at the beginning of January. It is understood that the Association's proposals have been exhaustively considered by the Ministry and by the Service departments in the intervening period.

CHANGES OF DOCTOR

The Northamptonshire Executive Council has made representations to the Ministry of Health that National Health Service patients should not, unless by mutual agreement, be allowed to change doctors except at quarterly intervals and by giving notice to the council.

Similar representations were recently made by the Ayrshire Executive Council (*Supplement*, December 17, p. 260).

HOSPITAL MANAGEMENT COMMITTEES

An Association of Hospital Management Committees has been formed with the following objects:

(*a*) To provide for the exchange of views and information and the discussion of matters of common interest among hospital management committees.

(*b*) To provide machinery whereby the collective views and suggestions of hospital management committees can be made available to the Ministry of Health or regional hospital boards or, in appropriate cases, to outside bodies (if so agreed at a properly convened meeting of the council of the Association).

Each hospital management committee retains the right to approach or be approached directly by the Minister of Health.

A council has been appointed consisting of two representatives from each region in England and Wales, with the exception of Oxford and East Anglia, where the representatives have not yet been appointed. Special provision has been made to cover questions relating to mental hospitals or mental health. Regional branches will probably be set up.

The following officers have been appointed: *Chairman of the council:* Mr. F. S. Stancliffe (Salford H.M.C.). *Vice-chairman:* Councillor T. McDonald (Caernarvon and Anglesey). *Hon. Treasurer:* Alderman W. J. Garnett (Lancaster Moor). *Hon. Secretary:* Mr. H. B. Shelswell (Secretary, Salford).

GENERAL PRACTITIONERS' REMUNERATION

DEPUTATION TO MINISTRY

A deputation appointed by the General Medical Services Committee met officials of the Ministry of Health on December 22 to discuss the resolutions passed by the committee on December 1 (*Supplement*, December 10, p. 252).

In the terms of the second resolution, an assurance was to be sought from the Ministry of Health "that the central pool will be continuously adjusted so as to maintain in the future —whatever the changes necessitated by the heavy burden of work falling on general practitioners and whatever the increase in the number of doctors—the levels of remuneration recommended in the Spens Report and which were accepted by the Government."

The deputation was headed by Dr. S. Wand, chairman of the G.M.S. Committee, and included Dr. E. A. Gregg, Dr. W. Jope, Dr. H. G. Dain, Dr. F. Gray, and Dr. W. M. Knox.

Heard at Headquarters

Education Grants

Many doctors send their children to independent schools, schools not run by the State—for example, public schools —and may not know that in some circumstances they can obtain financial assistance under the Education Act of 1944. Whether a grant is given is in the discretion of the local education authority. Some education authorities hold scholarship examinations for pupils going on to secondary education. Children who pass these examinations and who then go to independent schools for their secondary education are eligible for grants towards the cost of their education at the independent schools. Grants are usually for tuition only. If need can be proved, an additional grant for board may be made. Doctors who intend to send their children to independent or public schools would be well advised to find out from the local education authority when the scholarship examinations are to be held, since the grants made for successful pupils help substantially towards paying the fees at independent schools. If a child gains an open scholarship to a public school the authority may give the grant without the formality of an examination. The Act provides that pupils are to be educated in accordance with the wishes of their parents so far as is compatible with the provision of efficient instruction and the avoidance of unreasonable public expenditure. An education authority might be willing to make a grant on behalf of a child sent to an independent school if there are no vacancies in the State schools in that area. In other cases there might not be a suitable school within reach of the child's home. Again, if the child had to go to a boarding school because the parents were abroad, the authority might make a grant.

Tyranny of the Headline

Not all the ammunition of public relations, we suppose, will ever blow to pieces the legend that doctors are asking for more money. "Doctors Want More Pay" was the headline in a newspaper the other day. A deputation, we were told, was going to the Ministry "on the claim for an increase of doctors' pay." Actually, as the profession knows, it is not a question of an increase of payment above a level originally agreed, but of arriving at an agreement about the original level, which has been delayed these many months through no fault of the doctors. That, however, cannot conveniently be expressed in a headline, and in these days we are at the mercy of headlines. Headlines often give a wrong impression because they leave out refinements and qualifications which make all the difference. One rather sighs for those earlier days of journalism when there were no snappy headlines an inch deep, and even leading articles appeared without a top dressing.

Many Masters

The discussion in the Public Health Committee the other day on the question of combined appointments—that is to say, the position of public health medical officers who perhaps for nine-elevenths of their time are in the service of the local authority and for the remaining two-elevenths in the service of the regional hospital board—raised the question how far the independence of the medical officer was affected by such an arrangement. That is a moot point, for, as someone sagely remarked, there is something to be said for the view that the more masters a man has the more independence he enjoys.

Questions Answered

Visitors from Abroad

Q.—*What is the procedure for persons requiring free medical attention during restricted visits to England (a) as an urgent matter, (b) for indisposition, or (c) for the provision of aids to vision, etc., all such persons having passports but no National Registration cards? Is it the same for (1) British subjects resident abroad and intending to return thither, and (2) foreign subjects resident abroad and intending to return thither?*

A.—Both British subjects resident abroad and intending to return and foreign subjects resident abroad are entitled to the benefits of the National Health Service during their stay in the United Kingdom. A practitioner giving medical advice and/or treatment to persons in these categories is entitled to claim a temporary-resident fee from his local executive council, whatever the nature or urgency of the illness. Such a patient requiring provision of aids to visions should be given Form O.S.C.1 and referred for examination under the Supplementary Ophthalmic Service. The N.H.S. (Amendment) Act empowers the Minister to make regulations on this subject.

Assistant's Terms of Service

Q.—*Please inform me whether an assistant leaving his principal for a short time to take a higher degree is entitled to any pay during that time, or is the principal justified in either reducing or cancelling his pay pro rata? Is there any provision for study leave?*

A.—The National Health Service Act does not specify the remuneration or terms of service under which assistants are employed. These matters are the subject of mutual agreement between the principal and his assistant and are frequently laid down in a formal assistantship agreement.

REMUNERATION OF OFFICERS OF THE COLONIAL MEDICAL SERVICE

The time has come to give an account of the negotiations which have taken place between the Association and the Colonial Office on the subject of remuneration in the Colonial Medical Service. In drawing up the proposals which were presented to the Colonial Office last February the Colonies and Dependencies Committee attempted to do two things:

(*a*) to arrive at a fair Colonial equivalent of the Spens Recommendations for the remuneration of doctors in the United Kingdom, as implemented in the terms of service for the National Health Service; and

(*b*) to draw up a single uniform scale applicable to all Colonial territories.

The subsequent negotiations have demonstrated that these two objects are to some extent contradictory. The present trend of political development in the Commonwealth is towards self-determination and away from uniformity. One of the chief difficulties which have faced the Association's negotiators has been the wide range of variation throughout the Colonial Empire in such matters as taxation, cost of living, and conditions of life and work. The variation from territory to territory is so marked that a scale of salaries which might be a fair equivalent of Spens in one Colony would be very far from equivalent in another. Consequently the attempt to produce a single uniform scale of figures has been abandoned. Instead, the aim has been to achieve a broad equality of reward. The principle has been to achieve, not the same figures in pounds, shillings, and pence, but the same real return for services rendered in each territory, a return which is comparable with the remuneration of doctors in the National Health Service in the United Kingdom. The adoption of this new and wiser principle has involved modification of the Association's original proposals.

Scope of Negotiations

The discussions which have so far been completed have related only to those areas of the Colonial Empire which recruit a substantial number of doctors from the United Kingdom—namely, Hong Kong, Malaya, Singapore, East Africa, Central Africa, and West Africa. Now that the investigation of this large problem is completed, discussions are about to be undertaken on remuneration in the remaining smaller territories, notably those in the Caribbean area.

It must also be stated that the negotiations up to date have been concerned exclusively with the remuneration of medical officers recruited from the United Kingdom, as their remuneration must necessarily be broadly equivalent to the prospects for doctors in the National Health Service if the Colonial Medical Service is to succeed in securing recruits.

The Association has not overlooked the question of the remuneration of locally recruited officers of the Colonial Medical Service. It is fully appreciated that in some cases their remuneration is the same as that of the officers recruited from the United Kingdom and in some cases is related to it. The Association relies upon its overseas Branches to initiate the negotiation of any modifications which may be considered necessary in the salaries of locally recruited officers, and the overseas Branches can count upon the advice and support of the Association in this task.

Medical Officers and Senior Medical Officers

When it embarked upon its original review of remuneration in the Colonial Medical Service, the Colonies and Dependencies Committee was fully aware that there were advantages and disadvantages of the Colonial medical officer's career for which due allowances must be made in calculating scales of salaries. The principal advantages are: low taxation, generous retirement benefits, cheap housing accommodation, long leave, and study leave. The principal disadvantages are: the difficulty of educating children, separation from home surroundings, high cost of living, arduous climate, relative professional isolation, and the abnormally heavy load of professional responsibility. The committee considered these various opposing factors at great length and came to the conclusion that it was impracticable to attempt to assess their value in terms of money and that the only feasible course was to regard the advantages and disadvantages as cancelling each other out.

The Colonial Office held that this was altogether too sweeping a solution and thought that an attempt ought to be made to evaluate the individual factors financially. One of the chief difficulties in this laborious task has again been the fact that conditions vary so much from territory to territory. Quite apart from the absolute difficulty of estimating the financial value of the advantages and disadvantages of a Colonial career, there is the relative difficulty that the various factors differ in value according to the area concerned.

The Association and the Colonial Office have attempted to arrive as nearly as possible at mean values for the Colonial Empire as a whole. The result of this evaluation, which is described in detail below, shows that the money value of the advantages of a Colonial career substantially outweighs the money value of the disadvantages—a result which of course necessitates revision of the Association's original proposals.

Advantages of Colonial Career

Low Taxation

In all Colonial territories the level of income tax is very much lower than in the United Kingdom. A comparative analysis of the rates prevailing in the United Kingdom with those prevailing in all the territories under discussion was prepared by a firm of accountants. For each territory the accountants were asked to calculate a single difference factor to represent the mean of the difference between United Kingdom taxation and taxation in the territory concerned for salaries of £800, £1,200, £1,600, and £2,000, and for categories of single man, married man, married man with one child, and married man with two children. (The accountants made due allowance for the fact that many more officers are on salaries of £800 or £1,200 a year than on salaries of £1,600 or £2,000.) This complicated task yielded the following principal results:

Area	*Overall Difference Factor*
Hong Kong	21.6%
Malaya and Singapore	20.1%
East and Central Africa	14.5%
Nigeria	17.4%
Gold Coast	20.4%

It is important that the significance of this should be fully understood. In East Africa, for example, the overall difference factor is roughly 14%. This means that a gross income in the United Kingdom must be reduced by 14% to yield the same net income after East African taxation as would be left after taxation in the United Kingdom.

There are other forms of taxation besides income tax, and indirect taxation is in some respects higher in the Colonies than in the U.K. It was found impossible to obtain any complete comparative analysis of all forms of taxation, direct and indirect, central and local, throughout the Empire, but it was considered that the levels of income tax would be a fair index of taxation as a whole.

It was argued by the Association that the great difference in the levels of taxation in Great Britain and the Colonies merely reflected the difference in the benefits received: in other words, the doctors in the Colonies enjoy few of the amenities which are provided by the State in Great Britain. The Colonial Office replied to this argument by pointing out that the two biggest items in the British budget are the costs of defence and the social services, and that defence covers the U.K. and the Colonies equally, while doctors as a class derive relatively little benefit from the social services.

Retirement Benefits

An eminent actuary was asked to analyse the various pension schemes in force in the Colonial Empire, including the widows' and orphans' pension schemes, in comparison with the National Health Service superannuation scheme, which is considered to be fair and reasonable. The actuary presented a detailed report in which he concluded that the Colonial pension schemes were

worth, in general, 14½% of salary more than the National Health Service superannuation scheme. For technical actuarial reasons the actuary advised that in any comparison of salaries the full difference of 14½% should not be allowed, and eventually it was agreed to allow a difference of 12½%.

This means that £100 of salary received by a Colonial medical officer is broadly equivalent, by reason of the retirement benefits to which it leads, to £112 10s. received by a doctor in the National Health Service.

Housing Accommodation

A comparison was made of the expenditure in Britain incurred by doctors upon rent, rates, water, and telephone with the expenditure on these items normally incurred in the Colonies. That portion of these expenditures in Britain which is attributable to the doctor's practice as opposed to his residence was naturally excluded. This is one of the fields where there is great variation between different overseas territories. The comparison showed, however, that in general the expenditure which must be incurred in the Colonies is roughly £60 a year less than that which must be incurred on corresponding items in Great Britain.

It was appreciated that Colonial medical officers are sometimes provided with accommodation which is not of the same standard as housing accommodation in Britain, but against this it was pointed out that their accommodation is usually partially furnished.

Leave

In general Colonial medical officers receive on the average four weeks' more paid leave a year than they would receive if they were working in the National Health Service. This leave is mostly received in the form of long home leave between tours of duty, and it is recuperative—i.e., it is a necessity for a European working in the climatic and other conditions of the Colonies. For this reason no attempt was made to assess this factor in financial terms, but it was set off against the disadvantage of climate (see below).

Study Leave

Colonial medical officers may from time to time receive paid study leave, and their fees for attending courses of instruction and for taking higher examinations may be, and generally are, paid by their employers. This advantage was set off against the disadvantage of relative professional isolation (see below).

Disadvantages of Colonial Career

Education of Children

There is no doubt that the difficulty and expense of educating children is one of the principal obstacles with which the Colonial medical officer has to contend. Once again, conditions vary considerably from territory to territory, but in practically all the education of children presents a problem. A well-known firm of educational agents supplied extensive details of the cost of educating and maintaining boys and girls in middle-class boarding schools in the United Kingdom, and of maintaining them during the holidays. Broadly speaking, the additional cost which falls upon the Colonial medical officer is the cost of maintaining his children in the United Kingdom during the holidays. This was estimated to be £70 a child a year. The fact that a doctor in the United Kingdom does not necessarily have to send his children to a boarding school (although in practice the majority of doctors do) was agreed to be offset by the fact that the children of Colonial medical officers are frequently accommodated with relatives in the holidays, and in any case would involve their parents in some holiday expenditure even if they were not at boarding school in the United Kingdom.

It was agreed to regard the average Colonial medical officer's family as consisting of two children (a number which was subsequently confirmed by the Report of the Royal Commission on Population), and it was agreed to take into account only the eight years of secondary and university education, because primary education is available in a number of territories overseas and not all children proceed to a university. The additional cost of educating two children works out on this basis at £40 a year, when averaged over a 28-year career, which was considered to be approximately the normal length of career in the Colonial Medical Service.

Separation from Home

This is undoubtedly a disadvantage of Colonial life, but it is extremely difficult to estimate it in terms of money. The Colonial Office argued that separation from relatives and from home surroundings was considerably mitigated by the long periods of home leave enjoyed by Colonial medical officers. These do not, however, mitigate the separation of the Colonial medical officer and his wife from their children while they are being educated in the United Kingdom. The problem is how to compute a financial equivalent for this hardship.

It was agreed that this hardship would be largely overcome if each child were able to fly out to its parents each year in the summer holidays, and it was therefore decided that the cost of a student's return air passage might be regarded as the financial equivalent of this hardship. The next difficulty was that the cost of air passages varies considerably for different parts of the world. It was decided to take East Africa as the standard, lying as it does at a middle distance from the United Kingdom. The cost of a student's return air passage to East Africa is approximately £140. This sum for two children during eight years of higher education adds up to a total which when averaged over a career of 28 years, works out at £80 a year.

Cost of Living

This is the most difficult of all the many factors to assess In general, the cost of living in the Colonies is high, but it must be admitted that in some respects the standard of life is correspondingly high. One example will suffice to illustrate this A Colonial medical officer is obliged to employ a staff of servants. These may cost him a considerable sum of money each year, but in return his wife is relieved of most of the domestic duties which are such a burden to the doctor's wife in the United Kingdom. The latter might be delighted to spend £200 a year on servants if she would thereby be relieved of all housework. Who, therefore, is better off—the Colonial medical officer's wife who has to spend much money on servants but is not burdened with housework, or the doctor's wife in the United Kingdom who spends little money on servants but has to do most of her housework herself? This is only one aspect of this complicated subject, but after careful consideration it was decided that the cost-of-living factor is as broad as it is long and might be disregarded.

Climate

This factor is not as important as it once was. It appears that insurance companies nowadays load their premiums only within comparatively restricted latitudes. As already stated above, it was decided to balance this disadvantage against generous leave.

Relative Professional Isolation

By this is meant the fact that Colonial medical officers, while serving abroad, are cut off from scientific and clinical contacts with the remainder of the medical profession in bodies such as the Royal Colleges and the Royal Society of Medicine, and at gatherings such as the Annual Meeting of the British Medical Association. This is a very real loss, but the Colonial Office argued that it was mitigated to some extent by the occasional study leave granted to Colonial medical officers (see above), and, furthermore, the Colonial Office pointed out that relatively few doctors working in the United Kingdom are able to find time for frequent attendance at clinical and scientific meetings. In view of these arguments it was agreed, as stated above, to set this factor off against the advantage of paid study leave.

Extra Professional Responsibility

This is a factor to which the Association attaches great importance. In general the Colonial medical officer does not have at his disposal the same facilities for consultation with specialists or for removal of difficult cases to hospital by

ambulance as exist in the United Kingdom. In many cases he is the only practitioner within call, and he himself has to do whatever is necessary for his patient. There is no doubt that he carries a greater load of responsibility than his counterpart in the United Kingdom. The Colonial Office freely admitted this, but pointed out that this did not apply to medical officers working in the larger centres in the Colonies, and further that the isolation of the medical officer up-country was nowadays diminishing owing to development of roads and air transport.

The Colonial Office also contended that it is the sense of added responsibility and the variation in professional duties which make the Colonial Medical Service attractive to the right type of man. This subject was exhaustively discussed. The Association proposed a figure of £100 a year as compensation for this disadvantage. The Colonial Office was strongly of opinion that this was too high; but eventually, in return for a concession made by the Association in respect of taxation (see below), the Colonial Office was prepared to agree to the general assessment.

A Balance Sheet

Having completed the assessment of the chief advantages and disadvantages, a balance sheet was drawn up as follows:

Advantages	Annual Value	Disadvantages	Annual Value
	£		£
Pension .. .. .. (This is 12½% of £1,300, which was estimated to be roughly the arithmetic mean salary of all Colonial medical officers)	162	Education	40
		Separation	80
		Extra professional responsibility	100
Housing accommodation ..	60		
	£222		£220

It will be seen from this balance sheet that the various factors roughly cancel out, with the exception of the advantage derived from low taxation. No suggestion is made that this analysis of the value of the factors and this balance sheet are anything more than an approximate assessment. Clearly there will be many points in the analysis which are not applicable to a particular territory or to a particular Colonial medical officer; but it represents a square attempt to arrive at a single assessment which can be regarded as fairly and reasonably applicable to the whole Colonial Medical Service, and it yields a conclusion which is probably sound. It indicates that the Association's original proposals, which were based on the assumption that *all* the advantages were counterbalanced by the disadvantages, were too high by the amount of the income-tax factor. This is dealt with below.

The Remaining Factor—Taxation

The only advantage not cancelled out is low taxation. The actuary advised that the Association should not concede the full percentage of the difference factor worked out for each territory by the accountants, because taxation in the United Kingdom is unlikely, for obvious reasons, to rise further, while there is room for taxation in the Colonies to do so. In other words, the difference factor may diminish in the course of the next 25 years or so, and as the Association's intention is to negotiate salary scales which may last a considerable period this possibility must be taken into account.

Against this the Colonial Office argued that in the present uncertain state of human affairs it was impossible to legislate for the future, and the only practicable course was to work on the taxation levels in force at the present day. Eventually, after prolonged negotiation, the Association agreed to concede the whole of the difference factor in respect of taxation in return for agreement by the Colonial Office to the general assessment of the disadvantages, including the figure suggested by the Association in respect of extra professional responsibility (see above).

Application of the Formula

In the case of each territory or group of territories under discussion the total earned by a hypothetical average Colonial medical officer between the ages of 27 and 54 inclusive was compared with the estimated total which will be earned by the hypothetical average general practitioner in the corresponding years in the National Health Service (£47,000) less the appropriate income tax difference factor. For the purpose of this comparison the average Colonial medical officer's career in Africa was assumed to be 13 years as a medical officer and 15 years as a senior medical officer. The average career in Malaya was assumed to be 20 years as medical officer, five years as medical officer Grade B, and three years as medical officer Grade A; and in Hong Kong was assumed to be 28 years as medical officer. These, according to the Colonial Office, were the best estimates that could be made of average careers in the Colonial Medical Service. It must be noted that a medical officer entering the Colonial Medical Service at age 27 would enter the existing salary scale two increments above the minimum in all the territories under discussion except Hong Kong.

These comparisons showed that the existing salary scales (incorporating the latest improvements and excluding cost-of-living allowances) in Hong Kong, Malaya, and Singapore compared favourably with the Spens standards; that the existing salary scales (incorporating the latest improvements and again excluding cost-of-living allowances) in West Africa were broadly equivalent to the Spens standards; but that in East and Central Africa the existing salary scales lagged considerably behind the Spens standards.

This conclusion may come as a surprise to some medical officers in Malaya or in West Africa. An illustration may help to make it clear. It is estimated that the Colonial medical officer in Nigeria can with reasonable efficiency attain a salary of £1,700 a year in the early forties. £1,700 in Nigeria is equivalent to more than £2,000 in the United Kingdom when allowance is made for the difference in taxation. The latter figure compares favourably with the net income (i.e., gross income less practice expenses) of the average general practitioner in the National Health Service at the same age; and £2,000 net corresponds broadly to a gross income of £3,000.

East and Central Africa

As stated above, the existing salary scales in East and Central Africa do not conform to the Spens standards. The Association put forward suggestions to correct this deficiency, and after negotiation the Colonial Office agreed to put certain proposals to the Colonial Governments concerned. These proposals involve lengthening the existing medical officer scale and raising the salaries of senior medical officers. It is regretted that the proposals cannot be published here, because they are under confidential consideration by the East and Central African Governments. It can, however, be stated that they represent a broad equivalence with remuneration in the United Kingdom.

Superscale Posts

The negotiations described above relate only to medical officers and senior medical officers and corresponding officers of the health and laboratory branches. Negotiations with the Colonial Office are also well advanced in respect of clinical specialists and senior medical administrative officers. It is not yet possible to give a full account of these negotiations, but such an account will be published in due course.

Other Matters under Negotiation

A number of other matters have been discussed with the Colonial Office, notably private practice, the burden of non-medical work in the Colonial Medical Service, delay in promotions, recruitment procedure, and remuneration of locally recruited members of the Colonial Medical Service. It is agreeable to report that on all these matters the Colonial Office has shown a realistic and co-operative spirit. Whatever political development may lie ahead for the Colonial Empire, there is no doubt that for many years to come the Colonies will require the advice and assistance of British medicine. The Association is fully alive to the need for a first-class medical

service in the Colonies and is ready to assist in the provision of such a service.

This first report shows that the material terms of service for the average man in the Far East and in West Africa are satisfactory, and that the Colonial Medical Service in those areas offers a favourable career. It is hoped that in due course the same can be said of East and Central Africa.

WHITLEY MACHINERY IN PUBLIC HEALTH

A meeting of the Public Health Committee of the Association was held at B.M.A. House on December 16, Dr. C. Metcalfe Brown presiding.

Nominations for the Whitley Council

It was stated that the nominations for the Medical Functional Council and for its three committees representing consultants and specialists, general practitioners, and public health medical officers, had been formally submitted to the Ministry, and the Ministry had forwarded a draft constitution of the council and its committees which was now being studied. The date for an early meeting of the full Functional Council was under discussion. The medical side of the council would meet on January 3, 1950.

Agreement had been reached that the three branches of the profession should receive equal representation on the council. The consultants and specialists wished to appoint seven members, and accordingly seven had been decided for each of the other two branches. The following had been nominated to represent medical officers in the Public Health Service on the staff side of the council:

Dr. C. Metcalfe Brown, Dr. F. Hall, Dr. R. H. H. Jolly, Dr. Jean M. Mackintosh, Dr. J. A. Stirling, Dr. J. Riddell, and Dr. W. G. Clark.

The Association's representatives on the Public Health Subcommittee were the above together with Dr. Frank Gray (nominated by the Chairman of Council), Dr. Charles Hill, Dr. J. A. Ireland, Dr. G. V. T. McMichael, Dr. Wyndham Parker, and Dr. J. A. Struthers. The committee then proceeded to appoint deputies for each of these, both on the council and on the subcommittee. The hope was expressed that, as a result of the deputation which had been received, discussions under Whitley machinery would begin without further delay.

Combined Appointments

The committee discussed at length the question of whole-time public health medical officers whose duties are partly the responsibility of the local authority and partly that of a regional board. The principles underlying such arrangements had been decided by the committee at its previous meeting. They are that such officers should be in contract with one employing authority only—namely, the one in whose duties they were predominantly engaged—and that their remuneration should be in accordance with the appropriate full-time scale, and with the terms of service for hospital medical staff in the case of an officer in contract with a regional board, with the proviso that there should be no diminution in the officer's present salary. These principles had been placed before the Ministry, which, however, had raised the general question of policy concerning separate contracts with each employing authority. It appeared that the policy of the Association and the policy of the Ministry were at complete variance on this point.

The Secretary (Dr. Charles Hill) outlined to the committee certain points, apart from the immediate issue of remuneration, in respect of which medical officers might be disadvantaged by separate contracts. The most obvious was superannuation; without special provision there might be superannuation loss. There were also the issues of security of tenure and of compensation for loss of emoluments held previously to the advent of the Service.

The committee resolved unanimously that it should be represented to the Ministry that the question of these combined appointments was a matter for discussion within the Whitley machinery. It was also decided to advise members not to sign separate contracts unless they were forced to do so by their local authority, in which case they should add a proviso that this was subject to further discussion and agreement on terms and conditions of service under the Whitley machinery.

Safe Milk

The report of the Joint Committee of the British Medical Association and the National Veterinary Medical Association on the provision of safe milk of high quality was received. The chairman said that this was a first-class report, on which both associations were to be congratulated. It was stated that the report had had extremely good publicity. It was agreed that copies should be sent to all B.M.A. Branches and Divisions, and that a request be made to them to ensure as far as possible that medical representation and advice were available on the county milk and dairies advisory committees. Copies of the report will also be sent to all medical officers of health.

Other Business

Other matters of report to the committee included a statement by Dr. J. M. Gibson concerning the grading in the Leeds and Newcastle areas of medical officers of health who were acting as medical superintendents of isolation hospitals.

It was stated that at a recent meeting with representatives of local authorities final agreement had been reached on the fees payable in respect of certain part-time work undertaken by practitioners for local authorities and had been approved by the Council. It had not yet been possible to settle the date on which the agreement should come into force, but it was likely that joint representations would be made to the Government to have it made effective forthwith.

A meeting had taken place with representatives of Glasgow Corporation on the question of the earlier maximum retiring age which the corporation had fixed for women medical officers. It was now stated that the corporation was in sympathy with the proposal to increase the age from 60 to 65, but was obliged to review the position as affecting all its female employees, which review was now taking place.

The committee considered a proposal to resume the Sir Charles Hastings Lectures in 1950. Eleven such lectures had been given, beginning in 1927 and terminating in 1939. It was the general feeling that the lectures should be resumed. The name of a distinguished medical man as lecturer was suggested, and also the theme, and it was left to the chairman of the committee with the Chairman of Council to further the arrangements.

LONDON ASSOCIATION FOR HOSPITAL SERVICES

THE HOSPITAL SERVICE PLAN

An extraordinary general meeting of the London Association for Hospital Services was held under the chairmanship of Dr. W. Russell Brain at B.M.A. House on December 15, when the Memorandum and Articles of Association were amended to empower the Royal Colleges of Physicians, Surgeons, and Obstetricians and Gynaecologists and the British Medical Association to nominate the medical members of the association, and to make other amendments necessary in the Memorandum and Articles to bring them into conformity with the Companies Act, 1948.

This provident scheme was originally set up by King Edward's Hospital Fund for the London area. Such was the demand for the cover it provides for hospital private-ward and nursing-home treatment that it has been opened to anyone residing within Great Britain and Northern Ireland. Apart from the continually increasing numbers who joined the Hospital Service Plan for this purpose, a large number of medical practitioners have joined the special scheme for doctors; and another special scheme, for boys and girls at boarding schools, has also been popular. This association began to function in 1943, and its funds now amount to just under £50,000.

Correspondence

Advertisements for S.H.M.O.s

SIR,—Not a few of us in the registrar pool must have been cheered by your returning afresh to the onslaught on this fortress of bureaucracy in the columns of the *Supplement* of December 10 (p. 249). A cold blast of disappointment chilled our aspirations when, months ago, you first began to publish advertisements for this unwanted anomaly among specialist posts. We began to wonder if we were abandoned to a fate in which we must play a game like musical chairs, wherein there are always too few places and in which each must scramble for himself—a state in which rivalry ousts co-operation.

I believe the senior hospital officer grade is, as at present constituted, a menace whereby a hard-pressed Ministry could by a stroke of the pen reduce to a mere fraction of the normal total the number of places in the specialist group. Discontent would thus breed rivalry, and rivalry recrimination—greatly to the detriment of clinical effort. For such is human nature, and it is by no means alone a matter of salary, because to say in effect to a man, "We do not want from you clinical output that is at specialist level, but only what is at hospital officer level," is to injure the self-respect of the physician so appointed, to reduce his reputation to that of a sub-standard clinician, to curtail his opportunities of contributing the best that is in him, and almost certainly to debase his standards of actual achievement.

If the need for national economy be the reason for limiting the number of posts carrying specialist rank, surely it is a principle of democracy that the load should be shared by those who are financially the strongest (i.e., all specialists) rather than be laid exclusively upon the shoulders of those who are weaker. For the rest of it, let the principle be upheld that, if a doctor can satisfy the criteria necessary for specialization, then the specialist position offered him should be a real one. He should not be told that he is a holder of a mere third-class ticket and that there is standing room only, while his betters have seats inside the bus. If, on the other hand, he is insufficiently competent or inadequately qualified, surely he is better to hold a post that is really subordinate until he has overcome these limitations.

From whatever standpoint the matter is viewed it becomes apparent that it is in the interests of medical men and of the Health Service alike that the status of senior hospital officer should be reserved for those who for any reason are either unable or unwilling to qualify for consultant rank.—I am, etc.,

D. T. MACLAY.

Leicester.

Voting for Merit Awards

SIR,—It has been brought to my notice that the *Daily Telegraph* (December 17) has published a statement from which some consultants have inferred that the Central Consultants and Specialists Committee of the B.M.A. has advised against co-operation in the distribution of merit awards. May I point out the position?

The Central Committee felt that no body of medical men elected for medico-political purposes should, in their political capacity, pass judgment on their fellows in their professional capacity. The committee, however, saw no objection to the encouragement of hospital staffs, singly or in groups, voting on the names of their members whom they regard as being worthy of special recognition.—I am, etc.,

W. A. BOURNE.

Hove, Sussex.

Unreasonable Demands by Regional Boards

SIR,—I should like to dissociate the Sheffield Regional Hospital Board from the objects of Sir Reginald Watson-Jones's omnibus condemnation in the *Supplement* of December 10 (p. 253). It is the practice in this region to give referees two weeks' notice, which, I think, even Sir Reginald will agree is reasonable.

I wish also to assure him that letters received from referees are actually brought before the Appointment Committee and given serious consideration. So far as Sheffield is concerned, Sir Reginald need therefore have no fear that he will be rushed into precipitate action by scant notice.

It is difficult to understand how a committee composed of reasonable people could draw any special conclusion from the silence of a referee. In one instance we found he was dead.—I am, etc.,

W. A. RAMSAY,
Senior Administrative Medical Officer,
Sheffield Regional Hospital Board.

Association Notices

Diary of Central Meetings

JANUARY

3	Tues.	Central Ethical Committee, 2 p.m.
5	Thurs.	General Medical Services Committee, 11 a.m
5	Thurs.	Anaesthetists Group Committee, 2 p.m.
6	Fri.	Library Subcommittee, 11 a.m.
6	Fri.	Science Committee, 2 p.m.
11	Wed.	Spa Practitioners Group Committee, 2 p.m.
11	Wed.	Committee on Patenting in the Medical Field, 2 p.m
12	Thurs.	Subcommittee *re* Medical Services Committee Procedure, 10.30 a.m.
13	Fri.	Tuberculosis Group Committee, 2 p.m.
16	Mon.	Armed Forces Committee, 2 p.m.
18	Wed.	Council, 10 a.m.
19	Thurs	Planning Subcommittee, 10.30 a.m.
19	Thurs	Joint Committee of the B.M.A. and the N.V.M.A., 2 p.m.
26	Thurs.	Committee on Psychiatry and the Law, 2 p.m.

Branch and Division Meetings to be Held

HYDE DIVISION.—At Jubilee Hall, Dukinfield, Friday, January 6, 8 p.m. to 1 a.m., dance.

LEWISHAM DIVISION.—At Lewisham Hospital, High Street, London, S.E., Friday, January 6, 8.30 p.m., B.M.A. Lecture by Dr Keith Simpson: "Science and Crime Detection."

RICHMOND DIVISION.—At Royal Hospital, Richmond, Friday, January 6, 9 p.m., lecture by Dr. Clare Warren: "On Common Skin Diseases" Illustrated by lantern slides.

Meetings of Branches and Divisions

SWANSEA DIVISION AND SOUTH WALES AND MONMOUTHSHIRE BRANCH

At a joint clinical meeting held at Swansea on December 8 the following cases were shown:—Mr. C. J. Cellan-Jones: A case for diagnosis—a lump behind the larynx Dr. D. Rhys Lewis: Mycosis fungoides, keratosis follicularis (Darier's disease). Mr. Dillwyn Thomas: Three cases of pulmonary resection for bronchiectasis. Mr J. Crowther: A case of double abductor palsy treated by operation. Mr. Gordon Rowley: Three cases of fracture resulting from osteomyelitis treated by penicillin. Dr. T. M. Williams: The use of paravertebral sympathetic block in peripheral vascular disease Mr. R. Derek Richards: Thrombosis of the popliteal artery.

Before the meeting Mr. J. W Tudor Thomas, immediate past president of the Branch, presented the insignia of office to the president and secretary These consisted of a president's jewel with a neckband on which were bars engraved with the names of the eleven past presidents now living, a badge for the secretary, and an ivory gavel for the use of the president.

BELFAST DIVISION

The opening meeting of the session was held in the Whitla Medical Institute, Belfast, on December 15. The chair was taken by the outgoing chairman, Mr. Ian Fraser. He presented to Dr. Douglas Boyd, the retiring honorary secretary, a canteen of cutlery, a gift from the members of the Division He said they all felt that Dr. Boyd had worked tirelessly and fearlessly during many years of difficulty and stress. Dr. Boyd expressed his deep gratitude to the members for their confidence and help during his time in office. Mr. Fraser then installed the new chairman, Dr. J. S. M'Kelvey, and called on him for his inaugural address.

Dr M'Kelvey spoke of "Country General Practice." He pointed out some of the advantages of nearness to sporting facilities and also to the fact that the country practitioner was more on his own than the townsman. Referring to the importance of a clean milk supply, he stressed the opportunity for co-operation between the public health authorities and the farmers in the development of tuberculosis-free herds. Discussing hospitals, he emphasized the importance of specialists and general practitioners having the opportunity to meet and discuss medical problems. He felt that the appointment of general practitioners to clinical posts in the country hospitals would do much more to raise the standard of medicine than any number of refresher courses of two weeks' duration. The interests of both general practitioners and consultants were the same, and it was only by constant recognition of that fact that the Service could become what all would like it to be.

At the conclusion of the meeting all present were entertained to light refreshments by the retiring chairman.

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THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION



Edited by

HUGH CLEGG, M.A., M.B., F.R.C.P.

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National Society for the Prevention of Blindness
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